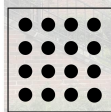




**Arlington
Public
Schools**

**Long-Range Plan to Renovate Existing School Facilities:
Project Report**



MTFA
architecture

October 26, 2023

Updated November 10, 2023

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1. Executive Summary

Executive Summary

Arlington Public Schools (APS) is in a transition period regarding its current portfolio of facilities across the county. Recent new construction projects have provided additional student capacity to catch up to growing population demands, so there is a reduced need for new construction to increase seats and an increased need to address deferred renovation, maintenance, and modernization needs on existing buildings. In response, the School Board charged the Department of Facilities and Operations to develop a long-range plan to renovate existing school facilities and shape current and future Capital Improvement Plans. While the initial need was highlighted during the COVID-19 pandemic with a need to evaluate mechanical ventilation rates across the school system to prioritize renovations, the School Board has a broad range of needs to balance in meeting current standards. Therefore, all existing APS facilities need to be evaluated across a full range of criteria and ranked in order of greatest need for renovation.

The adopted FY 2023-32 APS Capital Improvement Plan (<https://www.apsva.us/wp-content/uploads/2022/10/FY-2023-32-CIP-Report-Final.pdf>) includes an initial facility evaluation framework and guidelines developed around three major categories: Major Building Systems, Common Space Adequacy, and Educational Space Adequacy. This initial framework developed in collaboration between APS and the Advisory Council on School Facilities and Capital Programs (FAC) laid the foundation for the scope of this project in preparation for undertaking a system-wide evaluation study of all APS facilities. APS aims to provide optimal learning environments, and this project's goal is to identify and assess facilities that will allow APS senior leadership to prioritize them for deeper dive analysis.

To meet the goals of this project, the MTF team employed a methodology for systematically evaluating and quantifying each facility called a Facility Condition Assessment (FCA). The FCA provides an overview of the school buildings relative to each building's age and current condition and provides a measure to index the condition of each building against other district schools using industry recognized metrics. The output is a projection of capital needs with costs in current dollars. This information is supplemented by a Building Characteristic summary to provide a more complete picture of short-term needs to meet health, safety, and educational priorities with long-term capital renewal needs based on aging building infrastructure. The FCA also allows for a portfolio-level look at future capital renovation needs and provides a living document for funding capital renewal projects.

The development of the Facility Condition Assessment framework for APS was approved through Stage 1 of this project and confirmed with pilot evaluations for four elementary schools. In Stage 2, the methodology was applied across 41 APS facilities through on-site survey and observation, referencing of existing documents and drawings, and application of best practices and industry standards. The results are presented in an appendix attached to this report as well as in a live database file to provide search, filter, and future updating capabilities.

The building evaluations provide a high-level summary of conditions based on observation and analysis of existing documentation along with system level current replacement costs. The outcome and ratings of these evaluations are to be utilized as data to support further analysis and study, not taken as a

definitive direction or ranking. The project does not attempt to provide prioritization or detailed judgment/analysis of the data, which will require further prioritization and vision from APS leadership. The project does not provide actual construction capital costs for replacements, renovations, or additions, which are more complex in nature and require further study and estimation to evaluate.

Summary of Findings

The MTFAs team evaluated 41 buildings comprising over 5 million gross square feet. We found that the overall facility condition index (FCI)¹ of the overall portfolio was 0.129 (on a scale of 0.0 to 1.00, 0 being best), which is considered an indicator of “good” facility condition. “Good” reflects the best possible rating category for FCI and generally indicates that facilities across the county are in good condition. The FCI provides consistency for relative comparisons of condition and prioritizing capital expenditures among facilities, as well as important considerations in developing a long-term maintenance, repair, and renewal funding strategy for facilities. Refer to the rating system explanations in the “Evaluation Methodology” section for additional information.

The near-term system replacements and project-based near-term needs (Local Projects) are often referred to as deferred maintenance or DM. Schools with a “fair” FCI rating in terms of deferred maintenance were Claremont ES, Gunston MS, Hoffman-Boston ES, Jamestown ES, Jefferson MS, Montessori, Oakridge ES, and Swanson MS. Williamsburg MS was the only building to receive a “poor” rating, with an FCI of 0.342.

In terms of buildings systems, long-life components such as foundations, floors, walls, and stairs were rated “good” or “excellent”, as were plumbing, drainage, energy, sprinkler, and electrical infrastructure. Components that generally had a “fair” rating across the range of facilities included windows, doors, interior finishes and fixed furnishings, elevators and lifts, mechanical, and life safety systems.

From a capital planning perspective, we've assessed the facility needs for the next decade, encompassing both immediate requirements and those arising from the gradual degradation of building systems over time.² It's important to note that this assessment doesn't represent the full scope of resources needed to address all identified facility deficiencies. In our experience, considering all project aspects, including maintenance, design, and other related factors, the investment required for repair and renewal projects can be significantly higher than this initial assessment.

¹ FCI is an industry-recognized measure of the relative condition of facilities across a portfolio, calculated as the ratio of deferred maintenance to the current replacement value of the facility (DM/CRV). The smaller the FCI, the better the facility's condition.

² This value does not address program-related (non-condition) facility needs. Those needs are evaluated generally in the Building Characteristics portion of the evaluation. The solutions that address these needs are much more complex in nature and require further evaluation and study to identify options that may include renovation, additions, or replacement with associated costs. This level of study is beyond the scope of this project.

2. General Project Overview

General Project Overview

APS retained MTF Architecture (MTFA) in November 2022 to develop the specific evaluation criteria, assessment values, and overall scope of the facility evaluation. The project is divided into two stages:

1. Stage 1 consists of meeting with APS and the team as required to develop the proposed framework, testing it to verify the expected results and level of effort, and then providing a report to summarize the proposed approach. A draft of the report will be shared for review and to gather and address public feedback.
2. Stage 2 consists of completing the evaluations for all school facilities per the approach approved through Stage 1.

The framework and guidelines for evaluating existing facilities guides APS in prioritizing facilities based on current and projected conditions. The criteria will help sort and rank highest needs wholistically for each building. After the framework and methodology were approved through Stage 1, MTFA performed the facility evaluations and compiled the data for all APS facilities.

List of Facilities

This project includes all current APS facilities (see Fig. 1). The attached matrix ([Attachment A: APS Facilities Included in Assessment](#)) provides a list of all facilities included in the study.

Notes:

- a. Gunston MS, Jefferson MS, and Langston HS are joint use facilities. They are owned by APS and spaces are designated for Arlington County Department of Parks and Recreation (DPR) use. Those DPR spaces were not evaluated in this project.
- b. The Thurgood Marshall Building is leased non-educational space that is not currently in use by APS. The lease expires soon and there is no planned use or need for this facility so it is not included.
- c. Fenwick is scheduled to begin demolition Summer-Fall 2023 and is not included.

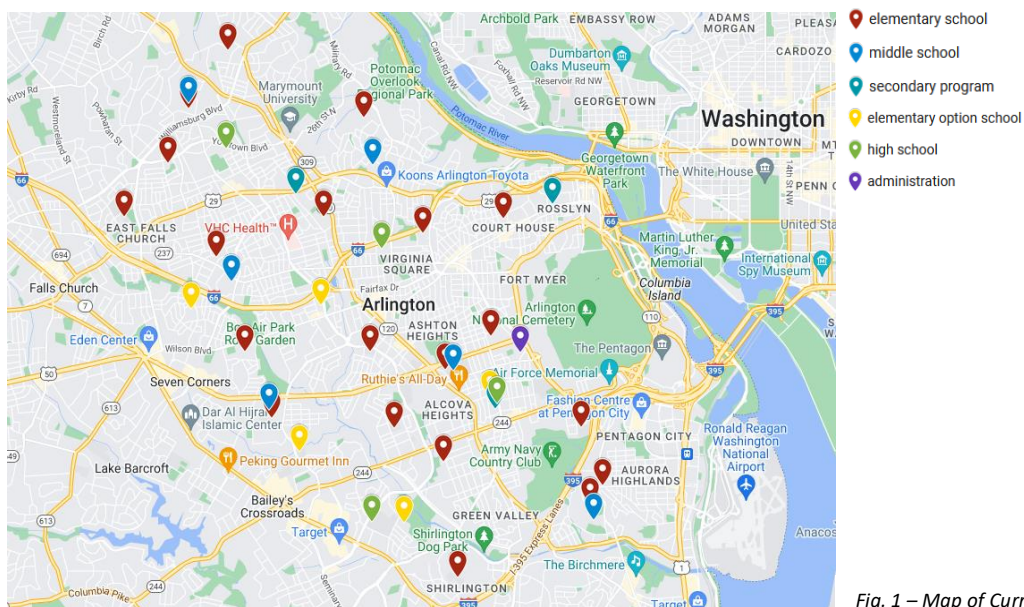


Fig. 1 – Map of Current APS Facilities

3. Project Team

Project Team

The project team is as follows:

MTFA Architecture is the Prime contract consultant to APS for this project.



MTFA Architecture | www.mtfa.net
3200 Langston Boulevard – Arlington, VA 22207
703-524-6616

In order to support the required scope of the project and supplement the team with additional expertise, the following firms serve as consultants to MTFA on this project:

Facility Engineering Associates (FEA) is a consultant providing facility evaluation expertise.



Facility Engineering Associates, P.C. | www.feapc.com
12701 Fair Lakes Circle, Suite 101, Fairfax, VA 22033
703-667-1029

CMTA is a consultant providing MEP systems expertise including specific experience and familiarity with APS.



CMTA | www.cmta.com
10411 Meeting Street
Prospect, KY 40059
502-326-3085

4. Evaluation Methodology

Evaluation Methodology: Facility Condition Assessment

To meet the goals of this project, the MTFA team performed a Facility Condition Assessment at each school during the summer of 2023. A facility condition assessment consists of a facility condition index and a building characteristics index (see Fig. 2):

- The facility condition index (FCI) evaluates major systems infrastructure and is a standard systematic evaluation and ranking tool based on system age, condition, and replacement cost. The facility condition index evaluates criteria to standard categories per ASTM Uniformat II, Level 3. The FCI is determined by looking at deferred maintenance (what you haven't done in the past but need to) and accumulated degradation (what's going to expire in the future) against the estimated current replacement value (CRV). Current RS Means³ data is used to establish the estimated current replacement value. Each system element is evaluated on a degradation curve over the course of its expected useful life (EUL) considering age, operation, environment, and maintenance. Each system element is rated on a scale from 1-5 (1 is crisis/failure, 5 is excellent) (see Fig. 3). The collective ratings of all elements create the FCI.
- The building characteristics index evaluates other building and environmental elements not included in the FCI and/or customized to APS-specific requirements and priorities.

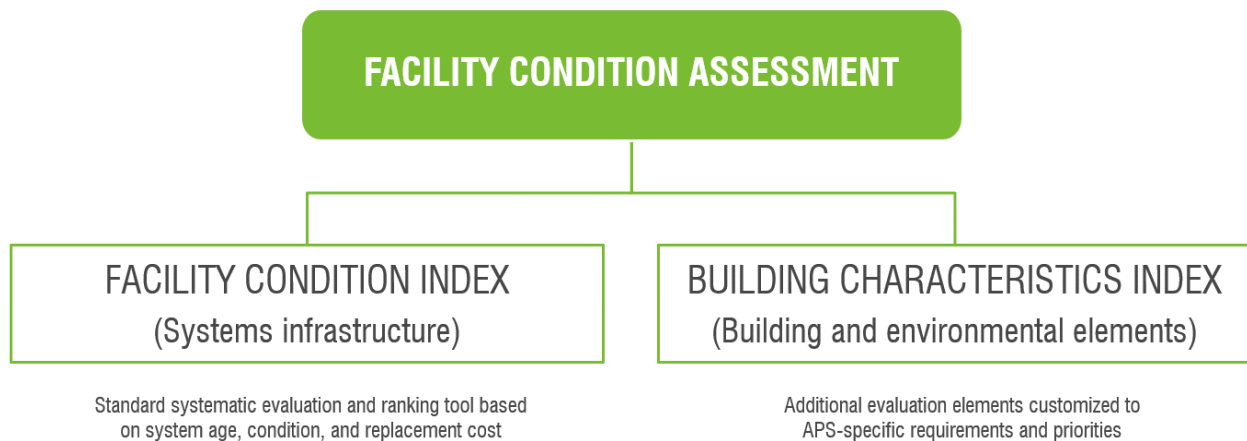


Fig. 2 – Facility Condition Assessment Diagram

The purpose of this Summary is to provide an overview of the school buildings relative to each building's age and current condition and provides a measure to "index" the condition of each building against other district schools using industry recognized metrics. The output of a facility condition assessment (FCA) is a projection of capital needs based on our observations of system age and condition observed

³ RS Means is a database of national average construction costs. Adjustments for local market factors for materials and labor are needed for the Washington metropolitan area. The data is used to project cost for building construction and renovation projects.

during our site visit. The attachments to this report include reports on condition ratings, a forecast of anticipated future needs, and system details on a building-by-building basis. Each school-by-school summary outlines the forecast of anticipated capital needs over a 10-year period from 2023 to 2032.

Rating Definitions

The following tables provide the basis of the rating system that is described in this reference guide. Refer to the individual systems for definitions of deficiencies and other items to consider in completing the evaluations.

Rating	Condition	% Deficiencies Allowed
5	Excellent	0-5%
4	Good	5-10%
3	Fair	10-25%
2	Poor	25-50%
1	Crisis/Failure	>50%

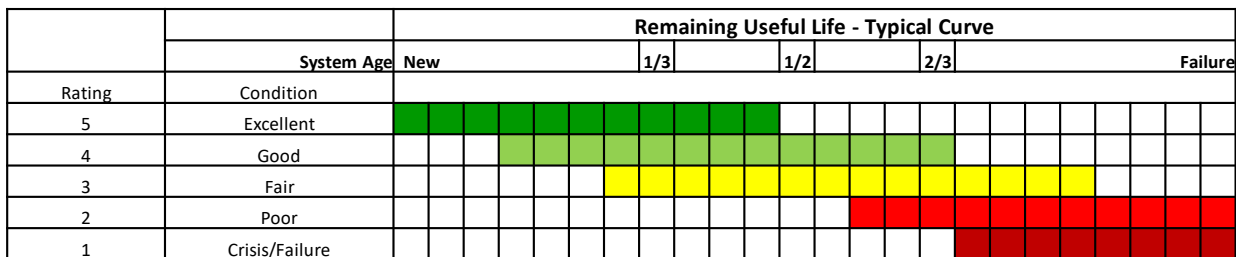


Fig. 3 – Rating System Definitions

Evaluation Criteria

Through a series of meetings in early 2023 between the project team and APS, the MTF team developed a robust set of evaluation criteria to provide a meaningful assessment of each facility relative to current APS standards and one another. Most aspects have a defined standard against which they are measured and ranked to provide sufficient differentiation between all of the facilities. Others are reporting information only that can be used by APS in a high-level overview comparing projects against one another.

The FCA includes a school-by-school summary of the observed condition of building systems and the expected useful life (EUL) and remaining useful life (RUL) of each system. It also includes projected capital needs over a 10-year reporting period.

A facility condition assessment (FCA) is visual in nature and not intended to uncover hidden conditions, perform sampling or testing, determine code compliance of buildings and systems, nor does it involve operation of building systems. The on-site portion of the FCA generally includes conversations with operations and maintenance personnel to determine system or equipment history and known deficiencies. The FCA does not include testing or analysis of potential hazardous materials such as asbestos, lead, PCBs, or other potentially harmful materials. The presence of these materials may be noted in the FCA where indicated by school personnel while conducting the FCA. All schools have been tested for hazardous materials and are monitored on a regular basis. Additional testing, as required for construction projects, is to be conducted on an as-needed basis and can be considered in future Tier 2 (“deep dive”) evaluations.

For Arlington Public Schools, the FCA was limited to the buildings only. Some site features were included in the Building Characteristic evaluation and are listed in the project database to help assess which

schools require further evaluation (“deep dive” Tier 2 evaluation). The FCA is based on ASTM E1557-09 (Standard Classification for Building Elements and Related Sitework -- Uniformat II) as a general framework for performing condition assessments at a building system level. The evaluation included the following building systems:

- Exterior Systems - roofs, walls, window systems, doors.
- Interior Construction - walls, doors, flooring, classroom casework.
- Interior Finishes: Flooring, ceiling, wall finishes.
- Fire and Life Safety systems.
- Heating, Ventilation and Air Conditioning.
- Plumbing systems.
- Electrical and service distribution.
- Fire detection and suppression systems.

In addition to the visual assessment of the systems listed above, the FCA was supplemented with an evaluation of Building Characteristics. These characteristics are initially based on the framework provided by APS and customized to include the most relevant school system standards and priorities.

The following is a summary of select building characteristics:

- Indoor Air Quality (IAQ): The IAQ of the classrooms and common spaces was evaluated to confirm if they met the recommended equivalent air changes per hour (eACH) as outlined by the Harvard T.H. Chan School. This category factors in both filtration and ventilation to find an equivalent to the amount of “clean” air the space is provided with. The evaluation was done by calculating the eACH based on the as-built drawings and airflows from existing documents according to the dimensions of the space. Results showed that most classrooms had adequate IAQ and met or exceeded the recommended eACH of 6. While some spaces have lower levels of both ventilation and filtration, most learning spaces can combine these factors to bring the eACH rates into acceptable or suggested ranges.
- Ventilation: The team evaluated whether the classrooms and common spaces met the current guidelines as described in current applicable ASHRAE 62.1 for Virginia. This was evaluated using the outside air flows provided in the as-built drawings and the calculated volume of the spaces. Where the number of students was known it was used in the calculations, otherwise the total occupancy was estimated for large common spaces or based on ASHRAE guidelines. Many of the schools evaluated have ventilation levels below the ASHRAE guidelines that are current code requirements as they might not have been renovated since guidelines have been updated.
- Filtration: Based on existing documents and physical inspections at each facility, the team evaluated the level of filtration in classrooms and common spaces to determine the final IAQ score of these spaces. The units serving these spaces were inspected to determine what level of filtration is present currently, but also what level of filtration is possible with the existing units. Older schools with older units appear to have limited filtration ability, with not enough fan power to achieve the desired MERV 13. While many units have filter houses and fans that are MERV 13 capable, some of these units were still utilizing only MERV 8 rated filters.
- Specialty Ventilation Requirements: The team evaluated the spaces and equipment throughout the school that have special ventilation requirements either by code or by design. For the elementary schools evaluated this comprised almost exclusively of art room exhaust and

exhaust of kilns near to those spaces. Most of the schools evaluated did not meet current ASHRAE exhaust requirements of 0.7 cfm/sf.

- **Interior/Exterior Lighting:** The team evaluated the campus lighting for consistencies in correlated color temperature (CCT) on both the interior and exterior, dark sky compliance of exterior light fixtures, lighting levels within the school, the presence of LED fixtures, and the presence of occupancy sensors. It was found that most schools do not have a consistent CCT for interior fixtures and only a few of the schools meet the county guidelines for exterior site lighting (3000K). Only a handful of schools were fully LED with occupancy sensors and fully dark-sky compliant exterior fixtures, all other schools were at best a mix of LED and fluorescent fixtures with minimal occupancy sensors and non-dark sky compliant exterior fixtures.
- **Water Efficient Fixtures:** The team took spot checks of the existing fixtures throughout the schools to evaluate the number of efficient fixtures. As of 2009, APS has used water-efficient fixtures. They are expected to be included in any facility renovated or newly built from then.
- **Water Use Intensity:** The annual water consumption in total gal/sf was noted for reference. This measurement was taken from information made publicly available by APS. An average of the calendar years 2019 and 2022 were evaluated to account for reduced school usage.
- **Energy Use Intensity:** The annual energy consumption in total kBTU/sf was noted for reference. This measurement was taken from information made publicly available by APS. An average of the calendar years 2019 and 2022 were evaluated to account for reduced school usage.

Refer to Attachment B for a matrix of the full evaluation criteria, metrics, and comments for each building characteristic.

Attachment B: Project Evaluation Criteria

Responding to Emergency Equipment and Facility Maintenance Issues Identified During Evaluation

During a progress meeting for this project, APS was asked how they handle emergency/urgent equipment or facility issues that are discovered during surveys. APS cited an example from one of the four evaluation pilot test schools: during survey at Ashlawn Elementary, significant cracking was observed in the kitchen floor. The issue was immediately reported by APS and converted into a maintenance work order. Periodically over the course of the survey period, the project team reported urgent issues requiring immediate attention to APS when discovered so APS can investigate further and respond as required.

Survey Photographs

During the on-site survey walkthroughs, the project team took photographs to document existing conditions. These photographs are organized into a digital folder structure by school and then further

organized by location within each school. These digital files have been shared with APS for future reference.

Metrics and Reporting

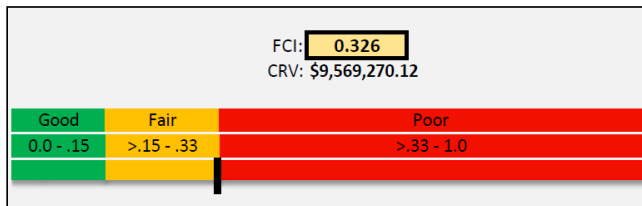
The results of the FCA for each school building is reported in a building report which is included as an attachment to this report. The building reports list the general description of the school. School provided information such as *Gross Square Footage*, *Year Built*, *Year(s) Renovated* are reported.

The information gathered during the FCA is used to develop condition indices that are based on the industry-utilized metric of FCI and considers these factors:

- Age and condition of each building system.
- The accumulated degradation of each system based on its estimated and remaining useful life.
- Near-term (1-3 year) projects that are required to correct significant deficiencies.

The data is aggregated by major building systems (Uniformat II, Level 3). Each building system generates a System Condition Index (SCI) so that each major building system’s index is included in the facility condition index. The facility condition index (FCI) is then determined based on the accumulated degradation (AD) of the facility, or the deferred maintenance (DM), as determined by the near-term capital renewal needs (generally immediate and 1-to-3-year needs).




The FCI provides a relative measure of the condition of a building within a group or portfolio of buildings. For this evaluation, the range of FCI is depicted as Good/Fair/Poor. The FCI is the number depicted on the sliding scale and represents the composite calculation of each of the system-level indicators described below.



The FCI range can be used, along with other factors such as building system condition and other building characteristics, to determine the appropriate maintenance, repair, and replacement actions, or in this case, can be used by the Master Planning team to refer to

existing building age and condition to inform decisions about building condition relative to programming changes and other factors for decision-making in the master planning process.

As stated above, the FCI is the summary composite rating of each of the building systems that comprise the building infrastructure (structural, mechanical, plumbing, special systems, etc). The general condition of each of the building systems (designated as A10 through F10; Uniformat Level II designations) is shown as Green/Yellow/Red.

	System rating 5-4
	System rating 3
	System rating 2-1

A system rating of 5 or 4 generally indicates that the system has a significant remaining service life and is in good condition. A system rating of 1 or 2 generally indicates that the system needs repairs or replacement, either within the next capital renewal cycle (rating of 1), or within the near term of the next few years (system rating 2). System rating of 3 generally indicates that the system is in the middle of its expected service life. The system rating is used to derive the FCI and can provide a data-driven decision-making tool for use in prioritizing projects in the Capital Improvement Plan.

In addition to reporting the building FCI, each building system condition rating is listed on the Capital Needs Forecast as Red/Yellow/Green as indicated above. The projected capital need for repair or replacement of each system which falls within the study period is reported in the table. In this case, a 10-year projection of capital needs is provided. In addition, "Local" or major system components that may require major repair or replacement within the next few years, or projects that have already been planned by school personnel at the time of the FCA are listed in the capital needs forecast.

From the "Navigation" tab within the data reporting file, FCA data for individual schools can be accessed from a dropdown menu under Select Building to Generate Report. This will provide links to reporting for building system condition ratings, CRV, estimated useful life (EUL), and remaining useful life (RUL) on Page 1; projected capital needs over a 10-year period on Page 2; commentary on observations and Local Projects on Page 3; and Building Characteristics on Page 4.

The condition assessment data is summarized in the "Condition Heat Map" tab to present an overview across all buildings and system. The data can also be filtered and sorted by building, system, and condition in the "APS FCA Condition Summary" tab for comparison purposes. Projected capital needs over a 10-year period are summarized by building system and year in the "Portfolio Summary" tab.

Basis of Capital Needs Forecasts

The forecast of anticipated future needs provides a view of timing and relative magnitude of costs intended to inform the planning and budgeting process. Generally, the needs forecast for a particular building or building system represents the near-term needs (expressed as DM) at the time of the evaluation. FCI is expressed as a ratio of the sum of near-term need, or DM to the current replacement value (CRV) of the system, based on the model of system values for that building type. The FCI can also be expressed as a ratio of Accumulated Degradation (AD) to the current replacement value of the building. This provides the long-term projection of need for those buildings that are currently performing as intended but will require capital renewal funding based on the ongoing aging of building systems.

The forecast of future needs expressed in the tables are reflective of estimated building system "raw" costs. These costs are based on the experience and professional judgment of the assessment team, information provided by school and district personnel, and RS Means pricing data. They are not intended to predict actual bid costs for projects.

The conversion of anticipated future needs (raw costs) to anticipated repair/replacement costs (project costs) can be made using a cost multiplier. Cost multipliers are developed based on current construction forecasts and commercially available construction indices for capital renewal (Major Maintenance) such as RS Means. Typically, a raw cost multiplier is developed by the District and the Assessment Team and

includes what is more commonly referred to as hard and soft project costs. These cost factors include the following factors:

- Labor cost factors such as labor pool availability, travel and living expenses and commuting
- AE Design Fees and construction oversight fees
- Contractor General Requirements, Overhead and Profit
- Owner-imposed costs
- Contingencies
- Existing conditions mark-ups

The other multiplier that is used in capital needs analysis is a factor that increases currently projected costs by considering inflation. An inflation factor (discount rate) can be developed by using references such as the Producer Price Index (PPI) or estimates of industry specific cost indices such as RS Means. The forecast of future needs expressed in the report tables do not currently include an adjustment for inflation.

The building Current Replacement Value (CRV) costs included in this report are in 2023 dollars and include a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

Living Report: A Database that Adapts to Future Developments

This study is intended to produce a dynamic document that can be updated as new projects are completed and existing systems age. Its purpose is to serve as a database that evolves over time, and the project team recommends that it be updated every 4-5 years to reflect recent projects and changes.

Tiered Level of Assessment Approach

The MTFA team presented a proposed tiered level of assessment approach that differentiates high level, basic conditions analysis from more in-depth evaluation (see Fig. 4):

- A Tier 1 assessment determines system age and condition and evaluates simple quantifiable metrics. This level of assessment is consistent with the expectations for analysis in this project.
- A Tier 2 assessment (also referred to as a “deep dive”) involves additional measurement, testing, analysis, or study to further evaluate the highest priority needs and deficiencies identified in the Tier 1 assessment. This level of assessment would be a future additional effort not part of this project.

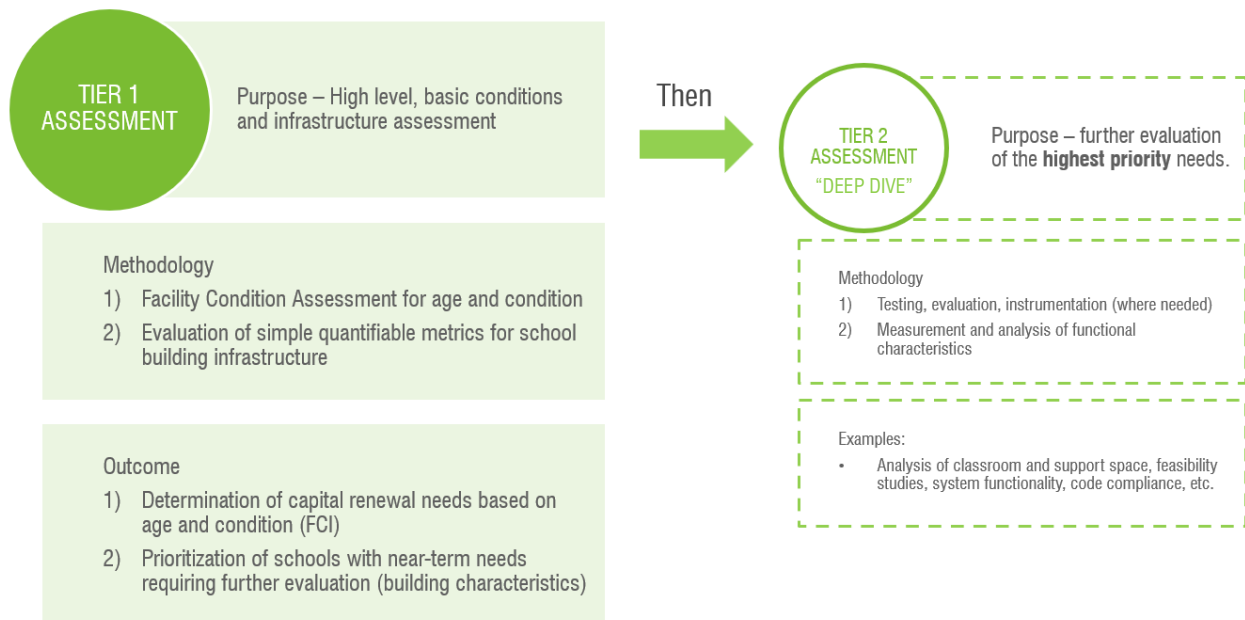


Fig. 4 – Tiered Level of Assessment Diagram

Evaluation Criteria Considered but Not Included

The following items were proposed and discussed but ultimately not included in the evaluation criteria:

- Lighting control systems: APS typically does not prefer lighting control systems because of complications with maintenance and user behavior and it should not be added as an evaluation element.
- Daylight harvesting
- Overall code compliance: the MTFA team explained that evaluating against current code standards can be subjective and difficult to quantify. The intent of this section would be to focus on life safety and any major issues not already evaluated in another category in order to identify the big-ticket important items that will matter most to the community.
- Decarbonization: aligns with APS goals but is not consistent with the specific goals from the School Board for this project.
- Acoustics: Features are too complex and subjective to properly evaluate and quantify.
- Furnishings and Equipment: FFE is already covered separately on a replacement schedule and schools also have a discretionary budget for these items. FFE is not a contributing factor to replacement priority for facilities.
- Classroom shape: Classroom shape is a difficult metric to evaluate because ideal proportions vary based on size and some program-specific instruction spaces are atypical but can be the most special and desirable.
- Pool Water Standards: these are operational issues.
- Gymnasium number of stations: functionality is based on size of gym and use by teacher.
- Vehicle and Bicycle Parking: the number of spaces is based on use permit conditions from the County and are not relevant for this study.
- IT Infrastructure: systems are generally independent from building facility infrastructure and would not be a relevant reason to prioritize a school renovation.
- Admin office planning factor: difficult to determine since staffing needs and use vary year to year.
- Sustainability: APS projects uphold sustainability as a fundamental value during the design and construction phases, but it is not the primary factor guiding the selection of schools for renovation. Despite this, certain sustainability criteria such as energy use intensity (EUI), on-site renewable energy, and geothermal design are evaluated and included as data points.

5. Existing Building Documentation

Existing Building Documentation

APS provided the project team with available reference documents, drawings, and information for each facility. The project team assumes all information in this documentation is accurate and usable as the initial basis for certain evaluation criteria. Where feasible, the information is verified on site by field observation and survey. Information provided and referenced for this report includes the following:

- Existing building drawings and specifications
- Educational Specifications and desired program guidelines
- Utility data
- Roof Survey
- Database of rooms/schools

6. Evaluation Pilot Testing

Evaluation Pilot Testing

In order to test the proposed framework and methodology, the facility condition assessment was performed on four pilot APS schools: Ashlawn Elementary, Barcroft Elementary, Alice West Fleet Elementary (Fleet), and Montessori Public School of Arlington (MPSA).

After discussion between the project team and APS, these elementary schools were selected for time and cost effectiveness for initial assessment, expected ability to provide a meaningful range of conditions, and shared geographical proximity.

The schools were visited on February 8 and 9, 2023. Survey teams were accompanied by APS personnel for access and to address questions.

At the start of the Stage 2 portion of the project, piloting began with one Middle School and one High School to validate and adjust criteria unique to these school levels. The project team visited Jefferson Middle School and Wakefield High School at the beginning of the process in order to test and confirm additional evaluation metrics that were not applicable to elementary schools. After subsequent review and discussion, several evaluation criteria were added or revised to address requirements and inconsistencies discovered through these initial evaluations.

7. Recommended Next Steps

Additional Facility Condition Assessment

As part of the condition assessment, a walk-through evaluation was conducted at each school building. The evaluation was visual in nature and not intended to be destructive to the property in order to gain access to hidden conditions or perform any testing. As such, there were some observed conditions for which we recommend performing further evaluation to help determine an appropriate course of action. Building systems most frequently recommended for additional assessment included structural and exterior wall systems, typically where the nature and extent of cracks, staining, and other deterioration were not immediately apparent or reliably quantifiable without further study. Recommendations for additional assessment are listed under Local Projects, which also include other near-term repair recommendations for certain building systems. Local Projects are summarized both in a comprehensive list within the data reporting file (Refer to [Attachment C.6: Near-Term Items Summary](#)) and highlighted on page two of the individual building report for each school facility (Refer to [Attachment D: Individual Building Reports](#)), with the Local Project described on page three of the individual building report.

Facility Repair/Replacement Local Projects

Systems in need of near-term repair and replacement projects are identified in the assessment report as Local Projects. Based on availability of funding and prioritization of needs, these projects could be bundled together by school along with renovations/additions that aim to address building characteristics and programmatic deficiencies. Another approach would be to group similar projects (ie roof or window replacements) together for multiple schools that could have efficiency of scale for design and implementation by a single consultant and contractor.

Recommendations for Select MEP Characteristics

- Indoor Air Quality (IAQ): Classrooms that fall below the recommended eACH level should be evaluated for future renovations. In the short term, these spaces can be provided local filtration units to assist in air cleaning.
- Ventilation: Action on space ventilation will usually require system engineering for these spaces and may require new systems/upgrades. Sites that follow below assessment criteria should be addressed in future renovations.
- Filtration: Units that are MERV 13 capable should utilize this level of filtration whenever possible. If not possible then additional in-space filtration units can be utilized to increase the local filtration levels.
- Specialty Ventilation Requirements: Lack of direct exhaust for art classrooms is the most common issue here. Direct exhaust fans can sometimes be added with on/off controls for times when exhaust is required due to activities in the space.

- Interior and Exterior Lighting: Update interior and exterior lighting correlated color temperatures, provide fully dark-sky compliant fixtures, and update lighting controls to current energy code where possible during renovation projects. All new construction projects should provide fully LED fixtures, dark-sky compliant exterior fixtures, and meet the APS standard for lighting CCT. Review the potential for an Energy Savings Contract to upgrade all fluorescent lighting to LED, with CCTs that meet the APS standards, where existing schools do not require other major upgrades, renovations, or additions.
- Water Use Intensity: Average WUI up to 10 is not unheard of, especially in schools with cooling towers. If WUI is much greater than 10 it is suggested to evaluate the site to determine if excessive water use or leaks may be present.
- Energy Use Intensity: EUI can vary based on school type, community use, and age. If newer schools show higher than expected energy use, it is suggested to investigate retro commissioning to help reduce consumption.

Feasibility Studies to Address Program Needs and Building Characteristics Deficiencies

Schools with identified needs to meet current educational and common space program standards would benefit from further analysis to explore options to bring the building up to current standards and educational specifications. Feasibility studies could be undertaken for each school to evaluate options for addition/renovation, replacement on site, relocation, or planning-driven approaches such as consolidation with other schools.

8. Evaluation Reports

Evaluation Reports

See attached Facility Condition Assessment reports for each of the 41 buildings included in this project along with portfolio summary reports for all of those facilities.

[Attachment C.1-C.6: Facility Condition Assessment Summary Reports](#)

[Attachment D: Facility Condition Assessment Individual Building Reports](#)

9. List of File Attachments

The following file attachments are provided with this report:

1. Attachment A: *APS Facilities Included in Assessment*
2. Attachment B: *Project Evaluation Criteria*
3. Attachment C: *Facility Condition Assessment Summary Reports*
 - a. C.1 – *Building Characteristics Summary – Major Building Systems*
 - b. C.2 – *Building Characteristics Summary – Common Spaces*
 - c. C.3 – *Building Characteristics Summary – Educational Spaces*
 - d. C.4 – *Facility Condition Heat Map*
 - e. C.5 – *Facility Condition Portfolio Summary*
 - f. C.6 – *Facility Condition Near-Term Items*
4. Attachment D: *Facility Condition Assessment Individual Building Reports*
5. *APS - Data and Reporting.xls* (Excel) (Native File)
This Excel spreadsheet is the native file for the FCA data and reporting.

END REPORT

ATTACHMENT A: APS FACILITIES INCLUDED IN ASSESSMENT

APS Facilities Included in Assessment (SY 23-24)

Colloquial Name	School Name	School Type	Address	Zip Code	School Design Capacity	Building Gross SqFt	Relocatable Classrooms	Utility Relocatables	Total Relocatable SqFt	Total SqFt	Acres	Year Built	Last Reno	School Website Link	Comments
Abingdon	Abingdon Elementary School	Elementary	3035 S Abingdon St	22206	725	106,630	4	0	4,200	110,830	9.80	1950	2017	https://abingdon.apsva.us/	
ASF	Arlington Science Focus Elementary School	Elementary	1501 N Lincoln St	22201	752	68,127	6	0	5,880	74,007	6.22	1953	2000	https://asfs.apsva.us/	
ATS	Arlington Traditional Elementary School	Elementary	1030 N McKinley Rd	22205	684	89,599	0	0	0	89,599	7.70	1951	2021	https://ats.apsva.us/	
Ashlawn	Ashlawn Elementary School	Elementary	5950 8th Rd N	22205	684	97,005	4	0	4,200	101,205	7.47	1956	2014	https://ashlawn.apsva.us/	Stage 1 Elementary School Pilot Test Evaluation
Barcroft	Barcroft Elementary School	Elementary	625 S Wakefield St	22204	460	68,700	8	0	7,560	76,260	5.20	1924	1992	https://barcroft.apsva.us/	Stage 1 Elementary School Pilot Test Evaluation
Barrett	Barrett Elementary School	Elementary	4401 N Henderson Rd	22203	576	75,672	4	0	4,200	79,872	7.13	1939	2001	https://barrett.apsva.us/	
Campbell	Campbell Elementary School	Elementary	737 S Carlin Springs Rd	22204	436	71,919	3	0	2,592	74,511	9.09	1955	2002	https://campbell.apsva.us/	
Cardinal	Cardinal Elementary School	Elementary	1644 N McKinley Rd	22205	747	128,377	0	0	0	128,377	10.88	2021		https://cardinal.apsva.us/	
Career Center	Arlington Career Center & Arlington Tech	Other	816 S Walter Reed Dr	22204	950	159,853	16	0	15,120	174,973	8.53	1974	2020	https://careercenter.apsva.us/	
Carlin Springs	Carlin Springs Elementary School	Elementary	5995 5th Rd S	22204	585	86,745	4	0	4,200	90,945	32.23	2001		https://carlinsprings.apsva.us/	
Claremont	Claremont Elementary School	Elementary	4700 S Chesterfield Rd	22206	599	76,038	7	0	6,744	82,782	15.00	1952	2003	https://claremont.apsva.us/	
Discovery	Discovery Elementary School	Elementary	5241 36th St N	22207	630	97,588	0	0	0	97,588	24.77	2015		https://discovery.apsva.us/	
Hamm	Dorothy Hamm Middle School	Middle	4100 Vacation Ln	22207	1,000	185,819	0	0	0	185,819	9.10	1950	2019	https://dorothyhamm.apsva.us/	
Drew	Dr. Charles R. Drew Elementary School	Elementary	3500 23rd St S	22206	674	100,815	0	1	864	101,679	8.02	1944	2019	https://drew.apsva.us/	
Key	Escuela Key Elementary School	Elementary	855 N Edison St	22205	465	77,261	8	0	8,400	85,661	7.78	1926	2021	https://key.apsva.us/	In old Arlington Traditional School Bldg - moved 2021
F&O	Facilities and Operations at the Trades Center	Other	2770 S Taylor St	22206		75,000	0	0	0	75,000	5.96	1965	2021	Facilities & Operations - Arlington Public	Non-educational facility
Fleet	Alice West Fleet Elementary School	Elementary	115 S Old Glebe Rd	22204	752	111,634	0	0	0	111,634	3.59	2019		https://fleet.apsva.us/	Stage 1 Elementary School Pilot Test Evaluation
Glebe	Glebe Elementary School	Elementary	1770 N Glebe Rd	22207	510	82,889	4	0	4,200	87,089	6.96	1971	2004	https://glebe.apsva.us/	
Gunston	Gunston Middle School	Middle	2700 S Lang St	22206	992	199,241	6	0	5,880	205,121	20.00	1959	2017	https://gunston.apsva.us/	
The Heights	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	Secondary	1601 Wilson Blvd	22201	775	181,803	0	0	0	181,803	2.38	2019		https://hwoodlawn.apsva.us/	
Hoffman-Boston	Hoffman-Boston Elementary School	Elementary	1415 S Queen St	22204	566	108,135	0	0	0	108,135	8.77	1916	1999	https://hoffmanboston.apsva.us/	
Innovation	Innovation Elementary School	Elementary	2300 Key Blvd	22201	653	84,617	4	0	4,200	88,817	4.36	1968	2021	https://innovation.apsva.us/	Previously named Key Elementary
Jamestown	Jamestown Elementary School	Elementary	3700 N Delaware St	22207	597	75,899	0	0	0	75,899	10.97	1953	2004	https://jamestown.apsva.us/	
Jefferson	Jefferson Middle School	Middle	125 S Old Glebe Rd	22204	1,086	234,923	0	1	864	235,787	8.62	1972	2010	https://jefferson.apsva.us/	Stage 2 Middle School Pilot Test Evaluation
Kenmore	Kenmore Middle School	Middle	200 S Carlin Springs Rd	22204	1,045	206,188	2	1	3,456	209,644	32.23	2005		https://kenmore.apsva.us/	
Langston	Langston High School Continuation & New Directions Alternative	High	2121 N Culpeper St	22207	150	47,291	0	0	0	47,291	4.02	2003		https://hsc.apsva.us/	
Long Branch	Long Branch Elementary School	Elementary	33 N Fillmore St	22201	533	70,754	4	0	4,200	74,954	2.21	1973	1996	https://longbranch.apsva.us/	
MPSA	Montessori Public School of Arlington	Elementary	701 S Highland St	22204	463	61,488	0	0	0	61,488	4.20	1975	2019	https://montessori.apsva.us/	Stage 1 Elementary School Pilot Test Evaluation
Nottingham	Nottingham Elementary School	Elementary	5900 Little Falls Rd	22207	513	70,944	5	0	5,064	76,008	8.95	1952	2006	https://nottingham.apsva.us/	
Oakridge	Oakridge Elementary School	Elementary	1414 24th St S	22202	674	81,622	8	1	9,288	90,910	8.21	1950	1999	https://oakridge.apsva.us/	
Planetarium	David M Brown Planetarium	Other	1426 N Quincy St	22207		2,458	0	0	0	2,458	22.59	1970	2013	https://www.apsva.us/planetarium-overview/	Non-educational facility
Randolph	Randolph Elementary School	Elementary	1306 S Quincy St	22204	484	70,880	2	0	1,728	72,608	7.33	1947	1993	https://randolph.apsva.us/	
Swanson	Swanson Middle School	Middle	5800 Washington Blvd	22205	948	132,158	6	2	9,336	141,494	6.70	1939	2005	https://swanson.apsva.us/	
Syphax	Syphax Education Center - leased	Other	2110 Washington Blvd	22204		141,126	0	0	0	141,126	2.41	1991	2017	https://www.apsva.us/school-	Non-educational facility
Taylor	Taylor Elementary School	Elementary	2600 N Stuart St	22207	659	80,428	6	0	5,880	86,308	9.70	1953	2013	https://taylor.apsva.us/	
Thurgood Marshall	Employee Assistance Program - leased	Other	2847 Wilson Blvd	22201		11,217	0	0	0	11,217	0.75	1960	2001	https://eap.apsva.us/contact-	
Tuckahoe	Tuckahoe Elementary School	Elementary	6550 26th St N	22213	545	69,685	4	0	4,200	73,885	6.57	1953	1999	https://tuckahoe.apsva.us/	
Wakefield	Wakefield High School	High	1325 S Dinwiddie St	22206	2,203	403,940	6	0	5,880	409,820	37.50	2013	2017	https://wakefield.apsva.us/	Stage 2 High School Pilot Test Evaluation
W-L	Washington-Liberty High School	High	1301 N Stafford St	22201	2,308	378,068	0	0	0	378,068	22.59	2009	2015	https://wl.apsva.us/	
WL Annex	New HS Seats at the Washington-Liberty Education Center	High	1426 N Quincy St	22207	600	55,169	0	0	0	55,169	22.59	1970	2022	https://www.apsva.us/education-center-reuse/	
Williamsburg	Williamsburg Middle School	Middle	3600 N Harrison St	22207	997	170,865	2	0	1,728	172,593	24.77	1954	2004	https://williamsburg.apsva.us/	
Yorktown	Yorktown High School	High	5200 Yorktown Blvd	22207	2,189	355,887	0	0	0	355,887	9.87	2013	2018	https://yhs.apsva.us/	
TOTAL						5,054,457	123	6	129,864	5,184,321	474				

APS Facilities NOT Included in Assessment

Fenwick	Arlington Community High School (ACHS)	High	800 S Walter Reed Dr	22204		24,149	0	0	0	24,149	4.54	1974	2017	https://achs.apsva.us/	Planned for demolition Summer 2023
Thurgood Marshall	Employee Assistance Program - leased	Other	2847 Wilson Blvd	22201		11,217	0	0	0	11,217	0.75	1960	2001	https://eap.apsva.us/contact-	Non-educational facility, not planned for future use

ATTACHMENT B: PROJECT EVALUATION CRITERIA

APS Facility Condition Assessment Evaluation Criteria									
Rev 7/24/2023									
Item No:	Major Building Systems	Facility Condition Index	Building Characteristics	What building characteristic is evaluated?	Evaluation Methodology	Tier 1 Evaluation: Metric and Scale of Values (1 lowest, 5 highest)	Notes	Level of Effort for Tier 1 Evaluation	Potential Tier 2 Evaluation recommendations
		FCI	BCI	FCI: To Uniformat Level 3		Facility Condition Index = DM/CRV	Measured against modeled CRV. Will Include Capital Renewal forecasting tools		
	HVAC	SCI					System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Age/Condition	√		System Age/Condition	Observation	1-5 scale on degradation curve			Identify subsystem needs
2.0	Indoor Air Quality		√	Likelihood to meet code requirements and ability to deliver code minimum OA	Date of Retrofit, Ability to provide % Outside Air, presence of economizer	measurable range: green >6 eACH, yellow 4-6-eACH, red <4-eACH	Scaled rank based on air changes. Information pulled from 3.0 and 4.0. 6/hr is excellent, 4 is ok, <4 is bad	Evaluation of as-built drawings followed by site visit to confirm general airflow conditions of as-builts	Measure indoor air quality and provide score and recommendations based on county comparison and ASHRAE recommended CO2 levels. (further evaluation).
3.0	Ventilation - Classrooms		√	Ventilation Capability - Classrooms	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
4.0	Ventilation - Gymnasium		√	Ventilation Capability - Gymnasium	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
5.0	Ventilation - Dining		√	Ventilation Capability - Dining	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
6.0	Ventilation - Library		√	Ventilation Capability - Library	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
7.0	Ventilation - Auditorium		√	Ventilation Capability - Auditorium	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
8.0	Ventilation - Pool		√	Ventilation Capability - Pool	evaluate size of space and amount of air provided, use as-builts, CMTA study	measurable range: ASHRAE 62.1 - green=exceeds, yellow=meets, red=does not meet	Measure ventilation rates and provide score and recommendations based on county comparison and ASHRAE and Harvard T.H. Chan School of Health recommended air change rates. Pull from previous CMTA study. Scaled Rank (Does not meet code, meets code, or exceeds code).	Evaluation of as-built drawings and room size calculations	
9.0	Specialty Ventilation Requirements		√	Specialty space ventilation requirements	Evaluate size of space and amount of ventilation provided for adequate ventilation of specialty spaces such as labs, art rooms, shops, kilns, etc.	does ventilation meet code requirements and APS standards	yes/no with partial	Evaluation of as-built plans and site visit for confirmation of plans	Evaluate specific airflow rates for spaces and equipment utilizing test and balance procedures to get exact measurements
10.0	Filtration - Classrooms		√	Level of filtration - Classrooms	Observation: Filter types installed	Scaled Rank (MERV-14+ = good, MERV-11-13 = ok, <MERV-11 = bad)	Observe and measure filtration and air change rates based on ASHRAE and Harvard T.H. Chan School of Health recommended levels Scaled Rank (MERV-13 = ok, MERV-14+ = good, MERV-11 = bad)	Evaluation of existing filters on site and availability of additional filter drop at unit	
11.0	Filtration - Gymnasium		√	Level of filtration - Gymnasium	Observation: Filter types installed	Scaled Rank (MERV-14+ = good, MERV-11-13 = ok, <MERV-11 = bad)	Observe and measure filtration and air change rates based on ASHRAE and Harvard T.H. Chan School of Health recommended levels Scaled Rank (MERV-13 = ok, MERV-14+ = good, MERV-11 = bad)	Evaluation of existing filters on site and availability of additional filter drop at unit	
12.0	Filtration - Library		√	Level of filtration - Library	Observation: Filter types installed	Scaled Rank (MERV-14+ = good, MERV-11-13 = ok, <MERV-11 = bad)	Observe and measure filtration and air change rates based on ASHRAE and Harvard T.H. Chan School of Health recommended levels Scaled Rank (MERV-13 = ok, MERV-14+ = good, MERV-11 = bad)	Evaluation of existing filters on site and availability of additional filter drop at unit	
13.0	Filtration - Auditorium		√	Level of filtration - Auditorium	Observation: Filter types installed	Scaled Rank (MERV-14+ = good, MERV-11-13 = ok, <MERV-11 = bad)	Observe and measure filtration and air change rates based on ASHRAE and Harvard T.H. Chan School of Health recommended levels Scaled Rank (MERV-13 = ok, MERV-14+ = good, MERV-11 = bad)	Evaluation of existing filters on site and availability of additional filter drop at unit	
14.0	Filtration - Pool		√	Level of filtration - Pool	Observation: Filter types installed	Scaled Rank (MERV-14+ = good, MERV-11-13 = ok, <MERV-11 = bad)	Observe and measure filtration and air change rates based on ASHRAE and Harvard T.H. Chan School of Health recommended levels Scaled Rank (MERV-13 = ok, MERV-14+ = good, MERV-11 = bad)	Evaluation of existing filters on site and availability of additional filter drop at unit	
15.0	Thermal comfort		√	Capability for Individual Temp control and building humidity control	Observation: Presence of Thermostats	yes/no with partial	yes/no with partial	Evaluation of as-built plans and site visit for confirmation of plans	Assess existing controls, zoning, and measure temperature in spaces. Provide score and recommendations based on typical APS/LEED requirements.
	Electrical	SCI					System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Switchgear (Capacity/Age/Condition)	√		System Age/Condition/Capacity	Observation	Building-level Power Delivery (W/SF)measurable range: green >10-W/sf, yellow 6-10-W/sf, red <6-@sf	Building-level Power Delivery (W/SF) - measurable range: green >10-W/sf, yellow 6-10-W/sf, red <6-@sf	Building walkthrough and evaluation of as-built drawings	
2.0	Generator kW (Size/Age/Condition)	√		System Age/Condition	Observation	1-5 scale on degradation curve		Building walkthrough	
3.1	Indoor Lighting (LED coverage)		√	Presence of LED fixtures	Observation	Are LED's present in 75% of spaces or not - yes/no	presence in 75% of spaces. Take a single lighting level for reference.	Building walkthrough	Provide recommendations and score based on typical APS/IES/LEED requirements. Assess quality of light, light levels, control capability, etc.

ATTACHMENT B: PROJECT EVALUATION CRITERIA

ARLINGTON PUBLIC SCHOOLS

LONG RANGE RENOVATION STUDY FACILITY CONDITION ASSESSMENTS

MTFA ARCHITECTURE

3.2	Exterior Lighting		√	Exterior light pollution	Observation	Yes/no compliant with Dark Sky standards	Dark Sky compliance/presence of full cutoff fixtures	Building walkthrough	
3.3	Indoor Lighting Color Temperature		√	Color temperature of fixtures	Observation	yes/no meets desired standard of 4000K and is consistent		Building walkthrough	
3.4	Exterior Lighting Color Temperature		√	Color temperature of fixtures	Observation	yes/no meets desired standard of 3000K and is consistent		Building walkthrough	
3.5	Occupancy Sensors		√	Yes/No	Observation	yes/no present or not		Building walkthrough	
3.6	Sports Lighting			Presence of LED fixtures	Observation	yes/no present or not		Site walkthrough	
	Plumbing	SCI					System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Age/Condition		√	System Age/Condition	Observation	1-5 scale on degradation curve		Building walkthrough	
2.0	Isolation Valves		√	Yes/No presence and ability to isolate	Observation	yes/no/partial	Partial value if part of building is able to be isolated (addition vs existing)	Building walkthrough and evaluation of as-built drawings	
3.0	Flow/Pressure		√	Yes/No sufficient pressure for fixtures	Observation	yes/no meeting what criteria - problems	Coordinate with APS plumbing dept. for specific issues	Building walkthrough	
4.1	Water Efficient Fixtures		√	Yes/No/% Efficient fixtures	Observation	Are efficient/low flow fixtures present or not - yes/no/partial?	Water efficient fixtures: Evaluate efficiency of existing fixtures/equipment and provide recommendations to reduce water use.	Building walkthrough	
4.2	Water Usage Intensity (WUI)		√	Rank all schools, value	Evaluate WUI data	benchmark ranking of all schools mapped to ratings	Analyze water use of existing APS schools, benchmark Water Use Intensity (WUI), and rank all schools.	analysis of APS WUI records	

ATTACHMENT B: PROJECT EVALUATION CRITERIA

ARLINGTON PUBLIC SCHOOLS

LONG RANGE RENOVATION STUDY FACILITY CONDITION ASSESSMENTS

MTFA ARCHITECTURE

	Fire Suppression/Fire Alarm	SCI					System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Fire Alarm System	√		System Age/Condition	Observation	1-5 scale on degradation curve			
2.0	Fire Suppression System	√		System Age/Condition	Observation	1-5 scale on degradation curve			
	Building Enclosure	SCI					System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Roof	√		System Age/Condition	Observation	1-5 scale on degradation curve	Review and coordinate with roof condition survey.	Infrared Camera Inspection on site?	Review energy efficiency and make recommendations
2.0	Windows	√		System Age/Condition	Observation	1-5 scale on degradation curve		Infrared Camera Inspection on site?	Review energy efficiency and make recommendations
3.0	Building Envelope	√		System Age/Condition	Observation	1-5 scale on degradation curve	Roof/Window/Building Envelope: Provide building pressure test, infrared photos, etc. to assess building envelope.	Infrared Camera Inspection on site?	Review energy efficiency and make recommendations based on cfm/ft2 performance of building pressure test, results of infrared photos, etc.
	Building Security						System Condition Index (SCI) -Identify Major Repair/Capital Needs		
1.0	Security Vestibules		√	Yes/No	Observation	yes/no		Building walkthrough	
2.1	Areas of concealment (interior)		√	Yes/No	Observation	yes/no	an indication that the interior building corridors promote circulation without areas of concealment.	Building walkthrough	
2.2	Areas of concealment (exterior)		√	Yes/No	Observation	yes/no	an indication that the exterior building geometry, wall construction and landscaping do not allow for exterior areas of concealment adjacent to the building.	Building walkthrough	
2.3	Single point of entry		√	Yes/No	Observation	yes/no	an indication that visitor traffic is directed to the main entry of the building, toward entry security features.	Building walkthrough	
	Life Safety and Code Standards								
	Accessible entrance		√	Yes/No	Observation	yes/no		Building walkthrough	
	Elevator (if multistory)		√	Yes/No	Observation	yes/no		Building walkthrough	
	Bathroom Accessibility		√	Yes/No/Partial	Observation	yes/no/partial	Bathrooms generally meet current accessibility standards	Building walkthrough	
	Corridor Width		√	Yes/No/Partial	Observation	yes/no/partial	Corridors are 6'-0" minimum width with projections less than 4"	Building walkthrough	
	Stairs/Guardrails/Handrails		√	Yes/No/Partial	Observation	yes/no/partial	Generally meets current code requirements for riser/tread, headroom clearances, guardrail and handrail heights and sizing	Building walkthrough	
	Accessibility in Public Spaces		√	Yes/No/Partial	Observation	yes/no/partial		Building walkthrough	
	Accessibility to sports fields and out buildings			Yes/No/Partial	Observation	yes/no/partial		Building walkthrough	
	Ability to Expand								
1.0	Feasibility Study		√	Yes/No	Evaluate existing documentation	yes/no	Coordinate info with APS	Analysis of APS records	
2.1	Relocatable Complex		√	Yes/No	Observation/Evaluate existing documentation	yes/no	Coordinate info with APS	Building walkthrough	
2.2	Number of Relocatable Classrooms		√	Total Number on site	Observation/Evaluate existing documentation		Information only	Analysis of APS records followed by site visit to confirm.	
	Pool (Circulation System)	SCI							
1.0	Age/Condition	√		System Age/Condition	Observation	1-5 scale on degradation curve		Building walkthrough	
	Other								
1.0	Energy Use Intensity (EUI) Benchmarking		√	Rank all schools, value Yes/No based on daylight availability provide percentage of classroom/learning spaces with access	Evaluate existing documentation	Scaled Rank (range of good/better/bad?)	Analyze energy use of existing APS schools, benchmark EUI, and rank all schools.	Analysis of existing APS EUI record data + latest energy bills	Further evaluation of utilities/field evaluation
2.1	Daylighting Access		√	Yes/No based on daylight availability provide percentage of classroom/learning spaces with access	Observation	100% of classrooms = good/green, > 90% = ok/yellow, < 90% = bad/red		Evaluation of as-built drawings followed by site visit to confirm.	Provide recommendations to improve daylighting in common occupied spaces.
2.2	Daylighting Controllability		√	Yes/No	Observation	yes/no presence of blinds/shades		Building walkthrough	
3.0	On-site renewable energy		√	Yes/No presence of on-site solar	Observation	Yes/No		Building walkthrough	
4.0	Geothermal		√	Yes/No presence of on-site geothermal	Observation	Yes/No		Building walkthrough	If No, is it feasible on site
5.1	Elevator Age/Condition	√		System Age/Condition	Observation	1-5 scale on degradation curve		Building walkthrough	
5.2	Number of Elevators		√	Quantity	Observation	Yes/no 2 or more are present	APS standard is 2 or more for redundancy	Building walkthrough	
5.3	Elevator Size		√	Yes/No can accommodate stretcher (min. size)	Observation	Yes/no meets size requirements by code		Building walkthrough	

ATTACHMENT B: PROJECT EVALUATION CRITERIA

ARLINGTON PUBLIC SCHOOLS

LONG RANGE RENOVATION STUDY FACILITY CONDITION ASSESSMENTS

MTFA ARCHITECTURE

	Common Space Adequacy	Facility Condition Assessment	Building Characteristics	What building characteristic is evaluated?	Evaluation Methodology	Tier 1 Evaluation: Metric and Scale of Values (1 lowest, 5 highest)	NOTES	Level of Effort for Tier 1 Evaluation	Potential Tier 2 Evaluation recommendations
1.0	Cafeteria		√	Size per student served	Existing drawing review/Observation	15 net sf/student(ES), 12 net sf/student(MS/HS), accommodate school capacity in three seatings	Measure against school capacity	Evaluation of as-built drawings followed by site visit to confirm.	
1.1	Kitchen		√	1) Size per student served	Existing drawing review/Observation	3 net sf/student		Evaluation of as-built drawings followed by site visit to confirm.	
1.2			√	2) Number of service lines	Existing drawing review/Observation	Y/N 2 serving lines present(ES) or 3 serving lines(MS/HS)	ES - Standard 2; MS/HS - standard 3	Evaluation of as-built drawings followed by site visit to confirm.	
1.3			√	3) Lunch periods	Existing drawing review/Observation		Standard 3	Evaluation of as-built drawings followed by site visit to confirm.	
1.4			√	4) Kitchen Equipment age/condition	Existing drawing review/Observation	1-5 scale on degradation curve		Building walkthrough	
2.1	Gymnasium		√	1) Size (Length & Width)	Existing drawing review/Observation	Y/N meets minimum size requirement	Minimum gym size – 94' x 58'. Add comments/notes about presence of daylight and divider curtain	Evaluation of as-built drawings followed by site visit to confirm.	
3.1	Performance Space		√	1) Availability (Y/N)	Existing drawing review/Observation			Evaluation of as-built drawings followed by site visit to confirm.	
3.2			√	2) Seating (Occupancy)	Existing drawing review/Observation			Evaluation of as-built drawings followed by site visit to confirm.	
3.3			√	3) Stage Accessibility	Existing drawing review/Observation		Green = Accessibility to stage within the space Yellow = Accessibility from outside of the auditorium Red = Not accessible	Evaluation of as-built drawings followed by site visit to confirm.	
4.1	Library		√	1) Linear Bookshelves (Ft/student)	Existing drawing review/Observation		Define standard/measure against capacity - from design guides (9,000 - 12,000 volumes?) (900LF)	Building walkthrough	
4.2			√	2) Library classroom (Y/N)	Existing drawing review/Observation			Evaluation of as-built drawings followed by site visit to confirm.	
5.0	Pool		√	1) Design Capacity/# of swimmers	Existing drawing review/Observation		Define standard from design guides.	Evaluation of as-built drawings followed by site visit to confirm.	
5.1				2) Inventory of pool	Observation		overall dimensions, depths, diving boards, zero entry and accessibility	Site walkthrough	
					3)Presense of Male and Female changing rooms	Observation	Y/N		Site walkthrough
	Outdoor Spaces								
6.1	Playground		√	Number/type	Existing drawing review/Observation		Define standard from design guides.	Site walkthrough	
6.2			√	Age/Condition of Equipment	Observation	1-5 scale on degradation curve		Site walkthrough	
6.3			√	Playground Surfacing	Observation	Yes/Good - Rubberized surface No/Bad - mulch/wood chips, or other		Site walkthrough	
7.0	Fields		√	Number/size/type	Existing drawing review/Observation		Define standard from design guides. No standard at elementary school level (yes/no presence for elementary)	Site walkthrough	
7.1			√	Age and condition of sports fields	Observation	1-5 scale on degradation curve		Site walkthrough	
7.2			√	Age and condition of out buildings	Observation	1-5 scale on degradation curve		Site walkthrough	
7.3			√	Y/N	Observation	yes/ no	Highschool Only	Site walkthrough	
8.0	Outdoor Learning		√	Number of stations/type	Existing drawing review/Observation	yes/no		Site walkthrough	
9.0	Outdoor dining		√	Y/N	Existing drawing review/Observation	yes/no		Site walkthrough	

ATTACHMENT B: PROJECT EVALUATION CRITERIA

	Educational Space Adequacy	Facility Condition Assessment	Building Characteristics	What building characteristic is evaluated?	Evaluation Methodology	Tier 1 Evaluation: Metric and Scale of Values (1 lowest, 5 highest)	NOTES	Level of Effort for Tier 1 Evaluation	Potential Tier 2 Evaluation recommendations
1.1	Classrooms (General)		√	1) Size (SF of instructional space per school)	Existing drawing review/Observation	Green - classroom meets minimum standard area. Yellow - within 10% below. Red - more than 10% below.	Elementary Schools: Kindergarten & Pre k – 1040sf including tlt = x amount per school 1st grade – 870sf including tlt = x amount per school 2nd through 5th – 825sf = all other classrooms. Middle/ Highschools: Typical classroom size - 700sf Middle School Labs - 900SF labs High School Labs - 1100sf labs Evaluate each individual classroom and provide total number of each rating.	Evaluation of as-built drawings followed by site visit to confirm.	
1.2			√	2) Number of classrooms	Existing drawing review/Observation		Information only	Evaluation of as-built drawings followed by site visit to confirm.	
1.3			√	3) Availability of operable windows	Existing drawing review/Observation	yes - 90% of classrooms have at least one operable window, no - < 90%		Building walkthrough	
1.4			√	4) In-suite toilet room for Pre-K and K	Existing drawing review/Observation	yes/no		Evaluation of as-built drawings followed by site visit to confirm.	
1.5			√	5) Classroom sink	Existing drawing review/Observation	Elementary Schools - yes/no presence of sinks within classrooms Middle/ High School - inventory report of quantity in labs		Building walkthrough	
2.1	Classrooms (Special Education)		√	1) Size (SF of instructional space per school)	Existing drawing review/Observation	Green - all classrooms meet standard. Yellow - within 10% below. Red - below.	Standard min. is 500 sf	Evaluation of as-built drawings followed by site visit to confirm.	
2.2			√	2) Number and Type of "Permanent" Special Education classrooms	Existing drawing review/Observation		Information only	Evaluation of as-built drawings followed by site visit to confirm.	
2.3			√	3) Resource Rooms	Existing drawing review/Observation	yes/no		Evaluation of as-built drawings followed by site visit to confirm.	
2.4			√	4) Availability of OT/PT spaces	Existing drawing review/Observation	yes/no present space for this use or not		Evaluation of as-built drawings followed by site visit to confirm.	
	Support Services								
3.1	Workspace		√	1) Y/N	Existing drawing review/Observation	half		Evaluation of as-built drawings followed by site visit to confirm.	
3.2	Pullout Space		√	2) Y/N	Existing drawing review/Observation	yes/no		Evaluation of as-built drawings followed by site visit to confirm.	
3.3	Administrative space		√	3) Inventory of Admin spaces	Existing drawing review/Observation	Report Inventory	2 beds, Sink w/ eyewash, Refrigerator, Office with window, ensuite toilet	Building walkthrough	
3.4	Clinic		√	4) County Standards	Existing drawing review/Observation	yes/no	2 beds, Sink w/ eyewash, Refrigerator, Office with window, ensuite toilet	Building walkthrough	
4.1	Art		√	1) Quantity (number of rooms)	Existing drawing review/Observation	Yes/no meets QUANTITY STANDARD		Evaluation of as-built drawings followed by site visit to confirm.	
4.2			√	2) Availability of kiln	Existing drawing review/Observation	yes/no		Building walkthrough	
4.3			√	3) Availability of sinks/faucets	Existing drawing review/Observation	yes/no		Building walkthrough	
4.4			√	4)Availability of storage	Existing drawing review/Observation	yes/no		Building walkthrough	
5.1	Music		√	1) Quantity and type	Existing drawing review/Observation	Yes/no meets QUANTITY STANDARD	Type: vocal, instrumental, orchestra Define standard - from design guides. 2 +1	Evaluation of as-built drawings followed by site visit to confirm.	
5.2			√	2) Availability of Instrument Storage	Existing drawing review/Observation	yes/no		Building walkthrough	
6.0	Lab		√	Quantity and Type	Existing drawing review/Observation	Yes/no meets QUANTITY STANDARD	Type: wet, dry, maker space Define standard - from design guides.	Evaluation of as-built drawings followed by site visit to confirm.	
7.1	Performing Arts		√	1) Availability of black box theatre	Existing drawing review/Observation	yes/no		Evaluation of as-built drawings followed by site visit to confirm.	
7.2			√	2) Availability of dressing rooms	Existing drawing review/Observation	yes/no		Evaluation of as-built drawings followed by site visit to confirm.	
	Notes:								
	FCA is conducted to ASTM E1557 Standard Classification for Building Elements and Related Sitework -- UNIFORMAT II - to Level III								

ATTACHMENT B: PROJECT EVALUATION CRITERIA

ASTM Uniformat II Classification Standard:

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Level I	Level II	Level III
A Substructure	A10 Foundations	A1010 Standard Foundations
		A1020 Special Foundations
	A20 Basement Construction	A1030 Slab on Grade
		A2010 Basement Excavation
B Shell	B10 Superstructure	A2020 Basement Walls
		B1010 Floor Construction
	B20 Exterior Enclosure	B1020 Roof Construction
		B2010 Exterior Walls
		B2020 Exterior Windows
		B2030 Exterior Doors
	B30 Roofing	B3010 Roof Coverings
B3020 Roof Openings		
C Interiors	C10 Interior Construction	C1010 Partitions
		C1020 Interior Doors
		C1030 Fittings
	C20 Stairs	C2010 Stair Construction
	C30 Interior Finishes	C2020 Stair Finishes
		C3010 Wall Finishes
		C3020 Floor Finishes
C3030 Ceiling Finishes		
D Services	D10 Conveying	D1010 Elevators & Lifts
		D1020 Escalators & Moving Walks
		D1090 Other Conveying Systems
	D20 Plumbing	D2010 Plumbing Fixtures
		D2020 Domestic Water Distribution
		D2030 Sanitary Waste
		D2040 Rain Water Drainage
		D2090 Other Plumbing Systems
		D30 HVAC
	D3020 Heat Generating Systems	
	D3030 Cooling Generating Systems	
	D3040 Distribution Systems	
	D3050 Terminal & Package Units	
	D3060 Controls & Instrumentation	
	D3070 System Testing & Balancing	
	D3090 Other HVAC Systems & Equipment	
	D40 Fire Protection	D4010 Sprinklers
		D4020 Standpipes
		D4030 Fire Protection Specialties
		D4090 Other Fire Protection Systems
D50 Electrical	D5010 Electrical Service & Distribution	
	D5020 Lighting and Branch Wiring	
	D5030 Communications & Security	
	D5090 Other Electrical Systems	
E Equipment & Furnishings	E10 Equipment	E1010 Commercial Equipment
		E1020 Institutional Equipment
		E1030 Vehicular Equipment
		E1090 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings
	E2020 Movable Furnishings	
F Special Construction & Demolition	F10 Special Construction	F1010 Special Structures
		F1020 Integrated Construction
		F1030 Special Construction Systems
		F1040 Special Facilities
		F1050 Special Controls and Instrumentation
	F20 Selective Building Demolition	F2010 Building Elements Demolition
		F2020 Hazardous Components Abatement
G Sitework & Utilities	G10 Site Preparation	G1010 Site Clearing
		G1020 Site Demolition and Relocations
		G1030 Site Earthwork
		G1040 Hazardous Waste Removal
	G20 Site Improvements	G2010 Roadways
		G2020 Parking Lots
		G2030 Pedestrian Paving
		G2040 Site Development
		G2050 Landscaping
	G30 Site Mechanical Utilities	G3010 Water Supply
		G3020 Sanitary Sewer
		G3030 Storm Sewer
		G3040 Heating Distribution
		G3050 Cooling Distribution
		G3060 Fuel Distribution
		G3090 Other Site Mechanical Utilities
	G40 Site Electrical Utilities	G4010 Electrical Distribution
G4020 Site Lighting		
G4030 Site Communications & Security		
G4090 Other Site Electrical Utilities		
G90 Other Site Construction	G9010 Services and Pedestrian Tunnels	
	G9090 Other Site Systems & Equipment	

ATTACHMENT C.1: Building Characteristics Summary – Major Building Systems

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Major Building Systems

Building Index	School Name	2.0 HVAC - Indoor Air Quality	3.0 HVAC - Ventilation - Classroom	4.0 HVAC - Ventilation - Gymnasium	5.0 HVAC - Ventilation - Dining	6.0 HVAC - Ventilation - Library	7.0 HVAC - Ventilation - Auditorium	8.0 HVAC - Ventilation - Pool	9.0 HVAC - Specialty Ventilation Requirements	10.0 HVAC - Filtration - Classrooms	11.0 HVAC - Filtration - Gymnasium	12.0 HVAC - Filtration - Library	13.0 HVAC - Filtration - Auditorium	14.0 HVAC - Filtration - Pool	15.0 HVAC - Thermal Comfort	3.1 Electrical - Indoor Lighting (LED coverage)	3.2 Electrical - Exterior Lighting	3.3 Electrical - Indoor Lighting Color Temperature	3.4 Electrical - Exterior Lighting Color Temperature	3.5 Electrical - Occupancy Sensors
		Likelihood to meet code requirements and ability to deliver code minimum OA	Ventilation Capability - Classrooms	Ventilation Capability - Gymnasium	Ventilation Capability - Dining	Ventilation Capability - Library	Ventilation Capability - Auditorium	Ventilation Capability - Pool	Specialty Space Ventilation Requirements	Level of filtration Classrooms	Level of filtration Gymnasium	Level of filtration Library	Level of filtration Auditorium	Level of filtration Pool	Capability for Individual Temp control and building humidity control	Presence of LED fixtures	Exterior light pollution	Color temperature of fixtures	Color temperature of fixtures	Occupancy sensors are present or not present
5	Abingdon Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3	Alice West Fleet Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10	Arlington Career Center & Arlington Tech	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6	Arlington Science Focus Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7	Arlington Traditional Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1	Ashlawn Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2	Barcroft Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8	Barrett Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9	Campbell Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
42	Cardinal Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11	Carlin Springs Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12	Claremont Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
31	David M Brown Planetarium	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13	Discovery Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15	Dorothy Hamm Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16	Dr. Charles R. Drew Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
17	Escuela Key Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
18	Facilities and Operations at the Trades Center	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
19	Glebe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20	Gunston Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
22	Hoffman-Boston Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
23	Innovation Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
24	Jamestown Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
25	Jefferson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
26	Kenmore Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
27	Langston High School Continuation & New Directions Alternative Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
28	Long Branch Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4	Montessori Public School of Arlington	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
29	Nottingham Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
30	Oakridge Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
32	Randolph Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
33	Swanson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
34	Syphax Education Center - leased	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
35	Taylor Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
37	Tuckahoe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
38	Wakefield High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
14	Washington-Liberty Annex	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
39	Washington-Liberty High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40	Williamsburg Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
41	Yorktown High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	Meets Standard - By Category	18	20	23	16	27	7	3	12	4	15	16	0	0	32	13	23	11	12	11
●	Approaches Standard - By Category	19	8	7	4	1	1	0	13	16	21	18	11	4	4	0	0	0	0	0
●	Does Not Meet Standard - By Category	3	12	6	18	9	1	0	14	20	1	3	0	0	4	28	17	30	28	30
●	Not Applicable - By Category	1	1	5	3	4	32	38	2	1	4	4	30	37	1	0	1	0	1	0

ATTACHMENT C.1: Building Characteristics Summary – Major Building Systems

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

Major Building Systems

Building Index	School Name	3.6 Electrical - Sport Lighting	2.0 Plumbing - Isolation Valves	3.0 Plumbing - Flow/Pressure	4.1 Plumbing - Water Efficient Fixtures	4.2 Plumbing - Water Usage Intensity (WUI)	1.0 Building Security - Security Vestibules	2.1 Building Security - Areas of concealment (interior)	2.2 Building Security - Areas of concealment (exterior)	2.3 Building Security - Single point of entry	Life Safety and Code Standards - Accessible entrance	Life Safety and Code Standards - Elevator (if multistory)	Life Safety and Code Standards - Bathroom Accessibility	Life Safety and Code Standards - Corridor Width	Life Safety and Code Standards - Stairs/Guardrails/Handrails	Life Safety and Code Standards - Accessibility in Public Spaces	1.0 Ability to Expand - Feasibility Study	2.1 Ability to Expand - Relocatable Complex	2.2 Ability to Expand - Number of Relocatable Classrooms	1.0 Other - Energy Use Benchmarking
		Presence of LED fixtures	Yes/No presence and ability to isolate	Yes/No sufficient pressure for fixtures	Yes/No/% Efficient fixtures	Rank all schools, value	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No/Partial	Yes/No/Partial	Yes/No/Partial	Yes/No/Partial	Yes/No	Yes/No	Quantity	Rank all schools, value
5	Abingdon Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
3	Alice West Fleet Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
10	Arlington Career Center & Arlington Tech	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16	●
6	Arlington Science Focus Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	6	●
7	Arlington Traditional Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
1	Ashlawn Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
2	Barcroft Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	●
8	Barrett Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
9	Campbell Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	3	●
42	Cardinal Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2	●
11	Carlin Springs Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
12	Claremont Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	7	●
31	David M Brown Planetarium	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
13	Discovery Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
15	Dorothy Hamm Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
16	Dr. Charles R. Drew Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
17	Escuela Key Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	●
18	Facilities and Operations at the Trades Center	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	●
19	Glebe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
20	Gunston Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
22	Hoffman-Boston Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
23	Innovation Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
24	Jamestown Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
25	Jefferson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
26	Kenmore Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
27	Langston High School Continuation & New Directions Alternative Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
28	Long Branch Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
4	Montessori Public School of Arlington	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
29	Nottingham Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	5	●
30	Oakridge Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	●
32	Randolph Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2	●
33	Swanson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	6	●
34	Syphax Education Center - leased	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	6	●
35	Taylor Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	6	●
37	Tuckahoe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4	●
38	Wakefield High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	6	●
14	Washington-Liberty Annex	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
39	Washington-Liberty High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
40	Williamsburg Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
41	Yorktown High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0	●
● Meets Standard - By Category		0	4	4	11	16	28	1	11	23	39	33	12	38	23	38	25	25	-	14
● Approaches Standard - By Category		0	0	0	5	9	0	0	0	0	0	0	21	1	10	1	0	0	-	10
● Does Not Meet Standard - By Category		3	0	1	22	11	12	40	30	17	0	4	7	1	6	1	14	15	-	13
● Not Applicable - By Category		38	37	36	3	5	1	0	0	1	2	4	1	1	2	1	2	1	-	4

ATTACHMENT C.1: Building Characteristics Summary – Major Building Systems

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

Major Building Systems

Building Index	School Name	2.1 Other - Daylighting Access	2.2 Other - Daylighting Controllability	3.0 Other - On-site renewable energy	4.0 Other - Geothermal	5.2 Other - Number of Elevators	5.3 Other - Elevator Size	Meets Standard - By Building	Approaches Standard - By Building	Does Not Meet Standard - By Building	Not Applicable - By Building
		Yes/No based on daylight availability provide percentage of classroom/ learning spaces with access	Yes/No	Yes/No presence of on-site solar	Yes/No presence of on-site geothermal	Quantity	Yes/No can accommodate stretcher (min. size)				
5	Abingdon Elementary School							23	4	7	9
3	Alice West Fleet Elementary School							31	0	5	7
10	Arlington Career Center & Arlington Tech							12	5	13	13
6	Arlington Science Focus Elementary School							14	4	16	9
7	Arlington Traditional Elementary School							17	6	11	9
1	Ashlawn Elementary School							16	5	15	7
2	Barcroft Elementary School							11	3	21	8
8	Barrett Elementary School							17	4	14	8
9	Campbell Elementary School							12	8	12	11
42	Cardinal Elementary School							30	0	6	7
11	Carlin Springs Elementary School							17	6	13	7
12	Claremont Elementary School							14	2	18	9
31	David M Brown Planetarium							10	2	4	27
13	Discovery Elementary School							22	4	8	9
15	Dorothy Hamm Middle School							19	6	11	7
16	Dr. Charles R. Drew Elementary School							16	3	15	9
17	Escuela Key Elementary School							12	5	17	9
18	Facilities and Operations at the Trades Center							12	3	16	12
19	Glebe Elementary School							18	5	11	9
20	Gunston Middle School							12	8	16	7
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs							24	4	7	8
22	Hoffman-Boston Elementary School							13	5	16	9
23	Innovation Elementary School							18	4	12	9
24	Jamestown Elementary School							8	4	19	12
25	Jefferson Middle School							9	3	24	7
26	Kenmore Middle School							20	10	7	6
27	Langston High School Continuation & New Directions Alternative Programs							8	6	17	12
28	Long Branch Elementary School							13	6	15	9
4	Montessori Public School of Arlington							11	4	21	7
29	Nottingham Elementary School							14	6	14	9
30	Oakridge Elementary School							13	7	14	9
32	Randolph Elementary School							17	4	13	9
33	Swanson Middle School							12	6	18	7
34	Syphax Education Center - leased							10	0	5	28
35	Taylor Elementary School							12	4	14	13
37	Tuckahoe Elementary School							9	8	17	9
38	Wakefield High School							24	8	7	4
14	Washington-Liberty Annex							22	1	7	13
39	Washington-Liberty High School							22	4	13	4
40	Williamsburg Middle School							15	4	16	8
41	Yorktown High School							21	3	15	4
Meets Standard - By Category Approaches Standard - By Category Does Not Meet Standard - By Category Not Applicable - By Category		5	7	9	5	7	9				
		0	0	0	0	0	0				
		1	1	32	36	23	26				
		35	33	0	0	11	6				

ATTACHMENT C.2: Building Characteristics Summary – Common Space Adequacy

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Common Space Adequacy

Building Index	School Name	1.0 Cafeteria	1.1 Kitchen	1.2 Kitchen	1.3 Kitchen	2.2 Gymnasium	3.1 Performance Space	3.2 Performance Space	3.3 Performance Space	4.2 Library	5.0 Pool	5.2 Pool	6.2 Playground	6.3 Playground	7.3 Press Box	8.0 Outdoor Learning	9.0 Outdoor dining
		Size per student served	Size per student served	Number of service lines	Lunch periods	Size (Length & Width)	Availability (Y/N)	Seating (Occupancy)	Stage Accessibility	Library classroom (Y/N)	Design Capacity/# of swimmers	Presense of Male and Female changing rooms	Age/Condition of Equipment	Playground Surfacing	Yes/No	Number of stations/type	Yes/No
5	Abingdon Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3	Alice West Fleet Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10	Arlington Career Center & Arlington Tech	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6	Arlington Science Focus Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7	Arlington Traditional Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1	Ashlawn Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2	Barcroft Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8	Barrett Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9	Campbell Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
42	Cardinal Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11	Carlin Springs Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12	Claremont Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
31	David M Brown Planetarium	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13	Discovery Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15	Dorothy Hamm Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16	Dr. Charles R. Drew Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
17	Escuela Key Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
18	Facilities and Operations at the Trades Center	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
19	Glebe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20	Gunston Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
22	Hoffman-Boston Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
23	Innovation Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
24	Jamestown Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
25	Jefferson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
26	Kenmore Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
27	Langston High School Continuation & New Directions Alternative Programs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
28	Long Branch Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4	Montessori Public School of Arlington	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
29	Nottingham Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
30	Oakridge Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
32	Randolph Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
33	Swanson Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
34	Syphax Education Center - leased	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
35	Taylor Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
37	Tuckahoe Elementary School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
38	Wakefield High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
14	Washington-Liberty Annex	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
39	Washington-Liberty High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40	Williamsburg Middle School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
41	Yorktown High School	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
● Meets Standard - By Category		26	34	25	27	32	32	10	4	36	3	3	1	2	3	33	35
● Approaches Standard - By Category		0	0	0	0	0	0	0	5	0	0	0	3	0	0	0	0
● Does Not Meet Standard - By Category		11	3	10	10	5	4	1	0	1	0	0	0	26	1	5	3
● Not Applicable - By Category		4	4	6	4	4	5	30	32	4	38	38	37	13	37	3	3

ATTACHMENT C.2: Building Characteristics Summary – Common Space Adequacy

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS					
Common Space Adequacy					
Building Index	School Name	Meets Standard - By Building	Approaches Standard - By Building	Does Not Meet Standard - By Building	Not Applicable - By Building
		●	●	●	●
5	Abingdon Elementary School	6	0	4	7
3	Alice West Fleet Elementary School	9	0	2	6
10	Arlington Career Center & Arlington Tech	2	0	7	8
6	Arlington Science Focus Elementary School	8	0	2	7
7	Arlington Traditional Elementary School	7	0	3	7
1	Ashlawn Elementary School	8	1	2	6
2	Barcroft Elementary School	7	1	3	6
8	Barrett Elementary School	6	0	4	7
9	Campbell Elementary School	9	0	1	7
42	Cardinal Elementary School	10	0	0	7
11	Carlin Springs Elementary School	9	0	1	7
12	Claremont Elementary School	10	0	1	6
31	David M Brown Planetarium	0	0	0	17
13	Discovery Elementary School	7	0	3	7
15	Dorothy Hamm Middle School	9	1	1	6
16	Dr. Charles R. Drew Elementary School	9	0	1	7
17	Escuela Key Elementary School	9	0	1	7
18	Facilities and Operations at the Trades Center	0	0	0	17
19	Glebe Elementary School	8	0	2	7
20	Gunston Middle School	9	1	2	5
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	6	0	3	8
22	Hoffman-Boston Elementary School	10	0	1	6
23	Innovation Elementary School	7	0	3	7
24	Jamestown Elementary School	7	0	2	8
25	Jefferson Middle School	7	1	3	6
26	Kenmore Middle School	10	0	1	6
27	Langston High School Continuation & New Directions Alternative Programs	5	0	6	6
28	Long Branch Elementary School	7	0	3	7
4	Montessori Public School of Arlington	6	1	4	6
29	Nottingham Elementary School	9	0	1	7
30	Oakridge Elementary School	7	0	3	7
32	Randolph Elementary School	6	0	4	7
33	Swanson Middle School	9	1	0	7
34	Syphax Education Center - leased	0	0	0	17
35	Taylor Elementary School	7	0	3	7
37	Tuckahoe Elementary School	9	0	1	7
38	Wakefield High School	13	0	1	3
14	Washington-Liberty Annex	2	0	1	14
39	Washington-Liberty High School	14	0	0	3
40	Williamsburg Middle School	10	1	0	6
41	Yorktown High School	14	0	0	3

ATTACHMENT C.3: Building Characteristics Summary – Educational Space Adequacy

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

Educational Space Adequacy

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Building Index	School Name	1.1 Classrooms (General) - Green Rating	1.1 Classrooms (General) - Yellow Rating	1.1 Classrooms (General) - Red Rating	1.2 Classrooms (General)	1.3 Classrooms (General)	1.4 Classrooms (General)	1.5 Classrooms (General)	2.1 Classrooms (Special Education)	2.2 Classrooms (Special Education)	2.3 Classrooms (Special Education)	2.4 Classrooms (Special Education)	3.1 Workspace	3.2 Pullout Space	4.1 Art	4.2 Art	4.3 Art	4.4 Art	5.1 Music
		Size (SF of instructional space per school)	Size (SF of instructional space per school)	Size (SF of instructional space per school)	Total number of classrooms	Availability of operable windows	In-suite toilet room for Pre-K and K	Classroom sink	Size (SF of instructional space per school)	Number and Type of "Permanent" Special Education classrooms	Resource Rooms	Availability of OT/PT spaces	Yes/No	Yes/No	Quantity (number of rooms)	Availability of kiln	Availability of sinks/faucets	Availability of storage	Quantity and type
5	Abingdon Elementary School	8	18	4	30	●	●	●	●	2 - Pre-K spec ed	●	●	●	●	●	●	●	●	●
3	Alice West Fleet Elementary School	9	18	5	32	●	●	●	●	1 - pre-k SPED	●	●	●	●	●	●	●	●	●
10	Arlington Career Center & Arlington Tech	21	1	26	48	●	●	●	●	-	●	●	●	●	●	●	●	●	●
6	Arlington Science Focus Elementary School	8	15	0	23	●	●	●	●	2 - Spec-Ed	●	●	●	●	●	●	●	●	●
7	Arlington Traditional Elementary School	21	11	1	33	●	●	●	●	2 - ESOL/HILT; MIPA	●	●	●	●	●	●	●	●	●
1	Ashlawn Elementary School	21	4	3	28	●	●	●	●	3 - VPI, 2 SPED	●	●	●	●	●	●	●	●	●
2	Barcroft Elementary School	10	8	2	20	●	●	●	●	1 - SPED	●	●	●	●	●	●	●	●	●
8	Barrett Elementary School	1	10	12	23	●	●	●	●	5 - SPED	●	●	●	●	●	●	●	●	●
9	Campbell Elementary School	12	5	2	19	●	●	●	●	3 - Interlude	●	●	●	●	●	●	●	●	●
42	Cardinal Elementary School	16	11	8	35	●	●	●	●	-	●	●	●	●	●	●	●	●	●
11	Carlin Springs Elementary School	4	22	2	28	●	●	●	●	3 - SPED	●	●	●	●	●	●	●	●	●
12	Claremont Elementary School	21	3	3	27	●	●	●	●	-	●	●	●	●	●	●	●	●	●
31	David M Brown Planetarium				0	●	●	●	●	-	●	●	●	●	●	●	●	●	●
13	Discovery Elementary School	24	4	0	28	●	●	●	●	-	●	●	●	●	●	●	●	●	●
15	Dorothy Hamm Middle School	34	10	5	49	●	●	●	●	4 - 3 SPED; 1 Autism	●	●	●	●	●	●	●	●	●
16	Dr. Charles R. Drew Elementary School	9	6	5	20	●	●	●	●	5 - SPED	●	●	●	●	●	●	●	●	●
17	Escuela Key Elementary School	11	6	1	18	●	●	●	●	-	●	●	●	●	●	●	●	●	●
18	Facilities and Operations at the Trades Center				0	●	●	●	●	-	●	●	●	●	●	●	●	●	●
19	Glebe Elementary School	11	5	5	21	●	●	●	●	3 - SPED	●	●	●	●	●	●	●	●	●
20	Gunston Middle School	45	1	9	55	●	●	●	●	11 - SPED	●	●	●	●	●	●	●	●	●
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	17	19	4	40	●	●	●	●	8 - SPED	●	●	●	●	●	●	●	●	●
22	Hoffman-Boston Elementary School	7	13	2	22	●	●	●	●	9 - 7 SPED; 2 MIPA	●	●	●	●	●	●	●	●	●
23	Innovation Elementary School	12	13	1	26	●	●	●	●	-	●	●	●	●	●	●	●	●	●
24	Jamestown Elementary School	4	16	1	21	●	●	●	●	2 - pre-K SPED	●	●	●	●	●	●	●	●	●
25	Jefferson Middle School	9	28	25	62	●	●	●	●	6 - 5 SPED; 1 interlude	●	●	●	●	●	●	●	●	●
26	Kenmore Middle School	46	0	7	53	●	●	●	●	9 - SPED	●	●	●	●	●	●	●	●	●
27	Langston High School Continuation & New Directions Alternative Programs	7	1	0	8	●	●	●	●	1 - SPED	●	●	●	●	●	●	●	●	●
28	Long Branch Elementary School	12	5	2	19	●	●	●	●	-	●	●	●	●	●	●	●	●	●
4	Montessori Public School of Arlington	2	4	14	20	●	●	●	●	1 - SPED	●	●	●	●	●	●	●	●	●
29	Nottingham Elementary School	19	0	2	21	●	●	●	●	-	●	●	●	●	●	●	●	●	●
30	Oakridge Elementary School	14	7	2	23	●	●	●	●	5 - 4 SPED; 1 MOSIAC	●	●	●	●	●	●	●	●	●
32	Randolph Elementary School	4	7	7	18	●	●	●	●	3 - SPED	●	●	●	●	●	●	●	●	●
33	Swanson Middle School	31	7	14	52	●	●	●	●	2 - SPED	●	●	●	●	●	●	●	●	●
34	Syphax Education Center - leased				0	●	●	●	●	-	●	●	●	●	●	●	●	●	●
35	Taylor Elementary School	3	7	16	26	●	●	●	●	4 - SPED	●	●	●	●	●	●	●	●	●
37	Tuckahoe Elementary School	9	6	4	19	●	●	●	●	2 - SPED	●	●	●	●	●	●	●	●	●
38	Wakefield High School	81	18	3	102	●	●	●	●	-	●	●	●	●	●	●	●	●	●
14	Washington-Liberty Annex	23	0	0	23	●	●	●	●	-	●	●	●	●	●	●	●	●	●
39	Washington-Liberty High School	90	3	4	97	●	●	●	●	6 - SPED	●	●	●	●	●	●	●	●	●
40	Williamsburg Middle School	38	4	8	50	●	●	●	●	4 - 3 SPED; 1 EL Classroom	●	●	●	●	●	●	●	●	●
41	Yorktown High School	55	33	2	90	●	●	●	●	4 - SPED	●	●	●	●	●	●	●	●	●

* Lighter shade: 0% to 33% of classrooms

* Medium shade: > 33% to 66% of classrooms

* Darker shade: > 66% to 100% of classrooms

Meets Standard - By Category	Approaches Standard - By Category	Does Not Meet Standard - By Category	Not Applicable - By Category	1.3 Classrooms (General)	1.4 Classrooms (General)	1.5 Classrooms (General)	2.1 Classrooms (Special Education)	2.2 Classrooms (Special Education)	2.3 Classrooms (Special Education)	2.4 Classrooms (Special Education)	3.1 Workspace	3.2 Pullout Space	4.1 Art	4.2 Art	4.3 Art	4.4 Art	5.1 Music
30	22	24	26	-	35	20	37	37	36	36	36	32	35				
0	0	0	1	-	0	0	0	0	0	0	0	0	0				
8	3	5	1	-	0	8	1	1	1	1	1	5	2				
3	16	12	13	-	6	13	3	3	4	4	4	4	4				

ATTACHMENT C.3: Building Characteristics Summary – Educational Space Adequacy

ARLINGTON PUBLIC SCHOOLS - 2023 BUILDING CHARACTERISTICS

Educational Space Adequacy

Building Index	School Name	5.2 Music	7.1 Performing Arts	7.2 Performing Arts	Meets Standard - By Building	Approaches Standard - By Building	Does Not Meet Standard - By Building	Not Applicable - By Building
		Availability of Instrument Storage	Availability of black box theatre	Availability of dressing rooms				
5	Abingdon Elementary School				11	0	3	2
3	Alice West Fleet Elementary School				13	0	1	2
10	Arlington Career Center & Arlington Tech				4	0	9	3
6	Arlington Science Focus Elementary School				13	0	1	2
7	Arlington Traditional Elementary School				12	0	2	2
1	Ashlawn Elementary School				13	0	1	2
2	Barcroft Elementary School				12	0	2	2
8	Barrett Elementary School				14	0	0	2
9	Campbell Elementary School				13	0	1	2
42	Cardinal Elementary School				13	0	0	3
11	Carlin Springs Elementary School				14	0	0	2
12	Claremont Elementary School				11	0	2	3
31	David M Brown Planetarium				0	0	0	16
13	Discovery Elementary School				13	0	0	3
15	Dorothy Hamm Middle School				12	0	2	2
16	Dr. Charles R. Drew Elementary School				14	0	0	2
17	Escuela Key Elementary School				12	0	0	4
18	Facilities and Operations at the Trades Center				0	0	0	16
19	Glebe Elementary School				14	0	0	2
20	Gunston Middle School				14	0	0	2
21	H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs				13	0	1	2
22	Hoffman-Boston Elementary School				14	0	0	2
23	Innovation Elementary School				13	0	0	3
24	Jamestown Elementary School				14	0	0	2
25	Jefferson Middle School				10	0	3	3
26	Kenmore Middle School				13	0	0	3
27	Langston High School Continuation & New Directions Alternative Programs				10	0	5	1
28	Long Branch Elementary School				10	0	3	3
4	Montessori Public School of Arlington				11	0	3	2
29	Nottingham Elementary School				13	0	0	3
30	Oakridge Elementary School				13	0	1	2
32	Randolph Elementary School				12	0	2	2
33	Swanson Middle School				10	0	3	3
34	Syphax Education Center - leased				0	0	0	16
35	Taylor Elementary School				11	0	3	2
37	Tuckahoe Elementary School				14	0	0	2
38	Wakefield High School				12	0	0	4
14	Washington-Liberty Annex				3	0	3	10
39	Washington-Liberty High School				10	1	2	3
40	Williamsburg Middle School				7	0	6	3
41	Yorktown High School				11	0	2	3

Meets Standard - By Category	Approaches Standard - By Category	Does Not Meet Standard - By Category	Not Applicable - By Category
27	0	11	3
5	0	8	28
8	0	5	28

ATTACHMENT C.5: Facility Condition Portfolio Summary



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Project Name	Building GSF²	Portfolio FCI_{AD}	Portfolio Bldg. CRV^{3,6}	10-year Projected Needs^{5,6}	Condition Category Legend		
Arlington Public Schools	5,043,240	0.129	\$1,822,912,826	\$417,389,610	Good	Fair	Poor
					0 - 0.15	0.151 - 0.33	0.331 - 1

Number of Buildings Assessed
41

Portfolio Summary

PROJECTED NEEDS^{5,6}

Building Systems	Avg. Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A103000 - SLAB ON GRADE	4.95	\$80,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A202000 - BASEMENT WALLS	5.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B101000 - FLOOR CONSTRUCTION	4.97	\$40,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B102000 - ROOF CONSTRUCTION	4.98	\$75,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B201000 - EXTERIOR WALLS	4.53	\$669,500	\$759,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B202000 - EXTERIOR WINDOWS	3.87	\$251,000	\$0	\$0	\$0	\$3,009,361	\$0	\$0	\$3,216,670	\$0	\$1,976,558	\$350,199	\$3,410,651
B203000 - EXTERIOR DOORS	3.70	\$11,000	\$2,000	\$0	\$77,417	\$936,158	\$69,421	\$0	\$270,605	\$0	\$743,111	\$157,680	\$744,182
B301000 - ROOF COVERINGS	3.05	\$5,688,000	\$22,980,000	\$10,356,992	\$0	\$5,507,119	\$5,481,907	\$5,136,573	\$3,602,277	\$0	\$9,303,323	\$1,726,157	\$2,753,785
C101000 - PARTITIONS	4.95	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C102000 - INTERIOR DOORS	3.88	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$951,733	\$0	\$2,920,699	\$0	\$3,120,523
C103000 - FITTINGS	3.93	\$0	\$0	\$0	\$0	\$533,181	\$0	\$346,230	\$699,133	\$0	\$1,943,870	\$0	\$1,852,756
C201000 - STAIR CONSTRUCTION	5.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C301000 - WALL FINISHES	3.83	\$2,000	\$1,246,085	\$10,816,232	\$4,309,433	\$4,511,230	\$781,160	\$476,638	\$1,246,085	\$10,089,424	\$3,768,170	\$2,708,203	\$0
C302000 - FLOOR FINISHES	3.71	\$162,000	\$3,401,208	\$5,647,503	\$0	\$3,503,833	\$3,913,435	\$6,566,547	\$10,493,071	\$0	\$15,657,049	\$0	\$5,029,847
C303000 - CEILING FINISHES	3.68	\$27,000	\$5,754,725	\$5,030,988	\$0	\$4,946,781	\$3,349,791	\$5,347,404	\$2,699,104	\$2,605,473	\$22,784,913	\$26,083	\$8,529,925
D101010 - ELEVATORS	3.76	\$15,000	\$618,854	\$206,285	\$0	\$1,031,423	\$1,237,708	\$1,031,423	\$206,285	\$0	\$206,285	\$0	\$0
D101020 - LIFTS	3.29	\$0	\$37,940	\$18,970	\$0	\$37,940	\$18,970	\$0	\$0	\$0	\$18,970	\$0	\$0
D201000 - PLUMBING SYSTEMS AND FIXTURES	4.29	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,022,667	\$0	\$0
D202000 - RESIDENTIAL WATER HEATER	4.50	\$0	\$0	\$0	\$0	\$0	\$0	\$31,697	\$0	\$0	\$0	\$0	\$0
D202005 - COMMERCIAL WATER HEATER	3.90	\$10,000	\$508,350	\$198,823	\$35,635	\$35,635	\$0	\$340,625	\$129,908	\$0	\$227,100	\$79,748	\$70,741
D204000 - BUILDING STORMWATER DRAINAGE	4.40	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$798,767	\$409,250	\$0	\$249,727
D301000 - ENERGY SUPPLY	4.39	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36,103	\$0	\$0	\$7,087
D301006 - SOLAR ENERGY SUPPLY	4.00	\$0	\$0	\$0	\$0	\$2,584,129	\$0	\$0	\$0	\$1,904,095	\$1,289,181	\$0	\$2,654,526
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4.60	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D302000 - CENTRAL PLANT HEATING	3.86	\$5,000	\$1,224,304	\$923,704	\$0	\$2,708,982	\$2,550,048	\$1,644,716	\$447,627	\$0	\$1,196,861	\$2,490,907	\$542,215
D302010 - FIREPLACES	5.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D303000 - CENTRAL PLANT COOLING	3.88	\$50,000	\$0	\$2,167,732	\$0	\$0	\$0	\$3,148,068	\$683,577	\$384,279	\$385,066	\$0	\$576,479
D304010 - DISTRIBUTION SYSTEMS - HEATING	3.87	\$0	\$1,854,202	\$4,966,505	\$1,196,609	\$0	\$4,119,490	\$1,983,136	\$1,706,364	\$2,978,144	\$3,251,284	\$0	\$4,264,696
D304020 - DISTRIBUTION SYSTEMS - COOLING	3.83	\$0	\$1,701,702	\$4,996,457	\$1,196,609	\$0	\$4,907,986	\$2,362,721	\$2,032,973	\$1,508,335	\$5,425,155	\$0	\$2,600,192
D305010 - TERMINAL & PACKAGE UNITS	3.43	\$0	\$4,585,237	\$1,916,476	\$721,552	\$787,744	\$3,734,830	\$613,995	\$87,502	\$4,802,139	\$177,009	\$0	\$0
D306000 - CONTROLS	3.49	\$0	\$4,078,149	\$1,427,919	\$0	\$1,311,206	\$0	\$628,879	\$0	\$796,574	\$255,863	\$456,651	\$20,621
D401000 - SPRINKLERS	4.31	\$62,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$529,171	\$1,043,428	\$0
D402000 - STANDPIPES	4.60	\$0	\$148,925	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4.28	\$0	\$938,677	\$865,891	\$0	\$173,634	\$0	\$0	\$0	\$0	\$278,439	\$0	\$0
D502000 - LIGHTING AND BRANCH WIRING	4.12	\$0	\$8,520,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,404,271	\$0	\$3,249,620
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3.66	\$0	\$13,191,659	\$3,294,760	\$0	\$6,604,439	\$0	\$6,015,214	\$0	\$1,627,511	\$5,618,366	\$770,439	\$1,905,807
D509000 - EMERGENCY POWER	3.76	\$0	\$0	\$56,200	\$0	\$56,200	\$89,586	\$112,400	\$56,200	\$0	\$389,744	\$112,400	\$344,382
E102000 - INSTITUTIONAL EQUIPMENT	3.78	\$0	\$0	\$86,007	\$0	\$880,273	\$0	\$96,219	\$24,055	\$120,432	\$17,165,445	\$0	\$56,128
E109002 - FOOD SERVICE EQUIPMENT	3.76	\$5,000	\$648,909	\$900,661	\$247,372	\$1,481,884	\$2,303,789	\$985,445	\$265,846	\$0	\$6,278,023	\$339,151	\$341,189
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4.00	\$0	\$0	\$44,418	\$0	\$0	\$0	\$0	\$0	\$0	\$126,402	\$0	\$0
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3.75	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E201020 - FIXED FURNISHINGS - CASEWORK	3.67	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3.86	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F102030 - AUDITORIUMS	3.50	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F102040 - COLD STORAGE ROOMS	3.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F104001 - AQUATIC FACILITIES	3.67	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
BUILDING Total in USD		\$7,177,500	\$72,215,227	\$53,922,522	\$7,784,626	\$40,641,152	\$32,558,120	\$36,867,928	\$28,819,015	\$27,651,276	\$109,752,244	\$10,261,047	\$42,325,078

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools

Portfolio Summary



ATTACHMENT C.6: Facility Condition Near-Term Items

Building Name	WBS	Local Project ID	Local Project Description	EUL	RUL	Quantity	Unit of Measure	Cost
Arlington Career Center & Arlington Tech	B201000 - EXTERIOR WALLS	1	Repair concrete cracks and spalls throughout façade	70	2	1	LS	\$ 50,000
Arlington Science Focus Elementary School	B201000 - EXTERIOR WALLS	1	Assess wall cracking at south side of Gymnasium	70	2	1	LS	\$ 15,000
Arlington Traditional Elementary School	B201000 - EXTERIOR WALLS	1	Repair holes throughout EIFS walls, repair soffit above kitchen loading dock, and repaint corroded steel lintels.	25	1	1	LS	\$ 20,000
Ashlawn Elementary School	A103000 - SLAB ON GRADE	1	Repair slab cracks	99	1	4	EA	\$ 80,000
Ashlawn Elementary School	B101000 - FLOOR CONSTRUCTION	1	At the elevated floors, repair cracks.	99	1	2	EA	\$ 40,000
Ashlawn Elementary School	B102000 - ROOF CONSTRUCTION	1	Repair or replace the south corner canopy.	99	1	1	LS	\$ 75,000
Ashlawn Elementary School	B201000 - EXTERIOR WALLS	1	Repair spalling concrete	70	1	1	LS	\$ 75,000
Ashlawn Elementary School	B201000 - EXTERIOR WALLS	2	Remove and replace exterior sealant.	70	1	1	LS	\$ 25,000
Ashlawn Elementary School	B202000 - EXTERIOR WINDOWS	1	Confirm the glazing seal is compromised. If so, replace the thermal glazing.	40	1	1	LS	\$ 50,000
Ashlawn Elementary School	B202000 - EXTERIOR WINDOWS	2	Remove and replace the sealant between the frame and opening material.	40	1	1	LS	\$ 25,000
Ashlawn Elementary School	C101000 - PARTITIONS	1	Determine cause of CMU cracks and repair.	70	1	1	LS	\$ 25,000
Ashlawn Elementary School	C303000 - CEILING FINISHES	1	Evaluate cause of ceiling stains at the lower and upper levels. Repair issues, then replace tile.	20	1	1	LS	\$ 25,000
Barcroft Elementary School	B201000 - EXTERIOR WALLS	1	Create a masonry restoration project that repairs veneer fractures (west elevation), repairs through wall masonry fractures (circular window), repairs stair stepping crack in CMU (south façade), replaces exfoliating steel and replaces failed sections of the masonry walls along with replacing steel components (plates and beams).	70	2	8500	EA	\$ 209,000
Barcroft Elementary School	F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY GYMS	1	Fix gymnasium RTU controls issues	30	1	1	LS	\$ 2,000
Barrett Elementary School	B201000 - EXTERIOR WALLS	1	Assess cracking in CMU walls in Gymnasium	70	1	1	LS	\$ 15,000
Campbell Elementary School	D304010 - DISTRIBUTION SYSTEMS - HEATING	1	The packaged RTU for the administrative area (approx. 12500 sf) was built in 1995. While still functional, its replacement should be considered. The distribution was replaced in the 2001 renovations.	30	2	12500	SF	\$ 152,500
Carlin Springs Elementary School	B301000 - ROOF COVERINGS	1	Replace BUR roofing	25	2	44655	SF	\$ 1,562,925
Carlin Springs Elementary School	D302000 - CENTRAL PLANT HEATING	1	Boiler 1 experiencing short cycling requiring evaluation and repair.	40	1	1	LS	\$ 5,000
Claremont Elementary School	B201000 - EXTERIOR WALLS	1	Assess water penetration at Gymnasium walls	70	2	1	LS	\$ 15,000
Claremont Elementary School	B301000 - ROOF COVERINGS	1	Replace hybrid roofing	20	1	26775	SF	\$ 803,250
Claremont Elementary School	B301000 - ROOF COVERINGS	2	Replace built-up roofing	25	1	27050	SF	\$ 946,750
Claremont Elementary School	B301000 - ROOF COVERINGS	3	Removal and disposal of exposed aggregate concrete awnings over exterior classroom doors for safety. Repair walls at attachment points.	99	1	12	EA	\$ 60,000
Claremont Elementary School	D202005 - COMMERCIAL WATER HEATER	1	Replace the 1994, 75MBtuh natural gas water heater tank as it is past is EUL.	20	1	1	LS	\$ 10,000
Discovery Elementary School	B203000 - EXTERIOR DOORS	1	Fix/adjust front entry door closure.	30	1	1	LS	\$ 1,000
Dorothy Hamm Middle School	B201000 - EXTERIOR WALLS	1	Repair spalling pre-cast concrete on south exterior wall	70	1	1	LS	\$ 6,000
Dorothy Hamm Middle School	B201000 - EXTERIOR WALLS	2	Repair/Replace missing bricks on south wall (mechanical roof level) of the auditorium	70	1	1	LS	\$ 2,500
Dorothy Hamm Middle School	C301000 - WALL FINISHES	1	Repair broken ceramic block at corner of dividing wall in boys restroom #226 requires replacement.	40	1	1	LS	\$ 2,000
Dorothy Hamm Middle School	D202005 - COMMERCIAL WATER HEATER	1	Replace 100-MBH, 50 gal water heater serving kitchen.	15	3	1	LS	\$ 20,000
Dorothy Hamm Middle School	F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	1	Repair source of water leak and replace ceiling finishes in girls locker room.	15	1	1	LS	\$ 6,000
Dorothy Hamm Middle School	F102030 - AUDITORIUMS	1	Re-paint concrete floors.	10	1	5775	SF	\$ 42,000
Dr. Charles R. Drew Elementary School	B201000 - EXTERIOR WALLS	1	Replace brick control joint sealants.	20	1	1	LS	\$ 10,000
Dr. Charles R. Drew Elementary School	B202000 - EXTERIOR WINDOWS	1	Wet-glaze windows	20	1	10000	LF	\$ 80,000
Dr. Charles R. Drew Elementary School	B202000 - EXTERIOR WINDOWS	2	Replace window perimeter sealants	20	1	5000	LF	\$ 40,000
Escuela Key Elementary School	B201000 - EXTERIOR WALLS	1	Repair and paint deteriorated wood trim and steel lintels.	10	1	1	LS	\$ 25,000
Escuela Key Elementary School	D101010 - ELEVATORS	1	Replace elevator call controls to ensure proper function from both floors.	35	1	1	LS	\$ 5,000
Glebe Elementary School	B201000 - EXTERIOR WALLS	1	The exterior EIFS cladding above the loading dock has been damaged by vehicles and requires repair.	25	1	50	SF	\$ 7,500
Glebe Elementary School	B301000 - ROOF COVERINGS	1	Replace BUR roofing	25	1	19900	SF	\$ 696,500
Glebe Elementary School	B301000 - ROOF COVERINGS	2	Replace Hybrid roofing	20	2	14500	SF	\$ 435,000
Gunston Middle School	F102030 - AUDITORIUMS	1	Repair damaged ceiling finishes in balcony due to roof leaks.	20	1	2	EA	\$ 4,000
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	B101000 - FLOOR CONSTRUCTION	1	Assess spider cracking in concrete floor slabs.	99	2	1	LS	\$ 15,000
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	B301000 - ROOF COVERINGS	1	Assess green roof for source of leaking above terrace doors at multiple levels.	40	2	1	LS	\$ 15,000
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	B301000 - ROOF COVERINGS	2	Assess green roof irrigation system for leaks.	30	1	1	LS	\$ 15,000
Hoffman-Boston Elementary School	B201000 - EXTERIOR WALLS	1	Replace brick control joint sealant	20	1	1	LS	\$ 15,000
Hoffman-Boston Elementary School	B201000 - EXTERIOR WALLS	2	Repair brick masonry step cracks	70	1	1	LS	\$ 50,000
Jamestown Elementary School	B201000 - EXTERIOR WALLS	1	Perform façade repairs, including trim painting, brick repointing, and cleaning of stained areas.	70	1	1	LS	\$ 25,000
Jamestown Elementary School	B202000 - EXTERIOR WINDOWS	1	Replace broken window panes at MPR clerestory.	40	1	1	LS	\$ 5,000
Jamestown Elementary School	B301000 - ROOF COVERINGS	1	Repair damaged gutter outside of kitchen.	25	1	1	LS	\$ 2,000
Jefferson Middle School	B301000 - ROOF COVERINGS	1	Replace BUR	25	1	80900	SF	\$ 2,831,500
Kenmore Middle School	B203000 - EXTERIOR DOORS	1	Refinish metal exterior doors.	25	1	19	EA	\$ 10,000
Kenmore Middle School	B301000 - ROOF COVERINGS	1	Patch 3rd floor roof near classrooms 373 and 391.	25	1	2	EA	\$ 6,000
Kenmore Middle School	C302000 - FLOOR FINISHES	1	Replace stained carpets.	14	1	9000	SF	\$ 157,000
Kenmore Middle School	C303000 - CEILING FINISHES	1	Replace stained ceiling tiles.	20	1	8	EA	\$ 4,000
Langston High School Continuation & New Directions Alternative Programs	B201000 - EXTERIOR WALLS	1	Clean and paint exposed structural steel components.	10	1	1	LS	\$ 5,000
Langston High School Continuation & New Directions Alternative Programs	B301000 - ROOF COVERINGS	1	Replace single-ply roof	15	2	1	LS	\$ 400,000
Langston High School Continuation & New Directions Alternative Programs	F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY GYMS	1	Replace stained and missing acoustical wall panels in gym.	20	1	1	LS	\$ 5,000
Long Branch Elementary School	B201000 - EXTERIOR WALLS	1	Assess EIFS stucco cracking on the east (Gym) and north sides of the building.	70	1	1	LS	\$ 15,000
Montessori Public School of Arlington	B201000 - EXTERIOR WALLS	1	There are numerous stair stepping cracks along the east façade beginning at the south corner of the façade. Repair to protect from water infiltration and continued degradation.	70	1	1	LS	\$ 86,000

Building Name	WBS	Local Project ID	Local Project Description	EUL	RUL	Quantity	Unit of Measure	Cost
Montessori Public School of Arlington	B201000 - EXTERIOR WALLS	2	There is evidence of significant past repairs at the west wall located above the roof line. These repairs are failing. Remove previous repair and replace using the appropriate materials.	70	1	1	LS	\$ 42,500
Montessori Public School of Arlington	D303000 - CENTRAL PLANT COOLING	1	Replace steel dunnage supports	30	1	1	LS	\$ 50,000
Montessori Public School of Arlington	E109002 - FOOD SERVICE EQUIPMENT	1	Repair ventilation hood	20	1	1	LS	\$ 5,000
Nottingham Elementary School	B201000 - EXTERIOR WALLS	1	Repair holes in EIFS façade at gym	25	2	1	LS	\$ 10,000
Oakridge Elementary School	B201000 - EXTERIOR WALLS	1	Replace brick control joint sealant	20	1	1	LS	\$ 15,000
Oakridge Elementary School	B201000 - EXTERIOR WALLS	2	Recoat EIFS panels	10	2	1	LS	\$ 50,000
Oakridge Elementary School	B202000 - EXTERIOR WINDOWS	1	Replace window perimeter sealants	20	1	1	LS	\$ 50,000
Randolph Elementary School	B201000 - EXTERIOR WALLS	1	Replace wood panels are rear of school	25	1	1	LS	\$ 50,000
Randolph Elementary School	B201000 - EXTERIOR WALLS	2	Replace flexible sealants at precast concrete panels	20	1	1	LS	\$ 2,500
Randolph Elementary School	B201000 - EXTERIOR WALLS	3	Assess heavy staining at masonry by door 11	70	1	1	LS	\$ 10,000
Swanson Middle School	B201000 - EXTERIOR WALLS	1	Localized rot repair and refinishing of wood fascia.	20	1	2500	SF	\$ 17,500
Swanson Middle School	B202000 - EXTERIOR WINDOWS	1	Repair cracked window pane in room 114	40	1	1	LS	\$ 1,000
Swanson Middle School	C302000 - FLOOR FINISHES	1	Replace broken VCT tiles in hallways	20	1	1	LS	\$ 5,000
Swanson Middle School	D401000 - SPRINKLERS	1	Replace fire sprinkler heads at 50 years of age per NFPA 25.	50	1	300	EA	\$ 62,000
Taylor Elementary School	B301000 - ROOF COVERINGS	1	Replace built up roof on north section of building.	25	1	9200	SF	\$ 322,000
Williamsburg Middle School	B201000 - EXTERIOR WALLS	1	Repair/recoat EIFS panels	25	2	1	LS	\$ 400,000
Williamsburg Middle School	B201000 - EXTERIOR WALLS	2	Address localized masonry deterioration	70	1	1	LS	\$ 50,000
Williamsburg Middle School	B201000 - EXTERIOR WALLS	3	Clean masonry	70	1	1	LS	\$ 100,000
Yorktown High School	B201000 - EXTERIOR WALLS	1	Perform isolated brick masonry repairs, including repointing and cleaning of stained areas.	70	2	1	LS	\$ 10,000
Yorktown High School	B203000 - EXTERIOR DOORS	1	Repair/refinish steel doors.	25	2	1	LS	\$ 2,000
Yorktown High School	B301000 - ROOF COVERINGS	1	Repair roof issue causing leaks in classroom 374	25	1	1	LS	\$ 5,000
Yorktown High School	C303000 - CEILING FINISHES	1	Repair damaged suspended ceiling in Classroom 217.	20	1	1	LS	\$ 2,000
Yorktown High School	D101010 - ELEVATORS	1	Fix out of order elevator	35	1	1	LS	\$ 10,000
Yorktown High School	F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY GYMS	1	Repair walls in dance studio and weight room	25	2	1	LS	\$ 5,000



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Abingdon Elementary School	1950	106,630	0.054	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
5	2017	3	0.000	\$35,896,208		

Building Description

Abingdon Elementary School, located at 3035 South Abingdon Street, is a three-story structure. The original building was constructed in 1950, and the last major renovation occurred in 2017, which added the gymnasium and the eastside classrooms, which included a new third level. Building drawings indicate that the east classrooms, gymnasium (now cafeteria), and library were added in 1969, and that renovations and minor additions were constructed in 1990. The building includes classrooms, cafeteria, kitchen, media center, gymnasium with stage, and administrative offices. The building's exterior wall assembly is predominantly brick veneer over CMU, although some walls of the original building are of brick masonry construction. The exterior windows are both fixed and operable metal framed units. The roof is primarily a low-sloped single ply membrane over both concrete and steel framing, with the remainder being steep-sloped standing seam metal which covers some first-floor classrooms. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted brick, CMU, and drywall, with some original tile and unpainted brick. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing natural gas-fired tanks. Water supply piping, sanitary sewer system and storm drainage was glass fiber. Roof top ERVs and outside air ventilation RTUs provided for the basic building heating and cooling while multiple distributed VRF heat pump systems delivered local heating and cooling. Hydronic boilers provided supplemental hot water for heating. Building power was through a 1600 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was a limited security access system. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The diesel generator was rated at 51kW and power emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	82,400	BLDG FP SF	\$12.08	\$995,647	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	82,400	BLDG FP SF	\$13.87	\$1,142,857	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,500	BASEMENT SF	\$19.09	\$28,642	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	24,230	ELEV FL SF	\$42.15	\$1,021,216	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	82,400	BLDG FP SF	\$24.05	\$1,981,796	80	80
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	105,130	BLDG GROSS SF	\$26.95	\$2,833,425	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	105,130	BLDG GROSS SF	\$18.83	\$1,979,156	40	16
B203000 - EXTERIOR DOORS	4	Exterior doors	105,130	BLDG GROSS SF	\$1.02	\$107,036	30	15
B301000 - ROOF COVERINGS	4	Single ply roof	82,400	BLDG FP SF	\$17.25	\$1,421,448	28	16
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	106,630	FINISHED SF	\$20.42	\$2,177,409	70	70
C102000 - INTERIOR DOORS	4	Interior doors	106,630	FINISHED SF	\$4.73	\$503,897	40	20
C103000 - FITTINGS	4	Partitions and lockers	106,630	FINISHED SF	\$4.09	\$436,301	40	30
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	106,630	BLDG GROSS SF	\$1.02	\$108,563	99	99
C301000 - WALL FINISHES	4	Standard wall finishes	93,630	FINISHED SF	\$5.09	\$476,638	10	7
C302000 - FLOOR FINISHES	4	Standard floor finishes	93,630	FINISHED SF	\$14.20	\$1,329,189	18	7
C303000 - CEILING FINISHES	4	Standard ceiling finishes	93,630	FINISHED SF	\$16.83	\$1,575,602	20	15
D101010 - ELEVATORS	5	Elevator	1	EACH	\$206,284.66	\$206,285	30	24
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	106,630	SERVED SF	\$17.25	\$1,839,429	50	44
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, 131 to 180 MBH	1	EACH	\$35,634.55	\$35,635	20	14
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	82,400	BLDG FP SF	\$4.92	\$405,223	60	54
D301000 - ENERGY SUPPLY	3	Natural gas supply	106,630	BLDG GROSS SF	\$0.15	\$16,387	60	54
D301006 - SOLAR ENERGY SUPPLY	5	Solar energy supply	5,332	SERVED SF	\$27.20	\$145,038	20	14
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	106,630	SERVED SF	\$7.17	\$764,039	40	34
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Chilled water piping and individual terminal AHUs	106,630	SERVED SF	\$23.44	\$2,499,002	30	24
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	106,630	SERVED SF	\$23.44	\$2,499,002	30	24
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	4	HVAC controls - split systems and/or packaged units	106,630	SERVED SF	\$2.38	\$253,997	15	9
D401000 - SPRINKLERS	4	Sprinkler system	106,630	SERVED SF	\$7.90	\$841,877	50	44
D402000 - STANDPIPES	5	Standpipe system	106,630	SERVED SF	\$0.63	\$67,596	50	44
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1600 Amp Service	106,630	BLDG GROSS SF	\$3.15	\$335,931	50	44
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	106,630	BLDG GROSS SF	\$36.27	\$3,867,308	50	44
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	106,630	BLDG GROSS SF	\$10.18	\$1,085,632	20	14
D509000 - EMERGENCY POWER	5	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	29
E102000 - INSTITUTIONAL EQUIPMENT	5	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	14
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	106,630	SERVED SF	\$3.50	\$372,802	20	14
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	1,400	LENGTH LF	\$829.72	\$1,161,606	35	29
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	13,000	SERVED SF	\$100.03	\$1,300,344	20	15
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Abingdon Elementary School	1950	106,630	0.054	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
5	2017	3	\$35,896,208	No. of Local Projects		
				0		

Building Description

Abingdon Elementary School, located at 3035 South Abingdon Street, is a three-story structure. The original building was constructed in 1950, and the last major renovation occurred in 2017, which added the gymnasium and the eastside classrooms, which included a new third level. Building drawings indicate that the east classrooms, gymnasium (now cafeteria), and library were added in 1969, and that renovations and minor additions were constructed in 1990. The building includes classrooms, cafeteria, kitchen, media center, gymnasium with stage, and administrative offices. The building's exterior wall assembly is predominantly brick veneer over CMU, although some walls of the original building are of brick masonry construction. The exterior windows are both fixed and operable metal framed units. The roof is primarily a low-sloped single ply membrane over both concrete and steel framing, with the remainder being steep-sloped standing seam metal which covers some first-floor classrooms. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted brick, CMU, and drywall, with some original tile and unpainted brick. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing natural gas-fired tanks. Water supply piping, sanitary sewer system and storm drainage was glass fiber. Roof top ERVs and outside air ventilation RTUs provided for the basic building heating and cooling while multiple distributed VRF heat pump systems delivered local heating and cooling. Hydronic boilers provided supplemental hot water for heating. Building power was through a 1600 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was a limited security access system. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The diesel generator was rated at 51kW and power emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$	\$	\$	\$	\$	476,638	\$	\$	\$	\$
C302000 - FLOOR FINISHES	4	\$	\$	\$	\$	\$	\$	\$	1,329,189	\$	\$	\$	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	4	\$	\$	\$	\$	\$	\$	\$	\$	253,997	\$	\$	\$
D401000 - SPRINKLERS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$0	\$0	\$0	\$1,805,827	\$0	\$253,997	\$0	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Abingdon Elementary School		1950	106,630	0.054
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
5		2017	3	0.000
Condition Category Legend				
Good Fair Poor				
0 - 0.15 0.151 - 0.33 0.331 - 1				
Building CRV³				
\$35,896,208				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	●	5 The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	●	5 The lower level and the majority of the second (main) level have a slab on grade.		
A202000 - BASEMENT WALLS	●	5 Basement walls are cast-in-place concrete, CMU, and brick. SF is estimated.		
B101000 - FLOOR CONSTRUCTION	●	5 The third level and a portion of the second (main) level on the east side utilize elevated slabs. All floors are assumed to be of modern construction and use steel framing with a steel structural deck to support an elevated cast in place lightweight concrete slab.		
B102000 - ROOF CONSTRUCTION	●	5 For the original building, the roof deck appears to be cast in place concrete over concrete framing. For the 1969, 1990, and 2017 additions, the roof structure is assumed to be steel decking over steel framing. There is steel roofing and framing over Rooms 174-178 and Rooms 129-134, which are part of the original structure. There is also a small area of wood decking supported by steel framing in Rooms 166 and 167, which are covered by metal roofing. There is also a steel framed portico at the entrance. Steel framing is assumed to predominate based on additions and renovations.		
B201000 - EXTERIOR WALLS	●	5 The building's exterior wall assembly is predominantly brick veneer over CMU, although some walls of the original building are of brick masonry construction. Above some windows on the east and west sides of the building, there are translucent polycarbonate wall panels that allow natural light to filter into the building; these panels are also present in the gymnasium. There is a solar shading facade on the easternmost and northernmost corners of the building.		
B202000 - EXTERIOR WINDOWS	●	4 The exterior windows are both fixed and operable metal framed units with thermal glazing. There is a storefront system at the main entrance, with similar storefront systems at Entrances #5 and 8. There is an older, single pane metal framed system in the basement that is in fair condition; this formerly served as an exterior wall of the basement. The windows for the 2017 additions and the prior, existing windows appear to have been installed at different times, but the windows in general were in good condition and did not exhibit cracking, fogging, or other apparent degradation.		
B203000 - EXTERIOR DOORS	●	4 The exterior doors are predominantly single and paired glazed storefront units and single and paired metal flush panel units. Finishes of some metal flush panel units exhibited slight wear and staining, but no corrosion or misalignment was observed at exterior doors.		
B301000 - ROOF COVERINGS	●	4 Roof covering is primarily low-sloped single ply membrane (~75%) with a lesser amount of sloped standing seam metal roofing (~25%) covering some main level classrooms. The 2010 APS Roof Survey indicated a combination of BUR (94%), asphalt shingles (4%), and standing seam metal (2%), and no update was reported in the 2016 roof survey. It is assumed that all roofing was replaced in 2017 as part of renovations and solar PV installation, and that new roofing SF was added for the Gym, classrooms, and small additions. No leaks observed or reported. No tears, cracking, or blisters were observed but numerous small areas of localized ponding were evident. The NE corner of the building over Rooms 127 and 128 exhibits excessive biological growth due to standing water caused by tree shading; this vegetation should be cut back. The roof is intended to act as a white reflective roof and would benefit from cleaning. Metal gutters and downspouts are in good condition.		
C101000 - PARTITIONS	●	5 Partition walls are a combination of CMU, original brick, drywall over studs, and a small amount of glazed partitions. The predominate partition appears to be CMU.		
C102000 - INTERIOR DOORS	●	4 The majority of the interior doors are solid core wood panels in metal frames, with some single/paired metal doors. The doors types vary and include flush and glazed units. There are also a few fully glazed pedestrian doors, glazed roll-up doors in classrooms, and four mesh metal roll-up doors in the Cafeteria.		
C103000 - FITTINGS	●	4 The predominate fittings for the school are composite toilet partitions, metal railings, and metal lockers on the second and third floor of the new classroom wing.		
C201000 - STAIR CONSTRUCTION	●	5 Interior stairs include cast in place concrete and steel framed with concrete infill pans, with CIP concrete predominating. Stairs have metal hand rails and guard rails.		
C301000 - WALL FINISHES	●	4 The building has a variety of wall finishes, but painted drywall and CMU predominate. In corridors and other common areas, finishes are unpainted brick, original tile, painted drywall, and painted CMU. In classrooms, primarily painted drywall and CMU, with some painted brick. In restrooms, ceramic tile, painted drywall, and CMU. In the Media Center, painted CMU brick, and drywall, while in the Kitchen, painted CMU and drywall.		
C302000 - FLOOR FINISHES	●	4 The building has a variety of floor finishes. In corridors and other common areas, finishes are VCT and carpet tile. In classrooms, carpet tile and VCT. In restrooms and the Kitchen, ceramic tile. In the Media Center, carpet tile. High traffic areas such as corridors, classrooms, and the kitchen/cafe/tertia area show more wear but overall condition is good.		
C303000 - CEILING FINISHES	●	4 Ceiling finishes are predominantly suspended acoustic tile, with some painted drywall and a small amount of painted ceiling structure.		
D101010 - ELEVATORS	●	5 Elevator machine room-less elevator was located in the most recent renovation addition serving all three floor.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	●	5 Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, sump pumps, water pressure booster pumps, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	●	5 PVI Maxim 125 g, 140 MMBtu/h natural gas domestic water heater at the end of useful life, but appears to be functional.		
D204000 - BUILDING STORMWATER DRAINAGE	●	5 Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	●	3 Distributed natural gas provided for domestic and hydronic hot water. Service presumed to have been upgraded with most recent renovations.		
D301006 - SOLAR ENERGY SUPPLY	●	5 There were approximately 46 kW of roof mounted photovoltaic solar panels based on an estimated 2300 sqft of panels at 20kW/sf, potentially contributing to about 5% of the building power requirements.		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	●	5 Three 1500 MMBtu/h ATH (Advanced Thermal Hydronics) hydronic natural gas fired boilers provided distributed heating water roof top units, fan coil units and VAV boxes throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	●	4 Based on the served areas, systems include roof top units, some as air source heat pumps or with DX cooling and hydronic heating; condensing unit heat pumps, fan coil units, and VRF systems. Systems appeared to be from 2007 to 2017 with some more recent replacements. Recommendation: As a maintenance practice, the condensing coils were found to be dirt clogged and should be power washed and combed.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	●	4 Based on the served areas, systems include roof top units, some as air source heat pumps or with DX cooling and hydronic heating; condensing unit heat pumps, fan coil units, and VRF systems. Systems appeared to be from 2007 to 2017 with some more recent replacements. Recommendation: As a maintenance practice, the condensing coils were found to be dirt clogged and should be power washed and combed.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	●	4 The major building MEP systems incorporated elements of a DDC and a limited pneumatic system which appeared to be functional.		
D401000 - SPRINKLERS	●	4 A single water service served the distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	●	5 There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	●	5 The 480/277V, 1600A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	●	5 Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	●	5 Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	●	5 A 51 KW Kohler diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power.		
E102000 - INSTITUTIONAL EQUIPMENT	●	5 The kln had a separate local exhaust system vented to the building exterior.		
E109002 - FOOD SERVICE EQUIPMENT	●	5 The kitchen was limited to Blodgett warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	●	5 Casework was found classrooms and offices, common function spaces. There were floor mounted laminate wood casework including desks, work stations, storage cubes, shelving, drawers and cabinets throughout.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	●	4 Elementary school gymnasium that also serves as auditorium with raised stage, constructed 2017. Sheet vinyl flooring, painted CMU walls with acoustic panels, safety padding, and a climbing wall, and painted steel ceiling framing were in good condition. Wood stage flooring was in excellent condition, with standard suspended and wall-mounted LED lighting serving the stage area. Translucent panels provide natural lighting to the space. Suspended LED lighting. Suspended flexible partition can be used to divide the space. The cafeteria had VCT flooring, painted walls, and suspended ceiling tiles.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Abingdon Elementary School	1950	2017	106,630	82,400	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	> 8 cfm average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	While ventilation for most of the classrooms consistently meets current ASHRAE 62.1, several classrooms do not (ART, Music,
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym meets current ASHRAE 62.1 (with 250 students max)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Roof top equipment utilized MERV 13 Filtration
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Roof top unit appears Merv 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	Roof top unit appears Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Not all of the classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Restrooms, partial Media Center and recess lighting are fluorescent
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrance 1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Walled in trash area provides area of concealment. Vegetation at the back of the gymnasium should be kept trimmed.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1 is clearly the main entrance at the front of the building. However, Entrance 8 appears to be a primary entrance at the back of the building and does not direct visitors to the front of the building via signage.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if fullstory)	●	1 elevator, 5 levels
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	There are 5 in-classroom toilet rooms that are not ADA in the old section of the building. All others (vast majority) are compliant.
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	1	
Major Building Systems	5.3 Other - Elevator Size	●	8065 2 door opposing right/left
Common Space Adequacy	1.0 Cafeteria	●	3600(cafeteria area)/15 students = 240
Common Space Adequacy	1.1 Kitchen	●	1595(kitchen area incl offices, etc.)/3 = 532
Common Space Adequacy	1.2 Kitchen	●	2 serving lines, 1 POS
Common Space Adequacy	1.3 Kitchen	●	design capacity 725/3 periods = 242
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, volleyball, and daylight
Common Space Adequacy	2.2 Gymnasium	●	89'-7" x 60'-8" W. Height to bottom of joist 23'-11", to bottom of deck 28'-0"
Common Space Adequacy	3.1 Performance Space	●	Platform off gym, ADA accessible and permanent
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	798 LF / 725 students = 1.1 LF per student
Common Space Adequacy	4.2 Library	●	open to library, down a set of steps, ADA accessible
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	Mulch with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	garden space only with raised beds, no classroom
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	8	Green = 8, pre-K & K (0); 1st (5); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	18	Yellow = 18; pre-K & K (5); 1st (13); Gen ed (14)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	4	Red = 4, pre-K & K (4); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	30	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	14% rooms do not have in-suite toilet
Educational Space Adequacy	1.5 Classrooms (General)	●	78% classrooms have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	2	Pre-K spec ed
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 5 offices; 1 conference room; 1 records room - not rated
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 144 and 158
Educational Space Adequacy	4.2 Art	●	yes, 2 kilns, each connected to an art classroom
Educational Space Adequacy	4.3 Art	●	room 144 - 3 sinks; room 158 - 3 sinks
Educational Space Adequacy	4.4 Art	●	each has connected storage
Educational Space Adequacy	5.1 Music	●	2 - general and 1 - instrumental
Educational Space Adequacy	5.2 Music	●	1 general music has connected storage; the other 2 do not
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If IEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Alice West Fleet Elementary School	2019	111,634	0.020	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
3	No record	4	0.000	\$44,636,157		

Building Description

The Alice West Fleet Elementary School was constructed in 2019 and is a multi-story elementary school located at 115 S. Glebe Road. The building contains two stories below grade for parking (open garage) and four stories above grade for educational use (E Use Group, Virginia Uniform Statewide Building Code). The gross building area is 111,634 sf and excludes the garage square footage. The first floor through the fourth floor are elevated slabs over steel framing. The first floor has at grade access and contains the main entry with a vestibule (security compliant), adjacent administrative spaces, a central open circulation foyer with an open stair, an entry way to the cafeteria and gymnasium and the first floor's central corridor to access classrooms. The remaining portion of the first floor contains classrooms. The second through fourth floors contain education spaces including but not limited to a media room and classrooms. The upper floors are accessible by multiple stairways and two elevators. The elevated floor assembly consists of steel framing with cast in place concrete slabs. With the exception of gymnasium which has a timber roof, the remaining roof assembly is steel framing. The primary roof covering is a standing seam metal assembly. There is a small area of roof with a single ply membrane assembly. The roof has a PV solar array via a lease agreement. The exterior walls have a variety of veneers including but not limited to, brick, terra cotta tile, ground face concrete masonry and horizontal fiber cement siding. The exterior fenestration is both fixed and operable metal framed units with thermal glazing. Building domestic hot water was generated utilizing a heat pump system. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. Building power was through a 1600 Amp, 480/2770V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The extensive privately owned and maintained photovoltaic arrays covering most of the roof area and associated battery systems provided most of the building electrical needs. Lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was rated at 150kW and power emergency lighting and designated services. There were two 6-stop machine-room-less elevators. A third elevator was being installed at the time of the survey.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	58,998	BLDG FP SF	\$12.08	\$712,878	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	58,998	BLDG FP SF	\$13.87	\$818,280	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	106,611	BASEMENT SF	\$19.09	\$2,035,709	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	170,000	ELEV FL SF	\$42.15	\$7,164,946	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	58,998	BLDG FP SF	\$24.05	\$1,418,956	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	111,634	BLDG GROSS SF	\$26.95	\$3,008,718	70	70
B202000 - EXTERIOR WINDOWS	5	Exterior windows	111,634	BLDG GROSS SF	\$18.83	\$2,101,599	40	36
B203000 - EXTERIOR DOORS	5	Exterior doors	111,634	BLDG GROSS SF	\$1.02	\$113,658	30	26
B301000 - ROOF COVERINGS	5	Standing seam metal roof	58,998	BLDG FP SF	\$20.36	\$1,201,353	40	36
C101000 - PARTITIONS	5	Drywall over studs	111,634	FINISHED SF	\$6.36	\$709,826	25	25
C102000 - INTERIOR DOORS	5	Interior doors	111,634	FINISHED SF	\$4.73	\$527,544	40	36
C103000 - FITTINGS	5	Partitions and lockers	111,634	FINISHED SF	\$4.09	\$456,776	25	21
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	111,634	BLDG GROSS SF	\$1.94	\$216,593	50	50
C301000 - WALL FINISHES	5	Standard wall finishes	102,590	FINISHED SF	\$5.09	\$522,250	6	4
C302000 - FLOOR FINISHES	5	Standard floor finishes	102,590	FINISHED SF	\$14.20	\$1,456,387	14	10
C303000 - CEILING FINISHES	5	Standard ceiling finishes	102,590	FINISHED SF	\$16.83	\$1,726,380	20	16
D101010 - ELEVATORS	5	Elevator	2	EACH	\$206,284.67	\$412,569	30	26
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	217,245	SERVED SF	\$17.25	\$3,747,602	50	46
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Electric Water Heater, Commercial, 30 to 180 KW and 150 to 350 Gallons	2	EACH	\$128,947.13	\$257,894	20	16
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	58,998	BLDG FP SF	\$4.92	\$290,138	50	46
D301000 - ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	Geothermal system with heat pumps	111,634	SERVED SF	\$4.38	\$488,944	25	21
D302000 - CENTRAL PLANT HEATING	-	-	-	-	-	-	-	-
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	27,909	SERVED SF	\$8.13	\$226,784	25	21
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heat pump system	111,634	SERVED SF	\$8.47	\$945,720	20	16
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	-	-	-	-	-	-	-
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - geothermal system	111,634	SERVED SF	\$0.21	\$23,589	15	11
D401000 - SPRINKLERS	5	Sprinkler system	111,634	SERVED SF	\$7.90	\$881,385	50	46
D402000 - STANDPIPES	5	Standpipe system	111,634	SERVED SF	\$0.63	\$70,768	50	46
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1600 Amp Service	217,245	BLDG GROSS SF	\$3.15	\$684,417	50	46
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	217,245	BLDG GROSS SF	\$36.27	\$7,879,146	50	46
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	217,245	BLDG GROSS SF	\$10.18	\$2,211,837	20	16
D509000 - EMERGENCY POWER	5	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	31
E102000 - INSTITUTIONAL EQUIPMENT	5	Institutional equipment	300	SERVED SF	\$160.37	\$48,110	20	16
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	11,634	SERVED SF	\$3.50	\$40,675	20	16
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	1,500	LENGTH LF	\$829.72	\$1,244,577	35	31
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	Multi-purpose room	9,044	SERVED SF	\$100.03	\$904,639	20	16
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Alice West Fleet Elementary School	2019	111,634	0.020	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
3	No record	4	\$44,636,157	0 - 0.15	0.151 - 0.33	0.331 - 1
				0		

Building Description

The Alice West Fleet Elementary School was constructed in 2019 and is a multi-story elementary school located at 115 S. Glebe Road. The building contains two stories below grade for parking (open garage) and four stories above grade for educational use (E Use Group, Virginia Uniform Statewide Building Code). The gross building area is 111,634 sf and excludes the garage square footage. The first floor through the fourth floor are elevated slabs over steel framing. The first floor has at grade access and contains the main entry with a vestibule (security compliant), adjacent administrative spaces, a central open circulation foyer with an open stair, an entry way to the cafeteria and gymnasium and the first floor's central corridor to access classrooms. The remaining portion of the first floor contains classrooms. The second through fourth floors contain education spaces including but not limited to a media room and classrooms. The upper floors are accessible by multiple stairways and two elevators. The elevated floor assembly consists of steel framing with cast in place concrete slabs. With the exception of gymnasium which has a timber roof, the remaining roof assembly is steel framing. The primary roof covering is a standing seam metal assembly. There is a small area of roof with a single ply membrane assembly. The roof has a PV solar array via a lease agreement. The exterior walls have a variety of veneers including but not limited to, brick, terra cotta tile, ground face concrete masonry and horizontal fiber cement siding. The exterior fenestration is both fixed and operable metal framed units with thermal glazing. Building domestic hot water was generated utilizing a heat pump system. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. Building power was through a 1600 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The extensive privately owned and maintained photovoltaic arrays covering most of the roof area and associated battery systems provided most of the building electrical needs. Lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was rated at 150KW and power emergency lighting and designated services. There were two 6-stop machine-room-less elevators. A third elevator was being installed at the time of the survey.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	5	\$	\$	\$	\$	\$22,250	\$	\$	\$	\$	\$	\$22,250	\$
C302000 - FLOOR FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$1,456,387	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$23,589	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$522,250	\$0	\$0	\$0	\$0	\$0	\$1,978,637	\$23,589	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Alice West Fleet Elementary School	2019	111,634	0.020	Good Fair Poor
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{DM}	Building CRV ⁵
3	No record	4	0.000	544,636,157
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The lowest level of the parking garage is a slab on grade. The first floor is considered an elevated slab. Recommendation: None		
A202000 - BASEMENT WALLS	5	The basement wall system appears to be cast in place concrete. Recommendation: There are salt/mineral deposits (efflorescence) at form seams. These are likely from the construction phase. Clean the concrete surface to be able to monitor for future water migration (the presence of leaks).		
B101000 - FLOOR CONSTRUCTION	5	The primary floor construction is steel framing with a cast in place concrete floor system. The facilities first through fourth floor are elevated floor construction. Recommendation: There are numerous surface floor (spider) cracks in the concrete slabs. No control or expansion joints were observed (Ref.: ACI 302.1R-15). There were construction (pour stop) joints. Spider cracks were hairline to ~1/8" in width with early stage surface spalling. Sealing the cracks is a long term maintenance consideration.		
B102000 - ROOF CONSTRUCTION	5	The primary roof construction is steel framing. The steel framing is fire protected with a spray on system. Recommendation: In multiple locations, the spray on fire proofing has delaminated from the steel beams and steel deck. Damaged spray on fire proofing needs to be repair/replaced.		
B201000 - EXTERIOR WALLS	5	Based on the as-built drawings, the exterior wall framing is non-combustible steel studs. The exterior wall assembly includes several types of veneer consisting of: terra cotta (rain screen), brick veneer, fiber cement siding and ground face CMU. Recommendation: There is one sealant defect observed. The joint between the cement fiber siding and adjacent material (front left side, below window) is open and void of sealant. There are two locations where the terra cotta veneer has been damaged.		
B202000 - EXTERIOR WINDOWS	5	The exterior windows are both fixed and operable metal framed units with thermal glazing. Recommendation: None		
B203000 - EXTERIOR DOORS	5	The exterior doors consist of single and paired storefront assemblies and metal flush panel.		
B301000 - ROOF COVERINGS	5	The predominate roof covering is a standing seam metal roof assembly. There is a small section of single ply membrane. There are two roof terraces with paved roof covering. The total area reflects the main roof and terrace roof coverings. Recommendation: Roof covering SF includes main roof and paved roofing at exterior terraces.		
C101000 - PARTITIONS	5	The predominate interior partition type is gypsum board on steel stud framing. Recommendation: None		
C102000 - INTERIOR DOORS	5	The predominate interior door type is solid wood in metal frames. The door variation includes full glass (stile and rail), narrow lite and flush. Recommendation: None		
C103000 - FITTINGS	5	The predominate fittings for this facility include toilet partitions and metal lockers. Recommendation: None		
C201000 - STAIR CONSTRUCTION	5	The interior stair construction consists of steel framed units with concrete filled pans and metal hand/guardrails. Recommendation: None		
C301000 - WALL FINISHES	5	Wall finishes were painted finishes in the majority of areas. Bathrooms had ceramic tile finishes. Both are well maintained. Recommendation: None		
C302000 - FLOOR FINISHES	5	There are three primary floor finishes including: stained concrete, tile (vinyl, ceramic, etc.) and carpet. All are well maintained. The system EUI is based on carpet. Recommendation: None		
C303000 - CEILING FINISHES	5	The predominate ceiling finish is a suspended acoustical tile system. Recommendation: None		
D101010 - ELEVATORS	5	Two machine-room-less elevators provided 6-stop service. The elevators served the school floors and the two garage floors. A third elevator was under construction. Score based on observed conditions and age with no issues noted or reported.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, and sinks; janitor stations; wet traps; and emergency wash stations. The piping, which was predominantly PVC, and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution. There were elevator sump pumps. Score based on observed conditions and age with no issues noted or reported. The assessment included plumbing systems in the garage that served the school. Plumbing systems and distribution serving the garage was not assessed like the oil filtration tank and sump pump system.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	Two 200 gallon electric domestic water heaters provided circulating hot water throughout. Score based on observed conditions and age with no issues noted or reported.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system was internal to the roof line and integral to the roofing system, though had drops internal and external to the building. The system had no issues reported or observed outside of warranty alignments and fasteners amounting to routine maintenance. Score based on observed conditions and age with no issues noted or reported. The assessment included systems in the garage that served the school. Systems and distribution serving the garage was not assessed.		
D301000 - ENERGY SUPPLY	-			
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	A closed loop, 72 well, 6 circuit, 560 ft vertical geothermal well system serves as the hydronic source heat exchange for the water source heat pumps for space conditioning. Score based on observed conditions and age with no issues noted or reported.		
D302000 - CENTRAL PLANT HEATING	-			
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	A Multistack heat water to water heat pump provided differential tempered water for building space conditioning. Score based on observed conditions and age with no issues noted or reported.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Distributed ducted water source heat pumps provide conditioning throughout and are augmented by DOAS MAU and HVAC load reducers (air scrubbers). Score based on observed conditions and age with no issues noted or reported.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	-			
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	5	The major building MEP systems incorporated a DDC and monitoring system throughout. Score based on observed conditions and age with no issues noted or reported.		
D401000 - SPRINKLERS	5	A single water service, with a fire and jockey pump, served wet and dry distributed sprinkler systems throughout the building and included exterior overhangs. Score based on observed conditions and age with no issues noted or reported. The assessment included systems in the garage that served the school. Systems and distribution serving the garage was not assessed.		
D402000 - STANDPIPES	5	There were stainless steel standpipe systems with no reported or issues observed. Connections were mechanical or bare welds. Floor-fastened bollards protected valve protrusions. Score based on observed conditions and age with no issues noted or reported. The assessment included systems in the garage that served the school. Systems and distribution serving the garage was not assessed.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 1600A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed. Score based on age, observation, and no reported issues. The assessment included systems in the garage that served the school.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches. No issues reported or observed. Score based on age, observation, and no reported issues. The assessment included systems in the garage that served the school.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted. Condition rating based on age and observed condition. The assessment included systems in the garage that served the school.		
D509000 - EMERGENCY POWER	5	MTU diesel fueled 150 kw emergency generator and automatic transfer switches. Score based on observed conditions and age with no issues noted or reported.		
E102000 - INSTITUTIONAL EQUIPMENT	5	Two kilns with exhaust system. Score based on observed conditions and age with no issues noted or reported.		
E109002 - FOOD SERVICE EQUIPMENT	5	Kitchen limited to warming and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing. Score based on observed conditions and age with no issues noted or reported.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E210103 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E210102 - FIXED FURNISHINGS - CASEWORK	5	Classrooms, offices, corridor study areas had floor mounted laminate wood casework including desks, work stations, storage cubes, shelving, drawers and cabinets throughout. Score based on observed conditions and age with no issues noted or reported.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	5	Multipurpose room with gym features and raised stage areas. Score based on observed conditions and age with no issues noted or reported.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Alice West Fleet Elementary School	2019	No record	111,634	58,998	4

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	6.1+ eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	All spaces designed per recent ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed two classrooms for equivalent of 50 students in the space
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed 300 students for Cafeteria space
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Kitchens are direct vented and space exhausted, all art classrooms are exhausted per ASHRAE
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	All heat pumps are MERV 13 capable
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Heat pump are Merv 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	Heat pump are Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	All fixtures are LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	All fixtures are dark sky compliant. However, CCT is 4000K.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	All fixtures are 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	exterior CCT is greater than 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors are present throughout.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	More information needed.
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	More information needed.
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Low WUI, no cooling tower on site
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	Already performed?
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY-2023, first opened in 2020
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	Blinds on north facade were removed as VE item
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	2 elevators, 3rd being installed
Major Building Systems	5.3 Other - Elevator Size	●	
Common Space Adequacy	1.0 Cafeteria	●	2441/15 = 163
Common Space Adequacy	1.1 Kitchen	●	908/ 3 = 302
Common Space Adequacy	1.2 Kitchen	●	2 serving lines
Common Space Adequacy	1.3 Kitchen	●	Design capacity - 752/3 periods = 250
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, ropes, rock wall, divider curtain, daylight windows
Common Space Adequacy	2.2 Gymnasium	●	57'-4w x 105'-8'L
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	693 LF total
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	9	Green = 9; pre-k & k (0); 1st (5); Gen ed (4)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	18	Yellow = 18; pre-k & k (4); 1st (0); Gen ed (14)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	5	Red = 5; pre-k & k (3); 1st (0); Gen ed (2)
Educational Space Adequacy	1.2 Classrooms (General)	32	
Educational Space Adequacy	1.3 Classrooms (General)	●	1st floor: 8/8 classrooms, 2nd floor: 12/13 classrooms, 3rd floor: 14/15 classrooms, 4th floor: 12/12 classrooms
Educational Space Adequacy	1.4 Classrooms (General)	●	Meet ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	Sinks were removed from classrooms with 1st rooms that had sinks.
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	1	pre-k SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	Located on floor 3
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	Extend learning in hallways
Educational Space Adequacy	3.3 Administrative space	●	1 principal office, 1 asst. principal, workshop, Conference room, records, 3 work stations
Educational Space Adequacy	3.4 Clinic	●	4 beds, 1 sink, exam room, ADA TIL, (No eyewash)
Educational Space Adequacy	4.1 Art	●	2 rooms, one shared storage, 2 kitchens connected
Educational Space Adequacy	4.2 Art	●	2 kits in room off storage/art.
Educational Space Adequacy	4.3 Art	●	3 sinks per art room
Educational Space Adequacy	4.4 Art	●	shared; connected between both art rooms.
Educational Space Adequacy	5.1 Music	●	2 general music, 1 instrumental
Educational Space Adequacy	5.2 Music	●	In rooms & 1 dedicated storage room.
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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² If IFEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IFEA used its own estimated GSF for this report.

GENERAL INFORMATION										
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend						
Arlington Career Center & Arlington Tech	1974	159,853	0.175	<table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90ee90; padding: 2px;">Good</td> <td style="background-color: #ffff00; padding: 2px;">Fair</td> <td style="background-color: #ff0000; padding: 2px;">Poor</td> </tr> <tr> <td style="font-size: 8px;">0 - 0.15</td> <td style="font-size: 8px;">0.151 - 0.33</td> <td style="font-size: 8px;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶						
10	2020	2	0.020	\$81,843,400						

Building Description

The Arlington Career Center, located at 816 S Walter Reed Dr, is a two-story structure. The building was originally constructed in 1974 and last renovated in 2020, according to APS. The building shared a portion of the first-floor footprint with the community library, and the library square footage was not included in the gross square footage for the school. The majority of the structure was assumed to have standard foundations, cast concrete walls and framing, steel and concrete floor deck, and steel roof deck. The exterior walls were exposed cast concrete, with elements of exposed aggregate precast panels, metal panels, and stucco on the soffit of several overhangs. Windows and doors were typically aluminum or steel construction and there were several high-bay overhead doors for the shop spaces. The roof was modified bitumen with a white coating. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of terrazzo, vinyl composite tile (VCT) and carpet flooring, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, an air-cooled chiller, AHUs and RTUs. The building had a combined 7000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. Institutional equipment was installed in classrooms, shops, and labs throughout the facility for a variety of hands-on teaching applications. The school had a serving kitchen and a gymnasium (non-competition).

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	96,500	BLDG FP SF	\$12.08	\$1,166,018	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	96,500	BLDG FP SF	\$13.87	\$1,338,418	99	99
A202000 - BASEMENT WALLS	5	-			-	-		
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	63,353	ELEV FL SF	\$52.67	\$3,337,045	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	96,500	BLDG FP SF	\$24.05	\$2,320,914	70	70
B201000 - EXTERIOR WALLS	3	Solid masonry, load bearing wall 12" to 24" thick	159,853	BLDG GROSS SF	\$89.12	\$14,245,330	70	21
B202000 - EXTERIOR WINDOWS	3	Exterior windows	159,853	BLDG GROSS SF	\$18.83	\$3,009,361	40	5
B203000 - EXTERIOR DOORS	3	Exterior doors	159,853	BLDG GROSS SF	\$1.02	\$162,751	25	5
B301000 - ROOF COVERINGS	4	Built-up roof	96,500	BLDG FP SF	\$27.93	\$2,695,374	25	12
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	159,853	FINISHED SF	\$20.42	\$3,264,235	25	25
C102000 - INTERIOR DOORS	4	Interior doors	159,853	FINISHED SF	\$4.73	\$755,411	40	15
C103000 - FITTINGS	4	Partitions and lockers	159,853	FINISHED SF	\$4.09	\$654,075	40	25
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	159,853	BLDG GROSS SF	\$1.02	\$162,751	70	70
C301000 - WALL FINISHES	4	Standard wall finishes	156,453	FINISHED SF	\$5.09	\$796,447	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	156,453	FINISHED SF	\$14.20	\$2,221,037	20	10
C303000 - CEILING FINISHES	4	Standard ceiling finishes	156,453	FINISHED SF	\$16.83	\$2,632,785	20	10
D101010 - ELEVATORS	2	Elevator	1	EACH	\$206,284.66	\$206,285	35	2
D101020 - LIFTS	4	-			-	-		
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	159,853	SERVED SF	\$17.25	\$2,757,557	40	15
D202000 - RESIDENTIAL WATER HEATER	4	-			-	-		
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 131 to 180 MBH	2	EACH	\$35,634.55	\$71,269	15	3
D204000 - BUILDING STORMWATER DRAINAGE	3	Internal roof drains	96,500	BLDG FP SF	\$3.25	\$313,286	60	15
D301000 - ENERGY SUPPLY	3	Natural gas supply	159,853	BLDG GROSS SF	\$0.15	\$24,566	60	15
D301006 - SOLAR ENERGY SUPPLY	4	-			-	-		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	-			-	-		
D302000 - CENTRAL PLANT HEATING	4	Boiler	159,853	SERVED SF	\$7.17	\$1,145,400	20	7
D302010 - FIREPLACES	4	-			-	-		
D303000 - CENTRAL PLANT COOLING	4	Chiller system	159,853	SERVED SF	\$8.13	\$1,298,938	30	18
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	159,853	SERVED SF	\$19.67	\$3,144,475	35	23
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	159,853	SERVED SF	\$23.44	\$3,746,347	35	23
D305010 - TERMINAL & PACKAGE UNITS	3	Supplemental Split Systems	3,000	SERVED SF	\$17.50	\$52,501	20	3
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	159,853	SERVED SF	\$2.92	\$466,758	20	3
D401000 - SPRINKLERS	3	Sprinkler system	159,853	SERVED SF	\$7.90	\$1,262,089	50	15
D402000 - STANDPIPES	4	-			-	-		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 2000 Amp Service	159,853	BLDG GROSS SF	\$4.00	\$638,721	50	15
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	159,853	BLDG GROSS SF	\$36.27	\$5,797,625	45	20
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	159,853	BLDG GROSS SF	\$10.18	\$1,627,511	20	9
D509000 - EMERGENCY POWER	4	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	13
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	96,000	SERVED SF	\$160.37	\$15,395,048	20	10
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	159,853	SERVED SF	\$3.50	\$558,881	20	16
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4	-			-	-		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	-			-	-		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	5,000	LENGTH LF	\$829.72	\$4,148,592	25	10
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	3,400	SERVED SF	\$100.03	\$340,090	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	-			-	-		
F102030 - AUDITORIUMS	4	-			-	-		
F102040 - COLD STORAGE ROOMS	4	-			-	-		
F104001 - AQUATIC FACILITIES	4	-			-	-		

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Arlington Career Center & Arlington Tech	1974	159,853	0.175	Good Fair Poor
Building Number	Last Renovation ¹	No. of Floors	Building CRV ⁶	No. of Local Projects
10	2020	2	\$81,843,400	1

Building Description

The Arlington Career Center, located at 816 S Walter Reed Dr, is a two-story structure. The building was originally constructed in 1974 and last renovated in 2020, according to APS. The building shared a portion of the first-floor footprint with the community library, and the library square footage was not included in the gross square footage for the school. The majority of the structure was assumed to have standard foundations, cast concrete walls and framing, steel and concrete floor deck, and steel roof deck. The exterior walls were exposed cast concrete, with elements of exposed aggregate precast panels, metal panels, and stucco on the soffit of several overhangs. Windows and doors were typically aluminum or steel construction and there were several high-bay overhead doors for the shop spaces. The roof was modified bitumen with a white coating. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of terrazzo, vinyl composite tile (VCT) and carpet flooring, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, an air-cooled chiller, AHUs and RTUs. The building had a combined 7000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. Institutional equipment was installed in classrooms, shops, and labs throughout the facility for a variety of hands-on teaching applications. The school had a serving kitchen and a gymnasium (non-competition).

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	3	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ 3,009,361	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ 162,751	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 796,447	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 796,447	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,221,037	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,632,785	\$ -	\$ -
D101010 - ELEVATORS	2	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ -	\$ 71,269	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,145,400	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ 52,501	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ 466,758	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,627,511	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15,395,048	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,148,592	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 340,090	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$0	\$256,285	\$1,386,975	\$0	\$3,172,112	\$0	\$1,145,400	\$0	\$2,423,959	\$24,737,551	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Arlington Career Center & Arlington Tech		1974	159,853	0.175
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
10		2020	2	0.020
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV⁵				
\$81,843,400				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire footprint of building.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry/concrete walls, structural steel framing, steel decking, and poured concrete flooring.		
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.		
B201000 - EXTERIOR WALLS	3	Exterior facade was primarily exposed cast concrete, with elements of exposed aggregate precast panels, metal panels, and stucco on the soffit of several overhangs. Isolated repairs, along with additional cracking and spalls were observed in several isolated areas throughout the concrete facade. Local Project: Repair concrete cracks and spalls throughout facade		
B202000 - EXTERIOR WINDOWS	3	Windows were mostly aluminum framed, estimated to be original to 1974 construction.		
B203000 - EXTERIOR DOORS	3	Doors were mostly painted steel, with some aluminum/glass doors. There were nine metal high-bay overhead doors on the south elevation for the various shop spaces.		
B301000 - ROOF COVERINGS	4	Roofing was primarily modified bitumen with a white coating, estimated to have been installed in early 2010s.		
C101000 - PARTITIONS	5	Partition walls were combination of gypsum board over stud framing and exposed concrete.		
C102000 - INTERIOR DOORS	4	Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms. Metal railings around perimeter of commons area at second floor.		
C201000 - STAIR CONSTRUCTION	5	Cast in place concrete stairs and landings.		
C301000 - WALL FINISHES	4	Majority of walls were painted concrete or gypsum board.		
C302000 - FLOOR FINISHES	4	Combination of terrazzo and carpet throughout hallways. Terrazzo has some minor cracking in various locations. Carpet and vinyl composite tile (VCT) used throughout majority of classrooms. Exposed concrete or painted concrete in the shop areas. Rubberized flooring in the culinary arts lab.		
C303000 - CEILING FINISHES	4	Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms. Exposed structure was present in shop areas.		
D101010 - ELEVATORS	2	Hydraulic Elevator. Equipment room was locked and not accessible. When attempting to ride elevator during assessment from 1st to 2nd floor, the elevator opened several feet off from 2nd floor landing, closed, and returned to second floor. Recommendation: Replace or refurbish elevator.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	Two gas-fired domestic water heaters were in the boiler room, estimated up to 180 MBH each, manufactured 2010.		
D204000 - BUILDING STORMWATER DRAINAGE	3	Entire roof area used internal stormwater drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	3	Natural gas supply connection was located near the Auto Tech shop.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	4	Two high-efficiency boilers manufactured 2010.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	4	Two air-cooled chillers, estimated manufactured 2011.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	System included a several AHJs and RTUs (most equipment estimated manufactured 2011-2018). Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	System included a several AHJs and RTUs (most equipment estimated manufactured 2011-2018). Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	3	Six supplemental split-systems provided supplemental cooling to a few rooms. Mostly appeared manufactured around early 2000s.		
D306000 - CONTROLS	3	Pneumatic controls used throughout majority of building. Compressor estimated to be installed around early 2000s.		
D401000 - SPRINKLERS	3	Building appeared to be fully sprinkled.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical panel is in the electrical room next to the stairwell on the east side of the building. Service is 7000A, 480/277V, 3Ph, 4W.		
D502000 - LIGHTING AND BRANCH WIRING	3	Wiring and distribution panels assumed to be installed with original construction. Lighting fixtures estimated to have been replaced in early 2000s.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Fire alarm control panel estimated installed in 2012. PA and security systems assumed updated within past 10 years.		
D509000 - EMERGENCY POWER	4	One 150 KW emergency generator provided backup power. Estimated to be installed 2001.		
E102000 - INSTITUTIONAL EQUIPMENT	4	Majority of the classrooms, shops, and labs had institutional equipment. Estimated 60% of the building. Included various equipment for auto repair, workshops, TV studio, commercial kitchens, healthcare, animal care, hair styling, etc.		
E109002 - FOOD SERVICE EQUIPMENT	5	Serving kitchen with equipment estimated to be manufactured 2019.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework throughout administrative areas and classrooms.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Non-Competition Gymnasium (about 3,400 SF) had rubberized flooring, painted gypsum board walls, painted exposed structure ceilings, and basketball hoops.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Arlington Career Center & Arlington Tech	1974	2020	159,853	96,500	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IAQ averages above 6 eACH when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Does not meet current ASHRAE 62.1 requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Does not meet current ASHRAE 62.1 requirements
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Meets APS eACH requirements but does not meet ASHRAE
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	MERV 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms all have individual thermostats. Admin spaces do not all have their own thermostats
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	About 30% of building has LEDs
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Inconsistent color temperature. Not 4000K
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Inconsistent color temperature. Not 3000K
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	About 70% of building has LEDs
Major Building Systems	3.6 Electrical - Sport Lighting	●	No sports fields
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	No low flow fixtures present in the building
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on F.Y. 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signs adhered to many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 and dangerous (didn't stop at floor correctly when tested)
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	some were ADA (obviously recently renovated), but most restrooms were NOT ADA
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	most were 6'0" wide or more, but there were some that were less than 6'0" wide
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	MAIN STAIR: Stair Treads = 12.5" and Stair Risers = 6" (YES), Guardrails = 40.5" to top (NO), Handrails = 32" to top with no extensions (NO)
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	16
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	16
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on F.Y. 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'2" x 3'8" Door: 3'0" offset 2,051 / 12 = 170
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	993 / 3 = 331 or 1108 / 3 = 369, SF of kitchen taken from two differently scaled drawings so may be inaccurate
Common Space Adequacy	1.2 Kitchen	●	2 serving lines
Common Space Adequacy	1.3 Kitchen	●	950 / 3 = 317
Common Space Adequacy	2.1 Gymnasium	●	Gym: 1 hoop, daylight
Common Space Adequacy	2.2 Gymnasium	●	Main Gym: 70'6" x 46'10"W, Bot. of joist 14'6", Bot. of deck 18'-1"
Common Space Adequacy	3.1 Performance Space	●	There is no performance space for this school.
Common Space Adequacy	3.2 Performance Space	●	There is no performance space for this school.
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	768 LF total
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	There is no pool for this school.
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Much; Also, playground is for younger children in daycare program and not for high school students.
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	0; Has outdoor dining tables, but not a separate learning space
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	21	Green = 21, classroom (18), lab (3)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	1	Yellow = 1, classroom (1), lab (0)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	26	Red = 26, classroom (24), lab (2)
Educational Space Adequacy	1.2 Classrooms (General)	48	classroom (43), lab (5)
Educational Space Adequacy	1.3 Classrooms (General)	●	20% of classroom/labs that are contributing have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	Forensics/Biology 131 (lab) = 3 sinks; Health/Pharmacy 202 (lrm) = 1 sink; Art Tech Sci Lab 212 (lab) = 6 sinks; Art Tech Sci Ctrm/Physics 225 (lab) = 1 sink; Art Tech Sci Ctrm/Earth Science (lab) = 4 sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	6 desks; 7 offices, records room rated but not in Office Suite (vault 130); no specific conference room in Office Suite
Educational Space Adequacy	3.4 Clinic	●	3 beds, 1 ADA toilet for staff, non-ADA toilet for Men/Women, 1 sink, 1 eye wash, 1 refrigerator, 1 office.
Educational Space Adequacy	4.1 Art	●	1 total
Educational Space Adequacy	4.2 Art	●	Room 204C
Educational Space Adequacy	4.3 Art	●	Room 204C
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	There is no music for this school.
Educational Space Adequacy	5.2 Music	●	There is no music for this school.
Educational Space Adequacy	6.0 Lab	●	5 total: 4 Art Tech Science Lab (Physics, Earth Science, etc.), 1 Forensics/Biology
Educational Space Adequacy	7.1 Performing Arts	●	There is no performance space for this school.
Educational Space Adequacy	7.2 Performing Arts	●	There is no performance space for this school.

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Arlington Science Focus Elementary School	1953	68,127	0.153	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
6	2000	2	0.108	\$25,934,113		

Building Description

Arlington Science Focus Elementary School, located at 1501 N. Lincoln Street, is a two-story structure. The original building was constructed in 1953, and the last major renovation occurred in 2000. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of masonry construction with original brick, CMU, and EIFS finishes and includes a two-story glazing assembly at one entrance. The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is built-up asphalt over concrete and steel roof decks, with a small amount of metal roofing covering two entrances. Interior floor finishes are primarily vinyl composition tile, terrazzo, and carpet tile. Wall finishes are primarily painted CMU while ceiling finishes are primarily suspended acoustic tiles. There is one Schindler hydraulic elevator serving the original wing. The HVAC system consists of three P-K Thermific 1,615 MBH gas-fired boilers, one Trane 100-ton air-cooled chiller, multiple terminal units, and packaged rooftop equipment, some of which is dedicated to select spaces and some of which is shared more widely among the building. A 2,000-amp Square D main switchboard provides electrical service to distribution panels, equipment, and lighting, most of which is fluorescent in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4020 fire alarm system. A ~110 kW diesel generator provides emergency power.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	51,715	BLDG FP SF	\$12.08	\$624,877	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	51,715	BLDG FP SF	\$13.87	\$717,267	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	16,412	ELEV FL SF	\$52.67	\$864,483	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	51,715	BLDG FP SF	\$63.32	\$3,274,395	80	80
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	68,127	BLDG GROSS SF	\$26.95	\$1,836,134	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	68,127	BLDG GROSS SF	\$18.83	\$1,282,545	40	17
B203000 - EXTERIOR DOORS	4	Exterior doors	68,127	BLDG GROSS SF	\$1.02	\$69,362	30	11
B301000 - ROOF COVERINGS	2	Built-up roof	51,715	BLDG FP SF	\$27.93	\$1,444,469	25	3
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	68,127	FINISHED SF	\$20.42	\$1,391,169	70	70
C102000 - INTERIOR DOORS	4	Interior doors	68,127	FINISHED SF	\$4.73	\$321,945	40	20
C103000 - FITTINGS	4	Partitions and lockers	68,127	FINISHED SF	\$4.09	\$278,757	40	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	68,127	BLDG GROSS SF	\$1.94	\$132,181	60	60
C301000 - WALL FINISHES	4	Standard wall finishes	59,767	FINISHED SF	\$5.09	\$304,253	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	59,767	FINISHED SF	\$14.20	\$848,464	20	10
C303000 - CEILING FINISHES	4	Standard ceiling finishes	59,767	FINISHED SF	\$16.83	\$1,005,757	20	10
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	7
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	68,127	SERVED SF	\$17.25	\$1,175,230	50	25
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Oil Water Heater, Commercial, 141 to 720 MBH and Less than 150 Gallons	1	EACH	\$83,707.58	\$83,708	15	8
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains plus in-floor drainage system	25,000	BLDG FP SF	\$4.92	\$122,944	60	35
D301000 - ENERGY SUPPLY	4	Natural gas supply	68,127	BLDG GROSS SF	\$0.15	\$10,470	60	35
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	56,671	SERVED SF	\$7.17	\$406,066	40	15
D302010 - FIREPLACES	5	Masonry fireplace	1	EACH	\$30,446.89	\$30,447	50	50
D303000 - CENTRAL PLANT COOLING	3	Chiller system	56,671	SERVED SF	\$8.13	\$460,499	25	3
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	56,671	SERVED SF	\$19.67	\$1,114,778	35	14
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	56,671	SERVED SF	\$23.44	\$1,328,153	35	13
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, >=10,000 SF to <15,000 SF	11,456	SERVED SF	\$53.60	\$613,995	30	7
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	68,127	SERVED SF	\$2.92	\$198,925	20	3
D401000 - SPRINKLERS	4	Sprinkler system	68,127	SERVED SF	\$7.90	\$537,884	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	68,127	BLDG GROSS SF	\$4.00	\$272,214	40	18
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	68,127	BLDG GROSS SF	\$36.27	\$2,470,863	55	30
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	68,127	BLDG GROSS SF	\$10.18	\$693,621	20	3
D509000 - EMERGENCY POWER	3	Emergency Generator, >=100 kW to <125 kW	1	EACH	\$86,196.46	\$86,196	35	12
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	8
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	68,127	SERVED SF	\$3.50	\$238,187	25	6
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	900	LENGTH LF	\$829.72	\$746,746	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	7,166	SERVED SF	\$100.03	\$716,790	20	9
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Arlington Science Focus Elementary School	1953	68,127	0.153	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
6	2000	2	\$25,934,113	1		

Building Description

Arlington Science Focus Elementary School, located at 1501 N. Lincoln Street, is a two-story structure. The original building was constructed in 1953, and the last major renovation occurred in 2000. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of masonry construction with original brick, CMU, and EIFS finishes and includes a two-story glazing assembly at one entrance. The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is built-up asphalt over concrete and steel roof decks, with a small amount of metal roofing covering two entrances. Interior floor finishes are primarily vinyl composition tile, terrazzo, and carpet tile. Wall finishes are primarily painted CMU while ceiling finishes are primarily suspended acoustic tiles. There is one Schindler hydraulic elevator serving the original wing. The HVAC system consists of three P-K Thermiflex 1,615 MBH gas-fired boilers, one Trane 100-ton air-cooled chiller, multiple terminal units, and packaged rooftop equipment, some of which is dedicated to select spaces and some of which is shared more widely among the building. A 2,000-amp Square D main switchboard provides electrical service to distribution panels, equipment, and lighting, most of which is fluorescent in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4020 fire alarm system. A ~110 kW diesel generator provides emergency power.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 69,362	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ -	\$ 1,444,469	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ 304,253	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 304,253	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 848,464	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,005,757	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,708	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ 460,499	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 613,995	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ 198,925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ 693,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 238,187	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 716,790	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$0	\$15,000	\$2,797,515	\$304,253	\$0	\$238,187	\$820,279	\$107,762	\$716,790	\$2,158,473	\$69,362	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Arlington Science Focus Elementary School	Year Built¹	1953	Building GSF²	68,127	Building FCI_{AD}	0.153	Condition Category Legend		
								0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	6	Last Renovation¹	2000	No. of Floors	2	Building FCI_{DM}	0.108	Building CRV³		
								525,934,113		
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	●	5 The foundation system appears to be cast in place concrete.								
A103000 - SLAB ON GRADE	●	5 The first floor of the original building and the 2000 addition have a slab on grade.								
A202000 - BASEMENT WALLS	●	-								
B101000 - FLOOR CONSTRUCTION	●	5 The upper level floor plate is an elevated slab constructed with cast in place concrete framing as part of the original structure.								
B102000 - ROOF CONSTRUCTION	●	5 For the original building, the roof deck is cast in place concrete over concrete framing. For the 2000 addition, the roof structure is steel decking over steel trusses and girders. The original structure predominates.								
B201000 - EXTERIOR WALLS	●	5 The building's exterior wall assembly is predominantly brick masonry construction from the original structure (1953). The 2000 additions of the Gymnasium, Media Center, and classrooms were constructed using CMU. Exterior finishes include split/polished/ground face CMU, EPS, and original brick. There is a two-story glazing assembly at Entrance 7 installed 2000. Local Project Assess wall cracking at south side of Gymnasium								
B202000 - EXTERIOR WINDOWS	●	4 The exterior windows are both fixed and operable metal framed units with thermal glazing and are not original. The Gym and MPR have fixed, translucent clerestory windows that allow filtered light into these spaces. There is a two-story glazing assembly at Entrance 7 installed 2000. The windows for the 2000 addition are of known age and appear to be in good condition with no fogging, cracking, or significant sealing degradation. It is not clear from drawings if the windows for the existing structure were replaced at that time but they appear to be of the same design, and approximately same vintage and condition.								
B203000 - EXTERIOR DOORS	●	4 The exterior doors are single and paired glazed storefront units and single and paired metal flush panel units (some with glazing). Some of the metal flush panel units exhibit worn finishes but appear to function fully. Doors assumed to have been installed in 2000.								
B301000 - ROOF COVERINGS	●	2 Roof is primarily low slope, built up asphalt roof with gravel, with a small amount (3%) standing seam metal roofing covering Entrances 7 & 8. Per the 2016 APS Roof Survey, the BUR was in fair condition, and the metal roof was in good condition at that time. Since then, no substantial action has been taken beyond coating repairs. Two large areas of repair were observed, one that had an elastomeric coating applied and another that appeared ready for application. Some areas around roof drains had been previously coated with some exhibiting cracking. Some areas of ponding and moss growth were observed. Leaking was reported in Room 163 (from roof, according to staff), 183 Media Center (from roof, according to staff), and leak damaged ceilings were observed in Rooms 143, 146, and outside 162. Some original roof sections have gutters to convey water to scuppers and/or down to grade via downspouts, and these are in fair condition.								
C101000 - PARTITIONS	●	5 Interior partitions are concrete masonry units (CMU) of different construction periods.								
C102000 - INTERIOR DOORS	●	4 The majority of the interior doors are solid core wood panels in metal frames. The doors types vary and include flush and glazed units.								
C103000 - FITTINGS	●	4 The predominate fittings for the school are composite toilet partitions and metal ramp railings, with no lockers present.								
C201000 - STAIR CONSTRUCTION	●	5 Interior stairs include cast in place concrete and steel framed with concrete infill pans, with steel framed predominating. Stairs have metal hand rails and guard rails.								
C301000 - WALL FINISHES	●	4 The building has a variety of wall finishes, but painted CMU predominates. In corridors and other common areas, finishes are tile and painted CMU, with a small amount of glass block and painted brick. In classrooms, primarily painted CMU. In restrooms, ceramic tile and painted CMU. In large spaces such as the Media Center and Kitchen, painted CMU predominates but there may be other finishes such as tile and painted brick.								
C302000 - FLOOR FINISHES	●	4 The building has a variety of floor finishes. In corridors and other common areas, finishes are VCT and terrazzo (some cracking/chipping). In classrooms, carpet tile and VCT. In restrooms and the Kitchen, ceramic tile. New flooring was being installed in the Media Center at the time of assessment. Overall condition rating is good with high traffic areas showing greater wear.								
C303000 - CEILING FINISHES	●	4 The majority of the ceiling finishes are suspended acoustic tile (SAT). Leak damaged tiles observed in Rooms 010 and 012, as well as described under Roof Coverings.								
D101010 - ELEVATORS	●	3 A Schindler hydraulic elevator with 2,100 lb. capacity, serving two floors, manufactured 1999. No issues observed or reported but the elevator is in the last 1/3 of EUL, and multiple components should be tested, overhauled, or replaced. Car dimensions are 5' 7" x 4' 2".								
D101020 - LIFTS	●	-								
D201000 - PLUMBING SYSTEMS AND FIXTURES	●	4 Plumbing fixtures are vitreous china with manual valves, typically wall mounted sinks and floor mounted toilets. Stainless steel water fountains. Assumed all piping and fixtures installed during 2000 renovation, including copper domestic piping and cast iron sanitary piping.								
D202000 - RESIDENTIAL WATER HEATER	●	-								
D202005 - COMMERCIAL WATER HEATER	●	4 One RBN SW300 gas-fired 301 MBH (manuf 2016) domestic water heater and one RBN 200-gallon storage tank (manuf 2016). No issues observed.								
D204000 - BUILDING STORMWATER DRAINAGE	●	4 Internal stormwater piping for low-slope roof areas applies to the new (2000) wing only, assumed to be ~50% of total roof area. Stormwater from low-slope roofing for the original building is conveyed by gutters, downspouts, and scuppers and is not included here. Includes restroom floor drain system. No issues reported or observed.								
D301000 - ENERGY SUPPLY	●	4 Natural gas supply enters the NW corner of the building. Appearance consistent with 2000 building renovation. No issues reported or observed.								
D301006 - SOLAR ENERGY SUPPLY	●	-								
D301020 - GEOTHERMAL HEATING / COOLING SUPPLY	●	-								
D302000 - CENTRAL PLANT HEATING	●	4 Three P-K Thermifac gas-fired water tube boilers (1,615 MBH output) manufactured 1999. System was designed to circulate hot water to two outdoor air units and multiple terminal units serving the building. All boilers exhibited expired inspection certificates (expired September 2022). One boiler was out of service with the cover removed and appeared to require cleaning at minimum. No other issues observed or reported but boilers are approaching final 1/3 of EUL. Area heated assumed to be the building GSF minus SF of the Gym, Admin, Media Center, and Multipurpose Room, which are served by dedicated rooftop units.								
D302010 - FIREPLACES	●	5 Original and functional brick chimney apparently used for boiler exhaust.								
D303000 - CENTRAL PLANT COOLING	●	3 100-ton Trane air-cooled chiller with two screw compressors utilizing R-22 refrigerant, installed circa 2000. System was designed to circulate ethylene glycol to two roof mounted outdoor air units and multiple terminal units serving the building. Area cooled assumed to be the building GSF minus SF of the Gym, Admin, Media Center, and Multipurpose Room, which are served by dedicated rooftop units. No issues reported or observed. However, this chiller uses R-22, which is being phased out due to its environmental impact. Additionally, screw chillers are typically replaced at 25 years, and this chiller has nearly reached end of EUL.								
D304010 - DISTRIBUTION SYSTEMS - HEATING	●	3 Heating distribution systems consists primarily of piping, pumps, outdoor air units (2), ductwork, and terminal units. Hot water is delivered to two OA units on the roof serving most spaces except the Gym, Admin, Media Center, and Multipurpose Room, which are served by dedicated rooftop units. Most classrooms and offices are heated by terminal units such as fan coil units and unit ventilators. All equipment assumed installed 2000. The 7.5 HP motor/pump sets appear original but one pump appears to have been rebuilt or replaced. The condition of the fans, evaporator coils, and energy wheels of the OAUs (manufactured by Engineered Air) are commensurate with age. The pumps, OAUs and terminal units are in the last 1/3 of EUL.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	●	3 Cooling distribution systems consists primarily of piping, pumps, outdoor air units (2), ductwork, and terminal units. Chilled water is delivered to two OA units on the roof serving most spaces except the Gym, Admin, Media Center, and Multipurpose Room, which are served by dedicated rooftop units. Most classrooms and offices are cooled by terminal units such as fan coil units and unit ventilators. All equipment assumed installed 2000. The motors appear original but the pumps could not be viewed due to thermal enclosures. The condition of the fans, evaporator coils, and energy wheels of the OAUs (manufactured by Engineered Air) are commensurate with age. The pumps, OAUs and terminal units are in the last 1/3 of EUL.								
D305010 - TERMINAL & PACKAGE UNITS	●	3 RTUs serve select areas of the building including Admin (RTU-1), MPR (RTU-2 and 3), Media Center (RTU-4), and Gym (RTU-5 and 6). All units manufactured by Trane in 1999 and range from 30 to 25 tons. The units show distressed condenser coil fins and are in the last 1/3 of EUL.								
D306000 - CONTROLS	●	3 Control drawings were not available and a BAS system was not observed. However, digital devices were observed for local control of select areas, while a BAS is assumed to control the centralized HVAC system, at minimum. All controls assumed to have been installed 2000. No issues observed, but hot/cold issues noted by staff in rooms 179, 123, and the Library. The control systems are in the final 1/3 of EUL.								
D401000 - SPRINKLERS	●	4 Fully sprinklered building with wet system serving four zones: basement, elevator equipment, first floor, and second (main) floor. Assumed installed 2000. Per the latest inspection report (2021), the fireline backflow assembly failed, but there was no indication of repair/replacement.								
D402000 - STANDPIPES	●	-								
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	●	4 Main switchboard is a Square D 2,000-amp, 480/277V, 3-phase, 4-wire. There are also two 800A MDPs in the main electrical room: 208/120V & 480/277V. All panels have 1999 manufacture dates with no issues observed or reported.								
D502000 - LIGHTING AND BRANCH WIRING	●	4 Majority of wiring, sub-panels, fixtures, switches, etc. assumed replaced in 2000. Wiring is copper and most lighting is fluorescent in recessed troffers, with the exception of exterior and gymnasium fixtures which appear to be LED.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	●	3 Main fire alarm panel is a Simplex 4020, assumed installed 2000 along with PA system. Per the latest fire alarm system inspection (2021), one of four panels had failed, and there was no documented repair/replacement. However, the panel showed no alarm conditions at the time of assessment. No other issues observed or reported but the system is in the last 1/3 of average useful service life. No security system was observed.								
D509000 - EMERGENCY POWER	●	3 ~110 KW diesel-powered emergency generator powered by John Deere engine manufactured 1999. Exhibits light surface corrosion, minor oil leaking, and light oil accumulation beneath. Oil filter appears fresh but no maintenance annotations were found in the enclosure. Generator is entering last 1/3 of EUL. Transfer switch not observed.								
E102000 - INSTITUTIONAL EQUIPMENT	●	4 10 KW Kin serving Art Room (159). Age uncertain but model, vintage, and condition similar to others throughout school system.								
E109002 - FOOD SERVICE EQUIPMENT	●	3 Small serving kitchen including stainless steel stove/oven, exhaust hood, warming racks, refrigerator, sink, and serving counters. Appliances assumed installed 2000. Score based on observed conditions and age.								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	●	-								
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	●	-								
E201020 - FIXED FURNISHINGS - CASEWORK	●	4 Laminate wood casework in classrooms and offices includes cabinets, shelving, and works stations. Most casework assumed to have been installed in 2000. Quantity estimated based on square footage. Expected level of wear and tear observed.								
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	●	4 Multipurpose room serving as cafeteria and auditorium with raised stage. Appeared part of original construction with portions renovated in 2000. VCT flooring (fair condition) with wood flooring at stage (excellent condition). Walls are painted CMU with some original tile and acoustic paneling (good). Ceiling is suspended acoustic tile (good). Single-purpose elementary school gymnasium. Constructed 2000. Sheet vinyl flooring, painted walls with soundproofing panels, safety padding, and a climbing wall, and painted steel ceiling framing were in good condition. Basketball hoops appeared new. Lighting may have been upgraded and was in good condition.								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	●	-								
F102030 - AUDITORIUMS	●	-								
F102040 - COLD STORAGE ROOMS	●	-								
F104001 - AQUATIC FACILITIES	●	-								

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4. The building systems CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Arlington Science Focus Elementary School	1953	2000	68,127	51,715	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	-4 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1 for 25 students only
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow local filtration of MERV 8 at best, DOAS units and Roof top units utilize MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Roof top unit utilize Merv 13.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Roof top unit utilize Merv 13.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Fluorescent fixtures throughout.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures are dark sky compliant, but some flood lights and wall packs without cut-off are present.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature inconsistent.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Appears to be high for not currently having a cooling tower on site
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Area between Doors 5 and 6 with retaining wall and thick vegetation.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1 is clearly marked. However, both Doors 1 and 7 have intercoms and might appear to visitors to provide building access.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No Vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	6	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY-2019
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	1	
Major Building Systems	5.3 Other - Elevator Size	●	Car size is 5'7" x 4'2"
Common Space Adequacy	1.0 Cafeteria	●	3127(cafeteria area)/15 students = 209
Common Space Adequacy	1.1 Kitchen	●	1795(kitchen area incl office, etc.)/3 = 599
Common Space Adequacy	1.2 Kitchen	1	
Common Space Adequacy	1.3 Kitchen	●	design capacity 553/3 periods = 185
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable, climbing wall, 3 ropes, daylight, NO divider
Common Space Adequacy	2.2 Gymnasium	●	74'-1" x 94'-0"; Deck: 23'-9", Joist: 21'-2"
Common Space Adequacy	3.1 Performance Space	●	ADA accessible from corridor
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1132 LF / 553 students = 2.05 LF per student
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	8	Green = 8, pre-k & k (0); 1st (3); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	15	Yellow = 15; pre-k & k (5); 1st (3); Gen ed (7)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	0	Red = 0, pre-k & k (0); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	23	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	0% are ADA, no grab bars
Educational Space Adequacy	1.5 Classrooms (General)	●	100% Classrooms have sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	2	Spec Ed
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	There is OT/PT space, but NOT 10x10
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices, conference room, NO records room - records are in multiple rooms
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet (no vertical), 1 sink, 1 eyewash, 1 ref.
Educational Space Adequacy	4.1 Art	●	1: #159
Educational Space Adequacy	4.2 Art	●	connected, in #161
Educational Space Adequacy	4.3 Art	●	2
Educational Space Adequacy	4.4 Art	●	Connected
Educational Space Adequacy	5.1 Music	●	room 179 - vocal; room 126 - instrumental (also a stage)
Educational Space Adequacy	5.2 Music	●	storage connected to both
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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² If IEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Arlington Traditional Elementary School	1951	89,599	0.143	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
7	2021	3	0.109	\$37,339,449		

Building Description

Arlington Traditional Elementary School (ATS), located at 1030 N McKinley Rd, is a three-story structure. The building was originally constructed in 1951. Major renovations/expansions appeared to have occurred in the mid-1990s and early 2000s based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2021. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry and EIFS. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen, with areas of built-up roof. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, vinyl, and terrazzo floors, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout a majority of the building, and heating water piping. HVAC systems included three boilers, rooftop package units, and a few supplemental split-system DX units. The building had a 3000A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen and a multi-purpose room (gymnasium and auditorium).

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	72,700	BLDG FP SF	\$12.08	\$878,441	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	72,700	BLDG FP SF	\$13.87	\$1,008,321	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	16,899	ELEV FL SF	\$66.81	\$1,129,062	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	72,700	BLDG FP SF	\$24.05	\$1,748,502	99	99
B201000 - EXTERIOR WALLS	4	Solid masonry, load bearing wall 12" to 24" thick	89,599	BLDG GROSS SF	\$89.12	\$7,984,632	70	40
B202000 - EXTERIOR WINDOWS	4	Exterior windows	89,599	BLDG GROSS SF	\$18.83	\$1,686,773	40	30
B203000 - EXTERIOR DOORS	4	Exterior doors	89,599	BLDG GROSS SF	\$1.02	\$91,223	25	15
B301000 - ROOF COVERINGS	3	Built-up roof	72,700	BLDG FP SF	\$27.93	\$2,030,608	25	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	89,599	FINISHED SF	\$20.42	\$1,829,632	70	70
C102000 - INTERIOR DOORS	4	Interior doors	89,599	FINISHED SF	\$4.73	\$423,414	40	15
C103000 - FITTINGS	4	Partitions and lockers	89,599	FINISHED SF	\$4.09	\$366,615	40	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	89,599	BLDG GROSS SF	\$1.94	\$173,841	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	83,099	FINISHED SF	\$5.09	\$423,028	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	83,099	FINISHED SF	\$14.20	\$1,179,689	14	5
C303000 - CEILING FINISHES	3	Standard ceiling finishes	83,099	FINISHED SF	\$16.83	\$1,398,387	20	3
D101010 - ELEVATORS	4	Elevator	2	EACH	\$206,284.67	\$412,569	35	6
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	89,599	SERVED SF	\$17.25	\$1,545,635	40	10
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, 181 to 300 MBH	2	EACH	\$32,608.98	\$65,218	15	7
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	66,500	BLDG FP SF	\$3.25	\$215,892	60	30
D301000 - ENERGY SUPPLY	5	Natural gas supply	89,599	BLDG GROSS SF	\$0.15	\$13,770	60	32
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	89,599	SERVED SF	\$7.17	\$642,006	20	19
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	-	-	-	-	-	-	-	-
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	-	-	-	-	-	-	-
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, >=10,000 SF to <15,000 SF	89,599	SERVED SF	\$53.60	\$4,802,139	30	9
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	89,599	SERVED SF	\$2.38	\$213,428	15	3
D401000 - SPRINKLERS	5	Sprinkler system	89,599	SERVED SF	\$7.90	\$707,412	50	30
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	89,599	BLDG GROSS SF	\$4.00	\$358,009	50	30
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	89,599	BLDG GROSS SF	\$36.27	\$3,249,620	40	12
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	89,599	BLDG GROSS SF	\$10.18	\$912,234	20	12
D509000 - EMERGENCY POWER	4	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	20
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	89,599	SERVED SF	\$3.50	\$313,258	20	17
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	4	Multi-purpose room	6,500	SERVED SF	\$100.03	\$650,172	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Arlington Traditional Elementary School	1951	89,599	0.143	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
7	2021	3	\$37,339,449	No. of Local Projects		
				1		

Building Description

Arlington Traditional Elementary School (ATS), located at 1030 N McKinley Rd, is a three-story structure. The building was originally constructed in 1951. Major renovations/expansions appeared to have occurred in the mid-1990s and early 2000s based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2021. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry and EIFS. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen, with areas of built-up roof. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, vinyl, and terrazzo floors, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout a majority of the building, and heating water piping. HVAC systems included three boilers, rooftop package units, and a few supplemental split-system DX units. The building had a 3000A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen and a multi-purpose room (gymnasium and auditorium).

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ 2,030,608	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 423,028	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 423,028	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ 1,179,689	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ 1,398,387	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 412,569	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,545,635	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65,218	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,802,139	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ 213,428	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 650,172	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$20,000	\$2,030,608	\$2,034,843	\$0	\$1,179,689	\$412,569	\$65,218	\$0	\$5,225,167	\$2,195,807	\$0	\$0

1. Values shown were provided by APS.
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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Arlington Traditional Elementary School	Year Built¹ 1951	Building GSF² 89,599	Building FCI_{AD} 0.143	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 7	Last Renovation⁴ 2021	No. of Floors 3	Building FCI_{DM} 0.109	Building CRV⁵ \$37,339,449
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout school.		
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout school.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Primarily masonry bearing walls with steel framing, steel deck, and concrete slab.		
B102000 - ROOF CONSTRUCTION	5	Primarily masonry bearing walls with steel framing and steel deck.		
B201000 - EXTERIOR WALLS	4	Majority (estimated 70%) of exterior walls were brick masonry. Some steel lintels above windows were deteriorated. Remaining 30% was EIFS construction. Woodpeckers had made many holes throughout the sections of EIFS. Painted gypsum board soffit at overhang above kitchen loading dock was damaged and reportedly had rodent infiltration. Local Project: Repair holes throughout EIFS walls, repair soffit above kitchen loading dock, and repaint corroded steel lintels.		
B202000 - EXTERIOR WINDOWS	4	Aluminum framed windows with double pane glass.		
B203000 - EXTERIOR DOORS	4	Combination of painted steel doors and aluminum framed doors.		
B301000 - ROOF COVERINGS	3	Mostly modified bitumen roofing with a white coating. Some sections were built up roof, also with a white coating that was peeling throughout. Roofs estimated to have been installed in the mid-1990s but no leaks or issues were reported.		
C101000 - PARTITIONS	5	Majority of walls were CMU masonry, with some areas of gypsum board over stud framing.		
C102000 - INTERIOR DOORS	4	Mostly solid-core wood doors throughout school.		
C103000 - FITTINGS	4	Composite toilet partitions throughout. Most appeared to have been replaced within last 10 years, although a minority were older and in fair condition. Lockers were about half newer (estimated 10 years old) and half older (estimated 30 years old).		
C201000 - STAIR CONSTRUCTION	5	Metal framed stairs with poured concrete treads and landings.		
C301000 - WALL FINISHES	4	Mostly painted masonry/gypsum board partitions throughout.		
C302000 - FLOOR FINISHES	4	Carpet was installed in most classrooms, although some had vinyl composite tile in fair condition. Vinyl and terrazzo was installed in the hallways. The terrazzo had minor cracking in some areas.		
C303000 - CEILING FINISHES	3	Suspended acoustical ceiling tiles were installed throughout most spaces, although some areas had painted exposed structure. In many areas, the ceiling tiles were worn and sagging. Isolated water stains were observed.		
D101010 - ELEVATORS	4	Two hydraulic elevators. One was manufactured in 1994 and the second was manufactured in 2016.		
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Domestic water piping assumed to be mostly steel and sanitary piping assumed to be mostly cast iron. Assumed original to each phase of construction.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	Two domestic water heaters, gas-fired, 199 MBH, manufactured 2015.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal stormwater drains used on approximately 80% of the roof area. Assumed cast iron piping.		
D301000 - ENERGY SUPPLY	5	Natural gas supply near kitchen loading dock. Assumed installed in mid-1990s.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Three high-efficiency boilers installed 2022. Automated water treatment system appeared to be installed.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	-			
D304020 - DISTRIBUTION SYSTEMS - COOLING	-			
D305010 - TERMINAL & PACKAGE UNITS	3	Several rooftop package units appeared to serve most areas within the school. Appeared to have heating water coils and packaged condenser cooling. Majority of the RTUs estimated to have been installed in 2002, although some appeared to have been replaced in 2016. Several small split-system DX units provided supplemental cooling to select spaces. Assumed that this system captures cost of the heating water distribution.		
D306000 - CONTROLS	3	DDC controls assumed to be mostly original to 2002.		
D401000 - SPRINKLERS	5	Building appeared to be fully sprinkled. Assumed to have been original to early 2000s.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical panel in boiler room. Service is 3000A, 600V, 3PH, 4W. Assumed installed in early 2000s.		
D502000 - LIGHTING AND BRANCH WIRING	4	Wiring and distribution panels varied in age throughout the building, with the oldest observed panel manufactured 1995.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Fire alarm control panel estimated installed about 2015. PA system and security systems assumed updated within past 10 years.		
D509000 - EMERGENCY POWER	4	One emergency generator provided backup power. Could not access locked cabinet, but based on outside appearance, estimated to be up to 80 KW and approximately 15 years old.		
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	5	School had a serving kitchen which appeared to have been recently renovated. Warming equipment appeared manufactured in 2020.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework throughout administrative areas and classrooms.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room (MPR; about 6,500 SF) served as gymnasium and auditorium. MPR had vinyl flooring, painted walls, painted exposed structure ceiling, and basketball hoops. MPR stage had VCT flooring, curtains, and lighting/speaker systems. The stage flooring, painted walls, and backboards were worn but in fair condition. Other elements were in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Arlington Traditional Elementary School	1951	2021	89,599	72,700	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI averages above 6 eACH when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Most classrooms do not meet code ventilation requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Meets ASHRAE 62.1 requirements for multipurpose/assembly. Assuming two classrooms in gym at same time
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Does not meet current ASHRAE 62.1
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Meets current ASHRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art classrooms and kilns were equipped with direct exhaust
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Merv 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms appeared to have local thermostats. Most of these had adjustable controls, but not all.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Majority of fixtures have been upgraded to LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature was inconsistent and did not meet the county standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature did not meet county standard of 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Sensors present in some spaces (newest addition mainly), but not present in the majority of spaces.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Multi-function flush valves with metered faucets
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on F.Y. 2019, 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signage not present at alternate doors to direct visitors to main entrance
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2 elevators
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No Verticals
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	No PV present.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	2	
Major Building Systems	5.3 Other - Elevator Size	●	(1) Cab: 5' 8" x 4' 3" - Door: 3' 0" centered (2) Cab: 5' 9" x 4' 3" - Door: 3' 0" offset 2752(cafeteria area)/15 students = 187
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	2067(kitchen area incl office, etc.)/3 = 689
Common Space Adequacy	1.2 Kitchen	2	
Common Space Adequacy	1.3 Kitchen	●	design capacity 684/3 periods = 228
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 4 operable; climbing wall, volleyball; 2 ropes; daylight; divider curtain
Common Space Adequacy	2.2 Gymnasium	●	88' 4" x 94' 5"; Height: Deck: 31' 5"; Joist: 28' 5"
Common Space Adequacy	3.1 Performance Space	●	Platform in gym
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	811 lf
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A in elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	Noted by principal as "Unusable" space, damaged wooden tables and uneven surfaces creating tripping hazards
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	21	Green = 21; pre-k & k (0); 1st (5); Gen ed (16)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	11	Yellow = 11; pre-k & k (6); 1st (1); Gen ed (4)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	1	Red = 1; pre-k & k (0); 1st (1); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	33	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% Classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% Kindergarten have toilets, but no Verticals and Low ClO.
Educational Space Adequacy	1.5 Classrooms (General)	●	100% Classrooms have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	2	ESOL/HILT; MIPA
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	NOT 10x10
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	5 desks, 2 offices, conference room; rated records - NO closer
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet (5'x6'7" - very tight ADA), 1 sink, 1 eyewash, 1 ref.
Educational Space Adequacy	4.1 Art	●	#365, #369
Educational Space Adequacy	4.2 Art	●	in #365, NOT in separate kiln room
Educational Space Adequacy	4.3 Art	●	#365 - 3, #369 - 3
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	#368 (instrumental/general); #370 - vocal/general
Educational Space Adequacy	5.2 Music	●	No storage rooms, just in room storage
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Ashlawn Elementary School	1956	97,005	0.213	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
1	2014	3	0.067	\$28,153,105		

Building Description

The Ashlawn Elementary School is multi-story facility located at 5950 8th Road N. It was originally constructed in 1956. It was expanded and renovated in 1967, 1989, 1995, 2000 and 2014. The 2014 addition is significant and employs modern exterior wall treatment. The building has a slab on grade at the lowest level and elevated concrete floor system on the upper levels. The superstructure varies and includes load bearing masonry and steel framing. The exterior wall assembly varies depending on the age of each area of the building. Generally the older areas consist of masonry construction with precast accent features and ribbon configured window assemblies in the older portions of the building. The most recent addition uses masonry, precast, fiber board panels and curtainwall ribbon windows for the exterior wall assembly. The exterior doors consist of newer metal units in metal frames. The metal doors occur in different configurations (stile/rail with glazing and flush units). The roof assembly varies based on the date of construction but are all low sloped (refer to the Roof Covering Section for more information). The interior finishes (wall, floor and ceiling) are uniformly more recent in age and appear to be well maintained. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, a rooftop cooling tower, unit ventilators, RTUs, heat pump systems, and a few supplemental split-system DX units. The building had a 1200A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	36,645	BLDG FP SF	\$12.08	\$442,785	99	99
A103000 - SLAB ON GRADE	3	Slab on grade	36,645	BLDG FP SF	\$13.87	\$508,252	99	50
A202000 - BASEMENT WALLS	5	Concrete basement walls	8,605	BASEMENT SF	\$19.09	\$164,310	99	99
B101000 - FLOOR CONSTRUCTION	4	Steel framed building supporting concrete floor slabs	60,360	ELEV FL SF	\$42.15	\$2,543,977	99	70
B102000 - ROOF CONSTRUCTION	4	Steel framed building supporting metal roof deck	36,645	BLDG FP SF	\$24.05	\$881,346	99	70
B201000 - EXTERIOR WALLS	3	Brick masonry wall assembly	91,000	BLDG GROSS SF	\$26.95	\$2,452,598	70	30
B202000 - EXTERIOR WINDOWS	3	Exterior windows	91,000	BLDG GROSS SF	\$18.83	\$1,713,148	40	10
B203000 - EXTERIOR DOORS	3	Exterior doors	91,000	BLDG GROSS SF	\$1.02	\$92,650	30	10
B301000 - ROOF COVERINGS	2	Built-up roof	36,645	BLDG FP SF	\$27.93	\$1,023,544	25	2
C101000 - PARTITIONS	3	Concrete block (CMU) partitions	97,005	FINISHED SF	\$20.42	\$1,980,864	70	30
C102000 - INTERIOR DOORS	3	Interior doors	97,005	FINISHED SF	\$4.73	\$458,413	40	10
C103000 - FITTINGS	3	Partitions and lockers	97,005	FINISHED SF	\$4.09	\$396,918	30	10
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	97,005	BLDG GROSS SF	\$1.02	\$98,764	50	50
C301000 - WALL FINISHES	3	Standard wall finishes	85,905	FINISHED SF	\$5.09	\$437,312	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	85,905	FINISHED SF	\$14.20	\$1,219,524	14	6
C303000 - CEILING FINISHES	3	Standard ceiling finishes	85,905	FINISHED SF	\$16.83	\$1,445,606	20	6
D101010 - ELEVATORS	5	Elevator	1	EACH	\$206,284.66	\$206,285	35	25
D101020 - LIFTS	3	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	20	6
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	97,005	SERVED SF	\$17.25	\$1,673,393	50	22
D202000 - RESIDENTIAL WATER HEATER	-		-		-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, Greater than 300 MBH	399	MBH	\$127.19	\$50,749	40	30
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	36,645	BLDG FP SF	\$3.25	\$118,968	60	10
D301000 - ENERGY SUPPLY	5	Natural gas supply	97,005	BLDG GROSS SF	\$0.15	\$14,908	60	32
D301006 - SOLAR ENERGY SUPPLY	-		-		-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-		-		-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	97,005	SERVED SF	\$7.17	\$695,073	20	11
D302010 - FIREPLACES	-		-		-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	97,005	SERVED SF	\$8.13	\$788,246	30	20
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heat pump system	97,005	SERVED SF	\$8.47	\$821,789	40	22
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Heat pump system distribution	97,005	SERVED SF	\$8.47	\$821,789	50	22
D305010 - TERMINAL & PACKAGE UNITS	4	Terminal and package units	450	SERVED SF	\$47.45	\$21,352	20	13
D306000 - CONTROLS	4	HVAC controls - heat pump system	85,905	SERVED SF	\$0.85	\$72,610	30	10
D401000 - SPRINKLERS	4	Sprinkler system	97,005	SERVED SF	\$7.90	\$765,885	50	22
D402000 - STANDPIPES	-		-		-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1200 Amp Service	97,005	BLDG GROSS SF	\$2.44	\$236,660	60	31
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution wiring plus "fixtures"	97,005	BLDG GROSS SF	\$26.53	\$2,573,447	60	32
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	97,005	BLDG GROSS SF	\$10.18	\$987,637	20	10
D509000 - EMERGENCY POWER	3	Emergency Generator, >=80 kW to <100 kW	1	EACH	\$89,585.84	\$89,586	35	6
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional Equipment - Laboratory Facility	150	SERVED SF	\$377.25	\$56,587	15	5
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	97,005	SERVED SF	\$3.50	\$339,151	20	11
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-		-		-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-		-		-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	7
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	11,100	SERVED SF	\$100.03	\$1,110,294	20	8
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-		-		-	-	-	-
F102030 - AUDITORIUMS	-		-		-	-	-	-
F102040 - COLD STORAGE ROOMS	-		-		-	-	-	-
F104001 - AQUATIC FACILITIES	-		-		-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Ashlawn Elementary School	Year Built¹ 1956	Building GSF² 97,005	Building FCI_{AD} 0.213	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 1	Last Renovation¹ 2014	No. of Floors 3	Building CRV⁶ \$28,153,105	No. of Local Projects 9

Building Description

The Ashlawn Elementary School is multi-story facility located at 5950 8th Road N. It was originally constructed in 1956. It was expanded and renovated in 1967, 1989, 1995, 2000 and 2014. The 2014 addition is significant and employs modern exterior wall treatment. The building has a slab on grade at the lowest level and elevated concrete floor system on the upper levels. The superstructure varies and includes load bearing masonry and steel framing. The exterior wall assembly varies depending on the age of each area of the building. Generally the older areas consist of masonry construction with precast accent features and ribbon configured window assemblies in the older portions of the building. The most recent addition uses masonry, precast, fiber board panels and curtainwall ribbon windows for the exterior wall assembly. The exterior doors consist of newer metal units in metal frames. The metal doors occur in different configurations (stile/rail with glazing and flush units). The roof assembly varies based on the date of construction but are all low sloped (refer to the Roof Covering Section for more information). The interior finishes (wall, floor and ceiling) are uniformly more recent in age and appear to be well maintained. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, a rooftop cooling tower, unit ventilators, RTUs, heat pump systems, and a few supplemental split-system DX units. The building had a 1200A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	3	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	4	\$ 40,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	4	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	3	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,713,148	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 92,650	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 1,023,544	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	3	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 458,413	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 396,918	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ 437,312	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 437,312	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,219,524	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ 1,445,606	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,970	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 118,968	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 695,073	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 72,610	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 987,637	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 89,586	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 56,587	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 339,151	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 829,718	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,110,294	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$420,000	\$1,023,544	\$437,312	\$0	\$56,587	\$2,773,685	\$829,718	\$1,110,294	\$437,312	\$3,840,344	\$1,034,224	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Ashlawn Elementary School	1956	97,005	0.213	Good Fair Poor
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{DM}	Building CRV ⁵
1	2014	3	0.067	\$28,153,105
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	●	5 The foundation type for the older portions of the building appear to be concrete masonry units (CMU). The more recent addition uses a cast in place concrete foundation wall. Recommendation: None		
A103000 - SLAB ON GRADE	●	3 The lowest level of the building has a slab on grade. Recommendation: In several locations (most notably at the interface with additions) there are floor cracks. Repair the cracks to extend RUL and prevent further degradation. Local Project: Repair slab cracks		
A202000 - BASEMENT WALLS	●	5 For the original portion of the building, the drawings indicate cast in place concrete.		
B101000 - FLOOR CONSTRUCTION	●	4 The original building (circa 1955) has two levels. The upper level is a cast in place (one way) reinforced concrete floor assembly. The more recent addition has three (3) levels and uses steel framing with a structural deck with cast in place concrete. The overall rating is good. Recommendation: In several locations (most notably at the interface with additions) there are floor cracks. Local Project: At the elevated floors, repair cracks.		
B102000 - ROOF CONSTRUCTION	●	4 The original building (circa 1955) has a cast in place (one way) reinforced concrete roof assembly supported by cast in place concrete columns. There are steel beams over window openings and steel framing at the gymnasium. The more recent addition has steel framing. The overall rating is good. Recommendation: There is cast in place cantilevered canopy at the south corner of the building (circa 1955 or 1967) that has excessive spalling, exposed reinforcing steel and numerous cracks. The drawings appear to show this as a monolithic pour with the floor assembly. The condition is poor. Local Project: Repair or replace the south corner canopy.		
B201000 - EXTERIOR WALLS	●	3 The original (circa 1955) building's exterior wall assembly is brick veneer over CMU exposing exposed to view cast in place concrete columns. A continuous concrete girdle is located across the top of the wall at the roof line and also between the floors at the two story portion of the building. The 1967 addition uses similar materials. A subsequent addition (circa 1995) uses two colors of brick veneer and split face/ground face CMU. The 2014 addition has a similar brick veneer used as an accent feature, but adds fiber cement panels and ground face masonry units. The more recent exterior wall assemblies are in good condition. There are vertical expansion joints with sealant. The average rating for the exterior wall systems is fair. Recommendation: Numerous vertical CP concrete columns (especially at the two story portion of the building) have surface spalling. The spalling is exposing the reinforcing steel. The steel is rusting and exfoliating. The vertical expansion joint sealant is cracked and open. Local Project: Repair spalling concrete Local Project: Remove and replace exterior sealant.		
B202000 - EXTERIOR WINDOWS	●	3 The exterior windows are not original. Based on record drawings, it appears the original units were removed and replaced in 1995. The windows are aluminum framed units with thermal glazing. The windows in the 2014 addition appear to be in good condition. There are both fixed and operable units. The sealant around the window opening (especially at the sill) is cracked and open. Overall rating is fair due to the age of the majority of units. Recommendation: In several units it appears the insulated glazing seal may be compromised. The sealant around the window opening (especially at the sill) is cracked and open. Remove and replace the sealant. Local Project: Confirm the glazing seal is compromised. If so, replace the thermal glazing. Local Project: Remove and replace the sealant between the frame and opening material.		
B203000 - EXTERIOR DOORS	●	3 There are both glazed storefront units and flush units. All exterior doors are metal in metal frames. Recommendation: None		
B301000 - ROOF COVERINGS	●	2 There are several roof coverings based on the age of the different portions of the building. The majority assembly is a built up roof (BUR) asphalt. There is a standing seam metal roof assembly in the north quadrant of the building. There is ballasted asphalt BUR and a section of BUR with a cap sheet. The roofing report (by Gale) indicates the sections using a BUR should be replaced by 2020. In addition the report recommended that the ballasted BUR should have been replaced in 2021. It does not appear any of the observed roof types of areas were replaced.		
C101000 - PARTITIONS	●	3 The majority of the older portions of the building have a CMU interior partitions. One area has a glazed CMU. The more recent building areas have gypsum board over framing. There are several areas with interior glazed walls (steel framed). The overall condition is fair. Recommendation: Several section of the CMU interior partitions have vertical (and stair stepping) cracks. Local Project: Determine cause of CMU cracks and repair.		
C102000 - INTERIOR DOORS	●	3 The majority of the interior doors are solid core wood panels in metal frames. The doors types vary and include flush and glazed units. Recommendation: None		
C103000 - FITTINGS	●	3 The school has several section of metal lockers. Recommendation: None		
C201000 - STAIR CONSTRUCTION	●	5 The original building has interior concrete stairs. The more recent areas of the building have steel framed units with metal pan concrete infill treads. All stairs have hand and guard rails. Recommendation: None		
C301000 - WALL FINISHES	●	3 Wall finishes are predominately painted. At certain locations (one stair and bathrooms), the wall finish is ceramic tile. Recommendation: Due to age plan to repaint in 3 years.		
C302000 - FLOOR FINISHES	●	3 Throughout the school there are several floor finishes including carpet, vinyl tile and ceramic tile. Recommendation: Monitor the traffic ware for carpeted floor surfaces. Plan to replace in 6 years.		
C303000 - CEILING FINISHES	●	3 The majority of ceiling finishes are suspended acoustical tile. The age of the tile varies. Some tile corners are curled in the suspension system. Recommendation: Several tiles had stains at the first floor. The stains were located near or adjacent to sprinkler heads. There were several ceiling stains at the upper floor level. Some were located at the building perimeter. These may be related to roof flashing failure. Consider a system level replacement project in 6 years. Local Project: Evaluate cause of ceiling stains at the lower and upper levels. Repair issues, then replace tile.		
D101010 - ELEVATORS	●	5 One elevator in 2013 addition. Cab walls covered with temporary protection blankets. No issues reported or observed. Cab interior dimensions were 51" x 80" with a 42" door centered on long side.		
D101020 - LIFTS	●	3 Stair lift at back of stage in cafeteria/multipurpose room. Estimated installed in 1995 based on nameplate. Items were stored to block usage at time of visit.		
D201000 - PLUMBING SYSTEMS AND FIXTURES	●	4 Assumed copper domestic water piping and cast iron sanitary piping throughout. Assumed most of the older plumbing to have been replaced/installed in 1995 (75%) and newer plumbing as part of 2013 addition (25%).		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	●	5 Domestic water heater and two storage tanks installed in 2013 per plans. Natural gas fired, 399 MBH.		
D204000 - BUILDING STORMWATER DRAINAGE	●	4 Stormwater piping assumed to be original to each phase of construction. ~50% near end of EUL and ~50% in first half of EUL.		
D301000 - ENERGY SUPPLY	●	5 Natural gas supply assumed to have been upgraded in 1995.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	●	4 Two high efficiently boilers installed 2014.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	●	5 Rooftop cooling tower installed 2013.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	●	3 Combination of RTUs, heat pump systems, and unit ventilators. Assumed most of the older distribution to have been replaced/installed in 1995 (75%) and newer distribution as part of 2013 addition (25%). Unit ventilators in classrooms generally appeared to be nearing end of EUL.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	●	4 Combination of RTUs, heat pump systems, and unit ventilators. Assumed most of the older distribution to have been replaced/installed in 1995 (75%) and newer distribution as part of 2013 addition (25%). No issues reported or observed.		
D305010 - TERMINAL & PACKAGE UNITS	●	4 Small split-system serving portion of administration area (assumed Principal's office and conference room). Condenser unit installed 2014. No issues reported or observed.		
D306000 - CONTROLS	●	4 Digital controls throughout. Assumed most of the older controls to have been replaced/installed in 1995 (75%) and newer controls as part of 2013 addition (25%). No issues reported or observed.		
D401000 - SPRINKLERS	●	4 Sprinklers installed throughout. Assumed most of the older system assumed to have been replaced/installed in 1995 (75%) and newer system as part of 2013 addition (25%). No issues reported or observed.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	●	5 Main electrical entrance installed in 1994. 1200A, 480V/277V, 3 phase, 4 wire.		
D502000 - LIGHTING AND BRANCH WIRING	●	5 Assumed most of the older electrical system to have been replaced/installed in 1995 (75%) and newer system as part of 2013 addition (25%).		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	●	4 Fire alarm system and PA system assumed to have been upgraded in 2013. Security system panel labeled as not in service.		
D509000 - EMERGENCY POWER	●	3 Emergency generator assumed to have been installed in 1994. Nameplate listed 85 KW, 106.8 KVA.		
E102000 - INSTITUTIONAL EQUIPMENT	●	3 Art Kiosk assumed installed in 1995.		
E109002 - FOOD SERVICE EQUIPMENT	●	4 Serving Kitchen. Counters and sinks assumed to be original to 1995. Warming and serving appliances appeared to be mostly replaced around 2014.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	●	3 Assumed most of the older casework to have been replaced/installed in 1995 (75%) and newer casework as part of 2013 addition (25%). Quantity estimated based on number of classrooms. Expected level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	●	4 Multi-purpose room served as cafeteria and auditorium. Constructed 1995. VCT flooring, painted walls with fabric panels, and metal panels and painted ceiling structure were in good condition and had likely been renovated more recently. Stage finishes and equipment appeared original but in good condition. Lighting may have been upgraded and remained in good condition. RTU assumed original but no issues reported. Single-purpose elementary school gymnasium. Constructed 1995. Vinyl flooring, painted walls with soundproofing panels, and painted ceiling structure were in good condition and had likely been renovated more recently. Basketball hoops appeared original but in good condition. Attached bathrooms with ceramic tile floor, painted walls/ceilings, in good condition. Lighting may have been upgraded and remained in good condition. RTU assumed original but no issues reported.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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 6. Markup factors applied are based on information provided by APS and FEA's experience.

Ashlawn Elementary School Page 23

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Ashlawn Elementary School	1956	2014	97,005	36,645	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACQ appears to average above 7 eACH when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	New and renovated classrooms meet or exceed current code requirements. Unrenovated classrooms appear to fall just short of code requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed two classrooms for equivalent of 50 students in the space
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly type space
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Kiln is directly ventilated with no room exhaust capture, art rooms appear to be under ventilated by code
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Clinic complained of sewage smell through vents. Could be an issue with air intake located adjacent to plumbing vent
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Roof top unit appears Merv 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	Roof top unit appears Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control. Most unrenovated classrooms have two thermostats that are not tied together
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Partial, but not full dark sky compliance. Incorrect color temperature. Lack of lighting at exterior egress stairs.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Variety of color temperatures on campus.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Variety of color temperatures on campus.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Only partial coverage, mainly in addition.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Only some public hand sinks appeared to be efficient fixture types
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	80% = Not Efficient Cooling tower noted on site, major water user
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	Only has 1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Older sides of bldg. are missing vertical grab bars, space in most RR seems if fixtures are redone
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Deficiencies with handrail heights/guardrail spacing
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	I think they already did this feasibility
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY 2019
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator, 2 wanted
Major Building Systems	5.3 Other - Elevator Size	●	
Common Space Adequacy	1.0 Cafeteria	●	3872/ 15 = 259
Common Space Adequacy	1.1 Kitchen	●	Kitchen 1087 sf / 3 sf = 362
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	Design Capacity 684/ 3 periods= 228
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, Climbing Ropes, volleyball, Rockwall, daylight
Common Space Adequacy	2.2 Gymnasium	●	87'-10" L x 49'-11" W
Common Space Adequacy	3.1 Performance Space	●	Stage is in multipurpose/cafe
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	Current total = 730 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	mulch play
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	1
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	21	k (5) - 0g 1st (3) - 2g, gen ed (20) - 17g
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	4	k (5) - 3y 1st (3) - 1y gen ed (20) - 1y
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	3	k (5) - 1r 1st (3) - or gen ed (20) - 0r
Educational Space Adequacy	1.2 Classrooms (General)	28	
Educational Space Adequacy	1.3 Classrooms (General)	●	
Educational Space Adequacy	1.4 Classrooms (General)	●	Not all ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	3	VPI, 2 SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	
Educational Space Adequacy	3.4 Clinic	●	Standard: 2 beds, sink, ref, eyewash, ensuite tit
Educational Space Adequacy	4.1 Art	●	Two rooms
Educational Space Adequacy	4.2 Art	●	2 total, located in separate rooms, not connected to art rms
Educational Space Adequacy	4.3 Art	●	2 sinks per room
Educational Space Adequacy	4.4 Art	●	not connected to art rms
Educational Space Adequacy	5.1 Music	●	2 general; 1 instrumental
Educational Space Adequacy	5.2 Music	●	Storage inside classrooms
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IFEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IFEA used its own estimated GSF for this report.

GENERAL INFORMATION										
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend						
Barcroft Elementary School	1924	68,700	0.231	<table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90EE90; padding: 2px;">Good</td> <td style="background-color: #FFD700; padding: 2px;">Fair</td> <td style="background-color: #FF0000; padding: 2px;">Poor</td> </tr> <tr> <td style="font-size: 8px;">0 - 0.15</td> <td style="font-size: 8px;">0.151 - 0.33</td> <td style="font-size: 8px;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶						
2	1993	2	0.072	\$23,130,256						

Building Description

Barcroft Elementary School is a multi-story building located at 625 S. Wakefield St. It was originally constructed in 1924, then expanded in 1954. It has been renovated and expanded several times since (1973, 1991 and 1993). The existing drawings indicate wood framing at the roof. The exterior wall assembly is predominately a brick veneer with accent precast panels and window sills. The older portions of the exterior walls appear to be multi-wythe masonry, due to the Flemish bond coursing. The roof areas consist of low sloped assemblies and include built up roofing (BUR) with a mopped in aggregate and a single ply membrane at the gymnasium roof. The exterior walls extend past the roof plain creating a parapet with a metal coping. Exterior doors are metal in metal frames in various configurations. The windows do not appear to be original. The windows are both fixed and operable, the majority of which are metal frames with thermal glazing. The interior doors are wood in metal frames. The interior partitions are predominately masonry (CMU) with select walls consisting of gypsum board over framing. There are several floor, ceiling and wall finishes all of which are well maintained. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two boilers, a chiller, unit ventilators in most classrooms, RTUs, and a few supplemental split-system DX units. The building had a 3000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	43,667	BLDG FP SF	\$12.08	\$527,632	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	43,667	BLDG FP SF	\$13.87	\$605,645	99	99
A202000 - BASEMENT WALLS	5	-			-	-		
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	25,033	ELEV FL SF	\$42.15	\$1,055,059	99	99
B102000 - ROOF CONSTRUCTION	5	Wood rafters supported by load bearing wall	43,667	BLDG FP SF	\$18.42	\$804,451	99	99
B201000 - EXTERIOR WALLS	3	Brick masonry wall assembly	68,700	BLDG GROSS SF	\$26.95	\$1,851,577	70	15
B202000 - EXTERIOR WINDOWS	4	Exterior windows	68,700	BLDG GROSS SF	\$18.83	\$1,293,332	40	35
B203000 - EXTERIOR DOORS	4	Exterior doors	68,700	BLDG GROSS SF	\$1.02	\$69,946	30	25
B301000 - ROOF COVERINGS	2	Built-up roof	43,667	BLDG FP SF	\$27.93	\$1,219,678	25	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	68,700	FINISHED SF	\$20.42	\$1,402,870	70	70
C102000 - INTERIOR DOORS	3	Interior doors	68,700	FINISHED SF	\$4.73	\$324,653	40	15
C103000 - FITTINGS	3	Partitions and lockers	68,700	FINISHED SF	\$4.09	\$281,102	30	15
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	68,700	BLDG GROSS SF	\$1.94	\$133,292	50	50
C301000 - WALL FINISHES	3	Standard wall finishes	59,800	FINISHED SF	\$5.09	\$304,421	50	20
C302000 - FLOOR FINISHES	3	Standard floor finishes	59,800	FINISHED SF	\$14.20	\$848,932	14	10
C303000 - CEILING FINISHES	3	Standard ceiling finishes	59,800	FINISHED SF	\$16.83	\$1,006,312	20	10
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	35	5
D101020 - LIFTS	5	-			-	-		
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	68,700	SERVED SF	\$17.25	\$1,185,115	50	19
D202000 - RESIDENTIAL WATER HEATER	5	-			-	-		
D202005 - COMMERCIAL WATER HEATER	3	Oil Water Heater, Commercial, Less than 255 MBH and Less than 150 Gallons	1	EACH	\$62,144.35	\$62,144	15	2
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	43,667	BLDG FP SF	\$3.25	\$141,764	60	30
D301000 - ENERGY SUPPLY	4	Natural gas supply	68,700	BLDG GROSS SF	\$0.15	\$10,558	60	30
D301006 - SOLAR ENERGY SUPPLY	5	-			-	-		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	-			-	-		
D302000 - CENTRAL PLANT HEATING	3	Boiler	58,900	SERVED SF	\$7.17	\$422,038	40	10
D302010 - FIREPLACES	5	-			-	-		
D303000 - CENTRAL PLANT COOLING	3	Chiller system	58,900	SERVED SF	\$8.13	\$478,611	30	8
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	58,900	SERVED SF	\$19.67	\$1,158,624	40	9
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	58,900	SERVED SF	\$23.44	\$1,380,392	40	10
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, >=10,000 SF to <15,000 SF	9,800	SERVED SF	\$53.60	\$525,240	30	5
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	68,700	SERVED SF	\$2.38	\$163,646	20	3
D401000 - SPRINKLERS	4	Sprinkler system	68,700	SERVED SF	\$7.90	\$542,408	50	20
D402000 - STANDPIPES	5	-			-	-		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	68,700	BLDG GROSS SF	\$4.00	\$274,503	60	30
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	68,700	BLDG GROSS SF	\$36.27	\$2,491,645	60	30
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	68,700	BLDG GROSS SF	\$10.18	\$699,455	20	5
D509000 - EMERGENCY POWER	3	Emergency Generator, >=80 kW to <100 kW	1	EACH	\$89,585.84	\$89,586	35	35
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	15	7
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	68,700	SERVED SF	\$3.50	\$240,190	20	5
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	-			-	-		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	-			-	-		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	500	LENGTH LF	\$829.72	\$414,859	35	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	3	Multi-purpose room	8,900	SERVED SF	\$100.03	\$890,236	20	8
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	-			-	-		
F102030 - AUDITORIUMS	5	-			-	-		
F102040 - COLD STORAGE ROOMS	5	-			-	-		
F104001 - AQUATIC FACILITIES	5	-			-	-		

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Barcroft Elementary School	1924	68,700	0.231	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building CRV ⁶	No. of Local Projects		
2	1993	2	\$23,130,256	2		

Building Description

Barcroft Elementary School is a multi-story building located at 625 S. Wakefield St. It was originally constructed in 1924, then expanded in 1954. It has been renovated and expanded several times since (1973, 1991 and 1993). The existing drawings indicate wood framing at the roof. The exterior wall assembly is predominately a brick veneer with accent precast panels and window sills. The older portions of the exterior walls appear to be multi-wythe masonry, due to the Flemish bond coursing. The roof areas consist of low sloped assemblies and include built up roofing (BUR) with a mopped in aggregate and a single ply membrane at the gymnasium roof. The exterior walls extend past the roof plain creating a parapet with a metal coping. Exterior doors are metal in metal frames in various configurations. The windows do not appear to be original. The windows are both fixed and operable, the majority of which are metal frames with thermal glazing. The interior doors are wood in metal frames. The interior partitions are predominately masonry (CMU) with select walls consisting of gypsum board over framing. There are several floor, ceiling and wall finishes all of which are well maintained. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two boilers, a chiller, unit ventilators in most classrooms, RTUs, and a few supplemental split-system DX units. The building had a 3000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	3	\$ -	\$ 209,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 1,219,678	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 848,932	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,006,312	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ 62,144	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 422,038	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 478,611	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,158,624	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,380,392	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ -	\$ -	\$ 525,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ 163,646	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ -	\$ -	\$ 699,455	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 240,190	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 890,236	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$2,000	\$1,490,822	\$163,646	\$0	\$2,086,029	\$0	\$24,055	\$1,368,847	\$1,158,624	\$3,657,674	\$0	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Barcroft Elementary School	Year Built ¹	1924	Building GSF ²	68,700	Building FCI _{AD}	0.231	Condition Category Legend		
Building Number	2	Last Renovation ¹	1993	No. of Floors	2	Building FCI _{DM}	0.072	Good	Fair	Poor
								0 - 0.15	0.151 - 0.33	0.331 - 1
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	5	Different portions of the building were constructed at various times. The foundation wall type is predominantly concrete masonry units (CMU). The foundation walls are in fair condition. Recommendation: None								
A103000 - SLAB ON GRADE	5	The first floor is a slab on grade.								
A202000 - BASEMENT WALLS	-									
B101000 - FLOOR CONSTRUCTION	5	The first floor is a slab on grade and the second floor is an elevated slab. The existing drawings (circa 1973 and 1992) indicate both a structural concrete slab and slab in metal deck supported by steel joists.								
B102000 - ROOF CONSTRUCTION	5	The existing drawings note wood framing for the 1924 and 1954 portions of the building. The drawings for the more recent additions (1973 and 1993) indicate steel framing for the roof construction. The steel framing is the predominate roof construction. There were no observed defects. Rated "Fair" due to the age. Recommendation: None.								
B201000 - EXTERIOR WALLS	3	Due to the varying dates of construction, the exterior wall assemblies are in different conditions. Generally the 1924 era walls are in good condition and more recent 1973 walls are in poor condition. There are several defects listed in System Recommendation and Itemized in Local Projects. Recommendation: System level failures are occurring at various locations in the exterior wall system. At the gymnasium there is a uniform failure as hung plates and beam bearing points. At the west wing of the building (circa 1973) there are several veneer fractures on the west facade and a through wall masonry failure at the circular window opening and curved lintel. On the north wall of the 1954 portion of the building (above the roof), there is an exterior masonry facade failure (stair stepping cracks). As a general rule for the entire facility, the exposed steel lintels are rusting and exfoliating. The exfoliation is expanding the bedding joint which subsequently has or will create a bond break. There is a general lack of control and expansion joints on the north facades (at gymnasium and cafeteria) and the east facade. This may be due to lack of guidance at the time of construction (refer to NCMA, TEK 10-02D and BIA Technical Note 288). There are several existing expansion joints on the west facade. The sealant has failed and should be replaced. Local Project: Create a masonry restoration project that repairs veneer fractures (west elevation), repairs through-wall masonry fractures (circular window), repairs stair stepping crack in CMU (south facade), replaces exfoliating steel and replaces failed sections of the masonry walls along with replacing steel components (plates and beams).								
B202000 - EXTERIOR WINDOWS	4	The exterior windows are not original and appear to have been recently replaced inclusive of the sealant in the masonry openings around the frames. The units are metal frames with thermal glazing. Recommendation: None								
B203000 - EXTERIOR DOORS	4	Exterior doors vary but generally consist of metal stile/rail with glazing and metal flush doors in metal frames. The stile and rail doors are not original and appear to have been recently replaced. Recommendation: None								
B301000 - ROOF COVERINGS	2	There are several roof covering types including built up roofing (BUR) and a hybrid with cap sheet. The roofing reports provided by APS indicated an EPDM roof was also present. FEA did not find the EPDM roof. The majority of the roof covering is a BUR. Recommendation: The roofing report indicated that the BUR should be replaced (circa 2018). The existing roof has not been replaced. FEA concurs with the roofing report. The roof is beyond its RUL as is evident by the numerous patches and ceiling stains on the interior of the building.								
C101000 - PARTITIONS	5	Interior partitions are primarily concrete masonry units (CMU) of different construction periods. Recommendation: None								
C102000 - INTERIOR DOORS	3	The majority of the interior doors are wood (various styles and ages) in metal frames. There are also metal doors in metal frames, observed at first passages/stairs. The overall rating is fair. Recommendation: None								
C103000 - FITTINGS	3	The toilet partitions are not original and are in fair condition. Recommendation: None								
C201000 - STAIR CONSTRUCTION	5	Interior stairs include cast in place concrete and steel framed with concrete in fill pans. Stairs have metal hand rails and guard rails. Recommendation: None								
C301000 - WALL FINISHES	3	Walls finishes include painted wall surfaces through the building except at bathrooms which have glazed CMU (older portion of the building) and ceramic tile. Recommendation: None								
C302000 - FLOOR FINISHES	3	Floor finishes include carpet, vinyl tile, quarry tile and ceramic tile. Carpet is the predominate floor finish. The floor finishes are not original. The rating is based on the carpet.								
C303000 - CEILING FINISHES	3	Ceiling finishes are predominately suspended acoustical tile (SAT). There are several secondary areas with gypsum board ceiling finishes included dropped soffits. Recommendation: The suspended acoustical tile has approximately 50% of the RUL.								
D101010 - ELEVATORS	3	Single elevator assumed installed in 1992. No issues reported or observed. Cab interior dimensions were 68"x51" with a 36" door on one end of the long side.								
D101020 - LIFTS	-									
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Copper domestic piping and cast iron sanitary piping assumed installed in 1992.								
D202000 - RESIDENTIAL WATER HEATER	-									
D202005 - COMMERCIAL WATER HEATER	3	Natural gas DWH heater installed 2010 and estimated size to be between 181-300 MBH.								
D204000 - BUILDING STORMWATER DRAINAGE	4	Cast iron stormwater piping assumed to be installed in 1993 or earlier.								
D301000 - ENERGY SUPPLY	4	Natural gas main feed assumed to be replaced in 1993.								
D301006 - SOLAR ENERGY SUPPLY	-									
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-									
D302000 - CENTRAL PLANT HEATING	3	Two boilers installed in 1993. Appeared to primarily serve classrooms. Minor corrosion and prior leaks noted.								
D302010 - FIREPLACES	-									
D303000 - CENTRAL PLANT COOLING	3	Rooftop chiller appeared to primarily serve classrooms. Unit appeared to be installed in 2001.								
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Most classrooms served by unit ventilators. Heating/chilled water piping was copper. Appeared to be installed in 1992.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Most classrooms served by unit ventilators. Heating/chilled water piping was copper. Appeared to be installed in 1993.								
D305010 - TERMINAL & PACKAGE UNITS	3	Several rooftop package units served rooms other than classrooms. Some small condensing units appeared to provide supplementary to specific offices/rooms. Most units appeared older and were assumed to be installed in 1993. General weathering of unit exterior observed.								
D306000 - CONTROLS	3	Digital controls throughout varied in vintage and type, but generally were older and assumed to mostly be from 1992. No issues reported or observed.								
D401000 - SPRINKLERS	4	Sprinklers throughout were assumed to be installed in 1993. No issues reported or observed.								
D402000 - STANDPIPES	-									
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Electrical entrance equipment installed 1993. No issues reported or observed. 3000A, 208V/120V, 3 phase, 4 wire.								
D502000 - LIGHTING AND BRANCH WIRING	4	Assumed most of the distribution panels, wiring, switches, and fixtures were original to 1993. No issues reported or observed.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Fire alarm panel age was not known, but assumed to be about 15 years old. No issues reported or observed.								
D509000 - EMERGENCY POWER	3	Emergency generator not directly observed. Size assumed to be between 80-100 KW. Assumed to have been installed with main electric service in 1993. No issues reported.								
E102000 - INSTITUTIONAL EQUIPMENT	4	Art kiln looks less than 10 years old and in good condition. No issues reported or observed.								
E109002 - FOOD SERVICE EQUIPMENT	3	Serving Kitchen. Counters and sinks assumed to be original to 1993. Warming and serving appliances appeared to be 15 or more years old. No issues reported or observed with equipment.								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-									
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-									
E201020 - FIXED FURNISHINGS - CASEWORK	3	Assumed most of the casework to have been installed in 1993. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.								
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Single-purpose elementary school gymnasium. Vinyl flooring, painted walls with soundproofing panels, and painted ceiling structure were in good condition and had likely been renovated more recently. Basketball hoops appeared old but in good condition. Attached bathrooms with ceramic tile floor, painted walls/ceilings, in good condition. Lighting may have been upgraded and remained in good condition. RTU estimated to be installed in 2014 but controls issues were reported (always hot/humid in winter and cold in summer). Multi-purpose room served as cafeteria and auditorium. Vinyl flooring and painted walls were in good condition and had likely been renovated more recently. Acoustical ceiling tile was aged and in fair condition. Stage finishes and equipment appeared older but in good condition. Lighting may have been upgraded and remained in good condition. RTU estimated to be installed in 2014 and had no issues reported. Local Project: Fix gymnasium RTU controls issues								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-									
F102030 - AUDITORIUMS	-									
F102040 - COLD STORAGE ROOMS	-									
F104001 - AQUATIC FACILITIES	-									

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Barcroft Elementary School	1924	1993	68,700	43,667	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	4.8 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Not enough information, the as-built drawings do not have information on the gymnasium space or equipment so cannot be evaluated at this time
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow local filtration of MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Roof top unit appears Merv 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	Roof top unit appears Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED fixtures are present only in the corridors.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures are dark sky compliant, but some flood lights and wall packs without cut-off are present.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT is greater than 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Appears to be high for not currently having a cooling tower on site
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	Only 1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Missing vertical bars and clearances
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	8	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY-2019
Major Building Systems	2.1 Other - Daylighting Access	●	1 classroom without window
Major Building Systems	2.2 Other - Daylighting Controllability	●	All windows had blinds
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	
Common Space Adequacy	1.0 Cafeteria	●	3940/15x-263
Common Space Adequacy	1.1 Kitchen	●	1160/3 x 390
Common Space Adequacy	1.2 Kitchen	●	1 service line
Common Space Adequacy	1.3 Kitchen	●	design capacity 460/ 3 periods = 154
Common Space Adequacy	2.1 Gymnasium	●	6 hoops (not operable), 2 ropes, 1 cargo net, 1 rock wall, NO DAYLIGHT
Common Space Adequacy	2.2 Gymnasium	●	73'-4" L x 50'-2" W; 23'-3" bot of deck, 21'-0" bot of joist
Common Space Adequacy	3.1 Performance Space	●	Space for movable platform in multipurpose room
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	975 LF total; 165 LF tall (5 shelves) wall; 690 LF moveable 5 shelves double; 90 LF moveable 3 shelves double; 30 LF (2 shelves) wall
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	mulch play
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	10	k (4) - 0g; 1st (4) - 1g; gen ed (12) - 9g
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	8	k (4) - 2y; 1st (4) - 3y; gen ed (12) - 3y
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	k (4) - 2r; 1st (4) - 0r; gen ed (12) - 0r
Educational Space Adequacy	1.2 Classrooms (General)	20	
Educational Space Adequacy	1.3 Classrooms (General)	●	1 classroom without window/operable
Educational Space Adequacy	1.4 Classrooms (General)	●	Toilets do not meet ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	1	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	1 principal, 1 asst, 1 conf, records
Educational Space Adequacy	3.4 Clinic	●	2 beds; 1 sink w/ eyewash; BT (not ADA)
Educational Space Adequacy	4.1 Art	●	2 rooms
Educational Space Adequacy	4.2 Art	●	1 kin
Educational Space Adequacy	4.3 Art	●	2 sinks in 1 rm, 1 sink in other rm
Educational Space Adequacy	4.4 Art	●	Storage in rooms
Educational Space Adequacy	5.1 Music	●	1 general; 1 instrumental
Educational Space Adequacy	5.2 Music	●	storage in rooms
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Barrett Elementary School	1939	75,672	0.113	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
8	2001	2	0.026	\$31,348,892		

Building Description

Barrett Elementary School, located at 4401 North Henderson Rd, is a two-story structure with a mechanical basement and penthouse. The school was originally constructed in 1939, with numerous additions throughout the years including 1950, 1973, 1995, 2001, and 2014. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is constructed of load bearing masonry walls. The exterior windows are both fixed and operable metal framed units. The roof is primarily low-slope single ply and 3-ply hybrid (75%), as well as built up asphalt (16%), over both concrete and steel framing, with a small amount of asphalt shingle roofing covering the media center. Interior floor finishes are primarily vinyl composition tile, carpet tile, terrazzo, and ceramic tile. Wall finishes are primarily tile, painted brick, CMU, and drywall, while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas water heater with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air cooled chiller provided the source for distributed heating and much of the cooling hydronics as required. Space conditioning was a mix of ducted roof top units, some with DX cooling, as well as air handlers, fan coil units, and unit heaters and ventilators. Building power was through a 3000 Amp, 208/120V, three phase power service for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 45 kW providing power to emergency lighting and designated services. There were two 2-stop hydraulic elevators.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	54,790	BLDG FP SF	\$12.08	\$662,033	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	54,790	BLDG FP SF	\$13.87	\$759,916	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,160	BASEMENT SF	\$19.09	\$22,150	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	20,882	ELEV FL SF	\$42.15	\$880,108	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	54,790	BLDG FP SF	\$63.32	\$3,469,092	80	80
B201000 - EXTERIOR WALLS	5	Solid masonry, load bearing wall 12" to 24" thick	74,512	BLDG GROSS SF	\$89.12	\$6,640,151	99	99
B202000 - EXTERIOR WINDOWS	4	Exterior windows	74,512	BLDG GROSS SF	\$18.83	\$1,402,748	40	22
B203000 - EXTERIOR DOORS	4	Exterior doors	74,512	BLDG GROSS SF	\$1.02	\$75,863	30	10
B301000 - ROOF COVERINGS	3	Single ply roof	54,790	BLDG FP SF	\$17.25	\$945,159	18	6
C101000 - PARTITIONS	5	Drywall over studs	75,672	FINISHED SF	\$6.36	\$481,161	70	70
C102000 - INTERIOR DOORS	4	Interior doors	75,672	FINISHED SF	\$4.73	\$357,600	40	15
C103000 - FITTINGS	4	Partitions and lockers	75,672	FINISHED SF	\$4.09	\$309,629	40	18
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	75,672	BLDG GROSS SF	\$1.02	\$77,044	70	70
C301000 - WALL FINISHES	4	Standard wall finishes	67,315	FINISHED SF	\$5.09	\$342,677	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	67,315	FINISHED SF	\$14.20	\$955,617	20	8
C303000 - CEILING FINISHES	4	Standard ceiling finishes	67,315	FINISHED SF	\$16.83	\$1,132,774	20	10
D101010 - ELEVATORS	3	Elevator	2	EACH	\$206,284.67	\$412,569	30	5
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	75,672	SERVED SF	\$17.25	\$1,305,386	50	22
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 81 to 130 MBH	2	EACH	\$23,100.03	\$46,200	20	8
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	54,790	BLDG FP SF	\$4.92	\$269,444	60	32
D301000 - ENERGY SUPPLY	4	Natural gas supply	75,672	BLDG GROSS SF	\$0.15	\$11,629	60	32
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	75,672	SERVED SF	\$7.17	\$542,215	40	12
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	25,224	SERVED SF	\$8.13	\$204,966	30	8
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Chilled water piping and individual terminal AHUs	75,672	SERVED SF	\$23.44	\$1,773,464	30	12
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	75,672	SERVED SF	\$23.44	\$1,773,464	30	12
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	4	HVAC controls - split systems and/or packaged units	75,672	SERVED SF	\$2.38	\$180,254	15	7
D401000 - SPRINKLERS	4	Sprinkler system	75,672	SERVED SF	\$7.90	\$597,454	50	22
D402000 - STANDPIPES	4	Standpipe system	75,672	SERVED SF	\$0.63	\$47,971	50	22
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	75,672	BLDG GROSS SF	\$4.00	\$302,361	50	22
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	75,672	BLDG GROSS SF	\$36.27	\$2,744,508	50	28
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	75,672	BLDG GROSS SF	\$10.18	\$770,439	20	11
D509000 - EMERGENCY POWER	4	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	11
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	75,672	SERVED SF	\$3.50	\$264,566	25	7
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	2	Cabinetry	950	LENGTH LF	\$829.72	\$788,232	35	2
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	7,196	SERVED SF	\$100.03	\$719,790	20	7
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Barrett Elementary School	1939	75,672	0.113	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
8	2001	2	\$31,348,892	No. of Local Projects		
				1		

Building Description

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PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75,863	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 945,159	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ 342,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 342,677	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 955,617	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,132,774	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ 412,569	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 46,200	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 204,966	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 180,254	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 770,439	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 264,566	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	2	\$ -	\$ 788,232	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 719,790	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$15,000	\$788,232	\$0	\$342,677	\$412,569	\$945,159	\$1,164,610	\$1,206,783	\$0	\$1,575,369	\$826,639	\$0

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 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Barrett Elementary School	1939	75,672	0.113	Good Fair Poor <small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{DM}	Building CRV ⁵
8	2001	2	0.026	531,346,892
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The first floor of the building has a slab on grade.		
A202000 - BASEMENT WALLS	5	Basement walls are cast-in-place concrete and appear to have been part of the 1950 addition.		
B101000 - FLOOR CONSTRUCTION	5	The second floor is derived from a combination of construction efforts including the original 1939 structure, the 1993 addition, and the 2001 addition. The 1939 floor plate is an elevated slab constructed with cast in place concrete. The 1993 and 2001 additions are assumed to use steel framing with a steel structural deck to support an elevated cast in place concrete slab. The predominate floor structure by SF would be structural steel framing.		
B102000 - ROOF CONSTRUCTION	5	For the original building (1939) and the 1949 addition, the roof deck is cast in place concrete over concrete framing. For the 1973 additions, the gymnasium roof structure is metal decking over metal framing, while the media center roofing is assumed to be wood decking over metal framing. For the 1993 and 2001 additions, the roof structure is steel decking over steel framing.		
B201000 - EXTERIOR WALLS	5	Per the 2006 Building Information Report, the walls are described as load bearing exterior masonry walls. The wall assembly appears to be predominantly brick veneer over CMU, with some walls of the original building and 1949 addition being brick masonry construction. There are also various types of exterior cladding including metal and EIFS. There are metal shading elements above windows at the south side of the building. No issues noted, with the exception of numerous CMU step cracks and vertical cracks in multiple wall faces in the Gymnasium that require assessment. Local Project: Assess cracking in CMU walls in Gymnasium		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable (tilt and casement) metal framed units with thermal glazing. There is a storefront system at the main entrance (R1) and Entrance #3. There appears to be two potential areas of window installation: one for the 2001 addition and one for the remainder of the windows (including the original structure), which may have been replaced more recently based on appearance. No cracking or fogging was observed, and there were no reported issues.		
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly paired glazed storefront units and single and paired metal flush panel units, some with glazing. Entrance 1 has a security vestibule. There is a lowered door to the Mechanical Room and original wood doors at entrances 2 and 9. There are worn finishes at some high traffic doors (e.g., Entrance 6) but no corrosion or mis-alignment was observed. Most doors assumed replaced during latest renovations.		
B301000 - ROOF COVERINGS	3	Roof coverings are a mix of low-slope sheet single ply and hybrid (3-ply) roofing (75%), low-slope built-up asphalt with gravel (16%), and steep-slope asphalt shingle (9%, covering the media center). There appeared to be no large areas of patching. For membrane roofing, sealant exhibited cracking but no seam failures or membrane tears were observed. There was evidence of moderate-sized areas of ponding but no standing water was observed. It appears the ETDOM ballasted roofing referenced in the 2010 APS roof survey (and characterized as urgent for replacement) was replaced (without ballast) prior to the 2016 report (assumed 2013). Hybrid roofing is assumed original (2001). The BUR (assumed 2001) appeared to function as expected, with the exception of some exposed asphalt, as well as exposed roof drain membranes that exhibited some blistering and cracking. The shingle roofing exhibited some minor staining and granule loss but no missing tabs or other damage. The roof is in its final 1/3 of EUL in aggregate. The single ply creates a reflective roof surface and would benefit from cleaning.		
C101000 - PARTITIONS	5	Partition walls include CMU, brick, drywall over framing, and a small amount of glazed partitions. CMU predominates.		
C102000 - INTERIOR DOORS	4	Interior door types are primarily solid wood core and metal, both flush and glazed units. Some of the wood doors on the first floor appear older and may have been retained for historic value, similar to the older wooden doors at Entrance 2. Some worn finishes on classroom doors but all doors appear fully functional.		
C103000 - FITTINGS	4	The predominate fittings for the school are composite toilet partitions and metal lockers.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs include cast in place concrete and steel framed with concrete infill pans, with CIP concrete predominating. Stairs have metal hand rails and guard rails.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, with painted finishes predominating. In corridors and other common areas, finishes are painted and unpainted brick, painted CMU and drywall, and original ceramic tile. In classrooms, painted brick, CMU, and drywall. In restrooms, ceramic tile and painted drywall, brick, and CMU. In the Media Center, painted CMU, brick, and drywall. In the Kitchen, tile, brick, and painted CMU.		
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are ceramic tile, VCT, carpet, and terrazzo; the VCT appears to be a mix of ages and designs, and there are cracks in some high traffic areas. In classrooms, carpet tile and VCT. In restrooms and the kitchen, primarily ceramic tile. In the media center, carpet.		
C303000 - CEILING FINISHES	4	The majority of the ceiling finishes are suspended acoustic tile (SAT), with some painted drywall. Leak damaged tiles observed in Rooms 132 and 133.		
D101010 - ELEVATORS	3	There were two 2-stop hydraulic elevators: Otis (1980s) and Dover (1970s) which both appeared to have been maintained with periodic rebuilds and upgrades.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	Domestic hot water was provided by a State and an A.O. Smith natural gas fired water heater tanks.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	4	Distributed natural gas provided for domestic and hydronic hot water. Service presumed to have been installed with the boilers.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Two 2,146 MMBtu/h HB Smith hydronic natural gas fired boilers provided distributed heating water roof top units, fan coil units and unit ventilators throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	There was a Trane air cooled chiller that provided chilled water to air handlers, and fan coil units conditioning approximately a third of the building load.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Based on the served areas mostly roof top units, some with DX cooling, air handlers and fan coil units. Systems appeared to be from mid 2000s to the mid 2010s.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Based on the served areas mostly roof top units, some with DX cooling, air handlers and fan coil units. Systems appeared to be from mid 2000s to the mid 2010s.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	4	The building automation system, controllers, end devices appeared to be functional with an estimated installation of 2015.		
D401000 - SPRINKLERS	4	A single water service served the distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	4	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 208/120V, 3,000A service rated switchboard sections provides power to the building distribution. It appeared to be from the 1990s renovation, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches. Panel age appeared to range from the 1990s to the mid-2010s.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	4	A Katolight diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. Since the generator enclosure was locked it was estimated at 45 kW based on similar a provided previous building report.		
E102000 - INSTITUTIONAL EQUIPMENT	4	10 kW kiln in Room 013 serves the Art Room (016). Age uncertain but model, vintage, and condition similar to others throughout school system.		
E109002 - FOOD SERVICE EQUIPMENT	3	Serving kitchen including stainless steel stove/oven, exhaust hood, warming racks, refrigerator, freezer, sinks, and serving counters. Appliances assumed installed 2001. Score based on observed condition and age.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E210103 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E210120 - FIXED FURNISHINGS - CASEWORK	2	A variety of solid wood and laminate casework in classrooms includes cabinets, shelving, and cubicle storage. This includes some older (possibly historic) wooden casework, including laboratory-type casework. Casework appears to have come from two main eras. Much of the casework exhibits highly worn and often dated finishes, with some surfaces exhibiting delamination. Some has misaligned and missing doors. Quantity estimated based on square footage.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Multipurpose room serving as cafeteria and auditorium with raised stage. Appeared to be part of first building addition (1949) with portions renovated, assumed 2001. Sheet flooring (fair/good condition) with wood flooring at stage (fair condition). Walls are original tile and acoustic paneling (good). Ceiling is suspended acoustic tile, with some soiling from ventilation air (fair). Lighting appears to be fluorescent in troffers. Elementary school gymnasium constructed 1973 per drawings. Sheet vinyl flooring (good condition), painted CMU and brick walls (fair/good condition) with safety padding. Painted steel ceiling framing (fair condition). Basketball hoops very dated but functional. CMU walls show extensive cracking and require assessment; this is addressed under exterior walls.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2022 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Barrett Elementary School	1939	2001	75,672	54,790	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI averages above 6 each when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Classrooms meet current ASHRAE 62.1 code requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Meets ASHRAE 62.1 requirements for multipurpose/assembly. Assuming two classrooms in gym at same time
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Meets ASHRAE 62.1 requirements for media center
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room appears to be ventilated directly outside
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow Merv 8 filtration at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13 filtration in air handler
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13 filtration in air handler
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms appeared to have local thermostats. Most of these had adjustable controls.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	4' LINEAR LED TUBES IN MEDIA CENTER. PARTIAL 4' LINEAR FIXTR IN 2001 RENO
Major Building Systems	3.2 Electrical - Exterior Lighting	●	SODIUM LAMP WALL PACKS
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	F32 T8
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	CMTA
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	DCC SENSORS IN 2001 SECTION ONLY, PARTIAL LINEAR 4' LED IN SOME CLASSROOMS
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	1.6 GPF TOILETS, 1.0 GPF URINALS IN 2014 RENO, 2001 RENO IS NOT LOW FLOW
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on 2022 APS Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrance 1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Sunken mechanical room access, north side.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1 is the apparent main entrance, and has a security vestibule. Entrance 2 is the main entrance of the original building, but a sign directs visitors to Entrance 1. Entrance 5 at the rear of the building has an intercom and does not direct visitors to Entrance 1, and could be interpreted as
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	4
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on 2022 APS Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	2
Major Building Systems	5.3 Other - Elevator Size	●	80x57 and 80x51
Common Space Adequacy	1.0 Cafeteria	●	2,815 sf / 15 = 187
Common Space Adequacy	1.1 Kitchen	●	1467 (kitchen area) / 3 = 489
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	576 design capacity / 3 periods = 192
Common Space Adequacy	2.1 Gymnasium	●	Main Gym: 6 hoops, 2 operable, climbing ropes, climbing wall, daylight
Common Space Adequacy	2.2 Gymnasium	●	56'-11" W x 75'-11" L, bottom of deck: 22'-0", bottom of joist: 19'-5"
Common Space Adequacy	3.1 Performance Space	●	Connected to Multipurpose room #107
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	814 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary schools
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	1/2 rubberized, 1/2 mulch
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	1	Green = gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	10	Yellow = 10; pre-k & k (0); 1st (3); gen ed (7)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	12	Red = 12; pre-k & k (4); 1st (2); gen ed (6)
Educational Space Adequacy	1.2 Classrooms (General)	23	
Educational Space Adequacy	1.3 Classrooms (General)	●	rooms #203 and #205 do not have exterior windows.
Educational Space Adequacy	1.4 Classrooms (General)	●	Not all ADA, All missing vertical grab bars
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	5	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices. One office is 1/2 conf room 1/2 office (with 2 desks)
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet (no vertical grab bars), 1 sink, 1 eyewash, 1 ref.
Educational Space Adequacy	4.1 Art	●	1 room - #016
Educational Space Adequacy	4.2 Art	●	Room #013, connected to #016
Educational Space Adequacy	4.3 Art	●	3-2 in room, 1 in storage (#015)
Educational Space Adequacy	4.4 Art	●	connected, room #015
Educational Space Adequacy	5.1 Music	●	1 vocal - #107A, 1 instrumental (same as stage) - #107B
Educational Space Adequacy	5.2 Music	●	connected to both
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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² If IEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Campbell Elementary School	1955	71,919	0.179	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
9	2002	1	0.105	\$27,063,433

Building Description

Campbell Elementary School, located at 737 South Carlin Springs Road, is a one-story structure. The original building was constructed in 1955, and the last major renovation occurred in 2002. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of masonry construction with both original brick and CMU with brick veneer. The exterior windows are both fixed and operable metal framed units. The roof is primarily low-slope built up asphalt over both concrete and steel framing, and there is a small amount of standing seam metal roofing. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted brick, CMU, and drywall while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas water boiler with a storage tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted air handlers, roof top units, heat recovery roof top units, and fan coil unit ventilators. Building power was through a 1600 Amps, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 50 kW providing power to emergency lighting and designated services.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	70,814	BLDG FP SF	\$8.99	\$636,638	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	70,814	BLDG FP SF	\$13.87	\$982,163	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,105	BASEMENT SF	\$16.79	\$18,552	99	99
B101000 - FLOOR CONSTRUCTION	5	Concrete framed floor supported by load bearing walls	1,105	ELEV FL SF	\$50.64	\$55,955	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	70,814	BLDG FP SF	\$65.87	\$4,664,595	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	70,814	BLDG GROSS SF	\$15.00	\$1,062,423	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	70,814	BLDG GROSS SF	\$4.44	\$314,238	40	19
B203000 - EXTERIOR DOORS	4	Exterior doors	70,814	BLDG GROSS SF	\$2.27	\$160,520	30	12
B301000 - ROOF COVERINGS	2	Built-up roof	70,814	BLDG FP SF	\$27.49	\$1,946,642	25	3
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	71,919	FINISHED SF	\$12.52	\$900,780	70	70
C102000 - INTERIOR DOORS	4	Interior doors	71,919	FINISHED SF	\$11.83	\$851,043	40	16
C103000 - FITTINGS	4	Partitions and lockers	71,919	FINISHED SF	\$4.03	\$290,128	40	18
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	71,919	BLDG GROSS SF	\$0.29	\$20,723	99	99
C301000 - WALL FINISHES	4	Standard wall finishes	64,518	FINISHED SF	\$5.80	\$374,296	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	64,518	FINISHED SF	\$14.20	\$915,910	16	7
C303000 - CEILING FINISHES	4	Standard ceiling finishes	64,518	FINISHED SF	\$16.83	\$1,085,706	20	12
D101010 - ELEVATORS	-	-	-	-	-	-	-	-
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	71,919	SERVED SF	\$6.78	\$487,692	50	29
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, 181 to 300 MBH	1	EACH	\$32,608.98	\$32,609	20	12
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	70,814	BLDG FP SF	\$6.11	\$432,587	60	39
D301000 - ENERGY SUPPLY	3	Natural gas supply	71,919	BLDG GROSS SF	\$0.12	\$8,289	60	28
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	71,919	SERVED SF	\$6.22	\$447,627	40	8
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	71,919	SERVED SF	\$6.26	\$450,390	30	24
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Chilled water piping and individual terminal AHUs	71,919	SERVED SF	\$25.30	\$1,819,520	30	9
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	59,619	SERVED SF	\$25.30	\$1,508,335	30	9
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	71,919	SERVED SF	\$2.38	\$171,314	15	2
D401000 - SPRINKLERS	4	Sprinkler system	71,919	SERVED SF	\$8.61	\$618,941	50	22
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 1600 Amp Service	71,919	BLDG GROSS SF	\$7.28	\$523,613	50	22
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	71,919	BLDG GROSS SF	\$48.75	\$3,506,409	50	22
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	71,919	BLDG GROSS SF	\$7.97	\$573,349	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	7
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	1,305	SERVED SF	\$92.28	\$120,432	20	9
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	71,919	SERVED SF	\$8.07	\$580,257	20	5
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	850	LENGTH LF	\$829.72	\$705,261	35	14
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	7,401	SERVED SF	\$100.03	\$740,296	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Campbell Elementary School	1955	71,919	0.179	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
9	2002	1	\$27,063,433	No. of Local Projects		
				1		

Building Description

Campbell Elementary School, located at 737 South Carlin Springs Road, is a one-story structure. The original building was constructed in 1955, and the last major renovation occurred in 2002. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of masonry construction with both original brick and CMU with brick veneer. The exterior windows are both fixed and operable metal framed units. The roof is primarily low-slope built up asphalt over both concrete and steel framing, and there is a small amount of standing seam metal roofing. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted brick, CMU, and drywall while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas water boiler with a storage tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted air handlers, roof top units, heat recovery roof top units, and fan coil unit ventilators. Building power was through a 1600 Amps, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 50 kW providing power to emergency lighting and designated services.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ -	\$ 1,946,642	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ 374,296	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 374,296	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 915,910	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 447,627	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ 152,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,819,520	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,508,335	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 171,314	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 573,349	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 120,432	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 580,257	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 740,296	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$0	\$897,163	\$1,946,642	\$374,296	\$580,257	\$0	\$972,110	\$447,627	\$3,448,287	\$1,114,592	\$0	\$0

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Campbell Elementary School	Year Built 1955	Building GSF 71,919	Building FCI_{AD} 0.179	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 9	Last Renovation 2002	No. of Floors 1	Building FCI_{DM} 0.105	Building CRV \$27,063,433
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The entire school has a slab on grade.		
A202000 - BASEMENT WALLS	5	The basement consists of the boiler room and main electrical room. Basement walls are constructed of cast-in-place concrete and original brick.		
B101000 - FLOOR CONSTRUCTION	5	Based on field observations and limited availability of drawings, it appears the floor above the basement is cast-in-place concrete decking over concrete framing.		
B102000 - ROOF CONSTRUCTION	5	Based on field observations and limited availability of drawings, it appears the majority of the roofing structure is cast-in-place concrete decking over concrete framing, with the remainder being steel decking over steel framing for the building additions.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is a combination of brick veneer over CMU and original brick masonry construction. In some areas, there is a EIFS stucco finish or sheet metal cladding above and around windows.		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable metal framed units with thermal glazing. There is a storefront system located at Entrances 3 and 5. There are clerestory windows with blinds above the MPR. Above the Gym, there are translucent windows to allow natural light to filter into the space. No cracking or fogging was observed, and there were no reported issues. The windows are assumed installed 2002.		
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly paired glazed storefront units and single and paired metal flush panel units, some with glazing. Only entrance 5 has a vestibule. Some paint finishes were dull and faded but no corrosion, misalignment, or lack of functionality was noted. Doors assumed installed 2002.		
B301000 - ROOF COVERINGS	2	With the exception of a small area of pitched standing seam metal roof above the media center, and a metal entrance portico, the building has a low-sloped built up asphalt roof. Per the 2010 APS Roof Survey, the estimated age of the BUR was approximately 10 years at that time. With the exception of minor repairs, no other action appears to have been taken since 2010, which means the age of the BUR is now almost 25 years. There are numerous areas where ballast is missing and asphalt is exposed. Coatings have been applied at roof edges. Blistering evident at some roof drains, with coatings applied, some recently. There is evidence of localized ponding, but there was no standing water at the time of the assessment. Metal roofing and flashing has a worn painted finish but appears to be fully functional. Lead damaged ceiling finishes were observed in Room 157 and outside Room 160.		
C101000 - PARTITIONS	5	Partition walls include CMU, original brick, drywall over framing, and a small amount of glazed partitions.		
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames, with a small number of metal doors. The doors types vary and include flush and glazed units. Doors in newer portions of the building were in better condition than in original building areas due to worn finishes, but overall condition was good.		
C103000 - FITTINGS	4	Fittings included metal lockers, metal railings, and both composite and metal restroom partitions		
C201000 - STAIR CONSTRUCTION	5	Stairs serve the boiler room and main electrical room only.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted finishes predominate. In corridors and other common areas, finishes are painted brick and CMU. In classrooms, painted CMU and drywall. In restrooms, ceramic tile and painted CMU. In the Media Center, painted drywall and in the Kitchen, tile and painted CMU.		
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are primarily carpet tiles. In classrooms, carpet tile and VCT. In restrooms and the kitchen, ceramic tile. In the media center, carpet. Some tiles in the kitchen were cracked, but this area was undergoing renovation at the time of the assessment.		
C303000 - CEILING FINISHES	4	Ceiling finishes were primarily suspended acoustic tiles, with a smaller amount of painted drywall.		
D101010 - ELEVATORS	-			
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	An R81 201 gph, 199 MMBtu natural gas domestic water boiler appears to be adequately functional.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	3	Distributed natural gas provided for domestic and hydronic hot water. Service presumed to have been upgraded with the boiler installation in the early 1990s.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Two 3052 MMBtu Peerless hydronic natural gas fired boilers provided distributed heating water roof top units, fan coil units, and ventilation units throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	A 140 ton Carrier air-cooled pad mounted scroll chiller, installed in the late 2010s, provided distributed chilled water to served AHU and fan coils.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Based on the served areas, systems include roof top and energy recovery units with hydronic heating and cooling as well as air source heat pumps. Systems appeared to be from mid-1990s to the early 2000s. Local Project: The packaged RTU for the administrative area (approx. 12500 sf) was built in 1995. While still functional, its replacement should be considered. The distribution was replaced in the 2001 renovations.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Based on the served areas, systems include roof top and energy recovery units with hydronic heating and cooling as well as air source heat pumps. The systems with distributed cooling is reflected in the sf and appeared to be from the early 2000s.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and a limited pneumatic system which appeared to be functional. Recommendation: Evaluate and consider the replacement of the build control system as it is at the end of its expected useful life.		
D401000 - SPRINKLERS	4	A single water service served the distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	The 480/277V, 1600A service rated switchboard provides power to the building distribution. It was pre-2001 construction of an unknown date. The boiler room distribution panel likely dated at or before the installation of the boilers in the mid-1990s, including the wiring. No issues reported or observed. Recommendation: Given the mixed ages and apparent lack of maintenance (no testing labels), consider performing thermographic evaluations in conjunction with electrical panel maintenance.		
D502000 - LIGHTING AND BRANCH WIRING	3	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, based on the likely installation at the time of the most recent renovations, these systems, while operational, are past their expected useful lives. Recommendation: Evaluate and replace the existing communications, security, and fire alarm systems.		
D509000 - EMERGENCY POWER	3	An emergency generator (approximated to be 50 kW and diesel) and an automatic transfer switch provided dedicated emergency power and was likely installed in the mid-1990s.		
E102000 - INSTITUTIONAL EQUIPMENT	4	The kln had a separate local exhaust system vented to the building exterior.		
E109002 - FOOD SERVICE EQUIPMENT	3	The kitchen area was affected by construction at the time of survey with the kitchen equipment wrapped and sealed, but appeared to be Blodgett warming units and refrigeration. Other kitchen systems could not be observed. Score based on what was observable.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E210103 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework was found classrooms and offices, common function spaces. There were floor mounted laminate wood casework including desks, work stations, storage cubes, shelving, drawers and cabinets throughout. Casework in newer portions of the building was in better condition than in original building areas.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	2,825 SF multipurpose room serving as cafeteria and auditorium with raised stage. VCT flooring (good condition) with wood flooring at stage (excellent condition). Walls are painted CMU (good) and ceiling is suspended acoustic tiles (good). Assumed last renovated in 2002. 4,576 SF single-purpose elementary school gymnasium. Sheet vinyl flooring, painted CMU walls with acoustic panels, safety padding, and a climbing wall, and painted steel ceiling framing were in good condition. Basketball hoops appeared relatively new. Lighting appears to have been upgraded to LED. Assumed last renovated in 2002.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Campbell Elementary School	1955	2002	71,919	70,814	1

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI averages above 6 each when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Exceeds ASHRAE requirement by about 7%
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	There are no mechanical drawings that include information on the units serving the library, gym or cafeteria. Because of this, actual supply air and outside air CFMs are not known for these spaces and have been determined using information from other APS schools of a similar age and industry. There are no mechanical drawings that include information on the units serving the library, gym or cafeteria. Because of this, actual supply air and outside air CFMs are not known for these spaces and have been determined using educated guesses and industry-standard rule of thumb sizing for
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	There are no mechanical drawings that include information on the units serving the library, gym or cafeteria. Because of this, actual supply air and outside air CFMs are not known for these spaces and have been determined using educated guesses and industry-standard rule of thumb sizing for
Major Building Systems	6.0 HVAC - Ventilation - Library	●	There are no mechanical drawings that include information on the units serving the library, gym or cafeteria. Because of this, actual supply air and outside air CFMs are not known for these spaces and have been determined using educated guesses and industry-standard rule of thumb sizing for
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	There are no mechanical drawings that include information on the units serving the library, gym or cafeteria. Because of this, actual supply air and outside air CFMs are not known for these spaces and have been determined using educated guesses and industry-standard rule of thumb sizing for
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Classrooms meet both ASHRAE and APS ventilation requirements. Other spaces appear to be deficient using the information available to us
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow for Merv 8 at a maximum.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most spaces have a thermostat in the room. All classrooms, library, gym, cafeteria. Some spaces in the admin suite do not have their own thermostat.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	All water closets appeared to be 1.6 GPF. All urinals appeared to be 1.0 GPF.
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on F.Y. 2022 from APS Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrance 5 has a vestibule with no remote access control. The original main entrance (#7) does not have a vestibule, nor does the current main entrance (#1).
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Vegetation should be kept trimmed back, especially on the east and south sides of the building.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrances 1 and 7 have visitor communications but no security vestibules. Entrances 5 and 9 were being used for visitor entry at the time of the assessment, but this was outside the normal school year. It is not entirely clear if one entrance is intended to be the single point of entry but #1 is
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	N/A - not multistory, 0 elevators
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	3	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on F.Y. 2022 from APS Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	0 elevators, 1 story
Major Building Systems	5.3 Other - Elevator Size	●	0 Elevators, N/A
Common Space Adequacy	1.0 Cafeteria	●	2825(cafeteria area)/15 students = 189
Common Space Adequacy	1.1 Kitchen	●	1105(kitchen area incl office, etc.)/3 = 369
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	design capacity 436/7 periods = 146
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable, climbing wall, volleyball, ropes, no direct exterior lighting (interior windows that are adjacent to skylight)
Common Space Adequacy	2.2 Gymnasium	●	49'-11" W x 88'-0" L, Deck: 25'-4", Joist: 22'-8"
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	628 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	12	Green = 12, pre-K & K (0), 1st (2), Gen ed (10)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	5	Yellow = 5, pre-K & K (4), 1st (0), Gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red = 2, pre-K & K (1), 1st (0), Gen ed (1)
Educational Space Adequacy	1.2 Classrooms (General)	19	
Educational Space Adequacy	1.3 Classrooms (General)	●	All classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% of classrooms, but No vertical grab bars
Educational Space Adequacy	1.5 Classrooms (General)	●	All classrooms have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	3	interlude
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	not 10x10
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	Under construction - unable to verify
Educational Space Adequacy	3.4 Clinic	●	2 beds, toilet NOT ADA, sink, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	1 - 8159
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	3
Educational Space Adequacy	4.4 Art	●	yes.
Educational Space Adequacy	5.1 Music	●	1 instrumental, 1 vocal
Educational Space Adequacy	5.2 Music	●	yes, storage in both rooms
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Cardinal Elementary School	2010	128,377	0.020	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
42	2021	4	0.000	\$39,019,267		

Building Description

Cardinal Elementary School, located at 1644 North McKinley Road, is a four-story structure. A complex of structures occupies the building site, and serves as both public library and elementary school. While a portion of the original (Walter Reed) elementary school building still stands, it now houses the Westover Branch Library and is not considered here, although some services are shared between the school and library. Cardinal Elementary consists of one building section (constructed circa 2010) that includes the media center, pre-K classrooms, and art and music rooms, and a second section constructed in 2021 that includes the cafeteria, kitchen, administrative areas, main mechanical room, and the four-story mid-rise section. The school includes additional classrooms and a gymnasium with stage. The building is of CMU construction with brick, EIFS, and metal exterior finishes, and includes numerous large glazing assemblies that allow natural light into the building. The exterior windows are both fixed and operable metal framed units with thermal glazing and low-E coating. The roof is a combination of single ply TPO over metal decking along with standing seam metal, all over steel framing. The floor finishes are primarily vinyl composition tile while wall finishes are primarily painted drywall. Ceiling finishes are primarily suspended acoustic tiles, plus a variety of hanging architectural panels that create ceiling depth and aesthetic interest. There are three hydraulic elevators serving the building, two of which are in the mid-rise section. The HVAC system consists of a geothermal system supporting a 90-ton modular chiller unit and numerous water source heat pump units with air handlers located throughout the building. The school shares a main switchboard with the Westover Library, but large distribution panels provide electrical service to local distribution panels, equipment, and LED lighting throughout the school. A wet sprinkler system protects the entire building, along with an addressable fire alarm system. A ~100 kW diesel generator provides emergency power.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	45,400	BLDG FP SF	\$12.08	\$548,572	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	45,400	BLDG FP SF	\$13.87	\$629,681	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	82,977	ELEV FL SF	\$42.15	\$3,497,210	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	45,400	BLDG FP SF	\$24.05	\$1,091,912	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	128,377	BLDG GROSS SF	\$26.95	\$3,459,969	70	70
B202000 - EXTERIOR WINDOWS	5	Exterior windows	128,377	BLDG GROSS SF	\$18.83	\$2,416,800	40	37
B203000 - EXTERIOR DOORS	5	Exterior doors	128,377	BLDG GROSS SF	\$1.02	\$130,704	30	25
B301000 - ROOF COVERINGS	5	Single ply roof	45,400	BLDG FP SF	\$17.25	\$783,176	25	23
C101000 - PARTITIONS	5	Drywall over studs	128,377	FINISHED SF	\$6.36	\$816,286	25	25
C102000 - INTERIOR DOORS	5	Interior doors	128,377	FINISHED SF	\$4.73	\$606,666	35	31
C103000 - FITTINGS	5	Partitions and lockers	128,377	FINISHED SF	\$4.09	\$525,284	40	36
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	128,377	BLDG GROSS SF	\$1.94	\$249,078	50	50
C301000 - WALL FINISHES	5	Standard wall finishes	121,577	FINISHED SF	\$5.09	\$618,906	6	5
C302000 - FLOOR FINISHES	5	Standard floor finishes	121,577	FINISHED SF	\$14.20	\$1,725,930	20	18
C303000 - CEILING FINISHES	5	Standard ceiling finishes	121,577	FINISHED SF	\$16.83	\$2,045,893	20	18
D101010 - ELEVATORS	5	Elevator	3	EACH	\$206,284.66	\$618,854	35	29
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	128,377	SERVED SF	\$17.25	\$2,214,578	50	46
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Electric Water Heater, Commercial, Greater than 480 KW and Greater than 1500 Gallor	1	EACH	\$347,268.78	\$347,269	15	13
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	45,400	BLDG FP SF	\$4.92	\$223,266	60	56
D301000 - ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	Geothermal system with heat pumps	128,377	SERVED SF	\$4.38	\$562,276	25	23
D302000 - CENTRAL PLANT HEATING	-	-	-	-	-	-	-	-
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	45,000	SERVED SF	\$8.13	\$365,662	30	28
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	128,377	SERVED SF	\$19.67	\$2,525,309	25	23
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Chilled water piping and individual terminal AHUs	128,377	SERVED SF	\$23.44	\$3,008,669	25	23
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - heat pump system	128,377	SERVED SF	\$0.85	\$108,509	15	13
D401000 - SPRINKLERS	5	Sprinkler system	128,377	SERVED SF	\$7.90	\$1,013,576	50	47
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical system and switchgear	128,377	BLDG GROSS SF	\$4.03	\$517,886	50	48
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	128,377	BLDG GROSS SF	\$36.27	\$4,656,039	50	42
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	128,377	BLDG GROSS SF	\$10.18	\$1,307,045	20	18
D509000 - EMERGENCY POWER	5	Emergency Generator, >=80 kW to <100 kW	1	EACH	\$89,585.84	\$89,586	35	33
E102000 - INSTITUTIONAL EQUIPMENT	5	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	18
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	128,377	SERVED SF	\$3.50	\$448,834	20	18
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	1,400	LENGTH LF	\$829.72	\$1,161,606	35	33
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	5	Multi-purpose room	6,800	SERVED SF	\$100.03	\$680,180	20	18
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Cardinal Elementary School	2010	128,377	0.020	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
42	2021	4	\$39,019,267	No. of Local Projects		
				0		

Building Description

Cardinal Elementary School, located at 1644 North McKinley Road, is a four-story structure. A complex of structures occupies the building site, and serves as both public library and elementary school. While a portion of the original (Walter Reed) elementary school building still stands, it now houses the Westover Branch Library and is not considered here, although some services are shared between the school and library. Cardinal Elementary consists of one building section (constructed circa 2010) that includes the media center, pre-K classrooms, and art and music rooms, and a second section constructed in 2021 that includes the cafeteria, kitchen, administrative areas, main mechanical room, and the four-story mid-rise section. The school includes additional classrooms and a gymnasium with stage. The building is of CMU construction with brick, EIFS, and metal exterior finishes, and includes numerous large glazing assemblies that allow natural light into the building. The exterior windows are both fixed and operable metal framed units with thermal glazing and low-E coating. The roof is a combination of single ply TPO over metal decking along with standing seam metal, all over steel framing. The floor finishes are primarily vinyl composition tile while wall finishes are primarily painted drywall. Ceiling finishes are primarily suspended acoustic tiles, plus a variety of hanging architectural panels that create ceiling depth and aesthetic interest. There are three hydraulic elevators serving the building, two of which are in the mid-rise section. The HVAC system consists of a geothermal system supporting a 90-ton modular chiller unit and numerous water source heat pump units with air handlers located throughout the building. The school shares a main switchboard with the Westover Library, but large distribution panels provide electrical service to local distribution panels, equipment, and LED lighting throughout the school. A wet sprinkler system protects the entire building, along with an addressable fire alarm system. A ~100 kW diesel generator provides emergency power.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	5	\$	\$	\$	\$	\$	618,906	\$	\$	\$	\$	618,906	\$
C302000 - FLOOR FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$0	\$618,906	\$0	\$0	\$0	\$0	\$0	\$618,906	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend						
Cardinal Elementary School	2010	128,377	0.020	<table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90EE90; padding: 2px;">Good</td> <td style="background-color: #FFD700; padding: 2px;">Fair</td> <td style="background-color: #FF0000; padding: 2px;">Poor</td> </tr> <tr> <td style="font-size: 8px;">0 - 0.15</td> <td style="font-size: 8px;">0.151 - 0.33</td> <td style="font-size: 8px;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{DM}	Building CRV ⁵						
42	2021	4	0.000	\$39,019,267						
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.								
A103000 - SLAB ON GRADE	5	Level 1 has slab on grade.								
A202000 - BASEMENT WALLS	-									
B101000 - FLOOR CONSTRUCTION	5	Level 4, Level 3, and a portion of Level 2 appear to utilize steel framing with a steel structural deck to support an elevated cast in place lightweight concrete slab. SF for the gym, stage, media center, and art room (142) are omitted as they do not have a Level 2 floor.								
B102000 - ROOF CONSTRUCTION	5	Roof structure is steel framing and decking.								
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is predominantly brick veneer over CMU, with a variety of other exterior architectural finishes including smooth face CMU, EIFS, and painted metal.								
B202000 - EXTERIOR WINDOWS	5	The exterior windows are fixed and operable metal framed units with thermal glazing. Most windows appear to have low-E coating. There are glazed wall assemblies at the NE and NW corners on the 4th floor, the cafeteria on the second floor, and the third and fourth floor elevator landings. There are two cantilevered classroom extensions at the north side of the building on the third and fourth floors that are primarily glazed. There are also clerestory windows on the fourth floor and in the gymnasium. No cracking or fogging was observed, and there were no reported issues. Many windows have horizontal and vertical metal shading features. The windows on the northern portion of the building (high-rise section plus admin, mechanical, kitchen, and cafeteria on first and second floors) are assumed installed in 2021 (roughly 80% of total), while the middle portion of the building (media center, pre-K, art, music) are assumed installed 2010 (roughly 20% of total).								
B203000 - EXTERIOR DOORS	5	The exterior doors are predominantly single and paired glazed storefront units and single and paired metal flush panel units. The doors serving the northern portion of the building (first floor high-rise section plus admin and mechanical) are assumed installed in 2021 (roughly 70% of total), while the middle portion of the building (media center, art, pre-K) are assumed installed 2010 (roughly 30% of total).								
B301000 - ROOF COVERINGS	5	Roof coverings are a combination of single ply TPO (roughly 60%) and standing seam metal (roughly 40%). The majority of the single ply roofing from the 2010 building addition appears to have been replaced in 2021 at the same time as the new construction. Damaged ceiling above cafeteria indicates possible isolated leak. Metal gutters and downspouts capturing stormwater from metal roofing were in good condition.								
C101000 - PARTITIONS	5	Partition walls are primarily drywall over metal studs, with a significant amount of glazed partitions designed to provide an open feel to the building.								
C102000 - INTERIOR DOORS	5	Interior doors include solid core wood panels and metal panels, both flush and glazed, in metal frames. There are also glazed storefront assemblies at vestibules. There are two metal roll-up doors in the kitchen and glazed roll-up doors on third and fourth floors serving some classrooms.								
C103000 - FITTINGS	5	The predominate fittings for the school are composite toilet partitions and steel railings.								
C201000 - STAIR CONSTRUCTION	5	Interior stairs are steel framed with concrete infill pans, with metal hand rails and guard rails.								
C301000 - WALL FINISHES	5	There are a variety of wall finishes, but the predominant wall finish is painted drywall. In corridors and other common areas, finishes are painted drywall, and painted cast-in-place concrete in stairwells. In classrooms, painted drywall. In restrooms, ceramic tile and painted drywall. In the Media Center, painted drywall and painted CMU. In the cafeteria, painted drywall and a small amount of ceramic tile. In the kitchen, vinyl. Finished SF does not include the gymnasium or stage.								
C302000 - FLOOR FINISHES	5	The building has a variety of floor finishes, but the predominant finish is vinyl composite tile (VCT). In corridors, the cafeteria, and other common areas, VCT predominates, with some localized wear in high traffic areas. VCT, except in music rooms which have carpet tile. In restrooms and the kitchen, ceramic tile. In the media center, carpet. Finished SF does not include the gymnasium or stage. Floor finishes for 2010 building addition assumed replaced in 2021.								
C303000 - CEILING FINISHES	5	The predominant ceiling finish is suspended acoustic tile, including classrooms and the kitchen. However, there are significant amounts of painted gypsum board, painted structure, and painted, suspended panels that hang both vertically (media center) and horizontally (corridors) throughout. There is a small amount of slatted wood ceiling finish in the cafeteria. Finished SF does not include the gymnasium or stage.								
D101010 - ELEVATORS	5	There are three elevators in the building, A, B, and C. Elevator A (equipment located in the 2010 building addition, Room 150C) is a Schindler hydraulic elevator with 3,500 lb. capacity installed in 2009. Elevators B and C (equipment located in Room 411A, 2011 building addition) are Otis hydraulic elevators with 2,500 lb. capacity installed 2021.								
D101020 - LIFTS	-									
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures included wall-mounted composite sinks (both automatic and manual flow valves) and wall-mounted vitreous china toilets and urinals (manual flush valves); janitor stations, and emergency wash stations. Piping appeared to be a combination of copper and PVC.								
D202000 - RESIDENTIAL WATER HEATER	-									
D203000 - COMMERCIAL WATER HEATER	5	Two Multistack Heatstack heat pump water heaters (254 MBH each) and two 200 gallon Lochinvar storage tanks, manufactured 2020.								
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system for low sloped roofing with drops internal to the building.								
D301000 - ENERGY SUPPLY	-									
D301006 - SOLAR ENERGY SUPPLY	-									
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	Geothermal wellfield appears to have been installed under parking lot to the east. Redundant 10 HP pumps circulate water (or glycol mix) from the wellfield to a heat exchanger (Tranter Superchanger) in Room 137.								
D302000 - CENTRAL PLANT HEATING	-									
D302010 - FIREPLACES	-									
D303000 - CENTRAL PLANT COOLING	5	Modular chiller cooled by geothermal system with a total cooling capacity of 90 tons (4 compressors). HVAC drawings not available but assumed to dehumidify outside air at OA and MAU air handlers, augment condenser water to individual heat pump units as needed, and/or augment cooling to large spaces such as gymnasium, library, kitchen, and cafeteria via separate air handlers. SF assumed based on cooling tonnage.								
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	A series of Bosch water source heat pumps with air handlers are located in mechanical closets located throughout the building. Redundant 15 HP pumps circulate condenser water from a heat exchanger (Tranter Superchanger) in Room 137 to the heat pump units. There is an OA unit and MAU air unit in Room 137 that provide outdoor air and makeup air to the building.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	A series of Bosch water source heat pumps with air handlers are located in mechanical closets located throughout the building. Redundant 15 HP pumps circulate condenser water from a heat exchanger (Tranter Superchanger) in Room 137 to the heat pump units. There is an OA unit and MAU air unit in Room 137 that provide outdoor air and makeup air to the building.								
D305010 - TERMINAL & PACKAGE UNITS	-									
D306000 - CONTROLS	5	The major building MEP systems incorporated a DDC and monitoring system throughout. All controls assumed replaced in 2021.								
D401000 - SPRINKLERS	5	A 750 GPM fire pump and 1.5 HP jockey pump served a wet sprinkler system distributed throughout the building, installed 2020. Piping from 2010 building addition is assumed to have been replaced in 2020.								
D402000 - STANDPIPES	-									
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The main switchboard was located in the original school building (now Westover Branch Library) and could not be observed. However there were distribution panels in Room 137 including one 800A, 208/120V DP and one 1,200A, 480/277V DP, all 3-phase, 4-wire. All installed 2021.								
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED. Lighting for 2010 building addition assumed replaced but not wiring.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted. Entire systems assumed replaced in 2021.								
D509000 - EMERGENCY POWER	5	Generator enclosure was locked, but generator reportedly replaced in 2021 with a capacity of 80-100 kW. Zenith ZTS transfer switch installed 2020.								
E102000 - INSTITUTIONAL EQUIPMENT	5	Klin in 246A, not observed due to locked door but assumed 10 kW klin installed 2021 to be consistent with other elementary schools.								
E109002 - FOOD SERVICE EQUIPMENT	5	The kitchen had limited facilities which included warming ovens, exhaust hood, utensil sinks, prep tables, heated serving counters, and a walk-in refrigerator and freezer. All equipment assumed new in 2021 versus crossdecked from old facility.								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-									
E210003 - FIXED FURNISHINGS - PERMANENT SEATING	-									
E201020 - FIXED FURNISHINGS - CASEWORK	5	Casework included solid wood cabinets and cubbies in the cafeteria, cabinets/counters in staff spaces, and cubbies and cabinets in classrooms, some with countertops. Quantity estimated from SF and student occupancy.								
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	5	Multi-use room that includes gymnasium and a raised stage. Sheet vinyl floors, painted drywall with safety padding, acoustic panels, and climbing wall, and; painted gypsum board ceilings. Basketball hoops appear new. Stage has VCT flooring, painted drywall, and digital sound system with wall mounted speakers. Clerestory windows provide natural lighting.								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-									
F102030 - AUDITORIUMS	-									
F102040 - COLD STORAGE ROOMS	-									
F104001 - AQUATIC FACILITIES	-									

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Cardinal Elementary School	2010	2021	128,377	45,400	4

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	6 to 8 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym meets current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Ventilation for Gym meets current ASHRAE 62.1 (Dining)
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation for Gym meets current ASHRAE 62.1 (Library)
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are exhausted outdoors. Kilo room also exhausted along with Kilo exhaust systems to remove heat.
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Bldg. utilizes HP units design for and predominantly included Merv 13 filters. A few HP units had filter changes that reverted back to MERV 11 filtration.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Bldg. utilizes HP units design for and predominantly included Merv 13 filters. Gym units had MERV 13 filters.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Bldg. utilizes HP units design for and predominantly included Merv 13 filters. Library unit had MERV 13 filters.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Bldg. fully LED lighting.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures are dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT is 3000K
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Bldg. design with and included water efficient plumbing fixtures
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Arlington Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrance A1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	There are no architectural design features that create significant exterior areas of concealment. However, vegetation near the main entrance and near the loading dock should be kept cut back.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrances D17 and D18 at the side of the building can be misinterpreted as points of entry.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	3 elevators
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	2	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Arlington Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	PV ready, PV not installed at this time
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	3	
Major Building Systems	5.3 Other - Elevator Size	●	
Common Space Adequacy	1.0 Cafeteria	●	stated design capacity 280
Common Space Adequacy	1.1 Kitchen	●	1530 (kitchen area) / 3 = 510
Common Space Adequacy	1.2 Kitchen	●	2 serving lines
Common Space Adequacy	1.3 Kitchen	●	design capacity 747/3 periods = 249
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, and wall pads. daylight, no divider curtain
Common Space Adequacy	2.2 Gymnasium	●	97'-4" x 58'-1" W. Height to acoustical panel 22'-9"
Common Space Adequacy	3.1 Performance Space	●	Platform off gym, ADA accessible and permanent
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1118 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	mulch with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	16	Green 16; pre-k & k (0); 1st (5); Gen ed (11)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	11	Yellow 11; pre-k & k (0); 1st (0); Gen ed (11)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	8	Red 8; pre-k & k (7); 1st (1); Gen ed (1)
Educational Space Adequacy	1.2 Classrooms (General)	35	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten classrooms have ADA toilets
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have at least 1 sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks; 3 offices; 1 conference room; 1 records room - rated
Educational Space Adequacy	3.4 Clinic	●	3 beds, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 142 and 248
Educational Space Adequacy	4.2 Art	●	yes, 1 kiln connected to both
Educational Space Adequacy	4.3 Art	●	142 - 3 sink; room 248 - 3 sinks
Educational Space Adequacy	4.4 Art	●	142 - no storage; 248 - connected storage
Educational Space Adequacy	5.1 Music	●	3; 1 instrumental (244), 1 vocal (249), 1 general (248)
Educational Space Adequacy	5.2 Music	●	connected storage to room 244 and 248. no connected storage to 249
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Carlin Springs Elementary School	2001	86,745	0.132	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
11	No record	2	0.106	\$28,151,901

Building Description

Carlin Springs Elementary School, located at 5995 5th Road South, is a two-story structure built in 2001. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, courtyard, and administrative offices. The building is of CMU construction with brick veneer and EIFS cladding. The exterior windows are both fixed and tilt-out aluminum framed units with thermal glazing and low-E coating. The roof is built-up asphalt (75%) over steel roof decking with numerous architectural features such as entrances, stairwells, and corridors covered by standing seam metal roofing (25%). Interior floor finishes are primarily vinyl composition tile, terrazzo, and carpet tile. Wall finishes are primarily painted drywall and CMU while ceiling finishes are primarily suspended acoustic tiles, with a small amount of painted structure. Building domestic hot water was generated utilizing a natural gas water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top units, roof top units with remote condensing units, and split heat pump systems combined with VAV boxes and unit ventilators. Building power was through a 1600 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 185 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	59,900	BLDG FP SF	\$12.08	\$723,777	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	59,900	BLDG FP SF	\$13.87	\$830,790	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	26,845	ELEV FL SF	\$42.15	\$1,131,429	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	59,900	BLDG FP SF	\$24.05	\$1,440,650	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	86,745	BLDG GROSS SF	\$26.95	\$2,337,919	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	86,745	BLDG GROSS SF	\$18.83	\$1,633,044	40	18
B203000 - EXTERIOR DOORS	4	Exterior doors	86,745	BLDG GROSS SF	\$1.02	\$88,318	30	11
B301000 - ROOF COVERINGS	3	Built-up roof	59,900	BLDG FP SF	\$27.93	\$1,673,087	28	7
C101000 - PARTITIONS	5	Drywall over studs	86,745	FINISHED SF	\$6.36	\$551,569	45	45
C102000 - INTERIOR DOORS	4	Interior doors	86,745	FINISHED SF	\$4.73	\$409,927	40	20
C103000 - FITTINGS	4	Partitions and lockers	86,745	FINISHED SF	\$4.09	\$354,937	35	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	86,745	BLDG GROSS SF	\$1.94	\$168,304	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	78,223	FINISHED SF	\$5.09	\$398,206	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	78,223	FINISHED SF	\$14.20	\$1,110,469	22	15
C303000 - CEILING FINISHES	4	Standard ceiling finishes	78,223	FINISHED SF	\$16.83	\$1,316,334	20	9
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	8
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	86,745	SERVED SF	\$17.25	\$1,496,402	50	28
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 131 to 180 MBH	1	EACH	\$35,634.55	\$35,635	20	2
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	59,900	BLDG FP SF	\$4.92	\$294,574	60	38
D301000 - ENERGY SUPPLY	5	Natural gas supply	86,745	BLDG GROSS SF	\$0.15	\$13,331	60	38
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	86,745	SERVED SF	\$7.17	\$621,557	40	18
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	17,349	SERVED SF	\$8.13	\$140,975	40	36
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	86,745	SERVED SF	\$19.67	\$1,706,364	30	8
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	86,745	SERVED SF	\$23.44	\$2,032,973	30	8
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	86,745	SERVED SF	\$2.38	\$206,630	15	2
D401000 - SPRINKLERS	4	Sprinkler system	86,745	SERVED SF	\$7.90	\$684,879	50	28
D402000 - STANDPIPES	4	Standpipe system	86,745	SERVED SF	\$0.63	\$54,990	50	28
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 1600 Amp Service	86,745	BLDG GROSS SF	\$3.15	\$273,285	50	28
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	86,745	BLDG GROSS SF	\$36.27	\$3,146,109	50	28
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	86,745	BLDG GROSS SF	\$10.18	\$883,177	20	2
D509000 - EMERGENCY POWER	4	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	13
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	200	SERVED SF	\$160.37	\$32,073	20	12
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	86,745	SERVED SF	\$3.50	\$303,280	20	3
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,100	LENGTH LF	\$829.72	\$912,690	35	13
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	8,522	SERVED SF	\$100.03	\$852,426	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Carlin Springs Elementary School	Year Built¹ 2001	Building GSF² 86,745	Building FCI_{AD} 0.132	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 11	Last Renovation¹ No record	No. of Floors 2	Building CRV⁶ \$28,151,901	No. of Local Projects 2

Building Description

Carlin Springs Elementary School, located at 5995 5th Road South, is a two-story structure built in 2001. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, courtyard, and administrative offices. The building is of CMU construction with brick veneer and EIFS cladding. The exterior windows are both fixed and tilt-out aluminum framed units with thermal glazing and low-E coating. The roof is built-up asphalt (75%) over steel roof decking with numerous architectural features such as entrances, stairwells, and corridors covered by standing seam metal roofing (25%). Interior floor finishes are primarily vinyl composition tile, terrazzo, and carpet tile. Wall finishes are primarily painted drywall and CMU while ceiling finishes are primarily suspended acoustic tiles, with a small amount of painted structure. Building domestic hot water was generated utilizing a natural gas water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top units, roof top units with remote condensing units, and split heat pump systems combined with VAV boxes and unit ventilators. Building power was through a 1600 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 185 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 88,318	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ 1,562,925	\$ -	\$ -	\$ -	\$ -	\$ 1,673,087	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ 398,206	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 398,206	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,316,334	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ 35,635	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,706,364	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,032,973	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 206,630	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 883,177	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ 303,280	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 852,426	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$5,000	\$2,688,366	\$303,280	\$398,206	\$0	\$0	\$1,673,087	\$3,945,622	\$1,316,334	\$1,250,631	\$88,318	\$0

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6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Carlin Springs Elementary School	Year Built 2001	Building GSF 86,745	Building FCI_{AD} 0.132	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 11	Last Renovation No record	No. of Floors 2	Building FCI_{DM} 0.106	Building CRV \$28,151,901

SYSTEM OBSERVATIONS		
Building Systems	Rating	Observations
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.
A103000 - SLAB ON GRADE	5	The first floor has a slab on grade. Extensive cracking was observed in the Kitchen area, which needs to be assessed.
A202000 - BASEMENT WALLS	-	
B101000 - FLOOR CONSTRUCTION	5	The second floor appears to utilize steel framing with a steel structural deck to support an elevated cast in place lightweight concrete slab.
B102000 - ROOF CONSTRUCTION	5	Roof structure is steel framing and decking.
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is predominantly brick veneer over CMU, with EIFS cladding near the roof line. Many doors and windows have horizontal and vertical shading features.
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable (tilt-out) metal framed units with thermal glazing; most appear to have low-E coating. There is a storefront assembly at the rear entrance (#6). No cracking or fogging was observed, and there were no reported issues.
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly paired glazed storefront units and single and paired metal flush panel units (some with glazing). The metal flush panel units exhibit worn finishes such as dull/faded paint, but no corrosion was apparent. Doors appeared to be in alignment and to function properly. There is a storefront system at Entrance #6 and a security vestibule at Entrance #1.
B301000 - ROOF COVERINGS	3	The roof is predominantly low slope built up asphalt (~75%), with a number of architectural features (e.g., MPR, entrances, corridors, stairwells, courtyard classrooms) covered by standing seam metal roofing (25%). The BUR condition rating is fair, and the metal roof rating is good, with both roof types now more than 20 years old. This is consistent with the 2015 APS Roof Survey, which described both the BUR and metal roofing to be in good condition at that time. Areas of ponding and substrate exposure have become apparent with the BUR, and some areas have been prepped for waterproof coating. Roof drain areas exhibit blistering, cracks, and tears, with water penetrating the substrate in some drain areas as evidenced by water bleeding from compressed blisters. Leak damaged ceilings were observed in the second floor north wing, including rooms 217, 219, 220, and 232; also, Room 228. Metal gutters and downspouts drain the metal roofing and appeared to be fully functional with little deflection or deformation. There are also clear and translucent skylights at various locations. Local Project: Replace BUR roofing
C101000 - PARTITIONS	5	Partition walls are a combination of CMU, drywall over studs, and a small amount of glazed partitions. The predominate partition appears to be drywall over studs.
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames, with a small number of metal doors and glazed storefront style doors (metal and wood). The wood and metal doors include flush and glazed units.
C103000 - FITTINGS	4	The predominate fittings for the school are composite toilet partitions, metal lockers, and a small amount of metal safety railings.
C201000 - STAIR CONSTRUCTION	5	Interior stairs are steel framed with concrete infill pans, with metal hand rails and guard rails.
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted drywall and CMU predominate. In corridors and other common areas, finishes are unpainted brick, painted drywall, painted CMU, and acoustic panels. In classrooms, primarily painted drywall and CMU. In restrooms, ceramic tile and painted drywall. In the Media Center, painted CMU and drywall, while in the Kitchen, painted CMU and glazed walls.
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are VCT, terrazzo, and carpet. In classrooms, carpet tile and VCT. In restrooms and the Kitchen, painted concrete. In the Media Center, carpet and terrazzo. Overall condition rating is good.
C303000 - CEILING FINISHES	4	The majority of the ceiling finishes are suspended acoustical tile (SAT), with some painted structure on the first floor. Overall condition of ceiling finishes is good, but there are a number of tiles with leak damage. In addition to leak damaged ceilings noted under Roof Coverings, there were leak damaged tiles on the first floor in Rooms 113, 119, 124, 131, 132, 133, and 160.
D101010 - ELEVATORS	3	One 2-stop hydraulic elevator with minimal signs of wear.
D101020 - LIFTS	-	
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.
D202000 - RESIDENTIAL WATER HEATER	-	
D202005 - COMMERCIAL WATER HEATER	3	PVI Maxim 125 g, 140 MMBtu/h natural gas domestic water heater at the end of useful life, but appears to be functional. Recommendation: Replace before failure.
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.
D301006 - SOLAR ENERGY SUPPLY	-	
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	
D302000 - CENTRAL PLANT HEATING	4	Three 1500 MMBtu/h RFI hydronic natural gas fired boilers provided distributed heating water the air handlers, unit ventilators and VAV boxes throughout. Local Project: Boiler 1 experiencing short cycling requiring evaluation and repair.
D302010 - FIREPLACES	-	
D303000 - CENTRAL PLANT COOLING	5	A Carrier 160 ton air cooled screw chiller provides chilled water to the most recent school addition areas.
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Based on the served areas, systems include roof top units, units with remote condensing units, air source heat pumps, floor mounted hydronic unit ventilators, and four-pipe air handling systems. Systems appeared to be mostly original or a more current installation.
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Based on the served areas, systems include roof top units, units with remote condensing units, air source heat pumps, floor mounted hydronic unit ventilators, and four-pipe air handling systems. Systems appeared to be mostly original or a more current installation.
D305010 - TERMINAL & PACKAGE UNITS	-	
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.
D401000 - SPRINKLERS	4	A single water service, with a fire and jockey pump, served the distributed sprinkler systems throughout the building.
D402000 - STANDPIPES	4	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 480/277V, 1600A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be original and at the end of their useful life.
D509000 - EMERGENCY POWER	4	A Kato/light diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. Estimated at greater than 185 kW with installation approximated as 2001 since the generator enclosure was locked.
E102000 - INSTITUTIONAL EQUIPMENT	4	The kitch had a separate local exhaust system vented to the building exterior.
E109002 - FOOD SERVICE EQUIPMENT	3	The kitchen was limited to Blodgett warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework was found in classrooms and offices, common function spaces. There were floor mounted laminate wood casework including desks, work stations, storage cubes, shelving, drawers and cabinets throughout.
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multipurpose room serving as cafeteria and auditorium with raised stage. VCT flooring in cafeteria (fair condition) and stage (good condition). Walls are painted CMU and drywall, fair condition. Ceiling is in excellent condition and includes standard SAT as well as suspended tiles in a cloudlike arrangement. Single-purpose elementary school gymnasium. Wood flooring is in good condition overall but with some localized areas of degraded finish. Painted CMU walls (fair/good condition) with acoustic panels, climbing wall, and safety padding. Painted ceiling structure in good condition. Basketball hoops good condition, LED lighting. Two roof leaks were apparent on the outside wall.
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	
F102030 - AUDITORIUMS	-	
F102040 - COLD STORAGE ROOMS	-	
F104001 - AQUATIC FACILITIES	-	

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Carlin Springs Elementary School	2001	No record	86,745	59,900	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	5.92 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms appears to meet current ASHRAE 62.1 for majority of spaces
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Gymnasium meets code ventilation based on AHSRAE 62.1, assuming two classrooms in gym
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria meets code ventilation based on AHSRAE 62.1, assuming 200 students
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Library meets code ventilation based on AHSRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art and kiln appear to have direct ventilation outside
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Assumed Merv 6, Units vents only allow for Merv 8 filtration at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Individual control was noted for each classroom
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED IN CAFE, GYM, F32 TBAND CFL IN MAJORITY OF BLDG
Major Building Systems	3.2 Electrical - Exterior Lighting	●	METAL HALIDE POLE LIGHTS ON BAS, HALLWAY LIGHTS AR UP AT SKYLIGHTS, UPLIGHTS ON EXT WALL
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	~2500 K F32 TB
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	1ST FLOOR YES, OLDER DEVICES ARE ULTRASONIC, NEW ONES ARE IR. SECOND FLOOR CRs NO OCC SENSORS
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Low flow fixtures were not noted on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrances 1 and 6
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	There are no areas of concealment caused by architectural design. However, the following vegetation should be kept trimmed: in raised boxes near Door 4; in beds near Door 7; along (several) brick wall around chiller, hazmat, and trash; in the courtyard.
Major Building Systems	2.3 Building Security - Single point of entry	●	Both Entrance 1 (front) and Entrance 6 (rear) appear to be major points of entry.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	80x61 in
Common Space Adequacy	1.0 Cafeteria	●	3,747 sf / 15 = 249 served
Common Space Adequacy	1.1 Kitchen	●	1,454 sf / 3 = 484
Common Space Adequacy	1.2 Kitchen	●	1
Common Space Adequacy	1.3 Kitchen	●	585 / 3 = 195
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable; climbing wall, volleyball, 2 ropes, interior windows (adjacent to skylight)
Common Space Adequacy	2.2 Gymnasium	●	53'-6" W x 75'-6", Height: Deck: 24'-3", Joist: 21'-8"
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	888 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	1/2 Mulch, 1/2 Rubberized
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	4	Green = 4, pre-k & k (0); 1st (0); Gen ed (4)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	22	Yellow = 21, pre-k & k (2); 1st (5); Gen ed (15)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red = 2, pre-k & k (2); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	28	
Educational Space Adequacy	1.3 Classrooms (General)	●	All classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	All required classrooms have bathroom, but no vertical grab bars
Educational Space Adequacy	1.5 Classrooms (General)	●	All classrooms have required sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	3	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices, conference rm, records (rated)
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet (not ADA), 1 sink, 1 eyewash, 1 ref.
Educational Space Adequacy	4.1 Art	●	1
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	2
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	1 general, 1 vocal
Educational Space Adequacy	5.2 Music	●	Attached to both
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Claremont Elementary School	1952	76,038	0.152	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
12	2003	2	0.156	\$28,626,951

Building Description

Claremont Immersion Elementary School, located at 4700 South Chesterfield Road, is a two-story structure. The school was constructed in 1951, and small additions were constructed in 1963. A renovation was conducted in 1994, and then again in 2003, when the Gymnasium, media center, and east side classrooms were added. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building is constructed of original brick, CMU, and cast-in-place concrete. There are stucco and brick veneer finishes over some of the CMU. The exterior windows are both fixed and tilt-out metal framed units. The roof is built-up asphalt (45%) and 3-ply hybrid (45%) over both concrete and steel framing, with 10% of the roof corrugated metal covering the MPR and media center reading nook. Interior floor finishes are primarily vinyl composition tile, carpet tile, and ceramic tile. Wall finishes are primarily painted brick, CMU, and drywall while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas boiler and associated water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Roof top ducted air to air heat pumps and internal water source heat pumps provided for the building heating and cooling. Hydronic boilers and an evaporative cooler provided distributed tempered condensate water. Natural gas also served a roof top make up air unit. Building power was through a 1600 Amp, 480/208V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	60,025	BLDG FP SF	\$12.08	\$725,287	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	60,025	BLDG FP SF	\$13.87	\$832,524	99	99
A202000 - BASEMENT WALLS	5	-						
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	16,013	ELEV FL SF	\$52.67	\$843,466	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	60,025	BLDG FP SF	\$63.32	\$3,800,553	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	76,038	BLDG GROSS SF	\$26.95	\$2,049,348	70	70
B202000 - EXTERIOR WINDOWS	3	Exterior windows	76,038	BLDG GROSS SF	\$18.83	\$1,431,476	40	14
B203000 - EXTERIOR DOORS	2	Exterior doors	76,038	BLDG GROSS SF	\$1.02	\$77,417	30	4
B301000 - ROOF COVERINGS	2	Built-up roof	60,025	BLDG FP SF	\$27.93	\$1,676,579	28	3
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	76,038	FINISHED SF	\$20.42	\$1,552,713	70	70
C102000 - INTERIOR DOORS	4	Interior doors	76,038	FINISHED SF	\$4.73	\$359,330	40	14
C103000 - FITTINGS	4	Partitions and lockers	76,038	FINISHED SF	\$4.09	\$311,127	40	25
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	76,038	BLDG GROSS SF	\$1.02	\$77,417	70	70
C301000 - WALL FINISHES	4	Standard wall finishes	69,146	FINISHED SF	\$5.09	\$351,998	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	69,146	FINISHED SF	\$14.20	\$981,610	18	7
C303000 - CEILING FINISHES	4	Standard ceiling finishes	69,146	FINISHED SF	\$16.83	\$1,163,586	20	7
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	30	10
D101020 - LIFTS	5	-						
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	76,038	SERVED SF	\$17.25	\$1,311,700	50	30
D202000 - RESIDENTIAL WATER HEATER	5	-						
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 181 to 300 MBH	3	EACH	\$32,608.98	\$97,827	20	7
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	60,025	BLDG FP SF	\$4.92	\$295,189	60	40
D301000 - ENERGY SUPPLY	5	Propane/fuel oil	76,038	BLDG GROSS SF	\$0.15	\$11,686	60	34
D301006 - SOLAR ENERGY SUPPLY	5	-						
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	-						
D302000 - CENTRAL PLANT HEATING	3	Boiler	60,831	SERVED SF	\$7.17	\$435,874	40	14
D302010 - FIREPLACES	5	-						
D303000 - CENTRAL PLANT COOLING	3	Chiller system	60,831	SERVED SF	\$8.13	\$494,302	40	14
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	60,831	SERVED SF	\$19.67	\$1,196,609	30	4
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Heating system piping and individual terminal AHUs	60,831	SERVED SF	\$19.67	\$1,196,609	30	4
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units	15,207	SERVED SF	\$47.45	\$721,552	30	4
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	76,038	SERVED SF	\$2.38	\$181,126	15	2
D401000 - SPRINKLERS	5	Sprinkler system	76,038	SERVED SF	\$7.90	\$600,344	50	30
D402000 - STANDPIPES	5	Standpipe system	76,038	SERVED SF	\$0.63	\$48,203	50	30
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1600 Amp Service	76,038	BLDG GROSS SF	\$3.15	\$239,553	50	30
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	76,038	BLDG GROSS SF	\$36.27	\$2,757,783	50	28
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	76,038	BLDG GROSS SF	\$10.18	\$774,166	20	2
D509000 - EMERGENCY POWER	5	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	15
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	76,038	SERVED SF	\$3.50	\$265,846	25	8
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	-						
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	-						
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	950	LENGTH LF	\$829.72	\$788,232	35	17
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	6,892	SERVED SF	\$100.03	\$689,382	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	-						
F102030 - AUDITORIUMS	4	-						
F102040 - COLD STORAGE ROOMS	4	-						
F104001 - AQUATIC FACILITIES	4	-						

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Claremont Elementary School	Year Built¹ 1952	Building GSF² 76,038	Building FCI_{AD} 0.152	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1 Good Fair Poor
Building Number 12	Last Renovation¹ 2003	No. of Floors 2	Building CRV⁶ \$28,626,951	No. of Local Projects 5

Building Description

Claremont Immersion Elementary School, located at 4700 South Chesterfield Road, is a two-story structure. The school was constructed in 1951, and small additions were constructed in 1963. A renovation was conducted in 1994, and then again in 2003, when the Gymnasium, media center, and east side classrooms were added. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building is constructed of original brick, CMU, and cast-in-place concrete. There are stucco and brick veneer finishes over some of the CMU. The exterior windows are both fixed and tilt-out metal framed units. The roof is built-up asphalt (45%) and 3-ply hybrid (45%) over both concrete and steel framing, with 10% of the roof corrugated metal covering the MPR and media center reading nook. Interior floor finishes are primarily vinyl composition tile, carpet tile, and ceramic tile. Wall finishes are primarily painted brick, CMU, and drywall while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas boiler and associated water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Roof top ducted air to air heat pumps and internal water source heat pumps provided for the building heating and cooling. Hydronic boilers and an evaporative cooler provided distributed tempered condenser water. Natural gas also served a roof top make up air unit. Building power was through a 1600 Amp, 480/208V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	2	\$ -	\$ -	\$ -	\$ -	\$ 77,417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ 1,810,000	\$ -	\$ 1,676,579	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ 351,998	\$ -	\$ -	\$ -	\$ -	\$ 351,998	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 981,610	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,163,586	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 97,827	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ 1,196,609	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ 1,196,609	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ -	\$ 721,552	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 181,126	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 774,166	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 265,846	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 689,382	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$1,820,000	\$970,291	\$1,676,579	\$3,544,185	\$0	\$0	\$2,243,023	\$265,846	\$0	\$1,271,720	\$0	\$0

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Claremont Elementary School	1952	76,038	0.152	Good Fair Poor
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ³
12	2003	2	0.156	528,626,951
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The majority of the school has a slab on grade. Only the second floor of the east wing does not have a slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	The second floor of the east wing has an elevated floor. The portion built in 1952 is an elevated slab constructed with cast in place concrete framing as part of the original structure. The portion built in 2003 (classrooms on eastern end) utilizes steel framing with a steel structural deck to support an elevated cast in place concrete slab. The predominate floor type by SF is cast in place concrete framing.		
B102000 - ROOF CONSTRUCTION	5	For the original building and 1963 addition, the roof deck is cast in place concrete over concrete framing, with the exception of the MPR (2003), which is steel framing. For the other 2003 modifications (i.e., Gym, media center, and classrooms), the roof structure is steel decking over steel framing.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is a mix of original brick masonry construction, CP concrete, and CMU with stucco or brick veneer finishes. There appeared to be water penetration through wall flashings at the Gymnasium, with evidence of efflorescence and streaking beneath the windows. Local Project: Assess water penetration at Gymnasium walls		
B202000 - EXTERIOR WINDOWS	3	The exterior windows are both fixed and operable metal framed units with thermal glazing. There is a storefront system at the main entrance. Some upper windows (gymnasium, MPR) are fixed, translucent polycarbonate that allow filtered light into the building. The windows on the 2003 additions (gym and east side classrooms) are assumed installed 2003. The windows for the remainder of the building appear older and are assumed installed 1994.		
B203000 - EXTERIOR DOORS	2	The exterior doors are predominantly single and paired metal flush panel units, some with glazing. There is a paired glazed storefront system at the main entrance but no vestibule. Many metal doors serving individual classrooms have corroded frames and hinges, with well-worn finishes throughout the building. The doors on the 2003 additions (gym and east side classrooms) are assumed installed 2003. The doors for the remainder of the building appear older and are assumed installed 1994.		
B301000 - ROOF COVERINGS	2	Roof coverings are a mix of hybrid (i.e., 3-ply BUR with modbit capsheet, ~45%), built-up asphalt with gravel (~45%), and corrugated metal (~10%). The metal covers the MPR, media center, and main entrance. The 2010 APS Roof Condition Survey indicated the hybrid to be in good condition, the BUR in fair condition, and the metal in very good condition at that time. Since 2010, it appears repairs have been made but no replacements. For both the BUR (assumed 1994) and hybrid (2003), there are patched areas with coatings or newer membranes, especially at building edges. The hybrid roofing exhibits cracking, blisters, loose granule accumulations, ponding areas, and coating failures where repairs have been attempted; it is in poor condition. The BUR is also in poor condition based on appearance, prior surveys, and age. The metal roofing appears to be in good condition. Leaks were reported by staff in Rooms 169, 185, Library, and Gymnasium. Evidence of leak damaged ceilings was observed in the west wing main floor (near door 11) and Rm 168... There is evidence of active leaks down exterior walls. Metal gutters and downspouts exhibit deformation, with numerous patches apparent at downspouts. Some metal flashings have localized deformation. Local Project: Replace hybrid roofing Local Project: Replace built-up roofing Local Project: Removal and disposal of exposed aggregate concrete awnings over exterior classroom doors for safety. Repair walls at attachment points.		
C101000 - PARTITIONS	5	Partition walls are predominantly CMU, with some drywall over framing and a small amount of original brick masonry.		
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames, with some single/paired metal doors. The doors types vary and include flush and glazed units.		
C103000 - FITTINGS	4	The predominate fittings for the school are composite toilet partitions and metal lockers.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs are cast in place concrete in the original portion of the building.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted CMU predominates. In corridors and other common areas, finishes are painted brick, CMU, drywall. In classrooms, painted CMU and drywall. In restrooms, ceramic tile. In the Media Center, painted CMU and in the Kitchen, tile.		
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are VCT and carpet. In classrooms, carpet tile and VCT. In restrooms and the kitchen, ceramic tile. In the media center, carpet. The VCT in some classrooms and corridors exhibits cracking and chipping but the overall condition of flooring finishes is good.		
C303000 - CEILING FINISHES	4	The majority of the ceiling finishes are suspended acoustic tile (SAT). Leak damaged tiles were observed in six north-facing classrooms of the first floor (L09-L31), as well as described under Roof Coverings, but good condition overall.		
D101010 - ELEVATORS	4	Dover 2-stop hydraulic elevator had minimal signs of wear.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D203000 - COMMERCIAL WATER HEATER	3	Two A.O. Smith and one State natural gas fired domestic hot water tank heaters provide circulating hot water throughout the building. The water heater sizes and age range: A.O. Smith -75mBtuH, 1994 and 75.1mBtuH, 2015; and State - 40mBtuH, 2010. Local Project: Replace the 1994, 75mBtuH natural gas water heater tank as it is past its EUL.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Two 1841 MMBtuH Kewanee hydronic natural gas fired boilers provided distributed hydronic heating water throughout to served heating equipment. Presumed to serve approximately 80% of the building.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	A Trane air cooled screw chiller and a separate evaporative cooler provides chilled and condenser water respectively to limited areas of the building. (Tonnages, areas served, and age estimated due to locked enclosure and limited documentation). Presumed to serve approximately 80% of the building.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	The distributed systems were a combination of duct and piped (hydronic heating and cooling and condenser water) make-up air handlers, duct heaters, convectors, and water source rooftop heat pumps throughout most of the building. Presumed to serve approximately 80% of the building.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	The distributed systems were a combination of duct and piped (hydronic heating and cooling and condenser water) make-up air handlers, duct heaters, convectors, and water source rooftop heat pumps throughout most of the building. Presumed to serve approximately 80% of the building.		
D305010 - TERMINAL & PACKAGE UNITS	3	Selected building areas were served by single zoned packaged rooftop units with limited split systems. Presumed to serve approximately 20% of the building.		
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	5	A single water service served the distributed sprinkler systems throughout the facility.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 1000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be from the 2003 renovation and approaching the end of their useful life.		
D509000 - EMERGENCY POWER	5	A Katolight diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. The generator enclosure was locked and based on a provided one-line drawing, the generator is estimated at 75 kW with installation approximated as in the early 2000s.		
E102000 - INSTITUTIONAL EQUIPMENT	4	10 kW kiln in Boiler Room serves the Art Room (149). Size and age assumed consistent with others viewed throughout school system.		
E109002 - FOOD SERVICE EQUIPMENT	3	Serving kitchen including stainless steel stove/oven, exhaust hood, warming racks, refrigerator, freezer, sinks, and serving counters. Appliances assumed installed 2003. Score based on observed condition and age.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	4	Laminate casework in classrooms and offices includes cabinets, shelving, and work stations. Most casework assumed to have been installed in 2003. Quantity estimated based on square footage. Expected level of wear and tear observed, with a few assemblies in classrooms exhibiting worn laminate surface.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multipurpose room serving as cafeteria and auditorium with raised stage, constructed 2003. VCT flooring (fair condition) with wood flooring at stage (excellent condition). Walls are painted CMU (good) and ceiling is suspended acoustic tiles (good). Single-purpose elementary school gymnasium. Wood floors with small amount of VCT, good condition. Painted CMU walls with soundproofing panels, safety padding, and climbing wall, good condition. Painted ceiling structure, good condition. Basketball hoops appeared new.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Claremont Elementary School	1952	2003	76,038	60,025	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	6.13 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Gymnasium meets code ventilation based on AHJRAE 62.1, assuming two classrooms in gym
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multituse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow for local filtration of MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Mixed LED fixtures in Gymnasium
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures are dark sky compliant, but some flood lights and wall packs without cut-off are present.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature is not consistent on the exterior of the building
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	There are vestibules at entrances 11 and 12, but not the main entrance (#1).
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	There are no architectural design features that create areas of concealment (note: HVAC equipment area has tall barriers and is not easily accessible). However, vegetation outside the north face of the west wing should be kept trimmed back.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1, which includes visitor communications but lacks a security vestibule, is the clear point of entry. Other exterior doors are not easily accessible to the public and do not appear to be main points of entry.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical grab bars in building
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Guardrails 47.25", Handrails 33.5", stairs: Risers = 6.5" / Treads = 10.5". Stair pickets are 4.75" apart
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	7	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	68 x51
Common Space Adequacy	1.0 Cafeteria	●	3162(cafeteria area)/15 students = 211
Common Space Adequacy	1.1 Kitchen	●	1060 (kitchen area)/ 3 = 354
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 599/3 periods = 200
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, 3 ropes and daylighting
Common Space Adequacy	2.2 Gymnasium	●	74' 0" x 54' 0" W. Height to bottom of joist 22' 5"; to bottom of deck 24' 11"
Common Space Adequacy	3.1 Performance Space	●	stage off cafeteria
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	897 ZSLF
Common Space Adequacy	4.2 Library	●	with riser seating, open to library
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	mulch with playground equipment, 1 asphalt basketball court
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	mulch at playground, asphalt at basketball court
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	21	Green 21; pre-K & k (3); 1st (5); Gen ed (18)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	3	Yellow 3; pre-K & k (0); 1st (5); Gen ed (3)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	3	Red 3; pre-K & k (3); 1st (5); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	27	
Educational Space Adequacy	1.3 Classrooms (General)	●	4% of classrooms have no windows
Educational Space Adequacy	1.4 Classrooms (General)	●	5/6 - those are ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	4% classroom does not have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pull-out Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 5 offices; 1 conference - outside of admin suite; 1 records office - not rated, outside of office suite
Educational Space Adequacy	3.4 Clinic	●	3 beds, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 149 and 177
Educational Space Adequacy	4.2 Art	●	not attached. 1 kfm is located in basement boiler room
Educational Space Adequacy	4.3 Art	●	room 149 - 2 sinks; room 177 - 1 sink
Educational Space Adequacy	4.4 Art	●	room 149 - connected; room 177 - not connected
Educational Space Adequacy	5.1 Music	●	2 vocal rooms
Educational Space Adequacy	5.2 Music	●	yes, each has their own connected storage room
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
David M Brown Planetarium	1970	2,458	0.097	Good
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	0.151 - 0.33
31	2013	1	0.062	Fair
Building Description	Building CRV⁶			
	\$945,750			

The David M Brown Planetarium, located at 1426 N Quincy St, is single-story circular building serving as a planetarium at the Washington-Liberty High School campus. Building services were provided by the nearby Annex Building, with the overall complex being referred to as the Education Center. The building was constructed in 1970 and renovated in 2013. The building was of concrete construction with a low-slope EPDM roof on the outer ring and elastomeric coating over the dome. There were no windows, with access provided by two sets of aluminum doors. Interior finishes included carpeted flooring with VCT in support areas, painted gypsum board walls, and painted gypsum board ceilings. There appeared to be a perforated metal covering on the underside of the dome. Water supply piping was copper. Heating and cooling distribution system primarily consisted of air handling units and ductwork connected to equipment from the adjacent building. The lighting was LED. There were security access and fire alarm systems.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	2,458	BLDG FP SF	\$8.99	\$22,098	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	2,458	BLDG FP SF	\$13.87	\$34,092	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	-	-	-	-	-	-	-	-
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	3,475	BLDG FP SF	\$65.87	\$228,902	99	99
B201000 - EXTERIOR WALLS	5	Stone masonry façade	2,458	BLDG GROSS SF	\$26.86	\$66,011	70	70
B202000 - EXTERIOR WINDOWS	-	-	-	-	-	-	-	-
B203000 - EXTERIOR DOORS	5	Exterior doors	2,458	BLDG GROSS SF	\$2.27	\$5,572	30	25
B301000 - ROOF COVERINGS	2	Single ply roof	3,475	BLDG FP SF	\$16.81	\$58,410	10	2
C101000 - PARTITIONS	5	Drywall over studs	2,458	FINISHED SF	\$5.82	\$14,307	25	25
C102000 - INTERIOR DOORS	3	Interior doors	2,458	FINISHED SF	\$11.83	\$29,086	40	10
C103000 - FITTINGS	-	-	-	-	-	-	-	-
C201000 - STAIR CONSTRUCTION	-	-	-	-	-	-	-	-
C301000 - WALL FINISHES	4	Standard wall finishes	1,550	FINISHED SF	\$5.80	\$8,992	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	1,550	FINISHED SF	\$14.20	\$22,004	14	10
C303000 - CEILING FINISHES	5	Standard ceiling finishes	1,550	FINISHED SF	\$16.83	\$26,083	6	5
D101010 - ELEVATORS	-	-	-	-	-	-	-	-
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	2,458	SERVED SF	\$6.78	\$16,668	50	40
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	-	-	-	-	-	-	-	-
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains	2,458	BLDG FP SF	\$4.21	\$10,341	60	50
D301000 - ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	-	-	-	-	-	-	-	-
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	2,458	SERVED SF	\$18.27	\$44,904	35	25
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Chilled water piping and individual terminal AHUs	2,458	SERVED SF	\$25.30	\$62,186	35	25
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	4	HVAC Controls - 4-pipe system	2,458	SERVED SF	\$2.80	\$6,894	20	10
D401000 - SPRINKLERS	-	-	-	-	-	-	-	-
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-	-	-	-	-	-	-	-
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution wiring plus "fixtures"	2,458	BLDG GROSS SF	\$26.45	\$65,019	50	40
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	2,458	BLDG GROSS SF	\$7.97	\$19,596	20	10
D509000 - EMERGENCY POWER	-	-	-	-	-	-	-	-
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	-	-	-	-	-	-	-	-
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Indoor Auditoriums or Lecture seating	60	SEATS	\$919.20	\$55,152	25	15
E201020 - FIXED FURNISHINGS - CASEWORK	-	-	-	-	-	-	-	-
F102010 - ELEMENTARY SCHOOL GYM/MULTI-PURPOSE ROOMS/AUXILIARY G	-	-	-	-	-	-	-	-
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	4	Performance Auditoriums	908	SERVED SF	\$164.57	\$149,431	20	10
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
David M Brown Planetarium	1970	2,458	0.097	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
31	2013	1	\$945,750	0 - 0.15	0.151 - 0.33	0.331 - 1
				0		

Building Description

The David M Brown Planetarium, located at 1426 N Quincy St, is single-story circular building serving as a planetarium at the Washington-Liberty High School campus. Building services were provided by the nearby Annex Building, with the overall complex being referred to as the Education Center. The building was constructed in 1970 and renovated in 2013. The building was of concrete construction with a low-slope EPDM roof on the outer ring and elastomeric coating over the dome. There were no windows, with access provided by two sets of aluminum doors. Interior finishes included carpeted flooring with VCT in support areas, painted gypsum board walls, and painted gypsum board ceilings. There appeared to be a perforated metal covering on the underside of the dome. Water supply piping was copper. Heating and cooling distribution system primarily consisted of air handling units and ductwork connected to equipment from the adjacent building. The lighting was LED. There were security access and fire alarm systems.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 58,410	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 29,086	\$ -	\$ -
C103000 - FITTINGS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ 8,992	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,992	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22,004	\$ -	\$ -
C303000 - CEILING FINISHES	5	\$ -	\$ -	\$ -	\$ -	\$ 26,083	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,083	\$ -
D101010 - ELEVATORS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,894	\$ -	\$ -
D401000 - SPRINKLERS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,596	\$ -	\$ -
D509000 - EMERGENCY POWER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$0	\$58,410	\$0	\$8,992	\$26,083	\$0	\$0	\$0	\$0	\$86,572	\$26,083	\$0

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
David M Brown Planetarium		1970	2,458	0.097
Building Number		Last Renovation⁴	No. of Floors	Building FCI_{DM}
31		2013	1	0.062
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV⁵				
\$945,750				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Presumed to include perimeter continuous footings and internal spread footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	-			
B102000 - ROOF CONSTRUCTION	5	Domed concrete roof (estimated dome height of 18 feet - approx. 1,925 SF + outer ring of approx. 1,550 SF)		
B201000 - EXTERIOR WALLS	5	Exposed concrete walls		
B202000 - EXTERIOR WINDOWS	-			
B203000 - EXTERIOR DOORS	5	Two sets of aluminum doors with glass panel infill.		
B301000 - ROOF COVERINGS	2	Domed concrete roof (estimated dome height of 18 feet - 1,925 SF + outer ring of 1,550 SF). Coating applied to dome was worn throughout. Ponding water was noted on low-slope areas of outer ring, which was reportedly EPDM with an elastomeric coating (roof was not accessible).		
C101000 - PARTITIONS	5	Interior walls were generally gypsum board over studs.		
C102000 - INTERIOR DOORS	3	Generally solid-core wood interior doors with painted steel frames and glass lites, though some did not have glass. Fair condition with wear and deterioration.		
C103000 - FITTINGS	-			
C201000 - STAIR CONSTRUCTION	-			
C301000 - WALL FINISHES	4	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms.		
C302000 - FLOOR FINISHES	4	Carpet was in the hallways and office. VCT was noted in support areas, tile in the restrooms, and exposed concrete in mechanical spaces.		
C303000 - CEILING FINISHES	5	Painted gypsum board was typical throughout.		
D101010 - ELEVATORS	-			
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing fixtures had automatic faucets, wall mounted sinks, and vitreous china toilets. There was copper domestic piping and cast iron sanitary piping. Presumed to have been replaced with 2013 renovation.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	-			
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building. Presumed to have been replaced with 2013 renovation.		
D301000 - ENERGY SUPPLY	-			
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	-			
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Distribution system primarily consisted of air handling units and ductwork connected to equipment from adjacent building.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Distribution system primarily consisted of air handling units and ductwork connected to equipment from adjacent building.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	4	BAS controls with centralized HVAC system.		
D401000 - SPRINKLERS	-			
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-			
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Altronic security system and Johnson Controls fire alarm system.		
D509000 - EMERGENCY POWER	-			
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	-			
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Seats were a combination of plastic and metal with fabric cushions.		
E201020 - FIXED FURNISHINGS - CASEWORK	-			
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	4	Auditorium had carpet flooring and painted gypsum walls. The lower portion of the wall was covered with fabric. The ceiling appeared to have a perforated metal covering. The space included a uplighting and projector in the center.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
David M Brown Planetarium	1970	2013	2,458	2,458	1

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	> 10 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Meets ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Merv 11
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Unknown
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Designed with sign
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	No elevator - not applicable
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	
Common Space Adequacy	1.2 Kitchen	●	
Common Space Adequacy	1.3 Kitchen	●	
Common Space Adequacy	2.1 Gymnasium	●	
Common Space Adequacy	2.2 Gymnasium	●	
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	60 seats in theatre
Common Space Adequacy	3.3 Performance Space	●	1 designated wheelchair seat, but does not have 5' turning radius and only 34" between chair in front and wall
Common Space Adequacy	4.1 Library	●	
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	
Educational Space Adequacy	1.2 Classrooms (General)	0	
Educational Space Adequacy	1.3 Classrooms (General)	●	
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	2 offices
Educational Space Adequacy	3.4 Clinic	●	
Educational Space Adequacy	4.1 Art	●	
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	
Educational Space Adequacy	5.2 Music	●	
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If EA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Discovery Elementary School	2015	97,588	0.041	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
13	No record	2	0.014	\$31,653,892

Building Description

Discovery Elementary School, located at 5241 36th St N, is a two-story structure. The building was originally constructed in 2015 as a net-zero facility and many high-end features/systems. The majority of the structure was assumed to have standard foundations, structural steel framing, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, stone veneer masonry, composite lap siding, aluminum framed curtainwalls with colored metal panels. A large roof overhand was provided outside the cafeteria with a stained wood soffit. Windows and doors were typically aluminum construction. The roof was mostly modified bitumen with a white coating. Solar panels were installed throughout the majority of the roof area. Major interior elements included painted stud-framed gypsum board partitions, solid-wood core doors, a combination of vinyl and carpet floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with one solar water heater and several smaller electric water heaters for individual spaces, stormwater drainage throughout the building, and geothermal system piping for with the geothermal well field under one of the soccer fields. HVAC systems included hydronic heat pumps for individual spaces and an outdoor air energy recovery unit. The building had a 2000A electrical service. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen and a multi-purpose room (gymnasium and auditorium).

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	67,500	BLDG FP SF	\$12.08	\$815,609	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	67,500	BLDG FP SF	\$13.87	\$936,199	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	30,088	ELEV FL SF	\$42.15	\$1,268,111	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	67,500	BLDG FP SF	\$24.05	\$1,623,437	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	97,588	BLDG GROSS SF	\$26.95	\$2,630,156	70	70
B202000 - EXTERIOR WINDOWS	5	Exterior windows	97,588	BLDG GROSS SF	\$18.83	\$1,837,172	40	32
B203000 - EXTERIOR DOORS	5	Exterior doors	97,588	BLDG GROSS SF	\$1.02	\$99,357	30	22
B301000 - ROOF COVERINGS	5	Built-up roof	67,500	BLDG FP SF	\$27.93	\$1,885,365	25	17
C101000 - PARTITIONS	5	Drywall over studs	97,588	FINISHED SF	\$6.36	\$620,514	25	25
C102000 - INTERIOR DOORS	5	Interior doors	97,588	FINISHED SF	\$4.73	\$461,168	40	32
C103000 - FITTINGS	5	Partitions and lockers	97,588	FINISHED SF	\$4.09	\$399,304	40	32
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	97,588	BLDG GROSS SF	\$1.94	\$189,341	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	88,188	FINISHED SF	\$5.09	\$448,934	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	88,188	FINISHED SF	\$14.20	\$1,251,934	20	12
C303000 - CEILING FINISHES	5	Standard ceiling finishes	88,188	FINISHED SF	\$16.83	\$1,484,024	20	12
D101010 - ELEVATORS	5	Elevator	1	EACH	\$206,284.66	\$206,285	35	27
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	97,588	SERVED SF	\$17.25	\$1,683,450	50	42
D202000 - RESIDENTIAL WATER HEATER	4	Electric Water Heater, Residential, 30 to 45 gallons	4	EACH	\$7,924.13	\$31,697	15	7
D202005 - COMMERCIAL WATER HEATER	4	Electric Water Heater, Commercial, 16 to 40 kW and 80 to 150 Gallons	1	EACH	\$38,131.85	\$38,132	15	7
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains	67,500	BLDG FP SF	\$3.25	\$219,138	60	52
D301000 - ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301006 - SOLAR ENERGY SUPPLY	4	Solar energy supply	97,588	SERVED SF	\$27.20	\$2,654,526	20	12
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	Geothermal system with heat pumps	97,588	SERVED SF	\$4.38	\$427,424	25	17
D302000 - CENTRAL PLANT HEATING	-	-	-	-	-	-	-	-
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heat pump system	97,588	SERVED SF	\$8.47	\$826,727	20	12
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Heat pump system distribution	97,588	SERVED SF	\$8.47	\$826,727	20	12
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	4	HVAC controls - geothermal system	97,588	SERVED SF	\$0.21	\$20,621	20	12
D401000 - SPRINKLERS	5	Sprinkler system	97,588	SERVED SF	\$7.90	\$770,488	50	42
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	97,588	BLDG GROSS SF	\$4.00	\$389,930	50	42
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	97,588	BLDG GROSS SF	\$36.27	\$3,539,368	45	37
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	97,588	BLDG GROSS SF	\$10.18	\$993,573	20	12
D509000 - EMERGENCY POWER	5	Emergency Generator, >=100 kW to <125 kW	1	EACH	\$86,196.46	\$86,196	35	27
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	300	SERVED SF	\$160.37	\$48,110	15	7
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	97,588	SERVED SF	\$3.50	\$341,189	20	12
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	2,000	LENGTH LF	\$829.72	\$1,659,437	35	27
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	4	Multi-purpose room	9,400	SERVED SF	\$100.03	\$940,249	20	12
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Discovery Elementary School	2015	97,588	0.041	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
13	No record	2	\$31,653,892	0 - 0.15	0.151 - 0.33	0.331 - 1
				1		

Building Description

Discovery Elementary School, located at 5241 36th St N, is a two-story structure. The building was originally constructed in 2015 as a net-zero facility and many high-end features/systems. The majority of the structure was assumed to have standard foundations, structural steel framing, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, stone veneer masonry, composite lap siding, aluminum framed curtainwalls with colored metal panels. A large roof overhand was provided outside the cafeteria with a stained wood soffit. Windows and doors were typically aluminum construction. The roof was mostly modified bitumen with a white coating. Solar panels were installed throughout the majority of the roof area. Major interior elements included painted stud-framed gypsum board partitions, solid-wood core doors, a combination of vinyl and carpet floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with one solar water heater and several smaller electric water heaters for individual spaces, stormwater drainage throughout the building, and geothermal system piping with the geothermal well field under one of the soccer fields. HVAC systems included hydronic heat pumps for individual spaces and an outdoor air energy recovery unit. The building had a 2000A electrical service. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen and a multi-purpose room (gymnasium and auditorium).

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	5	\$	1,000	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	448,934	\$	\$	\$	\$	\$	448,934	\$	\$	\$
C302000 - FLOOR FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	4	\$	\$	\$	\$	\$	\$	31,697	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	4	\$	\$	\$	\$	\$	\$	38,132	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	4	\$	\$	\$	\$	\$	\$	48,110	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$1,000	\$0	\$448,934	\$0	\$0	\$0	\$117,938	\$0	\$448,934	\$0	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Discovery Elementary School	Year Built¹	2015	Building GSF²	97,588	Building FCI_{AD}	0.041	Condition Category Legend		
								Good	Fair	Poor
								0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	13	Last Renovation³	No record	No. of Floors	2	Building FCI_{DM}	0.014	Building CRV⁴		
								\$31,653,892		
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.								
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire footprint of building.								
A202000 - BASEMENT WALLS	-									
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains structural steel framing, steel decking, and poured concrete flooring.								
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure consists of steel decking.								
B201000 - EXTERIOR WALLS	5	Exterior façade included brick masonry, stone veneer masonry, composite lap siding, aluminum framed curtainwalls with colored metal panels, and a large overhang by the cafeteria with a stained wood soffit.								
B202000 - EXTERIOR WINDOWS	5	Windows were primarily aluminum framed with double pane glass. Some sections of aluminum/glass curtainwall were used.								
B203000 - EXTERIOR DOORS	5	Doors were primarily aluminum/glass doors. One issue was reported with a closure on one of the front entry doors. Local Project: Fix/adjust front entry door closure.								
B301000 - ROOF COVERINGS	5	Roof was mostly modified bitumen with a white coating. There were a few areas of sloped standing seam metal panels.								
C101000 - PARTITIONS	5	Majority of partition walls were gypsum board over stud framing.								
C102000 - INTERIOR DOORS	5	Majority of interior doors were solid-core wood.								
C103000 - FITTINGS	5	Composite toilet partitions in restrooms. Metal and glass railings in main hallway areas.								
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs and landings with open risers.								
C301000 - WALL FINISHES	4	Majority of walls were painted gypsum board.								
C302000 - FLOOR FINISHES	4	Vinyl flooring was used through the majority of the hallways and classrooms. Carpet was used in some areas, including the front office and media center.								
C303000 - CEILING FINISHES	5	Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms.								
D101010 - ELEVATORS	5	Hydraulic elevator installed in 2015.								
D101020 - LIFTS	-									
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Assumed copper domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.								
D202000 - RESIDENTIAL WATER HEATER	4	Several small electric water heaters installed throughout the school to support individual spaces.								
D202005 - COMMERCIAL WATER HEATER	4	One 119-gallon solar water heater with two domestic water storage tanks located in main electric room.								
D204000 - BUILDING STORMWATER DRAINAGE	5	Entire roof area used internal stormwater drains. Drain piping was assumed to be cast iron.								
D301000 - ENERGY SUPPLY	-									
D301006 - SOLAR ENERGY SUPPLY	4	Solar panels were installed on majority of roof areas. Estimated to serve about 100% of the school's electrical capacity.								
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	Geothermal system used with HVAC heat pump systems. Well field was reportedly under one of the soccer fields.								
D302000 - CENTRAL PLANT HEATING	-									
D302010 - FIREPLACES	-									
D303000 - CENTRAL PLANT COOLING	-									
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heat pump system for individual spaces connected to geothermal system. Outdoor air energy recovery unit provided ventilation.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Heat pump system for individual spaces connected to geothermal system. Outdoor air energy recovery unit provided ventilation.								
D305010 - TERMINAL & PACKAGE UNITS	-									
D306000 - CONTROLS	4	Digital controls used throughout the building.								
D401000 - SPRINKLERS	5	Building appeared to be fully sprinkled.								
D402000 - STANDPIPES	-									
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical panel in Sprinkler/Mech/Elec room. Service is 2000A, 600V, 3Ph, 4W.								
D502000 - LIGHTING AND BRANCH WIRING	5	Wiring, distribution panels, and lighting fixtures are original to 2015 construction.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Fire alarm control panel, PA system, and security systems generally all original to 2015 construction.								
D509000 - EMERGENCY POWER	5	One emergency generator provided backup power. Could not access locked cabinet, but based on outside appearance, estimated to be up to 125 KW and original to 2015 construction.								
E102000 - INSTITUTIONAL EQUIPMENT	4	Two kilns for art room.								
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen with most equipment original to 2015 construction.								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-									
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-									
E201020 - FIXED FURNISHINGS - CASEWORK	5	Casework throughout administrative areas, classrooms, and open hallway near cafeteria.								
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room (MPR; about 9,400 SF) served as gymnasium and auditorium. MPR had hardwood flooring, painted gypsum board walls, exposed/painted structure at ceiling, and basketball hoops. MPR stage had vinyl flooring, curtains, and lighting/speaker systems.								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-									
F102030 - AUDITORIUMS	-									
F102040 - COLD STORAGE ROOMS	-									
F104001 - AQUATIC FACILITIES	-									

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Discovery Elementary School	2015	No record	97,588	67,500	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	Classrooms are green. Cafeteria is green. Gym and library are red.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	4000K typical, some fixtures are 3000K-3500K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signs adhered to many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'6" x 4'4" Door: 3'6" offset 3012(cafeteria area)/15 students = 201
Common Space Adequacy	1.0 Cafeteria	●	2939(kitchen area incl office, etc.)/3 = 980
Common Space Adequacy	1.1 Kitchen	●	1
Common Space Adequacy	1.2 Kitchen	●	design capacity 630/3 periods = 210
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable; climbing wall, volleyball; NO ropes; daylight
Common Space Adequacy	2.2 Gymnasium	●	161'-7" x 58'-1"; High Point of deck: 38'-4"; Low: 31'-4"; Joist: 26'-3"
Common Space Adequacy	3.1 Performance Space	●	in Gym
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	656 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	1/2 rubber 1/2 mulch
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	24	Green = 24, pre-k & k (4); 1st (4); Gen ed (16)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	4	Yellow = 4; pre-k & k (2); 1st (0); Gen ed (2)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	0	Red = 0; pre-k & k (0); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	28	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten have attached toilet rooms
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices, conf room, RATED records room
Educational Space Adequacy	3.4 Clinic	●	3 beds, ADA toilet, sink, eyewash, ref
Educational Space Adequacy	4.1 Art	●	#213, #216
Educational Space Adequacy	4.2 Art	●	in shared storage
Educational Space Adequacy	4.3 Art	●	3 in each
Educational Space Adequacy	4.4 Art	●	yes, connected to both rooms
Educational Space Adequacy	5.1 Music	●	#102 - band (stage); #124 - general
Educational Space Adequacy	5.2 Music	●	#102 - in room storage; #124 - yes
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend	
Dorothy Hamm Middle School	1950	185,819	0.149	Good	Fair
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶	
15	2019	4	0.048	\$59,915,066	

Building Description

Dorothy Hamm Middle School, located at 4100 Vacation Ln., is a three level building plus a lower/basement level. The building had a major addition constructed in 2019 which includes classrooms, media center, gymnasium and other athletic rooms, and lockers rooms. The section of the building is steel-framed with a metal panel exterior. The roof system is a single ply roof with a planted tray green roof. Interior finishes include concrete and carpeted flooring. Wall finishes are generally painted drywall. Ceiling finishes are lay-in acoustic tiles and painted structure. This section of the building was heated and cooled via a variable refrigerant flow heat pump system along with dedicated outdoor air units. The older sections of the building were reinforced concrete structure with steel framed roof structure. The exteriors were primarily brick exterior with additional stone veneer and pre cast concrete. Interior finishes include VCT and carpeted flooring. Wall finishes were glazed tiles and painted drywall. Ceiling finishes are lay-in acoustic tiles. The HVAC system consists of a central plant consisting of natural gas fired boilers and air cooled chillers serving dedicated outdoor air units and packaged rooftop units equipped with hot water heating. The entire building is equipped with three elevators, a wet pipe fire sprinkler system, fire alarm system, and 40-KW emergency generator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	71,700	BLDG FP SF	\$12.08	\$866,358	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	71,700	BLDG FP SF	\$13.87	\$994,452	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	4,650	BASEMENT SF	\$19.09	\$88,791	99	99
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	114,119	ELEV FL SF	\$52.67	\$6,011,084	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	71,700	BLDG FP SF	\$24.05	\$1,724,451	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	181,169	BLDG GROSS SF	\$26.95	\$4,882,800	70	70
B202000 - EXTERIOR WINDOWS	3	Exterior windows	181,169	BLDG GROSS SF	\$18.83	\$3,410,651	40	12
B203000 - EXTERIOR DOORS	3	Exterior doors	181,169	BLDG GROSS SF	\$1.02	\$184,454	25	8
B301000 - ROOF COVERINGS	2	Built-up roof	71,700	BLDG FP SF	\$27.93	\$2,002,677	30	2
C101000 - PARTITIONS	5	Drywall over studs	185,819	FINISHED SF	\$6.36	\$1,181,532	20	20
C102000 - INTERIOR DOORS	3	Interior doors	185,819	FINISHED SF	\$4.73	\$878,117	40	12
C103000 - FITTINGS	4	Partitions and lockers	185,819	FINISHED SF	\$4.09	\$760,321	30	20
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	185,819	BLDG GROSS SF	\$1.02	\$189,188	99	99
C301000 - WALL FINISHES	3	Standard wall finishes	160,394	FINISHED SF	\$5.09	\$816,510	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	160,394	FINISHED SF	\$14.20	\$2,276,984	20	8
C303000 - CEILING FINISHES	3	Standard ceiling finishes	160,394	FINISHED SF	\$16.83	\$2,699,104	20	8
D101010 - ELEVATORS	3	Elevator	3	EACH	\$206,284.66	\$618,854	35	7
D101020 - LIFTS	-							
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	185,819	SERVED SF	\$17.25	\$3,205,486	50	22
D202000 - RESIDENTIAL WATER HEATER	-							
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, Greater than 300 MBH	700	MBH	\$127.19	\$89,033	20	15
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains	71,700	BLDG FP SF	\$3.25	\$232,773	60	32
D301000 - ENERGY SUPPLY	4	Natural gas supply	185,819	BLDG GROSS SF	\$0.15	\$28,557	60	22
D301006 - SOLAR ENERGY SUPPLY	-							
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-							
D302000 - CENTRAL PLANT HEATING	4	Boiler	131,698	SERVED SF	\$7.17	\$943,660	30	19
D302010 - FIREPLACES	-							
D303000 - CENTRAL PLANT COOLING	4	Chiller system	131,698	SERVED SF	\$8.13	\$1,070,156	25	14
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	131,698	SERVED SF	\$19.67	\$2,590,637	25	14
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	131,698	SERVED SF	\$23.44	\$3,086,501	25	14
D305010 - TERMINAL & PACKAGE UNITS	4	Terminal and package units, >=10,000 SF to <15,000 SF	54,121	SERVED SF	\$53.60	\$2,900,664	25	14
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	185,819	SERVED SF	\$2.92	\$542,577	20	9
D401000 - SPRINKLERS	4	Sprinkler system	185,819	SERVED SF	\$7.90	\$1,467,099	50	22
D402000 - STANDPIPES	-							
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	185,819	BLDG GROSS SF	\$4.00	\$742,473	50	22
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	185,819	BLDG GROSS SF	\$36.27	\$6,739,373	50	22
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	185,819	BLDG GROSS SF	\$10.18	\$1,891,879	20	16
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	7
E102000 - INSTITUTIONAL EQUIPMENT	-							
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	185,819	SERVED SF	\$3.50	\$649,664	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-							
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Indoor Auditoriums or Lecture seating	475	SEATS	\$919.20	\$436,619	25	11
E201020 - FIXED FURNISHINGS - CASEWORK	-							
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	7,000	SERVED SF	\$100.03	\$700,185	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	HS-level Gymnasium	12,650	SERVED SF	\$158.48	\$2,004,804	20	15
F102030 - AUDITORIUMS	3	Performance Auditoriums	5,775	SERVED SF	\$164.57	\$950,404	20	10
F102040 - COLD STORAGE ROOMS	-							
F104001 - AQUATIC FACILITIES	-							

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Dorothy Hamm Middle School	1950	185,819	0.149	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
15	2019	4	\$59,915,066	0 - 0.15	0.151 - 0.33	0.331 - 1
				6		

Building Description

Dorothy Hamm Middle School, located at 4100 Vacation Ln., is a three level building plus a lower/basement level. The building had a major addition constructed in 2019 which includes classrooms, media center, gymnasium and other athletic rooms, and lockers rooms. The section of the building is steel-framed with a metal panel exterior. The roof system is a single ply roof with a planted tray green roof. Interior finishes include concrete and carpeted flooring. Wall finishes are generally painted drywall. Ceiling finishes are lay-in acoustic tiles and painted structure. This section of the building was heated and cooled via a variable refrigerant flow heat pump system along with dedicated outdoor air units. The older sections of the building were reinforced concrete structure with steel framed roof structure. The exteriors were primarily brick exterior with additional stone veneer and pre cast concrete. Interior finishes include VCT and carpeted flooring. Wall finishes were glazed tiles and painted drywall. Ceiling finishes are lay-in acoustic tiles. The HVAC system consists of a central plant consisting of natural gas fired boilers and air cooled chillers serving dedicated outdoor air units and packaged rooftop units equipped with hot water heating. The entire building is equipped with three elevators, a wet pipe fire sprinkler system, fire alarm system, and 40-KW emergency generator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 8,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 184,454	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 2,002,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ 2,000	\$ -	\$ 816,510	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 816,510	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,276,984	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,699,104	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 618,854	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	5	\$ -	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 542,577	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 649,664	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 436,619	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,185	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ 42,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$58,500	\$2,002,677	\$836,510	\$0	\$0	\$0	\$675,054	\$5,160,541	\$1,359,086	\$1,349,849	\$436,619	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}						
Dorothy Hamm Middle School		1950	185,819	0.149						
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Condition Category Legend						
15	2019	4	0.048	<table style="font-size: small; border-collapse: collapse;"> <tr> <td style="background-color: #92D050; padding: 2px;">Good</td> <td style="background-color: #FFD700; padding: 2px;">Fair</td> <td style="background-color: #FF0000; padding: 2px;">Poor</td> </tr> <tr> <td style="text-align: center;">0 - 0.15</td> <td style="text-align: center;">0.151 - 0.33</td> <td style="text-align: center;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.								
A103000 - SLAB ON GRADE	5	Concrete slab on grade.								
A202000 - BASEMENT WALLS	5	Approximately one-third of the basement level (west wall) of the facility actually utilizes a retaining wall that is greater than 8-foot.								
B101000 - FLOOR CONSTRUCTION	5	Reinforced concrete floor system for the 1950 section of the building, and steel framed construction for every subsequent addition.								
B102000 - ROOF CONSTRUCTION	5	Metal roof deck supported by steel framing.								
B201000 - EXTERIOR WALLS	5	Brick, stone veneer and pre-cast concrete panel exterior walls on pre-2019 sections of the building. 2019 addition is copper and painted metal panel exterior. The majority of the exterior is brick. Minor cracking observed in 1st floor exterior wall near the band area, and it appears that repairs (caulking or sealant) have already been attempted in this area. Additionally, localized spalling of pre-cast was observed on the south exterior walls near upper corners of window openings, and missing bricks and cracking (also filled with caulking) was observed from the roof level (near chiller) of the south auditorium wall. No systemic issues were observed, and the affected areas amount to less than 5% of exterior. Isolated repairs and routine maintenance recommended. Local Project: Repair spalling pre-cast concrete on south exterior wall Local Project: Repair/Replace missing bricks on south wall (mechanical roof level) of the auditorium								
B202000 - EXTERIOR WINDOWS	3	Aluminum framed dual glazed windows were replaced with 1995 major renovation of school. Windows in 2019 addition were original to construction. Windows were in fair condition and performing as intended with no leaks observed.								
B203000 - EXTERIOR DOORS	3	Exterior doors were aluminum framed glass entry doors at main entrance and 2019 addition, other doors were painted steel with tiles. With the exception of the 2019 addition, doors mostly appeared to date to a reported 2006 renovation. Painted steel doors had minor finish deterioration, but hardware was largely free of tarnish and physical damage was absent from entry doors. Overall doors were in fair condition.								
B301000 - ROOF COVERINGS	2	Three distinct roof coverings present. Majority of roof is built up roof (BUR) surface with gravel cover (75%), the 2019 addition is a single ply TPO membrane with planted roof tray (20%), and the band orchestra area appeared to be aluminum bitumen roll roofing. The TPO membrane was original to 2019 and in excellent condition. The BUR and roll roofing sections were in poor condition. The BUR had several sections of patches observed, with the gravel relocated to allow for patches to be installed and piled on other sections of the roof. The roll roofing had buckling in some of the sections which could lead to loss of seal and potential water intrusion. Age of BUR and roll roof materials was not clear, but assumed to date to 1995 major renovation. Replacement of the BUR and roll roofing portions of the building is recommended.								
C101000 - PARTITIONS	5	Gypsum board and CMU interior partitions. No major damage or distress observed. Partitions were performing as intended.								
C102000 - INTERIOR DOORS	3	Solid core wood interior doors were in fair condition with only isolated minor finish scratches observed.								
C103000 - FITTINGS	4	Solid composite restroom partitions and metal lockers. Partitions were largely free of defects and in good condition. They appear to have been replaced during the 2019 addition as restroom partitions in older sections of building matched color and materials of the 2019 restrooms. Lockers had good finish and no major physical damage observed.								
C201000 - STAIR CONSTRUCTION	5	Metal framed stairway in the 2019 addition and cast in place concrete stairs in the other sections of the building.								
C301000 - WALL FINISHES	3	Painted interior wall finishes and glazed ceramic tile. Interior wall finishes in the addition were in good condition with no issues observed. Remainder of school was generally fair with only isolated finish damage observed. Local Project: Repair broken ceramic block at corner of dividing wall in boys restroom #226 requires replacement.								
C302000 - FLOOR FINISHES	3	VCT, carpet, finished concrete and ceramic tile all present at the school. No major flooring damage or stains observed. Flooring was in fair condition.								
C303000 - CEILING FINISHES	3	Painted structure and suspended acoustical panel ceiling. Paint was in fair to good condition depending on age. Suspended tiles were beginning to sag but were otherwise free of observed defects. Overall condition was fair.								
D101010 - ELEVATORS	3	Three hydraulic elevators present. Observed elevator cabs were in good condition with no major finish deterioration observed. All elevator drive machinery was installed in 1995 and will reach end of expected useful life in 2030. Overall elevators were in fair condition.								
D101020 - LIFTS	-									
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Copper distribution piping and cast iron drain waste and vent piping. Fixtures were automatic flush valves in the in the 2019 additional and manual flush valves elsewhere.								
D202000 - RESIDENTIAL WATER HEATER	-									
D202005 - COMMERCIAL WATER HEATER	5	Kitchen water heater was a 100-MBH, 50 gal heater manufactured in 2012. 2019 addition locker rooms served by a 200-MBH, 100 gallon water heater manufactured in 2019. The remainder of the building was supplied domestic hot water via a natural gas boiler and storage tank. The boiler had an input rating of 700-MBH and was manufactured in 2018. All water heaters/boilers had no outward visual issues. Local Project: Replace 100-MBH, 50 gal water heater serving kitchen.								
D204000 - BUILDING STORMWATER DRAINAGE	5	Stormwater drainage piping assumed replaced during the 1995 major renovation and original in the 2019 addition.								
D301000 - ENERGY SUPPLY	4	Natural gas supply piping metering equipment and pressure regulators located on the exterior of the building near the boiler room. Piping appears to date to 1995 major renovation. Moderate surface rust observed on exterior of service piping.								
D301006 - SOLAR ENERGY SUPPLY	-									
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-									
D302000 - CENTRAL PLANT HEATING	4	Pre 2019 sections of the building served by a central plant boiler system consisting of two 2500-MBH boilers and one 1050-MBH boiler manufactured by Harisco in 2012. Heating water was circulated by Bell and Gossett 15-hp base mounted end suction circulation pumps also installed in 2012. System is operating as intended with no outward issues observed.								
D302010 - FIREPLACES	-									
D303000 - CENTRAL PLANT COOLING	4	Pre 2019 sections of the building served by a Trane air cooled chiller manufactured in 2012 and located on the roof. The chiller has a rated capacity of 155 tons. No visual issues identified. Chilled water circulated via two Bell and Gossett end suction base mounted circulation pumps also installed in 2012. Pumps were in fair visual condition. Overall system in good condition.								
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Dedicated outdoor air units for pre-2019 sections for the building date to 2012.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Dedicated outdoor air units for pre-2019 sections for the building date to 2012.								
D305010 - TERMINAL & PACKAGE UNITS	4	2019 Addition conditioned by dedicated outdoor air handlers paired with a variable refrigerant flow heat pumps system. All components date to 2019 and operational. No issues observed. Remainder of building is equipped with packaged rooftop units with hot water heat (from boiler system). These units were manufactured by Trane in 2012. Units were operational and in fair visual condition. Overall condition of systems was good.								
D306000 - CONTROLS	3	DDC Control system mostly dates to 2012. System is in middle of estimated useful life.								
D401000 - SPRINKLERS	4	Entire building is protected by a wet pipe fire sprinkler system which date to 1995. Inspection tags were current and system is in good condition.								
D402000 - STANDPIPES	-									
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	2000-amp 480/277 Volt electrical service replaced in 1995. System is performing as intended but has entered second half of 50 year expected useful life.								
D502000 - LIGHTING AND BRANCH WIRING	4	Lighting and branch wiring dates to 1995 major renovation and 2019 addition. System is operating as intended and in good condition.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Fire alarm control panel located in main electrical room and manufactured by Simplex. Record drawings show system was upgraded in 2019. No issues/trouble signals observed.								
D509000 - EMERGENCY POWER	3	Natural has fired 40-KW emergency generator manufactured by Katolke. Nameplate did not specify age, but based on corrosion on nameplate and exterior housing, the generator is assumed to date to 1995 major renovation. System is in final third of estimated useful life.								
E102000 - INSTITUTIONAL EQUIPMENT	-									
E109002 - FOOD SERVICE EQUIPMENT	3	Warming kitchen with oven, serving equipment, and walk in refrigerator and freezer. Walk in refrigeration equipment was 2014 and newer. Visually, all equipment appeared to be in fair condition.								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-									
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Auditorium seating was in fair condition with no major stains, damage, or other issues observed.								
E201020 - FIXED FURNISHINGS - CASEWORK	-									
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Auxiliary gymnasium was in overall fair condition with functioning sound system and isolated paint peeling from interior wall, but finished wood floors in good condition.								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	Gymnasium and lockers rooms in the 2019 were in mostly in excellent condition, with the exception of a observed water leak affecting the boys locker room ceiling. Local Project: Repair source of water leak and replace ceiling finishes in girls locker room.								
F102030 - AUDITORIUMS	3	Auditorium finishes were painted walls, adhered acoustical ceiling and painted/coated concrete floors. Floor paint was beginning to peel/chip in high traffic areas. Lighting and other systems were functional. Auditorium was in fair condition. Local Project: Re-paint concrete floors.								
F102040 - COLD STORAGE ROOMS	-									
F104001 - AQUATIC FACILITIES	-									

1. Values shown were provided by APS.
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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment
GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Dorothy Hamm Middle School	1950	2019	185,819	71,700	4

RATING LEGEND	
● Meets Standard	● Does Not Meet Standard
● Approaches Standard	● Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	Almost all classrooms are yellow. The classrooms in the 2018 addition are green. The dining area is green. The auditorium and gym are yellow. The aux gym and library are red.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Almost all classrooms do not meet ASHRAE. The classrooms in the 2018 addition all meet ASHRAE though.
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	The main gym exceeds ASHRAE by 40%. The aux gym exceeds ASHRAE by about 70%
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	The dining room is short by about 57%
Major Building Systems	6.0 HVAC - Ventilation - Library	●	The library is short by about 40%
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	The auditorium is short by 41%
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Most classrooms do not meet either APS or ASHRAE requirements. The classrooms in the 2018 addition do meet both APS and ASHRAE requirements. Most other spaces appear to be deficient using the information available to us
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Majority of classrooms are MERV 6 filtration. Classrooms in 2018 addition have MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	MERV 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have thermostats. Admin suite appeared to have thermostats in every office.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Approximately 30% LEDs
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Corridors and new addition have sensors
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	The 2018 addition had low flow fixtures. The rest of the school had standard flow fixtures for the most part. There were a few low flow water closets and urinals mixed in though, most notably in the basement. About 1/3 of the school has low flow fixtures
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	
Major Building Systems	1.0 Building Security - Security Vestibules	●	Security vestibule requiring visitors to access main office.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	Several hallways with indent/inches into classroom areas provide potential areas for concealment
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	No significant areas of concealment observed.
Major Building Systems	2.3 Building Security - Single point of entry	●	Posted signage directs visitors to report to main office. Doors to corridors were locked and equipped with access control card readers.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	3
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars in older toilet rooms
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	no vertical bars in older restrooms
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	3 elevators
Major Building Systems	5.3 Other - Elevator Size	●	Three elevators present and labeled. Elevator #1: Side opening door with interior clear dimensions of 69-inches by 51-inches (5'9" x 4'3") Not Compliant.
Common Space Adequacy	1.0 Cafeteria	●	4561 sf (cafeteria area) / 12 students = 380
Common Space Adequacy	1.1 Kitchen	●	1748 sf (kitchen and serving) / 3 = 583
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	design capacity 1000/3 periods = 334
Common Space Adequacy	2.1 Gymnasium	yes	6 hoops, 1 divider curtain, bleachers, portable volleyball, daylight
Common Space Adequacy	2.2 Gymnasium	●	94'4" L x 73'8" W. Height to bottom of joist 20' 0", to bottom of deck 27' 1"
Common Space Adequacy	3.1 Performance Space	●	permanent stage in auditorium
Common Space Adequacy	3.2 Performance Space	●	475 seats
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1344 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	2 soccer fields (under construction) 1 baseball field, 2 tennis courts
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	34	Green = 34, lab (3), classroom (3)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	10	Yellow = 10; lab (1), classroom (9)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	5	Red = 5, lab (0), classroom (5)
Educational Space Adequacy	1.2 Classrooms (General)	49	
Educational Space Adequacy	1.3 Classrooms (General)	●	7% classrooms do not have windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	43 classrooms do not have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	1 yellow
Educational Space Adequacy	2.2 Classrooms (Special Education)	4	3 SPED; 1 Autism
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 3 offices; 1 conference room; 1 records - rated (outside of office suite, room 134A)
Educational Space Adequacy	3.4 Clinic	●	5 beds, 1 toilet (not ADA), 1 sink, NO eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	1 art room (part of tech room)
Educational Space Adequacy	4.2 Art	●	1 kiln is adjacent
Educational Space Adequacy	4.3 Art	●	2 sinks
Educational Space Adequacy	4.4 Art	●	adjacent
Educational Space Adequacy	5.1 Music	●	3 rooms; 1 band, 1 vocal, 1 orchestra
Educational Space Adequacy	5.2 Music	●	yes, each with connected storage
Educational Space Adequacy	6.0 Lab	●	1 Functional Life Skills, 1 Life Prep, 3 Science Labs, 1 Design/Tech Lab, 1 Business/Computer Lab
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Dr. Charles R. Drew Elementary School	2000	100,815	0.135	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
16	2019	3	0.093	\$33,465,274		

Building Description

Dr. Charles R. Drew Elementary School, located at 3500 23rd St S, is a three-story structure with a crawl space located below a portion of the second floor. The original building, constructed in 1944, was demolished and the new building was constructed in 2000. The attached Drew Community Center was not included as part of the assessment. The building was steel framed with a brick masonry facade, storefront window system, and built-up asphalt roof. Interior finishes included VCT and carpeted flooring, painted gypsum board and concrete masonry unit walls, and suspended ceiling tile. There was a multi-purpose room and gym with moveable partition to enlarge the space as needed. Building domestic hot water was generated utilizing a natural gas water heater with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and two chillers, one water cooled with cooling tower and one air cooled, provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top and energy recovery units, air handlers, heat pumps, fan coil units, and unit heaters. Building power was through a 2,000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	44,940	BLDG FP SF	\$12.08	\$543,014	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	33,920	BLDG FP SF	\$13.87	\$470,458	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	66,895	ELEV FL SF	\$42.15	\$2,819,406	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	44,940	BLDG FP SF	\$24.05	\$1,080,848	99	99
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	100,815	BLDG GROSS SF	\$26.95	\$2,717,129	70	50
B202000 - EXTERIOR WINDOWS	3	Exterior windows	100,815	BLDG GROSS SF	\$18.83	\$1,897,923	40	20
B203000 - EXTERIOR DOORS	4	Exterior doors	100,815	BLDG GROSS SF	\$1.02	\$102,643	30	10
B301000 - ROOF COVERINGS	3	Built-up roof	44,940	BLDG FP SF	\$27.93	\$1,255,234	25	3
C101000 - PARTITIONS	5	Drywall over studs	100,815	FINISHED SF	\$6.36	\$641,033	25	25
C102000 - INTERIOR DOORS	4	Interior doors	100,815	FINISHED SF	\$4.73	\$476,417	40	20
C103000 - FITTINGS	3	Partitions and lockers	100,815	FINISHED SF	\$4.09	\$412,508	40	15
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	100,815	BLDG GROSS SF	\$1.94	\$195,602	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	99,127	FINISHED SF	\$5.09	\$504,621	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	99,127	FINISHED SF	\$14.20	\$1,407,226	17	5
C303000 - CEILING FINISHES	3	Standard ceiling finishes	99,127	FINISHED SF	\$16.83	\$1,668,105	20	5
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	30	7
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	100,815	SERVED SF	\$17.25	\$1,739,117	50	27
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, 131 to 180 MBH	1	EACH	\$35,634.55	\$35,635	20	18
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	44,940	BLDG FP SF	\$6.11	\$274,529	60	37
D301000 - ENERGY SUPPLY	5	Natural gas supply	100,815	BLDG GROSS SF	\$0.12	\$11,620	60	37
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	100,815	SERVED SF	\$6.22	\$627,477	40	17
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	4	Chiller system	100,815	SERVED SF	\$8.13	\$819,206	30	7
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	100,815	SERVED SF	\$19.67	\$1,983,136	30	7
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	100,815	SERVED SF	\$23.44	\$2,362,721	30	7
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	86,745	SERVED SF	\$2.38	\$206,630	15	2
D401000 - SPRINKLERS	5	Sprinkler system	100,815	SERVED SF	\$7.90	\$795,966	50	46
D402000 - STANDPIPES	5	Standpipe system	100,815	SERVED SF	\$0.63	\$63,910	50	46
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	100,815	BLDG GROSS SF	\$4.00	\$402,824	50	27
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	100,815	BLDG GROSS SF	\$36.27	\$3,656,407	50	27
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	100,815	BLDG GROSS SF	\$10.18	\$1,026,428	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	12
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	16
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	100,815	SERVED SF	\$3.50	\$352,471	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	2,000	LENGTH LF	\$829.72	\$1,659,437	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	9,688	SERVED SF	\$100.03	\$969,056	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Dr. Charles R. Drew Elementary School	2000	100,815	0.135	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building CRV ⁶	No. of Local Projects		
16	2019	3	\$33,465,274	3		

Building Description

Dr. Charles R. Drew Elementary School, located at 3500 23rd St S, is a three-story structure with a crawl space located below a portion of the second floor. The original building, constructed in 1944, was demolished and the new building was constructed in 2000. The attached Drew Community Center was not included as part of the assessment. The building was steel framed with a brick masonry facade, storefront window system, and built-up asphalt roof. Interior finishes included VCT and carpeted flooring, painted gypsum board and concrete masonry unit walls, and suspended ceiling tile. There was a multi-purpose room and gym with moveable partition to enlarge the space as needed. Building domestic hot water was generated utilizing a natural gas water heater with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and two chillers, one water cooled with cooling tower and one air cooled, provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top and energy recovery units, air handlers, heat pumps, fan coil units, and unit heaters. Building power was through a 2,000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ 120,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 102,643	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ 1,255,234	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 504,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 504,621	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ 1,407,226	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ 1,668,105	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 819,206	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,983,136	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,362,721	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 206,630	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 1,026,428	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 352,471	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 969,056	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$130,000	\$1,233,058	\$1,759,855	\$0	\$3,075,331	\$0	\$5,371,347	\$0	\$504,621	\$1,424,171	\$0	\$0

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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Dr. Charles R. Drew Elementary School	Year Built ¹ 2000	Building GSF ² 100,815	Building FCI_{AD} 0.135	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 16	Last Renovation ¹ 2019	No. of Floors 3	Building FCI_{DM} 0.093	Building CRV ³ \$33,465,274
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade. The southwest corner of the building has an elevated crawl space.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs.		
B102000 - ROOF CONSTRUCTION	5	Steel joists supporting a metal roof deck.		
B201000 - EXTERIOR WALLS	4	Exterior walls were predominantly brick masonry with bands of split-face block, particularly at the base of the wall. Minor cracks and staining were noted. Control joint sealants were in poor condition. Steel lintels had minor surface corrosion in some areas. Local Project: Replace brick control joint sealants.		
B202000 - EXTERIOR WINDOWS	3	Windows were storefront glass in metal frames at the ground floor with fixed units at upper stories. The paint finish was peeled in some areas. Gaskets had shrunk at corners and perimeter sealants were in poor condition with cohesive failure. Local Project: Wet-glaze windows Local Project: Replace window perimeter sealants.		
B203000 - EXTERIOR DOORS	4	Doors were typically metal with glass infill, with the exception of some locations like mechanical spaces.		
B301000 - ROOF COVERINGS	3	Gravel-surfaced built up roof appeared to date to 2000 renovation. Gravel was missing in some areas, leaving asphalt exposed, and flashings were in fair condition. Vegetation was observed on some sections. Stained ceiling tiles were noted in various rooms.		
C101000 - PARTITIONS	5	Interior walls were predominantly gypsum board over studs, with exposed concrete masonry unit walls in some areas.		
C102000 - INTERIOR DOORS	4	Generally, solid-core wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Good condition with some wear and deterioration.		
C103000 - FITTINGS	3	Composite toilet partitions in restrooms showed signs of aging with a faded finish.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings.		
C301000 - WALL FINISHES	4	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms. Painted finishes presumed to date to last renovation in 2019.		
C302000 - FLOOR FINISHES	3	VCT in corridors and ceramic tile in restrooms was typical. Classrooms generally had VCT with many classrooms on the second floor having a carpeted area. Concrete flooring was typical in mechanical and storage spaces. VCT was in fair condition, with the floor framing pattern reflected up through the tile at elevated floors. Carpet was stained in some classrooms.		
C303000 - CEILING FINISHES	3	Suspended ceiling tile was typically throughout. Tiles were stained and missing some areas, with cupped ceiling tiles noting humidity issues.		
D101010 - ELEVATORS	4	A 3-stop hydraulic elevator served all three floors.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, sump pumps, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	An RBI 199 MBtuh natural gas domestic water boiler appears to be adequately functional.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	4	There were two natural gas hydronic boilers: 2060 mbh Patterson Kelly PX Thermifitc was from the original construction and a 1750 MBH RBI from 2018. They provided distributed heating water roof top units, fan coil units, and ventilation units throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	4	A Carrier 136 ton water cooled screw chiller with cooling tower and a Carrier 116 ton air cooled scroll chiller and provided distributed chilled water to served interior and roof mounted AHUs, energy recovery units, and fan coils.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Distributed hydronic heating water served fan coil units and perimeter radiation, interior and roof mounted ducted AHUs and energy recovery units.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Distributed chilled water served fan coil units, interior and roof mounted ducted AHUs and energy recovery units.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	5	A single water service served the distributed sprinkler systems throughout the facility.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were typically mechanical.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 2000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be from the 2000 construction and approaching the end of their useful life.		
D509000 - EMERGENCY POWER	3	A Katolight diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. The generator enclosure was locked and based on a provided one-line drawing, the generator is estimated at 75 kW with installation approximated as 1999.		
E102000 - INSTITUTIONAL EQUIPMENT	4	The kiln had a separate local exhaust system vented to the building exterior.		
E109002 - FOOD SERVICE EQUIPMENT	4	The kitchen included warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework dates to 2000 construction. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room served as gym and cafeteria with movable partition between two spaces. Rubber mat flooring on gym side with VCT flooring in cafeteria. Painted CMU walls with fabric panels in the gym. Ceiling tiles were in the cafeteria with exposed structure on the gym side. Finishes were in good condition with stained ceiling tiles. Stage finishes and equipment appeared original but in good condition. Lighting was upgraded and in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Dr. Charles R. Drew Elementary School	2000	2019	100,815	44,940	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	~5-6 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently meets current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow local filtration of MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Rooftop unit utilizing MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Rooftop unit utilizing MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED fixtures are present only in the corridors.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures are dark sky compliant, but some flood lights and wall packs without cut-off are present.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT is greater than 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Appears to be high for not currently having a cooling tower on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Main entry below school sign on exterior wall
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical grab bars in building. All grab bars are at child's ADA height
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	guardrails are 42" to the top; handrails are 34" to the top; stairs: risers = 6.5" / Tread = 12"
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY 2019
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	80x61 inches double centered doors
Common Space Adequacy	1.0 Cafeteria	●	4288(cafeteria area)/15 students = 286
Common Space Adequacy	1.1 Kitchen	●	1110(kitchen area incl offices, etc.)/3 = 370
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 67A/3 periods = 225
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, volleyball, ropes, dividing curtain and daylight. Separated from cafeteria with moveable partition
Common Space Adequacy	2.2 Gymnasium	●	90' 4" L x 59' 8" W. Height to bottom of joist 20' 2", to bottom of deck 24' 3"
Common Space Adequacy	3.1 Performance Space	●	ADA accessible
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	900 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	much with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	9	Green = 9, pre-K & K (0); 1st (0); Gen ed (9)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	6	Yellow = 6, pre-K & K (0); 1st (3); Gen ed (3)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	5	Red = 5, pre-K & K (3); 1st (0); Gen ed (2)
Educational Space Adequacy	1.2 Classrooms (General)	20	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% classrooms have connected toilet, none are ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	5	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks; 8 offices; 1 conference room; 1 records room - not rated
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 132A and 132B
Educational Space Adequacy	4.2 Art	●	yes, 1 kiln adjacent to 132B
Educational Space Adequacy	4.3 Art	●	room 132A - 1 sink, room 132B - 1 sink
Educational Space Adequacy	4.4 Art	●	adjacent to 132B
Educational Space Adequacy	5.1 Music	●	1 general
Educational Space Adequacy	5.2 Music	●	connected storage
Educational Space Adequacy	6.0 Lab	●	N/A for elementary schools
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Escuela Key Elementary School	1926	77,261	0.135	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
17	2021	2	0.021	\$30,195,662		

Building Description

Escuela Key Elementary School, located at 855 N Edison St, is a two-story structure. The building was originally constructed in 1926. A major renovation/expansion appeared to have occurred in the mid-1990's based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2021. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were primarily brick masonry, with elements of stone, terra cotta tile, wood trim, and metal sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly built-up roof, with areas of modified bitumen and standing steam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of VCT and carpet floors, and suspended acoustical ceiling tiles. One elevator and two wheelchair lifts were present. Plumbing systems included domestic water distribution with a commercial water heater, stormwater drainage throughout about half the building, and chilled/heating water piping. HVAC systems included two boilers, an air-cooled chiller, fan coil units in most classrooms, some air handling units, and mostly pneumatic controls. The building had a 2000A electrical service and natural gas supply. One 80 KW emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. Institutional equipment included two kilns for the art rooms. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium with a second stage.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	59,500	BLDG FP SF	\$12.08	\$718,944	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	29,750	BLDG FP SF	\$13.87	\$412,621	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	2,000	BASEMENT SF	\$19.09	\$38,189	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	47,511	ELEV FL SF	\$42.15	\$2,002,434	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	59,500	BLDG FP SF	\$63.32	\$3,767,312	70	70
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	75,261	BLDG GROSS SF	\$26.95	\$2,028,407	70	40
B202000 - EXTERIOR WINDOWS	4	Exterior windows	75,261	BLDG GROSS SF	\$18.83	\$1,416,849	40	30
B203000 - EXTERIOR DOORS	4	Exterior doors	75,261	BLDG GROSS SF	\$1.02	\$76,625	30	20
B301000 - ROOF COVERINGS	3	Built-up roof	59,500	BLDG FP SF	\$27.93	\$1,661,915	25	10
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	77,261	FINISHED SF	\$20.42	\$1,577,687	70	70
C102000 - INTERIOR DOORS	4	Interior doors	77,261	FINISHED SF	\$4.73	\$365,109	40	20
C103000 - FITTINGS	4	Partitions and lockers	77,261	FINISHED SF	\$4.09	\$316,131	40	30
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	77,261	BLDG GROSS SF	\$1.94	\$149,903	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	66,261	FINISHED SF	\$5.09	\$337,312	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	66,261	FINISHED SF	\$14.20	\$940,654	14	10
C303000 - CEILING FINISHES	3	Standard ceiling finishes	66,261	FINISHED SF	\$16.83	\$1,115,037	20	5
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	35	6
D101020 - LIFTS	3	Single level wheel chair lift	2	EACH	\$18,969.88	\$37,940	20	2
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	77,261	SERVED SF	\$17.25	\$1,332,797	40	15
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 131 to 180 MBH	1	EACH	\$35,634.55	\$35,635	15	4
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	29,750	BLDG FP SF	\$3.25	\$96,583	60	30
D301000 - ENERGY SUPPLY	4	Natural gas supply	77,261	BLDG GROSS SF	\$0.15	\$11,873	60	30
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	77,261	SERVED SF	\$7.17	\$553,601	40	20
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	4	Chiller system	77,261	SERVED SF	\$8.13	\$627,810	30	26
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	77,261	SERVED SF	\$19.67	\$1,519,804	35	6
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	77,261	SERVED SF	\$23.44	\$1,810,704	35	6
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	77,261	SERVED SF	\$2.92	\$225,596	20	2
D401000 - SPRINKLERS	4	Sprinkler system	77,261	SERVED SF	\$7.90	\$610,000	50	20
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	77,261	BLDG GROSS SF	\$4.00	\$308,710	50	22
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	77,261	BLDG GROSS SF	\$36.27	\$2,802,139	45	20
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	77,261	BLDG GROSS SF	\$10.18	\$786,617	20	15
D509000 - EMERGENCY POWER	4	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	15
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	300	SERVED SF	\$160.37	\$48,110	15	5
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	77,261	SERVED SF	\$3.50	\$270,121	20	18
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	25
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	11,000	SERVED SF	\$100.03	\$1,100,291	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Escuela Key Elementary School	1926	77,261	0.135	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
17	2021	2	\$30,195,662	0 - 0.15	0.151 - 0.33	0.331 - 1
				2		

Building Description

Escuela Key Elementary School, located at 855 N Edison St, is a two-story structure. The building was originally constructed in 1926. A major renovation/expansion appeared to have occurred in the mid-1990's based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2021. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were primarily brick masonry, with elements of stone, terra cotta tile, wood trim, and metal sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly built-up roof, with areas of modified bitumen and standing seam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of VCT and carpet floors, and suspended acoustical ceiling tiles. One elevator and two wheelchair lifts were present. Plumbing systems included domestic water distribution with a commercial water heater, stormwater drainage throughout about half the building, and chilled/heating water piping. HVAC systems included two boilers, an air-cooled chiller, fan coil units in most classrooms, some air handling units, and mostly pneumatic controls. The building had a 2000A electrical service and natural gas supply. One 80 KW emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. Institutional equipment included two kilns for the art rooms. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium with a second stage.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,661,915	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 337,312	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 337,312	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 940,654	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ 1,115,037	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	3	\$ -	\$ 37,940	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ -	\$ -	\$ 35,635	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,519,804	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,810,704	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 225,596	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ 48,110	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,100,291	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$30,000	\$263,536	\$337,312	\$35,635	\$1,163,147	\$3,536,793	\$0	\$0	\$337,312	\$3,702,860	\$0	\$0

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Escuela Key Elementary School	Year Built 1926	Building GSF 77,261	Building FCI_{AD} 0.135	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 17	Last Renovation 2021	No. of Floors 2	Building FCI_{DM} 0.021	Building CRV \$30,195,662
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	5	Section of crawlspace was observed adjacent to boiler room, but it was not known how much of the school had crawlspace below the first floor. Assumed slab on grade was installed throughout 50% of footprint of building.		
A202000 - BASEMENT WALLS	5	Boiler room was only basement area.		
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, poured concrete flooring, and wood glulam beams (in MPR).		
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking. A portion of the roof over the MPR was assumed to be wood decking supported by exposed glulam beams.		
B201000 - EXTERIOR WALLS	4	Exterior façade was primarily brick masonry, with elements of stone, terra cotta tile, wood trim, and metal sunscreens. Local Project: Repair and paint deteriorated wood trim and steel lintels.		
B202000 - EXTERIOR WINDOWS	4	Exterior walls had aluminum windows with double pane glass. Roof had several plexiglass skylights.		
B203000 - EXTERIOR DOORS	4	Combination of aluminum and painted steel exterior doors, many with full or half glass lites.		
B301000 - ROOF COVERINGS	3	Majority of roof was built-up roofing, with some sections of modified bitumen roofing with a white coating. Barrel roof over gym has standing seam metal panels. Roof was reportedly planned for replacement in 2024. Some portions of the roof had gutters and downspouts.		
C101000 - PARTITIONS	5	Majority of partition walls were CMU or brick masonry, with some areas of gypsum board/plaster over stud framing.		
C102000 - INTERIOR DOORS	4	Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with poured concrete treads and landings.		
C301000 - WALL FINISHES	4	Majority of walls were painted masonry or gypsum board/plaster.		
C302000 - FLOOR FINISHES	4	Vinyl composite tile (VCT) was located in hallways and several rooms. Carpet was present in majority of classrooms.		
C303000 - CEILING FINISHES	3	Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms. Some areas (such as music room) had painted exposed structure.		
D101010 - ELEVATORS	3	Hydraulic elevator appeared to be installed in 1994. Only one elevator call key was available, and it was permanently fashioned on the first floor. The elevator could not be called from the second floor. Local Project: Replace elevator call controls to ensure proper function from both floors.		
D101020 - LIFTS	3	A lift installed at the MPR stage was manufactured in 1995. A lift installed at the gym stage was an unknown age but appeared newer.		
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	One gas-fired 180 MBH domestic water heater was in the boiler room, manufactured 2012.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Approximately 50% of the roof area used internal stormwater drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	4	Natural gas supply connection was located near boiler room entrance.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	4	Two boilers manufactured in 2003.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	4	Air-cooled chiller estimated manufactured in 2019. Water treatment process appeared to be manual and regularity of the process could not be confirmed.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces. Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces. Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	Pneumatic controls used throughout majority of building. Compressor manufactured in 1995.		
D401000 - SPRINKLERS	4	Sprinklers appeared to be installed throughout the building.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical panel was in boiler room. 2000A (1200A + 800A), 600V, 3Ph, 4W. Assumed installed in 1995.		
D502000 - LIGHTING AND BRANCH WIRING	4	Wiring and distribution panels assumed to be installed around 1995. Lighting fixtures appeared to have been replaced throughout the majority of the school within the last 10 years.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Fire alarm control panel assumed to have been replaced in 2019. PA control center appeared less than 10 years old. Security components appeared to have been upgraded recently.		
D509000 - EMERGENCY POWER	4	80 KW emergency generator estimated manufactured 2003.		
E102000 - INSTITUTIONAL EQUIPMENT	4	Two kilns for art rooms. One estimated manufactured in 1999 and the second reportedly installed in 2022.		
E109002 - FOOD SERVICE EQUIPMENT	5	Serving kitchen appeared recently renovated. Most warming equipment estimated to be manufactured 2021.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework throughout administrative areas and classrooms was estimated to be about 10 years old.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room (MPR; about 4,000 SF) served as cafeteria and auditorium. MPR had VCT flooring, painted walls, and exposed structure with panelized ceiling. MPR stage had hardwood flooring, curtains, and lighting/speaker systems. Gymnasium (about 7,000 SF) also had a stage. Gym had hardwood flooring, painted walls, exposed/painted structure at ceiling, and basketball hoops. The gym stage had hardwood floors, curtains, and lighting/speaker systems.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Escuela Key Elementary School Page 67

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Escuela Key Elementary School	1926	2021	77,261	59,500	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACQ for classrooms averages just above 5 eACh when factoring all ventilation and local filtration per HVAC I.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed max of 300 students
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria does not appear to pass for ventilation rates when utilizing assumptions for 200 students per meal time
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed two classes, 50 students
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Kilns were ventilated, but the art rooms themselves did not have means of direct exhaust
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Many unit vent served classrooms that do not allow greater than MERV 6 or MERV 8 filtration
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Assumed MERV 13 filtration, penthouse on roof was locked and inaccessible with our master key
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Room mostly had local temperature sensors, but there were very few rooms with adjustable thermostats.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Majority of fixtures were LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	A handful of fixtures were not dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Interior fixtures CCT did not meet the county standard of 4000K and were inconsistent in general.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior fixtures CCT did not meet the county standard of 3000K and were inconsistent in general.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors were present in some spaces, but the majority of spaces did not have sensor coverage.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on energy report numbers
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Permanent signs at many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars in restrooms
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Average EUI between 2019-2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	No solar present on site.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'4" x 4'9" Door: 3'6" centered 2846(cafeteria area estimated)/15 students = 190
Common Space Adequacy	1.0 Cafeteria	●	1276 (kitchen area estimated)/3 = 426
Common Space Adequacy	1.1 Kitchen	●	2
Common Space Adequacy	1.2 Kitchen	●	design capacity 465/3 periods = 155
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable; climbing wall, NO Volleyball; NO ropes daylight
Common Space Adequacy	2.2 Gymnasium	●	88'-2" L x 57'-4" W, Low height: 22'-8", High height: 30'-0", Joist: 20'-5"
Common Space Adequacy	3.1 Performance Space	●	Two stages, one in Gym one in Multipurpose room
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary schools
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1034 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	11	Green 11; pre-k & k (2); 1st (1); Gen ed (8)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	6	Yellow 6; pre-k & k (2); 1st (3); Gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	1	Red 1; pre-k & k (0); 1st (0); Gen ed (1)
Educational Space Adequacy	1.2 Classrooms (General)	18	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% windows have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten classes have a toilet, but No vertical grab bars
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classroom have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	5 desks, 2 offices (one is also used as a conf room),
Educational Space Adequacy	3.4 Clinic	●	2 beds, toilet - no verticals, 2 sinks, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	#132, #211
Educational Space Adequacy	4.2 Art	●	in #211
Educational Space Adequacy	4.3 Art	●	#132 - 4, #211 - 2
Educational Space Adequacy	4.4 Art	●	storage connected to both rooms
Educational Space Adequacy	5.1 Music	●	#206 - general/vocal; #118 - general/instrumental
Educational Space Adequacy	5.2 Music	●	storage connected to both
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Facilities and Operations at the Trades Center	1965	75,000	0.215	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
18	2021	2	0.050	\$34,384,243		

Building Description

Facilities and Operations at the Trades Center, located at 2770 S Taylor St, is a two-story structure housing various school support departments including transportation, security, construction, and maintenance. The building was originally constructed in 1965 with various department-specific renovations over time, most recently the security and transportation areas. The building had load bearing masonry walls with a combination of exposed concrete masonry units, split face block, brick, and concrete. There were fixed and operable windows in aluminum frames with some storefront assemblies. The roof system was a combination of low-slope modified bitumen and single-ply membrane. Interior finishes included VCT, carpet, and painted concrete floors; painted gypsum board and concrete masonry unit walls; and suspended ceiling tile. Building domestic hot water was generated from several water heaters. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. A boiler provided the source for distributed heating. Space conditioning was a mix of roof top units, condensing units, and air handling systems. Building power was through a 1,200 Amp, 208/120V power service. There was security access, fire suppression, and a fire alarm system. There were two natural gas emergency generators estimated to be at 400 kW.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	66,200	BLDG FP SF	\$16.21	\$1,073,316	99	99
A103000 - SLAB ON GRADE	5	Slab on grade, 5" thick, standard use	66,200	BLDG FP SF	\$29.95	\$1,982,583	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Concrete with metal deck system	8,800	ELEV FL SF	\$56.59	\$498,015	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed office building with roof trusses supported by load bearing walls in wareh	66,200	BLDG FP SF	\$29.70	\$1,966,051	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry for entire facility	75,000	BLDG GROSS SF	\$56.27	\$4,219,957	70	70
B202000 - EXTERIOR WINDOWS	3	Exterior windows	75,000	BLDG GROSS SF	\$6.28	\$471,125	40	15
B203000 - EXTERIOR DOORS	3	Exterior doors	75,000	BLDG GROSS SF	\$3.28	\$246,368	30	15
B301000 - ROOF COVERINGS	3	Built-up roof	66,200	BLDG FP SF	\$28.99	\$1,918,998	20	5
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	75,000	FINISHED SF	\$11.99	\$899,028	70	70
C102000 - INTERIOR DOORS	3	Interior doors	75,000	FINISHED SF	\$19.79	\$1,483,973	40	15
C103000 - FITTINGS	5	Partitions and lockers	75,000	FINISHED SF	\$3.92	\$293,913	40	40
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	75,000	BLDG GROSS SF	\$5.47	\$410,614	30	30
C301000 - WALL FINISHES	4	Standard wall finishes	75,000	FINISHED SF	\$5.84	\$437,988	6	4
C302000 - FLOOR FINISHES	3	Standard floor finishes	75,000	FINISHED SF	\$11.33	\$850,043	10	3
C303000 - CEILING FINISHES	4	Standard ceiling finishes	75,000	FINISHED SF	\$18.21	\$1,365,831	20	10
D101010 - ELEVATORS	-	-	-	-	-	-	-	-
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	75,000	SERVED SF	\$13.89	\$1,041,662	50	15
D202000 - RESIDENTIAL WATER HEATER	5	Electric Water Heater, Residential, 30 to 45 gallons	2	EACH	\$7,924.13	\$15,848	15	13
D202005 - COMMERCIAL WATER HEATER	5	Electric Water Heater, Commercial, 16 to 40 kW and 80 to 150 Gallons	1	EACH	\$38,131.85	\$38,132	15	12
D204000 - BUILDING STORMWATER DRAINAGE	3	Combination of roof drainage and in floor drainage system	70,000	BLDG FP SF	\$9.68	\$677,729	60	20
D301000 - ENERGY SUPPLY	4	Natural gas supply	75,000	BLDG GROSS SF	\$0.29	\$21,611	60	30
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	75,000	SERVED SF	\$7.45	\$559,011	40	15
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	75,000	SERVED SF	\$15.00	\$1,125,226	30	15
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	-	-	-	-	-	-	-
D305010 - TERMINAL & PACKAGE UNITS	3	Roof top package units	75,000	SERVED SF	\$38.42	\$2,881,500	25	15
D306000 - CONTROLS	3	HVAC controls - rooftop package units	75,000	SERVED SF	\$1.94	\$145,516	25	5
D401000 - SPRINKLERS	3	Sprinkler system	75,000	SERVED SF	\$17.23	\$1,292,353	50	15
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 1200 Amp Service	75,000	BLDG GROSS SF	\$11.55	\$865,891	50	3
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service, predominantly off	75,000	BLDG GROSS SF	\$46.01	\$3,450,596	50	15
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication alarm, telephone, and wiring	75,000	BLDG GROSS SF	\$6.65	\$498,500	20	10
D509000 - EMERGENCY POWER	3	Emergency Generator, >=185 kW to <500 kW	2	EACH	\$166,772.00	\$333,544	35	10
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	15,000	SERVED SF	\$65.64	\$984,609	20	10
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	15,000	SERVED SF	\$16.48	\$247,233	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	150	LENGTH LF	\$829.72	\$124,458	35	10
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	-	-	-	-	-	-	-
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	3	Prefabricated cold storage unit	7,500	SERVED SF	\$261.74	\$1,963,022	20	10
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

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Arlington Public Schools FCA

2023 Condition Assessment

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Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
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Facilities and Operations at the Trades Center, located at 2770 S Taylor St, is a two-story structure housing various school support departments including transportation, security, construction, and maintenance. The building was originally constructed in 1965 with various department-specific renovations over time, most recently the security and transportation areas. The building had load bearing masonry walls with a combination of exposed concrete masonry units, split face block, brick, and concrete. There were fixed and operable windows in aluminum frames with some storefront assemblies. The roof system was a combination of low-slope modified bitumen and single-ply membrane. Interior finishes included VCT, carpet, and painted concrete floors; painted gypsum board and concrete masonry unit walls; and suspended ceiling tile. Building domestic hot water was generated from several water heaters. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. A boiler provided the source for distributed heating. Space conditioning was a mix of roof top units, condensing units, and air handling systems. Building power was through a 1,200 Amp, 208/120V power service. There was security access, fire suppression, and a fire alarm system. There were two natural gas emergency generators estimated to be at 400 kW.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C302000 - FLOOR FINISHES	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$1,715,933	\$437,988	\$2,064,514	\$0	\$0	\$0	\$0	\$3,992,162	\$0	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Facilities and Operations at the Trades Center		1965	75,000	0.215
Building Number		Last Renovation¹	No. of Floors	Condition Category Legend
18		2021	2	Good Fair Poor <small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>
			Building FCI_{DM}	Building CRV³
			0.050	\$34,384,243
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Presumed to be concrete strip and spread footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Concrete slab over metal deck supported by steel framing/pilots.		
B102000 - ROOF CONSTRUCTION	5	Load bearing masonry walls supporting steel framing and metal deck.		
B201000 - EXTERIOR WALLS	5	Exterior walls were a combination of exposed concrete masonry units, split face block, brick, and concrete. The CMU and concrete were coated. Staining was noted on the CMU and split face block faces, particularly below windows.		
B202000 - EXTERIOR WINDOWS	3	Windows were a combination of fixed and operable glass in aluminum frames, some with storefront glass assemblies. Window sealants were in fair condition and the glass appeared to have been wetglazed in the past.		
B203000 - EXTERIOR DOORS	3	Doors were typically metal with glass infill, with the exception of some locations like mechanical spaces. Roll-up and paneled doors of various ages were typical throughout maintenance and warehouse areas.		
B301000 - ROOF COVERINGS	3	Low-slope roofs were predominantly smooth-surfaced modified bitumen with a coating. The coating was worn and the roof appeared to be at least two-thirds through its life cycle. A single-ply TPO roof was installed over the northeast corner of the building and was presumably about 10 years old based on the age of the mechanical units. A small area with another single-ply white membrane was located to the south and was in good condition.		
C101000 - PARTITIONS	5	Interior walls were predominantly concrete masonry units, with gypsum board over studs in some office areas.		
C102000 - INTERIOR DOORS	3	Generally, solid-core wood interior doors with painted steel frames, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Fair condition with some wear and deterioration.		
C103000 - FITTINGS	5	Lockers were located in the recently renovated transportation area. Composite toilet partitions were noted in the restroom (accessed from the outside) adjacent to the main office entrance.		
C201000 - STAIR CONSTRUCTION	5	Exterior mounted steel stairs at the northwest corner of the building were within an open air enclosure.		
C301000 - WALL FINISHES	4	Painted wall finishes generally throughout. The backside of exterior walls were not painted in some maintenance and warehouse areas.		
C302000 - FLOOR FINISHES	3	VCT was typical in corridors, restrooms, kitchenette, and work room and large gathering spaces. Offices had carpet, which appeared to be different generations in the administrative office area. The concrete slab was generally painted in maintenance and warehouse areas.		
C303000 - CEILING FINISHES	4	Suspended ceiling tile was typical in office areas. Tiles were stained in some areas.		
D101010 - ELEVATORS	-			
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution. Age is presumed to vary, with plumbing being replaced during renovations of individual spaces.		
D202000 - RESIDENTIAL WATER HEATER	5	A 40-gallon electric water heater serviced the restroom and shower in the lower level maintenance area (2023). A 66-gallon electric water heater was located in the transportation area. (2021).		
D202005 - COMMERCIAL WATER HEATER	5	A 108-gallon electric water heater was noted in the boiler room at the east side of the building (2020).		
D204000 - BUILDING STORMWATER DRAINAGE	3	Storm drainage system utilized a roof drainage system with drops internal to the building. Two sloped sections at the south side drained to gutters and downspouts.		
D301000 - ENERGY SUPPLY	4	Natural gas served mechanical equipment.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Kewanee Fire Tube Boiler (3348 MBH) manufactured in 1998.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	System included roof top units, condensing units, and air handling systems. Systems varied in age, with newer rooftop units over the transportation area.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	-			
D305010 - TERMINAL & PACKAGE UNITS	3	System included roof top units, condensing units, and air handling systems. Systems varied in age, with newer rooftop units over the transportation area.		
D306000 - CONTROLS	3	Largely a pneumatic system with the air compressor dated to 1999.		
D401000 - SPRINKLERS	3	The building appeared to have sprinkler coverage throughout.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	The 208/120V, 1200A service rated switchboard provides power to the building distribution. Appeared to be original to building.		
D502000 - LIGHTING AND BRANCH WIRING	3	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Presumably upgraded as spaces are renovated.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarms systems had not issues reported or noted, but age and extent of equipment was unknown.		
D509000 - EMERGENCY POWER	3	Two generators were located at the east side of the building - 400KW Katolight and Generac of unknown size, but appeared to be similar to the Katolight. The generators appeared aged, but their year of manufacturer and operational status were unknown.		
E102000 - INSTITUTIONAL EQUIPMENT	3	A variety of shop equipment was present in the maintenance and warehouse spaces. It was unclear if a paint booth was still in use. Area served based on 20% of overall GSF.		
E109002 - FOOD SERVICE EQUIPMENT	3	Multiple kitchenettes located throughout the building, including offices, transportation, and security. Area based on 20% of overall GSF.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Limited cabinetry with signs of aging in break room and some offices.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	3	Provided documentation indicated an area for refrigeration and freezers adjacent to the warehouse space, but it could not be confirmed if it was still in use. Area based on 10% of overall GSF.		
F104001 - AQUATIC FACILITIES	-			

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Facilities and Operations at the Trades Center	1965	2021	75,000	66,200	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	-4 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1 for 25 students only
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow local filtration of MERV 8 at best, DOAS units and Roof top units utilize MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Rooftop unit utilize Merv 13.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Rooftop unit utilize Merv 13.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	About 10-15% were LED
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Inconsistent throughout building
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Some lights observed to be 2700K and inconsistent
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	No sports lighting
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Arlington Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Multiple support services had separate entrances
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Arlington Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	No elevator - not applicable
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	
Common Space Adequacy	1.2 Kitchen	●	
Common Space Adequacy	1.3 Kitchen	●	
Common Space Adequacy	2.1 Gymnasium	●	
Common Space Adequacy	2.2 Gymnasium	●	
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	
Educational Space Adequacy	1.2 Classrooms (General)	●	
Educational Space Adequacy	1.3 Classrooms (General)	●	Offices all have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	
Educational Space Adequacy	3.4 Clinic	●	
Educational Space Adequacy	4.1 Art	●	
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	
Educational Space Adequacy	5.2 Music	●	
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If IEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Glebe Elementary School	1971	82,889	0.108	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
19	2004	2	0.048	\$28,969,961		

Building Description

Glebe Elementary School, located at 1770 N. Glebe Road, is a two-story structure. The original building was constructed in 1971, and the last major renovation occurred in 2004. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of CMU construction with brick veneer finish and includes a multistory glazed tower at the main entrance and lobby. The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is a combination of built-up asphalt, three-ply hybrid, standing seam metal, and TPO roofing over both framed steel and framed concrete roof decks. The floor finishes are primarily vinyl composition tile and carpet tile. Wall finishes are primarily painted CMU. Ceiling finishes are primarily painted steel framing structure and suspended acoustic tiles. There is one Dover hydraulic elevator serving the building. The HVAC system consists of three P-K Thermifac 1,275 MBH gas-fired boilers, one Trane 185-ton air-cooled chiller, multiple terminal units, and rooftop air handling equipment utilizing hydronic heating, and both hydronic and DX cooling. Two dedicated RTUs cool the Admin and Computer spaces. A 2,000-amp Cutler Hammer main switchboard provides electrical service to distribution panels, equipment, and lighting, most of which is fluorescent in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4100 fire alarm system. A 105 kW diesel generator provides emergency power.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	61,800	BLDG FP SF	\$12.08	\$746,735	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	61,800	BLDG FP SF	\$13.87	\$857,143	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	21,089	ELEV FL SF	\$52.67	\$1,110,838	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	61,800	BLDG FP SF	\$24.05	\$1,486,347	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	82,889	BLDG GROSS SF	\$26.95	\$2,233,994	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	82,889	BLDG GROSS SF	\$18.83	\$1,560,452	40	20
B203000 - EXTERIOR DOORS	4	Exterior doors	82,889	BLDG GROSS SF	\$1.02	\$84,392	30	14
B301000 - ROOF COVERINGS	3	Built-up roof	61,800	BLDG FP SF	\$27.93	\$1,726,157	28	11
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	82,889	FINISHED SF	\$20.42	\$1,692,612	70	70
C102000 - INTERIOR DOORS	4	Interior doors	82,889	FINISHED SF	\$4.73	\$391,705	40	25
C103000 - FITTINGS	4	Partitions and lockers	82,889	FINISHED SF	\$4.09	\$339,159	40	25
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	82,889	BLDG GROSS SF	\$1.94	\$160,822	60	60
C301000 - WALL FINISHES	4	Standard wall finishes	75,404	FINISHED SF	\$5.09	\$383,855	6	5
C302000 - FLOOR FINISHES	5	Standard floor finishes	75,504	FINISHED SF	\$14.20	\$1,071,869	18	18
C303000 - CEILING FINISHES	4	Standard ceiling finishes	75,504	FINISHED SF	\$16.83	\$1,270,578	15	7
D101010 - ELEVATORS	2	Elevator	1	EACH	\$206,284.66	\$206,285	30	2
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	82,889	SERVED SF	\$17.25	\$1,429,883	50	30
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, Greater than 300 MBH	320	MBH	\$127.19	\$40,701	15	3
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains plus in-floor drainage system	30,000	BLDG FP SF	\$4.92	\$147,533	60	40
D301000 - ENERGY SUPPLY	4	Natural gas supply	82,889	BLDG GROSS SF	\$0.15	\$12,738	60	40
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	82,889	SERVED SF	\$7.17	\$593,927	40	20
D302010 - FIREPLACES	5	Masonry fireplace	1	EACH	\$30,446.89	\$30,447	50	50
D303000 - CENTRAL PLANT COOLING	3	Chiller system	80,412	SERVED SF	\$8.13	\$653,414	25	7
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	82,889	SERVED SF	\$19.67	\$1,630,513	35	16
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	80,412	SERVED SF	\$23.44	\$1,884,552	35	16
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, <10,000 SF	2,477	SERVED SF	\$71.46	\$177,009	30	10
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	82,889	SERVED SF	\$2.92	\$242,029	20	7
D401000 - SPRINKLERS	4	Sprinkler system	82,889	SERVED SF	\$7.90	\$654,434	50	30
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	82,889	BLDG GROSS SF	\$4.00	\$331,198	40	22
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	82,889	BLDG GROSS SF	\$36.27	\$3,006,258	55	35
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	82,889	BLDG GROSS SF	\$10.18	\$843,918	20	5
D509000 - EMERGENCY POWER	4	Emergency Generator, >=100 kW to <125 kW	1	EACH	\$86,196.46	\$86,196	35	16
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	82,889	SERVED SF	\$3.50	\$289,798	25	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	18
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	7,385	SERVED SF	\$100.03	\$738,695	20	11
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Glebe Elementary School	1971	82,889	0.108	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
19	2004	2	\$28,969,961	No. of Local Projects 3		

Building Description

Glebe Elementary School, located at 1770 N. Glebe Road, is a two-story structure. The original building was constructed in 1971, and the last major renovation occurred in 2004. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, enclosed courtyard, and administrative offices. The building is of CMU construction with brick veneer finish and includes a multistory glazed tower at the main entrance and lobby. The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is a combination of built-up asphalt, three-ply hybrid, standing seam metal, and TPO roofing over both framed steel and framed concrete roof decks. The floor finishes are primarily vinyl composition tile and carpet tile. Wall finishes are primarily painted CMU. Ceiling finishes are primarily painted steel framing structure and suspended acoustic tiles. There is one Dover hydraulic elevator serving the building. The HVAC system consists of three P-K Thermifac 1,275 MBH gas-fired boilers, one Trane 185-ton air-cooled chiller, multiple terminal units, and rooftop air handling equipment utilizing hydronic heating, and both hydronic and DX cooling. Two dedicated RTUs cool the Admin and Computer spaces. A 2,000-amp Cutler Hammer main switchboard provides electrical service to distribution panels, equipment, and lighting, most of which is fluorescent in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4100 fire alarm system. A 105 kW diesel generator provides emergency power.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ 696,500	\$ 435,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,726,157	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ 383,855	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 383,855	\$ -
C302000 - FLOOR FINISHES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,270,578	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	2	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ -	\$ 40,701	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 653,414	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 177,009	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 242,029	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ -	\$ -	\$ 843,918	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 289,798	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 738,695	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$704,000	\$641,285	\$40,701	\$0	\$1,227,773	\$0	\$2,166,022	\$0	\$0	\$490,862	\$2,848,708	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Glebe Elementary School	1971	82,889	0.108	Good Fair Poor
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{OM}	Building CRV ⁵
19	2004	2	0.048	0 - 0.15 0.151 - 0.33 0.331 - 1
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The first floor of the building and a small portion of the second floor (at the northwest, part of the 2004 addition) have a slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	The majority of the upper level floor plate is an elevated slab constructed with cast in place concrete framing as part of the original 1971 structure. The upper level installed during the 2004 addition uses steel framing with a steel structural deck to support an elevated cast in place concrete slab.		
B102000 - ROOF CONSTRUCTION	5	The predominate system (by SF) is steel framing and decking installed during the 2004 renovation.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is predominantly CMU with brick veneer. Additional finishes include ceramic tile, exposed aggregate concrete, and EIFS. Local Project: The exterior EIFS cladding above the loading dock has been damaged by vehicles and requires repair.		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable metal framed units with thermal glazing and are not original. The building has a multi-story glazed tower with metal shading features at the main entrance and lobby. There are also horizontal metal shading features on the south side of the building. There is a storefront assembly at the main entrance and Entrance #3. No cracking or fogging was observed, and there were no reported issues. All windows assumed replaced in 2004.		
B203000 - EXTERIOR DOORS	4	The exterior doors are single and paired glazed storefront units and single and paired metal flush panel units (some with glazing). There is a security vestibule at the main entrance (#1). All doors assumed to have been installed in 2004.		
B301000 - ROOF COVERINGS	3	The roof is a combination of low slope BUR (~32%), standing seam metal (~36%), low slope 3-ply hybrid (~23%), and TPO (~8%). The BUR is in poor condition, which is consistent with the 2016 APS roof survey. The BUR has areas of ponding, large repair patches, and moss growth. A number of areas where elastomeric coating repairs have been attempted are now cracking. There are numerous leak damaged ceiling tiles evident in the Multipurpose Room, which is covered by the BUR. There is also evidence of leak damaged tiles in Rm D222 and outside B205. The hybrid roofing appears in fair/good condition (consistent with 2016 APS survey) but is near end of EUL. The metal roof is in good condition, while the previous asphalt shingle roofing has been replaced with TPO, probably within the last few years. Metal gutters, roof scuppers, and downspouts convey some stormwater to grade and appear in good condition. There are numerous skylights serving section B of the second floor which are located on the BUR and appear to be in good condition. Condition rating of fair is a composite score. Local Project: Replace BUR roofing Local Project: Replace Hybrid roofing		
C101000 - PARTITIONS	5	Partition walls are predominantly CMU, with some drywall over framing and a small amount of glazed partitions.		
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames. The doors types vary and include flush and glazed units.		
C103000 - FITTINGS	4	The predominate fittings for the school are composite toilet partitions, metal ramp railings, and metal lockers.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs include cast in place concrete and steel framed with concrete infill pans, with steel framed predominating. Stairs have metal hand rails and guard rails.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted CMU predominates. In corridors and other common areas, finishes are painted CMU and drywall, with a small amount of tile. In classrooms, primarily painted CMU and drywall. In restrooms, ceramic tile and painted CMU and drywall. In large spaces such as the Media Center and Kitchen, painted CMU predominates but there were other finishes such as painted drywall and tile. Many classrooms were in the process of being painted at the time of assessment.		
C302000 - FLOOR FINISHES	5	The building has a variety of floor finishes. In corridors and other common areas, finish was primarily VCT, which was being replaced at the time of assessment. In classrooms, carpet tile and VCT, which were being replaced at the time of assessment. In restrooms and the Kitchen, ceramic tile. New carpet was being installed in the Media Center at the time of assessment. Given the amount of VCT and carpet being replaced in the building, composite condition rating is excellent.		
C303000 - CEILING FINISHES	4	The ceiling finishes throughout most of the building include suspended acoustical tile (SAT) and painted steel framing structure, with painted structure predominating. In some of the second floor classrooms (e.g., B211), the paint is peeling, due possibly to a leaking roof.		
D101010 - ELEVATORS	2	A Dover hydraulic elevator serving two floors with an original test date placard indicating 1977. Actual installation date of current equipment is uncertain. No issues reported but the hydraulic power unit showed substantial oil in the catch basin. The elevator could be well beyond EUL, although it may have been overhauled since initial installation. Multiple components may need to be tested, overhauled, or replaced. Note that Dover stopped manufacturing equipment in 1999. Car dimensions are 6' 9" x 4' 8".		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing fixtures are vitreous china with manual valves, typically wall mounted sinks and urinals and floor mounted toilets. Most piping and fixtures assumed installed during 2004 renovation, including copper domestic piping and cast iron sanitary piping. No issues reported or observed.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	Two domestic water heaters with total capacity of 200 MBH: One RUUD 200 MBH, 90-gallon gas-fired storage domestic water heater in Room B113 (manufactured 2004). One AO Smith 120 MBH 60-gallon gas-fired domestic water heater in Room C109 (manufactured 2015). No leaking or other issues observed or reported, but the larger unit is beyond EUL and should be replaced.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Roof drains convey stormwater from the BUR sections of roof, as well as some of the hybrid areas, internally through the building. Stormwater from the metal TPO, and some hybrid roof sections is conveyed by gutters, downspouts, and scuppers and is not included here. Includes restroom floor drain system. No issues reported or observed.		
D301000 - ENERGY SUPPLY	4	Natural gas supply enters the NW corner of the building. There is surface corrosion of the piping between the regulator and building but there is no indication of significant pipe deficiencies. Piping appears to have been replaced in 2004 per drawings.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	4	Three PK Thermifac gas-fired water tube boilers model SN-1500 (manufactured 2003) each with 1,275 MBH output. System was designed to circulate hot water to four roof-mounted makeup air units, five roof-mounted air handling units, and multiple terminal units serving the building. All boilers exhibited valid inspection certificates (expire November 2024). Area heated assumed to be the entire building GSF as two rooftop units provide cooling only.		
D302010 - FIREPLACES	5	The CMU with brick veneer chimney is inactive but no deficiencies were observed.		
D303000 - CENTRAL PLANT COOLING	3	Trane 185-ton air-cooled chiller, utilizes R134A refrigerant, manufactured 2004. Condenser coil could not be viewed. The unit is mostly corrosion-free but some insulation is falling. No other issues reported or observed. System was designed to circulate ethylene glycol to five air handling units and multiple terminal units serving the building. Area cooled assumed to be the building GSF minus SF of the "Computer" (~142 SF) and "Admin" (~2,335 SF) areas, which are cooled by two RTUs using direct expansion. While the four makeup air units also use DX cooling, this is assumed to pre-condition/dehumidify outside ventilation air for the entire building, so no SF modification has been made.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating distribution systems consists primarily of piping, pumps, makeup air units, air handling units, ductwork, and terminal units. Hot water is delivered to four roof-mounted makeup air units (A1=178 MBH, B1=308 MBH, D1=321 MBH, D2=341 MBH) and five roof-mounted AHUs serving the Library (B1=200 MBH), MPR (C1=188 MBH), Kitchen (C2=72 MBH), and Gymnasium (C3 & C4 =148 MBH each). Most classrooms and offices are heated by terminal units such as fan coil units, unit ventilators, radiators, remote water coils, and cabinet unit heaters. There are two 15 HP distribution pumps and one 2 HP circulation pump at each boiler. Air handlers are Trane (manuf 2004) and condition is commensurate with age. The makeup air units are by Innotent (assumed 2004), with some units exhibiting exterior corrosion and light interior corrosion. One motor/pump set for HW distribution appears to not have been original. All other equipment assumed installed 2004. Rooftop equipment and terminal units will soon enter final 1/3 of EUL.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Cooling distribution systems consists primarily of piping, pumps, air handling units, ductwork, and terminal units. Chilled water is delivered to five roof-mounted Trane serving the Library (B1=19 tons), MPR (C1=15 tons), Kitchen (C2=8 tons), and Gymnasium (C3 & C4 =14 tons each). Air handlers are Trane (manuf 2004) and condition is commensurate with age, with some evaporator coils exhibiting dirt and minor damage. The makeup air units are by Innotent (assumed 2004), with some units exhibiting exterior corrosion, damaged and dirty coils and fans, and light interior corrosion. Most classrooms and offices are cooled by terminal units such as fan coil units and unit ventilators. There are two 7.5 HP CHW motors and two 15 HP CHW motors that appeared to be original but the pumps could not be viewed due to thermal enclosures. All other equipment assumed installed 2004. Rooftop equipment and terminal units will soon enter final 1/3 of EUL.		
D305010 - TERMINAL & PACKAGE UNITS	3	RTUs B1 and C1 provide cooling only and are considered here. B1 (127) cools the "Computer Area" while C1 (167) cools the "Admin Area." The condenser coil fins exhibit minor damage from weather and vandalism but no other issues observed or reported. These two units are entering final 1/3 of EUL. The four packaged makeup air units (A1 = 12T, B1 = 16T, D1 = 27T, D2 = 19T) are used to provide outside ventilation air to much of the building except the Library, MPR, Kitchen, Gymnasium, Admin area, and Computer area. The MAUs use hydronic heating coils and DX cooling capability to pre-condition outside air, so the packaged MAUs are addressed under "Distribution Systems" instead of here. The five packaged AHUs have hydronic heating and cooling coils and are addressed under "Distribution Systems" instead of here.		
D306000 - CONTROLS	3	Per the record drawings, a full DDC control system was installed 2004. No issues observed or reported, but the control systems are entering final 1/3 of EUL assuming no major upgrades since original installation.		
D401000 - SPRINKLERS	4	Fully sprinklered building with wet system installed 2004. Serves three zones on first floor, two zones on second floor, and one zone covering the elevator. Includes backflow prevention assembly. The most recent (2021) inspection indicated pressure gages needed recalibration.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main switchboard is a Cutler Hammer 2,000A, 480/277V, 3-phase, 4-wire. There is also a Siemens 1,200A, 277/480V, 3-ph, 4-wire distribution panel in the boiler room, installed circa 2004.		
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels throughout the building, both 480/277 and 208/120, all manufactured 2004. An apparently older panel was observed in the Kitchen but did not have a manufactured date. Fluorescent lighting (and switches) installed 2004 was observed in the MPR and Media Center. Newer LED lighting was observed in the Gym, along with suspended LED lighting in the lobby. Wiring is copper.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Fire alarm panel is a Simplex 4100 with four panels, assumed installed 2004 with PA system. Per the latest fire alarm system inspection (2021), no deficiencies found. The panel showed no alarm conditions at the time of assessment. No issues observed or reported but the system is in the last 1/3 of average useful service life. The system has been discontinued by the manufacturer and is considered obsolete. No security system was observed.		
D509000 - EMERGENCY POWER	4	105 KW diesel-powered emergency generator by Katolight. Enclosure was locked and mechanical components could not be observed. Transfer switch was a Zenith Entelli-Switch 250. Assumed installed 2004. No issues reported. Rating based on age.		
E102000 - INSTITUTIONAL EQUIPMENT	4	10 KW Kohn serving Art Room (B101). Age uncertain but model, vintage, and condition similar to others throughout school system.		
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen with stainless steel stove/oven, exhaust hood, warming racks, refrigerator, freezer, sink, and serving counters. Appliances assumed installed 2004. Score based on observed condition and age.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	4	Laminated composite casework in classrooms and offices includes cabinets, shelving, and work stations. Most casework assumed to have been installed in 2004. Condition good with expected level of wear and tear observed. Quantity estimated based on square footage.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multipurpose room serving as cafeteria and auditorium with raised stage. Assumed renovated in 2004. VCT flooring (fair/good condition) with painted wood flooring at stage (fair condition). Walls are smooth CMU with some acoustic paneling (good). Ceiling is suspended acoustic tiles, including some suspended in a circular cloudlike arrangement; many of the ceiling tiles in the MPR have been damaged by roof leaks. Single-purpose elementary school gymnasium. Sheet vinyl flooring (scuffed but functional, fair condition), painted CMU walls with soundproofing panels and safety padding, and painted ceiling structure were in good condition. Basketball hoops appeared new. Lighting may have been upgraded and was in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building systems CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Glebe Elementary School	1971	2004	82,889	61,800	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	5 each average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym meets current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Ventilation for Dining meets current ASHRAE 62.1 (200 students max)
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation for Gym meets current ASHRAE 62.1 (Library)
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room is not exhausted outdoors. Kilo room also exhausted along with kiln exhaust systems to remove heat.
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Classroom used unit ventilator with 1/2" filters.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Roof tops, AHUs, and Makeup air units - housed MERV 13 filtration.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Roof tops, AHUs, and Makeup air units - housed MERV 13 filtration.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Not many of the classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Fluorescent fixtures throughout. Mix of LED and fluorescent fixtures in gymnasium.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures appear to be dark sky compliant with the exception of some wall packs.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	Blog, design with and included water efficient plumbing fixtures
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	FY 2022 Energy Report Card
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	
Major Building Systems	1.0 Building Security - Security Vestibules	●	Door 1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	There are no substantial concealment areas due to architectural design. However, a tree near Door 4 could allow roof access and concealment and should be trimmed back. Vegetation near Door 1 should be trimmed.
Major Building Systems	2.3 Building Security - Single point of entry	●	Door 1 is clearly the main entrance and other doors with intercoms have signs posted that direct visitors to the main office at the front of the building.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	toilet rooms are accessible, but there are no vertical bars present in the building
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Stairs: Risers = 7" / Treads = 11". Handrails at 34" and 24"
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	1.1kW
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	6' 9" x 4' 8"
Common Space Adequacy	1.0 Cafeteria	●	2975(cafeteria area)/15 students = 199
Common Space Adequacy	1.1 Kitchen	●	940 (kitchen area)/ 3 = 314
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 150/3 periods = 170
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, 3 ropes, and wall pads. no daylight, no divider curtain
Common Space Adequacy	2.2 Gymnasium	●	76'-1" L x 50'-8" W. Height to bottom of joist 20'-11", to bottom of deck 23'-9", 18'-4" to lowest duct
Common Space Adequacy	3.1 Performance Space	●	Platform off cafeteria, ADA accessible and permanent
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	867 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	much with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	11	Green = 11; pre-K & K (1); 1st (4); Gen ed (6)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	5	Yellow = 5; pre-K & K (4); 1st (0); Gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	5	Red = 5; pre-K & K (0); 1st (0); Gen ed (5)
Educational Space Adequacy	1.2 Classrooms (General)	21	
Educational Space Adequacy	1.3 Classrooms (General)	●	10% classrooms have no natural light. 10% use clerestory window wells. All others have natural light
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten classrooms have ADA toilets (no vertical bar)
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have at least 1 sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	3	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 2 offices; 1 conference room; 1 records room - rated
Educational Space Adequacy	3.4 Clinic	●	1 bed, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, B101 and B104
Educational Space Adequacy	4.2 Art	●	yes, 1 kiln connected to B101
Educational Space Adequacy	4.3 Art	●	room B101 - 2 sinks; room B104 - no sinks
Educational Space Adequacy	4.4 Art	●	one connected storage room between art rooms
Educational Space Adequacy	5.1 Music	●	1 - general
Educational Space Adequacy	5.2 Music	●	connected storage
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Gunston Middle School	1959	199,241	0.200	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
20	2017	3	0.166	\$69,606,912		

Building Description

Gunston Middle School, located at 2700 S. Lang St., is a 3-story structure. The building was originally constructed in 1959 and includes classrooms, a performance auditorium and black box theater, cafeteria, and a competition gymnasium and auxiliary gymnasium. The building shares boundaries and floor space with the Community Center (which co-operates with the gymnasium) and a theatre company. The building is a concrete-framed floor structure with steel-framed roof structure and a brick and EFIS exterior. The roof system is a built-up surface with a gravel topping. Interior finishes include vinyl composite and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU. Ceiling finishes are generally lay-in acoustic tiles. The building was equipped with one three stop elevator. The HVAC system consists of a central boiler plant consisting of natural gas fired boilers, which fed unit heaters and roof mounted packaged AC units. The building has a wet pipe fire sprinkler system, fire alarm system, and 85-KW emergency generator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	114,459	BLDG FP SF	\$12.08	\$1,383,018	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	111,048	BLDG FP SF	\$13.87	\$1,540,194	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	88,193	ELEV FL SF	\$52.67	\$4,645,462	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	114,459	BLDG FP SF	\$24.05	\$2,752,844	99	99
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	199,241	BLDG GROSS SF	\$26.95	\$5,369,870	99	99
B202000 - EXTERIOR WINDOWS	3	Exterior windows	199,241	BLDG GROSS SF	\$18.83	\$3,750,871	40	15
B203000 - EXTERIOR DOORS	3	Exterior doors	199,241	BLDG GROSS SF	\$1.02	\$202,853	25	5
B301000 - ROOF COVERINGS	2	Built-up roof	114,459	BLDG FP SF	\$27.93	\$3,196,993	30	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	114,459	FINISHED SF	\$20.42	\$2,337,279	70	70
C102000 - INTERIOR DOORS	3	Interior doors	114,459	FINISHED SF	\$4.73	\$540,894	40	12
C103000 - FITTINGS	3	Partitions and lockers	114,459	FINISHED SF	\$4.09	\$468,335	40	12
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	114,459	BLDG GROSS SF	\$1.02	\$116,534	99	99
C301000 - WALL FINISHES	2	Standard wall finishes	174,706	FINISHED SF	\$5.09	\$889,367	6	2
C302000 - FLOOR FINISHES	2	Standard floor finishes	174,706	FINISHED SF	\$14.20	\$2,480,160	20	2
C303000 - CEILING FINISHES	2	Standard ceiling finishes	174,706	FINISHED SF	\$16.83	\$2,939,946	20	2
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	35	14
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	199,241	SERVED SF	\$17.25	\$3,437,023	50	22
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, 181 to 300 MBH	3	EACH	\$32,608.98	\$97,827	40	18
D204000 - BUILDING STORMWATER DRAINAGE	3	Internal roof drains	114,459	BLDG FP SF	\$3.25	\$371,590	60	20
D301000 - ENERGY SUPPLY	5	Natural gas supply	199,241	BLDG GROSS SF	\$0.15	\$30,619	60	32
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	199,241	SERVED SF	\$7.17	\$1,427,628	40	34
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	199,241	SERVED SF	\$19.67	\$3,919,278	35	29
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	-	-	-	-	-	-	-
D305010 - TERMINAL & PACKAGE UNITS	5	Terminal and package units, >=20,000 SF to <25,000 SF	199,241	SERVED SF	\$46.49	\$9,262,355	30	25
D306000 - CONTROLS	5	HVAC controls - split systems and/or packaged units	199,241	SERVED SF	\$2.38	\$474,600	20	15
D401000 - SPRINKLERS	5	Sprinkler system	199,241	SERVED SF	\$7.90	\$1,573,069	50	28
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	199,241	BLDG GROSS SF	\$4.00	\$796,103	50	40
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	199,241	BLDG GROSS SF	\$36.27	\$7,226,168	50	22
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	Communication, alarm, telephone, and wiring	199,241	BLDG GROSS SF	\$10.18	\$2,028,532	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=80 kW to <100 kW	1	EACH	\$89,585.84	\$89,586	35	12
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	199,241	SERVED SF	\$3.50	\$696,590	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Telescoping bleachers, standard	988	SEATS	\$968.43	\$956,813	25	12
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	860	LENGTH LF	\$829.72	\$713,558	35	7
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	4,266	SERVED SF	\$100.03	\$426,713	20	12
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	HS-level Gymnasium	12,769	SERVED SF	\$158.48	\$2,023,663	20	12
F102030 - AUDITORIUMS	3	Performance Auditoriums	7,500	SERVED SF	\$164.57	\$1,234,291	20	10
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Gunston Middle School	1959	199,241	0.200	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
20	2017	3	\$69,606,912	No. of Local Projects		
				1		

Building Description

Gunston Middle School, located at 2700 S. Lang St., is a 3-story structure. The building was originally constructed in 1959 and includes classrooms, a performance auditorium and black box theater, cafeteria, and a competition gymnasium and auxiliary gymnasium. The building shares boundaries and floor space with the Community Center (which co-operates with the gymnasium) and a theatre company. The building is a concrete-framed floor structure with steel-framed roof structure and a brick and EIFS exterior. The roof system is a built-up surface with a gravel topping. Interior finishes include vinyl composite and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU. Ceiling finishes are generally lay-in acoustic tiles. The building was equipped with one three stop elevator. The HVAC system consists of a central boiler plant consisting of natural gas fired boilers, which fed unit heaters and roof mounted packaged AC units. The building has a wet pipe fire sprinkler system, fire alarm system, and 85-KW emergency generator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	202,853	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 3,196,993	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	2	\$ -	\$ 889,367	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 889,367	\$ -	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	2	\$ -	\$ 2,480,160	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	2	\$ -	\$ 2,939,946	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	\$ -	\$ 2,028,532	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 696,590	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 713,558	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ 4,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$4,000	\$11,534,998	\$0	\$0	\$202,853	\$0	\$713,558	\$889,367	\$0	\$696,590	\$0	\$0

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Gunston Middle School		1959	199,241	0.200
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
20		2017	3	0.166
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$69,606,912				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings. No foundation issues observed.		
A103000 - SLAB ON GRADE	5	Slab on grade on portions of the ground and 1st floor. (There is crawl space accessible on the north side of the ground floor) No issues observed.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Reinforced concrete floor structure performing as intended.		
B102000 - ROOF CONSTRUCTION	5	Observed roof structure was steel bar joists and metal decking. No structural issues observed.		
B201000 - EXTERIOR WALLS	4	Brick exterior walls(60%) and EIFS exterior (40%). Brick was free of defects and in good condition. EIFS has some staining observed and what appeared to be puncture damage in isolated locations. Overall condition was good.		
B202000 - EXTERIOR WINDOWS	3	Aluminum framed dual glazed windows installed between 1996 and 2001 based on date stamps in window frames. Minor finish damage on exterior of frames. Windows are in fair condition and in or entering final third of estimated useful life.		
B203000 - EXTERIOR DOORS	3	Aluminum framed glass entry doors at main entrances and painted steel doors. Doors were in fair condition with no major rust, or operational issues. Doors appear to date to mid-2000s.		
B301000 - ROOF COVERINGS	2	Built up roof surface. Active leaks present in several areas of the building along with damaged ceiling tiles. Damage present near roof hatches due to water infiltration. Evidence of patching in several areas and pending water present. Roof is in poor condition.		
C101000 - PARTITIONS	5	Primarily CMU interior partitions with some gypsum board over stud construction in main office and other areas. CMU was performing as intended with no major issues observed. Gypsum board was newer and in 1st third of EUL with no issues observed.		
C102000 - INTERIOR DOORS	3	Solid core interior wood doors were in good condition with no major damage, operation issues or major finish deterioration observed. Doors assumed to date to 1995 major renovation.		
C103000 - FITTINGS	3	Lockers appear to date to 1995 remodel and were largely free of defects with fair finish. Toilet partitions were solid composite and functional with evidence of cleaned/sanded graffiti. Overall fitting were in fair condition.		
C201000 - STAIR CONSTRUCTION	5	Cast in place concrete stairs with no structural issues observed.		
C301000 - WALL FINISHES	2	Painted interior CMU and glazed ceramic tile. School wall finish, while free of chips and peeling paint, was dull and in need of a refresh.		
C302000 - FLOOR FINISHES	2	VCT, carpet, finished concrete and ceramic tile. Shrinking VCT tiles visibly detracted from hallways. Carpet was generally fair. Majority of flooring appeared to date to 1995 and is beyond estimated useful life.		
C303000 - CEILING FINISHES	2	Suspended acoustical panel ceiling. Suspended tiles were sagging and several tiles have water damage from previous or active leaks. Overall ceiling tiles were in poor condition.		
D101010 - ELEVATORS	4	Hydraulic elevator with drive unit manufactured in 2002. Current inspection records available in the machine room. Elevator was in good condition.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Copper piping and cast iron drain waste and vent piping appeared to have been replaced in 1995. Fixtures were functional and free of stains with manual flush valves. Overall plumbing system appeared to be in good condition.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	Main domestic hot water is supplied by two R81 domestic water boilers with an input capacity of 250 MBH. These heaters were manufactured in 2001 and were in good condition. The kitchen is supplied hot water via a 120-MBH, 50-gallon heater manufactured by State in 2018 and was also in good condition.		
D204000 - BUILDING STORMWATER DRAINAGE	3	Observed roof drains were no-hub cast iron, connected to obder hubbed cast iron. No leaks associated with the piping, leaks were present at the roof deck above the auditorium but appeared to be associated with roof coverings/connections. Overall system appeared to be in fair condition.		
D301000 - ENERGY SUPPLY	5	Natural gas supply piping for boilers, rooftop packaged units, and kitchen equipment. Natural gas piping appears to date to 1995 renovations. No issues observed.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Two 4,000-MBH natural gas fired boilers and one 1,050-MBH natural gas fired boiler manufactured by Patterson Kelley in 2017 and 2018. Boilers were in excellent visual condition with no issues observed.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Cabinet unit heaters supplied by boiler heating water, and heating water for select rooftop air handlers. Heating water supply pumps replaced in 2018 with boiler replacements and cabinet unit heaters appear to date to same time period. No issues reported or observed.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	-			
D305010 - TERMINAL & PACKAGE UNITS	5	Petra and Aeon packaged rooftop units manufactured between 2017 and 2019. Additional minisplit systems present for local cooling also installed around similar date and a VRF system served the main office and manufactured in 2022. No issues observed.		
D306000 - CONTROLS	5	Controls system date to boiler and packaged rooftop systems installation. No issues reported or observed.		
D401000 - SPRINKLERS	5	Wet pipe fire sprinkler system with main riser piping date stamped as being manufactured in 2001. System is in 1st half of estimated service life. No issues observed.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	3,000-amp, 480/277V Three phase electrical service with switchgear manufactured in 2013. No issues observed.		
D502000 - LIGHTING AND BRANCH WIRING	4	Branch wiring appear to date to 1995 renovation based on date codes of branch distribution panels. Lighting was typically 2x4 linear fixtures in suspended ceiling tile grid, with open grid diffuser style typical of late 90's construction. Overall electrical lighting and branch wiring system appeared in good condition.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	Fire alarm system with Simplex 4020 fire alarm control panel. Available drawings indicated system dates to 2000. System is beyond estimated useful life and should be budgeted for replacement.		
D509000 - EMERGENCY POWER	3	KatoLite 85 KW emergency generator located on the east side of the building. Generator appears to date to around 2000. Minor finish deterioration on exterior housing, but generator appears well maintained and is in fair condition.		
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	3	Warming kitchen with oven, serving equipment, and walk in refrigerator and freezer. Walk in refrigeration equipment had one condenser manufactured in 2018 and the other in 2014. Overall equipment appeared to be in fair condition.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Auditorium seating and pull out bleachers. Auditorium seating was in fair condition with no major stains, damage, or other issues observed. Auditorium had a seating capacity of 432. Gym bleachers were in good condition with capacity for approximately 556. Overall condition was good.		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Built in cabinetry and countertops with laminate materials. Casework appear to date to 1995. No major damage or defects observed. Casework was in fair condition.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Auxiliary gym was in good condition with good wall and ceiling finishes. Floors were well finished and in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	Gymnasium and lockers rooms were in good condition with no major damage or deterioration observed. Floors were well finished, polished and in good condition.		
F102030 - AUDITORIUMS	3	Performance auditorium was in fair condition with carpeted walkways and painted gypsum board walls. Ceiling finishes had localized damaged from roof leaks and were in need of replacement. Local Project: Repair damaged ceiling finishes in balcony due to roof leaks.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Gunston Middle School	1959	2017	199,241	114,459	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	The majority of classrooms throughout the school are yellow. About 80%. About 15% are green. And 5% are red. The black box theater, dining room, and library are green. The auditorium is yellow. Both the main gym and aux gym are red (due to the ceiling heights).
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Almost all classrooms do not meet ASHRAE ventilation requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Both the aux and main gym just barely meet the ASHRAE requirements
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Dining is short by about 25%
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Exceeds by about 30%
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Auditorium is short by 63%. Blackbox theater exceeds by more than 100%
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Vast majority of all classrooms do not meet either ASHRAE or APS requirements. The only spaces that meet both the ASHRAE and APS requirements are the Black Box Theater and Library
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 8's
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 8
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	MERV 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms all have their own thermostats. Admin suite seemed to have thermostats in each office (recently renovated). Other office spaces throughout the school (counselor, etc.) did not have thermostats in every space
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Main office and renovated classrooms are the only rooms to have LEDs
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Some are standard temp, but it is inconsistent
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Main office and renovated classrooms are the only rooms to have sensors
Major Building Systems	3.6 Electrical - Sport Lighting	●	No sports lighting
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	No low flow fixtures seen anywhere in the school
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	
Major Building Systems	1.0 Building Security - Security Vestibules	●	Vestibule present at main entrance (Door A3) with access to the main office.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	Minor areas of concealment at classroom door entryways.
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	No areas of concealment observed.
Major Building Systems	2.3 Building Security - Single point of entry	●	School building is shared with community center and other stakeholders, with interior doors between spaces. These doors are presumably locked during school hours but undetermined during site assessment.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Missing vertical grab bars in ADA stalls
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Stairs and guardrails are YES; handrails are missing extensions
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1
Major Building Systems	5.3 Other - Elevator Size	●	Single elevator with two doors in a "pass through" configuration. Doors were side opening and the cab had an interior clear dimensions of 81 inches by 52 inches (8'9" x 4'4")
Common Space Adequacy	1.0 Cafeteria	●	6455 / 12 = 537
Common Space Adequacy	1.1 Kitchen	●	1515 (kitchen and serving) / 3 = 505
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	992 / 3 = 330
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, all operable, volleyball; daylight; divider partition; operable bleachers
Common Space Adequacy	2.2 Gymnasium	●	105' - 11" x 80' - 07" Low Deck: 26' - 09", High Deck: 31' - 09", Joist: 21' - 4"
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	Posted Occupancy: 492
Common Space Adequacy	3.3 Performance Space	●	Accessible, but not from inside auditorium
Common Space Adequacy	4.1 Library	●	1088 Lft
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	45	Green = 45; lab (5); classroom (40)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	1	Yellow = 1; lab (0); classroom (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	9	Red = 9; lab (1); classroom (8)
Educational Space Adequacy	1.2 Classrooms (General)	55	
Educational Space Adequacy	1.3 Classrooms (General)	●	All classrooms with exterior windows have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	Sinks are in required classrooms
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	11	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	5 desks; 2 offices (past principal is in #136, unconnected from main admin), conference room, rated files room
Educational Space Adequacy	3.4 Clinic	●	4 beds, toilet with no vertical, sink, NO eyewash, ref.
Educational Space Adequacy	4.1 Art	●	1 room - #08
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	3
Educational Space Adequacy	4.4 Art	●	Yes, connected to rooms
Educational Space Adequacy	5.1 Music	●	2 rooms - #144; Band; #145A/B (now a single room); vocal
Educational Space Adequacy	5.2 Music	●	#144; yes; #145A/B; yes
Educational Space Adequacy	6.0 Lab	●	6 science labs; 1 business lab; 1 home ec lab; 1 life skills; 1 shop lab/tech ed
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	2019	181,803	0.036	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
21	No record	7	0.001	\$56,912,093		

Building Description

The Heights Building, located at 1601 Wilson Blvd, is a 6-story structure with a basement. The building was completed in 2019 and houses the H-B Woodlawn secondary program and the Eunice Kennedy Shriver program. The building includes classrooms, cafeteria, kitchen, laboratory spaces, art studios, theaters, library, two gymnasiums, and administrative offices. The building is concrete and steel-framed with a glass panel and glazed brick exterior. The roof system is a vegetative green roof over the concrete roof deck that provides continuous terrace access at four levels. Interior floor finishes include sealed concrete, tile, and carpeted flooring. Wall finishes are generally painted drywall and unfinished concrete. Ceiling finishes are generally lay-in acoustic tiles with areas of exposed painted HVAC system distribution systems. Building domestic hot water was generated utilizing condensing boiler system with storage tanks. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. There was multiple distributed VRF heat pump systems throughout the building supported by a condenser water system tempered by hydronic boilers and cooling towers. Building power was through a 2500 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was rated at 200kW and power emergency lighting and designated services. There were three 7-stop machine-room-less elevators, one 2-stop hydraulic elevators, and one auditorium stage wheelchair lift.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	48,383	BLDG FP SF	\$12.08	\$584,616	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	48,383	BLDG FP SF	\$13.87	\$671,054	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	20,800	BASEMENT SF	\$19.09	\$397,171	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	133,420	ELEV FL SF	\$42.15	\$5,623,218	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	48,383	BLDG FP SF	\$24.05	\$1,163,656	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	161,003	BLDG GROSS SF	\$26.95	\$4,339,293	70	70
B202000 - EXTERIOR WINDOWS	5	Exterior windows	161,003	BLDG GROSS SF	\$18.83	\$3,031,010	40	36
B203000 - EXTERIOR DOORS	5	Exterior doors	161,003	BLDG GROSS SF	\$1.02	\$163,922	30	26
B301000 - ROOF COVERINGS	4	Plaza deck/green roof system	48,383	BLDG FP SF	\$103.70	\$5,017,103	40	35
C101000 - PARTITIONS	5	Drywall over studs	181,803	FINISHED SF	\$6.36	\$1,155,996	25	25
C102000 - INTERIOR DOORS	4	Interior doors	181,803	FINISHED SF	\$4.73	\$859,139	40	35
C103000 - FITTINGS	5	Partitions and lockers	181,803	FINISHED SF	\$4.09	\$743,889	30	26
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	181,803	BLDG GROSS SF	\$1.02	\$185,099	60	60
C301000 - WALL FINISHES	3	Standard wall finishes	161,494	FINISHED SF	\$5.09	\$822,109	10	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	161,494	FINISHED SF	\$14.20	\$2,292,600	45	40
C303000 - CEILING FINISHES	5	Standard ceiling finishes	161,494	FINISHED SF	\$16.83	\$2,717,615	20	16
D101010 - ELEVATORS	5	Elevator	4	EACH	\$206,284.67	\$825,139	35	31
D101020 - LIFTS	5	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	20	16
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	181,803	SERVED SF	\$17.25	\$3,136,207	50	46
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, 131 to 180 MBH	2	EACH	\$35,634.55	\$71,269	20	16
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	48,383	BLDG FP SF	\$4.92	\$237,936	60	56
D301000 - ENERGY SUPPLY	5	Natural gas supply	181,803	BLDG GROSS SF	\$0.15	\$27,939	60	56
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	181,803	SERVED SF	\$7.17	\$1,302,678	40	36
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	181,803	SERVED SF	\$8.13	\$1,477,300	30	26
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heat pump system	181,803	SERVED SF	\$8.47	\$1,540,164	25	21
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Heat pump system distribution	181,803	SERVED SF	\$8.47	\$1,540,164	25	21
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - split systems and/or packaged units	181,803	SERVED SF	\$2.38	\$433,062	15	11
D401000 - SPRINKLERS	5	Sprinkler system	181,803	SERVED SF	\$7.90	\$1,435,391	50	46
D402000 - STANDPIPES	5	Standpipe system	181,803	SERVED SF	\$0.63	\$115,250	50	46
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1600 Amp Service	181,803	BLDG GROSS SF	\$3.15	\$572,759	50	46
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	181,803	BLDG GROSS SF	\$36.27	\$6,593,718	50	46
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	181,803	BLDG GROSS SF	\$10.18	\$1,850,991	20	16
D509000 - EMERGENCY POWER	5	Emergency Generator, >=185 kW to <500 kW	1	EACH	\$166,772.00	\$166,772	20	16
E102000 - INSTITUTIONAL EQUIPMENT	5	Institutional equipment	4,300	SERVED SF	\$160.37	\$689,570	20	16
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	181,803	SERVED SF	\$3.50	\$635,623	20	16
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	Indoor Auditoriums or Lecture seating	320	SEATS	\$919.20	\$294,144	20	16
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	1,600	LENGTH LF	\$829.72	\$1,327,549	35	31
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	Multi-purpose room	7,596	SERVED SF	\$100.03	\$759,801	20	15
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	5	Performance Auditoriums	12,713	SERVED SF	\$164.57	\$2,092,205	20	15
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

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6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	2019	181,803	0.036	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
21	No record	7	\$56,912,093	No. of Local Projects 3		

Building Description

The Heights Building, located at 1601 Wilson Blvd, is a 6-story structure with a basement. The building was completed in 2019 and houses the H-B Woodlawn secondary program and the Eunice Kennedy Shriver program. The building includes classrooms, cafeteria, kitchen, laboratory spaces, art studios, theaters, library, two gymnasiums, and administrative offices. The building is concrete and steel-framed with a glass panel and glazed brick exterior. The roof system is a vegetative green roof over the concrete roof deck that provides continuous terrace access at four levels. Interior floor finishes include sealed concrete, tile, and carpeted flooring. Wall finishes are generally painted drywall and unfinished concrete. Ceiling finishes are generally lay-in acoustic tiles with areas of exposed painted HVAC system distribution systems. Building domestic hot water was generated utilizing condensing boiler system with storage tanks. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. There was multiple distributed VRF heat pump systems throughout the building supported by a condenser water system tempered by hydronic boilers and cooling towers. Building power was through a 2500 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was rated at 200kW and power emergency lighting and designated services. There were three 7-stop machine-room-less elevators, one 2-stop hydraulic elevators, and one auditorium stage wheelchair lift.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$ 15,000	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	4	\$ 15,000	\$ 15,000	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	3	\$	\$	\$	\$ 822,109	\$	\$	\$	\$	\$	\$	\$	\$
C302000 - FLOOR FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 433,062	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$15,000	\$30,000	\$0	\$822,109	\$0	\$0	\$0	\$0	\$0	\$0	\$433,062	\$0

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs		2019	181,803	0.036
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
21		No record	7	0.001
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$56,912,093				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.		
A103000 - SLAB ON GRADE	5	The basement (B2 Level) and a portion of the ground floor (G1 Level) are slab on grade.		
A202000 - BASEMENT WALLS	5	Cast-in-place concrete basement walls for ~20,800 SF of basement area beneath the ground (G1) floor.		
B101000 - FLOOR CONSTRUCTION	5	Steel-framed building supporting concrete floor slabs for Levels 5 through 1, and a portion of the G1 Level. There is pervasive spider cracking in concrete floor slabs on multiple floor levels that should be assessed. Local Project: Assess spider cracking in concrete floor slabs.		
B102000 - ROOF CONSTRUCTION	5	Steel-framed concrete roof decks over floors 1-5 in fan-shaped fashion, supporting vegetative green roof.		
B201000 - EXTERIOR WALLS	5	Glazed brick masonry exterior with glass window and atrium panels.		
B202000 - EXTERIOR WINDOWS	5	Windows are primarily frameless and aluminum framed fixed and atrium windows. Comparatively smaller number of operable windows. All windows appear to have low-E coating.		
B203000 - EXTERIOR DOORS	5	Primarily single and paired aluminum framed glass doors, with some single and paired metal flush panel doors. One metal roll-up door.		
B301000 - ROOF COVERINGS	4	Green Roof system with vegetative roof covering, raised beds, furnishings, and pavers over concrete deck. Leaks reportedly caused by irrigation system failures as well as storm-generated events, which should be investigated. Local Project: Assess green roof for source of leaking above terrace doors at multiple levels. Local Project: Assess green roof irrigation system for leaks.		
C101000 - PARTITIONS	5	Primarily drywall over metal studs with some cast-in-place concrete, glazed, and CMU partitions.		
C102000 - INTERIOR DOORS	4	Interior doors were a combination of solid-core wood doors (some with glazing), as well as glazed doors with aluminum framing and some metal flush doors. Some classroom doors have push bars for rapid exit. Finishes on painted doors were often worn but all doors appeared to function normally.		
C103000 - FITTINGS	5	Fittings consisted of metal lockers on multiple levels, composite restroom partitions, and metal railings (some painted).		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings. The mid-structure stairway was reportedly an area prone to slips/falls such that a middle railing and rubber tread/riser coverings were recently added to improve safety. There are two large cast-in-place stair-like structures used for student loitering and as stairways, one between levels G1 and 1 and one between levels 1 and 2. There are metal stairs linking four levels of roof terraces.		
C301000 - WALL FINISHES	3	Wall finishes are primarily painted drywall throughout the building, with ceramic tile in restrooms and a small amount of unfinished concrete. Paint finishes are well worn or marred in many areas. SF does not include gyms or theaters.		
C302000 - FLOOR FINISHES	4	Floors are predominantly polished concrete, with carpet tiles present in some corridors, classrooms, and offices on the G1 and 1 levels. SF does not include gyms or theaters.		
C303000 - CEILING FINISHES	5	Ceiling finishes are primarily lay-in acoustic tiles (some painted), some exposed/painted ceiling structure/HVAC equipment on lower levels, and a small amount of painted gypsum board. SF does not include gyms or theaters.		
D101010 - ELEVATORS	5	Elevator machine room-less elevators in a bank of three serving all levels (7 stops) plus a separate single shaft 2-stop hydraulic elevator serving the ground and first level only.		
D101020 - LIFTS	5	Electric driven wheel chair lift provides stage access in the main auditorium.		
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, and sinks; janitor stations; wet traps; and emergency wash stations. The piping, which was predominantly PVC, and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution. There were elevator sump pumps.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	Camus DynaMax natural gas domestic water heaters (no label- size estimated) provided stored and circulated hot water.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system that incorporated the green roof systems. The drops were internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water as well as ancillary services.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Paired natural gas-fired 2000MBH Fulton boilers tempered the heat pump condenser water system.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	Evapco 300-ton roof-top cooling towers provide condenser water for the building heat pump system heat rejection.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Distributed tempered condenser water piped to approximately 15 VRF heat recovery condensing units located throughout the building. Refrigerant is then distributed to multiport selector boxes, then to served VRF fan coil units providing local space conditioning. DOAS MAUs with DX cooling and natural gas heat provide ducted outside air.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Distributed tempered condenser water piped to approximately 15 VRF heat recovery condensing units located throughout the building. Refrigerant is then distributed to multiport selector boxes, then to served VRF fan coil units providing local space conditioning. DOAS MAUs with DX cooling and natural gas heat provide ducted outside air.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	5	The major building MEP systems incorporated a DDC and monitoring system throughout with most major equipment operating on internal controls.		
D401000 - SPRINKLERS	5	A single water service, with a fire and jockey pump, served a wet sprinkler system distributed throughout the building.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 2000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	5	Kohler diesel fueled 300 kw emergency generator and automatic transfer switches.		
E102000 - INSTITUTIONAL EQUIPMENT	5	The 11 KW kiln in Room G46C had a separate local exhaust system vented to the building exterior. There were also fume hoods in science classrooms including Rooms 311, 316, 510, and 511 (roughly 4,300 SF)		
E109002 - FOOD SERVICE EQUIPMENT	5	The kitchen included warming ovens, prep tables, exhaust hood, sinks, refrigeration equipment, and heated serving counters.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	The main theater had orchestra level and balcony level straight row style of fixed seating sections consisting of upholstered flip up cushioned seats.		
E201020 - FIXED FURNISHINGS - CASEWORK	5	Casework in classrooms included laminated cabinets and composite countertops. Laminated wood shelving and cabinets in library.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	5	Two gymnasiums, main and auxiliary. Main gym (6153 SF) has wood floors, painted drywall (fair) with safety padding, and painted acoustic tiles. Flexible partition wall hung from ceiling. Basketball hoops like new. No scoreboard. Small auxiliary gym (1443 SF) has sheet vinyl flooring, painted drywall with safety padding, and acoustic tiles. One basketball goal.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	5	There are two theaters, the main theater and the Blackbox theater. The main theater (10,873 SF) has fixed seating (320) at two levels. In the audience area, there is acoustic paneling on walls, acoustic ceiling finishes, and concrete, carpet, and foam flooring. On the stage, painted wood floor (fair) and painted CMU walls. Spotlights above audience and suspended above stage. HS Solutions audio system. The Blackbox Theater (1840 SF) has no seating but does have stage lighting. Painted CMU walls, painted wood floors, and no ceiling finishes.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
H-B Woodlawn Secondary & Eunice Kennedy Shriver Programs	2019	No record	181,803	48,383	7

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI for classrooms averages above 7 eACH when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	All classrooms spaces meet and exceed code requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline and values provided as part of contract documents
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline and values provided as part of contract documents
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline and values provided as part of contract documents
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Meets current ASHRAE 62.1 for auditorium
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	All specialty spaces, science hoods, kilns, etc. appear to have adequate ventilation and meet code
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Classrooms served by ducted VRF fan-coils, observed units and DOAS units utilized MERV-13 filtration
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13 filtration in air handlers and DOAS
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13 filtration in air handlers and DOAS
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms and spaces have thermostats for local control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	All fixtures were LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Interior CCT was consistent but did not meet the APS standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT was 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Sensors present throughout the building.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	All fixtures appeared to be low-flow type
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Pedestrians are directed to the side of the building where the security vestibule is located.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Years 2020 & 2022. 2020 was noted to be lower due to lower (EUI-35) due to remote learning
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	4	
Major Building Systems	5.3 Other - Elevator Size	1	
Common Space Adequacy	1.0 Cafeteria	●	2215/ 15x 148
Common Space Adequacy	1.1 Kitchen	●	2361/ 3x 787
Common Space Adequacy	1.2 Kitchen	●	2 serving lines
Common Space Adequacy	1.3 Kitchen	●	775 /3 periods - 259
Common Space Adequacy	2.1 Gymnasium	●	Main gym - 6 hoops, volleyball, shared lighting, wood flooring; Aux gym - 1 hoop, volleyball, daylight, rubber flooring
Common Space Adequacy	2.2 Gymnasium	●	Main Gym - 80' 0" L x 60' 0" W, 22' 0" H acoustical cldg; Aux Gym - 60' 0" L x 22' 0" W, 13' 0" H acoustical cldg
Common Space Adequacy	3.1 Performance Space	●	Stage is accessible
Common Space Adequacy	3.2 Performance Space	●	321, ADA Seating
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1656 LF total
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	N/A
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	17	Green = 17; tab (3); classroom (14)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	19	Yellow = 19; tab (1); classroom (18)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	4	Red = 4; tab (1); classroom (3)
Educational Space Adequacy	1.2 Classrooms (General)	40	
Educational Space Adequacy	1.3 Classrooms (General)	●	31/42 = 74%
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	6 green; 2 yellow
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	8 SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	2 Admin suites, Woodlawn - 2 desks, 3 offices, conference room, records, Shriver - 2 desks, 2 offices, conference room, record.
Educational Space Adequacy	3.4 Clinic	●	6 beds; ADA toilet; 3 sinks; eyewash; refrigerator
Educational Space Adequacy	4.1 Art	●	2
Educational Space Adequacy	4.2 Art	●	Off G46 Art room
Educational Space Adequacy	4.3 Art	●	4 sinks in G46
Educational Space Adequacy	4.4 Art	●	Connected
Educational Space Adequacy	5.1 Music	●	Choir, Band
Educational Space Adequacy	5.2 Music	●	In hallway
Educational Space Adequacy	6.0 Lab	●	3 Science Labs, 1 Chem Lab, 1 Physics Lab, 1 Photo Lab, 1 Robotics Lab, 1 Home Living
Educational Space Adequacy	7.1 Performing Arts	●	girls/ boys
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If EA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Hoffman-Boston Elementary School	1916	108,135	0.164	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
22	1999	3	0.200	\$39,911,384

Building Description

Hoffman-Boston Elementary School, located at 1415 S Queen St, is a three-story structure with a small outbuilding referred to as the little schoolhouse. The building was originally constructed in 1916 with several additions, the most recent in 1999 with a renewal of the school. The Hoffman-Boston Carver Center is located in a small area of the second floor and was not included as part of the assessment. The building had a combination of concrete and steel framing with brick masonry exterior, fixed and operable windows in aluminum frames, and built-up asphalt roof. Interior finishes included VCT, terrazzo, and carpeted flooring; painted gypsum board and concrete masonry unit walls; and suspended ceiling tile. There were two multi-purpose rooms, one of which served as the cafeteria; the other as the gym and auditorium spaces. Building domestic hot water was generated utilizing a natural gas water heater with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top units, roof top units with remote condensing units, and split heat pump systems combined with fan coil units and unit heaters. Building power was through a 2,000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	58,200	BLDG FP SF	\$12.08	\$703,236	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	58,200	BLDG FP SF	\$13.87	\$807,212	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	49,935	ELEV FL SF	\$66.81	\$3,336,276	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	58,200	BLDG FP SF	\$63.32	\$3,685,001	99	99
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	108,135	BLDG GROSS SF	\$26.95	\$2,914,415	70	50
B202000 - EXTERIOR WINDOWS	3	Exterior windows	108,135	BLDG GROSS SF	\$18.83	\$2,035,728	40	15
B203000 - EXTERIOR DOORS	3	Exterior doors	108,135	BLDG GROSS SF	\$1.02	\$110,095	30	10
B301000 - ROOF COVERINGS	3	Built-up roof	58,200	BLDG FP SF	\$27.93	\$1,625,604	25	2
C101000 - PARTITIONS	5	Drywall over studs	108,135	FINISHED SF	\$6.36	\$687,577	25	25
C102000 - INTERIOR DOORS	4	Interior doors	108,135	FINISHED SF	\$4.73	\$511,009	40	20
C103000 - FITTINGS	4	Partitions and lockers	108,135	FINISHED SF	\$4.09	\$442,459	40	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	108,135	BLDG GROSS SF	\$1.94	\$209,805	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	93,806	FINISHED SF	\$5.09	\$477,534	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	93,806	FINISHED SF	\$14.20	\$1,331,688	25	8
C303000 - CEILING FINISHES	4	Standard ceiling finishes	93,806	FINISHED SF	\$16.83	\$1,578,564	20	10
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	6
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	108,135	SERVED SF	\$17.25	\$1,865,391	50	26
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, Greater than 300 MBH	344	MBH	\$127.19	\$43,753	20	3
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	58,200	BLDG FP SF	\$4.92	\$286,214	60	36
D301000 - ENERGY SUPPLY	5	Natural gas supply	108,135	BLDG GROSS SF	\$0.15	\$16,618	60	30
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	108,135	SERVED SF	\$7.17	\$774,823	40	10
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	21,627	SERVED SF	\$8.13	\$175,737	40	36
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	86,508	SERVED SF	\$19.67	\$1,701,702	30	2
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Heating system piping and individual terminal AHUs	86,508	SERVED SF	\$19.67	\$1,701,702	30	2
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units	21,627	SERVED SF	\$47.45	\$1,026,173	30	2
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	108,135	SERVED SF	\$2.38	\$257,582	15	2
D401000 - SPRINKLERS	4	Sprinkler system	108,135	SERVED SF	\$7.90	\$853,759	50	26
D402000 - STANDPIPES	4	Standpipe system	108,135	SERVED SF	\$0.63	\$68,550	50	26
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	108,135	BLDG GROSS SF	\$4.00	\$432,073	50	26
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	108,135	BLDG GROSS SF	\$36.27	\$3,921,892	50	28
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	108,135	BLDG GROSS SF	\$10.18	\$1,100,955	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	11
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	7
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	108,135	SERVED SF	\$3.50	\$378,064	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Indoor Auditoriums or Lecture seating	520	SEATS	\$919.20	\$477,983	25	8
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	3,000	LENGTH LF	\$829.72	\$2,489,155	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	11,800	SERVED SF	\$100.03	\$1,180,312	20	7
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	3	Performance Auditoriums	2,529	SERVED SF	\$164.57	\$416,203	20	5
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Hoffman-Boston Elementary School	Year Built¹ 1916	Building GSF² 108,135	Building FCI_{AD} 0.164	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 22	Last Renovation¹ 1999	No. of Floors 3	Building CRV⁶ \$39,911,384	No. of Local Projects 2

Building Description

Hoffman-Boston Elementary School, located at 1415 S Queen St, is a three-story structure with a small outbuilding referred to as the little schoolhouse. The building was originally constructed in 1916 with several additions, the most recent in 1999 with a renewal of the school. The Hoffman-Boston Carver Center is located in a small area of the second floor and was not included as part of the assessment. The building had a combination of concrete and steel framing with brick masonry exterior, fixed and operable windows in aluminum frames, and built-up asphalt roof. Interior finishes included VCT, terrazzo, and carpeted flooring; painted gypsum board and concrete masonry unit walls; and suspended ceiling tile. There were two multi-purpose rooms, one of which served as the cafeteria; the other as the gym and auditorium spaces. Building domestic hot water was generated utilizing a natural gas water heater with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of ducted roof top units, roof top units with remote condensing units, and split heat pump systems combined with fan coil units and unit heaters. Building power was through a 2,000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 3-stop machine-room-less elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 65,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 110,095	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ 1,625,604	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 477,534	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 477,534	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,331,688	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,578,564	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ -	\$ 43,753	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 774,823	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ 1,701,702	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ 1,701,702	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ 1,026,173	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 257,582	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 1,100,955	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378,064	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 477,983	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,180,312	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$65,000	\$7,413,718	\$521,287	\$0	\$0	\$206,285	\$1,204,367	\$1,809,671	\$477,534	\$2,841,546	\$56,200	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Hoffman-Boston Elementary School		1916	108,135	0.164
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
22		1999	3	0.200
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation type for the older portions of the building were presumed to be concrete masonry units (CMU). Additions had concrete strip footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Older portions appeared to be loading bearing walls and concrete framing supporting concrete floor slabs. Newer additions presumed to have steel framing.		
B102000 - ROOF CONSTRUCTION	5	Older portions appeared to have concrete roof decks with newer additions have steel joists supporting a metal roof deck.		
B201000 - EXTERIOR WALLS	4	Exterior walls were several different variations of brick masonry with precast concrete accents. Several areas with step cracks were noted with wall staining throughout. Control joint sealants were in poor condition. Local Project: Replace brick control joint sealant Local Project: Repair brick masonry step cracks		
B202000 - EXTERIOR WINDOWS	3	Windows were a combination of fixed and operable (sliding and hinged) glass in aluminum frames.		
B203000 - EXTERIOR DOORS	3	Doors were typically metal with small glass lites, with the exception of some locations such as mechanical spaces. Painted surfaces were faded at doors not located near primary building entrances and exits.		
B301000 - ROOF COVERINGS	3	Gravel-surfaced built up roof appeared to date to 1999 renovation. Gravel was missing in some areas, leaving asphalt exposed, and flashings were in fair condition. There was evidence of previous repairs. Vegetation was observed on some sections. Stained ceiling tiles were noted in various rooms. Standing seam metal roofing was installed over the little schoolhouse.		
C101000 - PARTITIONS	5	Interior walls were predominantly gypsum board over studs, with exposed concrete masonry unit walls in some areas.		
C102000 - INTERIOR DOORS	4	Generally, solid-core wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Good condition with some wear and deterioration.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms were in good condition, as were lockers that lined portions of the third floor hallway.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings.		
C301000 - WALL FINISHES	4	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms.		
C302000 - FLOOR FINISHES	4	VCT was located in corridor of newer additions, with terrazzo in older sections. Ceramic tile in restrooms was typical. Classrooms generally had a combination of VCT and carpet. Concrete flooring was typical in mechanical and storage spaces. VCT and terrazzo were in good condition. Carpet was stained in some classrooms.		
C303000 - CEILING FINISHES	4	Suspended ceiling tile was typically throughout. Tiles were stained in some areas.		
D101010 - ELEVATORS	3	Dover 3-stop elevator machine room-less elevator with minimal signs of wear.		
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	A.O. Smith 125 g, 344 MBH natural gas domestic water heater and associated storage tank appears to be nearing the end of useful life, but appears to be functional.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Two 4188 MMBtu/h Kewanee hydronic natural gas fired boilers provided distributed heating water to the air handlers and fan coil units throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	A Carrier 160 ton air cooled screw chiller provides chilled water to limited areas of the building. (Tonnage, areas served, and age estimated due to locked enclosure and no documentation).		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Based on the served areas, approximately 60% of the facility, systems include roof top units, units with remote condensing units, air source heat pumps, floor mounted fan coil units, and air handling systems. Systems appeared to be mostly from the 1999 installation.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Based on the served areas, approximately 60% of the facility, systems include roof top units, units with remote condensing units, air source heat pumps, floor mounted fan coil units, and air handling systems. Systems appeared to be mostly from the 1999 installation.		
D305010 - TERMINAL & PACKAGE UNITS	3	Limited roof top packaged units from the 1999 renovation provide ducted cooling to dedicated single zone use.		
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	4	A single water service served the distributed sprinkler systems throughout the facility.		
D402000 - STANDPIPES	4	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 480/277V, 2000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be from the 1999 renovation and approaching the end of their useful life.		
D509000 - EMERGENCY POWER	3	A Katolight diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. The generator enclosure was locked and based on a one-line drawing in the electrical room, the generator is estimated at 75 kW with installation approximated as 1999.		
E102000 - INSTITUTIONAL EQUIPMENT	3	The kitch had a separate local exhaust system vented to the building exterior.		
E109002 - FOOD SERVICE EQUIPMENT	4	The kitchen included warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Seats were a combination of plastic and metal with fabric cushions. Seats were in fair condition with somewhat dated appearance.		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework dates to 1999 renovation. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Multi-purpose rooms were located on the first and second floors, with the first floor serving as a cafeteria. Finishes were VCT flooring, painted gypsum walls, and suspended ceiling tiles, some of which were stained. The gym had wood flooring, painted CMU walls, acoustic panels, and exposed structure at the ceiling.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	3	Auditorium had carpet, painted gypsum walls, and suspended ceiling tile. Finishes appeared older and were presumed to date to 1999 renovation. The space included a wood stage with lighting and projector.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Hoffman-Boston Elementary School Page 87

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Hoffman-Boston Elementary School	1916	1999	108,135	58,200	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	5.38 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Most classrooms appear to meet current ASHRAE 62.1, but not all
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room does not appear to have direct exhaust outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vent only allow MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Thermostats with local control in most spaces
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	F32-T8
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Hooded walkpicks, no overhang
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	2500-3000
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	5000LM
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	None
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	TOILET 1.6 GPF, RINAL 1.0 GPF,
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Entry located adjacent to school sign and designated with a "1"
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	handrails do not extend, guardrails do not meet code. Stair treads and risers are code compliant.
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	72x51
Common Space Adequacy	1.0 Cafeteria	●	3259(cafeteria area)/15 students = 218
Common Space Adequacy	1.1 Kitchen	●	1574 (kitchen and serving)/3 = 525
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 566/3 periods = 189
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 1 divider curtain, bleachers, 3 ropes, portable volleyball, wood floor. Shared with community center
Common Space Adequacy	2.2 Gymnasium	●	89'-2" x 62'-4.75" W. Height to bottom of joint 20'-0.75", to bottom of deck 22'-6"
Common Space Adequacy	3.1 Performance Space	●	auditorium with removable seats
Common Space Adequacy	3.2 Performance Space	●	286 reported occupancy. Auditorium not required for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	890 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	much with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	7	Green 7; pre-k & k (2); 1st (2); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	13	Yellow 13; pre-k & k (2); 1st (2); Gen ed (9)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red 2; pre-k & k (2); 1st (2); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	22	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten rooms have attached toilets, but none have vertical bars
Educational Space Adequacy	1.5 Classrooms (General)	●	100% have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	9	7 SPED; 2 MIPA
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	2 desks; 3 offices; 1 conference room; 1 records - rated
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	3 art rooms, 217, 138, and 139. Rooms 138 and 139 are connected
Educational Space Adequacy	4.2 Art	●	1 kit is adjacent to room 217
Educational Space Adequacy	4.3 Art	●	room 217 - 3 sinks, room 138/139 - 3 sinks
Educational Space Adequacy	4.4 Art	●	room 217 - connected storage (room 217b), room 138/139 - connected storage (room 138b)
Educational Space Adequacy	5.1 Music	●	2 rooms; 1 general, 1 instrumental
Educational Space Adequacy	5.2 Music	●	yes, each with connected storage
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Innovation Elementary School	1968	84,617	0.168	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
23	2021	3	0.108	\$27,966,591		

Building Description

Innovation Elementary School, located at 2300 Key Blvd, is a three-level structure. The building was originally constructed in 1968, and had a major renovation in 1999 that included demolition and replacement of the first and third levels and renovation of the second level. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building includes original brick masonry set on cast in place concrete foundation walls (second/main floor), and CMU, some exposed and some with brick veneer (first and third floors). The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is built-up asphalt primarily over steel roof decking and framing. Interior floor finishes are primarily vinyl composition tile and terrazzo. Wall finishes are primarily painted drywall while ceiling finishes are primarily suspended acoustic tiles. There is one Otis hydraulic elevator serving the building. The HVAC system consists of two P-K Thermific 1,445 MBH gas-fired boilers, one Trane 180-ton liquid-cooled chiller, and one McQuay 130-ton liquid-cooled chiller, both of which utilize roof-mounted ductcoolers as air-cooled condensers. In addition, the HVAC system uses multiple terminal units and indoor air-handling units for hydronic heating and cooling. There is also one rooftop unit serving the kitchen that utilizes hydronic heating and DX cooling. The building has two Square D main switchboards (one 600-amp high voltage and one 1,600-amp low voltage) that provide electrical service to motor control centers, distribution panels, equipment, and lighting, most of which appears to be recently installed LED fixtures in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4020 fire alarm system. A 75 kW diesel generator provides emergency power.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	54,555	BLDG FP SF	\$12.08	\$659,193	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	54,555	BLDG FP SF	\$13.87	\$756,657	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	30,062	ELEV FL SF	\$42.15	\$1,267,015	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	54,555	BLDG FP SF	\$24.05	\$1,312,098	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	84,617	BLDG GROSS SF	\$26.95	\$2,280,566	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	84,617	BLDG GROSS SF	\$18.83	\$1,592,983	40	16
B203000 - EXTERIOR DOORS	3	Exterior doors	84,617	BLDG GROSS SF	\$1.02	\$86,151	30	8
B301000 - ROOF COVERINGS	2	Built-up roof	54,555	BLDG FP SF	\$27.93	\$1,523,794	25	2
C101000 - PARTITIONS	5	Drywall over studs	84,617	FINISHED SF	\$6.36	\$538,038	45	45
C102000 - INTERIOR DOORS	4	Interior doors	84,617	FINISHED SF	\$4.73	\$399,871	40	20
C103000 - FITTINGS	3	Partitions and lockers	84,617	FINISHED SF	\$4.09	\$346,230	30	7
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	84,617	BLDG GROSS SF	\$1.02	\$86,151	60	60
C301000 - WALL FINISHES	4	Standard wall finishes	76,607	FINISHED SF	\$5.09	\$389,979	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	76,607	FINISHED SF	\$14.20	\$1,087,528	20	6
C303000 - CEILING FINISHES	4	Standard ceiling finishes	76,607	FINISHED SF	\$16.83	\$1,289,140	20	9
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	6
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	84,617	SERVED SF	\$17.25	\$1,459,692	50	25
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, 181 to 300 MBH	1	EACH	\$32,608.98	\$32,609	15	7
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains plus in-floor drainage system	54,555	BLDG FP SF	\$4.92	\$268,288	60	35
D301000 - ENERGY SUPPLY	4	Natural gas supply	84,617	BLDG GROSS SF	\$0.15	\$13,004	60	35
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	84,617	SERVED SF	\$7.17	\$606,309	40	34
D302010 - FIREPLACES	5	Masonry fireplace	1	EACH	\$30,446.89	\$30,447	50	50
D303000 - CENTRAL PLANT COOLING	4	Chiller system	84,617	SERVED SF	\$8.13	\$687,583	30	21
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	84,617	SERVED SF	\$19.67	\$1,664,504	35	12
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	82,000	SERVED SF	\$23.44	\$1,921,768	35	13
D305010 - TERMINAL & PACKAGE UNITS	5	Terminal and package units, <=10,000 SF	2,617	SERVED SF	\$71.46	\$187,014	30	28
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	84,617	SERVED SF	\$2.92	\$247,075	20	3
D401000 - SPRINKLERS	4	Sprinkler system	84,617	SERVED SF	\$7.90	\$668,077	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	84,617	BLDG GROSS SF	\$4.00	\$338,102	40	17
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	84,617	BLDG GROSS SF	\$36.27	\$3,068,930	55	35
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	84,617	BLDG GROSS SF	\$10.18	\$861,511	20	3
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	12
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	84,617	SERVED SF	\$3.50	\$295,840	25	15
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,100	LENGTH LF	\$829.72	\$912,690	35	13
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	8,010	SERVED SF	\$100.03	\$801,212	20	9
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Innovation Elementary School	1968	84,617	0.168	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
23	2021	3	\$27,966,591	No. of Local Projects 0		

Building Description

Innovation Elementary School, located at 2300 Key Blvd, is a three-level structure. The building was originally constructed in 1968, and had a major renovation in 1999 that included demolition and replacement of the first and third levels and renovation of the second level. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building includes original brick masonry set on cast in place concrete foundation walls (second/main floor), and CMU, some exposed and some with brick veneer (first and third floors). The exterior windows are both fixed and operable metal framed units with thermal glazing. The roof is built-up asphalt primarily over steel roof decking and framing. Interior floor finishes are primarily vinyl composition tile and terrazzo. Wall finishes are primarily painted drywall while ceiling finishes are primarily suspended acoustic tiles. There is one Otis hydraulic elevator serving the building. The HVAC system consists of two P-K Thermific 1,445 MBH gas-fired boilers, one Trane 180-ton liquid-cooled chiller, and one McQuay 130-ton liquid-cooled chiller, both of which utilize roof-mounted drycoolers as air-cooled condensers. In addition, the HVAC system uses multiple terminal units and indoor air-handling units for hydronic heating and cooling. There is also one rooftop unit serving the kitchen that utilizes hydronic heating and DX cooling. The building has two Square D main switchboards (one 600-amp high voltage and one 1,600-amp low voltage) that provide electrical service to motor control centers, distribution panels, equipment, and lighting, most of which appears to be recently installed LED fixtures in interior spaces. A wet sprinkler system protects the entire building along with a Simplex 4020 fire alarm system. A 75 kW diesel generator provides emergency power.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	3	\$	\$	\$	\$	\$	\$	\$	86,151	\$	\$	\$	\$
B301000 - ROOF COVERINGS	2	\$	\$ 1,523,794	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	3	\$	\$	\$	\$	\$	\$	\$	346,230	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$ 389,979	\$	\$	\$	\$	\$	\$ 389,979	\$	\$	\$
C302000 - FLOOR FINISHES	3	\$	\$	\$	\$	\$	\$	\$ 1,087,528	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$ 1,289,140	\$	\$	\$
D101010 - ELEVATORS	3	\$	\$	\$	\$	\$	\$	\$ 206,285	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	4	\$	\$	\$	\$	\$	\$	\$	\$ 32,609	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	3	\$	\$	\$ 247,075	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$	\$	\$ 861,511	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 24,055	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	\$	\$	\$ 801,212	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$1,523,794	\$1,498,565	\$0	\$0	\$1,293,812	\$378,839	\$86,151	\$2,480,331	\$24,055	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Innovation Elementary School	1968	84,617	0.168	Good Fair Poor <small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>
Building Number	Last Renovation ⁴	No. of Floors	Building FCI _{DM}	Building CRV ⁵
23	2021	3	0.108	\$27,966,591
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete with spread footings.		
A103000 - SLAB ON GRADE	5	The first and second (main) floors have a slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	The upper level (third floor) installed during the 1999 renovation appears to use steel framing with a composite structural deck to support an elevated cast in place lightweight concrete slab.		
B102000 - ROOF CONSTRUCTION	5	The predominate system (by SF) is steel framing and decking installed during the 1999 renovation.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly includes two main elements: original brick masonry set on cast in place concrete foundation walls, which serves the second (main) floor, and, CMU, consisting of brick veneer over CMU as well as exposed ground face CMU at the building base; this assembly is used in the newer (1999) portion of the building on the east side, which comprises the first and third floors.		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable aluminum framed units with thermal glazing. The gymnasium has two large fixed translucent windows over exterior doors to allow natural filtered light into the space. There is also a clerestory window feature above the media center. There is a storefront assembly at Entrance A1. No cracking or fogging was observed, and there were no reported issues. All windows assumed installed 1999.		
B203000 - EXTERIOR DOORS	3	The exterior doors are single and paired glazed storefront units and single and paired metal flush panel units (some with glazing). Some metal flush panel units exhibit worn finishes, misalignment, and frame and door corrosion near grade. There is a security vestibule at Entrance 1. Doors assumed to have been installed in 1999.		
B301000 - ROOF COVERINGS	2	Roof is low slope, built up asphalt roof with gravel. The roof rating is poor, based on both condition and age. This is consistent with the 2016 APS roof survey which described the roof condition as poor to fair at that time. The ponding area near the building entrance identified in the 2015 report has worsened. There is continued evidence of ponding near roof drains, and many areas have been treated with elastomeric coating for repairs. Evidence of leak damaged ceilings was observed in Room 312, outside Room 203A, as well as the top of the exterior gymnasium wall (2 leaks). The APS survey recommended the roof be replaced by 2022, and the roof is at the end of its EUL.		
C101000 - PARTITIONS	5	Partition walls are a combination of original brick, drywall over metal studs, CMU, and a small amount of glazed partitions. The predominate partition appears to be drywall over metal studs.		
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames. The doors types vary and include flush and glazed units.		
C103000 - FITTINGS	3	The predominate fittings for the school are composite toilet partitions and composite wood lockers (third floor). While functional, the lockers have numerous deficiencies such as chipped material and worn or missing finishes.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs include cast in place concrete (Stairs A & B) and steel framed with concrete infill pans (Stairs C & D), with CIP concrete predominating. Stairs have metal hand rails and guard rails.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted drywall predominates. In corridors and other common areas, finishes are unpainted brick, painted drywall, and painted CMU. In classrooms, primarily painted drywall with a condition rating of Fair. In restrooms, ceramic tile and painted drywall. In the Media Center, painted drywall predominates while in the kitchen, stainless steel and vinyl finishes are utilized for their resilience.		
C302000 - FLOOR FINISHES	3	The building has a variety of floor finishes. In corridors and other common areas, finishes are VCT (predominates) and terrazzo, with some cracking/chipping for both floor types. In classrooms, VCT (some chipping and extensive scuffing). In restrooms, ceramic tile and VCT. In the Kitchen, ceramic tile. Overall condition rating is fair, with flooring wear appearing inconsistent across different areas.		
C303000 - CEILING FINISHES	4	The majority of the ceiling finishes are suspended acoustic tile (SAT). In addition to leaks noted under Roof Coverings, evidence of leaks above the SAT was observed on the first floor in Rooms 109, 113, 115, 122B, and Corridor 102.		
D101010 - ELEVATORS	3	A single Otis hydraulic elevator, 2500 lb. capacity, 150 FPM speed, serving three floors, installed 1999. No issues observed or reported but the elevator is in the last 1/3 of EUL, and multiple components should be tested, overhauled, or replaced. Car is 6' 6" by 4' 2".		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing fixtures are vitreous china with manual valves, typically wall mounted sinks, urinals, and toilets. Most piping and fixtures assumed installed during 1999 renovation, including copper domestic piping and cast iron sanitary piping. No issues reported or observed.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	One Ao Smith 80 gallon, 199 MBH gas-fired domestic water heater (2015). No issues observed or reported.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal cast iron and copper stormwater piping for entire low-sloped roof area. A roof drain above Room 220 was observed to be actively leaking, but the cause of the leak (i.e., roof or piping) was not clear. This system includes restroom floor drainage. No other issues reported or observed.		
D301000 - ENERGY SUPPLY	4	Natural gas supply enters the north side of the building outside the mechanical room. Appearance consistent with 1999 building renovation. No issues reported or observed.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	4	Two P-K Thermifit N1700 gas-fired water tube boilers (manufactured 2015 and 2019), 1,445 MBH output each. One offline at time of assessment due to ignition failure. System was designed to circulate hot water to eight indoor air handling units and multiple terminal units serving the building. Both boilers exhibited valid inspection certificates (expire November 2024). No issues observed or reported.		
D302010 - FIREPLACES	5	Original and functional brick chimney used for boiler exhaust.		
D303000 - CENTRAL PLANT COOLING	4	One McQuay 130-ton liquid cooled chiller with 4 compressors, uses R-410A (2013). One Trane 180-ton with dual compressors, uses R-134A (2015). Both chillers utilize roof-mounted dry coolers as air cooled condensers: McQuay (two 2x2 condensers, 2013) and Trane (one 2x3 condenser and one 2x4 condenser, 2015). System was designed to circulate chilled water to eight indoor air handling units and multiple terminal units serving the building.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating distribution systems consists primarily of piping, pumps, air handling units, ductwork, VAV boxes, and terminal units. Hot water is delivered to eight indoor AHUs units (ranging from 2000-24,000 supply CFM), fan coil units, unit ventilators, and unit heaters. There is also a 22,000 CFM energy recovery unit with wheel in Room 339. All equipment assumed installed 1999. The 15 HP motors for the distribution pumps appear original but the HWP1 pump appears to have been rebuilt or replaced. There are also 3 HP circulating pumps at the boilers that were probably replaced at the same time as the boilers. Some air handler coils were examined and appeared to be in good condition. The hot water supply piping at AHU-3 appeared to be dripping. The system as a whole is approaching its final 1/3 of EUL and some components such as pumps and terminal units should be considered for replacement within the next five years.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Cooling distribution systems consists primarily of piping, pumps, air handling units, ductwork, VAV boxes, and terminal units. Chilled water is delivered to seven indoor AHUs units (ranging from 2000-24,000 supply CFM; AHU-8 omitted here and addressed under packaged units), fan coil units, and unit ventilators. There is also a 22,000 CFM energy recovery unit with wheel in Room 339. All equipment assumed installed 1999. Three motor/pump sets (one 5 HP, two 15 HP) distribute CHW throughout the building and appear in good condition, although the pumps were not viewable due to thermal enclosures. Two other CHW distribution pump sets (40 HP) exhibited a missing motor (assumed out for repair/replacement), an original motor, and pumps of varying conditions. Some air handler coils were examined and appeared to be in good condition. The chilled water supply piping at AHU-2 appeared to be dripping. The system as a whole is approaching its final 1/3 of EUL and some components such as pumps and terminal units should be considered for replacement within the next five years.		
D305010 - TERMINAL & PACKAGE UNITS	5	RTU-K is an AAOB rooftop unit providing 15 tons of DX cooling and approximately 200 MBH of hydronic heating for the Kitchen. Manufactured 2021.		
D306000 - CONTROLS	3	Per the record drawings, a full DDC control system was installed 1999. No issues observed or reported, but the control systems are in final 1/3 of EUL assuming no major upgrades since original installation.		
D401000 - SPRINKLERS	4	Fully sprinklered building with wet system assumed installed 1999, includes BFP assembly (Room 211). The most recent (2021) inspection indicated water pressure gauges require recalibration and internal check valve inspection required.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Two main switchboards, one high voltage and one low voltage: the LV is a Square D 1,600A, 208/120V, 3-phase, 4-wire and the HV is a Square D 600A, 480/277V, 3-phase, 4-wire. There are two Square D 480V motor control centers: one 800A MCC #1 in the Boiler Room that controls chillers and pumps and one 600A MCC #2 in Rm 339 that controls AHUs, the ERU, and other miscellaneous HVAC equipment.		
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels throughout the building, both 480/277 and 208/120, all manufactured circa 1999. The fluorescent lighting in troffers indicated in the 1999 drawings appears to have been replaced with troffered LED lighting throughout corridors and classrooms. LED lighting was apparently installed in the MPR, Gymnasium, and Kitchen as well.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	The main fire alarm panel is a Simplex 4020 with 5 panels, assumed installed 1999 along with PA system. Per the latest fire alarm system inspection (2021), there were no deficiencies, and the panel showed no alarm conditions at the time of assessment. No other issues observed or reported but the system is in the last 1/3 of average useful service life. No security system was observed.		
D509000 - EMERGENCY POWER	3	The emergency generator enclosure was locked and the unit could not be observed. Per the record drawings, the generator is sized at 75 kW, assumed installed 1999. The transfer switch was a Zenith EntelSwitch 250, manufactured 2012. The system is entering its last 1/3 of EUL.		
E102000 - INSTITUTIONAL EQUIPMENT	4	Kin in Room 207B serves the Art Room (207). Size and age assumed consistent with others viewed throughout school system.		
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen with stainless steel exhaust hood, warming racks, refrigerator, freezer, sink, and serving counters. Equipment appears to have been installed more recently than 1999. Score based on observed condition.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	4	Laminated composite casework in classrooms and offices includes cabinets and shelving. Most casework assumed to have been installed in 1999, good condition overall with a few localized areas of missing laminate. Quantity estimated based on square footage.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multipurpose room serving as cafeteria and auditorium with raised stage. Appeared part of original construction with portions renovated in 1999. VCT flooring in fair/good condition. Walls are painted drywall with some acoustic paneling (good condition). Suspended acoustic tile ceiling is in fair condition due to staining from ventilation air. Single-purpose elementary school gymnasium. Sheet vinyl flooring (good condition). Painted CMU walls (fair condition) with acoustic panels, safety padding, and climbing wall. Painted ceiling structure with acoustic panels in good condition. Basketball hoops good condition, LED lighting. Two roof leaks were apparent on the outside wall.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building systems CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Innovation Elementary School	1968	2021	84,617	54,555	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	4 to 5 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline for MultiUse/Assembly and 200 students
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for MultiUse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit ventilators and fan coil units only allow local filtration of MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Rooftop unit utilizes cartridge style filters.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Rooftop unit utilizes cartridge style filters.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Note: Gym LED lighting does not appear bright enough.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures are dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature appears to be 3000K for most fixtures.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT appear to be 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Door A1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Exterior concealment issues include overgrown vegetation, retaining wall (south), mechanical room sunken access, and obscured emergency generator area.
Major Building Systems	2.3 Building Security - Single point of entry	●	Door A1 is clearly the main entrance, with Intercom. While doors B2 and C5 have intercoms, they are clearly not intended to be the main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No Vertical Grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Car is 6'6" by 4' 2"
Common Space Adequacy	1.0 Cafeteria	●	2502(cafeteria area estimated)/15 students = 167
Common Space Adequacy	1.1 Kitchen	●	831 (kitchen and serving - estimated)/3 = 277
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	design capacity 653/3 periods = 218
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable, climbing wall, portable volleyball; 1 rope; NO divider curtain
Common Space Adequacy	2.2 Gymnasium	●	90'0" L x 48'0" W, to deck 18'4", to joist 16'0"
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	944 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	12	Green 12; pre-k & k (1); 1st (8); Gen ed (11)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	13	Yellow 13; pre-k & k (4); 1st (8); Gen ed (3)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	1	Red 1; pre-k & k (1); 1st (1); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	26	
Educational Space Adequacy	1.3 Classrooms (General)	●	93% All but 2 classrooms have operable windows.
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten classrooms have attached toilet rooms
Educational Space Adequacy	1.5 Classrooms (General)	●	96% sinks in ALL classrooms, except for #133 - GR-1
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 3 offices, Room #305 for a conference room, NOT rated records
Educational Space Adequacy	3.4 Clinic	●	2 beds, bathroom NO verticals, sink, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	4 - #122A/#122B, #129, #207, #219/#220
Educational Space Adequacy	4.2 Art	●	in #207
Educational Space Adequacy	4.3 Art	●	#122A/#122B - 2 ; #129 - 4 ; #207 - 3 ; #219/#220 - 5 each
Educational Space Adequacy	4.4 Art	●	#122A/#122B - yes ; #129 - no ; #207 - yes ; #219/#220 - yes
Educational Space Adequacy	5.1 Music	●	#100 - general ; #121 - general
Educational Space Adequacy	5.2 Music	●	#100 - yes ; #121 - yes
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If IFEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IFEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Jamestown Elementary School	1953	75,899	0.279	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
24	2004	1	0.198	\$24,496,633

Building Description

Jamestown Elementary School, located at 3700 N Delaware St, is a one-story structure with a small basement area for the boiler room. The building was originally constructed in 1953. The most recent renovation was reportedly in 2004. The majority of the structure was assumed to have standard foundations, masonry bearing walls, concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal panels, precast concrete decorative panels, and some wood trim/fascia. Windows and doors were typically aluminum construction with some fiberglass panel windows at the gym. The roof was mostly built-up roof with smaller areas of modified bitumen, single-ply membrane, and sloped standing seam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of VCT, carpet, and terrazzo floors, and suspended acoustical ceiling tiles. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two boilers, a chiller, a cooling tower, rooftop units, and two supplemental split-system DX units. The building had a 2500A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	74,799	BLDG FP SF	\$8.99	\$672,464	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	74,799	BLDG FP SF	\$13.87	\$1,037,434	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,100	BASEMENT SF	\$16.79	\$18,468	99	99
B101000 - FLOOR CONSTRUCTION	5	Concrete framed floor supported by load bearing walls	1,100	ELEV FL SF	\$50.64	\$55,701	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed structure on load bearing walls with columns	74,799	BLDG FP SF	\$21.30	\$1,593,510	70	70
B201000 - EXTERIOR WALLS	3	Brick masonry wall assembly	74,799	BLDG GROSS SF	\$15.00	\$1,122,210	70	15
B202000 - EXTERIOR WINDOWS	4	Exterior windows	74,799	BLDG GROSS SF	\$4.44	\$331,921	40	20
B203000 - EXTERIOR DOORS	3	Exterior doors	74,799	BLDG GROSS SF	\$2.27	\$169,553	25	5
B301000 - ROOF COVERINGS	3	Built-up roof	74,799	BLDG FP SF	\$27.49	\$2,056,188	25	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	75,899	FINISHED SF	\$12.52	\$950,629	99	99
C102000 - INTERIOR DOORS	3	Interior doors	75,899	FINISHED SF	\$11.83	\$898,140	40	10
C103000 - FITTINGS	3	Partitions and lockers	75,899	FINISHED SF	\$4.03	\$306,184	40	15
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	75,899	BLDG GROSS SF	\$0.29	\$21,870	99	99
C301000 - WALL FINISHES	4	Standard wall finishes	64,589	FINISHED SF	\$5.80	\$374,708	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	64,589	FINISHED SF	\$14.20	\$916,918	20	5
C303000 - CEILING FINISHES	2	Standard ceiling finishes	64,589	FINISHED SF	\$16.83	\$1,086,901	20	2
D101010 - ELEVATORS	-	-	-	-	-	-	-	-
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	75,899	SERVED SF	\$6.78	\$514,681	40	10
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	2	Gas Water Heater, Commercial, 81 to 130 MBH	1	EACH	\$23,100.03	\$23,100	15	2
D204000 - BUILDING STORMWATER DRAINAGE	3	Internal roof drains	22,800	BLDG FP SF	\$4.21	\$95,919	60	20
D301000 - ENERGY SUPPLY	5	Natural gas supply	75,899	BLDG GROSS SF	\$0.12	\$8,748	60	40
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	2	Boiler	74,899	SERVED SF	\$6.22	\$466,174	40	11
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	74,899	SERVED SF	\$6.26	\$469,052	30	3
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	74,899	SERVED SF	\$18.27	\$1,368,308	35	10
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	74,899	SERVED SF	\$25.30	\$1,894,912	35	10
D305010 - TERMINAL & PACKAGE UNITS	4	Supplemental Split Systems	1,000	SERVED SF	\$17.50	\$17,500	20	8
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	75,899	SERVED SF	\$2.38	\$180,794	20	2
D401000 - SPRINKLERS	4	Sprinkler system	75,899	SERVED SF	\$8.61	\$653,193	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	75,899	BLDG GROSS SF	\$9.26	\$702,766	50	31
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	75,899	BLDG GROSS SF	\$48.75	\$3,700,454	45	25
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	75,899	BLDG GROSS SF	\$7.97	\$605,078	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	15
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$92.28	\$13,843	15	3
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen	75,899	SERVED SF	\$2.02	\$153,092	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	11,300	SERVED SF	\$100.03	\$1,130,299	20	6
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Jamestown Elementary School	Year Built¹ 1953	Building GSF² 75,899	Building FCI_{AD} 0.279	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 24	Last Renovation¹ 2004	No. of Floors 1	Building CRV⁶ \$24,496,633	No. of Local Projects 3

Building Description

Jamestown Elementary School, located at 3700 N Delaware St, is a one-story structure with a small basement area for the boiler room. The building was originally constructed in 1953. The most recent renovation was reportedly in 2004. The majority of the structure was assumed to have standard foundations, masonry bearing walls, concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal panels, precast concrete decorative panels, and some wood trim/fascia. Windows and doors were typically aluminum construction with some fiberglass panel windows at the gym. The roof was mostly built-up roof with smaller areas of modified bitumen, single-ply membrane, and sloped standing seam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of VCT, carpet, and terrazzo floors, and suspended acoustical ceiling tiles. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating/chilled water piping. HVAC systems included two boilers, a chiller, a cooling tower, rooftop units, and two supplemental split-system DX units. The building had a 2500A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	3	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 169,553	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ 2,000	\$ 2,056,188	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 898,140	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 374,708	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 374,708	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 916,918	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	2	\$ -	\$ 1,086,901	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 514,681	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	2	\$ -	\$ 23,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 466,174	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ 469,052	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,368,308	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,894,912	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,500	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 180,794	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 605,078	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ 13,843	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 153,092	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 829,718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,130,299	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$32,000	\$3,952,062	\$857,603	\$0	\$1,916,189	\$1,130,299	\$0	\$17,500	\$374,708	\$4,829,134	\$466,174	\$0

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 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Jamestown Elementary School		1953	75,899	0.279
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
24		2004	1	0.198
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$24,496,633				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire footprint of building.		
A202000 - BASEMENT WALLS	5	Boiler room was located underneath kitchen area.		
B101000 - FLOOR CONSTRUCTION	5	Kitchen area floor is above boiler room.		
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.		
B201000 - EXTERIOR WALLS	3	Exterior facade included brick masonry, metal panels, precast concrete decorative panels, and some wood trim/fascia. Isolated cracking, isolated impact damage, and efflorescence staining observed in several areas. Painted wood trim/fascia was worn and peeling. Local Project: Perform facade repairs, including trim painting, brick repointing, and cleaning of stained areas.		
B202000 - EXTERIOR WINDOWS	4	Windows were mostly aluminum framed with double pane glass, estimated to have been replaced in early 2000s. The gym had fiberglass panels. Several clerestory windows for the MPR had broken panes. Local Project: Replace broken window panes at MPR clerestory.		
B203000 - EXTERIOR DOORS	3	Doors were mostly painted steel, with some aluminum/glass doors.		
B301000 - ROOF COVERINGS	3	Roofing was majority built-up roof with several sections of modified bitumen, single-ply membrane, and sloped standing seam metal panels. Includes gutters and downspouts along several roof areas. All roofing was nearing end of useful life. Local Project: Repair damaged gutter outside of kitchen.		
C101000 - PARTITIONS	5	Majority of partition walls were CMU or brick masonry, with some areas of gypsum board/plaster over stud framing.		
C102000 - INTERIOR DOORS	3	Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	3	Composite toilet partitions in restrooms. Metal lockers in hallways.		
C201000 - STAIR CONSTRUCTION	5	Cast in place concrete stairs and landings.		
C301000 - WALL FINISHES	4	Majority of walls were painted masonry or gypsum board/plaster.		
C302000 - FLOOR FINISHES	3	Combination of vinyl composite tile (VCT) and carpet were installed in most classrooms. VCT and terrazzo were installed in hallways.		
C303000 - CEILING FINISHES	2	Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms. Tiles were sagging in many locations. Recommendation: Replace ceiling tile system throughout.		
D101010 - ELEVATORS	-			
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	2	One gas-fired 120 MBH domestic water heater and water storage tank was in the boiler room, manufactured 2005. Evidence of water leaks around base of water heater. Recommendation: Replace water heater.		
D204000 - BUILDING STORMWATER DRAINAGE	3	Estimated 30% of the roof area used internal stormwater drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	5	Natural gas supply connection was located near boiler room.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	2	Two boilers manufactured in 1994. Evidence of leakage around both boilers. It appeared that work was on-going on the boiler controllers. Recommendation: Replace boilers.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	One chiller manufactured 2003 and one cooling tower manufactured 1992.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces (most equipment estimated early 2000s). Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces (most equipment estimated early 2000s). Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	4	Two supplemental split-systems provided supplemental cooling to a few rooms. One was manufactured 2010 and the other 2018.		
D306000 - CONTROLS	3	Pneumatic controls used throughout majority of building. Compressor estimated to be installed with most of equipment around early 2000s.		
D401000 - SPRINKLERS	4	Building appeared to be fully sprinkled.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical panel is in mechanical room next to the art room. Service is 2500A, 120/208V, 3PH, 4W. Manufactured date 2004.		
D502000 - LIGHTING AND BRANCH WIRING	3	Wiring and distribution panels assumed to be installed with each phase of construction, with last addition/upgrade occurring in 2004. Lighting fixtures estimated to have been replaced around that same timeframe.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Fire alarm control panel estimated installed in 2004. PA and security systems assumed updated within past 10 years.		
D509000 - EMERGENCY POWER	3	One 40 KW emergency generator provided backup power. Estimated to be installed around mid-2000s.		
E102000 - INSTITUTIONAL EQUIPMENT	3	Kin for art room, estimated to be installed in mid-2000s.		
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen with a most equipment estimated installed in early-2010s.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework throughout administrative areas and classrooms was estimated to be about 20-30 years old.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Multi-purpose room (MPR; about 5,600 SF) served as cafeteria and auditorium. MPR had VCT flooring, ceramic tile walls, and suspended acoustical ceiling tiles. MPR stage had hardwood flooring, curtains, and lighting/speaker systems. Gymnasium (about 4,800 SF) had vinyl flooring, painted walls, exposed/painted structure at ceiling, and basketball hoops.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Jamestown Elementary School	1953	2004	75,899	74,799	1

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	Majority of classrooms (28 out of 35) are red. The 7 classrooms in area C (2002 addition) are yellow. The gym is red. The dining room and library are green.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	28 out of 35 classrooms do not meet ASHRAE 62.1. The 7 classrooms in area C (2002 addition) exceed 62.1.
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Short by about 60%
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Exceeds by about 7%
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Exceeds by about 22%
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Majority of classrooms do not meet either ASHRAE or AFS ventilation requirements. Gym does not meet either. Dining and library meet both ASHRAE and AFS requirements.
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents and heat pumps with MERV 6 filters
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms all have their own thermostat. Same goes for gym, dining, library. The only area that is deficient is the admin suit. Every office has a thermostat, but they only control zone level heating coils. There is no zone level control during cooling mode. Fluorescent typical.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	3000K
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	None of the fixtures appears to be low flow
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signs taped to many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	N/A; one floor
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Group bathrooms have No verticals, bars mounted at incorrect heights, stalls too small to be ADA, Classroom bathrooms are too small to be ADA
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Stair treads and guardrails are YES, Missing handrail extensions
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	0
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	
Common Space Adequacy	1.0 Cafeteria	●	3335(cafeteria area)/15 students = 223
Common Space Adequacy	1.1 Kitchen	●	852 (kitchen area)/3 = 284
Common Space Adequacy	1.2 Kitchen	●	1
Common Space Adequacy	1.3 Kitchen	●	design capacity 597/3 periods = 199
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable, portable volleyball; 2 ropes; daylight; tectum panels; wall padding
Common Space Adequacy	2.2 Gymnasium	●	90'-4" x 39'-6"; Deck: 25'-9" Joist: 22'-4"
Common Space Adequacy	3.1 Performance Space	●	Located in multipurpose room
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	741 Lft
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	4 Green 4; pre-k & k (3); 1st (4); Gen ed (8)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	16 Yellow 16; pre-k & k (2); 1st (8); Gen ed (14)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	1 Red 1; pre-k & k (0); 1st (0); Gen ed (1)
Educational Space Adequacy	1.2 Classrooms (General)	●	24
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms with exterior windows have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% pre-K/K classrooms have sinks
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	2 pre-K SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices, conference room, rated records room
Educational Space Adequacy	3.4 Clinic	●	2 beds, toilet with no vertical grab bars, sink, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	1 - #706
Educational Space Adequacy	4.2 Art	●	Connected, in #707A
Educational Space Adequacy	4.3 Art	●	2
Educational Space Adequacy	4.4 Art	●	Connected, in #707
Educational Space Adequacy	5.1 Music	●	#701: instructional music, #702: general/vocal, #704: band
Educational Space Adequacy	5.2 Music	●	#701: yes, #702: yes, #704: yes
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Jefferson Middle School	1972	234,923	0.153	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
25	2010	2	0.158	\$83,236,994		

Building Description

Thomas Jefferson Middle School, located at 125 South Old Glebe Road, is a two-story structure. The original building was constructed in 1972, and the last major renovation occurred in 2010. The building includes classrooms, kitchen, commons area, media center, and administrative offices. A theater and large gymnasium are shared with the community, and roughly 8% of the building is dedicated to community center activities and includes classrooms and a large common area. The building's exterior wall assembly is predominantly brick veneer over CMU. The exterior windows are both fixed and operable metal framed units. The roof is low-sloped built-up asphalt with gravel (50%) and single ply membrane (36%), and steep-sloped standing seam metal (14%), all over steel framing. Interior floor finishes are primarily carpet tile, vinyl composition tile, terrazzo, and ceramic tile. Wall finishes are painted CMU, drywall, and metal, along with a small amount of unpainted brick. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas boiler and associated water tanks. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron. Hydronic boilers and chillers with cooling towers provided distributed four-pipe hydronic heating and chilled water to penthouse air handling units which were dual ducted for zoned distribution. Terminal boxes mixed the heated and cool air to satisfy the served zones. Building power was through a 3,000 Amps, 480/208V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There were fire risers only utilizing line pressure. The fire alarm system was addressable. The diesel gas emergency generator was estimated to be at 1,500 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	162,425	BLDG FP SF	\$12.08	\$1,962,596	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	162,425	BLDG FP SF	\$13.87	\$2,252,773	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	72,498	ELEV FL SF	\$42.15	\$3,055,554	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	162,425	BLDG FP SF	\$24.05	\$3,906,471	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	234,923	BLDG GROSS SF	\$26.95	\$6,331,558	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	234,923	BLDG GROSS SF	\$18.83	\$4,422,613	40	27
B203000 - EXTERIOR DOORS	4	Exterior doors	234,923	BLDG GROSS SF	\$1.02	\$239,182	30	12
B301000 - ROOF COVERINGS	2	Built-up roof	162,425	BLDG FP SF	\$27.93	\$4,536,748	24	6
C101000 - PARTITIONS	5	Drywall over studs	227,900	FINISHED SF	\$6.36	\$1,449,104	50	50
C102000 - INTERIOR DOORS	3	Interior doors	227,900	FINISHED SF	\$4.73	\$1,076,978	40	12
C103000 - FITTINGS	4	Partitions and lockers	227,900	FINISHED SF	\$4.09	\$932,505	40	14
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	234,923	BLDG GROSS SF	\$1.02	\$239,182	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	153,450	FINISHED SF	\$5.09	\$781,160	10	6
C302000 - FLOOR FINISHES	4	Standard floor finishes	153,450	FINISHED SF	\$14.20	\$2,178,405	18	12
C303000 - CEILING FINISHES	4	Standard ceiling finishes	153,450	FINISHED SF	\$16.83	\$2,582,250	20	14
D101010 - ELEVATORS	5	Elevator	1	EACH	\$206,284.66	\$206,285	30	27
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	234,923	SERVED SF	\$17.25	\$4,052,558	50	37
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, Greater than 300 MBH	420	MBH	\$127.19	\$53,420	20	7
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains plus in-floor drainage system	162,425	BLDG FP SF	\$4.92	\$798,767	60	9
D301000 - ENERGY SUPPLY	4	Natural gas supply	234,923	BLDG GROSS SF	\$0.15	\$36,103	60	9
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	234,923	SERVED SF	\$7.17	\$1,683,301	60	43
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	234,923	SERVED SF	\$8.13	\$1,908,944	40	14
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	234,923	SERVED SF	\$19.67	\$4,621,180	40	27
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Chilled water piping and individual terminal AHUs	234,923	SERVED SF	\$23.44	\$5,505,702	40	27
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	234,923	SERVED SF	\$2.92	\$685,956	15	2
D401000 - SPRINKLERS	-	-	-	-	-	-	-	-
D402000 - STANDPIPES	3	Standpipe system	234,923	SERVED SF	\$0.63	\$148,925	50	2
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 2000 Amp Service	234,923	BLDG GROSS SF	\$4.00	\$938,677	50	2
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	234,923	BLDG GROSS SF	\$36.27	\$8,520,300	50	2
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	234,923	BLDG GROSS SF	\$10.18	\$2,391,822	20	7
D509000 - EMERGENCY POWER	4	Emergency Generator, >=500 kW	1	EACH	\$426,583.66	\$426,584	35	17
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	234,923	SERVED SF	\$3.50	\$821,342	20	6
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Telescoping bleachers, standard	2,000	SEATS	\$968.43	\$1,936,867	25	10
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	800	LENGTH LF	\$829.72	\$663,775	20	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	-	-	-	-	-	-	-
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	HS-level Gymnasium	64,666	SERVED SF	\$158.48	\$10,248,429	20	12
F102030 - AUDITORIUMS	3	Performance Auditoriums	9,825	SERVED SF	\$164.57	\$1,616,921	20	6
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Jefferson Middle School	1972	234,923	0.153	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
25	2010	2	\$83,236,994	No. of Local Projects 1		

Building Description

Thomas Jefferson Middle School, located at 125 South Old Glebe Road, is a two-story structure. The original building was constructed in 1972, and the last major renovation occurred in 2010. The building includes classrooms, kitchen, commons area, media center, and administrative offices. A theater and large gymnasium are shared with the community, and roughly 8% of the building is dedicated to community center activities and includes classrooms and a large common area. The building's exterior wall assembly is predominantly brick veneer over CMU. The exterior windows are both fixed and operable metal framed CMU. The roof is low-sloped built-up asphalt with gravel (50%) and single ply membrane (36%), and steep-sloped standing seam metal (14%), all over steel framing. Interior floor finishes are primarily carpet tile, vinyl composition tile, terrazzo, and ceramic tile. Wall finishes are painted CMU, drywall, and metal, along with a small amount of unpainted brick. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas boiler and associated water tanks. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron. Hydronic boilers and chillers with cooling towers provided distributed four-pipe hydronic heating and chilled water to penthouse air handling units which were dual ducted for zoned distribution. Terminal boxes mixed the heated and cool air to satisfy the served zones. Building power was through a 3,000 Amps, 480/208V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There were fire risers only utilizing line pressure. The fire alarm system was addressable. The diesel gas emergency generator was estimated to be at 1,500 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ 2,831,500	\$ -	\$ -	\$ -	\$ -	\$ 4,536,748	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 781,160	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 53,420	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 798,767	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,103	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 685,956	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	3	\$ -	\$ 148,925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$ -	\$ 938,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	3	\$ -	\$ 8,520,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,391,822	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 821,342	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,936,867	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 663,775	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$2,831,500	\$10,293,858	\$0	\$0	\$663,775	\$6,139,251	\$2,445,241	\$0	\$834,870	\$1,960,922	\$0	\$0

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6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Jefferson Middle School	Year Built 1972	Building GSF 234,923	Building FCI_{AD} 0.153	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 25	Last Renovation 2010	No. of Floors 2	Building FCI_{DM} 0.158	Building CRV \$83,236,994
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	The ground floor and the auditorium stage (on the first floor) have slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	The first floor (with the exception of the auditorium stage) appears to utilize steel joists to support an elevated CIP concrete slab.		
B102000 - ROOF CONSTRUCTION	5	Roof structure appears to be steel roof deck supported by steel joists.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is predominantly brick veneer over CMU, with CIP concrete at 8' perimeter towers around the gymnasium. Additional finishes include metal cladding beneath the roof line and over exterior doors in select areas, and a small amount of EPS stucco on the west side of the building near grade.		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable metal framed units with thermal glazing, located primarily on the west side of the building. Most windows appear to have low-E coating. Windows assumed replaced in 2010 based on drawings.		
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly single and paired glazed storefront units and single and paired metal flush panel units, some with glazing. Some doors have light corrosion near grade while some doors appear to have been replaced within the last 10 years. There are also 4 metal roll-up doors in fair condition. All exterior doors are in metal frames.		
B301000 - ROOF COVERINGS	2	The roof coverings are a combination of built-up asphalt with gravel (50%), single ply membrane (36%), and standing seam metal (14%). It appears that the single-ply gymnasium roof was replaced in 2020. Much of the BUR is in poor condition, with excessive ponding (some deep), biological growth, exposed felts, and areas of patching, which appears to have started more than 5 years ago. Leak-damaged ceiling tiles observed in Rooms 224 and 225. The 2016 APS Roof Survey estimated most roofing to have been installed circa 1990, and rated the BUR in poor condition, with recommended replacement within two years. With no replacement of the BUR, this puts the age of the BUR at more than 30 years, which is well beyond EUL. Only a portion of the metal roofing could be observed; it appeared to be fully functional with worn finishes and can be rated as fair condition, which is consistent with the 2016 survey. The metal roofing is well into its final 1/3 of EUL. Local Project: Replace BUR		
C101000 - PARTITIONS	5	Partition walls are primarily drywall over metal studs, CMU, and metal partition walls (some with glazing), with a small amount of cast-in-place concrete. The predominate partition appears to be drywall over metal studs. Finished SF does not include ~7,000 SF of penthouse space on roof.		
C102000 - INTERIOR DOORS	3	Interior doors include solid core wood panels and metal panels, both flush and glazed, in metal frames. There is also a 30-foot roll-up door at the kitchen and a glazed storefront assembly at the Entrance 1 vestibule. Door finishes are showing wear, especially in high traffic areas on the ground floor, and many doors appear to be in the final 1/3 of EUL; however, all doors appear fully functional. Finished SF does not include 7,000 SF of penthouse space on roof.		
C103000 - FITTINGS	4	The predominate fittings for the school are metal and composite toilet partitions and metal lockers. Finished SF does not include 7,000 SF of penthouse space on roof.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs are both cast-in-place concrete and steel framed with concrete infill pans, with CIP predominant. All have metal hand rails and guard rails.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted CMU and drywall predominate. In corridors and other common areas, finishes are painted drywall, painted CMU, painted metal, and unpainted brick. In classrooms, painted drywall, CMU, and metal. In restrooms, ceramic tile and painted CMU. In the Media Center and Kitchen, painted drywall. Finished SF does not include the gymnasium, auditorium, or penthouses.		
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are carpet tiles, vinyl composition tile, and a small amount of terrazzo (main lobby and stairs). In classrooms, VCT and carpet tile. In restrooms, ceramic tile. In the media center, carpet tile. In the kitchen, VCT. In the mechanical room, painted concrete (poor/fair). Finished SF does not include the gymnasium, auditorium, or penthouses.		
C303000 - CEILING FINISHES	4	Ceiling finishes are predominantly suspended acoustic tile, with some painted gypsum board. Finished SF does not include the gymnasium, auditorium, or penthouses.		
D101010 - ELEVATORS	5	Dover 2-stop hydraulic elevator had minimal signs of wear.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	An A.O. Smith 420 MMBtuh natural gas domestic water heater and associated storage tank provided distributed hot water and appears to be functional.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	4	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Five modular 2000 MMBtuh Lochinvar hydronic natural gas fired boilers provided distributed heating water to the air handlers units and unit heaters/ventilators units throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	Two Carrier 420 ton water cooled centrifugal chillers provides chilled water to the air handlers. BAC cooling towers provide chiller the condenser water. Recommendation: The cooling towers have an RUL closer to 4 years and planning their replacement or overhaul should be considered.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Penthouse air handling units were dual ducted for zoned distribution. Terminal boxes mixed the heated and cool air to satisfy the served zones. In addition there were heat reclaim make-up air handling units and fan coil units.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Penthouse air handling units were dual ducted for zoned distribution. Terminal boxes mixed the heated and cool air to satisfy the served zones. In addition there were heat reclaim make-up air handling units and fan coil units.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	-			
D402000 - STANDPIPES	3	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	The 480/277V, 3000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed. Typically, the age of the distribution is consistent with renovations as they occurred. Originally installed equipment was observed as well as distribution from the 1990s and more recent HVAC renovations. Recommendation: It is recommended that equipment and distribution at or past the expected useful life be identified, and evaluated for replacement consideration. This would include inventorying the complete electrical system, testing all components, and performing appropriate maintenance or replacement.		
D502000 - LIGHTING AND BRANCH WIRING	3	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was usually LED with assorted occupancy sensors and power switches. Typically, the age of the branch wiring and panels is consistent with renovations as they occurred. Originally installed equipment was observed as well as distribution from the 1990s and more recent HVAC renovations. Recommendation: It is recommended that panels and distribution at or past the expected useful life be identified, and evaluated for replacement consideration. This would include inventorying the complete electrical system, testing all components, and performing appropriate maintenance or replacement.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted		
D509000 - EMERGENCY POWER	4	A Cummins diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. The generator enclosure was locked and based on drawings, the generator is estimated at 1650 kW with installation approximated as 2005.		
E102000 - INSTITUTIONAL EQUIPMENT	4	A 10 kW KIn in Room 438 serves the Art Room (Rm 61). Appears to be same model and vintage as others throughout APS system. Also, shop class (Room 67A) had dust hood with rooftop exhaust. Additional equipment serving the community center (e.g., kns, dust control equipment) is not included here.		
E109002 - FOOD SERVICE EQUIPMENT	3	Equipment included refrigerator, freezer, sink, exhaust hood, warming ovens, and serving counters. Refrigeration machinery appears original.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	The auditorium had a single level of fixed seating consisting of upholstered flip up cushioned seats. Maximum occupancy load is 772, 750 seats assumed. Telescoping bleachers in gymnasium for middle school competition, 1250 seats assumed.		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework consisted of laminated cabinets in select classrooms and in the Home Economics lab as well as wood cabinets with composite countertops in the science labs. Much of the casework had worn finishes, and some had delaminated surfaces and misaligned doors.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	Large, multi-use gymnasium is shared between school and community center and includes four basketball courts, indoor running track, and exercise area. Painted concrete floors, painted CMU and CIP concrete walls, and painted ceiling structure. Basketball hoops, flexible hanging partitions, and lighting appeared to be in good condition. Scoreboard not energized at time of assessment.		
F102030 - AUDITORIUMS	3	Auditorium shared between school and community with maximum occupancy load of 772. Unpainted brick and painted CMU walls, carpet tile (fair) and vinyl composite tile (fair) flooring, and painted gypsum board ceiling finishes. Spotlights above audience and suspended above stage. M.C. Dean acoustic board and suspended speakers comprise the sound system. The auditorium appears to be fully functional but was installed circa 1990 and is showing its age.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Jefferson Middle School Page 99

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Jefferson Middle School	1972	2010	234,923	162,425	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	5.50 ACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations. The filtration level is poor, but filtered airflow is high enough to help offset this weakness in some cases
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Classrooms do not meet current ASHRAE 62.1 ventilation requirements
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Meets current ASHRAE 62.1 for Auditoriums
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art and science labs were not observed to be directly exhausted. Local dust collection was observed in shop spaces
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Some classrooms served by internal air handlers utilize MERV 11 filters, but vast majority of spaces utilize MERV 8 filtration in the rooftop air handlers.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	Library served by rooftop units utilizing MERV 8 filtration
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Many classrooms do not have individual thermostats for control.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Very minimal LED fixtures throughout the school.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures are not dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is inconsistent on site, does not meet 4000K AFS standard.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature is inconsistent on site, does not meet 3000K AFS standard.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Sensors are present only in some classrooms.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Dual flush valves were noticed on some fixtures, but not consistent low flow valves across the school
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022.
Major Building Systems	1.0 Building Security - Security Vestibules	●	(include attached community center water use) Entrance 1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Sunken area of building access on west side could be an area of concealment.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator for the school, 1 share with the community center
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Bathrooms do not meet space and grab bar requirements
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	One corridor was less than 6'-0"
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Multiple railings did not have proper extensions or heights. Guardrails did not meet all requirements
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	~300W system located on gym roof.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 for the school
Major Building Systems	5.3 Other - Elevator Size	●	7'9" x 6'4"
Common Space Adequacy	1.0 Cafeteria	●	4120/ 12x 345
Common Space Adequacy	1.1 Kitchen	●	1180/ 3 = 397
Common Space Adequacy	1.2 Kitchen	●	2 Sinks
Common Space Adequacy	1.3 Kitchen	●	1,086/ 3 = 362
Common Space Adequacy	2.1 Gymnasium	●	Shared space with community center, 9 hoops, retractable bleachers, volley ball, indoor soccer
Common Space Adequacy	2.2 Gymnasium	●	185' 9" x 387' 5"
Common Space Adequacy	3.1 Performance Space	●	Stage is not accessible, lower seating tier too steep
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	from outside the auditorium
Common Space Adequacy	4.1 Library	●	2633 LF total
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	9 Green = 9, lab (1), classroom (8)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	28 Yellow = 28; lab (1), classroom (27)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	25 Red = 25, lab (1), classroom (24)
Educational Space Adequacy	1.2 Classrooms (General)	●	ca
Educational Space Adequacy	1.3 Classrooms (General)	●	22/65 = 33%
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	2 Green/4 red
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	6 5 SPED; 1 interlude
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pull-out Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 5 offices; conference room, rated records room
Educational Space Adequacy	3.4 Clinic	●	4 beds, ensuite toilet (not ADA), 2 sinks, 1 refrigerator
Educational Space Adequacy	4.1 Art	●	1 (room #5); 2 sinks) 2 if counting the shared ceramics room with community center
Educational Space Adequacy	4.2 Art	●	1 off room #5; 3 off community center room.
Educational Space Adequacy	4.3 Art	●	2 sinks in room #1
Educational Space Adequacy	4.4 Art	●	Connected to the room
Educational Space Adequacy	5.1 Music	●	3: band and instrumental and vocal
Educational Space Adequacy	5.2 Music	●	connected room
Educational Space Adequacy	6.0 Lab	●	3 Science Labs; 1 Wood Shop, 1 Life Skills, 1 Tech Ed, 1 Consumer Science
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	Boy/ Girls

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Kenmore Middle School	2005	206,188	0.159	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶		
26	No record	3	0.038	\$75,927,294		

Building Description

Kenmore Middle School, located at 200 S. Carlin Springs Rd., is a 3-story structure. The building was completed in 2005 and includes classrooms, laboratory spaces, art rooms and studios, performance auditorium and black box theater, cafeteria, and a gymnasium. The building is steel-framed with a metal panel and brick exterior. The roof system is a built up white modified bitumen roof surface. Interior finishes include concrete, vinyl composite tile, and carpeted flooring. Wall finishes are generally painted drywall. Ceiling finishes are generally lay-in acoustic tiles. The building was equipped with one three stop elevator and a handicapped lift. The HVAC system consists of a central plant consisting of natural gas fired boilers and water cooled chillers and cooling towers, which fed central station variable air volume air handlers. The building has a wet pipe fire sprinkler system, fire alarm system, and 150-KW emergency generator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	124,000	BLDG FP SF	\$12.08	\$1,498,303	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	124,000	BLDG FP SF	\$13.87	\$1,719,833	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	82,188	ELEV FL SF	\$42.15	\$3,463,956	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	124,000	BLDG FP SF	\$24.05	\$2,982,314	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	206,188	BLDG GROSS SF	\$26.95	\$5,557,103	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	206,188	BLDG GROSS SF	\$18.83	\$3,881,654	40	22
B203000 - EXTERIOR DOORS	3	Exterior doors	206,188	BLDG GROSS SF	\$1.02	\$209,926	30	12
B301000 - ROOF COVERINGS	3	Built-up roof	124,000	BLDG FP SF	\$27.93	\$3,463,486	25	7
C101000 - PARTITIONS	5	Drywall over studs	206,188	FINISHED SF	\$6.36	\$1,311,048	25	25
C102000 - INTERIOR DOORS	4	Interior doors	206,188	FINISHED SF	\$4.73	\$974,374	40	22
C103000 - FITTINGS	3	Partitions and lockers	206,188	FINISHED SF	\$4.09	\$843,666	30	12
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	206,188	BLDG GROSS SF	\$1.94	\$400,048	99	99
C301000 - WALL FINISHES	4	Standard wall finishes	173,119	FINISHED SF	\$5.09	\$881,288	6	5
C302000 - FLOOR FINISHES	3	Standard floor finishes	173,119	FINISHED SF	\$14.20	\$2,457,630	25	7
C303000 - CEILING FINISHES	3	Standard ceiling finishes	173,119	FINISHED SF	\$16.83	\$2,913,240	25	7
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	35	17
D101020 - LIFTS	3	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	20	3
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	206,188	SERVED SF	\$17.25	\$3,556,863	50	32
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, 181 to 300 MBH	4	EACH	\$32,608.98	\$130,436	15	10
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains	124,000	BLDG FP SF	\$3.25	\$402,565	60	42
D301000 - ENERGY SUPPLY	5	Natural gas supply	206,188	BLDG GROSS SF	\$0.15	\$31,687	60	42
D301006 - SOLAR ENERGY SUPPLY	3	Solar energy supply	70,000	SERVED SF	\$27.20	\$1,904,095	20	9
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	206,188	SERVED SF	\$7.17	\$1,477,405	20	20
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	206,188	SERVED SF	\$8.13	\$1,675,449	25	7
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	206,188	SERVED SF	\$19.67	\$4,055,932	35	17
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	206,188	SERVED SF	\$23.44	\$4,832,263	35	17
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	206,188	SERVED SF	\$2.92	\$602,052	20	2
D401000 - SPRINKLERS	5	Sprinkler system	206,188	SERVED SF	\$7.90	\$1,627,918	50	32
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	206,188	BLDG GROSS SF	\$4.00	\$823,861	50	32
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	206,188	BLDG GROSS SF	\$36.27	\$7,478,125	50	32
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	206,188	BLDG GROSS SF	\$10.18	\$2,099,262	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	17
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	206,188	SERVED SF	\$3.50	\$720,879	25	7
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Both Auditoriums and Gymnasium seating	1,494	SEATS	\$3,478.60	\$5,197,035	25	11
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,350	LENGTH LF	\$829.72	\$1,120,120	35	17
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	-	-	-	-	-	-	-
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	HS-level Gymnasium	19,627	SERVED SF	\$158.48	\$3,110,536	20	11
F102030 - AUDITORIUMS	3	Performance Auditoriums	13,442	SERVED SF	\$164.57	\$2,212,178	20	11
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Kenmore Middle School	2005	206,188	0.159	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
26	No record	3	\$75,927,294	No. of Local Projects		
				4		

Building Description

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PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,463,486	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ 881,288	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 881,288	\$ -
C302000 - FLOOR FINISHES	3	\$ 157,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,457,630	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,913,240	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	3	\$ -	\$ -	\$ 18,970	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 130,436	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,904,095	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,675,449	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 602,052	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 2,099,262	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 720,879	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,197,035	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,110,536	\$ -
F102030 - AUDITORIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$173,000	\$2,701,314	\$18,970	\$0	\$881,288	\$0	\$11,230,683	\$0	\$1,904,095	\$130,436	\$9,188,859	\$0

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2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Kenmore Middle School		2005	206,188	0.159
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
26		No record	3	0.038
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV⁴				
\$75,927,294				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.		
A103000 - SLAB ON GRADE	5	Ground floor slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Steel framed structure supporting concrete floor slabs.		
B102000 - ROOF CONSTRUCTION	5	Steel framed roof structure supporting metal roof deck.		
B201000 - EXTERIOR WALLS	5	Brick (80%) and metal panel (20%) exterior walls were performing as intended.		
B202000 - EXTERIOR WINDOWS	4	Aluminum framed dual glazed windows consisting of individual and ribbon windows. Windows were original to the building's construction. No observed leaks or other issues reported. Windows were in good condition.		
B203000 - EXTERIOR DOORS	3	Aluminum framed glass entry doors and painted hollow metal utility doors. Doors were original to the building construction. Glass doors were in good condition with no major issues observed. Metal door slabs had poor finish, but stainless steel hardware was only mildly tarnished. Local Project: Refinish metal exterior doors.		
B301000 - ROOF COVERINGS	3	White reflective modified bitumen roof was original to the buildings construction. Two leaks were present on the third floor and visible on the interior in the hallways near classrooms 373 and 391. Overall roof was in fair condition. Local Project: Patch 3rd floor roof near classrooms 373 and 391.		
C101000 - PARTITIONS	5	Gypsum board over stud partitions.		
C102000 - INTERIOR DOORS	4	Solid core wood doors were performing as intended with only minor cosmetic damage observed. Doors were in good condition.		
C103000 - FITTINGS	3	Lockers and partitions appeared to be original to the building's construction. Lockers were in good condition with no major defects observed. Restroom were equipped with solid composite partitions with repaired graffiti and surface scratches, but were otherwise functional and in fair condition.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairways with concrete filled pans with no structural issues observed.		
C301000 - WALL FINISHES	4	Painted wall finishes were in good condition and functioning as intended.		
C302000 - FLOOR FINISHES	3	VCT tile is in the middle of its expected useful life and functioning as intended. Carpets had normal wear, isolated tears and permanent stains and are beyond estimated useful life. Overall flooring was fair but spot replacement of carpets recommended. Local Project: Replace stained carpets.		
C303000 - CEILING FINISHES	3	Suspended acoustical tile ceiling was original to the building. No issues with frame observed, but tiles are beginning to sag and a few tiles have stains from various roof leaks. Spot replacement of tiles recommended. Overall condition was fair. Local Project: Replace stained ceiling tiles.		
D101010 - ELEVATORS	4	TAC 3-stop hydraulic elevator installed in 2005 was operational with current inspection tags.		
D101020 - LIFTS	3	Enclosed wheel chair lift for access to auditorium balcony. No issues reported and unit may be lightly used, but lift is in final third of expected useful life.		
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing system was original to the buildings construction. Supply piping was observed to be copper. Drain waste and vent was assumed to be cast iron. Fixtures were clean and observed to be operational. System is in 1st half of expected useful life.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	100-gal, 250-MBH Natural gas water heaters supplied the main classroom area. Additional water heaters served the kitchen and locker rooms. Water heaters were manufactured around 2018.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Roof drainage system was original to the building's construction. No issues observed.		
D301000 - ENERGY SUPPLY	5	Natural gas supply piping dates to 2005. No issues reported or observed.		
D301006 - SOLAR ENERGY SUPPLY	3	Solar PV system consisting of approximately 1,320 panels (~330-KW) covers the majority of the school roof surfaces. Presumed to power approximately 1/3 of school.		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Boiler system consisted of natural gas boilers which were in the process of being replaced during the assessment. Five high efficiency 1000-MBH boilers manufactured by Advanced Thermal Hydronics (ATH) were being installed.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	The building was provided chilled water by two Trane Series R centrifugal chillers manufactured in 2004. These chillers were provided condenser water via two Evapco induced draft cooling towers. Cooling towers appeared original to the buildings construction. Central plant cooling was in fair condition.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Trane central station air handlers supply outdoor air to ceiling mounted terminal units. All observed air handlers, distribution piping, circulation pumps, and duct work are original to the building's construction in 2005. No current issues reported or observed. Air handlers and terminal units are in the 2nd third of expected useful life. Based on a 25 year expected useful life for base mounted pumps, heating water circulation pumps are anticipated to require replacement in about seven years. Overall system condition is fair.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Trane central station air handlers supply outdoor air to ceiling mounted terminal units. All observed air handlers, distribution piping, circulation pumps, and duct work are original to the building's construction in 2005. No current issues reported or observed. Air handlers and terminal units are in the 2nd third of expected useful life. Based on a 25 year expected useful life for base mounted pumps, chilled water circulation pumps are anticipated to require replacement in about seven years. Overall system condition is fair.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	Automated Logic control system appeared original to the building construction and approaching end of 20 year expected useful life. Upgrade of system is to be anticipated in the near term.		
D401000 - SPRINKLERS	5	Wet pipe fire sprinkler system was original to buildings construction and in 1st half of expected useful life.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	4000 Amp, 480/277V electrical service was original to building construction. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	4	Lighting, branch wiring, distribution boards, and transformers were all original to the building's construction. No issues observed.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Simplex 4100 Fire Alarm control panel and remainder of the fire alarm system was original to the building's construction. No current trouble or alarms indicated on panel. Overall condition was operable, but in final third of estimated useful life and should be budgeted for replacement in the near term.		
D509000 - EMERGENCY POWER	3	150-KW KatoLight emergency generator was installed in 2005. Minor rust on equipment housing. Overall condition was fair.		
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	3	Original kitchen equipment from 2005, including warming ovens, heating trays, refrigeration equipment, and stainless steel counters. Systems appeared to adequately serve the space, but are nearing end of expected useful life. Kitchen was in fair condition.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Performance auditorium and pull out bleacher seating in the gymnasium. All seating was in good condition with no stains, tears, or other issues observed. Auditorium has a capacity of 854 seats including the balcony. Gymnasium seating is approximately 640 bleacher seats.		
E201020 - FIXED FURNISHINGS - CASEWORK	4	Built in cabinetry in classrooms, main office, and counselors office had only isolated minor cosmetic damage and was in good condition.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	Gymnasium and lockers rooms were in good condition with crisp finishes and refinished floors.		
F102030 - AUDITORIUMS	3	Performance auditorium was in fair condition with most equipment appearing original to building construction. Carpets had isolated stains. Lighting and controls were functional. Overall condition was fair.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Kenmore Middle School	2005	No record	206,188	124,000	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	9.12 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms appears to meet current ASHRAE 62.1 for majority of spaces
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Gymnasium meets code ventilation based on AHSRAE 62.1, assuming two classrooms in gym
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria meets code ventilation based on AHSRAE 62.1, assuming 200 students
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Library meets code ventilation based on AHSRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Meets current ASHRAE 62.1 for Auditoriums
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art and Science rooms appear to have direct exhaust outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	MERV 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	MERV 13
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Temperature sensing, with no local controls
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	F32 TB, high bay LED in gym, café with LED
Major Building Systems	3.2 Electrical - Exterior Lighting	●	downlight wallpacks, HID parking pole lights, grass field poles w/ shield
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	F32 TB, cfl recessed cans, TB uplights, and lights are HID
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	metal halide HID, 2 LED wallpacks by cooling towers
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	partial. None in 2nd, 3rd classrooms, yes in 1st floor CL, some in misc. spaces, offices and closets, ultrasonic sensors are wireless, some pir seem to be wireless, others wired
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	1.0 gpf urinal, 1.1 gpf toilet, aerators on faucets, wash sinks in science rooms
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	Security vestibule at main entrance with secured doors to main office and to remainder of school
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	Minor areas of concealment at classroom entry niches.
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	No significant areas of exterior concealment observed.
Major Building Systems	2.3 Building Security - Single point of entry	●	Door 1's main entry and signage at other locked doors direct visitors to the main office to check in.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Missing Vertical bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Stairs/Guardrails: YES, Missing Handrail extensions
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	2 classrooms
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	576.8kW
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Slide side door entry into an elevator cab with interior clear dimensions of 81 inches by 66 inches (8'9" x 5'6")
Common Space Adequacy	1.0 Cafeteria	●	5002 / 12 = 416
Common Space Adequacy	1.1 Kitchen	●	1600 (kitchen and serving) / 3 = 800
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	1045 / 3 = 348
Common Space Adequacy	2.1 Gymnasium	●	10 hoops, all operable, volleyball, daylight, TWO divider curtains
Common Space Adequacy	2.2 Gymnasium	●	144'-8" x 104'-7"; Deck: 27'-4"; Joist: 22'-10"
Common Space Adequacy	3.1 Performance Space	●	Permanent stage in auditorium
Common Space Adequacy	3.2 Performance Space	●	Balcony Occupancy: 216, Auditorium Occupancy: 638
Common Space Adequacy	3.3 Performance Space	●	Accessible from inside auditorium
Common Space Adequacy	4.1 Library	●	876 Lft
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	Shared fields with Carlin Springs ES: 4 tennis courts, 1 baseball field, 2 soccer fields
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	46 Green + 46, lab (4), classroom (42)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	0 Yellow + 0, lab (0), classroom (0)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	7 Red + 7, lab (0), classroom (7)
Educational Space Adequacy	1.2 Classrooms (General)	●	53
Educational Space Adequacy	1.3 Classrooms (General)	●	
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	Classrooms do not have sinks, Science Labs, Art labs and Music rooms have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	9 SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks, 6 offices, conf. room, rated files room
Educational Space Adequacy	3.4 Clinic	●	3 beds, toilet with no verticals, sink, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	2 - #60, #61 (one room dividable with operable partition)
Educational Space Adequacy	4.2 Art	●	Attached to #60
Educational Space Adequacy	4.3 Art	●	#60-3, #61-3
Educational Space Adequacy	4.4 Art	●	#60, yes, #61: no (storage on #60 room side)
Educational Space Adequacy	5.1 Music	●	#63: orchestra, #67: band, #68: vocal
Educational Space Adequacy	5.2 Music	●	#63: yes, #67: yes, #68: yes
Educational Space Adequacy	6.0 Lab	●	6 science labs, 1 Family Consumer Science, 1 Cooking/Nutrition Lab
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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² If IFEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IFEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Langston High School Continuation & New Directions Alternative Programs	2003	47,291	0.143	Good Fair Poor
Building Number 27	Last Renovation¹ No record	No. of Floors 3	Building FCI_{DM} 0.144	0 - 0.15 0.151 - 0.33 0.331 - 1 Building CRV⁶ \$16,420,220

Building Description

Langston High School, located at 2121 N Culpeper St, is a three-story structure. The building was originally constructed in 2003. The building shared several spaces between the high school and a community center, but the entire square footage was assessed and assumed owned by APS. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry and split-face concrete block. Exposed structural steel framing with metal sunscreens was installed near the front entrance. Windows and doors were typically aluminum or steel construction. The roof was standing seam metal panels with some areas of single-ply TPO membrane. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of stained/polished concrete, carpet, and vinyl floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included three high-efficiency boilers, an air-cooled chiller, AHUs and RTUs. The building had a 1200A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a gymnasium (non-competition), a weight room, and a dance room.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	21,400	BLDG FP SF	\$12.08	\$258,578	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	21,400	BLDG FP SF	\$13.87	\$296,810	99	99
A202000 - BASEMENT WALLS	5	-			-	-		
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	25,891	ELEV FL SF	\$66.81	\$1,729,839	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	21,400	BLDG FP SF	\$24.05	\$514,690	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	47,291	BLDG GROSS SF	\$26.95	\$1,274,570	70	50
B202000 - EXTERIOR WINDOWS	4	Exterior windows	47,291	BLDG GROSS SF	\$18.83	\$890,291	40	20
B203000 - EXTERIOR DOORS	3	Exterior doors	47,291	BLDG GROSS SF	\$1.02	\$48,148	25	5
B301000 - ROOF COVERINGS	4	Standing seam metal roof	21,400	BLDG FP SF	\$20.36	\$435,760	30	10
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	47,291	FINISHED SF	\$20.42	\$965,693	70	70
C102000 - INTERIOR DOORS	4	Interior doors	47,291	FINISHED SF	\$4.73	\$223,481	40	20
C103000 - FITTINGS	4	Partitions and lockers	47,291	FINISHED SF	\$4.09	\$193,502	40	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	47,291	BLDG GROSS SF	\$1.94	\$91,754	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	41,191	FINISHED SF	\$5.09	\$209,689	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	41,191	FINISHED SF	\$14.20	\$584,755	50	30
C303000 - CEILING FINISHES	2	Standard ceiling finishes	41,191	FINISHED SF	\$16.83	\$693,161	20	2
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	35	15
D101020 - LIFTS	4	-			-	-		
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	47,291	SERVED SF	\$17.25	\$815,797	40	20
D202000 - RESIDENTIAL WATER HEATER	4	-			-	-		
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 131 to 180 MBH	2	EACH	\$35,634.55	\$71,269	15	2
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains	21,400	BLDG FP SF	\$3.25	\$69,475	60	40
D301000 - ENERGY SUPPLY	5	Natural gas supply	47,291	BLDG GROSS SF	\$0.15	\$7,268	60	40
D301006 - SOLAR ENERGY SUPPLY	5	-			-	-		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	-			-	-		
D302000 - CENTRAL PLANT HEATING	3	Boiler	47,291	SERVED SF	\$7.17	\$338,856	20	3
D302010 - FIREPLACES	4	-			-	-		
D303000 - CENTRAL PLANT COOLING	3	Chiller system	47,291	SERVED SF	\$8.13	\$384,279	30	9
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	47,291	SERVED SF	\$19.67	\$930,263	35	15
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	47,291	SERVED SF	\$23.44	\$1,108,321	35	15
D305010 - TERMINAL & PACKAGE UNITS	4	-			-	-		
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	47,291	SERVED SF	\$2.92	\$138,086	20	3
D401000 - SPRINKLERS	5	Sprinkler system	47,291	SERVED SF	\$7.90	\$373,377	50	30
D402000 - STANDPIPES	4	-			-	-		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1200 Amp Service	47,291	BLDG GROSS SF	\$2.44	\$115,374	50	30
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution wiring plus "fixtures"	47,291	BLDG GROSS SF	\$26.53	\$1,254,583	45	25
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	47,291	BLDG GROSS SF	\$10.18	\$481,484	20	2
D509000 - EMERGENCY POWER	4	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	15
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	15	3
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	47,291	SERVED SF	\$3.50	\$165,340	20	5
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4	-			-	-		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	-			-	-		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	25	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	6,100	SERVED SF	\$100.03	\$610,161	20	5
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	-			-	-		
F102030 - AUDITORIUMS	4	-			-	-		
F102040 - COLD STORAGE ROOMS	4	-			-	-		
F104001 - AQUATIC FACILITIES	4	-			-	-		

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Langston High School Continuation & New Directions Alternative Programs	2003	47,291	0.143	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
27	No record	3	\$16,420,220	No. of Local Projects 3		

Building Description

Langston High School, located at 2121 N Culpeper St, is a three-story structure. The building was originally constructed in 2003. The building shared several spaces between the high school and a community center, but the entire square footage was assessed and assumed owned by APS. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry and split-face concrete block. Exposed structural steel framing with metal sunscreens was installed near the front entrance. Windows and doors were typically aluminum or steel construction. The roof was standing seam metal panels with some areas of single-ply TPO membrane. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of stained/polished concrete, carpet, and vinyl floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included three high-efficiency boilers, an air-cooled chiller, AHUs and RTUs. The building had a 1200A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a gymnasium (non-competition), a weight room, and a dance room.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48,148	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	4	\$ -	\$ 400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 435,760	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 209,689	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 209,689	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	2	\$ -	\$ 693,161	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ 71,269	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ 338,856	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 384,279	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ 138,086	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 481,484	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 165,340	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 829,718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ 610,161	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$10,000	\$1,645,913	\$710,685	\$0	\$1,653,368	\$0	\$0	\$0	\$593,968	\$435,760	\$0	\$0

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend						
Langston High School Continuation & New Directions Alternative Programs	2003	47,291	0.143	<table style="font-size: small;"> <tr> <td style="background-color: #90ee90;">Good</td> <td style="background-color: #fff2cc;">Fair</td> <td style="background-color: #f4cccc;">Poor</td> </tr> <tr> <td style="text-align: center;">0 - 0.15</td> <td style="text-align: center;">0.151 - 0.33</td> <td style="text-align: center;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation⁴	No. of Floors	Building FCI_{DM}	Building CRV⁵						
27	No record	3	0.144	\$16,420,220						

SYSTEM OBSERVATIONS		
Building Systems	Rating	Observations
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire footprint of building.
A202000 - BASEMENT WALLS	-	
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, and poured concrete flooring.
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.
B201000 - EXTERIOR WALLS	5	Exterior façade included brick masonry, split-face concrete block, and exposed structural steel framing with metal sunscreens. The exposed structural steel had peeling paint and surface corrosion. Local Project: Clean and paint exposed structural steel components.
B202000 - EXTERIOR WINDOWS	4	Windows were mostly aluminum framed with double pane glass.
B203000 - EXTERIOR DOORS	3	Combination of aluminum/glass doors and painted steel exterior doors.
B301000 - ROOF COVERINGS	4	Approximately 2/3 of roof was standing seam metal roof. Remaining 1/3 was single-ply TPO membrane. All roofs assumed to be original to 2003. Local Project: Replace single-ply roof
C101000 - PARTITIONS	5	Majority of partition walls were CMU or brick masonry, with some areas of gypsum board over stud framing.
C102000 - INTERIOR DOORS	4	Majority of interior doors were solid-core wood.
C103000 - FITTINGS	4	Composite toilet partitions in restrooms.
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with poured concrete treads and landings.
C301000 - WALL FINISHES	4	Majority of walls were painted masonry or gypsum board.
C302000 - FLOOR FINISHES	4	Polished/stained concrete was used in hallways and several classrooms. Vinyl composite tile (VCT) and carpet were present in other rooms.
C303000 - CEILING FINISHES	2	Suspended acoustical ceiling tile system throughout about half of spaces, including hallways, classrooms, and support rooms. Tiles were sagging in many locations. Remainder of ceilings were mostly painted exposed structure.
D101010 - ELEVATORS	4	Hydraulic elevator assumed installed in 2003.
D104020 - LIFTS	-	
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.
D202000 - RESIDENTIAL WATER HEATER	-	
D202005 - COMMERCIAL WATER HEATER	3	Two gas-fired 140 MBH domestic water heater were in the boiler room, estimated manufactured 2002.
D204000 - BUILDING STORMWATER DRAINAGE	5	Entire roof area used internal stormwater drains. Drain piping was assumed to be cast iron.
D301000 - ENERGY SUPPLY	5	Natural gas supply connection was located near boiler room.
D301006 - SOLAR ENERGY SUPPLY	-	
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	
D302000 - CENTRAL PLANT HEATING	3	Three high-efficiency boilers manufactured in 2002. Appeared to be in process of being worked on at time of assessment.
D302010 - FIREPLACES	-	
D303000 - CENTRAL PLANT COOLING	3	Air-cooled chiller estimated manufactured in 2002. Appeared to be in process of being worked on at time of assessment.
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	System included a several AHUs and RTUs (most equipment estimated 2003). Heating/chilled water piping was assumed to be galvanized.
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	System included a several AHUs and RTUs (most equipment estimated 2003). Heating/chilled water piping was assumed to be galvanized.
D305010 - TERMINAL & PACKAGE UNITS	-	
D306000 - CONTROLS	3	Digital controls used throughout the building, assumed to be mostly original to 2003.
D401000 - SPRINKLERS	5	Sprinklers appeared to be installed throughout the building.
D402000 - STANDPIPES	-	
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical panel in main electric room next to boiler room. Service is 1200A, 480/277V, 3Ph, 4W.
D502000 - LIGHTING AND BRANCH WIRING	4	Wiring, distribution panels, and light fixtures assumed to be original to 2003 construction.
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Fire alarm control panel assumed original to 2003 construction. PA and security systems assumed updated within past 10 years.
D509000 - EMERGENCY POWER	4	One 150 KW emergency generator provided backup power. Estimated to be installed in 2003.
E102000 - INSTITUTIONAL EQUIPMENT	3	One art kiln assumed and science lab tables were assumed original to 2003 construction.
E109002 - FOOD SERVICE EQUIPMENT	3	Serving kitchen with equipment estimated to be 10-15 years old.
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework throughout administrative areas and classrooms was assumed to be original to 2003 construction.
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Non-Competition Gymnasium (about 4,000 SF) had vinyl flooring, painted block and acoustical panels on walls, painted exposed structure ceilings, and basketball hoops. Several acoustical wall panels were stained or missing. Weight room (about 1,300 SF) had vinyl floors, painted walls, and painted exposed structure ceilings. Dance room (about 800 SF) had hardwood floors, painted walls, and painted exposed structure ceilings. On average, finishes had signs of wear and were in fair condition. Local Project: Replace stained and missing acoustical wall panels in gym.
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	
F102030 - AUDITORIUMS	-	
F102040 - COLD STORAGE ROOMS	-	
F104001 - AQUATIC FACILITIES	-	

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3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Langston High School Continuation & New Directions Alternative Programs	2003	No record	47,291	21,400	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	4 to 8 cfm/ft average for classroom spaces, when factoring all ventilation and local filtration per Hazard T.E. Chan recommendations. The lower cfm/ft is mainly due to the higher ceilings throughout several spaces.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym meets current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Ventilation for Dining does not meet current ASHRAE 62.1 (Dining)
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation for Media center meets current ASHRAE 62.1 (Media Center)
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art and Science rooms are not directly exhausted outdoors. Kilo room using only the small, Kilo exhaust systems to remove heat.
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Bldg. utilizes Rooftop VAV air handling units - all units had a minimum of MERV 13. Furthermore, DOAS units provide additional ventilation and airflow, using MERV 13 filters.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Bldg. utilizes Rooftop VAV air handling units - all units had a minimum of MERV 13. Furthermore, DOAS units provide additional ventilation and airflow, using MERV 13 filters.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Bldg. utilizes Rooftop VAV air handling units - all units had a minimum of MERV 13. Furthermore, DOAS units provide additional ventilation and airflow, using MERV 13 filters.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Fixtures were mainly fluorescent.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Exterior lighting was not fully dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature did not align with the APS standard of 4000K. There were a range of CCT's on site.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature did not align with the APS standard of 3000K. There were a range of CCT's on site.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors not present in most spaces.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Not In Energy Report
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Multiple entrances for high school and community center
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	ADA but no vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	0
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	0
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Not In Energy Report
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'8" x 3'6" Door: 4'0" offset 1,200 / 12 = 100
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	822 / 3 = 274
Common Space Adequacy	1.2 Kitchen	●	3 serving line
Common Space Adequacy	1.3 Kitchen	●	150 / 3 = 50
Common Space Adequacy	2.1 Gymnasium	●	Main Gym: 4 hoops, volleyball (temp set-up), divider curtain, no bleachers, daylight, no rope, no climbing wall
Common Space Adequacy	2.2 Gymnasium	●	Main Gym: 82'-7-1/2" L x 48'-9" W, Bot. of joist 23'-6-3/4", Bot. of lower deck 26'-10", Bot. of high part of started deck 34'-6"
Common Space Adequacy	3.1 Performance Space	●	There is no performance space for this school.
Common Space Adequacy	3.2 Performance Space	●	There is no performance space for this school.
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	3,816 LF total
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	There is no pool for this school.
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch; Also, playground is Arlington County and not APS, Tennis Court and half court basketball is on premises
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	0, Has outdoor dining tables, but not a separate learning space
Common Space Adequacy	9.0 Outdoor dining	●	by front door of school
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	7	Green = 7, classroom (7), lab (0)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	1	Yellow = 1, classroom (0), lab (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	0	Red = 0, classroom (0), lab (0)
Educational Space Adequacy	1.2 Classrooms (General)	8	classroom (7), lab (1)
Educational Space Adequacy	1.3 Classrooms (General)	●	100% of classrooms that are contributing have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	(yes since science lab had sink) Science Lab 308 = 5 sinks; Math & Science 321 = 1 sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	1	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	1 desks; 2 offices, records room not rated and shared with Office 303; conference room 208
Educational Space Adequacy	3.4 Clinic	●	3 beds + 1 isolation bed, 1 ADA toilet (no vert grab bar), 1 sink, no eye wash, 1 refrigerator, 1 exam room with additional sink, 1 office.
Educational Space Adequacy	4.1 Art	●	1 total
Educational Space Adequacy	4.2 Art	●	1 - located off art room 205 (205B)
Educational Space Adequacy	4.3 Art	●	205 (art) - 3 sinks
Educational Space Adequacy	4.4 Art	●	Connected
Educational Space Adequacy	5.1 Music	●	There is no music for this school.
Educational Space Adequacy	5.2 Music	●	There is no music for this school.
Educational Space Adequacy	6.0 Lab	●	1 Science Lab, 1 Computer Lab
Educational Space Adequacy	7.1 Performing Arts	●	There is no performance space for this school.
Educational Space Adequacy	7.2 Performing Arts	●	There is no performance space for this school.

¹ Values shown were provided by APS.
² If EA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Long Branch Elementary School	1973	70,754	0.118	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
28	1996	2	0.111	\$23,201,352		

Building Description

Long Branch Elementary School, located at 33 North Fillmore Street, is a two-story structure. The original building was constructed in 1973, and the last major renovation occurred in 1996, which involved a total demolition of the original building with the exception of the superstructure. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building is of CMU construction with split and ground face finishes, and EIFS stucco cladding. The exterior windows are both fixed and tilt-out aluminum framed units with thermal glazing. The roof is built-up asphalt (75%) over steel roof decking and standing seam metal (25%). Interior floor finishes are primarily vinyl composition tile and carpet tile. Wall finishes are primarily painted drywall and CMU while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas water heater. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the four-pipe source for distributed heating and much of the cooling hydronics as required. Space conditioning was a mix of ducted heat recovery units, as well as air handlers, fan coil units, and unit heaters and ventilators. Building power was through a 1,600 Amp, 277/480V, three phase power service for connected and lighting load distribution including transformed power for 120/208V. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 50 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	45,290	BLDG FP SF	\$12.08	\$547,243	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	45,290	BLDG FP SF	\$13.87	\$628,155	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	25,464	ELEV FL SF	\$42.15	\$1,073,225	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	45,290	BLDG FP SF	\$24.05	\$1,089,266	70	70
B201000 - EXTERIOR WALLS	5	Exposed CMU block walls	70,754	BLDG GROSS SF	\$15.64	\$1,106,376	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	70,754	BLDG GROSS SF	\$18.83	\$1,332,001	40	14
B203000 - EXTERIOR DOORS	4	Exterior doors	70,754	BLDG GROSS SF	\$1.02	\$72,037	30	10
B301000 - ROOF COVERINGS	2	Built-up roof	45,290	BLDG FP SF	\$27.93	\$1,265,010	28	2
C101000 - PARTITIONS	5	Drywall over studs	70,754	FINISHED SF	\$6.36	\$449,890	45	45
C102000 - INTERIOR DOORS	4	Interior doors	70,754	FINISHED SF	\$4.73	\$334,359	40	14
C103000 - FITTINGS	4	Partitions and lockers	70,754	FINISHED SF	\$4.09	\$289,506	35	20
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	70,754	BLDG GROSS SF	\$1.94	\$137,278	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	63,448	FINISHED SF	\$5.09	\$322,992	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	63,448	FINISHED SF	\$14.20	\$900,720	18	8
C303000 - CEILING FINISHES	4	Standard ceiling finishes	63,448	FINISHED SF	\$16.83	\$1,067,700	20	10
D101010 - ELEVATORS	5	Elevator	1	EACH	\$206,284.66	\$206,285	30	16
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	70,754	SERVED SF	\$17.25	\$1,220,548	50	23
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, 131 to 180 MBH	1	EACH	\$35,634.55	\$35,635	20	5
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	45,290	BLDG FP SF	\$6.11	\$276,667	60	33
D301000 - ENERGY SUPPLY	5	Natural gas supply	70,754	BLDG GROSS SF	\$0.12	\$8,155	60	33
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Chiller system	70,754	SERVED SF	\$8.13	\$574,935	30	23
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	70,754	SERVED SF	\$8.13	\$574,935	30	3
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	70,754	SERVED SF	\$19.67	\$1,391,805	30	22
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Chilled water piping and individual terminal AHUs	70,754	SERVED SF	\$23.44	\$1,658,205	30	22
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - 4-pipe system	70,754	SERVED SF	\$2.92	\$206,596	15	7
D401000 - SPRINKLERS	5	Sprinkler system	70,754	SERVED SF	\$7.90	\$558,625	50	23
D402000 - STANDPIPES	5	Sprinkler system	70,754	SERVED SF	\$7.90	\$558,625	50	23
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 1600 Amp Service	70,754	BLDG GROSS SF	\$3.15	\$222,906	50	23
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	70,754	BLDG GROSS SF	\$36.27	\$2,566,140	50	23
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	70,754	BLDG GROSS SF	\$10.18	\$720,368	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	8
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	10
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	70,754	SERVED SF	\$3.50	\$247,372	25	4
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	900	LENGTH LF	\$829.72	\$746,746	35	12
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	7,306	SERVED SF	\$100.03	\$730,793	20	6
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Long Branch Elementary School	1973	70,754	0.118	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
28	1996	2	\$23,201,352	0 - 0.15	0.151 - 0.33	0.331 - 1
				1		

Building Description

Long Branch Elementary School, located at 33 North Fillmore Street, is a two-story structure. The original building was constructed in 1973, and the last major renovation occurred in 1996, which involved a total demolition of the original building with the exception of the superstructure. The building includes classrooms, a gymnasium, multi-purpose room, media center, kitchen, and administrative offices. The building is of CMU construction with split and ground face finishes, and EIFS stucco cladding. The exterior windows are both fixed and tilt-out aluminum framed units with thermal glazing. The roof is built-up asphalt (75%) over steel roof decking and standing seam metal (25%). Interior floor finishes are primarily vinyl composition tile and carpet tile. Wall finishes are primarily painted drywall and CMU while ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing a natural gas water heater. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers and an air-cooled chiller provided the four-pipe source for distributed heating and much of the cooling hydronics as required. Space conditioning was a mix of ducted heat recovery units, as well as air handlers, fan coil units, and unit heaters and ventilators. Building power was through a 1,600 Amp, 277/480V, three phase power service for connected and lighting load distribution including transformed power for 120/208V. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 50 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 72,037	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 1,265,010	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ 322,992	\$ -	\$ -	\$ -	\$ -	\$ 322,992	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 900,720	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,067,700	\$ -	\$ -
D101010 - ELEVATORS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 35,635	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ 574,935	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,596	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 720,368	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ 247,372	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 730,793	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$15,000	\$1,985,378	\$574,935	\$570,363	\$35,635	\$730,793	\$206,596	\$956,920	\$0	\$1,486,784	\$0	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION

Building Name Long Branch Elementary School	Year Built 1973	Building GSF 70,754	Building FCI_{AD} 0.118	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 28	Last Renovation 1996	No. of Floors 2	Building FCI_{DM} 0.111	Building CRV \$23,201,352

SYSTEM OBSERVATIONS

Building Systems	Rating	Observations
A101000 - STANDARD FOUNDATIONS	5	Per the March 2006 Building Information Report, the foundations are concrete and masonry foundation walls supported by cast-in-place (CIP) concrete footings.
A103000 - SLAB ON GRADE	5	Per the March 2006 Building Information Report, there are CIP concrete slabs at grade level (first floor).
A202000 - BASEMENT WALLS	-	
B101000 - FLOOR CONSTRUCTION	5	The second floor installed during the 1996 renovation uses steel framing and decking to support a CIP lightweight elevated concrete slab.
B102000 - ROOF CONSTRUCTION	5	The roof structure is metal decking over open-web steel joists. There are also steel framed porticos over the front (main) and rear entrances.
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is CMU, with exterior finishes of split and ground face CMU and EIFS cladding. There appeared to be no structural issues with the wall assembly, but there was surface cracking of the EIFS cladding (stucco) at the Gym exterior (east side) and the north side of the building. Note that a portion of the north side could not be assessed due to an ongoing repair project. Local Project: Assess EIFS stucco cracking on the east (Gym) and north sides of the building.
B202000 - EXTERIOR WINDOWS	4	The exterior windows are both fixed and operable (tilt-out) aluminum framed units with thermal glazing. There is a storefront assembly at the main entrance. No cracking or fogging was observed, and there were no reported issues. All windows assumed replaced in 1996, so they are approaching final 1/3 of EUL.
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly paired glazed units in metal frames and single and paired metal flush panel units. There is a double paired glazed storefront system at the main entrance with vestibule. The kitchen door has a corroded frame near grade but the overall condition of the exterior doors is good. All doors assumed installed in 1996 and are entering final 1/3 of EUL.
B301000 - ROOF COVERINGS	2	Roof coverings were a mix of low slope built-up asphalt (75%) and steep slope standing seam metal (25%). The overall roof rating is poor, with BUR rating poor and metal roof rating fair based on both condition and age. This is consistent with the 2016 APS roof survey which described the overall roof condition as fair at that time. Compared to 2015 photos, the BUR exhibits increased evidence of ponding and substrate exposure. At the time of this assessment, coatings were being applied to select areas including storm drains, scuppers, certain edge perimeters, cracked areas, and an area at the NW corner of the building. Leak damaged ceiling tiles were observed in and outside of Room 211, which is directly beneath the NW area being patched. Leak damaged ceilings were also observed on the east side of the building, including the MPR, near entrance 5, and near entrance 3. Downspouts and gutters appear to function as required, with some exhibiting collected roof ballast stones.
C101000 - PARTITIONS	5	Partition walls are a combination of CMU, drywall over studs, and a small amount of glazed partitions. The predominate partition appears to be drywall over studs.
C102000 - INTERIOR DOORS	4	The majority of the interior doors are solid core wood panels in metal frames, with some single/paired metal doors. The doors types vary and include flush and glazed units. A number of doors in high traffic areas display worn finishes, but doors appear fully functional and overall condition is good.
C103000 - FITTINGS	4	The predominate fittings for the school are laminate toilet partitions and metal and wood railings.
C201000 - STAIR CONSTRUCTION	5	Interior stairs are predominately steel framed with concrete infill pans. The stairs have both metal and wood hand rails as well as metal guard rails.
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted drywall and painted CMU predominate. In classrooms, corridors, and common areas, finishes are painted drywall and painted CMU. In restrooms, ceramic tile and painted drywall. In the Media Center, painted drywall predominates while in the kitchen, painted CMU and drywall are the most common.
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In classrooms, corridors, and other common areas, finishes are VCT and carpet. In restrooms, ceramic tile. In the kitchen, ceramic tile.
C303000 - CEILING FINISHES	4	The majority of the ceiling finishes are suspended acoustic tile (SAT). Some are leak stained as described under Roof Coverings but good condition overall.
D101010 - ELEVATORS	5	A 2-stop Otis hydraulic elevator served both floors.
D101020 - LIFTS	-	
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, sump pumps, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.
D202000 - RESIDENTIAL WATER HEATER	-	
D202005 - COMMERCIAL WATER HEATER	4	An A.O. Smith 199 MMBtu natural gas domestic water boiler appears to be adequately functional.
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.
D301006 - SOLAR ENERGY SUPPLY	-	
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	
D302000 - CENTRAL PLANT HEATING	5	There were two 2000 mbh Patterson Kelly PK Thermic natural gas hydronic boilers. They provided distributed heating water roof top units, fan coil units, and ventilation units throughout.
D302010 - FIREPLACES	-	
D303000 - CENTRAL PLANT COOLING	3	A Carrier 136 ton water cooled screw chiller with cooling tower and a Carrier 116 ton air cooled scroll chiller and provided distributed chilled water to served interior and roof mounted AHUs, energy recovery units, and fan coils.
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Hydronic boilers and an air-cooled chiller provided the four-pipe source for distributed heating and much of the cooling hydronics as required. Space conditioning was a mix of ducted heat recovery units, as well as air handlers, fan coil units, and unit heaters and ventilators.
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Hydronic boilers and an air-cooled chiller provided the four-pipe source for distributed heating and much of the cooling hydronics as required. Space conditioning was a mix of ducted heat recovery units, as well as air handlers, fan coil units, and unit heaters and ventilators.
D305010 - TERMINAL & PACKAGE UNITS	-	
D306000 - CONTROLS	5	The major building MEP systems utilized a DDC throughout which appeared to be functional.
D401000 - SPRINKLERS	5	A single water service under line pressure served the distributed sprinkler systems throughout the facility.
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were typically mechanical.
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 480/277V, 1600A service rated switchboard provides power to the building distribution. It was original construction, including the wiring. No issues reported or observed.
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be from the 2000 construction and approaching the end of their useful life.
D509000 - EMERGENCY POWER	3	A Katolight diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. The generator enclosure was locked and based on a provided one-line drawing, the generator is estimated at 25 kW with installation approximated as 1995.
E102000 - INSTITUTIONAL EQUIPMENT	4	10 KW kiln in Room 202A serves the Art Room (202). Age uncertain but model, vintage, and condition similar to others throughout school system.
E109002 - FOOD SERVICE EQUIPMENT	3	Serving kitchen including stainless steel stove/oven, exhaust hood, warming racks, refrigerator, freezer, sink, and serving counters. Appliances assumed installed 1996. Score based on observed conditions and age.
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	
E201020 - FIXED FURNISHINGS - CASEWORK	4	Laminated composite and wood casework in classrooms and offices includes cabinets, cubbyholes, and shelving, including some tall cabinets. Most casework assumed to have been installed in 1996. Quantity estimated based on square footage. Expected level of wear and tear observed with some localized areas of delamination, but overall condition is good.
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	The Multipurpose Room (Rm 157) appears to serve as cafeteria seating only, but tables are on wheels so the space may be reconfigured as needed. The stage is connected to the Gymnasium space across the hall, but the stage SF is included here to consider a larger multipurpose area, separate from the gym space. The cafeteria space has VCT flooring (fair condition) while the stage has carpet (good). The cafeteria ceiling is SAT with an acoustic finish which is in poor condition due to soiling/staining from ventilation air. The walls are painted CMU and drywall and are in fair condition. Stage equipment including lighting appears to be in good condition. Elementary school gymnasium constructed 1996. Sheet vinyl flooring (good condition), painted walls (fair/good condition) with acoustic panels, safety padding, and a climbing wall, and painted steel ceiling framing (fair condition). Basketball hoops dated but functional. Lighting appears to have been upgraded to LED. The Stage shares this space but is covered under MPR.
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	
F102030 - AUDITORIUMS	-	
F102040 - COLD STORAGE ROOMS	-	
F104001 - AQUATIC FACILITIES	-	

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Long Branch Elementary School	1973	1996	70,754	45,290	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	Classrooms are yellow, gym to yellow, library is red, cafeteria is green. FCUs serving offices and smaller support spaces throughout classroom wings; did not appear to have any sort of filters on them.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Most spaces do not currently meet ASHRAE 62.1 requirements. Most spaces do not meet 6 eACH
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Typical unit vent filters, assuming MERV 6
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms had individual temp control. Office spaces throughout the classroom areas shared thermostats.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	All fixtures appeared to be circa 1995, they were not labeled with flush/flow rates. Based on these observations, it has been assumed that there are no low flow fixtures in the school
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	No cooling tower
Major Building Systems	1.0 Building Security - Security Vestibules	●	Entrance 1
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance 1 is the main entrance. There are doors at the rear of the building (Entrance 5) that could be interpreted as a point of entry, but there are signs directing visitors to the Office/Main Entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No Vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Multiple handrails and guardrails do not have extension, height requirements or 4" object standard
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	4
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	71 x 43
Common Space Adequacy	1.0 Cafeteria	●	2439(cafeteria area)/15 students = 163
Common Space Adequacy	1.1 Kitchen	●	1374(kitchen area incl office, etc.)/3 = 458
Common Space Adequacy	1.2 Kitchen	●	1
Common Space Adequacy	1.3 Kitchen	●	design capacity 538/7 periods = 178
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable, climbing wall, volleyball, 2 ropes, daylight, cargo nets, tectum panels
Common Space Adequacy	2.2 Gymnasium	●	53'0" W x 74'7", Deck: 22' 0", Joist: 19' 05"
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	942 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	12 Green = 12, pre-K & K (1), 1st (0), Gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	5 Yellow = 5, pre-K & K (0), 1st (0), Gen ed (1)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	2 Red = 2, pre-K & K (2), 1st (0), Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	●	19
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	0% No bathrooms in ANY classrooms
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	4 desks, 2 offices, work room, NO conference room
Educational Space Adequacy	3.4 Clinic	●	1 bed, 1 toilet NO ADA, 1 sink, eyewash, ref.
Educational Space Adequacy	4.1 Art	●	1 - #202
Educational Space Adequacy	4.2 Art	●	inside #202
Educational Space Adequacy	4.3 Art	●	1
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	1 band room - #235, 1 general music room - #133
Educational Space Adequacy	5.2 Music	●	connected to both
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.

GENERAL INFORMATION					
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend	
Montessori Public School of Arlington	1975	61,488	0.281	Good	Fair
				0 - 0.15	0.151 - 0.33
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶	
4	1993	1	0.206	\$19,893,934	

Building Description

The Montessori Elementary School (MPSA) is located at 701 S. Highland St. and located on a larger campus with other buildings which are not a part of the evaluation. The building was originally constructed in 1975 (drawings circa 1972) and expanded in 1993. The original building has a partial lower level. The superstructure is a combination of cast in place concrete columns (circular), load bearing masonry and steel framing. There are two exterior wall systems present. The predominate exterior wall assembly is the original cast in place concrete. The cast in place concrete was formed using vertical board which created an exterior feature. The masonry wall assembly uses a smooth faced/glazed CMU. The exterior window assemblies are primarily a storefront system configured as individual openings and in multiple unit ribbon arrangement. The window assemblies replaced the existing original windows and appear to have been installed with the 1993 addition. The roof system consists of both a sheet metal roof over a mansard roof structure and a low sloped aggregate built up roof. The interior systems include CMU partitions, gypsum board framed partitions and carpet/vinyl floor finishes. The ceiling system is predominantly suspended acoustical tile (SAT). There is an open stair is a split-level configuration constructed of concrete. A chair lift provides ADA access between the upper and lower levels in the original building. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout a portion of the building, and heating/chilled water piping. HVAC systems included two boilers, a cooling tower, and unit ventilators throughout the school. The building had a 1600A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	59,360	SF	\$8.99	\$533,663	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	59,360	SF	\$13.87	\$823,301	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	2,088	SF	\$16.79	\$35,057	99	99
B101000 - FLOOR CONSTRUCTION	5	Concrete framed floor supported by load bearing walls	2,088	SF	\$50.64	\$105,731	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over main facility and steel roof structure over gym	59,360	SF	\$65.87	\$3,910,108	99	99
B201000 - EXTERIOR WALLS	3	Insulated concrete panel	59,360	SF	\$11.12	\$660,237	70	19
B202000 - EXTERIOR WINDOWS	3	Exterior windows	59,360	SF	\$4.44	\$263,411	40	10
B203000 - EXTERIOR DOORS	3	Exterior doors	59,360	SF	\$2.27	\$134,556	30	10
B301000 - ROOF COVERINGS	2	Built-up roof	59,360	SF	\$27.49	\$1,631,777	25	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	61,488	FINISHED SF	\$12.52	\$770,132	70	70
C102000 - INTERIOR DOORS	3	Interior doors	61,488	FINISHED SF	\$11.83	\$727,610	40	10
C103000 - FITTINGS	3	Partitions and lockers	61,488	FINISHED SF	\$4.03	\$248,049	30	5
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	61,488	BLDG GROSS SF	\$0.29	\$17,718	70	70
C301000 - WALL FINISHES	3	Standard wall finishes	61,488	SF	\$5.80	\$356,718	6	2
C302000 - FLOOR FINISHES	3	Standard floor finishes	61,488	SF	\$14.20	\$872,895	14	3
C303000 - CEILING FINISHES	2	Standard ceiling finishes	61,488	FINISHED SF	\$16.83	\$1,034,718	20	2
D101010 - ELEVATORS	-	-	-	-	-	-	-	-
D101020 - LIFTS	3	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	30	10
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	61,488	SERVED SF	\$6.78	\$416,958	50	10
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	2	Gas Water Heater, Commercial, Less than 80 MBH	1	EACH	\$15,992.33	\$15,992	15	2
D204000 - BUILDING STORMWATER DRAINAGE	3	Internal roof drains	59,360	BLDG FP SF	\$4.21	\$249,727	60	12
D301000 - ENERGY SUPPLY	3	Natural gas supply	61,488	BLDG GROSS SF	\$0.12	\$7,087	60	12
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	61,488	SERVED SF	\$6.22	\$382,704	40	11
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	61,488	SERVED SF	\$6.26	\$385,066	30	10
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heat pump system	61,448	SERVED SF	\$7.95	\$488,692	40	10
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Heat pump system distribution	61,448	SERVED SF	\$7.95	\$488,692	40	10
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - heat pump system	61,448	SERVED SF	\$0.79	\$48,397	20	5
D401000 - SPRINKLERS	3	Sprinkler system	61,488	SERVED SF	\$8.61	\$529,171	50	10
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 600 Amp Service	61,488	BLDG GROSS SF	\$2.82	\$173,634	40	5
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - 0 to 1000 Amp service	61,488	BLDG GROSS SF	\$30.52	\$1,876,902	40	10
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	61,488	BLDG GROSS SF	\$7.97	\$490,192	20	5
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	5
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$92.28	\$13,843	20	5
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	61,488	SERVED SF	\$8.07	\$496,097	20	5
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	4	Multi-purpose room	8,000	SERVED SF	\$100.03	\$800,212	20	8
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Montessori Public School of Arlington	1975	61,488	0.281	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
4	1993	1	\$19,893,934	No. of Local Projects		
				4		

Building Description

The Montessori Elementary School (MPSA) is located at 701 S. Highland St. and located on a larger campus with other buildings which are not a part of the evaluation. The building was originally constructed in 1975 (drawings circa 1972) and expanded in 1993. The original building has a partial lower level. The superstructure is a combination of cast in place concrete columns (circular), load bearing masonry and steel framing. There are two exterior wall systems present. The predominate exterior wall assembly is the original cast in place concrete. The cast in place concrete was formed using vertical board which created an exterior feature. The masonry wall assembly uses a smooth faced/glazed CMU. The exterior window assemblies are primarily a storefront system configured as individual openings and in multiple unit ribbon arrangement. The window assemblies replaced the existing original windows and appear to have been installed with the 1993 addition. The roof system consists of both a sheet metal roof over a mansard roof structure and a low sloped aggregate built up roof. The interior systems include CMU partitions, gypsum board framed partitions and carpet/vinyl floor finishes. The ceiling system is predominantly suspended acoustical tile (SAT). There is an open stair is a split-level configuration constructed of concrete. A chair lift provides ADA access between the upper and lower levels in the original building. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout a portion of the building, and heating/chilled water piping. HVAC systems included two boilers, a cooling tower, and unit ventilators throughout the school. The building had a 1600A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	3	\$ 128,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 263,411	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 134,556	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 1,631,777	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 727,610	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 248,049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ 356,718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 356,718	\$ -	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ 872,895	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	2	\$ -	\$ 1,034,718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,970	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 416,958	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	2	\$ -	\$ 15,992	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 382,704	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 385,066	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 488,692	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 488,692	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48,397	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 529,171	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$ -	\$ -	\$ -	\$ -	\$ 173,634	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,876,902	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ -	\$ -	\$ 490,192	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 13,843	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ 5,000	\$ -	\$ -	\$ -	\$ 496,097	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ 829,718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 800,212	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$183,500	\$3,039,205	\$872,895	\$0	\$2,356,130	\$0	\$0	\$1,156,929	\$0	\$5,330,028	\$382,704	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION										
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend						
Montessori Public School of Arlington	1975	61,488	0.281	<table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90ee90; padding: 2px;">Good</td> <td style="background-color: #ffff00; padding: 2px;">Fair</td> <td style="background-color: #ff0000; padding: 2px;">Poor</td> </tr> <tr> <td style="font-size: 8px;">0 - 0.15</td> <td style="font-size: 8px;">0.151 - 0.33</td> <td style="font-size: 8px;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ³						
4	1993	1	0.206	\$19,893,934						
SYSTEM OBSERVATIONS										
Building Systems	Rating	Observations								
A101000 - STANDARD FOUNDATIONS	5	The drawings indicate cast in place concrete foundations for the original building and the addition. The foundation wall is concrete masonry units. The RUL is based on the original construction date (circa 1975). Recommendation: None								
A103000 - SLAB ON GRADE	5	The building is a split level configuration. The lowest level and portion of the upper level have a slab on grade. The RUL is based on the original construction date. Recommendation: None								
A202000 - BASEMENT WALLS	5	The lowest (partial) level of the building has basement walls. Recommendation: None								
B101000 - FLOOR CONSTRUCTION	5	A portion of the upper level floor plate is an elevated slab constructed with cast in place concrete framing. The remaining portion of the upper floor is a slab on grade. Recommendation: None								
B102000 - ROOF CONSTRUCTION	5	The original building uses cast in place concrete. The 1993 portion of the building uses steel framing. The more predominate system (by SF) is the original building. Recommendation: None								
B201000 - EXTERIOR WALLS	3	There are two exterior wall systems present. The predominate exterior wall assembly is the original cast in place concrete (circa 1972). The cast in place concrete was formed using vertical board which created an exterior feature. The masonry wall assembly uses a 8" x 8" smooth faced/glazed CMU. There are metal panel facias matching the roof. The RUL is based on the age of the predominate wall assembly. Recommendation: The cast in place concrete wall assembly is in fair condition. The masonry exterior wall assembly has several degraded areas, identified by stair stepping cracks and evidence past repairs. Local Project: There are numerous stair stepping cracks along the east facade beginning at the south corner of the facade. Repair to protect from water infiltration and continued degradation. Local Project: There is evidence of significant past repairs at the west wall located above the roof line. These repairs are failing. Remove previous repair and replace using the appropriate materials.								
B202000 - EXTERIOR WINDOWS	3	The exterior window assemblies are primarily a storefront system configured as individual openings and in multiple unit ribbon arrangement. The window assemblies replaced the existing original windows and appear to have been installed with the 1993 addition. The RUL is based on age using the 1993 construction date.								
B203000 - EXTERIOR DOORS	3	The exterior doors include both flush panel and glazed units in metal frames. The glazed units are a part of a storefront system. The doors appear to have replaced the original based on the drawings for the 1993 addition. The RUL is based observation versus the EUL. Recommendation: The system rating indicates a continued RUL.								
B301000 - ROOF COVERINGS	2	The roof system consists of both a sheet metal roof over a mansard roof structure and a low sloped aggregate embedded built up roof. The BUR is the predominate roof type. The BUR appears to have been installed with the 1993 renovation. The RUL is based on the construction in 1993. Recommendation: The built up roofing is beyond the EUL. The SF shown is approximate and excludes the portion of the roof associated with the standing seam metal roof covering.								
C101000 - PARTITIONS	5	CMU interior partitions are in the original (1972) building. Gypsum board framed interior walls are in the 1993 era building. The CMU walls are the predominate assembly.								
C102000 - INTERIOR DOORS	3	The 1993 addition, renovated the majority of the original building inclusive of the interior doors. The interior doors are a combination of wood flush in metal panels, wood panels with glazing and several metal flush doors. All doors are in metal frames. The wood door is the predominate assembly. The RUL is based on the 1993 construction date.								
C103000 - FITTINGS	3	There are existing prefinished metal lockers. The lockers are well maintained. The RUL is based on the 1993 addition.								
C201000 - STAIR CONSTRUCTION	5	There is one interior stair in a split level configuration serving a small lower level of the original building. The RUL is based on the original building age (1972).								
C301000 - WALL FINISHES	3	The interior walls are predominated painted. There are areas with ceramic tile finishes. The overall condition is rated as fair. The RUL is based on observed conditions.								
C302000 - FLOOR FINISHES	3	The interior floor finishes include, carpet, vinyl tile, athletic floor (gym) and ceramic tile. The predominate floor type is carpet. RUL is based on observations.								
C303000 - CEILING FINISHES	2	The majority of the ceiling finishes are suspended acoustical tile (SAT). The ceiling at the gymnasium is exposed to view steel framing with sound panels inserted between the framing members. The RUL is based on the SAT. Recommendation: Numerous tiles have stains. Evaluate the source of the stain. Repair/replace the source of the leak. The system's RUL indicates replacement.								
D101010 - ELEVATORS	-									
D101020 - LIFTS	3	The building has a lift located adjacent to the stairs at the split level. The lift does not appear large enough for a gurney. The lift does appear large enough to comply with accessibility. The RUL is based on observation.								
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Assumed copper domestic piping and cast iron sanitary piping original to 1975. No issues reported or observed.								
D202000 - RESIDENTIAL WATER HEATER	-									
D202005 - COMMERCIAL WATER HEATER	2	Single small DWH in boiler room, installed 1993. Significant corrosion on the unit, but no issues reported. Recommendation: DWH is significantly beyond EUL and is recommended to be replaced.								
D204000 - BUILDING STORMWATER DRAINAGE	3	Stormwater piping for low-slope roof areas assumed to be original to 1975. No issues reported or observed. Sloped metal roof areas drain directly over side and not included in this square footage.								
D301000 - ENERGY SUPPLY	3	Natural gas supply assumed original to 1975. No issues reported or observed.								
D301006 - SOLAR ENERGY SUPPLY	-									
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-									
D302000 - CENTRAL PLANT HEATING	3	Two gas boilers assumed to be installed in 1994. Signs of corrosion and prior leaks observed. No issues reported.								
D302010 - FIREPLACES	-									
D303000 - CENTRAL PLANT COOLING	3	Cooling tower assumed installed 2003. No issues reported or observed with equipment. Steel dunnage was significantly rusted, with holes in the I-beam supports. Local Project: Replace steel dunnage supports								
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Combination of unit ventilators and heat pumps throughout the school. Steel piping used for heating water distribution. Most equipment was installed in 1993, although some heat pump units were noted to have been replaced more recently. No issues reported or observed.								
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Combination of unit ventilators and heat pumps throughout the school. Steel piping used for chilled water distribution. Most equipment was installed in 1993, although some heat pump units were noted to have been replaced more recently. No issues reported or observed.								
D305010 - TERMINAL & PACKAGE UNITS	-									
D306000 - CONTROLS	3	Digital controls assumed to be original to 1993 with most HVAC equipment. No issues reported or observed.								
D401000 - SPRINKLERS	3	Sprinkler system throughout assumed to be original to 1975. No issues reported or observed.								
D402000 - STANDPIPES	-									
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance appeared original to 1975. No issues reported or observed. 600A, 3 pole.								
D502000 - LIGHTING AND BRANCH WIRING	3	Majority of electrical distribution panels, wiring, and switches appeared original to 1975. Lighting appeared to have been upgraded within the last 10 years. No issues reported or observed.								
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Fire alarm panel age was unknown but appeared more than 10 years old. PA system appeared newer than 10 years old. No security system noted. No issues reported or observed.								
D509000 - EMERGENCY POWER	3	Emergency generator was in a locked area and could not be accessed up close. Size unknown but assumed to be between 30-80 KW. Age unknown but appeared older, and assumed to be installed around 1994 with HVAC upgrades. No issues reported or observed.								
E102000 - INSTITUTIONAL EQUIPMENT	3	Kin for art classroom. Age unknown but assumed to be about 20 years old.								
E109002 - FOOD SERVICE EQUIPMENT	3	Kitchen equipment for serving kitchen. Age unknown but assumed to be about 20 years old. It was reported that the ventilation hood did not work. No issues reported or observed with other equipment. Local Project: Repair ventilation hood								
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-									
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-									
E201020 - FIXED FURNISHINGS - CASEWORK	3	Assumed most of the casework to have been installed in 1975. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.								
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Single-purpose elementary school gymnasium. Constructed 1995. Vinyl flooring, painted walls with soundproofing panels, and painted ceiling structure were in good condition and had likely been renovated more recently. Basketball hoops appeared original but in good condition. Lighting may have been upgraded recently and remained in good condition. Heat pump for gym appeared to have been replaced in 2017. Multi-purpose room served as cafeteria and auditorium. Constructed 1975. VCT flooring, painted walls, and acoustical ceiling tiles were in good condition and had likely been renovated more recently. Stage finishes and equipment appeared original but in good condition. Lighting may have been upgraded recently and remained in good condition. Heat pumps appeared to have been installed in 1993.								
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-									
F102030 - AUDITORIUMS	-									
F102040 - COLD STORAGE ROOMS	-									
F104001 - AQUATIC FACILITIES	-									

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Montessori Public School of Arlington	1975	1993	61,488	59,360	1

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	3.86ACH or less as average for all classroom spaces when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current 6.2.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed two classrooms for equivalent of 50 students in the space
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room appears to be under exhausted
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Only a minor number of classrooms served by heat pumps with MERV 13 capability
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Appears to only have 1" filter boxes, Merv 11 is likely best case option
Major Building Systems	12.0 HVAC - Filtration - Library	●	Appears to be Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED fixtures are present everywhere, except the gymnasium and back of house spaces.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Steel shields have been added to make fixtures somewhat dark ice compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature is not consistent on and around the building. Exterior CCT is greater than 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Water use is extremely high, Cooling tower is present on roof, but use appears to indicate other potential water loss sources as well.
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	Has a lift
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Missing vertical bars and clearances
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	CY 2019
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	No elevators, has a lift
Major Building Systems	5.3 Other - Elevator Size	●	Has a lift
Common Space Adequacy	1.0 Cafeteria	●	2121/ 15= 141
Common Space Adequacy	1.1 Kitchen	●	1064f/ 3 = 354
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity + 463/ 3 = 154
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 3 ropes, 1 cargo net, 1 rockwall, no divider curtain, limited daylight (door transoms only)
Common Space Adequacy	2.2 Gymnasium	●	51' 0" W x 80' 0" L
Common Space Adequacy	3.1 Performance Space	●	Portable stage in gym
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	834 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much play
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	2	Green = 8, pre-K & K (0); 1st (3); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	4	Yellow = 4, pre-K & K (2); 1st (0); Gen ed (2)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	14	Red = 14, pre-K & K (14); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	20	
Educational Space Adequacy	1.3 Classrooms (General)	●	
Educational Space Adequacy	1.4 Classrooms (General)	●	One missing a lift, not ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	1	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 offices, conf. records
Educational Space Adequacy	3.4 Clinic	●	2 beds, sink w/ eyewash, 111 rm
Educational Space Adequacy	4.1 Art	●	1; matches size of school
Educational Space Adequacy	4.2 Art	●	1 kiln
Educational Space Adequacy	4.3 Art	●	3 sinks
Educational Space Adequacy	4.4 Art	●	storage in classroom
Educational Space Adequacy	5.1 Music	●	1; matches size of school
Educational Space Adequacy	5.2 Music	●	storage in classroom
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values shown were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Nottingham Elementary School	1952	70,944	0.115	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
29	2006	2	0.121	\$26,404,144

Building Description

Nottingham Elementary School, located at 5900 Little Falls Rd, is a two-story structure. The building was originally constructed in 1952. Major renovations/expansions appeared to have occurred in the mid- 2000s based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2006. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, concrete block, metal panels, and EIFS. A steel framed glass awning was installed at the front entrance. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen, with areas of built-up roof and standing seam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, vinyl, and terrazzo floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, an air-cooled chiller, rooftop package units, and a few supplemental split-system units. The building was estimated to have a 2000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	65,500	BLDG FP SF	\$12.08	\$791,442	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	45,850	BLDG FP SF	\$13.87	\$635,922	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	25,094	ELEV FL SF	\$66.81	\$1,676,590	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	65,500	BLDG FP SF	\$24.05	\$1,575,335	70	70
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	70,944	BLDG GROSS SF	\$26.95	\$1,912,056	70	40
B202000 - EXTERIOR WINDOWS	4	Exterior windows	70,944	BLDG GROSS SF	\$18.83	\$1,335,578	40	25
B203000 - EXTERIOR DOORS	4	Exterior doors	70,944	BLDG GROSS SF	\$1.02	\$72,230	30	15
B301000 - ROOF COVERINGS	3	Built-up roof	65,500	BLDG FP SF	\$27.93	\$1,829,503	25	3
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	70,944	FINISHED SF	\$20.42	\$1,448,693	70	70
C102000 - INTERIOR DOORS	4	Interior doors	70,944	FINISHED SF	\$4.73	\$335,257	40	25
C103000 - FITTINGS	4	Partitions and lockers	70,944	FINISHED SF	\$4.09	\$290,284	40	30
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	70,944	BLDG GROSS SF	\$1.02	\$72,230	70	70
C301000 - WALL FINISHES	4	Standard wall finishes	62,144	FINISHED SF	\$5.09	\$316,353	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	62,144	FINISHED SF	\$14.20	\$882,208	14	7
C303000 - CEILING FINISHES	3	Standard ceiling finishes	62,144	FINISHED SF	\$16.83	\$1,045,757	20	5
D101010 - ELEVATORS	4	Elevator	1	EACH	\$206,284.66	\$206,285	35	18
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	70,944	SERVED SF	\$17.25	\$1,223,825	40	20
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 131 to 180 MBH	2	EACH	\$35,634.55	\$71,269	15	2
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	39,300	BLDG FP SF	\$3.25	\$127,587	60	30
D301000 - ENERGY SUPPLY	4	Natural gas supply	70,944	BLDG GROSS SF	\$0.15	\$10,903	60	30
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	70,944	SERVED SF	\$7.17	\$508,337	20	17
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	4	Chiller system	70,944	SERVED SF	\$8.13	\$576,479	30	12
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	70,944	SERVED SF	\$19.67	\$1,395,542	35	17
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	70,944	SERVED SF	\$23.44	\$1,662,658	35	17
D305010 - TERMINAL & PACKAGE UNITS	3	Supplemental Split Systems	1,000	SERVED SF	\$17.50	\$17,500	20	2
D306000 - CONTROLS	3	HVAC controls - 4-pipe system	70,944	SERVED SF	\$2.92	\$207,151	20	2
D401000 - SPRINKLERS	4	Sprinkler system	70,944	SERVED SF	\$7.90	\$560,125	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	70,944	BLDG GROSS SF	\$4.00	\$283,470	50	32
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	70,944	BLDG GROSS SF	\$36.27	\$2,573,031	45	25
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	70,944	BLDG GROSS SF	\$10.18	\$722,302	20	2
D509000 - EMERGENCY POWER	4	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	20
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	15	3
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	70,944	SERVED SF	\$3.50	\$248,036	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	8,800	SERVED SF	\$100.03	\$880,233	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Nottingham Elementary School	Year Built¹ 1952	Building GSF² 70,944	Building FCI_{AD} 0.115	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 29	Last Renovation¹ 2006	No. of Floors 2	Building CRV⁶ \$26,404,144	No. of Local Projects 1

Building Description

Nottingham Elementary School, located at 5900 Little Falls Rd, is a two-story structure. The building was originally constructed in 1952. Major renovations/expansions appeared to have occurred in the mid- 2000s based on manufacture dates of several major pieces of equipment. The most recent renovation was reportedly in 2006. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, concrete block, metal panels, and EIFS. A steel framed glass awning was installed at the front entrance. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen, with areas of built-up roof and standing seam metal panels. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, vinyl, and terrazzo floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with two commercial water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included two high-efficiency boilers, an air-cooled chiller, rooftop package units, and a few supplemental split-system units. The building was estimated to have a 2000A electrical service and had natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ 1,829,503	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 316,353	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 316,353	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 882,208	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ 1,045,757	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ 71,269	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ 17,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 207,151	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 722,302	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 248,036	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 880,233	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$0	\$1,028,222	\$2,169,911	\$0	\$1,045,757	\$0	\$882,208	\$0	\$316,353	\$1,128,269	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Nottingham Elementary School		1952	70,944	0.115
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
29		2006	2	0.121
Condition Category Legend				
● Good ● Fair ● Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
526,404,144				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	●	5 Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	●	5 Assumed slab on grade throughout 70% of building footprint.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	●	5 Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, and poured concrete flooring.		
B102000 - ROOF CONSTRUCTION	●	5 Majority of roof structure assumed to consist primarily of steel decking.		
B201000 - EXTERIOR WALLS	●	4 Exterior façade included brick masonry, concrete block, metal panels, EIFS, and a steel framed glass awning at the front entrance. The EIFS panels at the gym had several holes. Local Project: Repair holes in EIFS façade at gym		
B202000 - EXTERIOR WINDOWS	●	4 Windows were mostly aluminum framed with double pane glass. The gym had fiberglass panels.		
B203000 - EXTERIOR DOORS	●	4 Combination of aluminum/glass doors and painted steel exterior doors.		
B301000 - ROOF COVERINGS	●	3 Majority of roof was modified bitumen roofing which appeared near end of useful life. Roof areas over the gym were built-up roof, also nearing end of useful life. The sloped roof sections had standing seam metal panels. Some portions of the roof had gutters and downspouts.		
C101000 - PARTITIONS	●	5 Majority of partition walls were CMU or brick masonry, with some areas of gypsum board/plaster over stud framing.		
C102000 - INTERIOR DOORS	●	4 Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	●	4 Composite toilet partitions in restrooms.		
C201000 - STAIR CONSTRUCTION	●	5 Cast in place concrete stairs and landings.		
C301000 - WALL FINISHES	●	4 Majority of walls were painted masonry or gypsum board/plaster.		
C302000 - FLOOR FINISHES	●	4 Terrazzo was used in several hallways. Vinyl composite tile (VCT) was located in remaining hallways and several rooms. Carpet was present in majority of classrooms.		
C303000 - CEILING FINISHES	●	3 Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms. Tiles were sagging in many locations.		
D101010 - ELEVATORS	●	4 Hydraulic elevator appeared to be manufactured in 2006.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	●	4 Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	●	3 Two gas-fired 140 MBH domestic water heater were in the boiler room, estimated manufactured 2005.		
D204000 - BUILDING STORMWATER DRAINAGE	●	4 Approximately 60% of the roof area used internal stormwater drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	●	4 Natural gas supply connection was located near boiler room.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	●	4 Two high-efficiency boilers manufactured in 2020. Water treatment process appeared to be manual and regularity of the process could not be confirmed.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	●	4 Air-cooled chiller estimated manufactured in 2005.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	●	4 System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces (most equipment estimated 2005). Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	●	4 System included a combination of fan coil units throughout classrooms and rooftop air handling units for some of the larger spaces (most equipment estimated 2005). Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	●	3 Three supplemental split-systems provided supplemental cooling to a few rooms. The units appeared to be nearing end of useful life.		
D306000 - CONTROLS	●	3 Digital controls used throughout majority of the building, assumed to be mostly original to 2005.		
D401000 - SPRINKLERS	●	4 Sprinklers appeared to be installed throughout the building.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	●	4 Main electrical room was locked and not accessible. Assumed 2000A service installed 2005 based on exterior transformer pad date.		
D502000 - LIGHTING AND BRANCH WIRING	●	4 Wiring and distribution panels assumed to be installed around mid-1990s. Lighting fixtures estimated to have been replaced around mid-2000s.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	●	3 Fire alarm control panel manufactured in 2005. PA system and security systems assumed updated within past 10 years.		
D509000 - EMERGENCY POWER	●	4 One emergency generator provided backup power. Could not access locked cabinet, but based on outside appearance, estimated to be up to 80 KW and approximately 15 years old.		
E102000 - INSTITUTIONAL EQUIPMENT	●	3 One kiln for art room, estimated installed around 2005.		
E109002 - FOOD SERVICE EQUIPMENT	●	4 Serving kitchen with equipment estimated to be about 10 years old.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	●	4 Casework throughout administrative areas and classrooms was estimated to be about 20 years old.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	●	4 Multi-purpose room (MPR; about 4,000 SF) served as cafeteria and auditorium. MPR had VCT flooring, painted walls, and suspended acoustical ceiling tiles. MPR stage had hardwood flooring, curtains, and lighting/speaker systems. Gymnasium (about 4,800 SF) had vinyl flooring, painted walls, exposed/painted structure at ceiling, and basketball hoops.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

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Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Nottingham Elementary School	1952	2006	70,944	65,500	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACQ for classrooms averages above 7 eAcH when factoring all ventilation and local filtration per Harvard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Classrooms meet code ventilation based on AHSRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria meets code ventilation based on AHSRAE 62.1
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Library meets code ventilation based on AHSRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Kiln is exhausted, but art room is not directly exhausted
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Majority of Classrooms have Merv 13 filters, Wing E unit was equipped with Merv 8
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most rooms appeared to have individual comfort control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Majority of fixtures were not LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	A handful of fixtures were not dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Indoor fixtures CCT was inconsistent and overall did not meet county standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors not present in the majority of spaces.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Low water flush valves and fixtures noticed on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Average WUI based on APS data
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signage not present at alternate doors to direct visitors to main entrance
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	toilet rooms are accessible, but there are no vertical bars present in the building
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	low ceilings
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	5	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS energy report data
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	There was a single panel, but this was for the courtyard weather/renewable energy station and did not seem to be tied into the building electrical service.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'9" x 4'3" Door: 3' 6" offset 2955(cafeteria area)/15 students = 197
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	1077 (kitchen area)/3 = 359
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 113/3 periods = 171
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, and wall pads. daylight, no divider curtain
Common Space Adequacy	2.2 Gymnasium	●	74'-1" L x 53'-0" W. Height to bottom of joist 20' 0", to bottom of deck 22'-7.75".
Common Space Adequacy	3.1 Performance Space	●	Platform off cafeteria, ADA accessible and permanent
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	741 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	much with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	19	Green 19; pre-k & k (3); 1st (4); Gen ed (12)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	0	Yellow 0; pre-k & k (0); 1st (0); Gen ed (0)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red 2; pre-k & k (2); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	21	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten classrooms have ADA toilets (no vertical bar)
Educational Space Adequacy	1.5 Classrooms (General)	●	100% classrooms have at least 1 sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 4 offices; 1 conference room; 1 records room - rated
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 ADA toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 152 and 119
Educational Space Adequacy	4.2 Art	●	yes, 1 kiln connected to 152
Educational Space Adequacy	4.3 Art	●	119 - 1 sink; room 152 - 4 sinks
Educational Space Adequacy	4.4 Art	●	119 - no storage, 152 - connected storage
Educational Space Adequacy	5.1 Music	●	2, 1 instrumental (150) and 1 vocal (148)
Educational Space Adequacy	5.2 Music	●	connected storage to room 150
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Oakridge Elementary School	1950	81,622	0.176	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
30	1999	2	0.247	\$34,668,015

Building Description

Oakridge Elementary School, located at 1414 24th St S, is a two-story structure. The building was originally constructed in 1950 with several additions, and it underwent a substantial renovation in 1999. The building had loading bearing masonry walls with brick veneer and EIFS at some classrooms and a perimeter cornice. There were fixed and operable windows in aluminum frames. The roof system was a combination of low-slope built up asphalt and modified bitumen and steep-slope standing seam metal. Interior finishes included VCT, terrazzo, and carpeted flooring; painted gypsum board and concrete walls; and suspended ceiling tile. There was a multi-purpose room serving as a cafeteria and gym with stage space. Building domestic hot water was generated utilizing a natural gas water boiler with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. A hydronic boiler and a chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of roof top units, fan coil units, unit ventilators, condensing units, and air handling systems. Building power was through a 1,200 Amp, 208/120V power service. There was security access, fire suppression, and a fire alarm system. The natural gas emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	61,969	BLDG FP SF	\$12.08	\$748,777	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	61,969	BLDG FP SF	\$13.87	\$859,486	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	19,653	ELEV FL SF	\$66.81	\$1,313,064	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	61,969	BLDG FP SF	\$24.05	\$1,490,411	99	99
B201000 - EXTERIOR WALLS	4	Solid masonry, load bearing wall 12" to 24" thick	81,622	BLDG GROSS SF	\$89.12	\$7,273,760	70	50
B202000 - EXTERIOR WINDOWS	3	Exterior windows	81,622	BLDG GROSS SF	\$18.83	\$1,536,599	40	15
B203000 - EXTERIOR DOORS	3	Exterior doors	81,622	BLDG GROSS SF	\$1.02	\$83,102	30	10
B301000 - ROOF COVERINGS	3	Built-up roof	61,969	BLDG FP SF	\$27.93	\$1,730,877	25	8
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	81,622	FINISHED SF	\$20.42	\$1,666,740	70	70
C102000 - INTERIOR DOORS	4	Interior doors	81,622	FINISHED SF	\$4.73	\$385,718	40	20
C103000 - FITTINGS	4	Partitions and lockers	81,622	FINISHED SF	\$4.09	\$333,975	40	15
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	81,622	BLDG GROSS SF	\$1.94	\$158,364	50	50
C301000 - WALL FINISHES	3	Standard wall finishes	73,094	FINISHED SF	\$5.09	\$372,096	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	73,094	FINISHED SF	\$14.20	\$1,037,656	25	3
C303000 - CEILING FINISHES	3	Standard ceiling finishes	73,094	FINISHED SF	\$16.83	\$1,230,023	20	3
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	5
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	81,622	SERVED SF	\$17.25	\$1,408,027	50	25
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, Greater than 300 MBH	300	MBH	\$127.19	\$38,157	20	18
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	37,000	BLDG FP SF	\$4.92	\$181,957	60	35
D301000 - ENERGY SUPPLY	5	Natural gas supply	81,622	BLDG GROSS SF	\$0.15	\$12,544	60	35
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	81,622	SERVED SF	\$7.17	\$584,849	20	3
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	81,622	SERVED SF	\$8.13	\$663,247	30	3
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	81,622	SERVED SF	\$19.67	\$1,605,590	30	3
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	81,622	SERVED SF	\$23.44	\$1,912,910	30	3
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	81,622	SERVED SF	\$2.38	\$194,427	15	2
D401000 - SPRINKLERS	4	Sprinkler system	81,622	SERVED SF	\$7.90	\$644,431	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	81,622	BLDG GROSS SF	\$4.00	\$326,135	50	25
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	81,622	BLDG GROSS SF	\$36.27	\$2,960,306	50	25
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	81,622	BLDG GROSS SF	\$10.18	\$831,018	20	2
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	10
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	5
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	81,622	SERVED SF	\$3.50	\$285,368	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	2,000	LENGTH LF	\$829.72	\$1,659,437	35	10
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	8,522	SERVED SF	\$100.03	\$852,426	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Oakridge Elementary School	1950	81,622	0.176	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
30	1999	2	\$34,668,015	3		

Building Description

Oakridge Elementary School, located at 1414 24th St S, is a two-story structure. The building was originally constructed in 1950 with several additions, and it underwent a substantial renovation in 1999. The building had loading bearing masonry walls with brick veneer and EIFS at some classrooms and a perimeter cornice. There were fixed and operable windows in aluminum frames. The roof system was a combination of low-slope built up asphalt and modified bitumen and steep-slope standing seam metal. Interior finishes included VCT, terrazzo, and carpeted flooring; painted gypsum board and concrete walls; and suspended ceiling tile. There was a multi-purpose room serving as a cafeteria and gym with stage space. Building domestic hot water was generated utilizing a natural gas water boiler with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. A hydronic boiler and a chiller provided the source for distributed heating and cooling hydronics as required. Space conditioning was a mix of roof top units, fan coil units, unit ventilators, condensing units, and air handling systems. Building power was through a 1,200 Amp, 208/120V power service. There was security access, fire suppression, and a fire alarm system. The natural gas emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 15,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,102	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,730,877	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ 372,096	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 372,096	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ 1,037,656	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ 1,230,023	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ 584,849	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ 663,247	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ 1,605,590	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ 1,912,910	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 194,427	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ 831,018	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56,200	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 285,368	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,659,437	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 852,426	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$65,000	\$1,075,445	\$7,406,369	\$0	\$230,339	\$0	\$0	\$1,730,877	\$372,096	\$2,936,532	\$0	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Oakridge Elementary School		1950	81,622	0.176
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
30		1999	2	0.247
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$34,668,015				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Based on reviewed drawings, foundations were a combination of concrete footings and concrete masonry units (CMU).		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Loading bearing walls supporting a concrete floor slab.		
B102000 - ROOF CONSTRUCTION	5	Steel beams and joists supporting metal roof deck.		
B201000 - EXTERIOR WALLS	4	Exterior walls were predominantly brick masonry with split face block along just above grade. There was EIFS at portions of the north, southeast, and southwest elevations. EIFS comices also wrapped around some roof parapet walls. EIFS coating was in fair condition and in need of recoating in the near term. Control joint sealants were in poor condition. Local Project: Replace brick control joint sealant Local Project: Recoat EIFS panels		
B202000 - EXTERIOR WINDOWS	3	Windows were a combination of fixed and operable glass in aluminum frames. Window sealants were in poor condition with backer rod exposure in some locations. Local Project: Replace window perimeter sealants		
B203000 - EXTERIOR DOORS	3	Doors were typically metal with glass infill, with the exception of some locations like mechanical spaces. The finish was dull on a few doors.		
B301000 - ROOF COVERINGS	3	Low-slope roofs at the southern and northeast sections consisted of a combination of built-up asphalt with embedded gravel and smooth-surfaced modified bitumen with a coating. There were steep-slope roofs over perimeter walkways, the northwest main roof, and the southeast classroom wing. Overall, the modified bitumen coating was worn in some areas.		
C101000 - PARTITIONS	5	Interior walls were predominantly concrete masonry units, with gypsum board over studs in some classrooms, media center, and office administration at the front of the school. There were glass walls in a two-story atrium within the media center.		
C102000 - INTERIOR DOORS	4	Generally, solid-core wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Good condition with some wear and deterioration.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms were in good condition. Handrails were noted at a few ramps, which were in fair condition with chipped paint.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings.		
C301000 - WALL FINISHES	3	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms. Tiles also lined the lower half of some hallways.		
C302000 - FLOOR FINISHES	3	VCT and terrazzo were noted in corridors. Ceramic tile in restrooms was typical. Classrooms generally had a combination of VCT and carpet. Concrete flooring was typical in mechanical and storage spaces. VCT was deteriorated in some areas and carpet was stained throughout classrooms.		
C303000 - CEILING FINISHES	3	Suspended ceiling tile was typically throughout. Tiles were stained and missing in some areas, with cupped ceiling tiles noting humidity issues.		
D101010 - ELEVATORS	3	A two-stop hydraulic elevator		
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	A.O. Smith natural gas domestic water boiler (estimated 300 MBH) with 119 gallon storage tank. Boiler was installed in 2021.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building. Sloped metal sections drain via gutter and downspouts outside the building footprint.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Power Flame natural gas hydronic boiler (1,923 MBH) was presumed to date to school renovation in 1999. It provided distributed heating water.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	Trane water cooled chiller provided distributed chilled water. The chiller uses R22 refrigerant, which is no longer produced.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	System included roof top units, fan coil units, unit ventilators, condensing units, and air handling systems. Systems appeared to be mostly from the 1999 installation.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	System included roof top units, fan coil units, unit ventilators, condensing units, and air handling systems. Systems appeared to be mostly from the 1999 installation.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a DDC and pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	4	A single water service served the distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 208/120V, 4000A service rated switchboard provides power to the building distribution.		
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted; however, the fire alarm and communication systems appeared to be from the 1999 renovation and approaching the end of their useful life.		
D509000 - EMERGENCY POWER	3	A Katolight diesel fueled emergency generator and automatic transfer switch provided dedicated emergency power. The generator enclosure was locked and estimated at 75 kW.		
E102000 - INSTITUTIONAL EQUIPMENT	3	Kin appeared to date to 1998		
E109002 - FOOD SERVICE EQUIPMENT	4	The kitchen included warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework dates to 1999 construction. Quantity estimated based on number of classrooms. Expected level of wear and tear observed, though some areas (like the art room) were in worse condition.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room served primarily as a cafeteria. Finishes were VCT flooring, painted gypsum walls, and suspended ceiling tiles, some of which were stained. The gym had vinyl flooring mimicking the appearance of wood, painted CMU walls, acoustic panels, and exposed structure at the ceiling. The accompanying stage area in the gym did not have a permanent structure.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Oakridge Elementary School	1950	1999	81,622	61,969	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	-4 eACH average for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1, for 25 students only
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Assumed ASHRAE baseline for Multiuse/Assembly for 200 students at a time.
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Assumed ASHRAE baseline for Multiuse/Assembly for 250 students at a time.
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Assumed ASHRAE baseline for Library spaces
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit vents only allow local filtration of MERV 8 at best, DOAS units utilize MERV 13
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Rooftop unit appears Merv 13 capable
Major Building Systems	12.0 HVAC - Filtration - Library	●	Rooftop unit appears Merv 13 capable
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms do NOT have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED fixtures in gym only
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Fixtures were generally consistent in terms of CCT, but they did not meet the APS standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Fixture CCT was not consistent, some fixtures did meet APS standard of 3000K, but not all of them.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Entry located adjacent to school sign and designated with a "1"
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	34" sink, no vertical bar and sinks are too close together
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Guardrails are 41" to the top, Handrails are 25" to the top, stairs: Risers = 7" / Treads = 12"
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	8	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Approximately 56" x 80"
Common Space Adequacy	1.0 Cafeteria	●	4166(cafeteria area)/15 students = 278
Common Space Adequacy	1.1 Kitchen	●	1056 (kitchen area)/3 = 356
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 67A/3 periods = 225
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, ropes, daylighting
Common Space Adequacy	2.2 Gymnasium	●	71'-8" x 60'-0" W. Height to bottom of joist 21'-8", to bottom of deck 24'-4"
Common Space Adequacy	3.1 Performance Space	●	temporary platform only
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	841 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	much with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	much only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	14	Green 14; pre-K & k (0); 1st (1); Gen ed (13)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	7	Yellow 7; pre-K & k (4); 1st (3); Gen ed (0)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red 2; pre-K & k (2); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	23	
Educational Space Adequacy	1.3 Classrooms (General)	●	100% classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% are ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	100% have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	5	4 SPED; 1 MOSIAC
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 4 offices; 1 conference room; 1 records room - not rated, outside of office suite
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 261 and 290
Educational Space Adequacy	4.2 Art	●	1 kitn connected to room 261
Educational Space Adequacy	4.3 Art	●	room 261 - 2 sinks, room 290 - 1 sink
Educational Space Adequacy	4.4 Art	●	room 261 - connected storage, room 290 - no storage outside of classroom
Educational Space Adequacy	5.1 Music	●	1, general
Educational Space Adequacy	5.2 Music	●	
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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GENERAL INFORMATION				
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend
Randolph Elementary School	1947	70,880	0.146	Good Fair Poor
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
32	1993	2	0.060	\$25,385,313

Building Description

Randolph Elementary School, located at 1306 S Quincy St, is a two-story structure with a crawl space below a portion of the building, but it was unclear to what extent (presumed to be approximately half of the building footprint). The building was originally constructed in 1947 with a renovation in 1993 with additional refreshing in 2016. The building was steel-framed with a brick masonry facade and few areas of precast and wood panels, fixed and operable windows in aluminum frames, and built-up asphalt roof that was undergoing replacement at the time of assessment. Interior finishes included VCT and carpeted flooring in classrooms and hallways, painted gypsum board and concrete masonry unit walls, and suspended ceiling tile. There was a cafeteria and multi-purpose room serving as both a gym and assembly space with a stage. Building domestic hot water was generated utilizing a natural gas boiler and associated water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers provided distributed heating hydronics. Cooling was partially provided by an air-cooled chiller distributing chilled water, DX systems and heat pumps. Space conditioning was a mix of ducted roof top units, fan coil units, and ventilators. Building power was through a 3000 Amps, 208/120V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 40 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	59,000	BLDG FP SF	\$12.08	\$712,902	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	30,000	BLDG FP SF	\$13.87	\$416,089	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	40,880	ELEV FL SF	\$42.15	\$1,722,959	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting wood roof deck	59,000	BLDG FP SF	\$39.84	\$2,350,651	99	99
B201000 - EXTERIOR WALLS	4	Brick masonry wall assembly	70,880	BLDG GROSS SF	\$26.95	\$1,910,332	70	40
B202000 - EXTERIOR WINDOWS	4	Exterior windows	70,880	BLDG GROSS SF	\$18.83	\$1,334,373	40	15
B203000 - EXTERIOR DOORS	3	Exterior doors	70,880	BLDG GROSS SF	\$1.02	\$72,165	30	10
B301000 - ROOF COVERINGS	5	Built-up roof	59,000	BLDG FP SF	\$27.93	\$1,647,949	25	25
C101000 - PARTITIONS	5	Drywall over studs	70,880	FINISHED SF	\$6.36	\$450,691	25	25
C102000 - INTERIOR DOORS	4	Interior doors	70,880	FINISHED SF	\$4.73	\$334,955	40	20
C103000 - FITTINGS	4	Partitions and lockers	70,880	FINISHED SF	\$4.09	\$290,022	40	30
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	70,880	BLDG GROSS SF	\$1.94	\$137,522	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	64,880	FINISHED SF	\$5.09	\$330,281	6	3
C302000 - FLOOR FINISHES	2	Standard floor finishes	64,880	FINISHED SF	\$14.20	\$921,049	17	2
C303000 - CEILING FINISHES	3	Standard ceiling finishes	64,880	FINISHED SF	\$16.83	\$1,091,798	20	5
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	2
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	70,880	SERVED SF	\$17.25	\$1,222,721	50	20
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, Greater than 300 MBH	420	MBH	\$127.19	\$53,420	20	7
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	59,000	BLDG FP SF	\$4.92	\$290,148	60	30
D301000 - ENERGY SUPPLY	5	Natural gas supply	70,880	BLDG GROSS SF	\$0.15	\$10,893	60	30
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	70,880	SERVED SF	\$7.17	\$507,879	40	35
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	42,528	SERVED SF	\$8.13	\$345,575	40	35
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	70,880	SERVED SF	\$19.67	\$1,394,283	40	10
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	70,880	SERVED SF	\$23.44	\$1,661,158	40	10
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - individual PTAC units	70,880	SERVED SF	\$1.59	\$113,013	15	10
D401000 - SPRINKLERS	4	Sprinkler system	70,880	SERVED SF	\$7.90	\$559,620	50	20
D402000 - STANDPIPES	4	Standpipe system	70,880	SERVED SF	\$0.63	\$44,933	50	20
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 2000 Amp Service	70,880	BLDG GROSS SF	\$4.00	\$283,214	50	45
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	70,880	BLDG GROSS SF	\$36.27	\$2,570,710	50	45
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	70,880	BLDG GROSS SF	\$10.18	\$721,651	20	5
D509000 - EMERGENCY POWER	5	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	27
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	12
E109002 - FOOD SERVICE EQUIPMENT	-	-	-	-	-	-	-	-
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,200	LENGTH LF	\$829.72	\$995,662	35	5
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	6,000	SERVED SF	\$100.03	\$600,159	20	13
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Randolph Elementary School	1947	70,880	0.146	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
32	1993	2	\$25,385,313	0 - 0.15	0.151 - 0.33	0.331 - 1
					3	

Building Description

Randolph Elementary School, located at 1306 S Quincy St, is a two-story structure with a crawl space below a portion of the building, but it was unclear to what extent (presumed to be approximately half of the building footprint). The building was originally constructed in 1947 with a renovation in 1993 with additional refreshing in 2016. The building was steel-framed with a brick masonry facade and few areas of precast and wood panels, fixed and operable windows in aluminum frames, and built-up asphalt roof that was undergoing replacement at the time of assessment. Interior finishes included VCT and carpeted flooring in classrooms and hallways, painted gypsum board and concrete masonry unit walls, and suspended ceiling tile. There was a cafeteria and multi-purpose room serving as both a gym and assembly space with a stage. Building domestic hot water was generated utilizing a natural gas boiler and associated water tank. Water supply piping was copper, sanitary sewer system and storm drainage was cast iron and PVC. Hydronic boilers provided distributed heating hydronics. Cooling was partially provided by an air-cooled chiller distributing chilled water, DX systems and heat pumps. Space conditioning was a mix of ducted roof top units, fan coil units, and ventilators. Building power was through a 3000 Amps, 208/120V, three phase power service for connected and lighting load. The lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing line pressure. The fire alarm system was addressable. The diesel emergency generator was estimated to be at 40 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	4	\$	62,500	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	72,165	\$	\$
B301000 - ROOF COVERINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$	330,281	\$	\$	\$	\$	\$	330,281	\$	\$
C302000 - FLOOR FINISHES	2	\$	\$	921,049	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	3	\$	\$	\$	\$	\$	1,091,798	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	3	\$	\$	206,285	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	53,420	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,394,283	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,661,158	\$
D305010 - TERMINAL & PACKAGE UNITS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	113,013	\$
D401000 - SPRINKLERS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$	\$	\$	\$	\$	721,651	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$	\$	\$	\$	\$	995,662	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$62,500	\$1,127,333	\$330,281	\$0	\$2,809,111	\$0	\$53,420	\$0	\$330,281	\$3,240,619	\$0	\$0

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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Randolph Elementary School		1947	70,880	0.146
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
32		1993	2	0.060
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$25,385,313				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation type for the older portions of the building were presumed to be concrete masonry units (CMU). Additions had concrete strip footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade at a portion of the building. Provided drawings alluded to a crawl space below a portion of the building, but it was unclear to what extent (presumed to be approximately half of the building footprint).		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Steel framing supported concrete floor slabs. Provided drawings alluded to a crawl space below a portion of the building, but it was unclear to what extent (presumed to be approximately half of the building footprint).		
B102000 - ROOF CONSTRUCTION	5	Steel framing supporting a cement fiber roof deck.		
B201000 - EXTERIOR WALLS	4	Exterior walls were predominantly brick masonry with precast concrete panels between first and second floor windows. Brick masonry at additions was in better condition than older areas. Brick was heavily soiled at the stairwell by door 11. Other areas had general staining. It appeared there was wood paneling above the windows at the rear of school, which was in fair condition with deterioration along the bottom edge. Local Project: Replace wood panels are rear of school Local Project: Replace flexible sealants at precast concrete panels Local Project: Assess heavy staining at masonry by door 11		
B202000 - EXTERIOR WINDOWS	4	Windows were a combination of fixed and operable (sliding and hinged) glass in aluminum frames.		
B203000 - EXTERIOR DOORS	3	Doors were typically metal with small glass lites, with the exception of some locations such as mechanical spaces. Painted surfaces were faded and chipped in some areas.		
B301000 - ROOF COVERINGS	5	The existing gravel-surfaced built-up roof was undergoing replacement at the time of the survey. As a result, the system has been given a rating of 5.		
C101000 - PARTITIONS	5	Interior walls were predominantly gypsum board over studs, with exposed concrete masonry unit walls in some areas.		
C102000 - INTERIOR DOORS	4	Generally, solid-core wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Good condition with some wear and deterioration.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms had little noted deterioration. Metal handrails at several ramps had chipped paint and scuffs in some locations.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings.		
C301000 - WALL FINISHES	4	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms.		
C302000 - FLOOR FINISHES	2	Carpet was prevalent in classrooms, with some areas of the first floor consisting of a combination of carpet and VCT. Carpet was also located in corridors with VCT in stairwells and school support rooms. Tile in restrooms was typical. Concrete flooring was typical in mechanical and storage spaces. VCT had many areas of deterioration and replacement tile. Carpet was stained in classrooms and hallways.		
C303000 - CEILING FINISHES	3	Suspended ceiling tile was typically throughout. Tiles were stained and missing some areas.		
D101010 - ELEVATORS	3	Dover 2-stop hydraulic elevator appears dated and aged with a safety test plaque dated 1977. Last date of overhaul/refurbishment not known.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	An A.O. Smith 420 MMBtuh natural gas domestic water heater and associated storage tank provided distributed hot water and appears to be functional.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Three 3000 MMBtuh Lochinvar hydronic natural gas fired boilers provided distributed heating water to roof top units, fan coil units, and make-up air units throughout.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	A Trane 90 ton air cooled screw chiller provides chilled water to the served fan coil units.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Based on the served areas, systems include roof top units, floor mounted two pipe fan coil units, and ventilators. In addition there were ducted and spot heat pump systems. Systems appeared to be mostly from the mid-1990s renovation or a more current installation.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Based on the served areas, chilled water systems include mostly floor mounted two pipe fan coil units. The roof top units utilized DX cooling. Systems appeared to be mostly from the mid-1990s renovation or a more current installation.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	5	The building MEP systems were DDC based with some units on local or internal controls.		
D401000 - SPRINKLERS	4	A single water service, with line pressure distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	4	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical or bare welds.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	The 480/277V, 3000A service rated switchboard provides power to the building distribution. It appeared to be from the late 2010s renovation construction, including the wiring. No issues reported or observed.		
D502000 - LIGHTING AND BRANCH WIRING	3	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	5	A Kato/light diesel fueled emergency generator and automatic transfer switches provided dedicated emergency power. Since the generator enclosure was locked it was estimated at 40 kW based on the exterior painted labeling.		
E102000 - INSTITUTIONAL EQUIPMENT	4	The Skutt electric LT-3K kiln had a separate local exhaust system vented to the building exterior.		
E109002 - FOOD SERVICE EQUIPMENT	-			
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework dates to last renovation. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Gym had an adjacent stage area and was used for assemblies. Flooring was synthetic meant to mimic a traditional wood floor. Painted CMU walls with fabric panels in the gym. Exposed structure at ceiling. Finishes were in good condition. Lighting was upgraded and in good condition. Cafeteria had VCT flooring, painted CMU walls, and suspended ceiling tile in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and apply a mark-up factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Randolph Elementary School	1947	1993	70,880	59,000	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	6-7% each average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Classrooms meet code ventilation based on AHSRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Gymnasium meets code ventilation based on AHSRAE 62.1, assuming two classrooms in gym
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria does not meet code ventilation based on AHSRAE 62.1, assuming 200 students
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Library does not meet code ventilation based on AHSRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room does not appear to have direct exhaust outdoors
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 8 assumed
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 14
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 8
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Local thermostat with control in most spaces
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Entry located below "Main Entrance" wall sign and designated with a "1"
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars. Signs say ADA, but the restrooms are not compliant
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	There are no extensions on some handrails
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	2	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	92 x 65
Common Space Adequacy	1.0 Cafeteria	●	2540(cafeteria area)/15 students = 170
Common Space Adequacy	1.1 Kitchen	●	1088 (kitchen area) / 3 = 363
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	484 design capacity / 3 periods = 162
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, climbing wall, volleyball, 2 ropes
Common Space Adequacy	2.2 Gymnasium	●	72'-10.5" L x 47'-11" W. Height to bottom of joists 18'-9.75"; to bottom of deck 21'-5.5"
Common Space Adequacy	3.1 Performance Space	●	in gym
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	786 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	mulch with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	mulch and grass only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	4	Green 4; pre-k & k (3); 1st (5); Gen ed (4)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	7	Yellow 7; pre-k & k (2); 1st (2); Gen ed (3)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	7	Red 7; pre-k & k (1); 1st (2); Gen ed (6)
Educational Space Adequacy	1.2 Classrooms (General)	18	
Educational Space Adequacy	1.3 Classrooms (General)	●	59% classrooms do not have windows
Educational Space Adequacy	1.4 Classrooms (General)	●	100% have toilet, no all are ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	78% classrooms do not have sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	3	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks, 4 offices, 1 conference room, 1 rated records room
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet, 1 sink, 1 eye wash, 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 - rooms B102 and C106
Educational Space Adequacy	4.2 Art	●	1 - adjacent to B102
Educational Space Adequacy	4.3 Art	●	room B102 - 3 sinks; room C106 - 1 sink
Educational Space Adequacy	4.4 Art	●	room B102 - connected storage
Educational Space Adequacy	5.1 Music	●	1 instrumental
Educational Space Adequacy	5.2 Music	●	connected
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Swanson Middle School	1939	132,158	0.231	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
33	2013	3	0.154	\$52,685,634		

Building Description

Swanson Middle School, located at 5800 Washington Blvd., is a 3-story structure. The building was originally constructed in 1939 and includes classrooms, a performance auditorium, cafeteria, and a competition gymnasium and auxiliary gymnasium. The building is a concrete-framed floor structure with steel-framed flat roof and wood framed pitched roof structure and a brick exterior. The roof system is a built-up surface with a gravel topping and slate roofing on pitched portions of the roof. Interior finishes include vinyl composite and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU. Ceiling finishes are generally lay-in acoustic tiles. The building was equipped with one three-stop elevator. The HVAC system consists of a central boiler plant consisting of natural gas fired boilers and two air cooled chillers, which fed unit ventilators and central station air handling units. The building was also equipped with packaged rooftop cooling only AC units. The building has a wet pipe fire sprinkler system, fire alarm system, and 150-KW emergency generator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	78,928	BLDG FP SF	\$12.08	\$953,694	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	78,928	BLDG FP SF	\$13.87	\$1,094,701	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Cast-in-place concrete floor structure	53,230	ELEV FL SF	\$52.67	\$2,803,827	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	78,928	BLDG FP SF	\$24.05	\$1,898,291	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	132,158	BLDG GROSS SF	\$26.95	\$3,561,874	99	99
B202000 - EXTERIOR WINDOWS	4	Exterior windows	132,158	BLDG GROSS SF	\$18.83	\$2,487,980	40	20
B203000 - EXTERIOR DOORS	4	Exterior doors	132,158	BLDG GROSS SF	\$1.02	\$134,554	25	12
B301000 - ROOF COVERINGS	3	Built-up roof	78,928	BLDG FP SF	\$27.93	\$2,204,565	30	3
C101000 - PARTITIONS	5	Plaster walls	132,158	FINISHED SF	\$23.72	\$3,135,363	70	70
C102000 - INTERIOR DOORS	3	Interior doors	132,158	FINISHED SF	\$4.73	\$624,534	40	12
C103000 - FITTINGS	3	Partitions and lockers	132,158	FINISHED SF	\$4.09	\$540,755	40	12
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	132,158	BLDG GROSS SF	\$1.02	\$134,554	99	99
C301000 - WALL FINISHES	3	Standard wall finishes	113,156	FINISHED SF	\$5.09	\$576,038	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	113,156	FINISHED SF	\$14.20	\$1,606,384	25	6
C303000 - CEILING FINISHES	3	Standard ceiling finishes	113,156	FINISHED SF	\$16.83	\$1,904,185	25	6
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	35	6
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	132,158	SERVED SF	\$17.25	\$2,279,802	50	21
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, Greater than 300 MBH	660	MBH	\$127.19	\$83,945	40	25
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	62,520	BLDG FP SF	\$3.25	\$202,971	60	31
D301000 - ENERGY SUPPLY	4	Hot water and chilled water supplied by off site plant facility	132,158	BLDG GROSS SF	\$13.31	\$1,759,357	60	31
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	132,158	SERVED SF	\$7.17	\$946,956	40	11
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	4	Chiller system	132,158	SERVED SF	\$8.13	\$1,073,893	25	15
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	132,158	SERVED SF	\$19.67	\$2,599,685	35	6
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	132,158	SERVED SF	\$23.44	\$3,097,281	35	6
D305010 - TERMINAL & PACKAGE UNITS	2	Terminal and package units, >=10,000 SF to <15,000 SF	66,079	SERVED SF	\$53.60	\$3,541,563	25	2
D306000 - CONTROLS	2	HVAC controls - 4-pipe system	132,158	SERVED SF	\$2.92	\$385,891	20	2
D401000 - SPRINKLERS	3	Sprinkler system	132,158	SERVED SF	\$7.90	\$1,043,428	50	11
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	132,158	BLDG GROSS SF	\$4.00	\$528,061	50	21
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	132,158	BLDG GROSS SF	\$36.27	\$4,793,170	50	21
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	Communication, alarm, telephone, and wiring	132,158	BLDG GROSS SF	\$10.18	\$1,345,540	20	2
D509000 - EMERGENCY POWER	4	Emergency Generator, >=125 kW to <185 kW	1	EACH	\$85,508.03	\$85,508	35	16
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	132,158	SERVED SF	\$3.50	\$462,053	20	20
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Telescoping bleachers, standard	1,332	SEATS	\$968.43	\$1,289,954	25	12
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	640	LENGTH LF	\$829.72	\$531,020	35	6
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	4,549	SERVED SF	\$100.03	\$455,020	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	HS-level Gymnasium	10,774	SERVED SF	\$158.48	\$1,707,490	20	7
F102030 - AUDITORIUMS	3	Performance Auditoriums	3,679	SERVED SF	\$164.57	\$605,461	20	7
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Swanson Middle School	Year Built¹ 1939	Building GSF² 132,158	Building FCI_{AD} 0.231	Condition Category Legend 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 33	Last Renovation¹ 2013	No. of Floors 3	Building CRV⁶ \$52,685,634	No. of Local Projects 4

Building Description

Swanson Middle School, located at 5800 Washington Blvd., is a 3-story structure. The building was originally constructed in 1939 and includes classrooms, a performance auditorium, cafeteria, and a competition gymnasium and auxiliary gymnasium. The building is a concrete-framed floor structure with steel-framed flat roof and wood framed pitched roof structure and a brick exterior. The roof system is a built-up surface with a gravel topping and slate roofing on pitched portions of the roof. Interior finishes include vinyl composite and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU. Ceiling finishes are generally lay-in acoustic tiles. The building was equipped with one three-stop elevator. The HVAC system consists of a central boiler plant consisting of natural gas fired boilers and two air cooled chillers, which fed unit ventilators and central station air handling units. The building was also equipped with packaged rooftop cooling only AC units. The building has a wet pipe fire sprinkler system, fire alarm system, and 150-KW emergency generator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ 17,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	4	\$ 1,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ -	\$ -	\$ 2,204,565	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ 576,038	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 576,038	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ 1,606,384	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,904,185	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 946,956	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,599,685	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,097,281	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	2	\$ -	\$ 3,541,563	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	2	\$ -	\$ 385,891	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	3	\$ 62,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,043,428	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	\$ -	\$ 1,345,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 531,020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 455,020	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,707,490	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$85,500	\$5,272,995	\$2,780,602	\$0	\$0	\$9,944,840	\$1,707,490	\$0	\$576,038	\$455,020	\$1,990,384	\$0

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6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Swanson Middle School	Year Built¹ 1939	Building GSF² 132,158	Building FCI_{AD} 0.231	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 33	Last Renovation¹ 2013	No. of Floors 3	Building FCI_{DM} 0.154	Building CRV³ \$52,685,634
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings performing as intended.		
A103000 - SLAB ON GRADE	5	Concrete slab on ground floor (cafeteria level) and portions of the 1st floor. Slab was performing as intended.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Reinforced concrete frame.		
B102000 - ROOF CONSTRUCTION	5	Steel framed roof structure with wood framing in pitched roof original section of the building. No issues observed.		
B201000 - EXTERIOR WALLS	5	Brick exterior wall assembly with wood fascia and columns at select entryways. Brick was free of defects and performing as intended. Wood had falling paint and localized rot. Local Project: Localized rot repair and refinishing of wood fascia.		
B202000 - EXTERIOR WINDOWS	4	Aluminum framed windows were in good condition with no leaks or other major issues apparent. One cracked pane was observed in room 114, but otherwise windows were in good condition. Local Project: Repair cracked window pane in room 114		
B203000 - EXTERIOR DOORS	4	Aluminum framed glass entry doors and painted metal doors. Doors were in good condition with no major issues observed.		
B301000 - ROOF COVERINGS	3	Built up roof surface on flat roof sections (85% of roof), and slate roof on pitched portions (15%). Leaks/stains observed on 2nd floor ceiling tiles. Localized ponding observed on roof. Overall roof was in poor condition.		
C101000 - PARTITIONS	5	Primarily CMU partitions with some gypsum board partitions. Partitions were performing as intended with no issues observed.		
C102000 - INTERIOR DOORS	3	Solid wood core doors were in fair condition with minor finish blemishes observed.		
C103000 - FITTINGS	3	Solid composite restroom partitions and lockers were in fair condition with some finish deterioration observed but otherwise functional.		
C201000 - STAIR CONSTRUCTION	5	Cast concrete stairwells with no structural issues observed.		
C301000 - WALL FINISHES	3	Painted wall finished were in fair condition with spot areas in need of touch-up.		
C302000 - FLOOR FINISHES	3	VCT tile and carpets. Carpet was in fair condition with only isolated stains observed. VCT was generally fair, but isolated broken tiles were present in the 2nd floor wayway by room 217 and in 1st floor hallway by classroom 139. Overall flooring was fair but spot replacement of finishes recommended. Local Project: Replace broken VCT tiles in hallways		
C303000 - CEILING FINISHES	3	Suspended acoustical tile ceiling. Frames were in good condition, but tiles are beginning to sag and a few tiles have stains from various roof leaks. Spot replacement of tiles recommended. Overall condition was fair.		
D101010 - ELEVATORS	3	Hydraulic elevator manufactured by Dover in 1994. Cab was in fair condition.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Copper and cast iron piping and fixtures appear to date to 1994 renovation.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	Domestic hot water is provided by an AO Smith copper coil boiler with an input capacity of 660-MBH. The water heater appears to have been manufactured in 2008 based on serial number. No visual issues identified.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Interior stormwater roof drainage system present on approximately 80% of roof area.		
D301000 - ENERGY SUPPLY	4	Natural gas supply piping appears to have been installed/replaced around 1994. No issues observed. System is near half way through estimated useful life.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Three Burnham 4,185-MBH natural gas fired boiler provide heating to the building. Manufacturer date was not available by serial number. Appears to date to mid 1990s renovations (around 1994). Boilers were in fair condition.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	4	Two air cooled chillers located on the roof. Chiller #1 is a Carrier 210-ton unit manufactured in 2021 and in excellent condition. Chiller #2 is a McQuay 110 Ton unit manufactured in 2004 in fair condition, but nearing end of expected useful life. Composite condition is good.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating is distributed to central station air handlers located on the roof and in various mechanical rooms, and to individual unit ventilators. Roof mounted air handlers were manufactured in 2004 by McQuay. Interior air handler were also manufactured by York, but in 1994. Additional interior unit ventilators were located in individual classrooms and appeared to date to 1994. Overall the system was operable and in fair condition.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water pumps were located in a roof top modular enclosure and included 4 primary and secondary loop pumps of approximately 25-hp. The pumps appeared to date to 1994 during major building renovation. Water was circulated to select air handlers and classroom unit ventilators. The system was in fair condition.		
D305010 - TERMINAL & PACKAGE UNITS	2	The building was equipped with several packaged rooftop units cooling only units which served the auditorium, gyms, and other spaces. The Auditorium was served by a York 40-ton unit manufactured in 2014 and a total of seven other units which were manufactured by York in 1994 and utilized R-22 refrigerant. These units were between 7.5 and 20 tons and had damaged nameplates which were difficult to read if not illegible. It appears several units have had compressor replacements, as the older compressors were abandoned on the roof next to the units. Overall these units are beyond estimated useful life and should be budgeted for replacement.		
D306000 - CONTROLS	2	Automated Logic Control system present at the building. Controller was located in the roof pump house with the chilled water circulation pumps indicated a installation date near 2004. Based on a 20 year expected useful life, the system is nearing end of expected useful life.		
D401000 - SPRINKLERS	3	The entire building was fire sprinklers and most heads were fusible link style heads in lieu of more modern glass bulb types. A close inspection of an accessible fire sprinkler head had a stamp of "76" on the fusible link arm indicating possible 1976 installation. No issues observed. Local Project: Replace fire sprinkler heads at 50 years of age per NFPA 25.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	3000-amp 480/277V Square D main electrical switchgear appears to date to 1994. No issues observed.		
D502000 - LIGHTING AND BRANCH WIRING	4	With the exception of more recent renovations, the majority of the light fixtures and branch wiring appears to date to 1994 renovations. No electrical issues reported or observed.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	2	Simplex 4020 Fire alarm control panel located in the boiler room. No date code was present, but the system appeared to date to the early 2000s. Based on a 20 year estimated useful life, the system is ready for an upgrade.		
D509000 - EMERGENCY POWER	4	150KW Katolight emergency generator. Date code or decipherable serial number was not present to accurately determine manufacture date, but unit was in good visual condition with little corrosion or finish deterioration on the exterior housing and the generator appeared well maintained.		
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	5	The kitchen was in the process of a full renovation at the time of the site assessment.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	588 auditorium chairs and approximately 744 bleacher seats. Bleachers were in good condition with no damage or issues observed. Auditorium seats were in fair condition with no obvious staining or operational issues. Overall condition was fair.		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Built in cabinetry and countertops with laminate materials. Casework appear to date to 1994. No major damage or defects observed. Casework was in fair condition.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	Auxiliary (aka small) gym was in fair condition with fair wall and ceiling finishes. Floors were well finished and in good condition.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	Gymnasium and lockers rooms were in fair condition with no major damage observed but fading finishes. Gym floors were well finished, polished and in good condition.		
F102030 - AUDITORIUMS	3	Performance auditorium was in fair condition with carpeted walkways and painted walls. Finishes were fading and in need of a refresh.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Swanson Middle School	1939	2013	132,158	78,928	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	4 to 8 cfm/ft average for classroom spaces, when factoring all ventilation and local filtration per Hazard T.E. Chan recommendations. The lower cfm/ft is mainly due to the higher ceilings throughout several spaces. Ventilation for classrooms consistently does meet current ASHRAE 62.1
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym does not meet current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Ventilation for Dining does not meet current ASHRAE 62.1 (Dining)
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation for Media center meets current ASHRAE 62.1 (Media Center)
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Ventilation for Auditorium meets current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Some art spaces did not appear to have room exhaust
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Classroom unit only allow for MERV 6 or MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Mixture of MERV 13 & MERV 8, mostly MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13 filtration at air handler
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Mixture of MERV 13 & MERV 8, mostly MERV 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Adjustable thermostats present in most areas.
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Gymnasiums have LED fixture and fluorescent mixture.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures appear to be dark sky compliant. There are no pole lights on site.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Mixed color temperatures do not appear to be 3000k.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	The majority of plumbing fixtures are not low flow.
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	Office area under construction at time of assessment, it was reported a security vestibule would be constructed during the project.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	Small areas of concealment at classroom door entry niches and drinking fountains.
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Building exterior geometry provides few areas for concealment with the exception of exterior stairwell to boiler room (between Door #2 & Door #3), entrance vestibule near Door #10; and above grade exterior stairwells to Door #2
Major Building Systems	2.3 Building Security - Single point of entry	●	Several marked exterior doors with no signage directing visitors to main office (door #1), several additional doors were open at the time of assessment due to construction ongoing. It is unknown if all other doors are locked during normal business hours.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars in most toilet rooms, 2 had vertical bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	handrails do not extend and are at the wrong height
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	6	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	based on FY 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1
Major Building Systems	5.3 Other - Elevator Size	●	Single elevator with center opening door and interior clear dimensions of 80 inches by 57 inches (8'0" x 4'9")
Common Space Adequacy	1.0 Cafeteria	●	6182 sf (cafeteria area) / 12 students = 515
Common Space Adequacy	1.1 Kitchen	●	2022 sf (kitchen and serving) / 3 = 674
Common Space Adequacy	1.2 Kitchen	●	
Common Space Adequacy	1.3 Kitchen	●	design capacity 948 / 3 periods = 316
Common Space Adequacy	2.1 Gymnasium	yes	6 hoops, 1 divider curtain, bleachers, portable volleyball, daylight
Common Space Adequacy	2.2 Gymnasium	●	106'-1" x 75'-0" W- Height to bottom of joist 20'-2", to bottom of deck 23'-10"
Common Space Adequacy	3.1 Performance Space	●	permanent stage in auditorium
Common Space Adequacy	3.2 Performance Space	●	588 seats
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1032 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	1 soccer field
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	31	Green = 31; lab (7); classroom (24)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	7	Yellow = 7; lab (1); classroom (6)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	14	Red = 14; lab (2); classroom (12)
Educational Space Adequacy	1.2 Classrooms (General)	52	
Educational Space Adequacy	1.3 Classrooms (General)	●	25% do not have windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	N/A @ MS
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	2	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	under construction
Educational Space Adequacy	3.4 Clinic	●	under construction
Educational Space Adequacy	4.1 Art	●	1 class
Educational Space Adequacy	4.2 Art	●	1 kin is adjacent
Educational Space Adequacy	4.3 Art	●	4 sinks
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	2 rooms; 1 band, 1 vocal
Educational Space Adequacy	5.2 Music	●	connected
Educational Space Adequacy	6.0 Lab	●	8 Science Labs, 2 Computer Labs, 1 Woodshop, 1 Family Science
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

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GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Syphax Education Center - leased	1991	141,126	0.020	Good
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Fair
34	2017	4	0.000	Poor
Building Description	Building CRV⁶			
	\$30,195,529			

Syphax Education Center, located at 2110 Washington Blvd, is four stories of leased space within a commercial office building owned and maintained by others. As such, our understanding is APS is not responsible for structural and exterior building components, as well as mechanical, electrical, and plumbing systems not related to the fit-out of their leased space. The Center houses various APS administration services, including offices and meeting spaces for the School Board. Major interior finish work was completed in 2017 with a few smaller alterations that followed. Interior finishes included VCT and carpeted flooring, painted gypsum board and wood paneled walls, and suspended ceiling tile with some exposed structure. Water supply piping was copper. Heating and cooling distribution system primarily consisted of air handling units and ductwork connected to equipment maintained by the building. The lighting was LED. There was security access, CCTV systems, fire alarm, and a fire suppression system. NOTE: the listed CRV is based on the overall modeled value of the building, even though it is a leased facility and APS is not responsible for building infrastructure as noted above.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	-							
A103000 - SLAB ON GRADE	-							
A202000 - BASEMENT WALLS	-							
B101000 - FLOOR CONSTRUCTION	-							
B102000 - ROOF CONSTRUCTION	-							
B201000 - EXTERIOR WALLS	-							
B202000 - EXTERIOR WINDOWS	-							
B203000 - EXTERIOR DOORS	-							
B301000 - ROOF COVERINGS	-							
C101000 - PARTITIONS	5	Drywall over studs	141,126	FINISHED SF	\$6.26	\$883,796	25	25
C102000 - INTERIOR DOORS	5	Interior doors	141,126	FINISHED SF	\$19.79	\$2,792,361	40	35
C103000 - FITTINGS	5	Partitions and railings - standard	141,126	FINISHED SF	\$1.40	\$197,905	40	35
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	141,126	BLDG GROSS SF	\$7.99	\$1,127,789	50	50
C301000 - WALL FINISHES	5	Standard wall finishes	141,126	FINISHED SF	\$5.84	\$824,153	6	5
C302000 - FLOOR FINISHES	5	Standard floor finishes	141,126	FINISHED SF	\$11.33	\$1,599,508	17	12
C303000 - CEILING FINISHES	5	Painted structure plus acoustical ceiling tile system	141,126	FINISHED SF	\$10.99	\$1,550,709	15	15
D101010 - ELEVATORS	-							
D101020 - LIFTS	-							
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	141,126	SERVED SF	\$13.89	\$1,960,075	50	45
D202000 - RESIDENTIAL WATER HEATER	-							
D202005 - COMMERCIAL WATER HEATER	-							
D204000 - BUILDING STORMWATER DRAINAGE	-							
D301000 - ENERGY SUPPLY	-							
D301006 - SOLAR ENERGY SUPPLY	-							
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-							
D302000 - CENTRAL PLANT HEATING	-							
D302010 - FIREPLACES	-							
D303000 - CENTRAL PLANT COOLING	-							
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	141,126	SERVED SF	\$19.75	\$2,786,939	35	30
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Chilled water piping and individual terminal AHUs	141,126	SERVED SF	\$15.68	\$2,212,201	35	30
D305010 - TERMINAL & PACKAGE UNITS	-							
D306000 - CONTROLS	5	HVAC controls - 4-pipe system	141,126	SERVED SF	\$2.65	\$374,122	20	14
D401000 - SPRINKLERS	5	Sprinkler system	141,126	SERVED SF	\$17.52	\$2,472,460	50	44
D402000 - STANDPIPES	-							
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-							
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	141,126	BLDG GROSS SF	\$51.19	\$7,224,896	50	44
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	141,126	BLDG GROSS SF	\$13.97	\$1,970,919	20	14
D509000 - EMERGENCY POWER	-							
E102000 - INSTITUTIONAL EQUIPMENT	-							
E109002 - FOOD SERVICE EQUIPMENT	5	Commercial kitchen components	141,126	SERVED SF	\$12.77	\$1,802,835	20	15
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-							
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-							
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	500	LENGTH LF	\$829.72	\$414,859	35	30
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	-							
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-							
F102030 - AUDITORIUMS	-							
F102040 - COLD STORAGE ROOMS	-							
F104001 - AQUATIC FACILITIES	-							

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Syphax Education Center - leased	Year Built¹ 1991	Building GSF² 141,126	Building FCI_{AD} 0.020	Condition Category Legend <table style="font-size: small; text-align: center;"> <tr> <td style="background-color: #90EE90;">Good</td> <td style="background-color: #FFD700;">Fair</td> <td style="background-color: #FF0000;">Poor</td> </tr> <tr> <td>0 - 0.15</td> <td>0.151 - 0.33</td> <td>0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number 34	Last Renovation¹ 2017	No. of Floors 4	Building CRV⁶ \$30,195,529	No. of Local Projects 0						

Building Description

Syphax Education Center, located at 2110 Washington Blvd, is four stories of leased space within a commercial office building owned and maintained by others. As such, our understanding is APS is not responsible for structural and exterior building components, as well as mechanical, electrical, and plumbing systems not related to the fit-out of their leased space. The Center houses various APS administration services, including offices and meeting spaces for the School Board. Major interior finish work was completed in 2017 with a few smaller alterations that followed. Interior finishes included VCT and carpeted flooring, painted gypsum board and wood paneled walls, and suspended ceiling tile with some exposed structure. Water supply piping was copper. Heating and cooling distribution system primarily consisted of air handling units and ductwork connected to equipment maintained by the building. The lighting was LED. There was security access, CCTV systems, fire alarm, and a fire suppression system. NOTE: the listed CRV is based on the overall modeled value of the building, even though it is a leased facility and APS is not responsible for building infrastructure as noted above.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	5	\$	\$	\$	\$	\$	824,153	\$	\$	\$	\$	824,153	\$
C302000 - FLOOR FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$0	\$824,153	\$0	\$0	\$0	\$0	\$0	\$824,153	\$0

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Syphax Education Center - leased		1991	141,126	0.020
Building Number		Last Renovation³	No. of Floors	Building FCI_{DM}
34		2017	4	0.000
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV⁴				
\$30,195,529				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	-			
A103000 - SLAB ON GRADE	-			
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	-			
B102000 - ROOF CONSTRUCTION	-			
B201000 - EXTERIOR WALLS	-			
B202000 - EXTERIOR WINDOWS	-			
B203000 - EXTERIOR DOORS	-			
B301000 - ROOF COVERINGS	-			
C101000 - PARTITIONS	5	Interior walls were predominantly gypsum board over studs.		
C102000 - INTERIOR DOORS	5	Generally, solid-core wood interior doors with painted steel frames were used at offices and teaching spaces. Other doors included wood with glass infill, glass with metal hinges, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces.		
C103000 - FITTINGS	5	Composite toilet partitions were located in restrooms that were not single user. There were a few ramps with metal railings.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan were between levels within the leased space. The Stair Hall has wood treaders, others were covered with carpet.		
C301000 - WALL FINISHES	5	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms. Wood panels were present in a portion of the Stair Hall at the main entrance and in the School Board public meeting room.		
C302000 - FLOOR FINISHES	5	Carpet was prevalent in office spaces, meeting rooms, and hallways. Composite flooring was present in the main lobby, kitchenette, and food service areas. Tile in restrooms was typical. Concrete flooring was typical in mechanical and storage spaces.		
C303000 - CEILING FINISHES	5	Suspended ceiling tile was prevalent throughout occupied space, with a few areas of painted gypsum board. Some cubicles spaces had intermittent suspending ceiling tile grids with exposed, painted structure and mechanical equipment.		
D101010 - ELEVATORS	-			
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing fixtures had automatic faucets, wall mounted sinks, and vitreous china urinals and toilets. There were stainless steel water fountains with copper domestic piping and cast iron sanitary piping.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	-			
D204000 - BUILDING STORMWATER DRAINAGE	-			
D301000 - ENERGY SUPPLY	-			
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	-			
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	-			
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Distribution system primarily consisted of air handling units and ductwork connected to equipment maintained by the building.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Distribution system primarily consisted of air handling units and ductwork connected to equipment maintained by the building.		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	5	BAS controls with centralized HVAC system with minimal localized room control.		
D401000 - SPRINKLERS	5	Drawings not available, but leased space appeared to be fully sprinklered.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	-			
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches. Based on presumed load greater than 1,200 Amp service provided by others.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Drawings not provided, but system presumed to be a mix of APS and building-provided. Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	-			
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	5	Food service area at first floor with various areas contained commercial grade refrigerators for employee use. Stainless steel sinks and wood cabinetry with laminate countertops.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	5	Casework consisted of base and wall cabinetry. Minimal level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Syphax Education Center - leased	1991	2017	141,126	45,000	4

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Some corridors still have older bulbs
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Leased building, Not APS responsibility
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	CCT is either 4000K or 3000K but is consistent throughout
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Leased building, Not APS responsibility
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Some corridors missing sensors. NOTE: Offices planned for 1 occupant but now have 2 occupants have issues with occupancy controlled receptacles. Only one receptacle is No sports lighting
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Leased building, Not APS responsibility
Major Building Systems	1.0 Building Security - Security Vestibules	●	Leased building, Not APS responsibility
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Leased building, Not APS responsibility
Major Building Systems	2.3 Building Security - Single point of entry	●	Leased building, Not APS responsibility
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	4
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Leased building, Not APS responsibility
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	Leased building, Not APS responsibility
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	
Common Space Adequacy	1.2 Kitchen	●	
Common Space Adequacy	1.3 Kitchen	●	
Common Space Adequacy	2.1 Gymnasium	●	
Common Space Adequacy	2.2 Gymnasium	●	
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	●	
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	●	
Educational Space Adequacy	1.2 Classrooms (General)	0	
Educational Space Adequacy	1.3 Classrooms (General)	●	
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	
Educational Space Adequacy	3.4 Clinic	●	
Educational Space Adequacy	4.1 Art	●	
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	
Educational Space Adequacy	5.2 Music	●	
Educational Space Adequacy	6.0 Lab	●	
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Taylor Elementary School	1954	80,428	0.148	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
35	2013	1	0.043	\$22,836,891		

Building Description

Taylor Elementary School, located at 2600 N Stuart St., is a single level structure with a partial walk-out basement level. The building was completed in 1954 with the latest addition completed in 2013. The building includes classrooms, office space, multipurpose room, and gymnasium. The building is primarily CMU and steel-framed, however the multipurpose room has a glulam structure. The exterior walls have a brick facade. Observed roof membranes were a mixture of standing seam metal, built up roofing with a gravel surface, and modified bitumen. Interior finishes include vinyl and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU walls. Ceiling finishes are generally lay-in acoustic tiles with areas of exposed painted HVAC system distribution systems. The building contained no elevators, but a electric lift was present to access the stage in the multipurpose room. The HVAC system consists of a ground source heat pump loop with supplementary boilers and cooling tower. The loop serves rooftop energy recovery ventilators and interior heat pumps. The electrical system consisted of a 1,200 amp 480/277V three phase service. The building is equipped wet pipe fire sprinkler system, fire alarm system, and 40-KW emergency generator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	77,408	BLDG FP SF	\$8.99	\$695,920	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	77,408	BLDG FP SF	\$13.87	\$1,073,620	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,510	BASEMENT SF	\$16.79	\$25,352	99	99
B101000 - FLOOR CONSTRUCTION	5	Concrete framed floor supported by load bearing walls	3,020	ELEV FL SF	\$50.64	\$152,925	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed structure on load bearing walls with columns	77,408	BLDG FP SF	\$21.30	\$1,649,092	99	99
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	78,918	BLDG GROSS SF	\$15.00	\$1,184,008	70	70
B202000 - EXTERIOR WINDOWS	3	Exterior windows	78,918	BLDG GROSS SF	\$4.44	\$350,199	40	11
B203000 - EXTERIOR DOORS	3	Exterior doors	78,918	BLDG GROSS SF	\$2.27	\$178,890	30	5
B301000 - ROOF COVERINGS	3	Built-up roof	77,408	BLDG FP SF	\$27.49	\$2,127,908	25	10
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	80,428	FINISHED SF	\$12.52	\$1,007,354	70	70
C102000 - INTERIOR DOORS	3	Interior doors	80,428	FINISHED SF	\$11.83	\$951,733	40	8
C103000 - FITTINGS	4	Partitions and lockers	80,428	FINISHED SF	\$4.03	\$324,455	30	20
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	80,428	BLDG GROSS SF	\$0.29	\$23,175	70	70
C301000 - WALL FINISHES	3	Standard wall finishes	73,029	FINISHED SF	\$5.80	\$423,672	6	4
C302000 - FLOOR FINISHES	4	Standard floor finishes	73,029	FINISHED SF	\$14.20	\$1,036,734	20	10
C303000 - CEILING FINISHES	4	Standard ceiling finishes	73,029	FINISHED SF	\$16.83	\$1,228,929	20	10
D101010 - ELEVATORS	-							
D101020 - LIFTS	3	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	20	5
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Plumbing Systems and Fixtures	80,428	SERVED SF	\$6.78	\$545,393	50	10
D202000 - RESIDENTIAL WATER HEATER	-							
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, Greater than 300 MBH	627	MBH	\$127.19	\$79,748	30	11
D204000 - BUILDING STORMWATER DRAINAGE	3	Internal roof drains	69,000	BLDG FP SF	\$4.21	\$290,282	60	10
D301000 - ENERGY SUPPLY	4	Natural gas supply	80,428	BLDG GROSS SF	\$0.12	\$9,270	60	30
D301006 - SOLAR ENERGY SUPPLY	-							
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	Geothermal system with heat pumps	80,428	SERVED SF	\$10.10	\$812,682	50	40
D302000 - CENTRAL PLANT HEATING	4	Boiler	76,783	SERVED SF	\$6.22	\$477,900	30	20
D302010 - FIREPLACES	-							
D303000 - CENTRAL PLANT COOLING	4	Chiller system	76,783	SERVED SF	\$6.26	\$480,850	25	15
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heat pump system	76,783	SERVED SF	\$7.95	\$610,651	30	20
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Heat pump system distribution	76,783	SERVED SF	\$7.95	\$610,651	30	20
D305010 - TERMINAL & PACKAGE UNITS	4	Rooftop package units	4,045	SERVED SF	\$47.45	\$191,930	25	15
D306000 - CONTROLS	3	HVAC controls - heat pump system	80,428	SERVED SF	\$0.79	\$63,346	20	10
D401000 - SPRINKLERS	4	Sprinkler system	80,428	SERVED SF	\$8.61	\$692,170	50	20
D402000 - STANDPIPES	-							
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 1200 Amp Service	80,428	BLDG GROSS SF	\$5.65	\$454,236	50	40
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1000 Amp service	80,428	BLDG GROSS SF	\$32.46	\$2,611,087	50	35
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	80,428	BLDG GROSS SF	\$7.97	\$641,184	20	15
D509000 - EMERGENCY POWER	5	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	25
E102000 - INSTITUTIONAL EQUIPMENT	-							
E109002 - FOOD SERVICE EQUIPMENT	2	Commercial kitchen components	80,428	SERVED SF	\$8.07	\$648,909	20	2
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-							
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-							
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	450	LENGTH LF	\$829.72	\$373,373	35	10
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILLIARY G	4	Multi-purpose room	7,339	SERVED SF	\$100.03	\$734,094	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-							
F102030 - AUDITORIUMS	-							
F102040 - COLD STORAGE ROOMS	-							
F104001 - AQUATIC FACILITIES	-							

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Taylor Elementary School	1954	80,428	0.148	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
35	2013	1	\$22,836,891	0 - 0.15	0.151 - 0.33	0.331 - 1
					1	

Building Description

Taylor Elementary School, located at 2600 N Stuart St., is a single level structure with a partial walk-out basement level. The building was completed in 1954 with the latest addition completed in 2013. The building includes classrooms, office space, multipurpose room, and gymnasium. The building is primarily CMU and steel-framed, however the multipurpose room has a glulam structure. The exterior walls have a brick facade. Observed roof membranes were a mixture of standing seam metal, built up roofing with a gravel surface, and modified bitumen. Interior finishes include vinyl and ceramic tile, and carpeted flooring. Wall finishes are generally painted CMU walls. Ceiling finishes are generally lay-in acoustic tiles with areas of exposed painted HVAC system distribution systems. The building contained no elevators, but a electric lift was present to access the stage in the multipurpose room. The HVAC system consists of a ground source heat pump loop with supplementary boilers and cooling tower. The loop serves rooftop energy recovery ventilators and interior heat pumps. The electrical system consisted of a 1,200 amp 480/277V three phase service. The building is equipped wet pipe fire sprinkler system, fire alarm system, and 40-KW emergency generator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 350,199	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ 178,890	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	3	\$ 322,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,127,908	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 951,733	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ -	\$ 423,672	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 423,672	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,036,734	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,228,929	\$ -	\$ -
D101010 - ELEVATORS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	3	\$ -	\$ -	\$ -	\$ -	\$ 18,970	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 545,393	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 79,748	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 290,282	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63,346	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	2	\$ -	\$ 648,909	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 373,373	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 734,094	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$322,000	\$648,909	\$0	\$423,672	\$197,860	\$0	\$0	\$951,733	\$0	\$6,823,731	\$429,947	\$0

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION					
Building Name	Taylor Elementary School	Year Built¹	1954	Building GSF²	80,428
				Building FCI_{AD}	0.148
Building Number	35	Last Renovation¹	2013	No. of Floors	1
				Building FCI_{DM}	0.043
				Condition Category Legend	Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
SYSTEM OBSERVATIONS					
Building Systems	Rating	Observations			
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.			
A103000 - SLAB ON GRADE	5	Concrete slab on grade			
A202000 - BASEMENT WALLS	5	The lower level is concrete basement walls for approximately 50% of area.			
B101000 - FLOOR CONSTRUCTION	5	Floor above basement area is supported by reinforced concrete.			
B102000 - ROOF CONSTRUCTION	5	Observable structure is primarily steel framed roof structure on bearing walls and columns. Multipurpose room is glulam construction with wood deck above stage.			
B201000 - EXTERIOR WALLS	5	Brick exterior over CMU. No cracks, distress or other issues observed.			
B202000 - EXTERIOR WINDOWS	3	Aluminum framed windows replaced in 1994. Minor fading of finish on south facing frames, but no water intrusion or other issues observed. Windows were in fair condition.			
B203000 - EXTERIOR DOORS	3	Painted steel doors with and without lites. Finish deterioration observed and minor rust at base of door slabs on 25% of doors. Overall doors were in fair condition.			
B301000 - ROOF COVERINGS	3	Standing seam metal roof (30%), modified bitumen roof (50%), and built up roof with gravel surface (20%) present. Standing seam roof was in good condition with no issues observed. Modified bitumen roof was in fair condition with few visible bubbles and minor leak visible in the library. The built up roof over the north side of the building was in poor condition with evidence of patching and an observed leak in the interior near the clearstory windows. Overall roof system was in fair condition, but north section of roof should be replaced. Local Project: Replace built up roof on north section of building.			
C101000 - PARTITIONS	5	Primarily CMU interior partitions (70%) with some gypsum board over stud construction (30%).			
C102000 - INTERIOR DOORS	3	Solid core wood doors were functional but had moderate finish damage from sustained use. Overall doors were in fair condition.			
C103000 - FITTINGS	4	Lockers and laminated toilet partitions were in good condition with no major damage, finish deterioration, or other issues observed.			
C201000 - STAIR CONSTRUCTION	5	Concrete stairs to basement/ground level had no cracking, settlement, or other structural issues present.			
C301000 - WALL FINISHES	3	Common corridors and classrooms were painted drywall and painted CMU. Fair to good condition.			
C302000 - FLOOR FINISHES	4	Common corridors were VCT. Classrooms and offices were generally carpeted. Restrooms were ceramic tile. Mechanical, custodial, and storage was unfinished concrete. VCT was in good condition with no shrinking or loose tiles observed. Carpeting condition was generally fair with isolated stains, replacement discretionary. Ceramic tile was free of defects and in good condition. Overall flooring was in good condition.			
C303000 - CEILING FINISHES	4	Finished ceilings were suspended ceiling tile. Tiles were generally minorly cupped due to humidity and age. Few isolated stains observed and chips at corners for frequently moved tiles (aka near fan powered boxes). Overall condition was good.			
D101010 - ELEVATORS	-				
D101020 - LIFTS	3	Single level electric wheelchair lift for access the stage in the multipurpose room. Unit was manufactured in 1994 and is beyond expected useful life, but is operational and considered in fair condition.			
D201000 - PLUMBING SYSTEMS AND FIXTURES	3	Copper domestic piping and a mixture of cast iron and PVC sanitary drain and vent lines. Original piping may still be present in some sections of the building, but the majority of visible vent line at the roof were PVC. Fixtures were in fair condition with manual flush valves, but appeared to be of different vintages. Overall the system was aged but functional. Overall condition was fair.			
D202000 - RESIDENTIAL WATER HEATER	-				
D202005 - COMMERCIAL WATER HEATER	4	Domestic hot water is generated by a natural gas fired Rheem boiler with an input rating of 627-MBH. The boiler was manufactured in 2004 and was in good visual condition.			
D204000 - BUILDING STORMWATER DRAINAGE	3	Roof drains to internal roof drains, with the exception of the gymnasium and multipurpose room.			
D301000 - ENERGY SUPPLY	4	Natural gas supply serves heating boilers, emergency generator, and kitchen equipment. Age of piping unknown but appears to be in good condition.			
D301006 - SOLAR ENERGY SUPPLY	-				
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	Ground source heat pump field, heat exchanger, and circulation pumps installed in 2012/13 as part of major school renovation. No issues reported.			
D302000 - CENTRAL PLANT HEATING	4	Two Lochinvar 1,300-MBH natural gas fired boilers provide supplementary heat to the heat pump loop. The boilers were installed in 2012/13.			
D302010 - FIREPLACES	-				
D303000 - CENTRAL PLANT COOLING	4	BAC cooling tower installed in 2012/13 to provide cooling for the heat pump condenser loop. Cooling tower was in good condition.			
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Roof mounted water source energy recovery ventilators and water source heat pumps for cooling classrooms. System dates to 2012/13.			
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Roof mounted water source energy recovery ventilators and water source heat pumps for cooling classrooms. System dates to 2012/13.			
D305010 - TERMINAL & PACKAGE UNITS	4	Two 10-ton packaged rooftop unit serve the gymnasium and two ductless split systems cool communications closets. Most units were installed in 2012 expect one ductless split was manufactured in 2019.			
D306000 - CONTROLS	3	DDC controls for heat pumps system date to 2012/13.			
D401000 - SPRINKLERS	4	Wet pipe fire sprinkler system protected the entire building.			
D402000 - STANDPIPES	-				
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	1,200 amp 480/277V three phase service installed in 2012/13.			
D502000 - LIGHTING AND BRANCH WIRING	4	Lighting and most electrical panels upgraded in 2012/13. A few older panels remain in use but are serviceable. Overall system condition was good.			
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Fire alarm system consists of an addressable system monitored by an EST-3 panel. System has a final inspection date posted in 2018.			
D509000 - EMERGENCY POWER	5	40-KW natural gas fired KatoLight emergency generator appears to date to 2012/2013.			
E102000 - INSTITUTIONAL EQUIPMENT	-				
E109002 - FOOD SERVICE EQUIPMENT	2	School is equipped with a warming kitchen. The kitchen equipment reportedly has operational issues. Equipment appears beyond 20 year of age and is in poor condition			
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-				
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-				
E201020 - FIXED FURNISHINGS - CASEWORK	3	Classroom cabinets with laminate countertops and doors were in fair condition with minimal damaged/chipped lamination and broken/missing hardware.			
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Separate gymnasium (Room 200) and multi purpose room (Room 200). Gymnasium was in good condition with fresh paint and wood floors free of defects. Multi-purpose room was in fair condition with dated but functional finishes including glazed tile and painted under stage cabinetry.			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-				
F102030 - AUDITORIUMS	-				
F102040 - COLD STORAGE ROOMS	-				
F104001 - AQUATIC FACILITIES	-				

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Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Taylor Elementary School	1954	2013	80,428	77,408	1

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI for classrooms averages around 4.5 eACH when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms appears to meet current ASHRAE 62.1, while some spaces still appear short
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Meets current 62.1 ventilation requirements
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	100% outside air units serve the multipurpose space
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Passes when assuming 40 students in the library
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art room does not appear to have dedicated exhaust
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	All heat pumps appear to have MERV 6 or MERV 8 filters at best.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Air handlers equipped with MERV 13 filters
Major Building Systems	12.0 HVAC - Filtration - Library	●	Air handlers equipped with MERV 13 filters
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Classrooms appear to all have individual sensors with local control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Dominion Site Lighting. Mix of building fixture bulb types. No wall packs.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Did not appear to have any low flow fixtures
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report Card, cooling tower on roof greatly increases water use
Major Building Systems	1.0 Building Security - Security Vestibules	●	Security Vestibule under construction at the time of assessment.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	Several hallways with indentations into classroom areas provide potential areas for concealment
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	Minor areas of exterior concealment near exterior door vestibules, and primarily near ground floor level storage rooms.
Major Building Systems	2.3 Building Security - Single point of entry	●	Signage posted near Door #1 directs all visitors to report to main office. Doors to corridors were locked and equipped with access control card readers. Individual classroom exterior doors were locked.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	N/A; 1-story
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	No verticals, no urinal screens
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	N/A, 1-story school with no ramps
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	6	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	no elevators, 1-story
Major Building Systems	5.3 Other - Elevator Size	●	Not Applicable, no elevator present
Common Space Adequacy	1.0 Cafeteria	●	3294(cafeteria area)/15 students = 220
Common Space Adequacy	1.1 Kitchen	●	610 (kitchen area) / 3 = 204
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	659 design capacity / 3 periods = 220
Common Space Adequacy	2.1 Gymnasium	●	6 hoops (0 operable), climbing wall, relocatable volleyball, partial padding, NO daylight, NO divider curtain
Common Space Adequacy	2.2 Gymnasium	●	74'-0" x 54'-0"; Deck 25'-2"; Joist: 23'-2"
Common Space Adequacy	3.1 Performance Space	●	platform in multipurpose room
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	780 sf
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	3	Green 3; pre-k & k (5); 1st (5); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	7	Yellow 7; pre-k & k (5); 1st (5); Gen ed (7)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	16	Red 16; pre-k & k (5); 1st (5); Gen ed (5)
Educational Space Adequacy	1.2 Classrooms (General)	26	
Educational Space Adequacy	1.3 Classrooms (General)	●	58% have operable windows (15 (with operable) / 26 total)
Educational Space Adequacy	1.4 Classrooms (General)	●	100% classrooms have toilet rooms, but NOT ADA
Educational Space Adequacy	1.5 Classrooms (General)	●	0% Gr-1/Gr-2 have communal sinks, no single sinks in classrooms
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	4	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	Compliant space WITHOUT obstructions.
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	N/A Admin currently under construction
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 toilet (not ADA), 1 sink, 1 eyewash, 2 ref.
Educational Space Adequacy	4.1 Art	●	2 art rooms, #109, #121
Educational Space Adequacy	4.2 Art	●	off of room #109
Educational Space Adequacy	4.3 Art	●	#109 - 2, #121 - 1
Educational Space Adequacy	4.4 Art	●	storage connected to both rooms
Educational Space Adequacy	5.1 Music	●	#107 - under construction but marked as general music, #113b - band
Educational Space Adequacy	5.2 Music	●	#107 - under construction, unknown; #113b - no storage room
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IFEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IFEA used its own estimated GSF for this report.

Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Tuckahoe Elementary School	1953	69,685	0.170	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
37	1999	2	0.054	\$25,360,662		

Building Description

Tuckahoe Elementary School, located at 6550 26th St N, is a two-story structure. The building was originally constructed in 1953. The most recent renovation was reportedly in 1999. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, cast concrete pieces, metal panels, and composite panels. Windows and doors were typically aluminum construction. The roof was mostly modified bitumen. Solar panels were installed on a portion of the roof. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, and terrazzo floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating water piping. HVAC systems included three high-efficiency boilers, rooftop package units, and a few supplemental split-system DX units. The building had a 3000A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	67,000	BLDG FP SF	\$12.08	\$809,567	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	67,000	BLDG FP SF	\$13.87	\$929,265	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,500	BASEMENT SF	\$19.09	\$28,642	99	99
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	2,685	ELEV FL SF	\$66.81	\$179,391	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	67,000	BLDG FP SF	\$24.05	\$1,611,412	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	68,185	BLDG GROSS SF	\$26.95	\$1,837,697	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	68,185	BLDG GROSS SF	\$18.83	\$1,283,637	40	16
B203000 - EXTERIOR DOORS	3	Exterior doors	68,185	BLDG GROSS SF	\$1.02	\$69,421	30	6
B301000 - ROOF COVERINGS	3	Built-up roof	67,000	BLDG FP SF	\$27.93	\$1,871,400	25	8
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	69,685	FINISHED SF	\$20.42	\$1,422,984	70	70
C102000 - INTERIOR DOORS	4	Interior doors	69,685	FINISHED SF	\$4.73	\$329,308	40	15
C103000 - FITTINGS	3	Partitions and lockers	69,685	FINISHED SF	\$4.09	\$285,132	25	5
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	69,685	BLDG GROSS SF	\$1.94	\$135,204	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	60,585	FINISHED SF	\$5.09	\$308,417	6	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	60,585	FINISHED SF	\$14.20	\$860,076	20	3
C303000 - CEILING FINISHES	4	Standard ceiling finishes	60,585	FINISHED SF	\$16.83	\$1,019,522	20	10
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	35	5
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	69,685	SERVED SF	\$17.25	\$1,202,107	40	15
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, 81 to 130 MBH	1	EACH	\$23,100.03	\$23,100	15	3
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains	67,000	BLDG FP SF	\$3.25	\$217,515	60	30
D301000 - ENERGY SUPPLY	4	Natural gas supply	69,685	BLDG GROSS SF	\$0.15	\$10,709	60	30
D301006 - SOLAR ENERGY SUPPLY	4	Solar energy supply	7,000	SERVED SF	\$27.20	\$190,410	20	10
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	4	Boiler	69,685	SERVED SF	\$7.17	\$499,316	20	7
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	-	-	-	-	-	-	-	-
D304010 - DISTRIBUTION SYSTEMS - HEATING	-	-	-	-	-	-	-	-
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	-	-	-	-	-	-	-
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, >=10,000 SF to <15,000 SF	69,685	SERVED SF	\$53.60	\$3,734,830	30	6
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	69,685	SERVED SF	\$2.38	\$165,992	20	2
D401000 - SPRINKLERS	4	Sprinkler system	69,685	SERVED SF	\$7.90	\$550,185	50	25
D402000 - STANDPIPES	-	-	-	-	-	-	-	-
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical entrance and switch - 2000 Amp Service	69,685	BLDG GROSS SF	\$4.00	\$278,439	50	10
D502000 - LIGHTING AND BRANCH WIRING	3	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	69,685	BLDG GROSS SF	\$36.27	\$2,527,369	45	10
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	69,685	BLDG GROSS SF	\$10.18	\$709,484	20	13
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	12
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	15	3
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	69,685	SERVED SF	\$3.50	\$243,634	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,000	LENGTH LF	\$829.72	\$829,718	35	15
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	9,100	SERVED SF	\$100.03	\$910,241	20	7
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Tuckahoe Elementary School	1953	69,685	0.170	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
37	1999	2	\$25,360,662	0 - 0.15	0.151 - 0.33	0.331 - 1
				0		

Building Description

Tuckahoe Elementary School, located at 6550 26th St N, is a two-story structure. The building was originally constructed in 1953. The most recent renovation was reportedly in 1999. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, cast concrete pieces, metal panels, and composite panels. Windows and doors were typically aluminum construction. The roof was mostly modified bitumen. Solar panels were installed on a portion of the roof. Major interior elements included painted masonry partitions, solid-wood core doors, a combination of carpet, VCT, and terrazzo floors, and suspended acoustical ceiling tiles. One elevator was present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout the building, and heating water piping. HVAC systems included three high-efficiency boilers, rooftop package units, and a few supplemental split-system DX units. The building had a 3000A electrical service and natural gas supply. One emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a serving kitchen, a multi-purpose room (cafeteria and auditorium), and a gymnasium.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	3	\$	\$	\$	\$	\$	\$	69,421	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	3	\$	\$	\$	\$	\$	\$	\$	1,871,400	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	3	\$	\$	\$	\$	\$	285,132	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	308,417	\$	\$	\$	\$	\$	308,417	\$	\$	\$
C302000 - FLOOR FINISHES	3	\$	\$	860,076	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,019,522	\$	\$
D101010 - ELEVATORS	3	\$	\$	\$	\$	206,285	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	3	\$	\$	23,100	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	190,410	\$	\$
D302000 - CENTRAL PLANT HEATING	4	\$	\$	\$	\$	\$	\$	499,316	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	3	\$	\$	\$	\$	\$	3,734,830	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	3	\$	165,992	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	278,439	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	2,527,369	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	3	\$	\$	24,055	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	243,634	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	910,241	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$165,992	\$1,215,648	\$0	\$491,417	\$3,804,251	\$1,409,557	\$1,871,400	\$308,417	\$4,259,374	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION						
Building Name	Tuckahoe Elementary School	Year Built¹	1953	Building GSF²	69,685	
				Building FCI_{AD}	0.170	
				Condition Category Legend		
				Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	37	Last Renovation⁴	1999	No. of Floors	2	
				Building FCI_{DM}	0.054	
				Building CRV⁵	\$25,360,662	
SYSTEM OBSERVATIONS						
Building Systems	Rating	Observations				
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.				
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire building footprint.				
A202000 - BASEMENT WALLS	5	Portion of the first/lower floor is below-grade.				
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, and poured concrete flooring.				
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.				
B201000 - EXTERIOR WALLS	5	Exterior façade was primarily brick masonry, with elements of cast concrete, metal panels, and composite panels.				
B202000 - EXTERIOR WINDOWS	4	Windows were mostly aluminum framed with double pane glass.				
B203000 - EXTERIOR DOORS	3	Most exterior doors were aluminum framed with glass, with a few painted steel exterior doors.				
B301000 - ROOF COVERINGS	3	Roof was modified bitumen with a white coating. Assumed to be in last third of useful life.				
C101000 - PARTITIONS	5	Majority of partition walls were CMU or brick masonry, with some areas of gypsum board/plaster over stud framing.				
C102000 - INTERIOR DOORS	4	Majority of interior doors were solid-core wood.				
C103000 - FITTINGS	3	Composite toilet partitions in restrooms. Metal lockers estimated 20 years old.				
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with poured concrete treads and landings.				
C301000 - WALL FINISHES	4	Majority of walls were painted masonry or gypsum board.				
C302000 - FLOOR FINISHES	3	Vinyl composite tile (VCT) was located in several hallways and most classrooms. Carpet was present in some rooms, and terrazzo was in some hallways.				
C303000 - CEILING FINISHES	4	Suspended acoustical ceiling tile system throughout most hallways, classrooms, and support rooms.				
D101010 - ELEVATORS	3	Hydraulic elevator estimated to be manufactured in 1993.				
D101020 - LIFTS	-					
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.				
D202000 - RESIDENTIAL WATER HEATER	-					
D202005 - COMMERCIAL WATER HEATER	3	One gas-fired domestic water heater plus water storage tank was in the boiler room, estimated manufactured 2011.				
D204000 - BUILDING STORMWATER DRAINAGE	4	Entire roof area used internal stormwater drains. Drain piping was assumed to be cast iron.				
D301000 - ENERGY SUPPLY	4	Natural gas supply connection was located near the electric room.				
D301006 - SOLAR ENERGY SUPPLY	4	Solar panels were installed on two roof areas near/above the main entrance. Estimated to be about 10 years old and to serve about 10% of the school's electrical capacity.				
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-					
D302000 - CENTRAL PLANT HEATING	4	Three high-efficiency boilers manufactured in 2010.				
D302010 - FIREPLACES	-					
D303000 - CENTRAL PLANT COOLING	-					
D304010 - DISTRIBUTION SYSTEMS - HEATING	-					
D304020 - DISTRIBUTION SYSTEMS - COOLING	-					
D305010 - TERMINAL & PACKAGE UNITS	3	Several rooftop package units appeared to serve most areas within the school. Appeared to have heating water coils and packaged condenser cooling. Majority of the RTUs estimated to have been installed in 1999, although some appeared to have been replaced in 2023. Two small split-system DX units provided supplemental cooling to select spaces. Assumed that this system captures cost of the heating water distribution.				
D306000 - CONTROLS	3	Pneumatic controls used throughout majority of building. Compressor estimated to be installed with most of equipment in around 1999.				
D401000 - SPRINKLERS	4	Building appeared to be fully sprinkled.				
D402000 - STANDPIPES	-					
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	3	Main electrical panel in boiler room. Service is 3000A, 120/208V, 3Ph, 4W. Manufactured date 1970.				
D502000 - LIGHTING AND BRANCH WIRING	3	Wiring and distribution panels assumed to be installed around 1970 with the main electrical service. Lighting fixtures estimated to have been replaced around late-2000s.				
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Fire alarm control panel estimated manufactured in 2016. PA system and security systems assumed updated within past 10 years.				
D509000 - EMERGENCY POWER	3	One 40 KW emergency generator provided backup power. Estimated to be installed around 2000.				
E102000 - INSTITUTIONAL EQUIPMENT	3	One kiln for art room, estimated to be installed in mid-2000s.				
E109002 - FOOD SERVICE EQUIPMENT	4	Serving kitchen with a mix of older and newer equipment.				
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-					
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-					
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework throughout administrative areas and classrooms was estimated to be about 20 years old.				
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Multi-purpose room (MPR; about 4,600 SF) served as cafeteria and auditorium. MPR had VCT flooring, ceramic tile and acoustical panel walls, and suspended acoustical ceiling tiles. MPR stage had hardwood flooring, curtains, and lighting/speaker systems. Gymnasium (about 4,500 SF) had rubber flooring, painted walls, exposed/painted structure at ceiling, and basketball hoops.				
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-					
F102030 - AUDITORIUMS	-					
F102040 - COLD STORAGE ROOMS	-					
F104001 - AQUATIC FACILITIES	-					

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

Tuckahoe Elementary School

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Tuckahoe Elementary School	1953	1999	69,685	67,000	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI for classrooms averages just above 5 eACh when factoring all ventilation and local filtration per HVAC1 E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Classroom Ventilation fell just short of ASHRAE 62.1 across almost all classrooms
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation rates fell well short of ASHRAE 62.1
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Depending on number of students per lunch period, space might meet ASHRAE 62.1 code ventilation rates
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation rates fell short of ASHRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Klin was exhausted, but art room was not directly exhausted by any means
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Merv 13 in most units, single multizone unit service some classrooms had Merv 8 filters
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	The majority of fixtures were not LED.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Exterior fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Interior fixtures CCT was inconsistent and overall did not meet the county standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior fixtures CCT was inconsistent and overall did not meet the county standard of 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors were not present in the majority of spaces.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Average based on available usage data from APS
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signs taped to many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1 elevator
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	no vertical bars at restrooms in building
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	handrail extensions are too short
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	4	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on available data from APS energy report information
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	385kW panels were located on the roof in two array sections.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1 elevator
Major Building Systems	5.3 Other - Elevator Size	●	Cab: 6'8" x 4'2" Door: 3'6" offset 2755(cafeteria area)/15 students = 184
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	1230 (kitchen area)/3 = 410
Common Space Adequacy	1.2 Kitchen	●	1 serving line
Common Space Adequacy	1.3 Kitchen	●	design capacity 545/3 periods = 182
Common Space Adequacy	2.1 Gymnasium	●	Gym: 6 hoops, climbing wall, volleyball, 4 ropes and daylighting divider curtain present.
Common Space Adequacy	2.2 Gymnasium	●	75'-7.25" x 55'-11.5" W. Height to bottom of joist 21'-10.25", to bottom of deck 25'-0"
Common Space Adequacy	3.1 Performance Space	●	stage off cafeteria
Common Space Adequacy	3.2 Performance Space	●	N/A for elementary school
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1088 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	N/A for elementary school
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	mulch with playground equipment
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	Mulch only
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	9	Green 9; pre-k & k (0); 1st (4); Gen ed (5)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	6	Yellow 6; pre-k & k (0); 1st (0); Gen ed (6)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	4	Red 4; pre-k & k (4); 1st (0); Gen ed (0)
Educational Space Adequacy	1.2 Classrooms (General)	19	
Educational Space Adequacy	1.3 Classrooms (General)	●	89% classrooms with windows. 10% with borrowed light
Educational Space Adequacy	1.4 Classrooms (General)	●	100% kindergarten rooms have connected toilet. All are ADA except for vertical bar
Educational Space Adequacy	1.5 Classrooms (General)	●	94% classrooms have a sink
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	2	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 3 offices; 1 conference - outside of admin suite; 1 records office - rated
Educational Space Adequacy	3.4 Clinic	●	2 beds, 1 ADA toilet, 1 sink, 1 eye wash (not accessible), 1 refrigerator, 1 exam room, 1 office
Educational Space Adequacy	4.1 Art	●	2 art rooms, 141 and 168
Educational Space Adequacy	4.2 Art	●	(168) 1 klin, attached. No klin for (141)
Educational Space Adequacy	4.3 Art	●	room 141 - 2 sinks; room 168 - 1 sink
Educational Space Adequacy	4.4 Art	●	room 168 - connected; room 141 - none
Educational Space Adequacy	5.1 Music	●	2 vocal rooms, rooms 003 and 006
Educational Space Adequacy	5.2 Music	●	yes, connected to 003, no storage for 006
Educational Space Adequacy	6.0 Lab	●	N/A for elementary school
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Wakefield High School	2013	403,940	0.083	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
38	2017	3	0.000	\$139,245,112		

Building Description

Wakefield High School, located at 1325 South Dinwiddie Street, is a three-story structure. The building was constructed in 2013, and the last major renovation occurred in 2017. The building includes classrooms, two gymnasiums, two enclosed courtyards, auditorium, cafeteria, kitchen, media center, aquatics center, and administrative offices. The building's exterior wall assembly is predominantly brick veneer over CMU, with additional architectural cladding and shading features. The exterior windows are both fixed and operable metal framed units. The roof is low-sloped single ply membrane over steel decking and framing. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted CMU and drywall, smooth faced CMU, and ceramic tile. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing condensing boiler system with storage tanks. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. There were multiple distributed fan coil heat pump systems throughout the building supported by a geothermal based condenser water system tempered by hydronic boilers and cooling heat exchangers. Building power was through a 4000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. Lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was estimated to be 300kW and power emergency lighting and designated services. There were two 3-stop machine-room-less elevators.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	208,000	BLDG FP SF	\$12.08	\$2,513,283	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	208,000	BLDG FP SF	\$13.87	\$2,884,881	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	1,500	BASEMENT SF	\$19.09	\$28,642	99	99
B101000 - FLOOR CONSTRUCTION	5	Steel framed building supporting concrete floor slabs	195,940	ELEV FL SF	\$42.15	\$8,258,232	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	208,000	BLDG FP SF	\$24.05	\$5,002,591	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	402,440	BLDG GROSS SF	\$26.95	\$10,846,414	70	70
B202000 - EXTERIOR WINDOWS	4	Exterior windows	402,440	BLDG GROSS SF	\$18.83	\$7,576,255	40	30
B203000 - EXTERIOR DOORS	4	Exterior doors	402,440	BLDG GROSS SF	\$1.02	\$409,736	30	20
B301000 - ROOF COVERINGS	3	Single ply roof	208,000	BLDG FP SF	\$17.25	\$3,588,121	15	5
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	403,940	FINISHED SF	\$20.42	\$8,248,548	70	70
C102000 - INTERIOR DOORS	4	Interior doors	403,940	FINISHED SF	\$4.73	\$1,908,883	40	30
C103000 - FITTINGS	5	Partitions and lockers	403,940	FINISHED SF	\$4.09	\$1,652,813	40	30
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	403,940	BLDG GROSS SF	\$1.94	\$783,728	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	354,184	FINISHED SF	\$5.09	\$1,803,027	10	5
C302000 - FLOOR FINISHES	4	Standard floor finishes	354,184	FINISHED SF	\$14.20	\$5,028,063	18	8
C303000 - CEILING FINISHES	4	Standard ceiling finishes	354,184	FINISHED SF	\$16.83	\$5,960,194	20	12
D101010 - ELEVATORS	5	Elevator	2	EACH	\$206,284.67	\$412,569	35	25
D101020 - LIFTS	-							
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	403,940	SERVED SF	\$17.25	\$6,968,199	50	40
D202000 - RESIDENTIAL WATER HEATER	-							
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, Greater than 300 MBH	760	MBH	\$127.19	\$96,664	20	10
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	208,000	BLDG FP SF	\$4.92	\$1,022,894	60	50
D301000 - ENERGY SUPPLY	5	Natural gas supply	403,940	BLDG GROSS SF	\$0.15	\$62,078	60	50
D301006 - SOLAR ENERGY SUPPLY	4	Solar energy supply	40,394	SERVED SF	\$27.20	\$1,098,772	20	10
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	Geothermal system with heat pumps	403,940	SERVED SF	\$4.38	\$1,769,209	25	15
D302000 - CENTRAL PLANT HEATING	5	Boiler	403,940	SERVED SF	\$7.17	\$2,894,363	40	30
D302010 - FIREPLACES	-							
D303000 - CENTRAL PLANT COOLING	5	Chiller system	201,970	SERVED SF	\$8.13	\$1,641,174	40	30
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating system piping and individual terminal AHUs	403,940	SERVED SF	\$19.67	\$7,945,920	40	30
D304020 - DISTRIBUTION SYSTEMS - COOLING	-							
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units, >=10,000 SF to <15,000 SF	133,300	SERVED SF	\$53.60	\$7,144,333	30	20
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	403,940	SERVED SF	\$2.38	\$962,201	15	5
D401000 - SPRINKLERS	5	Sprinkler system	403,940	SERVED SF	\$7.90	\$3,189,232	50	40
D402000 - STANDPIPES	5	Standpipe system	403,940	SERVED SF	\$0.63	\$256,070	50	40
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	403,940	BLDG GROSS SF	\$4.00	\$1,614,015	50	40
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	403,940	BLDG GROSS SF	\$36.27	\$14,650,290	50	40
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	403,940	BLDG GROSS SF	\$10.18	\$4,112,634	20	10
D509000 - EMERGENCY POWER	5	Emergency Generator, >=185 kW to <500 kW	1	EACH	\$166,772.00	\$166,772	35	25
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	4,000	SERVED SF	\$160.37	\$641,460	20	10
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	403,940	SERVED SF	\$3.50	\$1,412,263	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-							
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Telescoping bleachers, standard	2,821	SEATS	\$968.43	\$2,731,952	20	10
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	1,100	LENGTH LF	\$829.72	\$912,690	35	25
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	Multi-purpose room	6,974	SERVED SF	\$100.03	\$697,585	20	14
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	HS-level Gymnasium	14,660	SERVED SF	\$158.48	\$2,323,353	20	14
F102030 - AUDITORIUMS	4	Performance Auditoriums	4,922	SERVED SF	\$164.57	\$810,024	20	10
F102040 - COLD STORAGE ROOMS	-							
F104001 - AQUATIC FACILITIES	3	Aquatic facility	23,200	SERVED SF	\$310.99	\$7,214,984	20	10

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

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4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name Wakefield High School	Year Built¹ 2013	Building GSF² 403,940	Building FCI_{AD} 0.083	Condition Category Legend <table style="font-size: small; text-align: center;"> <tr> <td style="background-color: #90EE90;">Good</td> <td style="background-color: #FFD700;">Fair</td> <td style="background-color: #FF0000;">Poor</td> </tr> <tr> <td>0 - 0.15</td> <td>0.151 - 0.33</td> <td>0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number 38	Last Renovation¹ 2017	No. of Floors 3	Building CRV⁶ \$139,245,112	No. of Local Projects 0						

Building Description

Wakefield High School, located at 1325 South Dinwiddie Street, is a three-story structure. The building was constructed in 2013, and the last major renovation occurred in 2017. The building includes classrooms, two gymnasiums, two enclosed courtyards, auditorium, cafeteria, kitchen, media center, aquatics center, and administrative offices. The building's exterior wall assembly is predominantly brick veneer over CMU, with additional architectural cladding and shading features. The exterior windows are both fixed and operable metal framed units. The roof is low-sloped single ply membrane over steel decking and framing. Interior floor finishes are primarily carpet tile, vinyl composition tile, and ceramic tile. Wall finishes are painted CMU and drywall, smooth faced CMU, and ceramic tile. Ceiling finishes are primarily suspended acoustic tiles. Building domestic hot water was generated utilizing condensing boiler system with storage tanks. Water supply piping was copper, sanitary sewer system and storm drainage was PVC. There were multiple distributed fan coil heat pump systems throughout the building supported by a geothermal based condenser water system tempered by hydronic boilers and cooling heat exchangers. Building power was through a 4000 Amp, 480/277V, three phase power service which was stepped down as needed for 208/120V for connected and lighting load distribution. Lighting was LED. There was security access and CCTV systems. There was a fire suppression system utilizing fire and jockey pumps with an air compressor for the dry pipe sections of the system. The fire alarm system was addressable. The natural gas emergency generator was estimated to be 300KW and power emergency lighting and designated services. There were two 3-stop machine-room-less elevators.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	3	\$	\$	\$	\$	\$	3,588,121	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$	\$	\$	1,803,027	\$	\$	\$	\$	\$	\$
C302000 - FLOOR FINISHES	4	\$	\$	\$	\$	\$	\$	\$	5,028,063	\$	\$	\$	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	96,664	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,098,772	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	3	\$	\$	\$	\$	\$	962,201	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	4,112,634	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	641,460	\$
E109002 - FOOD SERVICE EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,412,263	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	2,731,952	\$
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$0	\$6,353,349	\$0	\$0	\$5,028,063	\$0	\$10,093,745	\$0	\$0

1. Values shown were provided by APS.
2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Wakefield High School	Year Built 2013	Building GSF 403,940	Building FCI_{AD} 0.083	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 38	Last Renovation 2017	No. of Floors 3	Building FCI_{DM} 0.000	Building CRV \$139,245,112
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	The foundation system appears to be cast in place concrete.		
A103000 - SLAB ON GRADE	5	Level 0 and most of Level 1 have slab on grade.		
A202000 - BASEMENT WALLS	5	The lower floor of Mechanical Room B-103 is not connected to the 0 Level and can be classified as a basement. Walls are primarily cast-in-place concrete with some CMU. SF estimated.		
B101000 - FLOOR CONSTRUCTION	5	Level 3, Level 2, and a portion of Level 1 appear to utilize steel framing with a steel structural deck to support an elevated cast in place lightweight concrete slab.		
B102000 - ROOF CONSTRUCTION	5	Roof structure is steel framing and decking.		
B201000 - EXTERIOR WALLS	5	The building's exterior wall assembly is predominantly brick veneer over CMU, with a variety of exterior architectural finishes including cast-in-place concrete, EIFS, and smooth CMU.		
B202000 - EXTERIOR WINDOWS	4	The exterior windows are predominantly fixed metal framed units with thermal glazing, with a smaller percentage of operable windows; most appear to have low-E coating. There are multi-story glazed assemblies at Entrances D14 and D15. No cracking or fogging was observed, and there were no reported issues. Some doors and windows have metal shading features on the south side.		
B203000 - EXTERIOR DOORS	4	The exterior doors are predominantly single and paired glazed storefront units and single and paired metal flush panel units, some with glazing. Two metal rollout doors are in good condition. Numerous storefront assemblies.		
B301000 - ROOF COVERINGS	3	Single ply modified bitumen roofing with elastomeric coating applied to create white roof. Numerous areas of apparent ponding but no standing water observed. Edge sealant is cracked throughout and coating has degraded where water ponds. Metal downspouts convey water to internal roof drains, and elastomeric coating is degraded at drains. Areas beneath solar arrays concentrate water and biological growth. No leaks reported and no evidence of leaks observed. Large skylights over aquatic center and Media Center. Roof is entering final 1/3 of EUL.		
C101000 - PARTITIONS	5	Partition walls are a combination of CMU, drywall over metal studs, and a small amount of glazed partitions. The predominate partition appears to be CMU.		
C102000 - INTERIOR DOORS	4	Interior doors include solid core wood panels and metal panels, both flush and glazed, in metal frames. There are also glazed storefront assemblies at the gym, cafeteria, and vestibules.		
C103000 - FITTINGS	5	The predominate fittings for the school are composite toilet partitions and metal lockers. Metal lockers appear to be secured from student use.		
C201000 - STAIR CONSTRUCTION	5	Interior stairs are steel framed with concrete infill pans, with metal hand rails and guard rails.		
C301000 - WALL FINISHES	4	The building has a variety of wall finishes, but painted CMU and drywall predominate. In corridors and other common areas, finishes are painted drywall, painted and smooth face CMU, and a small area of wood cladding at the auditorium. In classrooms, primarily painted drywall, painted and smooth face CMU, and some acoustic paneling in music rooms. In restrooms, ceramic tile and painted CMU. In the Media Center, painted drywall. Finished SF does not include gymnasiums (2), aquatic center, or auditorium.		
C302000 - FLOOR FINISHES	4	The building has a variety of floor finishes. In corridors and other common areas, finishes are primarily vinyl composite tile (VCT) and carpet tiles. In classrooms, VCT and carpet tile. In restrooms, ceramic tile. In the media center, carpet. Finished SF does not include gymnasiums (2), aquatic center, auditorium, or main mechanical room.		
C303000 - CEILING FINISHES	4	Ceiling finishes are predominantly suspended acoustic tile, with some painted gypsum board. There is also painted structure in 0 Level locker rooms, as well as suspended panels in a cloudlike arrangement in the media center. Finished SF does not include gymnasiums (2), aquatic center, auditorium, or main mechanical room.		
D101010 - ELEVATORS	5	Single elevator machine room-less elevators serving three levels (Elev 1: Lower-2 and Elev 2: 1-3)		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, and sinks; janitor stations; wet traps; and emergency wash stations. The piping, which was predominantly PVC, and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution. There were elevator sump pumps.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	Ribi Futera 730MBH natural gas domestic water heaters provided circulated hot water. An additional domestic water heating source was roof mounted vacuum/evacuated tube solar collectors which may potentially contribute about 60MBH or roughly 10% of the domestic hot water based on approximately 300 tubes at 2048BtuH per tube. The solar hot water system was not observed to be in operation and was not assessed.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water as well as ancillary services.		
D301006 - SOLAR ENERGY SUPPLY	4	There were approximately 180KW of roof mounted photovoltaic solar panels based on an estimated 9200 sqft of panels at 20kW/sf, potentially contributing to about 10% of the building power requirements.		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	4	A closed loop, geothermal well system serves as the hydronic source for creating condenser water for the water source heat pump space conditioning.		
D302000 - CENTRAL PLANT HEATING	5	Paired natural gas-fired 2000MBH Fulton boilers provided heating water and tempered the heat pump condenser water system.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	Heat exchangers only (no chiller) and does not have chilled water for the whole building as would a true central plant. Distribution limited to condense water to heat pumps.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heating piping loops including heat exchangers, distribution pumps and air handling equipment, fan coil units, and associated ductwork.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	-			
D305010 - TERMINAL & PACKAGE UNITS	3	Roof top air handling units with heat exchange heat wheels serve dedicated zones with distributed air utilizing plant hydronics and condenser water.		
D306000 - CONTROLS	3	The major building MEP systems incorporated a DDC and monitoring system throughout with most major equipment operating on internal controls.		
D401000 - SPRINKLERS	5	A single water service, with a fire and jockey pump, served a wet sprinkler system distributed throughout the building.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 4000A service rated switchboard provides power to the building distribution. It was original construction, including the wiring.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	5	Caterpillar diesel fueled emergency generator and automatic transfer switches provided emergency power (300 kW approximated due to no access).		
E102000 - INSTITUTIONAL EQUIPMENT	4	Classroom labs had built-in sashed laboratory fume hoods with rooftop exhaust fans.		
E109002 - FOOD SERVICE EQUIPMENT	4	The kitchen was limited to Blodgett warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	The auditorium had an upper and lower continental style of fixed seating sections consisting of upholstered flip up cushioned seats, 521 seats. The competition gymnasium had a maximum occupancy load of 2,382 and included slide out bleacher seating, 2300 seats assumed.		
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework was limited to some classrooms and offices and also found in classroom labs and common function spaces. There were floor mounted laminate wood casework including desks, work stations, storage cubes, shelving, drawers and cabinets throughout.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	5	Auxiliary gym with maximum occupancy load of 141. Wood floors, painted CMU walls with safety padding and acoustic panels, and painted ceiling structure. Basketball hoops like new. Scoreboard not energized at time of assessment.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	High school level competition gymnasium with maximum occupancy load of 2,382. Wood floors, painted CMU walls with safety padding and acoustic panels, and painted ceiling structure. Basketball hoops like new. Scoreboard not energized at time of assessment.		
F102030 - AUDITORIUMS	4	Auditorium with maximum occupancy load of 635, with fixed (521) and loose (114) seating at two levels and a stage capacity of 184. Painted CMU walls, carpet tile flooring, and acoustic ceiling finishes. Spotlights above audience and suspended from stage catwalk. Allen & Heath GL2400 sound board.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	3	Entrance corridors and admin spaces have VCT floors, gypsum walls, suspended ceiling tiles. Restrooms have tile wall and floor finishes, composite partitions, lockers and sinks. Pool area has tile floors, CMU walls with acoustic panels, and painted ceiling structure. Scoreboard, diving boards, and overhead lighting appeared fully functional. The pool HVAC/dehumidification system had been historically problematic, but has been addressed. Condition of HVAC and pool plumbing systems is fair.		

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5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Wakefield High School	2013	2017	403,940	208,000	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IACI averages above 7 eACH when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Most classrooms appear to be above code ventilation by size, but do not account for 25 student/class which is APS standard as a minimum.
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Drawings showing the Gymnasium ventilation rates were not available to the engineer for review.
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Does not meet code vent. requirements when assuming ASHRAE 62.1 occupancy rate for cafeterias
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Drawings showing the Library ventilation rates were not available to the engineer for review.
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	Meets current ASHRAE 62.1 for Auditoriums
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	Meets current ASHRAE 62.1 for Pool area
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	All specialty classrooms, labs, hoods, etc. appear to have adequate ventilation that includes best practices
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 13 across the building
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13 across the building
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13 across the building
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	Merv 13
Major Building Systems	15.0 HVAC - Thermal Comfort	●	All classrooms were found to have thermostats for local control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	There are LED fixtures in some locations, but primarily lighting is accomplished with fluorescent fixtures.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Fixtures were dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Fixtures were generally consistent in terms of CCT, but they did not meet the APS standard of 4000K.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Fixture CCT was not consistent, some fixtures did meet APS standard of 3000K, but not all of them.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Sensors present in all classrooms, offices, storage rooms, etc. Large assembly type spaces and corridors were utilizing switches/timer/occupancy control.
Major Building Systems	3.6 Electrical - Sport Lighting	●	Football field upgraded to LED, but baseball/softball are still fluorescent.
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	All fixtures on site were found to be water efficient fixtures
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	No significant areas of concealment created by architectural design. However, vegetation near Entrance C9, the SE corner, and on the south side of the building should be kept trimmed back.
Major Building Systems	2.3 Building Security - Single point of entry	●	Entrance A1 is the visitor's entrance. While Entrance A2 appears to be a main entrance, signs direct visitors to A1. However, B5, C11, and other entrances around the building do not have signage directing visitors to A1 and could be confused.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	6 total
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	6
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	school years 2022 & 2019
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	PV arrays on pool roof, and classroom wing roof. Solar hot water heating also present.
Major Building Systems	4.0 Other - Geothermal	●	Building primary cooling source is geothermal wellfield
Major Building Systems	5.2 Other - Number of Elevators	●	2
Major Building Systems	5.3 Other - Elevator Size	●	8D65
Common Space Adequacy	1.0 Cafeteria	●	7,352 / 12 = 613
Common Space Adequacy	1.1 Kitchen	●	4836 / 3= 1612
Common Space Adequacy	1.2 Kitchen	●	6 serving lines
Common Space Adequacy	1.3 Kitchen	●	2203 / 4 = 551
Common Space Adequacy	2.1 Gymnasium	●	Main Gym: 6 hoops, volleyball, divider curtain, retractable bleachers, daylight; Aux Gym: 2 hoops, volleyball, daylight
Common Space Adequacy	2.2 Gymnasium	●	Main Gym = 102' 6"W x 133'L, Bot. of joist 25'-5", bot. of deck 30' 4"; Aux Gym 63'-4"W x 110' 0"L, Bot. of deck 29' 2", bot. of joist 25'-5"
Common Space Adequacy	3.1 Performance Space	●	permanent auditorium; ADA accessible
Common Space Adequacy	3.2 Performance Space	●	632 Occupancy, ADA accessible seats
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	2154 LF total
Common Space Adequacy	4.2 Library	●	Plus separate classroom off library
Common Space Adequacy	5.0 Pool	●	Maximum facility load - 284 Swimmers; 174 occupancy for competition lap pool; 110 occupancy for play pool
Common Space Adequacy	5.1 Pool	●	Lap pool with 8 laps (25 yards); other pool with 2 diving boards (12' 0" Depth); ADA lift in; ADA ramp in
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	Football, softball, baseball, track, 7 tennis courts
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	81	Green = 81; lab (19); classroom (62)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	18	Yellow = 18; lab (1); classroom (18)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	3	Red = 3; lab (0); classroom (3)
Educational Space Adequacy	1.2 Classrooms (General)	110	111
Educational Space Adequacy	1.3 Classrooms (General)	●	5/111 = 4%
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks; 3 offices, records room rated; conference room
Educational Space Adequacy	3.4 Clinic	●	5 beds, 1 ADA toilet, 1 sink, no eye wash, refrigerator, 1 exam room, 2 offices.
Educational Space Adequacy	4.1 Art	●	5 total
Educational Space Adequacy	4.2 Art	●	2 - located off room A102
Educational Space Adequacy	4.3 Art	●	A101(drawing) - 0 Sinks; A102 (Pottery) - 4 sinks; A103 (CAD Print) - 2 sinks; A104 (art) - 0 Sinks; A114 (art) - 8 sinks.
Educational Space Adequacy	4.4 Art	●	Connected
Educational Space Adequacy	5.1 Music	●	2 - Band, Orchestra
Educational Space Adequacy	5.2 Music	●	Connected
Educational Space Adequacy	6.0 Lab	●	1 CAD Print Lab, 1 Food Lab, 2 Business Labs, 16 Science Labs, 2 Computer Labs, 2 Family Labs
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend		
Washington-Liberty Annex	1970	55,169	0.021	Good	Fair	Poor
				0 - 0.15	0.151 - 0.33	0.331 - 1
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶		
14	2022	5	0.000	\$17,093,337		

Building Description

The Education Center, also referred to as the Washington-Liberty Annex, is located at 1426 N Quincy St. It is a five-story structure, with the ground floor partially below-grade to the southeast. The building was constructed in 1970 and underwent substantial renovation in 2022. The building had a concrete frame and exterior walls, primarily fixed windows with limited operable units, and single-ply white membrane roof covering. Interior finishes included VCT and carpeted flooring, painted gypsum board and concrete walls, and suspended ceiling tile. Building domestic hot water was generated utilizing natural gas boilers. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. High efficiency boilers and a cooling tower provided the source for distributed heating and cooling as required. Space conditioning incorporated ducted air handlers and water source heat pumps. Building power was through an 800 Amp, 480/277V, three phase power service. The lighting was LED. There was security access and a fire suppression system. Two gearless traction elevators serviced all floors of the building.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	11,000	BLDG FP SF	\$12.08	\$132,914	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	11,000	BLDG FP SF	\$13.87	\$152,566	99	99
A202000 - BASEMENT WALLS	5	Concrete basement walls	6,600	BASEMENT SF	\$19.09	\$126,025	99	99
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	44,169	ELEV FL SF	\$66.81	\$2,951,036	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over entire facility	11,000	BLDG FP SF	\$77.45	\$852,002	99	99
B201000 - EXTERIOR WALLS	5	Exposed CMU block walls	48,569	BLDG GROSS SF	\$15.64	\$759,471	99	99
B202000 - EXTERIOR WINDOWS	5	Exterior windows	48,569	BLDG GROSS SF	\$18.83	\$914,350	40	40
B203000 - EXTERIOR DOORS	5	Exterior doors	48,569	BLDG GROSS SF	\$1.02	\$49,450	30	30
B301000 - ROOF COVERINGS	4	Single ply roof	11,000	BLDG FP SF	\$17.25	\$189,756	15	10
C101000 - PARTITIONS	5	Drywall over studs	55,169	FINISHED SF	\$6.36	\$350,793	25	25
C102000 - INTERIOR DOORS	5	Interior doors	55,169	FINISHED SF	\$4.73	\$260,710	40	40
C103000 - FITTINGS	5	Partitions and lockers	55,169	FINISHED SF	\$4.09	\$225,737	40	40
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	55,169	BLDG GROSS SF	\$1.94	\$107,039	50	50
C301000 - WALL FINISHES	5	Standard wall finishes	55,169	FINISHED SF	\$5.09	\$280,846	10	10
C302000 - FLOOR FINISHES	5	Standard floor finishes	55,169	FINISHED SF	\$14.20	\$783,190	20	20
C303000 - CEILING FINISHES	5	Standard ceiling finishes	55,169	FINISHED SF	\$16.83	\$928,382	10	10
D101010 - ELEVATORS	5	Elevator	2	EACH	\$206,284.67	\$412,569	30	30
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	55,169	SERVED SF	\$17.25	\$951,697	50	50
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	5	Gas Water Heater, Commercial, 181 to 300 MBH	2	EACH	\$32,608.98	\$65,218	20	20
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	11,000	BLDG FP SF	\$4.92	\$54,095	60	60
D301000 - ENERGY SUPPLY	5	Natural gas supply	55,169	BLDG GROSS SF	\$0.15	\$8,478	60	60
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	5	Boiler	55,169	SERVED SF	\$7.17	\$395,304	20	20
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	5	Chiller system	55,169	SERVED SF	\$8.13	\$448,294	30	30
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Heat pump system	55,169	SERVED SF	\$8.47	\$467,370	50	50
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Heat pump system distribution	55,169	SERVED SF	\$8.47	\$467,370	50	50
D305010 - TERMINAL & PACKAGE UNITS	-	-	-	-	-	-	-	-
D306000 - CONTROLS	5	HVAC controls - 4-pipe system	55,169	SERVED SF	\$2.92	\$161,089	15	15
D401000 - SPRINKLERS	5	Sprinkler system	55,169	SERVED SF	\$7.90	\$435,576	50	50
D402000 - STANDPIPES	5	Standpipe system	55,169	SERVED SF	\$0.63	\$34,973	50	50
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 800 Amp Service	55,169	BLDG GROSS SF	\$1.54	\$84,784	50	50
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution wiring plus "fixtures"	55,169	BLDG GROSS SF	\$26.53	\$1,463,579	50	50
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, alarm, telephone, and wiring	55,169	BLDG GROSS SF	\$10.18	\$561,692	20	20
D509000 - EMERGENCY POWER	-	-	-	-	-	-	-	-
E102000 - INSTITUTIONAL EQUIPMENT	-	-	-	-	-	-	-	-
E109002 - FOOD SERVICE EQUIPMENT	-	-	-	-	-	-	-	-
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	Residential teaching kitchen	55,169	SERVED SF	\$25.28	\$1,394,692	20	20
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-	-	-	-	-	-	-	-
E201020 - FIXED FURNISHINGS - CASEWORK	5	Cabinetry	750	LENGTH LF	\$829.72	\$622,289	35	35
F102010 - ELEMENTARY SCHOOL GYM/MULTI-PURPOSE ROOMS/AUXILIARY G	-	-	-	-	-	-	-	-
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-	-	-	-	-	-	-	-
F102030 - AUDITORIUMS	-	-	-	-	-	-	-	-
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	-	-	-	-	-	-	-	-

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

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6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Washington-Liberty Annex	1970	55,169	0.021	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
14	2022	5	\$17,093,337	No. of Local Projects		
				0		

Building Description

The Education Center, also referred to as the Washington-Liberty Annex, is located at 1426 N Quincy St. It is a five-story structure, with the ground floor partially below-grade to the southeast. The building was constructed in 1970 and underwent substantial renovation in 2022. The building had a concrete frame and exterior walls, primarily fixed windows with limited operable units, and single-ply white membrane roof covering. Interior finishes included VCT and carpeted flooring, painted gypsum board and concrete walls, and suspended ceiling tile. Building domestic hot water was generated utilizing natural gas boilers. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. High efficiency boilers and a cooling tower provided the source for distributed heating and cooling as required. Space conditioning incorporated ducted air handlers and water source heat pumps. Building power was through an 800 Amp, 480/277V, three phase power service. The lighting was LED. There was security access and a fire suppression system. Two gearless traction elevators serviced all floors of the building.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C301000 - WALL FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C302000 - FLOOR FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C303000 - CEILING FINISHES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101010 - ELEVATORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201020 - FIXED FURNISHINGS - CASEWORK	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102030 - AUDITORIUMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,398,984	\$0

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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Washington-Liberty Annex		1970	55,169	0.021
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
14		2022	5	0.000
Condition Category Legend				
Good Fair Poor				
<small>0 - 0.15 0.151 - 0.33 0.331 - 1</small>				
Building CRV³				
\$17,093,337				
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Perimeter continuous footings and internal spread footings.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	5	The south, east, and southeast walls were below-grade, with the arc spanning from the west to the north was above grade. Estimated 60% of walls at first floor are below grade.		
B101000 - FLOOR CONSTRUCTION	5	Predominantly a concrete framed building supporting concrete floor slabs, with some steel framing and metal pan decking elements.		
B102000 - ROOF CONSTRUCTION	5	Limited drawings available. Presumed to be a concrete deck.		
B201000 - EXTERIOR WALLS	5	Concrete walls with elastomeric coating.		
B202000 - EXTERIOR WINDOWS	5	Narrow, fixed windows were noted at the northwest side of the ground floor and around the top floor. At the first through third floors, windows extended the full height with an arched window at the top. These floors had a small operable window at the bottom of the assembly.		
B203000 - EXTERIOR DOORS	5	Doors were typically metal with glass infill, with the exception of some locations like mechanical spaces.		
B301000 - ROOF COVERINGS	4	The main roof at the top of the building was a white single-ply membrane. Ponding water was observed in some locations with evidence of prior repairs in localized areas. There was a terrace above the ground floor at the northwest side of the building with concrete pavers, but the roof type was unknown. A 2016 roof report noted that the roof in these two areas was EPDM that was approximately 12 years old. The age of the current roof system was unknown, but presumably replaced at both levels in recent years.		
C101000 - PARTITIONS	5	Interior walls were predominantly gypsum board over studs, with exposed concrete walls in some areas.		
C102000 - INTERIOR DOORS	5	Generally, wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces.		
C103000 - FITTINGS	5	Composite toilet partitions extended almost the full height of restrooms with additional panels between stalls.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete pan and vinyl tread/riser coverings.		
C301000 - WALL FINISHES	5	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms and wood panel accent walls at elevators and collaborative areas.		
C302000 - FLOOR FINISHES	5	VCT in corridors and ceramic tile in restrooms was typical. Classrooms generally had VCT with rubber in one room geared toward physical education. Offices in administration area has carpet. Concrete flooring was typical in mechanical and storage spaces.		
C303000 - CEILING FINISHES	5	Suspended ceiling tile was typical in classrooms and offices. Exposed structure was in hallways and collaborative areas, with localized areas of suspending tile and architectural elements resembling structural beams. The exposed structure was painted.		
D101010 - ELEVATORS	5	Two gearless traction elevators stopped at all five floors.		
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Domestic and waste plumbing fixtures and features included restroom water closets, urinals, sinks and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	5	Two Lochnivar 199 MBH natural gas water heaters with Bell & Gossett expansion tanks.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided for domestic and hydronic hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	5	Two 500 MBH Aerco hydronic natural gas, high efficiency boilers provided distributed heating water.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	Baltimore Aircoil Company cooling tower between 123 and 163 tons (name plate was illegible)		
D304010 - DISTRIBUTION SYSTEMS - HEATING	5	Piping loops, water source heat pumps, air handlers, and ductwork		
D304020 - DISTRIBUTION SYSTEMS - COOLING	5	Piping loops, water source heat pumps, air handlers, and ductwork		
D305010 - TERMINAL & PACKAGE UNITS	-			
D306000 - CONTROLS	5	The major building MEP systems incorporated an ABB distribution control system.		
D401000 - SPRINKLERS	5	A single water service, with a fire and jockey pump, served the distributed sprinkler systems throughout the building.		
D402000 - STANDPIPES	5	Stairwell standpipe systems		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 800A service rated switchboard provided power to the building distribution.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	5	Communication, security, and Simplex fire alarm system		
D509000 - EMERGENCY POWER	-			
E102000 - INSTITUTIONAL EQUIPMENT	-			
E109002 - FOOD SERVICE EQUIPMENT	-			
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	5	Several kitchenette areas with cabinetry, refrigerators, and sinks.		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	-			
E201020 - FIXED FURNISHINGS - CASEWORK	5	Quantity estimated based on number of classrooms.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	-			
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	-			
F102030 - AUDITORIUMS	-			
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSP ²	Building Footprint SF ²	No. of Floors
Washington-Liberty Annex	1970	2022	55,169	11,050	5

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	> 8 ACH average for classroom spaces when factoring all ventilation and local filtration per Howard I.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	
Major Building Systems	6.0 HVAC - Ventilation - Library	●	
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Merv 11
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	
Major Building Systems	12.0 HVAC - Filtration - Library	●	
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Not Available, recently renovated
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Designed A1
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	0
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Not available recently renovated
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	2
Major Building Systems	5.3 Other - Elevator Size	●	Approximately 70" x 84"
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	
Common Space Adequacy	1.2 Kitchen	●	
Common Space Adequacy	1.3 Kitchen	●	
Common Space Adequacy	2.1 Gymnasium	●	
Common Space Adequacy	2.2 Gymnasium	●	
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	23	
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	0	
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	0	
Educational Space Adequacy	1.2 Classrooms (General)	23	
Educational Space Adequacy	1.3 Classrooms (General)	●	All classrooms have operable windows
Educational Space Adequacy	1.4 Classrooms (General)	●	N/A - High school
Educational Space Adequacy	1.5 Classrooms (General)	●	Science Rooms have required sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	●	
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	Weight room and Exercise room
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks, 3 offices, 2 conf room (1 large, 1 small), Storage being used as Records (NOT rated)
Educational Space Adequacy	3.4 Clinic	●	
Educational Space Adequacy	4.1 Art	●	Project Room
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	3
Educational Space Adequacy	4.4 Art	●	
Educational Space Adequacy	5.1 Music	●	
Educational Space Adequacy	5.2 Music	●	
Educational Space Adequacy	6.0 Lab	●	1 Science Lab, 2 Science Classrooms, 1 "Project Room"
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.

² If EA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, EA used its own estimated GSF for this report.

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend	
Washington-Liberty High School	2008	378,068	0.064	Good	Fair
				0 - 0.15	0.151 - 0.33
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶	
39	2015	4	0.012	\$148,409,660	

Building Description

Washington-Liberty High School, located at 1301 N Stafford St, is a four-story structure with a large penthouse. The building was originally constructed in 2008 (some portions opened in 2009) after the previous building construction had been demolished. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal architectural panels, concrete block masonry, and metal canopy sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen with a white coating, with a vegetative roof noted at several sections on the west side of the building. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of vinyl composite tile (VCT) and carpet, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with several water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included 11 high-efficiency boilers, 2 chillers with associated cooling towers, AHUs, RTUs, and condensing units. The building had a 4000A electrical service and had natural gas supply. An emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The gym spaces included a competition gymnasium, auxiliary gymnasium, and locker rooms. The auditorium spaces included the main auditorium with stage, set rooms, green room, and dressing rooms. The aquatic facilities included a competition pool, a second smaller pool, locker rooms, pumps, filters, and pool water heaters.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	175,000	BLDG FP SF	\$12.08	\$2,114,541	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	175,000	BLDG FP SF	\$13.87	\$2,427,184	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	203,068	ELEV FL SF	\$66.81	\$13,567,456	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	175,000	BLDG FP SF	\$24.05	\$4,208,911	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	378,068	BLDG GROSS SF	\$26.95	\$10,189,549	70	70
B202000 - EXTERIOR WINDOWS	5	Exterior windows	378,068	BLDG GROSS SF	\$18.83	\$7,117,433	40	25
B203000 - EXTERIOR DOORS	4	Exterior doors	378,068	BLDG GROSS SF	\$1.02	\$384,922	30	15
B301000 - ROOF COVERINGS	4	Built-up roof	175,000	BLDG FP SF	\$27.93	\$4,887,985	25	10
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	378,068	FINISHED SF	\$20.42	\$7,720,236	40	40
C102000 - INTERIOR DOORS	5	Interior doors	378,068	FINISHED SF	\$4.73	\$1,786,621	40	25
C103000 - FITTINGS	4	Partitions and lockers	378,068	FINISHED SF	\$4.09	\$1,546,952	25	10
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	378,068	BLDG GROSS SF	\$1.94	\$733,531	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	299,568	FINISHED SF	\$5.09	\$1,524,996	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	299,568	FINISHED SF	\$14.20	\$4,252,724	20	10
C303000 - CEILING FINISHES	4	Standard ceiling finishes	299,568	FINISHED SF	\$16.83	\$5,041,118	20	10
D101010 - ELEVATORS	4	Elevator	2	EACH	\$206,284.67	\$412,569	35	20
D101020 - LIFTS	3	Single level wheel chair lift	1	EACH	\$18,969.88	\$18,970	20	5
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Plumbing Systems and Fixtures	378,068	SERVED SF	\$17.25	\$6,521,892	50	35
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, Greater than 300 MBH	1,500	MBH	\$127.19	\$190,784	15	2
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	175,000	BLDG FP SF	\$4.92	\$860,608	60	45
D301000 - ENERGY SUPPLY	5	Natural gas supply	378,068	BLDG GROSS SF	\$0.15	\$58,101	60	45
D301006 - SOLAR ENERGY SUPPLY	4	Solar energy supply	95,000	SERVED SF	\$27.20	\$2,584,129	20	5
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	378,068	SERVED SF	\$7.17	\$2,708,982	20	5
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	4	Chiller system	378,068	SERVED SF	\$8.13	\$3,072,116	30	15
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	378,068	SERVED SF	\$19.67	\$7,436,991	35	20
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	378,068	SERVED SF	\$23.44	\$8,860,477	35	20
D305010 - TERMINAL & PACKAGE UNITS	4	Supplemental Split Systems	15,000	SERVED SF	\$17.50	\$262,505	20	5
D306000 - CONTROLS	3	HVAC controls - geothermal system	378,068	SERVED SF	\$0.21	\$79,890	20	5
D401000 - SPRINKLERS	5	Sprinkler system	378,068	SERVED SF	\$7.90	\$2,984,964	50	35
D402000 - STANDPIPES	5	Standpipe system	378,068	SERVED SF	\$0.63	\$239,669	50	35
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	378,068	BLDG GROSS SF	\$4.00	\$1,510,639	50	35
D502000 - LIGHTING AND BRANCH WIRING	5	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	378,068	BLDG GROSS SF	\$36.27	\$13,711,952	50	35
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	378,068	BLDG GROSS SF	\$10.18	\$3,849,224	20	5
D509000 - EMERGENCY POWER	3	Emergency Generator, >=500 kW	1	EACH	\$426,583.66	\$426,584	35	18
E102000 - INSTITUTIONAL EQUIPMENT	4	Institutional equipment	4,000	SERVED SF	\$160.37	\$641,460	20	5
E109002 - FOOD SERVICE EQUIPMENT	4	Commercial kitchen components	378,068	SERVED SF	\$3.50	\$1,321,809	20	10
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	-	-	-	-	-	-	-
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Telescoping bleachers, standard	3,433	SEATS	\$968.43	\$3,324,633	20	10
E201020 - FIXED FURNISHINGS - CASEWORK	4	Cabinetry	4,000	LENGTH LF	\$829.72	\$3,318,873	35	20
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	10,000	SERVED SF	\$100.03	\$1,000,265	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	HS-level Gymnasium	26,000	SERVED SF	\$158.48	\$4,120,545	20	10
F102030 - AUDITORIUMS	4	Performance Auditoriums	12,500	SERVED SF	\$164.57	\$2,057,151	20	10
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	4	Aquatic facility	30,000	SERVED SF	\$310.99	\$9,329,721	20	10

1. Values shown were provided by APS.

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Washington-Liberty High School	2008	378,068	0.064	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	No. of Local Projects		
39	2015	4	\$148,409,660	0 - 0.15	0.151 - 0.33	0.331 - 1
				0		

Building Description

Washington-Liberty High School, located at 1301 N Stafford St, is a four-story structure with a large penthouse. The building was originally constructed in 2008 (some portions opened in 2009) after the previous building construction had been demolished. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal architectural panels, concrete block masonry, and metal canopy sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen with a white coating, with a vegetative roof noted at several sections on the west side of the building. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of vinyl composite tile (VCT) and carpet, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with several water heaters, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included 11 high-efficiency boilers, 2 chillers with associated cooling towers, AHUs, RTUs, and condensing units. The building had a 4000A electrical service and had natural gas supply. An emergency generator provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The gym spaces included a competition gymnasium, auxiliary gymnasium, and locker rooms. The auditorium spaces included the main auditorium with stage, set rooms, green room, and dressing rooms. The aquatic facilities included a competition pool, a second smaller pool, locker rooms, pumps, filters, and pool water heaters.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A103000 - SLAB ON GRADE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
A202000 - BASEMENT WALLS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B101000 - FLOOR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B102000 - ROOF CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B201000 - EXTERIOR WALLS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B202000 - EXTERIOR WINDOWS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B203000 - EXTERIOR DOORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
B301000 - ROOF COVERINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C101000 - PARTITIONS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	4,887,985	\$	\$
C102000 - INTERIOR DOORS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C103000 - FITTINGS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
C201000 - STAIR CONSTRUCTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,546,952	\$	\$
C301000 - WALL FINISHES	4	\$	\$	\$	1,524,996	\$	\$	\$	\$	\$	1,524,996	\$	\$
C302000 - FLOOR FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	4,252,724	\$
C303000 - CEILING FINISHES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	5,041,118	\$
D101010 - ELEVATORS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D101020 - LIFTS	3	\$	\$	\$	\$	\$	18,970	\$	\$	\$	\$	\$	\$
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202000 - RESIDENTIAL WATER HEATER	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D202005 - COMMERCIAL WATER HEATER	3	\$	190,784	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D204000 - BUILDING STORMWATER DRAINAGE	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301000 - ENERGY SUPPLY	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D301006 - SOLAR ENERGY SUPPLY	4	\$	\$	\$	\$	\$	2,584,129	\$	\$	\$	\$	\$	\$
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D302000 - CENTRAL PLANT HEATING	3	\$	\$	\$	\$	\$	2,708,982	\$	\$	\$	\$	\$	\$
D302010 - FIREPLACES	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D303000 - CENTRAL PLANT COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D305010 - TERMINAL & PACKAGE UNITS	4	\$	\$	\$	\$	\$	262,505	\$	\$	\$	\$	\$	\$
D306000 - CONTROLS	3	\$	\$	\$	\$	\$	79,890	\$	\$	\$	\$	\$	\$
D401000 - SPRINKLERS	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D402000 - STANDPIPES	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D502000 - LIGHTING AND BRANCH WIRING	5	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$	\$	\$	\$	\$	3,849,224	\$	\$	\$	\$	\$	\$
D509000 - EMERGENCY POWER	3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E102000 - INSTITUTIONAL EQUIPMENT	4	\$	\$	\$	\$	\$	641,460	\$	\$	\$	\$	\$	\$
E109002 - FOOD SERVICE EQUIPMENT	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,321,809	\$
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	3,324,633	\$
E201020 - FIXED FURNISHINGS - CASEWORK	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	1,000,265	\$
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	4,120,545	\$
F102030 - AUDITORIUMS	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F102040 - COLD STORAGE ROOMS	-	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
F104001 - AQUATIC FACILITIES	4	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
BUILDING Total in USD		\$0	\$190,784	\$1,524,996	\$0	\$10,145,159	\$0	\$0	\$0	\$1,524,996	\$25,496,031	\$0	\$0

1. Values shown were provided by APS.
 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
 3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMMeans 2023 cost data, or researched cost data where RSMMeans cost data is unavailable.
 4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMMeans 2023 cost data, or researched cost data where RSMMeans cost data is unavailable.
 5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMMeans 2023 cost data, or researched cost data where RSMMeans cost data is unavailable.
 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name Washington-Liberty High School	Year Built ¹ 2008	Building GSF ² 378,068	Building FCI_{AD} 0.064	Condition Category Legend Good Fair Poor 0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number 39	Last Renovation ⁴ 2015	No. of Floors 4	Building FCI_{DM} 0.012	Building CRV ⁵ \$148,409,660
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, and cast-in-place concrete flooring.		
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.		
B201000 - EXTERIOR WALLS	5	Exterior façade included brick masonry, metal architectural panels, concrete block masonry, and metal canopy sunscreens. Minor efflorescence was noted in isolated areas of the brick masonry.		
B202000 - EXTERIOR WINDOWS	5	Windows were primarily aluminum framed with double pane glass. Some sections of aluminum/glass curtainwall were used.		
B203000 - EXTERIOR DOORS	4	Doors were typically metal with glass infill, with the exception of some locations such as mechanical spaces.		
B301000 - ROOF COVERINGS	4	Roof was mostly modified bitumen with a white coating. The coating was in good condition with localized stains and indications of ponded water. There was a vegetative roof over a few sections at the west side of the building.		
C101000 - PARTITIONS	5	Combination of block masonry partition walls and gypsum board over stud framing.		
C102000 - INTERIOR DOORS	5	Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms and painted metal railings at ramps. Metal lockers throughout many hallways.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete treads and landings.		
C301000 - WALL FINISHES	4	Majority of walls were painted masonry and gypsum board. Wood panels were present throughout common areas on the first floor and on the west side of the building.		
C302000 - FLOOR FINISHES	4	Vinyl composite tile (VCT) used throughout majority of classrooms and hallways. Carpet used in some areas, including the front office and music rooms.		
C303000 - CEILING FINISHES	4	Suspended acoustical ceiling tile system throughout majority of most hallways, classrooms, and support rooms.		
D101010 - ELEVATORS	4	Two machine room-less elevators serving four floors.		
D101020 - LIFTS	3	Savaria lift at auditorium stage for two people and wheelchair. Age of manufacture was unknown, but presumed to date to 2008 construction.		
D201000 - PLUMBING SYSTEMS AND FIXTURES	5	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	Multiple A.O. Smith custom-built 500 MBH water heaters, with smaller domestic pre-heat and pool water heaters.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Entire roof area used internal stormwater drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	5	Distributed natural gas provided.		
D301006 - SOLAR ENERGY SUPPLY	4	There were roof mounted photovoltaic solar panels on approximately 35000 sf of roof area, estimated to contributing to about 25% of the building power requirements.		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Eleven high-efficiency Fulton Pulse boilers that appeared to date to 2008 construction.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	4	Two Carrier 500-ton indoor chillers with two Baltimore Aircoil Company outdoor cooling towers, all presumed to date to 2008 construction.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	System included AHUs, RTUs, and condensers that largely appeared to date to 2008 construction. Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	System included AHUs, RTUs, and condensers that largely appeared to date to 2008 construction. Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	4	Multiple supplemental split-systems provided supplemental cooling to several rooms. Equipment appeared to date to 2008 construction and was estimated to serve approximately 15,000 square feet.		
D306000 - CONTROLS	3	Digital controls used throughout the building.		
D401000 - SPRINKLERS	5	Quick response sprinklers located throughout the building.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	The 480/277V, 4000A service rated switchboard provides power to the building distribution.		
D502000 - LIGHTING AND BRANCH WIRING	5	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Lighting was typically LED with assorted occupancy sensors and power switches.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted.		
D509000 - EMERGENCY POWER	3	Katolight generator manufactured in 2005 served both the high school and adjacent annex building. The size could not be determined, but presumed to be up to 2000KW or more. The enclosure was corroded in some areas.		
E102000 - INSTITUTIONAL EQUIPMENT	4	Classroom labs had built-in sashed laboratory fume hoods with rooftop exhaust fans. Two kilns were located in the art room.		
E109002 - FOOD SERVICE EQUIPMENT	4	The kitchen was limited to warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing. A few replacement units wrapped in plastic were present.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	-			
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	The auditorium had an upper and lower theater style seating sections consisting of upholstered flip up cushioned seats, approximately 767 seats. The competition gymnasium had a maximum occupancy load of 2,613 and included slide out bleacher seating, 2500 seats assumed. Metal bleachers were present at the pool with an occupancy load of 166.		
E201020 - FIXED FURNISHINGS - CASEWORK	4	Casework dates to 2008 school opening. Quantity estimated based on number of classrooms. Expected level of wear and tear observed.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Auxiliary gym space included area for gymnastics, wrestling, and other activities. Painted CMU walls with acoustic panels, wood floors covered partially covered with rubber mats, and exposed structure on the underside. Cafeteria had VCT flooring, painted CMU walls, and partial drop ceiling.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	High school level competition gymnasium. Wood floors, painted CMU walls with acoustic panels, and painted ceiling structure. Basketball hoops like new. Scoreboard not energized at time of assessment.		
F102030 - AUDITORIUMS	4	Includes main auditorium with stage, set rooms, green room, and dressing rooms. Painted CMU and gypsum board walls with some wood paneling, carpet flooring, and acoustic ceiling finishes. Spotlights above audience and suspended from stage catwalk.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	4	Includes competition pool, second smaller pool, locker rooms, pumps, filters, and pool water heaters. Entrance corridors and admin spaces have tile floors, CMU walls, SAT ceilings, and metal lockers. Restrooms have tile wall and floor finishes, stainless steel showers, composite partitions and sinks. Pool area has tile floors, CMU walls with acoustic panels, and painted ceiling structure, which exhibited minor surface corrosion. Localized chipping of floor tiles observed throughout pool area and wall finishes exhibited stains. The metal framed staircase to the audience seating area exhibited substantial corrosion. Scoreboard, diving boards, and overhead lighting appeared fully functional. Small area of SAT near pool equipment room was in poor condition. Water fountain exhibited surface corrosion. The pool HVAC/dehumidification system had been historically problematic, but has been addressed. Condition of HVAC and pool plumbing systems is fair.		

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Washington-Liberty High School	2008	2015	378,068	175,000	4

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	74-84% coverage for classroom spaces when factoring all ventilation and local filtration per Harvard T.H. Chan recommendations. A few classrooms were 84-94% 4.5-6dCh.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms consistently does not meet current ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Ventilation for Gym meets current ASHRAE 62.1 (Multi-purpose assembly)
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Ventilation for Gym meets current ASHRAE 62.1 (Dining)
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Ventilation for Gym meets current ASHRAE 62.1 (Media Center)
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	meets current ASHRAE 62.1 for auditorium
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	meets current ASHRAE 62.1 for pool area
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Art rooms are not directly exhausted outdoors. Kinn room using only the small, Kinn exhaust systems to remove heat. Science classrooms had dedicated ventilation (makeup air) along with exhaust system.
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Blgd. utilizes VAV air handling units - all units had a minimum of MERV 13 with some units having MERV 13 prefilters along with cartridge or bag filters providing additional filtration.
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Blgd. utilizes VAV air handling units - all units had a minimum of MERV 13 with some units having MERV 13 prefilters along with cartridge or bag filters providing additional filtration.
Major Building Systems	12.0 HVAC - Filtration - Library	●	Blgd. utilizes VAV air handling units - all units had a minimum of MERV 13 with some units having MERV 13 prefilters along with cartridge or bag filters providing additional filtration.
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	Merv 13
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most classrooms have local thermostat with adjustable control
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	LED fixtures are present only in the corridors.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Most fixtures are dark sky compliant, but some flood lights and wall packs without cut-off are present.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature is not consistent in the building.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Exterior CCT is greater than 3000K.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Appear to have mostly water efficient fixtures on site
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 APS Energy Report Card
Major Building Systems	1.0 Building Security - Security Vestibules	●	The vestibule was under construction at the time of survey, with presumed completion before the start of the school year.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Entry located adjacent to school sign and designated with a "1"
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	4
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 APS Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	536.4kW
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	
Major Building Systems	5.3 Other - Elevator Size	●	Approximately 66" x 78"
Common Space Adequacy	1.0 Cafeteria	●	11,000 / 12 = 916
Common Space Adequacy	1.1 Kitchen	●	3000 sf (kitchen and serving) / 3 = 1000
Common Space Adequacy	1.2 Kitchen	●	4 main lines + 2 snack bar lines
Common Space Adequacy	1.3 Kitchen	●	2308 / 4 = 577
Common Space Adequacy	2.1 Gymnasium	●	8 hoops; ALL operable, volleyball, daylight, divider partition, 6 operable bleachers
Common Space Adequacy	2.2 Gymnasium	●	185' x 100', Deck Low Height: 30' 0", High Height: 31' 8", Joist: 26' 0"
Common Space Adequacy	3.1 Performance Space	●	Auditorium has permanent stage.
Common Space Adequacy	3.2 Performance Space	●	Balcony: 259, Auditorium: 795, Stage: 210
Common Space Adequacy	3.3 Performance Space	●	Lift accessible from inside auditorium
Common Space Adequacy	4.1 Library	●	2613 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	Main Pool: 259, Instructional Pool: 57
Common Space Adequacy	5.1 Pool	●	Rough overall dimensions: 75' x 100' (not perfect square), 2 diving boards,
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	Football Field: Bleachers (ADA Accessible), Press Box, Concessions (ADA Accessible), Bathrooms (ADA Accessible), Scoreboard, Track and Field, Storage out building, Baseball Field: Dugouts, Batting Cages, Scoreboard, Practice Field: Bleachers, Shotgun/Discus,
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	90	Green = 90, lab (17), classroom (73)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	3	Yellow = 3, lab (0), classroom (3)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	4	Red = 4, lab (0), classroom (4)
Educational Space Adequacy	1.2 Classrooms (General)	97	
Educational Space Adequacy	1.3 Classrooms (General)	●	10% of classroom and labs do not have exterior windows
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	High school classrooms do not require sinks; Art and Labs have necessary sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	6	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	High school trainer
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	Front Office: 2 desks, 8 offices, conf. room; Guidance: 2 Desks, 15 offices, conference room; Admin: 2 desks, 6 offices, conference room
Educational Space Adequacy	3.4 Clinic	●	4 beds + 1 isolated beds; Toilet (ADA); sink, NO eyewash, ref.
Educational Space Adequacy	4.1 Art	●	#1123, #1127
Educational Space Adequacy	4.2 Art	●	In #1126, between art rooms
Educational Space Adequacy	4.3 Art	●	#1123 - 4, #1127: 4
Educational Space Adequacy	4.4 Art	●	Connected
Educational Space Adequacy	5.1 Music	●	#1404; Vocal, #1409; Band, #1421; Orchestra
Educational Space Adequacy	5.2 Music	●	Connected
Educational Space Adequacy	6.0 Lab	●	1 Photo Lab, 1 Publications Lab, 3 Computer Lab, 2 Tech Labs, 1 General Science Lab, 4 Biology Labs, 2 Chemistry Lab, 1 GIS Lab, 10 Flex Labs, 1 Business Lab, 1 Entrepreneurial Lab, 1 Food Management Lab
Educational Space Adequacy	7.1 Performing Arts	●	"Little Theater" Room #1020 has a stage, but is not a black box
Educational Space Adequacy	7.2 Performing Arts	●	Boys and Girls

¹ Values when were provided by APS.
² If EA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEA used its own estimated GSF for this report.

GENERAL INFORMATION										
Building Name	Year Built ¹	Building GSF ²	Building FCI _{AD}	Condition Category Legend						
Williamsburg Middle School	1954	170,865	0.190	<table style="display: inline-table; border: none;"> <tr> <td style="background-color: #90ee90; padding: 2px;">Good</td> <td style="background-color: #ffff00; padding: 2px;">Fair</td> <td style="background-color: #ff0000; padding: 2px;">Poor</td> </tr> <tr> <td style="font-size: 8px;">0 - 0.15</td> <td style="font-size: 8px;">0.151 - 0.33</td> <td style="font-size: 8px;">0.331 - 1</td> </tr> </table>	Good	Fair	Poor	0 - 0.15	0.151 - 0.33	0.331 - 1
Good	Fair	Poor								
0 - 0.15	0.151 - 0.33	0.331 - 1								
Building Number	Last Renovation ¹	No. of Floors	Building FCI _{DM}	Building CRV ⁶						
40	1991	2	0.342	\$77,751,309						

Building Description

Williamsburg Middle School, located at 3600 N Harrison St, is a two-story structure. The building was originally constructed in 1954 with a small addition in 2002, and it underwent a substantial renovation in 1991. The building had loading bearing masonry walls with brick veneer and EIFS at some classrooms. There were fixed and operable windows in aluminum frames. The roof system was primarily low slope built up asphalt and with modified bitumen at the addition. Interior finishes included VCT, terrazzo, and carpeted flooring; painted concrete masonry unit walls with tiles; and suspended ceiling tile. There was a cafeteria, performance auditorium, spectator gym, and small gym. Building domestic hot water was generated utilizing a natural gas water boiler with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Two boilers and an air-cooled chiller provided the source for distributed heating and cooling as required. Space conditioning was a mix of roof top units, unit ventilators, condensing units, and air handling systems. Building power was through a 2,500 Amp, 480/277V power service. There was security access, fire suppression in the library only, and a fire alarm system. The natural gas emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	105,000	BLDG FP SF	\$12.08	\$1,268,724	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	105,000	BLDG FP SF	\$13.87	\$1,456,310	99	99
A202000 - BASEMENT WALLS	5	-			-	-		
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	65,865	ELEV FL SF	\$66.81	\$4,400,597	99	99
B102000 - ROOF CONSTRUCTION	5	Concrete roof frame over entire facility	105,000	BLDG FP SF	\$77.45	\$8,132,746	99	99
B201000 - EXTERIOR WALLS	4	Solid masonry, load bearing wall 12" to 24" thick	170,865	BLDG GROSS SF	\$89.12	\$15,226,667	70	40
B202000 - EXTERIOR WINDOWS	3	Exterior windows	170,865	BLDG GROSS SF	\$18.83	\$3,216,670	40	8
B203000 - EXTERIOR DOORS	3	Exterior doors	170,865	BLDG GROSS SF	\$1.02	\$173,963	30	5
B301000 - ROOF COVERINGS	2	Built-up roof	105,000	BLDG FP SF	\$27.93	\$2,932,791	25	2
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	170,865	FINISHED SF	\$20.42	\$3,489,103	70	70
C102000 - INTERIOR DOORS	3	Interior doors	170,865	FINISHED SF	\$4.73	\$807,450	40	10
C103000 - FITTINGS	3	Partitions and lockers	170,865	FINISHED SF	\$4.09	\$699,133	40	8
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs	170,865	BLDG GROSS SF	\$1.02	\$173,963	99	99
C301000 - WALL FINISHES	3	Standard wall finishes	142,773	FINISHED SF	\$5.09	\$726,807	12	3
C302000 - FLOOR FINISHES	3	Standard floor finishes	142,773	FINISHED SF	\$14.20	\$2,026,833	25	3
C303000 - CEILING FINISHES	3	Standard ceiling finishes	142,773	FINISHED SF	\$16.83	\$2,402,578	20	3
D101010 - ELEVATORS	3	Elevator	1	EACH	\$206,284.66	\$206,285	30	3
D101020 - LIFTS	3	-			-	-		
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	170,865	SERVED SF	\$17.25	\$2,947,520	50	18
D202000 - RESIDENTIAL WATER HEATER	3	-			-	-		
D202005 - COMMERCIAL WATER HEATER	3	Gas Water Heater, Commercial, Greater than 300 MBH	300	MBH	\$127.19	\$38,157	20	2
D204000 - BUILDING STORMWATER DRAINAGE	4	Internal roof drains plus in-floor drainage system	105,000	BLDG FP SF	\$4.92	\$516,365	60	28
D301000 - ENERGY SUPPLY	4	Natural gas supply	170,865	BLDG GROSS SF	\$0.15	\$26,259	60	28
D301006 - SOLAR ENERGY SUPPLY	3	-			-	-		
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	3	-			-	-		
D302000 - CENTRAL PLANT HEATING	3	Boiler	170,865	SERVED SF	\$7.17	\$1,224,304	20	2
D302010 - FIREPLACES	3	-			-	-		
D303000 - CENTRAL PLANT COOLING	5	Chiller system	131,572	SERVED SF	\$8.13	\$1,069,132	40	32
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Heating system piping and individual terminal AHUs	170,865	SERVED SF	\$19.67	\$3,360,915	30	3
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Chilled water piping and individual terminal AHUs	131,572	SERVED SF	\$23.44	\$3,083,548	30	3
D305010 - TERMINAL & PACKAGE UNITS	3	Terminal and package units	39,284	SERVED SF	\$47.45	\$1,863,975	20	3
D306000 - CONTROLS	3	HVAC controls - split systems and/or packaged units	170,865	SERVED SF	\$2.38	\$407,007	15	2
D401000 - SPRINKLERS	4	Sprinkler system	5,016	SERVED SF	\$7.90	\$39,603	50	18
D402000 - STANDPIPES	3	-			-	-		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	Main electrical entrance and switch - 2000 Amp Service	170,865	BLDG GROSS SF	\$4.00	\$682,722	50	18
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	170,865	BLDG GROSS SF	\$36.27	\$6,197,014	50	18
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, alarm, telephone, and wiring	170,865	BLDG GROSS SF	\$10.18	\$1,739,628	20	3
D509000 - EMERGENCY POWER	3	Emergency Generator, >=30 kW to <80 kW	1	EACH	\$56,199.97	\$56,200	35	3
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	150	SERVED SF	\$160.37	\$24,055	20	5
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	170,865	SERVED SF	\$3.50	\$597,382	20	3
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	3	Residential teaching kitchen	1,757	SERVED SF	\$25.28	\$44,418	30	3
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Telescoping bleachers, standard	1,126	SEATS	\$968.43	\$1,090,456	25	3
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	1,700	LENGTH LF	\$829.72	\$1,410,521	35	3
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	Multi-purpose room	8,598	SERVED SF	\$100.03	\$860,028	20	3
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	HS-level Gymnasium	12,593	SERVED SF	\$158.48	\$1,995,770	20	3
F102030 - AUDITORIUMS	3	Performance Auditoriums	6,901	SERVED SF	\$164.57	\$1,135,712	20	3
F102040 - COLD STORAGE ROOMS	3	-			-	-		
F104001 - AQUATIC FACILITIES	3	-			-	-		

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2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Williamsburg Middle School	1954	170,865	0.190	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
40	1991	2	\$77,751,309	No. of Local Projects 3		

Building Description

Williamsburg Middle School, located at 3600 N Harrison St, is a two-story structure. The building was originally constructed in 1954 with a small addition in 2002, and it underwent a substantial renovation in 1991. The building had loading bearing masonry walls with brick veneer and EIFS at some classrooms. There were fixed and operable windows in aluminum frames. The roof system was primarily low slope built up asphalt and with modified bitumen at the addition. Interior finishes included VCT, terrazzo, and carpeted flooring; painted concrete masonry unit walls with tiles; and suspended ceiling tile. There was a cafeteria, performance auditorium, spectator gym, and small gym. Building domestic hot water was generated utilizing a natural gas water boiler with an external tank. Water supply piping was copper, and sanitary sewer system and storm drainage was cast iron and PVC. Two boilers and an air-cooled chiller provided the source for distributed heating and cooling as required. Space conditioning was a mix of roof top units, unit ventilators, condensing units, and air handling systems. Building power was through a 2,500 Amp, 480/277V power service. There was security access, fire suppression in the library only, and a fire alarm system. The natural gas emergency generator was estimated to be at 75 kW providing power to emergency lighting and designated services. There was a 2-stop hydraulic elevator.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	4	\$ 150,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,216,670	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 173,963	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	2	\$ -	\$ 2,932,791	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 807,450	\$ -	\$ -
C103000 - FITTINGS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 699,133	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	3	\$ -	\$ -	\$ 726,807	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	3	\$ -	\$ -	\$ 2,026,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C303000 - CEILING FINISHES	3	\$ -	\$ -	\$ 2,402,578	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101010 - ELEVATORS	3	\$ -	\$ -	\$ 206,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	3	\$ -	\$ 38,157	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ 1,224,304	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	\$ -	\$ -	\$ 3,360,915	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	\$ -	\$ -	\$ 3,083,548	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	3	\$ -	\$ -	\$ 1,863,975	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ 407,007	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	\$ -	\$ -	\$ 1,739,628	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	3	\$ -	\$ -	\$ 56,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ 24,055	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ 597,382	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	3	\$ -	\$ -	\$ 44,418	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	\$ -	\$ -	\$ 1,090,456	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ 1,410,521	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	3	\$ -	\$ -	\$ 860,028	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	\$ -	\$ -	\$ 1,995,770	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102030 - AUDITORIUMS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$150,000	\$5,002,259	\$21,465,343	\$0	\$198,018	\$0	\$0	\$3,915,804	\$0	\$807,450	\$0	\$0

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 2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.
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 6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Williamsburg Middle School		1954	170,865	0.190
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
40		1991	2	0.342
				Condition Category Legend
				Good Fair Poor
				0 - 0.15 0.151 - 0.33 0.331 - 1
				Building CRV³
				\$77,751,309
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Based on age of building, foundations were presumed to be a combination of concrete footings and concrete masonry units (CMU).		
A103000 - SLAB ON GRADE	5	Concrete slab on grade.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Loading bearing walls supporting a concrete floor slab.		
B102000 - ROOF CONSTRUCTION	5	A combination of concrete framing supporting a concrete roof deck and steel joists with a tectum deck.		
B201000 - EXTERIOR WALLS	4	Exterior walls were predominantly load bearing masonry. There were several areas of step cracks and wall staining throughout. EIFS was present along classrooms at the north and east sides of the building, as well as the west side adjacent to a playground area. The EIFS was damaged at the playground, and several sections of EIFS coating appeared to have color variations. There was stone at the main entrance of the building. Local Project: Repair/recast EIFS panels Local Project: Address localized masonry deterioration Local Project: Clean masonry		
B202000 - EXTERIOR WINDOWS	3	Windows were a combination of fixed and operable glass in aluminum frames. With the exception of a small addition at the south side, the windows appeared to date to the 1991 renovation. Windows were aged with deteriorated sealants and gaskets noted.		
B203000 - EXTERIOR DOORS	3	Doors were typically metal with glass infill, with the exception of some locations like mechanical spaces. Some doors appeared to have been replaced since the last renovation, but doors were aged overall. Issues with operation were reported at Door 14.		
B301000 - ROOF COVERINGS	2	Roofs were predominantly gravel-surface built up asphalt with modified bitumen at the 2002 addition. The roofs had signs of deterioration throughout including exposed asphalt, ponded water, granule loss, and worn coatings.		
C101000 - PARTITIONS	5	Interior walls were predominantly concrete masonry units, with gypsum board over studs in limited areas. Tile lined the lower portion of hallways, while others had exposed brick masonry.		
C102000 - INTERIOR DOORS	3	Generally, solid-core wood interior doors with painted steel frames and glass lites, and painted steel utility doors to specialty work spaces, mechanical, and storage spaces. Good condition with some wear and deterioration.		
C103000 - FITTINGS	3	Composite toilet partitions in restrooms were in fair condition with general wear. Lockers lined most hallways.		
C201000 - STAIR CONSTRUCTION	5	Cast-in-place concrete stairs		
C301000 - WALL FINISHES	3	Painted wall finishes generally throughout, with ceramic tile at portions of restrooms. Tiles lined many always and appeared to be dated. The front administration and classroom areas were undergoing renovation at the time of assessment.		
C302000 - FLOOR FINISHES	3	VCT and terrazzo were noted in corridors, with slate at the entrance next to the auditorium. Ceramic tile in restrooms was typical. Carpet was the media center. Concrete flooring was typical in mechanical and storage spaces. VCT was deteriorated in some areas. The front administration and classroom areas were undergoing renovation at the time of assessment.		
C303000 - CEILING FINISHES	3	Suspended ceiling tile was typically throughout. Tiles were stained and missing some areas, with cupped ceiling tiles noting humidity issues. The front administration and classroom areas were undergoing renovation at the time of assessment.		
D101010 - ELEVATORS	3	Dover two-stop hydraulic elevators of unknown age, but presumed to date to 1991 renovation.		
D101020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Domestic and waste plumbing fixtures and features included restroom waterclosets, urinals, sinks, and janitor stations. The visible piping and fixtures appeared functional with in-wall, overhead, and limited in-slab distribution.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	3	A.O. Smith natural gas domestic water boiler (estimated 300 MBH) with storage tank. Boiler was installed in 2004.		
D204000 - BUILDING STORMWATER DRAINAGE	4	Storm drainage system utilized a roof drainage system with drops internal to the building.		
D301000 - ENERGY SUPPLY	4	Natural gas for hot water.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Two Burnham natural gas boilers (4,184 MBH) dated to school renovation in 1991. It provided distributed heating water.		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	5	Trane 250 ton air cooled chiller provides chilled water to most areas of the building with the exception of the library, addition, gym, auditorium, and administration areas. Installed in 2015.		
D304010 - DISTRIBUTION SYSTEMS - HEATING	3	Based on the served areas, systems include roof top units and ventilators. Systems appeared to be mostly from the 1991 renovation or a more current installation.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	3	Based on the served areas, systems include roof top units and ventilators. Systems appeared to be mostly from the 1991 renovation or a more current installation.		
D305010 - TERMINAL & PACKAGE UNITS	3	Split system condensing units and DX cooling for library, addition, gym, auditorium, and administration areas. Systems appeared to be mostly from the 1991 renovation or a more current installation.		
D306000 - CONTROLS	3	The major building MEP systems incorporated elements of a pneumatic system throughout which appeared to be functional; however, at the end of its useful life.		
D401000 - SPRINKLERS	4	Sprinklers in the library only.		
D402000 - STANDPIPES	-			
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	4	The 480/277V, 2500A service rated switchboard provides power to the building distribution. Manufactured in 1990.		
D502000 - LIGHTING AND BRANCH WIRING	4	Branch and light fixture wiring was copper including the wiring from the electrical distribution panels to the connected load and lighting panels. Presumed to have been replaced in 1991 renovation.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	3	Communication, security, and fire alarm systems were found to be functioning with no issues reported or noted, but approaching the end of their useful life.		
D509000 - EMERGENCY POWER	3	A kato/light diesel fueled emergency generator provided dedicated emergency power. The generator enclosure was locked and estimated at 75 kW.		
E102000 - INSTITUTIONAL EQUIPMENT	3	Kin was inaccessible due to materials and equipment stored in kin room, but appeared to be similar in age to other schools.		
E109002 - FOOD SERVICE EQUIPMENT	3	The kitchen included warming units and cooling/chilled/frozen food services with cold storage, heat exhaust, and cooking utensil washing.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	3	Educational kitchen equipment, cabinetry, and countertops in room 128		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	3	Performance auditorium and pull out bleacher seating in the gymnasium. Seating was aged and worn. Auditorium has a capacity of 546 seats including the balcony. Gymnasium seating is approximately 580 bleacher seats.		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework dates to 1991 renovation. Quantity estimated based on number of classrooms. Expected level of wear and tear observed, though some areas (like the art room) were in worse condition.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	3	There was a cafeteria and small gym on the first floor. Finishes in the cafeteria were VCT flooring, tiled walls, and suspended ceiling tiles. The gym had rubber mat flooring, painted CMU and tiled walls with padding, and exposed structure at the ceiling.		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	3	Gymnasium and lockers rooms were in fair condition with older finishes and outdated locker rooms.		
F102030 - AUDITORIUMS	3	Auditorium had carpet in aisles with exposed concrete in seating areas, perforated metal panels and exposed brick masonry walls, and a suspended ceiling. Finishes appeared older.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	-			

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6. Markup factors applied are based on information provided by APS and FEA's experience.

Williamsburg Middle School

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Williamsburg Middle School	1954	1991	170,865	105,000	2

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	IAQ for classrooms averages below 4 eACH when factoring all ventilation and local filtration per Howard T.E. Chan recommendations
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Meets ASHRAE 62.1
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Meets ASHRAE 62.1 with 200 occupants
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Does not meet ASHRAE 62.1 to best ability to with available drawings
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Meets ASHRAE 62.1 with assumed library occupancy
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Specialty spaces appeared to be present including shop dust collection
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	Unit Vent assume MERV 8 at best
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	Merv 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	Merv 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Most Classrooms appeared to
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	Fixtures were mainly fluorescent.
Major Building Systems	3.2 Electrical - Exterior Lighting	●	Exterior lighting was not fully dark sky compliant.
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Color temperature did not align with the APS standard of 4000K. There were a range of CCT's on site.
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Color temperature did not align with the APS standard of 3000K. There were a range of CCT's on site.
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors not present in most spaces.
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	Does not appear to utilize low flow fixtures across most of the school
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	FY 2022 Energy Report card
Major Building Systems	1.0 Building Security - Security Vestibules	●	The vestibule was under construction at the time of survey, with presumed completion before the start of the school year.
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Main entrance not clearly marked
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	1
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	Missing ADA stalls, ADA stalls are too small or missing grab bars entirely
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	Guardrails are OK, Handrails on stairs do not extend
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	●	2 classrooms
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	FY 2022 Energy Report Card
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	1
Major Building Systems	5.3 Other - Elevator Size	●	Approximately 54" x 80"
Common Space Adequacy	1.0 Cafeteria	●	6494 sf (cafeteria area) / 12 students = 541
Common Space Adequacy	1.1 Kitchen	●	2050 (kitchen and serving) / 3 = 683
Common Space Adequacy	1.2 Kitchen	●	2
Common Space Adequacy	1.3 Kitchen	●	997 / 3 periods = 332
Common Space Adequacy	2.1 Gymnasium	●	6 hoops, 2 operable; volleyball; no ropes; daylighting; divider partition
Common Space Adequacy	2.2 Gymnasium	●	95'-3" 79'-0"; Deck, 28'-3"; Joist: 27'-3"
Common Space Adequacy	3.1 Performance Space	●	permanent stage in auditorium
Common Space Adequacy	3.2 Performance Space	●	Posted Occupancy: 580
Common Space Adequacy	3.3 Performance Space	●	Accessible, but not from inside auditorium
Common Space Adequacy	4.1 Library	●	1200 LF
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	
Common Space Adequacy	5.1 Pool	●	
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	1 basketball court, Shared with Discovery ES; 4 tennis courts, 2 turf soccer fields
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	38	Green = 38; lab (0); classroom (38)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	4	Yellow = 4; lab (0); classroom (4)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	8	Red = 8; lab (8); classroom (2)
Educational Space Adequacy	1.2 Classrooms (General)	50	
Educational Space Adequacy	1.3 Classrooms (General)	●	All classrooms with exterior windows are operable
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	Regular classrooms do not have sinks; Labs, Home Ec have required sinks
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	4	3 SPED; 1 EL Classroom
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	Lacking pullout spaces, most designated pull out spaces are being used as offices
Educational Space Adequacy	3.3 Administrative space	●	Under construction - unable to verify
Educational Space Adequacy	3.4 Clinic	●	Under construction - unable to verify
Educational Space Adequacy	4.1 Art	●	1 - #127
Educational Space Adequacy	4.2 Art	●	
Educational Space Adequacy	4.3 Art	●	1 sink with 3 faucets
Educational Space Adequacy	4.4 Art	●	Yes, attached to #127
Educational Space Adequacy	5.1 Music	●	#125: Chorus; #225: Band; #227: Vocal
Educational Space Adequacy	5.2 Music	●	#125: No; #225: Yes; #227: No
Educational Space Adequacy	6.0 Lab	●	5 Science Labs, 1 Life Skills, 1 Tech Lab, 1 Computer Lab
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

GENERAL INFORMATION				
Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend
Yorktown High School	2013	355,887	0.088	Good
				Fair
				Poor
				0 - 0.15 0.151 - 0.33 0.331 - 1
Building Number	Last Renovation¹	No. of Floors	Building FCI_{DM}	Building CRV⁶
41	2018	3	0.011	\$134,630,834

Building Description

Yorktown High School, located at 5200 Yorktown Blvd, is a three-story structure. The building was reportedly originally constructed in 2013, although several components within the building were noted to be installed in early 2000s. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal architectural panels, concrete block masonry, and metal sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen with a white coating. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of vinyl composite tile (VCT) and carpet, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included six high-efficiency boilers, three chillers with associated cooling towers, AHUs and RTUs. The building had an 8400A electrical service and had natural gas supply. Two emergency generators provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a prep kitchen and residential kitchen setups for educational purposes. The gym spaces included a competition gymnasium, auxiliary gymnasium, locker rooms, dance studio, wrestling room, and weight room. The auditorium spaces included the main auditorium with stage, set rooms, green room, and dressing rooms. The aquatic facilities included a competition pool, second smaller pool, locker rooms, pumps, filters, and pool water heaters.

SYSTEM DETAILS^{3,4,6}

Building Systems	Rating	System Description	Quantity	Unit of Measure	Unit Cost	CRV	EUL	RUL
A101000 - STANDARD FOUNDATIONS	5	Strip and spread footings	173,900	BLDG FP SF	\$12.08	\$2,101,249	99	99
A103000 - SLAB ON GRADE	5	Slab on grade	173,900	BLDG FP SF	\$13.87	\$2,411,927	99	99
A202000 - BASEMENT WALLS	-	-	-	-	-	-	-	-
B101000 - FLOOR CONSTRUCTION	5	Load bearing walls supporting concrete floor system	181,987	ELEV FL SF	\$66.81	\$12,158,985	99	99
B102000 - ROOF CONSTRUCTION	5	Steel framed building supporting metal roof deck	173,900	BLDG FP SF	\$24.05	\$4,182,455	70	70
B201000 - EXTERIOR WALLS	5	Brick masonry wall assembly	355,887	BLDG GROSS SF	\$26.95	\$9,591,735	70	60
B202000 - EXTERIOR WINDOWS	5	Exterior windows	355,887	BLDG GROSS SF	\$18.83	\$6,699,857	40	30
B203000 - EXTERIOR DOORS	4	Exterior doors	355,887	BLDG GROSS SF	\$1.02	\$362,339	30	20
B301000 - ROOF COVERINGS	4	Built-up roof	173,900	BLDG FP SF	\$27.93	\$4,857,260	25	15
C101000 - PARTITIONS	5	Concrete block (CMU) partitions	355,887	FINISHED SF	\$20.42	\$7,267,294	40	40
C102000 - INTERIOR DOORS	5	Interior doors	355,887	FINISHED SF	\$4.73	\$1,681,801	40	30
C103000 - FITTINGS	4	Partitions and lockers	355,887	FINISHED SF	\$4.09	\$1,456,194	25	15
C201000 - STAIR CONSTRUCTION	5	Metal stairs with concrete filled pans	355,887	BLDG GROSS SF	\$1.94	\$690,496	50	50
C301000 - WALL FINISHES	4	Standard wall finishes	283,887	FINISHED SF	\$5.09	\$1,445,169	6	3
C302000 - FLOOR FINISHES	4	Standard floor finishes	283,887	FINISHED SF	\$14.20	\$4,030,114	20	10
C303000 - CEILING FINISHES	4	Standard ceiling finishes	283,887	FINISHED SF	\$16.83	\$4,777,239	20	10
D101010 - ELEVATORS	3	Elevator	2	EACH	\$206,284.67	\$412,569	35	16
D101020 - LIFTS	-	-	-	-	-	-	-	-
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Plumbing Systems and Fixtures	355,887	SERVED SF	\$17.25	\$6,139,257	40	20
D202000 - RESIDENTIAL WATER HEATER	-	-	-	-	-	-	-	-
D202005 - COMMERCIAL WATER HEATER	4	Gas Water Heater, Commercial, Greater than 300 MBH	2,000	MBH	\$127.19	\$254,379	15	14
D204000 - BUILDING STORMWATER DRAINAGE	5	Internal roof drains plus in-floor drainage system	186,000	BLDG FP SF	\$4.92	\$914,703	60	40
D301000 - ENERGY SUPPLY	5	Natural gas supply	355,887	BLDG GROSS SF	\$0.15	\$54,693	60	40
D301006 - SOLAR ENERGY SUPPLY	-	-	-	-	-	-	-	-
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-	-	-	-	-	-	-	-
D302000 - CENTRAL PLANT HEATING	3	Boiler	355,887	SERVED SF	\$7.17	\$2,550,048	20	6
D302010 - FIREPLACES	-	-	-	-	-	-	-	-
D303000 - CENTRAL PLANT COOLING	3	Chiller system	355,887	SERVED SF	\$8.13	\$2,891,877	30	16
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	Heating system piping and individual terminal AHUs	355,887	SERVED SF	\$19.67	\$7,000,667	35	20
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	Chilled water piping and individual terminal AHUs	355,887	SERVED SF	\$23.44	\$8,340,639	35	20
D305010 - TERMINAL & PACKAGE UNITS	4	Supplemental Split Systems	4,000	SERVED SF	\$17.50	\$70,001	20	8
D306000 - CONTROLS	3	HVAC controls - geothermal system	355,887	SERVED SF	\$0.21	\$75,202	20	5
D401000 - SPRINKLERS	5	Sprinkler system	355,887	SERVED SF	\$7.90	\$2,809,838	50	30
D402000 - STANDPIPES	5	Standpipe system	355,887	SERVED SF	\$0.63	\$225,607	50	40
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical entrance and switch - 2000 Amp Service	355,887	BLDG GROSS SF	\$4.00	\$1,422,011	50	30
D502000 - LIGHTING AND BRANCH WIRING	4	Distribution panels, wiring, lighting and fixtures - >1200 Amp service	355,887	BLDG GROSS SF	\$36.27	\$12,907,481	45	25
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Communication, alarm, telephone, and wiring	355,887	BLDG GROSS SF	\$10.18	\$3,623,392	20	7
D509000 - EMERGENCY POWER	4	Emergency Generator, >=185 kW to <500 kW	2	EACH	\$166,772.00	\$333,544	35	20
E102000 - INSTITUTIONAL EQUIPMENT	3	Institutional equipment	450	SERVED SF	\$160.37	\$72,164	20	5
E109002 - FOOD SERVICE EQUIPMENT	3	Commercial kitchen components	355,887	SERVED SF	\$3.50	\$1,244,259	20	6
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4	Residential teaching kitchen	5,000	SERVED SF	\$25.28	\$126,402	20	10
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Telescoping bleachers, standard	2,200	SEATS	\$968.43	\$2,130,554	25	10
E201020 - FIXED FURNISHINGS - CASEWORK	3	Cabinetry	5,000	LENGTH LF	\$829.72	\$4,148,592	25	10
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	Multi-purpose room	18,500	SERVED SF	\$100.03	\$1,850,490	20	10
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	HS-level Gymnasium	20,000	SERVED SF	\$158.48	\$3,169,650	20	10
F102030 - AUDITORIUMS	4	Performance Auditoriums	15,500	SERVED SF	\$164.57	\$2,550,867	20	10
F102040 - COLD STORAGE ROOMS	-	-	-	-	-	-	-	-
F104001 - AQUATIC FACILITIES	4	Aquatic facility	18,000	SERVED SF	\$310.99	\$5,597,832	20	10

1. Values shown were provided by APS.

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3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.



Arlington Public Schools FCA

2023 Condition Assessment

GENERAL INFORMATION

Building Name	Year Built¹	Building GSF²	Building FCI_{AD}	Condition Category Legend		
Yorktown High School	2013	355,887	0.088	Good	Fair	Poor
Building Number	Last Renovation¹	No. of Floors	Building CRV⁶	0 - 0.15	0.151 - 0.33	0.331 - 1
41	2018	3	\$134,630,834	No. of Local Projects		
				6		

Building Description

Yorktown High School, located at 5200 Yorktown Blvd, is a three-story structure. The building was reportedly originally constructed in 2013, although several components within the building were noted to be installed in early 2000s. The majority of the structure was assumed to have standard foundations, masonry bearing walls, steel and concrete floor deck, and steel roof deck. The exterior walls were a combination of brick masonry, metal architectural panels, concrete block masonry, and metal sunscreens. Windows and doors were typically aluminum or steel construction. The roof was mostly modified bitumen with a white coating. Major interior elements included painted masonry and gypsum board partitions, solid-wood core doors, a combination of vinyl composite tile (VCT) and carpet, and suspended acoustical ceiling tiles. Two elevators were present. Plumbing systems included domestic water distribution with one commercial water heater, stormwater drainage throughout much of the building, and heating/chilled water piping. HVAC systems included six high-efficiency boilers, three chillers with associated cooling towers, AHUs and RTUs. The building had an 8400A electrical service and had natural gas supply. Two emergency generators provided backup power. The building appeared fully sprinkled. A fire alarm system, PA system, and security system were installed. The school had a prep kitchen and residential kitchen setups for educational purposes. The gym spaces included a competition gymnasium, auxiliary gymnasium, locker rooms, dance studio, wrestling room, and weight room. The auditorium spaces included the main auditorium with stage, set rooms, green room, and dressing rooms. The aquatic facilities included a competition pool, second smaller pool, locker rooms, pumps, filters, and pool water heaters.

PROJECTED NEEDS^{5,6}

Building Systems	Rating	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
A101000 - STANDARD FOUNDATIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A103000 - SLAB ON GRADE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A202000 - BASEMENT WALLS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B101000 - FLOOR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B102000 - ROOF CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B201000 - EXTERIOR WALLS	5	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B202000 - EXTERIOR WINDOWS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B203000 - EXTERIOR DOORS	4	\$ -	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B301000 - ROOF COVERINGS	4	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C101000 - PARTITIONS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C102000 - INTERIOR DOORS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C103000 - FITTINGS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C201000 - STAIR CONSTRUCTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C301000 - WALL FINISHES	4	\$ -	\$ -	\$ 1,445,169	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,445,169	\$ -	\$ -	\$ -
C302000 - FLOOR FINISHES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,030,114	\$ -	\$ -
C303000 - CEILING FINISHES	4	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,777,239	\$ -	\$ -
D101010 - ELEVATORS	3	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D101020 - LIFTS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202000 - RESIDENTIAL WATER HEATER	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D202005 - COMMERCIAL WATER HEATER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D204000 - BUILDING STORMWATER DRAINAGE	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301000 - ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301006 - SOLAR ENERGY SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302000 - CENTRAL PLANT HEATING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,550,048	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D302010 - FIREPLACES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D303000 - CENTRAL PLANT COOLING	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D305010 - TERMINAL & PACKAGE UNITS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,001	\$ -	\$ -	\$ -	\$ -
D306000 - CONTROLS	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75,202	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D401000 - SPRINKLERS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D402000 - STANDPIPES	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D502000 - LIGHTING AND BRANCH WIRING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,623,392	\$ -	\$ -	\$ -	\$ -	\$ -
D509000 - EMERGENCY POWER	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E102000 - INSTITUTIONAL EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 72,164	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109002 - FOOD SERVICE EQUIPMENT	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,244,259	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 126,402	\$ -	\$ -
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,130,554	\$ -	\$ -
E201020 - FIXED FURNISHINGS - CASEWORK	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,148,592	\$ -	\$ -
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/AUXILIARY G	4	\$ -	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,850,490	\$ -	\$ -
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,169,650	\$ -	\$ -
F102030 - AUDITORIUMS	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F102040 - COLD STORAGE ROOMS	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F104001 - AQUATIC FACILITIES	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BUILDING Total in USD		\$17,000	\$17,000	\$1,445,169	\$0	\$147,367	\$3,794,307	\$3,623,392	\$70,001	\$1,445,169	\$20,233,040	\$0	\$0

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3. The Building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The mark-up factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

GENERAL INFORMATION				
Building Name		Year Built¹	Building GSF²	Building FCI_{AD}
Yorktown High School		2013	355,887	0.088
Building Number		Last Renovation¹	No. of Floors	Building FCI_{DM}
41		2018	3	0.011
SYSTEM OBSERVATIONS				
Building Systems	Rating	Observations		
A101000 - STANDARD FOUNDATIONS	5	Assumed standard foundations throughout entire footprint of building.		
A103000 - SLAB ON GRADE	5	Assumed slab on grade throughout entire footprint of building.		
A202000 - BASEMENT WALLS	-			
B101000 - FLOOR CONSTRUCTION	5	Building superstructure contains elements of load-bearing masonry walls, structural steel framing, steel decking, and poured concrete flooring.		
B102000 - ROOF CONSTRUCTION	5	Majority of roof structure assumed to consist primarily of steel decking.		
B201000 - EXTERIOR WALLS	5	Exterior facade included brick masonry, metal architectural panels, concrete block masonry, and metal sunscreens. Minor efflorescence and brick cracking was noted in isolated areas of the brick masonry. Areas of deterioration/damage <5%. Local Project: Perform isolated brick masonry repairs, including repointing and cleaning of stained areas.		
B202000 - EXTERIOR WINDOWS	5	Windows were primarily aluminum framed with double pane glass. Some sections of aluminum/glass curtainwall were used.		
B203000 - EXTERIOR DOORS	4	Doors were primarily aluminum/glass doors. Some painted steel doors on the south and west elevations were significantly weathered. Local Project: Repair/refinish steel doors.		
B301000 - ROOF COVERINGS	4	Roof was mostly modified bitumen with a white coating. Water damage observed along wall at ceiling of classroom 374, which was suspected to be caused by roof issues. Local Project: Repair roof issue causing leaks in classroom 374		
C101000 - PARTITIONS	5	Combination of block masonry partition walls and gypsum board over stud framing.		
C102000 - INTERIOR DOORS	5	Majority of interior doors were solid-core wood.		
C103000 - FITTINGS	4	Composite toilet partitions in restrooms. Metal lockers throughout many hallways.		
C201000 - STAIR CONSTRUCTION	5	Steel framed stairs with concrete treads and landings.		
C301000 - WALL FINISHES	4	Majority of walls were painted masonry and gypsum board.		
C302000 - FLOOR FINISHES	4	Vinyl composite tile (VCT) used throughout majority of classrooms and hallways. Carpet used in some areas, including the front office and music rooms.		
C303000 - CEILING FINISHES	4	Suspended acoustical ceiling tile system throughout majority of most hallways, classrooms, and support rooms. Local Project: Repair damaged suspended ceiling in Classroom 217.		
D101010 - ELEVATORS	3	Two hydraulic elevators, one of which was noted to be manufactured 2004. The other elevator was noted to be out of order. Local Project: Fix out of order elevator		
D104020 - LIFTS	-			
D201000 - PLUMBING SYSTEMS AND FIXTURES	4	Assumed steel domestic water piping and cast iron sanitary piping throughout the majority of the building. Fixtures included vitreous china water closets, urinals, and sinks.		
D202000 - RESIDENTIAL WATER HEATER	-			
D202005 - COMMERCIAL WATER HEATER	4	One high-efficiency 2,000-MBH boiler appeared to be dedicated to domestic hot water. Manufactured 2022.		
D204000 - BUILDING STORMWATER DRAINAGE	5	Entire roof area used internal stormwater drains. Courtyard (approx. 12,100 SF) had floor drains. Drain piping was assumed to be cast iron.		
D301000 - ENERGY SUPPLY	5	Natural gas supply connection was located near the pool.		
D301006 - SOLAR ENERGY SUPPLY	-			
D301010 - GEOTHERMAL HEATING / COOLING SUPPLY	-			
D302000 - CENTRAL PLANT HEATING	3	Six high-efficiency boilers of different vintages (1x 2022, 4x 2009, 1x 2004).		
D302010 - FIREPLACES	-			
D303000 - CENTRAL PLANT COOLING	3	Three indoor chillers with three outdoor cooling towers of different vintages (2x 2009, 1x 2003).		
D304010 - DISTRIBUTION SYSTEMS - HEATING	4	System included AHUs and RTUs of various vintages (most equipment estimated 2004-2012). Heating/chilled water piping was assumed to be galvanized.		
D304020 - DISTRIBUTION SYSTEMS - COOLING	4	System included several AHUs and RTUs of various vintages (most equipment estimated 2004-2012). Heating/chilled water piping was assumed to be galvanized.		
D305010 - TERMINAL & PACKAGE UNITS	4	Four supplemental split-systems provided supplemental cooling to a few rooms. They were various vintages estimated between 2004 and 2019.		
D306000 - CONTROLS	3	Digital controls used throughout the building.		
D401000 - SPRINKLERS	5	Building appeared to be fully sprinkled.		
D402000 - STANDPIPES	5	There were stairwell standpipe systems with no reported or issues observed. Connections were mechanical.		
D501000 - ELECTRICAL SERVICE AND DISTRIBUTION	5	Main electrical panel in electric room adjacent to boiler room. Service appeared to be 8,400A, 480/277V, 3Ph, 4W.		
D502000 - LIGHTING AND BRANCH WIRING	4	Wiring, distribution panels, and lighting fixtures estimated to be original to early 2000s.		
D503000 - COMMUNICATION/SECURITY/FIRE ALARM	4	Fire alarm control panel assumed original to 2010. PA and security systems assumed updated within past 10 years.		
D509000 - EMERGENCY POWER	4	Two emergency generators. One was 250 KW, estimated manufactured 2008. Second was 204 KW, estimated manufactured 2009.		
E102000 - INSTITUTIONAL EQUIPMENT	3	Three kins for art classrooms of different vintages (2x 2010, 1x1996). Science lab tables were assumed to be installed in early 2000s. Five fume hoods for science and engineering labs.		
E109002 - FOOD SERVICE EQUIPMENT	3	Prep kitchen with majority of equipment estimated manufactured 2009.		
E109004 - RESIDENTIAL KITCHEN EQUIPMENT	4	One kitchen in Life Skills classrooms and six kitchens in food management lab.		
E201003 - FIXED FURNISHINGS - PERMANENT SEATING	4	Auditorium seating, gymnasium telescoping bleachers, and Patriot Hall seating (room 144)		
E201020 - FIXED FURNISHINGS - CASEWORK	3	Casework throughout administrative areas and classrooms.		
F102010 - ELEMENTARY SCHOOL GYMS/MULTI-PURPOSE ROOMS/A	4	Includes auxiliary gymnasium, dance studio, wrestling room, and weight room. Walls in dance studio and weight rooms were damaged due to removal or previously glued on finishes. Local Project: Repair walls in dance studio and weight room		
F102020 - HIGH SCHOOL LEVEL COMPETITION GYMNASIUMS	4	Includes competition gymnasium and associated locker rooms.		
F102030 - AUDITORIUMS	4	Includes main auditorium with stage, set rooms, green room, and dressing rooms.		
F102040 - COLD STORAGE ROOMS	-			
F104001 - AQUATIC FACILITIES	4	Includes competition pool, second smaller pool, locker rooms, pumps, filters, and pool water heaters.		

1. Values shown were provided by APS.

2. If FEA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, FEA used its own estimated GSF for this report.

3. The building Current Replacement Value (CRV) shown at the top of this report is in 2023 dollars and includes a cost markup factor of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

4. The building system CRVs and Unit Costs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

5. The building system Projected Needs shown in the table are in 2023 dollars and apply a mark-up of 1.921 applied to underlying raw cost data. The markup factor includes a location factor, a labor factor (based on location), an existing conditions markup, A/E fees, contractor general requirements, general contractor overhead and profit, owner-imposed costs, and contingency. The underlying costs are generally based on RSMeans 2023 cost data, or researched cost data where RSMeans cost data is unavailable.

6. Markup factors applied are based on information provided by APS and FEA's experience.

Arlington Public Schools - Individual Building Characteristics

2023 Assessment

GENERAL INFORMATION

Building Name	Year Built ¹	Last Renovation ¹	Building GSF ²	Building Footprint SF ²	No. of Floors
Yorktown High School	2013	2018	355,887	173,900	3

RATING LEGEND

- Meets Standard
- Approaches Standard
- Does Not Meet Standard
- Not Applicable

Category	Sub-Category	Rating	Notes
Major Building Systems	2.0 HVAC - Indoor Air Quality	●	5.84 eACH average for classroom spaces when factoring all ventilation and local filtration per Howard T.E. Chan recommendations.
Major Building Systems	3.0 HVAC - Ventilation - Classroom	●	Ventilation for classrooms appears to meet current ASHRAE 62.1 for majority of spaces
Major Building Systems	4.0 HVAC - Ventilation - Gymnasium	●	Gymnasium meets code ventilation based on AHSRAE 62.1, assuming 500 students
Major Building Systems	5.0 HVAC - Ventilation - Dining	●	Cafeteria meets code ventilation based on AHSRAE 62.1
Major Building Systems	6.0 HVAC - Ventilation - Library	●	Library meets code ventilation based on AHSRAE 62.1
Major Building Systems	7.0 HVAC - Ventilation - Auditorium	●	meets current ASHRAE 62.1 for auditorium
Major Building Systems	8.0 HVAC - Ventilation - Pool	●	meets current ASHRAE 62.1 for pool area
Major Building Systems	9.0 HVAC - Specialty Ventilation Requirements	●	Science labs, art room, kiln, hoods, etc. appear to have dedicated exhaust
Major Building Systems	10.0 HVAC - Filtration - Classrooms	●	MERV 6
Major Building Systems	11.0 HVAC - Filtration - Gymnasium	●	MERV 13
Major Building Systems	12.0 HVAC - Filtration - Library	●	MERV 13
Major Building Systems	13.0 HVAC - Filtration - Auditorium	●	Merv 13
Major Building Systems	14.0 HVAC - Filtration - Pool	●	Merv 13
Major Building Systems	15.0 HVAC - Thermal Comfort	●	Thermostat with local control in majority of spaces
Major Building Systems	3.1 Electrical - Indoor Lighting (LED coverage)	●	About 10% of school has LEDs
Major Building Systems	3.2 Electrical - Exterior Lighting	●	
Major Building Systems	3.3 Electrical - Indoor Lighting Color Temperature	●	Inconsistent color temperature. Not 3500K
Major Building Systems	3.4 Electrical - Exterior Lighting Color Temperature	●	Inconsistent color temperature. Not 3000K
Major Building Systems	3.5 Electrical - Occupancy Sensors	●	Occupancy sensors are present in the newer portions of the school, but only about 65% of school
Major Building Systems	3.6 Electrical - Sport Lighting	●	
Major Building Systems	2.0 Plumbing - Isolation Valves	●	
Major Building Systems	3.0 Plumbing - Flow/Pressure	●	
Major Building Systems	4.1 Plumbing - Water Efficient Fixtures	●	1.28 gpf toilet, 1.0 gpf urinal, waterless urinals in gym RR, AND LOCKERS
Major Building Systems	4.2 Plumbing - Water Usage Intensity (WUI)	●	Based on APS report card for 2022
Major Building Systems	1.0 Building Security - Security Vestibules	●	
Major Building Systems	2.1 Building Security - Areas of concealment (interior)	●	
Major Building Systems	2.2 Building Security - Areas of concealment (exterior)	●	
Major Building Systems	2.3 Building Security - Single point of entry	●	Signs taped to many other doors directed visitors to main entrance.
Major Building Systems	Life Safety and Code Standards - Accessible entrance	●	
Major Building Systems	Life Safety and Code Standards - Elevator (if multistory)	●	2 elevators
Major Building Systems	Life Safety and Code Standards - Bathroom Accessibility	●	restrooms in older portion of school do not have vertical grab bars
Major Building Systems	Life Safety and Code Standards - Corridor Width	●	
Major Building Systems	Life Safety and Code Standards - Stairs/Guardrails/Handrails	●	
Major Building Systems	Life Safety and Code Standards - Accessibility in Public Spaces	●	
Major Building Systems	Life Safety and Code Standards - Accessibility to sports fields and out buildings	●	
Major Building Systems	1.0 Ability to Expand - Feasibility Study	●	
Major Building Systems	2.1 Ability to Expand - Relocatable Complex	●	
Major Building Systems	2.2 Ability to Expand - Number of Relocatable Classrooms	0	
Major Building Systems	1.0 Other - Energy Use Intensity (EUI) Benchmarking	●	Based on APS report card for 2022
Major Building Systems	2.1 Other - Daylighting Access	●	
Major Building Systems	2.2 Other - Daylighting Controllability	●	
Major Building Systems	3.0 Other - On-site renewable energy	●	Does have solar hot water heating.
Major Building Systems	4.0 Other - Geothermal	●	
Major Building Systems	5.2 Other - Number of Elevators	●	2 total elevators
Major Building Systems	5.3 Other - Elevator Size	●	(1) Cab: 4' 6" x 3' 6"; Door: 3' 6" offset (2) Elevator out of order; not measured 8915 sf (cafeteria area) / 12 students = 743
Common Space Adequacy	1.0 Cafeteria	●	
Common Space Adequacy	1.1 Kitchen	●	4145 (kitchen area) / 3 = 1382
Common Space Adequacy	1.2 Kitchen	●	4 serving lines
Common Space Adequacy	1.3 Kitchen	●	2189 design capacity / 3 periods = 730
Common Space Adequacy	2.1 Gymnasium	●	Main Gym: 6 hoops, 3 divider curtains, daylight, volleyball, retractable bleachers. Aux Gym: 2 hoops, 1 divider curtain, daylight, retractable bleachers
Common Space Adequacy	2.2 Gymnasium	●	Main Gym: 106' 6" x 100' 10" W: height to bottom of joists 26' 10", to bottom of deck 31' 9". Aux Gym: 97' 4" x 99' 3" W: height to bottom of joists 26' 2", to bottom of deck 29' 6".
Common Space Adequacy	3.1 Performance Space	●	
Common Space Adequacy	3.2 Performance Space	●	580 seats
Common Space Adequacy	3.3 Performance Space	●	
Common Space Adequacy	4.1 Library	●	1836 LF / 2189 = .84 LF per student
Common Space Adequacy	4.2 Library	●	
Common Space Adequacy	5.0 Pool	●	260 swimmers
Common Space Adequacy	5.1 Pool	●	Lap pool with 8 yards (25 yards) from 4' to 7' deep and attached diving area 12' deep; secondary pool with 0 entry ramp
Common Space Adequacy	5.2 Pool	●	
Common Space Adequacy	6.1 Playground	●	
Common Space Adequacy	6.2 Playground	●	
Common Space Adequacy	6.3 Playground	●	
Common Space Adequacy	7.0 Fields	●	6 tennis courts, 1 basketball court, 3 baseball/softball fields and 1 football field with track.
Common Space Adequacy	7.1 Sport Fields	●	
Common Space Adequacy	7.2 Out Buildings	●	
Common Space Adequacy	7.3 Press Box	●	
Common Space Adequacy	8.0 Outdoor Learning	●	
Common Space Adequacy	9.0 Outdoor dining	●	
Educational Space Adequacy	1.1 Classrooms (General) - Green Rating	55	Green = 55; lab (6); classroom (49)
Educational Space Adequacy	1.1 Classrooms (General) - Yellow Rating	33	Yellow = 33; lab (10); classroom (23)
Educational Space Adequacy	1.1 Classrooms (General) - Red Rating	2	Red = 2; lab (1); classroom (1)
Educational Space Adequacy	1.2 Classrooms (General)	90	
Educational Space Adequacy	1.3 Classrooms (General)	●	18 classrooms do not have windows (17%); 9 classrooms have non-operable windows (10%)
Educational Space Adequacy	1.4 Classrooms (General)	●	
Educational Space Adequacy	1.5 Classrooms (General)	●	25 classrooms have at least 1 sink (27%)
Educational Space Adequacy	2.1 Classrooms (Special Education)	●	
Educational Space Adequacy	2.2 Classrooms (Special Education)	4	SPED
Educational Space Adequacy	2.3 Classrooms (Special Education)	●	
Educational Space Adequacy	2.4 Classrooms (Special Education)	●	
Educational Space Adequacy	3.1 Workspace	●	
Educational Space Adequacy	3.2 Pullout Space	●	
Educational Space Adequacy	3.3 Administrative space	●	3 desks, 3 offices, 1 conference room in main suite. Rated records room in counseling suite
Educational Space Adequacy	3.4 Clinic	●	6 beds, 1 ADA toilet, 2 sinks, no eyewash, 1 refrigerator
Educational Space Adequacy	4.1 Art	4	
Educational Space Adequacy	4.2 Art	●	attached to room (117)
Educational Space Adequacy	4.3 Art	●	3 sinks in each
Educational Space Adequacy	4.4 Art	●	connected storage only for room (117)
Educational Space Adequacy	5.1 Music	3	
Educational Space Adequacy	5.2 Music	●	Orchestra and Band have connected storage, Chorus does not
Educational Space Adequacy	6.0 Lab	●	6 Bio Labs, 2 Earth Science Lab, 4 Chemistry Labs, 3 Business Labs, 1 Engineering Research Lab, 1 FACS, 1 Life Skills Lab, 1 Child Development Lab, 1 Photo/Graphics Lab
Educational Space Adequacy	7.1 Performing Arts	●	
Educational Space Adequacy	7.2 Performing Arts	●	

¹ Values when were provided by APS.
² If IEFA's estimated Gross Square Feet of the building (GSF) differed significantly from the GSF provided by APS, IEFA used its own estimated GSF for this report.