Agenda Item #:

ITEM TYPE: Action

BOARD AGENDA ITEM

TITLE: Approval of the Construction Documents for the Westminster Elementary School Prekindergarten Project

DATE: October 8, 2025

OVERVIEW:

The Construction Document submission is consistent with the previously approved Design Development, Schematic Design, and Educational Specifications for this project, all of which were developed with the guidance of the Construction Planning Committee.
This Construction Document submission includes a project summary, design discipline analysis along with available plans and specifications to bid-level detail. Upon approval by the Board of Education, this submission will be sent to the State Department of General Services and Carroll County Bureau of Permits for review. The construction estimate from these documents is in line with the current project budget.

LINK TO STRATEGIC PLAN:

Pillar IV – Establish safe, secure, healthy, and modern learning environments.

FISCAL IMPACT:

N/A

RECOMMENDATION/FUTURE DIRECTION:

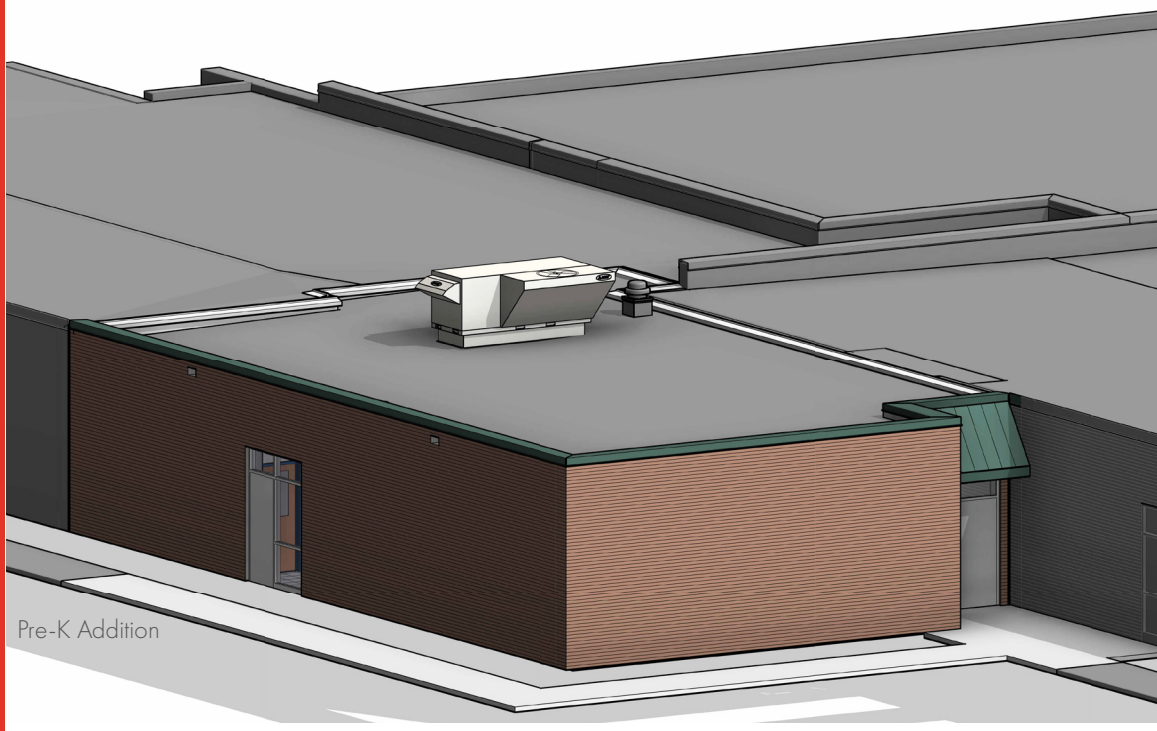
For Board of Education approval.

Submitted by:
James Marks, Supervisor of Construction
Raymond Prokop, Director of Facilities Management

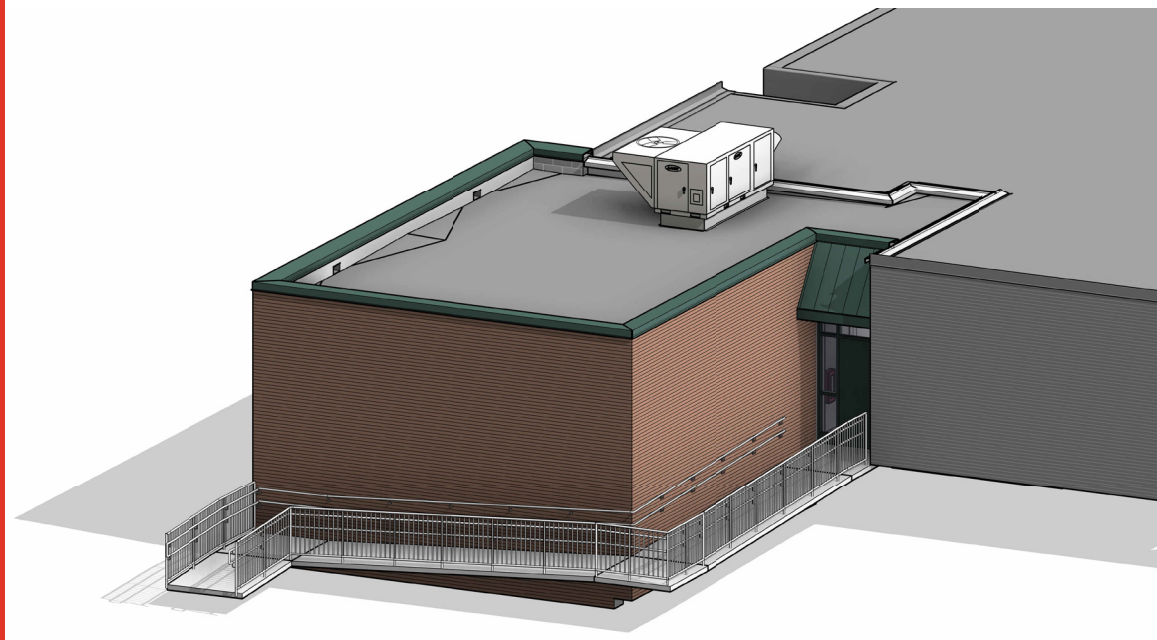
Approve/Concur:
Jonathan D. O'Neal, Assistant Superintendent of Operations
Cynthia McCabe, Ed.D., Superintendent of Schools

WESTMINSTER ELEMENTARY SCHOOL

PRE-KINDERGARTEN CLASSROOM ADDITION DESIGN
CONSTRUCTION DOCUMENTS SUBMISSION



Pre-K Addition



Music Add Alternate Addition

CCPS

MOSELEYARCHITECTS

Construction Documents Submission
October 8, 2025

PROJECT TEAM

CLIENT

Carroll County Public Schools
125 North Court Street
Westminster, Maryland 21157
(410) 751-3000

SCHOOL

Westminster Elementary School
811 Uniontown Road
Westminster, Maryland 21158
(410) 751-3222
Debbie Winson - *Principal*

ARCHITECT & INTERIOR DESIGN

Moseley Architects
1414 Key Highway, 2nd Floor
Baltimore, Maryland 21230
(410) 539-4300

Jennifer Lyon - *AIA, Principal in Charge*
Ani Mencke - *Project Manager*
Nathan Robey - *Assoc. AIA, WELL AP, LEED AP ® BD+C, Project Designer*

CIVIL ENGINEER & LANDSCAPE ARCHITECT

Clark Azar & Associates, Inc.
10451 Mill Run Circle, Suite 630
Owings Mills, MD 21117
(301) 528-2010

Sean Lindaman - P.E., *Project Manager*
Morganne Durham - E.I.T., *Project Engineer*

STRUCTURAL ENGINEER

Columbia Engineering, Inc.
6210 Old Dobbin Lane, Suite 150
Columbia, Maryland 21045
(410) 992-9970

Cheryl Zaron - P.E., *Principal*
Ella McBeath - E.I.T., *Project Engineer*

PROJECT TEAM
(cont.)

PLUMBING, MECHANICAL, ELECTRICAL & FIRE PROTECTION ENGINEER

Moseley Architects
1414 Key Highway, 2nd Floor
Baltimore, Maryland 21230
(410) 539-4300

Shawn Ruehl - P.E., *Vice President*
Morrison Cabonilas - *Mechanical Engineer*
Bryan Taylor - *Electrical Engineer*

COST ESTIMATING

Downey & Scott
6799 Kennedy Road, Unit F
Warrenton, VA 20187
(540) 347-5001

Joseph M. Adams - *Cost Estimator*

CARROLL COUNTY PUBLIC SCHOOLS BOARD OF EDUCATION MEMBERS

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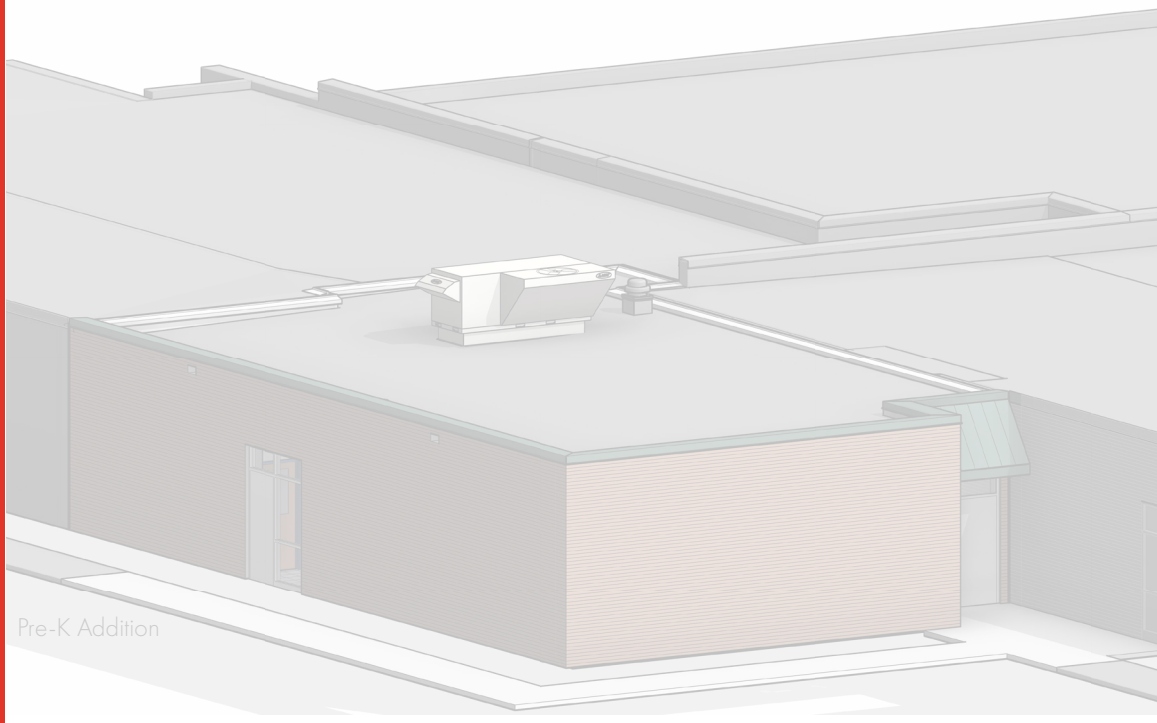
CARROLL COUNTY PUBLIC SCHOOLS FACILITIES MANAGEMENT TEAM MEMBERS

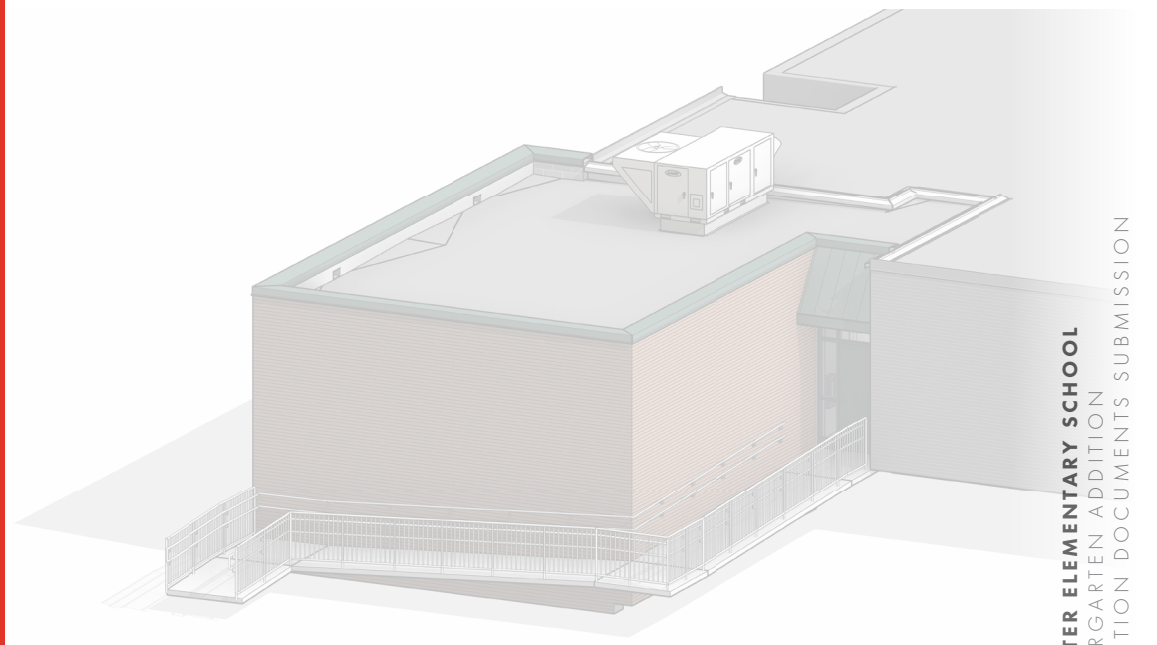
Raymond Prokop - *Director of Facilities*
William Caine - *Facilities Planner*
Jim Marks - *Supervisor of Construction*
Dave Norman - *School Construction Project Manager*

TABLE OF CONTENTS

NARRATIVE DESCRIPTIONS



Pre-K Addition



Music Add Alternate Addition

CCPS

MOSELEYARCHITECTS

PROJECT BACKGROUND

Westminster Elementary School is located at 811 Uniontown in Westminster, Maryland. The school provides education for grades pre-kindergarten through fifth grade and currently has a state rated capacity (SRC) of 568 students. The existing building was originally constructed in 1976 and has had recent upgrades to the building including an HVAC replacement in 2003, a kindergarten addition in 2011, and an open space enclosure renovation in 2013. The existing kindergarten wing is located at the south-west corner of the building as part of the 4,848 SF addition completed in 2011. The existing pre-kindergarten classroom is across the corridor from the existing kindergarten classrooms. There is an existing portable classroom directly east of the 2011 kindergarten addition.

Per the approved educational specifications for this project, an additional one (1) pre-kindergarten classroom as well as various support spaces are to be provided to increase the state rated capacity of the school to 588 students. The addition will conform to the educational specification approved by the Carroll County Board of Education and local building and life safety codes.

The pre-kindergarten classroom addition and supporting spaces will add approximately 2,235 gross square feet to the existing building for an overall building size of 71,283 gross square feet.

A proposed add-alternate is included with the project, which allows a music room to be constructed at approximately 1,098 gross square feet. If accepted, the add-alternate design for the project will yield an overall building size of 72,381 gross square feet, and is located on the north-east side of the existing building

Upon presenting several design options to the Carroll County Public Schools for this school, the proposed project for the Base Bid will provide one (1) pre-kindergarten classroom addition, one (1) workroom, and two (2) toilet rooms off the south-west side of the building. None of the existing classrooms within the existing building will be altered by this addition. The existing kindergarten classrooms at the school are currently located at the end of the wing where the proposed addition will connect into. A small area at the end of the two existing interior corridors will be demolished to create a connection to the new corridor of the addition. The proposed add-alt will include one (1) music room that shall be located next to the existing vocal and storage rooms. he existing music classroom portable will be removed from the site if the add alternate is constructed.

The proposed addition location is off the existing corridor, just east of the 2011 kindergarten addition. The extended corridor would continue east along the exterior wall of the existing classroom pod and connect to the next interior corridor. The new corridor of the addition would include an exterior door that exits to the east.

The new corridor would prevent daylight from reaching the adjacent existing classroom; however, there is potential for the classrooms to receive borrowed light from the new corridor. The existing new classroom portable added during summer 2025 would be removed at the completion of the Pre-K classroom addition.

The existing building's exterior walls are comprised of non-load bearing 4" brick veneer on concrete masonry unit (CMU) backup. The proposed addition coordinates with the existing structural features of the building. The project will

not require a new fire wall to be constructed with the proposed addition as the existing building includes existing fire separation areas. Including the proposed addition into the adjacent fire area is within the maximum area factor requirements allowed per the building code.

DESIGN GOALS

- Design and construct a new pre-kindergarten classroom and music room for use by elementary students. Classroom spaces will comply with the latest CCPS educational specifications and design standards, life safety, accessibility and building codes.
- Address projected enrollment at this school with an addition that will meet the approved educational specifications as well as provide adequate learning spaces more efficiently through a building addition rather than renovating existing inefficient spaces.
- Tie into the existing automatic sprinkler system to provide fire suppression coverage for the new addition area.
- Provide visual and physical continuity and connection to the existing building with the placement of the addition and the alignment of the corridor in the addition to the corridor in the existing building.
- Expansion joints will be provided between the addition areas and the existing building construction, which will allow the building areas to be independent of each other.
- Provide new mechanical, plumbing, electrical, lighting, low voltage, and fire alarm systems to serve the addition. Connect the systems to serve the addition to the existing building systems where feasible while not disrupting the use and occupancy of the existing building spaces and minimizing impact on the existing building infrastructure.
- Propose complementary exterior building materials at the addition including masonry veneer and exterior window systems.

ARCHITECTURAL DESIGN

PROPOSED FLOOR PLAN

Architectural Design:
The proposed Base Bid classroom addition will be located off the south-west end of the existing building and will connect to an existing classroom wing via an extended new corridor. The proposed add-alternate will be located on north-east side of the building and both additions will be steel frame construction with exterior masonry bearing with brick veneer exterior walls, with CFSF metal stud and gypsum board interior partitions.

The design of the exterior wall brick pattern and window openings will be compatible and complimentary with the original building. The existing roof is a built-up roof and standing seam metal. The Base Bid for the roofing system will be a thermoplastic polyolefin (TPO) membrane roof system on a metal deck. An add-alternate built-up roof system (BUR) with flexible flashings will be priced with the project. The roof slope will be a minimum of 1/4 inch per foot and will be drained via internal roof drains with overflow scuppers. Access to the roof of the addition will be through an existing internal access point within the existing building.

The new interior corridors will connect to and align with the corridor of the existing building. New exterior exit doors will be provided at the end of the new extended corridors of the additions.

ARCHITECTURAL DESIGN

(CONTINUED)

The new classroom and support spaces will be designed per the latest Carroll County Public Schools educational specifications and design standards. The new pre-kindergarten classroom will have two (2) student toilet rooms. A single convenience sink with built-in cabinetry and countertop will be provided in the classroom for storage. Toilet rooms and classroom sink will be located between the workroom and the classroom spaces. This arrangement will provide efficiency in the installation of new plumbing and sanitary lines and will minimize cost. Additional support spaces that will be included in the project include a storage/ workroom directly accessed from the classroom. Several existing building and site components will be affected by the addition project:

- Existing roof drainage and roof coping will be impacted.
- The existing sidewalks around the building perimeter will need reconfiguration to account for the footprint of the addition and new exterior doors from the pre-kindergarten classroom and music room. There shall be a need for an exterior ramp at the music addition.

Building Materials:

Exterior building materials will be complimentary to materials used on the adjacent existing building facades. Exterior walls will be of brick veneer on concrete masonry unit backup. New window openings will be aluminum framed to match the existing units and glazing will be double-paned insulated glass with low-E coating. The new exterior doors will be insulated steel, painted to match similar doors at the school. Egress hardware will be provided on the new exterior doors to ensure security and ease of exiting in an emergency. At the exterior doors of the main corridors of the additions there shall be a new metal soffit and canopy.

Interior finish materials will be selected to comply with current CCPS design standards. Classrooms and student accessed spaces will be provided with vinyl composition tile floors with rubber base, painted gypsum board walls, and suspended acoustical tile ceilings with recessed light fixtures. Toilet rooms will have porcelain tile floors, painted gypsum drywall ceilings, and a combination of porcelain tile and painted walls. Utilitarian type rooms will be provided with sealed concrete floors, painted walls and no finished ceiling. New corridor floors will have vinyl composition tile floors with tile base, which will be similar and complimentary to the flooring throughout the existing building's corridors. The new corridor walls will include large format ceramic tile to 4'-0" above the finished floor and tile base, both to provide additional durability. The interior of the new classrooms will be furnished with a mixture of built-in features and movable furniture. Built-in items under the construction contract will include marker and tack boards, tack strips, and various built-in storage cabinets, wall and base cabinets with a student-use convenience sink at the classroom, student belongings cubbies at the entries to the classroom, and various storage cabinets in the workroom. A wall mounted projector will be installed to face the teaching wall. New windows will be provided with horizontal shades. The interior classroom door will be a flush panel and will include a partial side lite with roller-shade window treatment. All furniture and movable furnishings will be provided as an add alternate in the construction contract and are indicated on the enclosed drawings for reference.

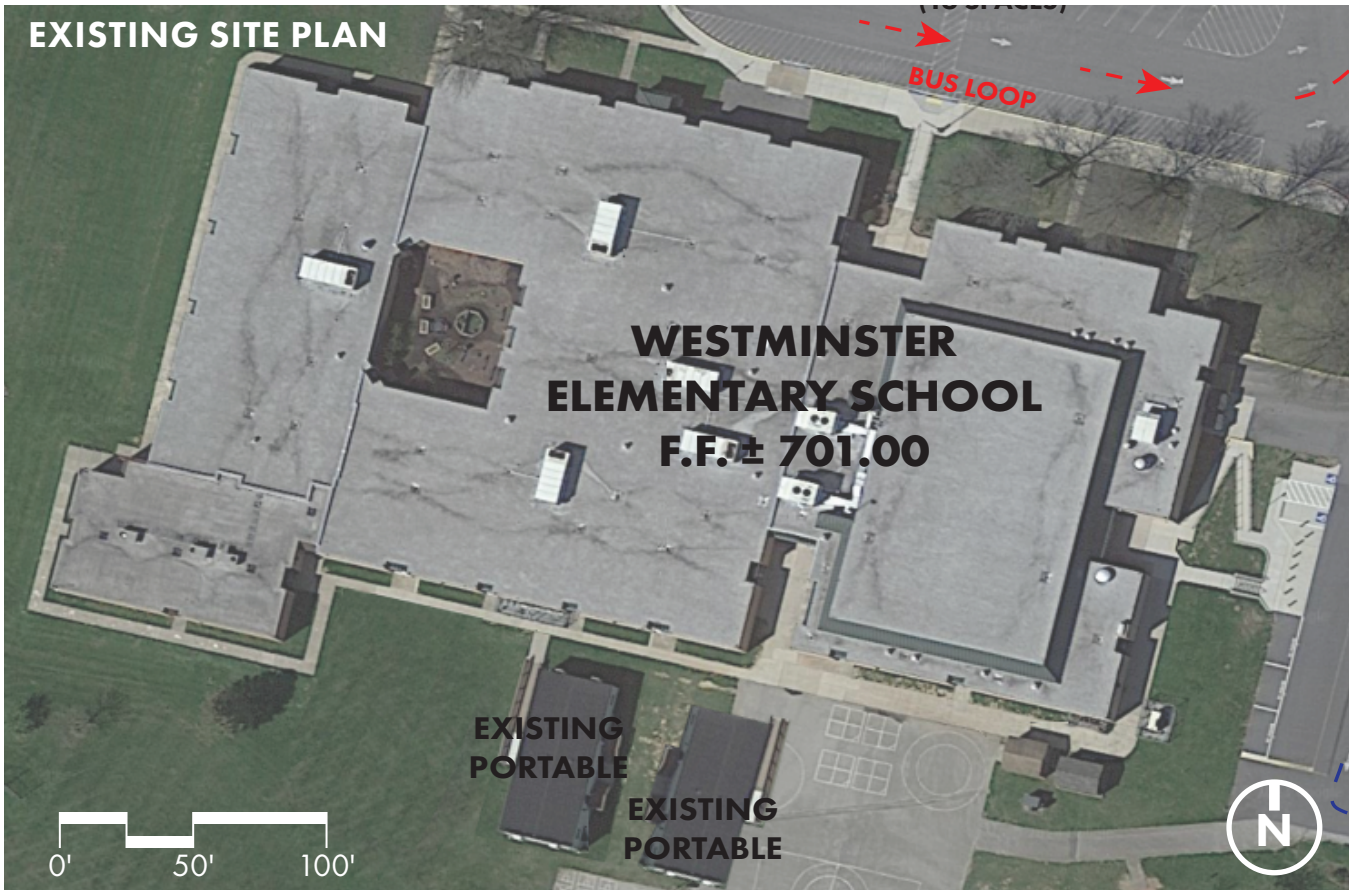
The sustainability requirements for this project will be to comply with the current requirements of the International Green Building Code – 2021 Edition, as adopted

ARCHITECTURAL DESIGN
(CONTINUED)

by Carroll County, Maryland. Due to the size of the proposed addition at this school, compliance with the Maryland High Performance Green Building Program will not be required.

Building Codes:
Ch. 170 of the Code of Public Local Laws and Ordinances of Carroll County – contains applicable amendments to the county's adopted building, electrical, plumbing, mechanical, accessibility and fire codes.

- International Building Code (IBC), as amended by the Maryland Building Performance Standards - 2021
- International Existing Building Code (IEBC), as amended by the Maryland Building Performance Standards - 2021
- International Energy Conservation Code (IECC), as amended by the Maryland Building Performance Standard - 2021
- International Mechanical Code (IMC) - 2021
- National Electric Code (NFPA 70), Replaces ICC, International Electric Code - 2023
- International Plumbing Code (IPC) - 2021
- International Fuel Gas Code (IFGC) - 2021
- NFPA 58 - Standard for the Installation of Liquefied Petroleum Gas (As Referenced by IBC) - 2017
- International Green Construction Code (IGCC), as amended by the Maryland Building Performance Standards - 2021
- NFPA 101 Life Safety Code, As Adopted by the Maryland State Fire Code - 2024
- NFPA 1 - Fire Code (Fire Prevention Code), As Adopted by the Maryland State Fire Code - 2024
- NFPA 13 - Standard for the Installation of Sprinkler Systems (As Referenced by IBC)
- NFPA 72 - National Fire Alarm and Signaling Code
- NFPA 70 - National Electrical Code - 2023
- NFPA 90A - Standard for the Installation of Air Conditioning and Ventilation Systems
- ASHRAE Standard 62.1-2010 - Ventilation for Acceptable Indoor Air Quality
- ASHRAE 90.1-2013 - Energy Standard for Buildings
- A117.1 - 2009
- ADA Standards for Accessible Design - 2010
- Maryland Accessibility Code (COMAR 09.12.53) - 2019
- Maryland Building Performance Standards (MBPS) - 2015
- Refer to Other Contract Documents (Disciplines) and Specifications for Additional Code Summary Information not Included in this Code Summary (Generally related to Chapters 13 Through 33)
- All Listed Codes Shall Include Amendments by the County and AHJ



CIVIL DESIGN

EXISTING CONDITIONS

SITE DESCRIPTION

The subject site for Westminster Elementary school is located at 811 Union Town Road, Westminster, MD 21158. The site is approximately 19.6 acres and currently contains the existing Elementary School and associated amenities. The property is shown on tax map 0109, grid 03 and parcel 1151. The tax account number for the property is 003544. The site is owned by the Board of Education of Carroll County.

SITE CIRCULATION AND PARKING

The site is accessed by two curb cuts on Uniontown Road. There is an entrance only for the bus loop to the west. The buses then leave through the entrance/exit to the east. The parents and staff enter through the eastern curb cut and circles around the parking lot east of the building and exit through the same curb cut.

ZONING INFORMATION

Zone: C – Conservation Area (City of Westminster)

SITE SOILS

According to information obtained from the United States Department of Agriculture Natural Resources Conservation Service, the project area where work will take place is underlain with only two soil groups:

CIVIL DESIGN
(CONTINUED)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SpB	Spoolsville-Urban land complex, 0 to 8 percent slopes	1.2	92.31%
SpC	Spoolsville-Urban land complex, 8 to 15 percent slopes	0.1	7.69%
Total		1.3	100.00%

SITE TOPOGRAPHY
The site is located at the high pint of the site. The site drains from the building to the east and then south or west and then south. Both run to an unnamed tributary of Copps Branch.

SITE UTILITIES

Water:
The site is served by a 6" water line from the 8" water main in Uniontown Road.

Sanitary Sewer:
The site is served by an 8" sanitary sewer that drains to the southwest of the building towards WTTR Lane.

Storm Drains:
There are two storm drain outfalls for the site. One runs to the east of the building towards WTR Lane and the other drains towards the west and daylights down the slope to the east of the building.

Gas & Electric:
There are overhead powerlines that run along Uniontown Road. There was no visual evidence of gas. It is assumed the existing services are adequate for the proposed addition.

Utility Easement:
There are no known utility easements on the property.

STORMWATER MANAGEMENT
The classroom portable installations were all served by dry wells. There are no other known stormwater management facilities on site.

FLOODPLAINS, WETLANDS, AND WATERWAYS
There are no records of any floodplains or wetlands on the site.

LANDSCAPE, TREES AND FOREST CONSERVATION
There are no records of a forest conservation area on-site.

ATHLETIC FIELDS, ATHLETIC COURTS, PLAY AREAS
There is one asphalt play area and one mulch play area, both located south of the school building. There are grass play fields also located south of the building.

CIVIL DESIGN
(CONTINUED)

PROPOSED SITE REVITALIZATION

SITE DESCRIPTION
The proposed site work includes constructing a pre-kindergarten addition and associated site improvements. The base bid will require the relocation of an existing classroom portable pod.

SITE CIRCULATION AND PARKING
There are no anticipated changes to site circulation and parking.

ZONING INFORMATION
The construction of the new building will be following the Carroll County Zoning Code and the City if Westminster Zoning.

SITE TOPOGRAPHY
Site construction requires minor grading for the building addition and will require grading of a construction access path.

SITE UTILITIES

Water:
It is currently assumed that the existing water service to the building has sufficient capacity for the new additions. It's preferable to connect to the existing water service through the building instead of a new exterior connection.

Sanitary Sewer:
It is currently assumed that the existing sanitary service from the building has sufficient capacity for the new additions. It's preferable to connect to the existing sanitary service through the building in lieu of connection outside the building.

Storm Drains:
There are no known modifications necessary to the existing storm drain system.

Gas, Electric, Cable & Telephone:
An existing gas service line for the school is required to be relocated to avoid conflict with the proposed building addition and the proposed SWM facility.

STORMWATER MANAGEMENT
Stormwater management will be provided to meet MDE and Carroll County requirements. There are existing storm drain pipes that will be rerouted for the classroom additon.

LANDSCAPE, TREES AND FOREST CONSERVATION
Carroll County and Maryland state forestry regulations and City of Westminster landscaping requirements will be followed.

ATHLETIC FIELDS, ATHLETIC COURTS, PLAY AREAS
There are no modifications necessary to the athletic fields, courts, or play areas.

STRUCTURAL DESIGN

STRUCTURAL DESIGN

PROJECT OVERVIEW
Existing drawings for the building are available and were prepared by Smeallie, Orrick and Janka, Ltd. and are dated September 26, 1974. The existing building is a single story consisting of open web steel joists spanning between steel beams and girders that are supported by steel columns in the interior bays. At the exterior bays, the steel joists span between steel beams and concrete masonry bearing walls. The interior and exterior walls consist of concrete masonry backup walls with a brick facade at the exterior. The existing steel columns are supported on reinforced concrete spread footings and existing masonry walls are supported on continuous reinforced concrete strip footings. The proposed addition will be a single-story steel and masonry structure. The new addition will be designed to be structurally independent from the existing building. The following section outlines the structural systems and components proposed for the new classroom addition. All new construction will be designed and built using conventional engineering and construction practices.

STRUCTURAL SYSTEMS

FOUNDATIONS
A geotechnical analysis has been performed on site of the proposed addition which has provided recommendations for the foundations for the addition. Foundation recommendations are dependent on local site conditions and must be established via subgrade investigation and geotechnical analysis prior to design. The geotechnical engineer has recommended traditional continuous footings. All structural elements for the proposed addition will be supported on reinforced concrete footings. Masonry exterior walls will be supported on continuous strip footings. The elevations of new footings abutting the existing structure will be coordinated to match the existing and doweled to the existing to minimize the potential for differential settlement. All exterior foundations will bear at least 2′-6″ below the finished grade to provide the necessary frost protection and will be coordinated with underground utilities. The following preliminary foundation sizes for the proposed addition are based on the recommended allowable capacity of 2,500 psf allowable bearing pressure.

Non-Bearing Walls:
- Interior 8″ CMU partitions: 2′-0″ x 1′-0″ continuous
- Exterior wall footings: 2′-6″ x 1′-0″ continuous

Column Spread Footings:
- Typical column: 4′-0″ x 4′-0″ x 1′-0″

The typical slab on grade will be 5″ thick, normal weight concrete, reinforced with 6″x6″, W2.1xW2.1 W.W.F placed over a 15-mil. vapor barrier and a 6″ thick washed gravel base. The slab will also be thickened under masonry partitions and other anticipated heavy loads. Control joints will be provided at +/- 20′ on center to reduce the potential for shrinkage cracks.

ROOF
Typical roof construction will consist of 1½″ deep, type ‘B’ wide rib, 20 gage, a galvanized metal deck supported by open web steel joists at a maximum of 6′-0″ on

STRUCTURAL DESIGN
(CONTINUED)

center. These roof joists will be supported on concrete masonry bearing walls. New roof framing will slope to drainage as needed.

WALLS
Exterior walls will consist of brick veneer on 8" CMU back up. Interior walls will be constructed with cold-formed structural steel studs and gypsum boards. The top of all CMU walls will be braced at the roof structure. Lintels will be required for all openings in the masonry walls. Precast masonry or concrete lintels may be used for openings in interior partition walls. For the exterior walls, lintels will consist of wide flange steel beams with hung plates sized to support the CMU and masonry veneer. All steel lintels will be galvanized.

NEW - EXISTING INTERFACE
The new addition will be structurally independent from the existing. Where required, the new steel framing will be designed for snow drift where the roof elevation of the addition is lower than the existing.

LATERAL RESISTING SYSTEM
The new addition will be a standalone structure supported on intermediate reinforced masonry shear walls. All shear walls will be reinforced to resist the applicable lateral forces. To control thermal movement and avoid introducing new loads into the existing building frame, a 2" expansion joint will be provided to separate the addition from the existing building. This joint will be installed between the existing exterior wall and the new roof structure.

CODE AND STANDARDS

PRIMARY REFERENCES:
- International Building Code 2021 with Local Amendments
- American Society of Civil Engineers: Minimum Design Loads for Buildings and Other Structures (ASCE/SEI 7-16)
- American Concrete Institute: Building Code Requirements for Reinforced Concrete (ACI 318-14)
- Building Code Requirements and Specification for Masonry Structures (TMS 402-16)
- American Institute for Steel Construction: Steel Construction Manual 15th ed. (AISC 360 16)

OTHER REFERENCED ORGANIZATIONS
- American National Standards Institute (ANSI)
- American Iron and Steel Institute (AISI)
- American Society for Testing and Materials (ASTM)
- Portland Cement Association (PCA)
- Concrete Reinforcing Steel Institute (CRSI)
- American Welding Society (AWS)
- National Concrete Masonry Association (NCMA)
- Brick Institute of America (BIA)

DESIGN CRITERIA

<u>Superimposed Dead Loads:</u>
- Suspended Ceiling: 2 psf

STRUCTURAL DESIGN
(CONTINUED)

- Sprinkler System: 3 psf
- Mechanical and Electrical Systems: 3 psf (Typical); 5 psf (Corridors)
  - ◊ In areas above mechanical rooms, the mechanical and electrical superimposed dead load will be increased to 15 psf.
  - ◊ Additional mechanical and electrical superimposed loads will be used to account for major concentrations of pipe runs, major duct runs, and hung equipment.

Live Loads:
- First Floor Slab on Grade: 100 psf
- Roof: 30 psf
  - ◊ Consideration of drifting, sliding, and unbalanced snow loads as required by the local building code.

Snow Loads:
Applicable ground, flat, and drifting snow loads based on section 1608 of the 2021 International Building Code and Chapter 7 of ASCE 7-16.
- Importance Factor, Is: 1.10
- Ground Snow load, pg: 40 psf (per local building code amendments)
- Snow Density: 19.2 pcf
- Exposure Factor, Ce: 1.0
- Thermal Factor, Ct: 1.0
- Flat Roof Snow Load, pf: 30 psf
- Minimum Load for Low-Slope Roof, pm: 22 psf

Wind Loads:
Applicable wind pressure coefficients established using section 1609 of the 2021 International Building Code and Chapters 26-30 of ASCE 7-16. Components and cladding at walls and roof will be calculated separately with the appropriate Code required factors.
- Ultimate Wind Speed, Vult: 120 MPH (3 second gust, Risk Category 3)
- Nominal Wind Speed, Vasd: 93 MPH (3 second gust)
- Exposure: C
- Internal Pressure Coefficient, GCpi: +/-0.18

Seismic Design Criteria:
Applicable seismic loads based on section 1613 of the 2021 International Building Code and Chapters 11-12 of ASCE 7-16.
- Seismic Occupancy Category: III
- Seismic Importance Factor: 1.25
- Spectral Response Coefficients:
  - ◊ Ss = 0.141
  - ◊ S1 = 0.043
  - ◊ SDS = 0.122
  - ◊ SD1 = 0.043
- Site Class: C
- Seismic Design Category: B
- Seismic Force Resisting System:
  - ◊ Ordinary Reinforced Masonry Shear Walls

Concentrated Loads:
Floor slabs will be designed for the indicated uniform live loads or a minimum

STRUCTURAL DESIGN
(CONTINUED)

concentrated load of 1,000 pounds, whichever produces the greater stress.

Deflection Criteria:

- Total drift will not exceed H/400 for lateral loads, where "H" is the story or building height.
- Live load deflection of roof members will not exceed the L/240.
- Live load deflection of spandrel members that support glass will not exceed L/480 with a maximum of 1/2".
- Live load deflection of spandrel members and structural elements that support masonry will not exceed L/600 with a maximum of 3/8".

MECHANICAL & PLUMBING DESIGN

EXISTING BUILDING SYSTEMS

HVAC
The existing building includes a two-pipe heating water central plant. Heating water is generated by three natural gas fired boilers located in the mechanical room. The heating water system has two constant speed primary end suction pumps circulating hot water through 6-inch main distribution piping. Associated central plant pumps, water treatment, and air management systems are located within the mechanical room.

Roof mounted air handling units (AHUs) provide cooled, preheated, and required outdoor air throughout the building. Classrooms are served by variable air volume (VAV) terminal units. Distributed roof mounted exhaust fans serve each shared classroom's toilet rooms. The building utilizes controls by Johnson Control's Metasys system.

PLUMBING
The existing building has an incoming 8-inch combined domestic water and fire service main that splits into two backflow preventers upon entering the building, one for 3-inch domestic water and one for 6-inch fire protection. Domestic hot water is generated by a shell & tube hot water generator located in the mechanical room. There are multiple 4-inch sanitary pipes exit the south portion of the building at a 2% slope and connect to a 6-inch main sanitary piping outside. The building includes an interior primary storm drain that routes above the ceiling, and continues below grade which connects to the main perimeter storm drain outside the building.

PROPOSED SYSTEMS

APPLICABLE CODES AND STANDARDS
- 2021 International Building Code (IBC)
- 2021 International Energy Conservation Code (IECC)
- 2021 International Mechanical Code (IMC)
- 2021 International Plumbing Code (IPC)
- 2021 International Fuel Gas Code
- ASHRAE Standard 62.1 – Ventilation for Acceptable Indoor Air Quality
- ASHRAE Standard 90.1 – Energy Standard for Buildings
- NFPA 90A – Standard for the Installation of Air Conditioning and Ventilating Systems

HVAC
Through discussions with the CCPS team, the preference for the new addition would be to tie in to the existing hot water loop at the school. Moseley has completed an initial assessment of the existing equipment and system at the school as part of the schematic design phase, which included preliminary load calculations to determine the likely capacity of the existing system and the anticipated load of the addition. Upon further investigation and in discussion with CCPS, it was confirmed that the new HVAC unit will be able to connect to the existing 2-pipe system. Supplemental testing will be conducted to determine the existing 2-pipe system's pressure, heating hot water flow rates, and operating temperatures. This information will be used for the selection of the new HVAC unit.

MECHANICAL & PLUMBING DESIGN

(CONTINUED)

Based on initial field investigations and a review of the as-built information for the school, existing AHUs are connected to the hot water loop. Moseley's initial calculation indicates that a total connected load of the existing HVAC equipment would have an approximate total connected load lower than the hot water plant capacity with diversity. The new HVAC unit will be a roof mounted DX packaged-type VAV air-source heat pump roof top unit (HPRTU) with a reheat coil for humidity control. The new units will tie-in to the existing chilled and hot water piping above the ceiling with isolation valves. A 6.5-ton unit will be necessary for the size of the base bid design and a 4-ton unit for the add alternate design of this project. An existing self-contained unit ventilator with wall louver that is currently serving a wellness room and occupational therapy room will be removed since it is located on a wall that will become an interior wall under the add alternate design. These two existing rooms will be served from the music room new unit as part of the add alternate design. Each classroom and any support spaces associated with the classroom will be an individual zone. Each zone will have a thermostatically controlled variable air volume (VAV) with a hot water coil. New exhaust fans will be provided for the new toilet rooms.

PLUMBING

The existing domestic cold, hot water, and hot water recirculation piping shall be extended with shut-off and balancing valves to serve the toilet rooms and classroom(s) in the addition. The existing hot water recirculation pump will be evaluated and replaced as necessary to ensure it has the capacity to serve the addition. The existing water heater appears to be able to accommodate the addition's toilet rooms and classroom(s) domestic hot water requirements.

The addition's roof will be sloped and will have primary roof drains with internal storm piping above the ceiling. The piping shall extend down below grade and connect to the exterior existing site storm water main. Secondary storm shall be provided by scuppers through the roof parapet.

The addition's toilet rooms sanitary piping will be routed and sloped at 2% below the new slab. The design intent is to connect to the nearest existing sanitary main within the building. Vent piping will be routed above the ceiling and through the roof.

FIRE SUPPRESSION SYSTEM

There is currently a water-based automatic fire suppression system that provides full sprinkler coverage throughout the existing building. The existing fire sprinkler system will be extended to the pre-kindergarten classroom addition. Any existing spaces affected due to the addition shall include modifications to the existing fire sprinkler layout to maintain and provide appropriate coverage in accordance with NFPA 13. The performance of the new fire suppression system shall be in accordance with all applicable codes and standards. The addition's occupancy hazard classification shall be based on Light Hazard areas in accordance with NFPA 13. The minimum density for automatic fire sprinkler design shall be 0.10 gallons per minute (gpm) per square feet (sqft) over 1,500 sqft of area. The fire sprinkler design and final sprinkler layout shall be delegated to a certified fire sprinkler contractor and will be reviewed by Moseley Architects. An additional fire department connection (FDC) will not be required since the school currently has an existing FDC. The system shall be specified as follows:

MECHANICAL & PLUMBING DESIGN
(CONTINUED)

- All sprinkler piping shall be black steel per NFPA 13.
- Piping 2-1/2″ and larger will be Schedule 10 per NFPA 13 and piping 2″ and smaller shall be threaded piping, minimum schedule 40, per NFPA 13.
- Sprinkler piping shall be specified to be concealed in all finished ceiling areas and exposed in exposed construction areas.
- Sprinklers in areas where heads subjected being damaged shall be provided with sprinkler guards.

ELECTRICAL DESIGN

APPLICABLE CODES AND STANDARDS

- 2021 Maryland Building Code (IBC 2021 amended)
- 2021 Maryland Existing Building Code (IEBC 2021 amended)
- 2021 Maryland Energy Code (IECC 2021 amended)
- 2020 Maryland Electrical Code (NFPA 70, 2020 amended)
- 2019 Maryland Fire Alarm Code (NFPA 72, 2019)
- 2024 Maryland Life Safety Code (NFPA 101, 2024 amended)
- Carroll County Public Schools Design Standards

MAIN SERVICE EQUIPMENT AND LOAD CALCULATIONS

The existing electrical utility service is provided by Baltimore Gas and Electric (BGE), which enters the building's main electrical room into an existing 1600A, 480Y/277V, 3-Phase, 4-Wire switchboard manufactured by Siemens, with a 1600A main circuit breaker. The existing electrical load on this service was calculated based on the monthly utility bill date provided by CCPS for the period between July 2023 through August 2024. During this period, the maximum demand for the electric service was 278kW and occurred during the month of September 2023. The existing load is calculated per NEC 220.87 as follows:

Peak Demand:	278kW (September 2023) 0.8 power factor 347.5kVA 418A at 480V, 3-PH
Demand factor (NEC 220.87)	x1.25
Maximum Existing Load	523A
Existing Service:	1,600A
Spare Capacity:	1,077A

Based on the information above, Moseley assumes that the existing electrical utility service will have sufficient capacity to support the new proposed electrical loads for this project.

DISTRIBUTION EQUIPMENT

EXISTING CONDITIONS

The distribution section of the switchboard contains circuit breakers for panelboards, mechanical equipment, mechanical motor center, automatic transfer switches and water heater. Electrical rooms are located throughout the building, which contain 480V panelboards, transformers and 208V panelboards. These panelboards provide power to lighting, mechanical equipment & receptacles in the classrooms and offices.

Emergency power is provided via an existing 60kW/75kVA, 480V/277V generator. The generator provides emergency power for the fire pump, the fire alarm system, interior egress lighting, exterior egress lighting, kitchen refrigeration equipment, the boilers and associated pumps, cafetorium sound system, school sound system, gymnasium sound system and the telephone system.

The existing area of the building where the proposed addition will be located is served by panelboards CP-1, LPA, RPB, L, H, and EM1. Panel LPA powers the interior lighting in this area. Panels RPB and L power the receptacles, general

ELECTRICAL DESIGN
(CONTINUED)

power equipment, and classroom appliances. Panel H powers the interior lighting and mechanical equipment. Panel CP-1 powers the computer receptacles and teacher workstations in this area. Panel EM1 powers the emergency lighting and exit signs.

NEW WORK
Existing panelboards CP-1, LPA, RPB, L, H and EM1 appear to have sufficient capacity and physical space to support the new electrical loads required for this addition.

LIGHTING

EXISTING CONDITIONS
The existing interior lighting is provided by 2'x4' linear fluorescent troffers with flat acrylic lens and recessed downlights. The existing exit signs have red letters. One emergency light fixture is provided in each classroom. This light fixture is near the interior classroom door and is unswitched. The existing exterior lighting is provided by surface mounted LED fixtures. The existing lighting controls consist of wall mounted light switches and ceiling mounted occupancy sensors.

NEW WORK
New 2'x4' linear LED light fixtures will be provided at 4000K CCT with integral dimming drivers and flat acrylic lens. The light fixtures will be located throughout each space to provide uniform illumination and an average illumination of 65 fc at the work plane per CCPS standards. New LED exit signs will be provided with white thermoplastic housings and red letters. Emergency lighting shall be provided in each space to provide minimum emergency egress lighting. The existing exterior surface mounted LED fixture will be removed and reinstalled at the new exterior doorway. Low voltage lighting controls will be provided in each space, to allow for multiple lighting levels and flexible lighting zones. The final lighting control design will be coordinated with CCPS during the design process. Exterior lighting will connect to the existing lighting controls.

RECEPTACLES

EXISTING CONDITIONS
Existing receptacles are ivory in finish color with stainless steel wall plates.

NEW WORK
New tamper-resistant receptacles shall be provided in ivory finish with stainless steel wall plates. The exact quantity and layout of the receptacles shall be coordinated with CCPS during the design process. At the main teaching wall, a high and low receptacle shall also be provided for connection to a wall mounted short-throw projector.

FIRE ALARM SYSTEM
The existing fire alarm system is a digital addressable system by GE: model EST2. The panel is outdated and no longer supported by GE, but parts are available for modifications. The existing fire alarm annunciator panel is located at the front entrance lobby.

NEW WORK

ELECTRICAL DESIGN
(CONTINUED)

The existing fire alarm system shall be modified and extended to provide new fire alarm notification devices for the new addition. If required, a fire alarm extender panel shall be provided and located in a nearby room to power up the additional devices. The existing fire alarm annunciator panel will need to be removed and replaced to reflect the new building footprint.

TELECOMMUNICATIONS AND SPECIAL SYSTEMS
EXISTING CONDITIONS
The incoming telephone and data service enters the building within the storage room 2. Telephone 110 punch down blocks and a Panduit telecom floor mounted equipment rack are located within this room. Within the rack are Panduit patch panels for the distribution of the telephone system via CAT5 cables. There are Juniper and Avaya network switches for distribution of the data system via CAT6 cables. Each classroom has a wall mounted telephone near the front door.

The existing PA system head end equipment is located within the Media Center. The PA system serves ceiling mounted speakers located throughout the building. There is an existing call switch near the front door.

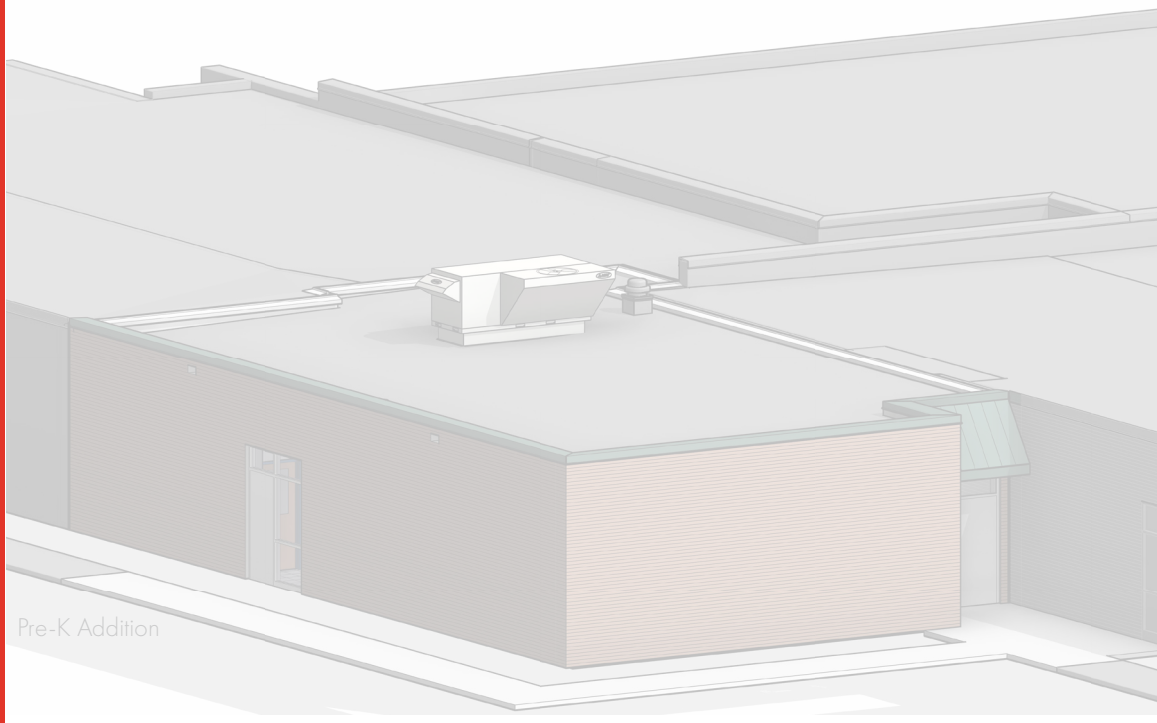
NEW WORK
The design approach for the addition will be coordinated with CCPS. New telecom outlets will also be provided at the teaching wall and the proposed teacher desk/workstation. High and low outlets will be provided at the teaching wall for a wall mounted short throw projector. Additional outlets will be provided around the perimeter of each classroom. Empty double-gang back boxes with a 1" empty conduit will be installed in the wall for each telecom outlet. The existing cable tray system shall be extended down the new corridors. Telecom cables homeruns will be routed back to Communications Room 116 and connected to the existing equipment racks and system.

New ceiling mounted PA speakers shall be provided in the new addition and connected to the existing PA system. New clocks will be provided in the classrooms in coordination with CCPS. The specific equipment, cable types and devices will be coordinated with CCPS during design.

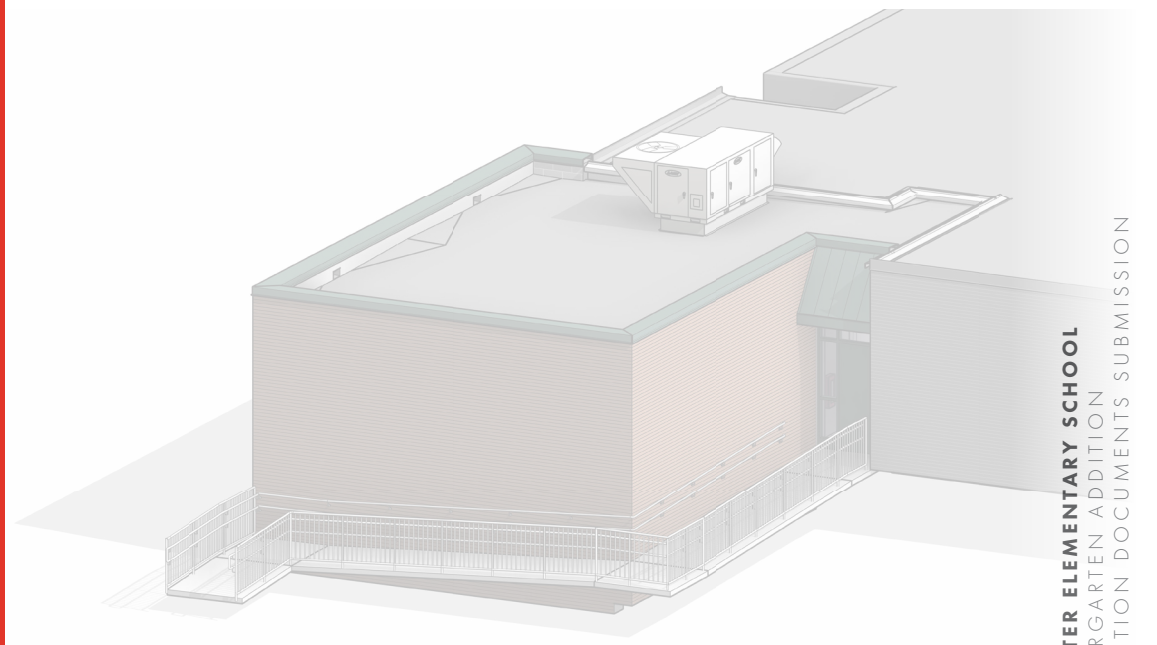
SECURITY & ACCESS CONTROL SYSTEM
EXISTING CONDITIONS
An exterior rated card reader is located at the egress door at the end of the corridor. Security cameras are located within the corridors and outside along the exterior walls of the school.

NEW WORK
Empty backboxes and conduit shall be provided for the installation of new card readers at the exterior doors and security cameras. The exact location and quantity of devices shall be coordinated with CCPS during design. CCPS's security system vendor will provide security and access control devices and cables for the addition.

PROJECT INFORMATION



Pre-K Addition



Music Add Alternate Addition

CCPS

MOSELEYARCHITECTS

PROJECT SUMMARY

Current State Rated Capacity	**568**
State Rated Capacity with Proposed Addition	**588**
Building Height	**One Story**
Occupancy Use Group	**E - Educational**
Construction Classification	**Type IIB**
Existing Building Square Footage	**69,048 GSF**
Area of Proposed PK Addition	**2,235 GSF**
Area of Proposed Add Alternate	**1,098 GSF**
Total Building SF After Proposed Base Bid	**71,283 GSF**
Total Building SF After Proposed Add Alt	**71,381 GSF**

PROJECT SCHEDULE

Education Specifications	**June 2023**
Schematic Design	**November 2024**
Design Development	**April 2025**
Construction Documents	**October 2025**
Permitting	**October 2025 - December 2025**
Advertise/Bid/Award	**December 2025 - March 2026**
Construction Start	**June 2026**
Occupancy	**August 2027**

PROJECT CONSTRUCTION BUDGET

BUILDING CONSTRUCTION BUDGET	$	2,229,565.00
SITE CONSTRUCTION BUDGET	$	292,032.00
CONSTRUCTION DOCUMENTS TOTAL CONSTRUCTION COST BUDGET	**$**	**2,521,597.00**

PROJECT CONSTRUCTION ESTIMATE

BUILDING CONSTRUCTION ESTIMATE	$	937,394.18
SITE CONSTRUCTION ESTIMATE	$	187,227.09
ESCALATION	$	75,382.67
TOTAL WITH ESCALATION	**$**	**1,200,003.94**
GENERAL CONDITIONS, INSURANCE & CM FEE	$	572,550.06
CONSTRUCTION DOCUMENTS TOTAL CONSTRUCTION COST ESTIMATE	**$**	**1,772,554.00**

SPACE ANALYSIS

*Areas indicated in net square feet unless otherwise noted.

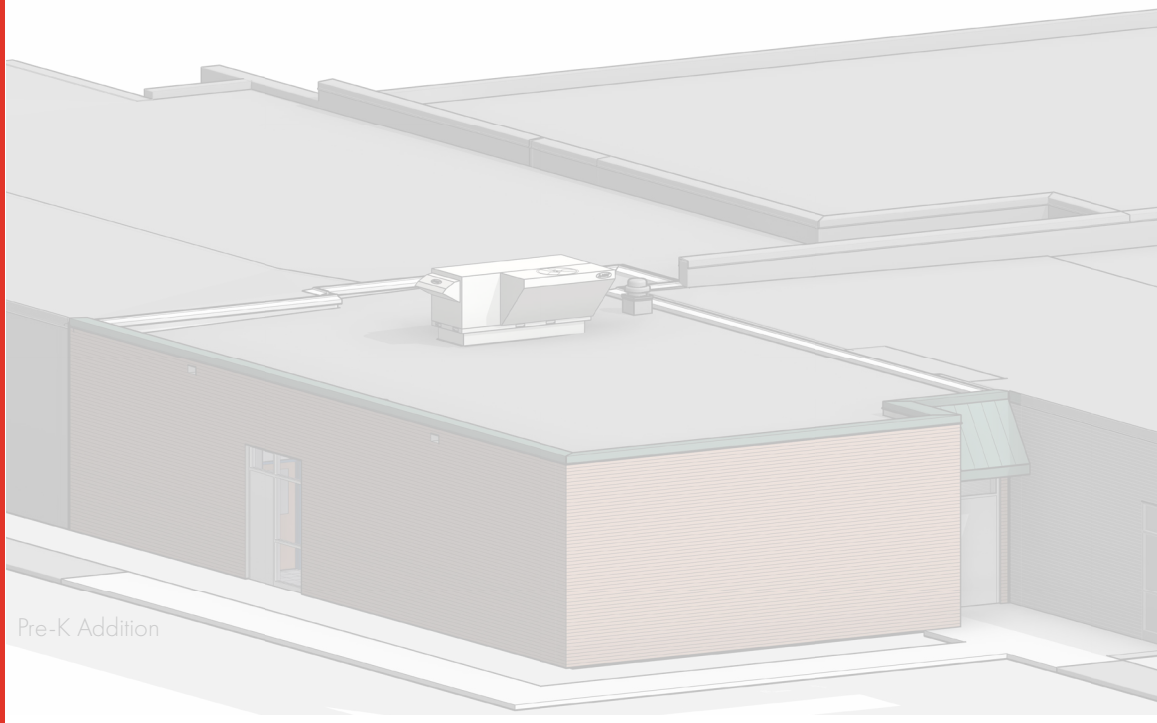
WESTMINSTER ELEMENTARY SCHOOL PK CLASSROOM ADDITION - IAC CD SUBMISSION - BASE BID DESIGN

PROGRAM SPACE	EDUCATIONAL SPECIFICATION				SCHEMATIC DESIGN				DESIGN DEVELOPMENT				CONSTRUCTION DOCUMENTS			
	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal
CORE INSTRUCTIONAL PROGRAMS				**1,400**				**1,406**				**1,423**				**1,421**
Pre-Kindergarten																
Classrooms	1	1	1000	1000	1	1	998.37	998	1	1	1022.14	1022	1	1	1021	1021
Storage/ Workroom	1	0	300	300	1	0	302.19	302	1	0	287.95	288	1	0	288	288
Student Toilets	2	0	50	100	2	0	52.5	105	2	0	56.25	113	2	0	56	112
Net square footage subtotal all programs				**1,400**				**1,406**				**1,423**				**1,421**
Efficiency adjustment (Walls & Circulation)	(1.43 Grossing Factor) =			602				839				812				814
NSF/GSF Efficiency % (calculated NSF/GSF)				70%				63%				64%				64%
GROSS SQUARE FOOTAGE	Ed Spec Total GSF:			**2,002**	Calculated GSF:			**2,245**	Calculated GSF:			**2,235**	Calculated GSF:			**2,235**
DRAFTED FLOOR PLAN GSF (ADDITION)					GSF:			**2,245**	GSF:			**2,235**	GSF:			**2,235**
INTERIOR RENOVATION/ ALTERATION SPACE					NSF:			**0**	NSF:			**0**	NSF:			**0**
OVERALL PROJECT AREA	Ed Spec Total GSF:			**2,002**	Project Total GSF:			**2,245**	Project Total GSF:			**2,235**	Project Total GSF:			**2,235**

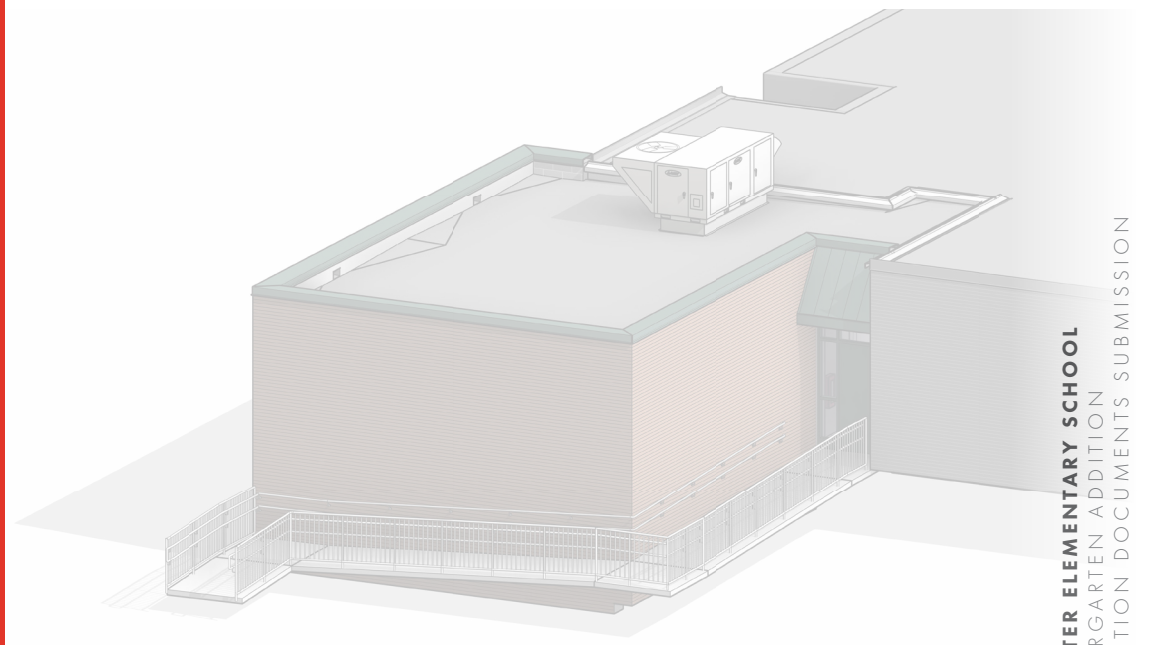
WESTMINSTER ELEMENTARY SCHOOL PK CLASSROOM ADDITION - IAC CD SUBMISSION - ADD-ALTERNATE DESIGN

PROGRAM SPACE	EDUCATIONAL SPECIFICATION				SCHEMATIC DESIGN				DESIGN DEVELOPMENT				CONSTRUCTION DOCUMENTS			
	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal	# of rooms	# of teaching stations	square footage	component subtotal
CORE INSTRUCTIONAL PROGRAMS				**1,400**				**1,406**				**1,423**				**1,421**
Pre-Kindergarten																
Classrooms	1	1	1000	1000	1	1	998.37	998	1	1	1022.14	1022	1	1	1021	1021
Storage/ Workroom	1		300	300	1	0	302.19	302	1	0	287.95	288	1	0	288	288
Student Toilets	2		50	100	2	0	52.5	105	2	0	56.25	113	2	0	56	112
FINE ARTS PROGRAMS				**0**				**929**				**860**				**852**
Music																
Music Classroom	0	0		0	1	0	928.87	929	1	0	859.78	860	1	0	852	852
Net square footage subtotal all programs				**1,400**				**2,334**				**2,282**				**2,273**
Efficiency adjustment (Walls & Circulation)	(1.43 Grossing Factor) =			602				1,258				1,055				1,060
NSF/GSF Efficiency % (calculated NSF/GSF)				70%				65%				68%				68%
GROSS SQUARE FOOTAGE	Ed Spec Total GSF:			**2,002**	Calculated GSF:			**3,592**	Calculated GSF:			**3,337**	Calculated GSF:			**3,333**
DRAFTED FLOOR PLAN GSF (ADDITION)					GSF:			**3,592**	GSF:			**3,337**	GSF:			**3,333**
INTERIOR RENOVATION/ ALTERATION SPACE					NSF:			**0**	NSF:			**0**	NSF:			**0**
OVERALL PROJECT AREA	Ed Spec Total GSF:			**2,002**	Project Total GSF:			**3,592**	Project Total GSF:			**3,337**	Project Total GSF:			**3,333**

DESIGN DRAWINGS



Pre-K Addition



Music Add Alternate Addition

CCPS

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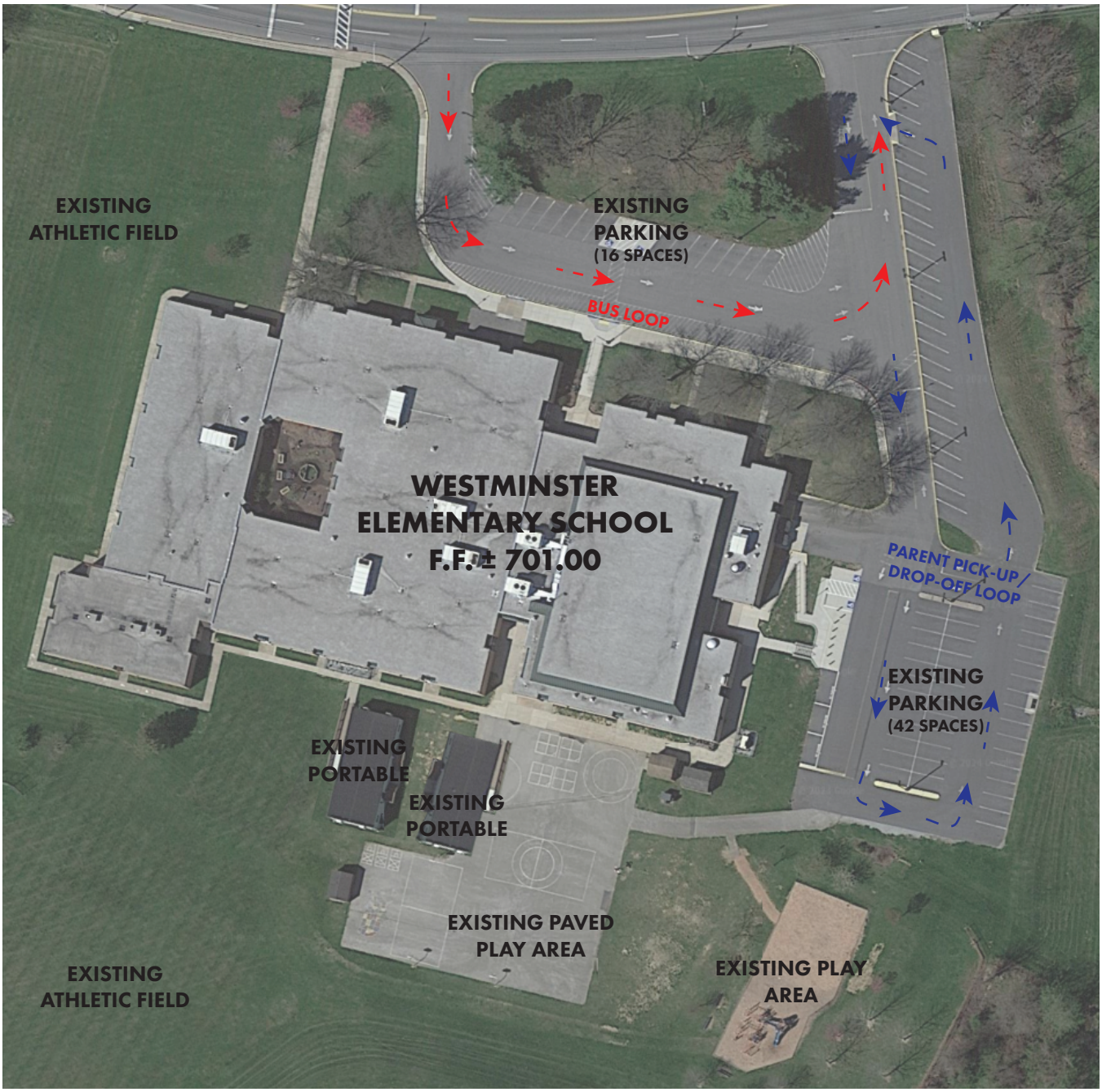
VICINITY MAP

0′ 250′ 500′ 1000′

N

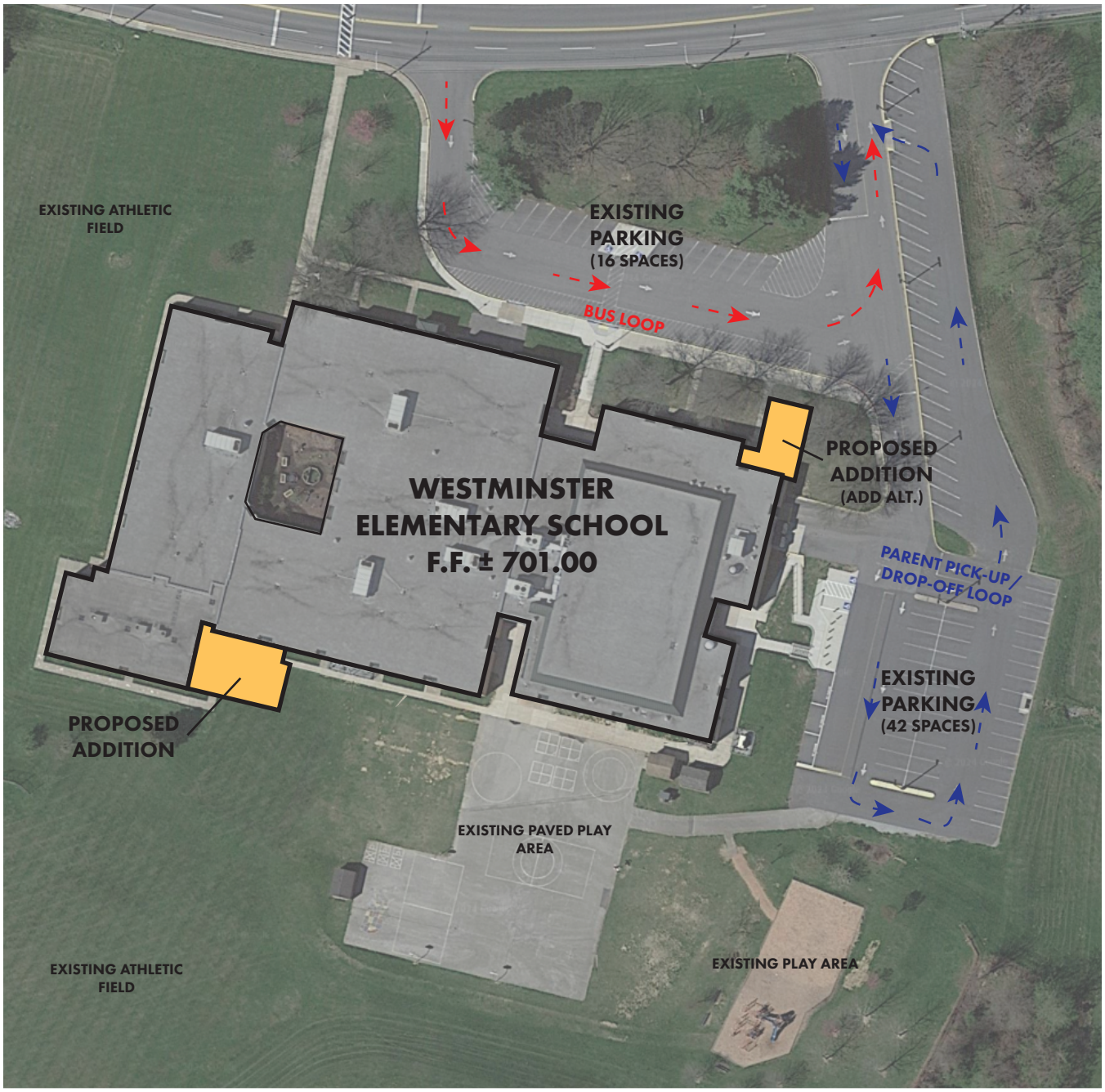
EXISTING SITE PLAN



0′ 30′ 60′ 120′

N

PROPOSED SITE PLAN



0′ 30′ 60′ 120′

N

OVERALL FLOOR PLAN

LEGEND

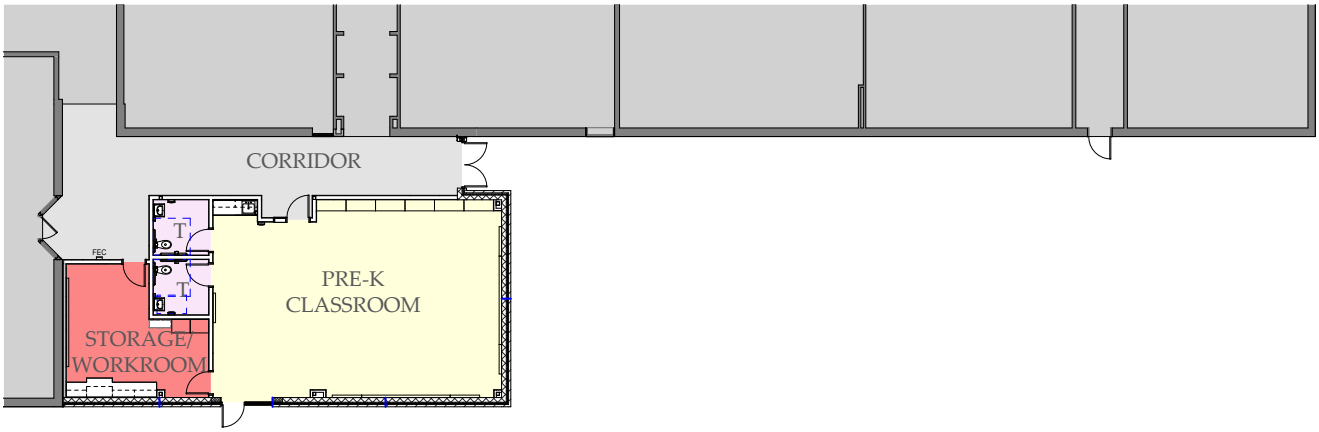
- Music Classroom - Add Alt.
- New Pre-K Classroom
- New Storage / Workroom
- New Student Restrooms
- New Corridor

0' 30' 60' 120'

PROGRAM KEY

1. Existing Classroom - Kindergarten
2. Existing Classroom - Pre-K
3. New Classroom - Pre-K
4. Storage / Workroom
5. Student Restrooms
6. New Corridor
7. Music Classroom - Add Alternate

ENLARGED FLOOR PLAN - PRE-K

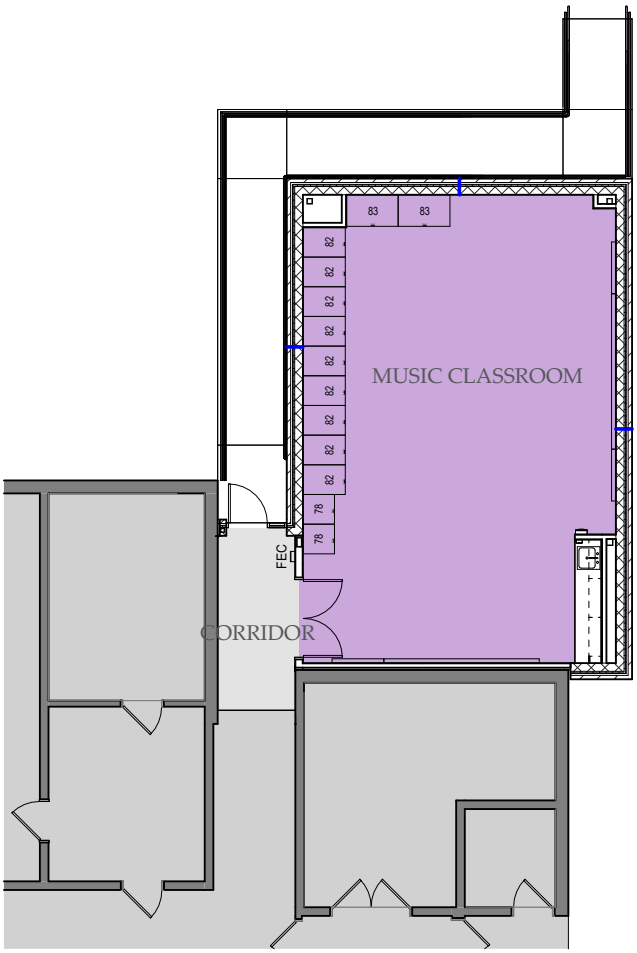


LEGEND

- Existing Building Program
- New Pre-K Classroom
- New Storage / Workroom
- New Student Restrooms
- New Corridor

0' 5' 10' 20' 40'

ENLARGED FLOOR PLAN - ADD ALT.

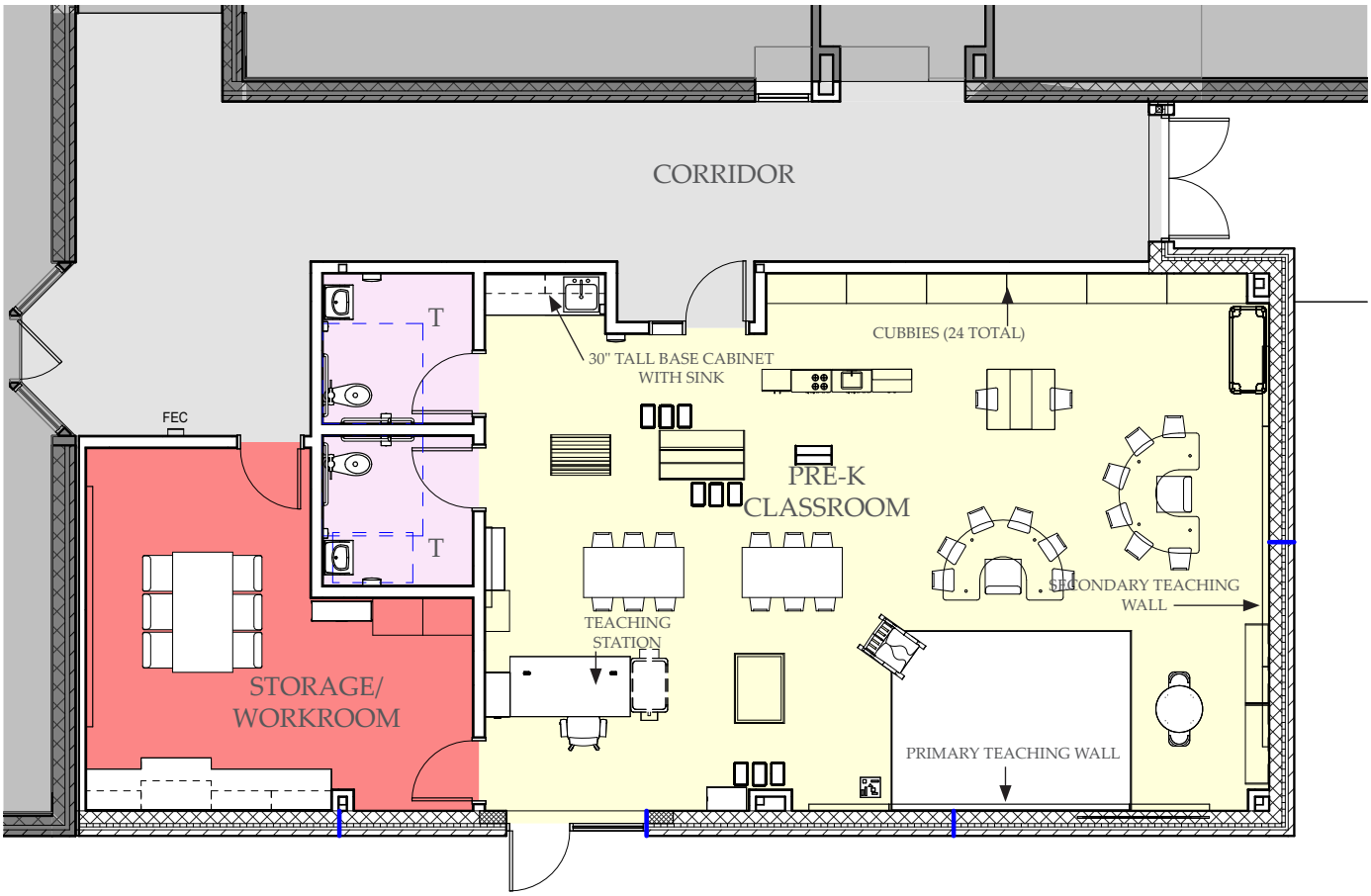


LEGEND

- Existing Building Program
- Music Classroom
- New Corridor

0′ 10′ 20′ 40′

CLASSROOM FLOOR PLAN - PRE-K

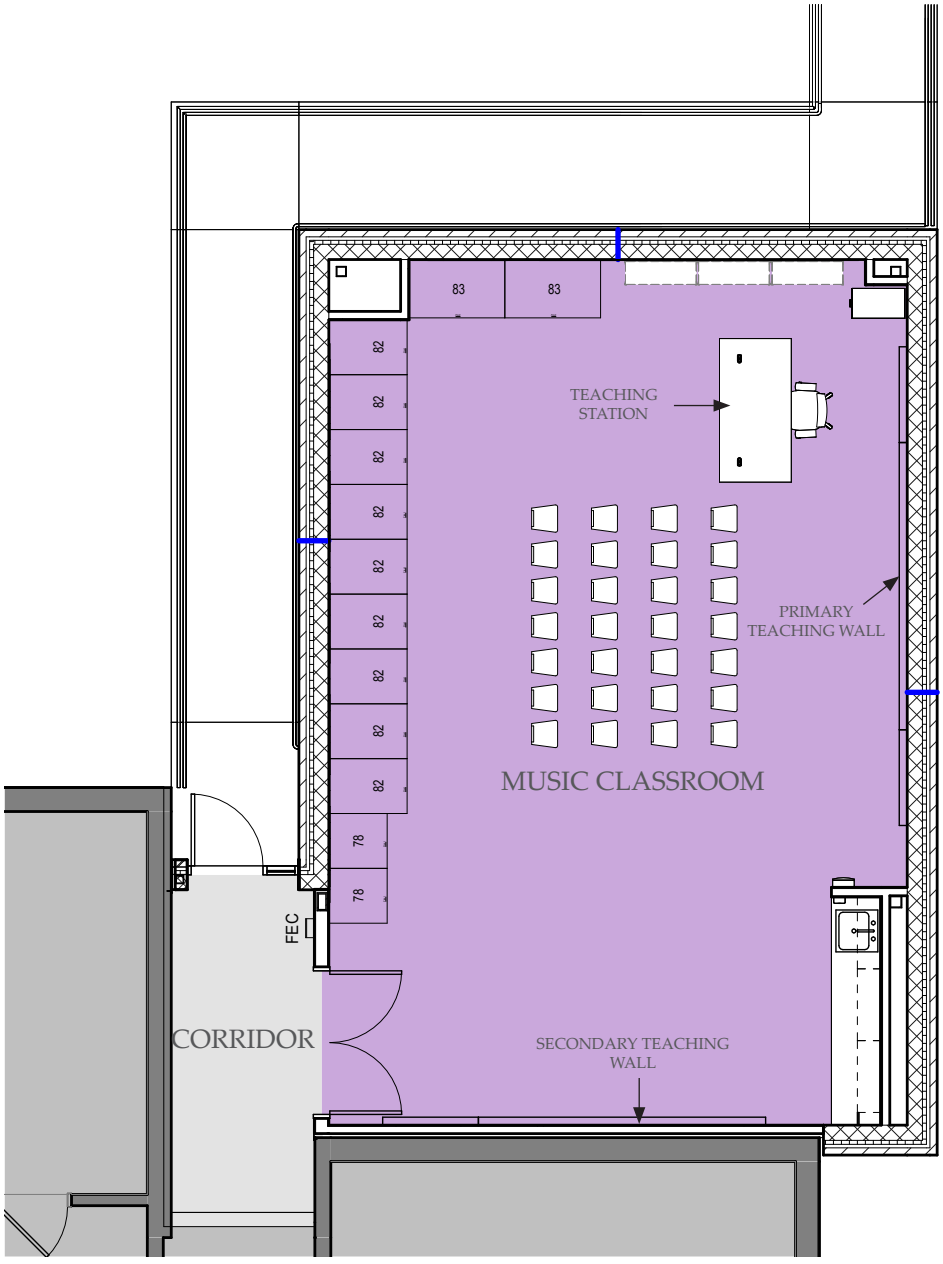


LEGEND

- Existing Building Program
- New Pre-K Classroom
- New Storage / Workroom
- New Student Restrooms
- New Corridor

0′ 5′ 10′ 20′

CLASSROOM FLOOR PLAN - ADD ALTERNATE

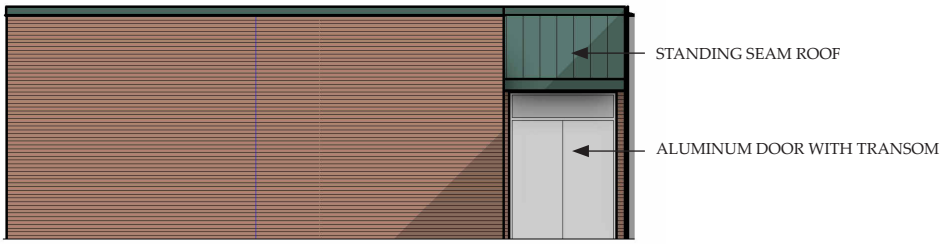


LEGEND

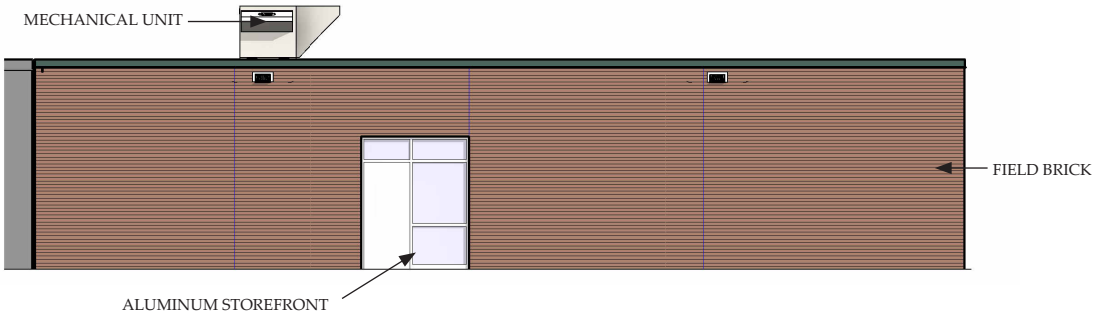
- Existing Building Program
- Music Classroom
- New Corridor

0' 5' 10' 20'

BUILDING ELEVATIONS - PRE-K



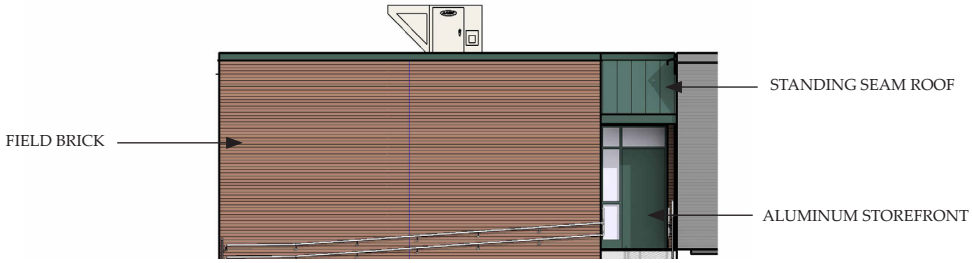
EAST ELEVATION



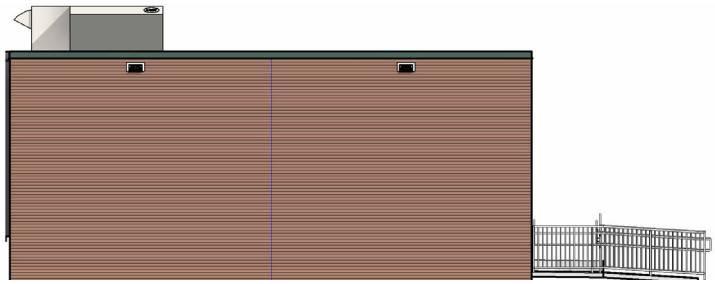
SOUTH ELEVATION

0' 5' 10' 20'

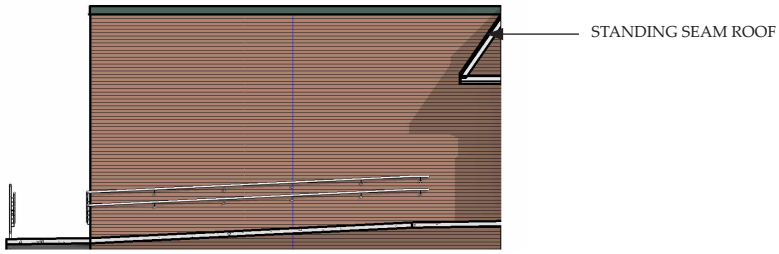
BUILDING ELEVATIONS - ADD ALTERNATE



NORTH ELEVATION



EAST ELEVATION



WEST ELEVATION

0' 5' 10' 20'