BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

CONCEPTUAL S.I.T. PACKAGE

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submitted to:

District of Columbia Public Schools

Department of General Services

SMS ARCHITECTS

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EXECUTIVE SUMMARY

Bruce Monroe at Park View Elementary School is among the schools included in the Department of General Services (DGS) "FY 2012 Phase 1 Schools". These schools - all existing facilities - will be modernized to comply with the DC Public Schools (DCPS) criteria aimed to "improve the learning environment, improve student performance, and advance educational outcomes within five years".

The modernization of this school will be completed in a 3 phase process. This phasing allows the school to be occupied throughout the modernization process and provides an improved physical environment within the core learning areas at the earliest possible time. Because of the existing conditions at the Bruce Monroe at Park View Elementary School, the work that is to be completed under the Phase 1 portion of the renovation will be supplemental to the typical Phase 1 modernization projects. This Phase 1 work is to be completed during the Summer of 2012.

This work is to be done under a modified design-build process where the builder is assigned to the project team during the Concept/Schematic Design phase. At the Design Development stage, the builder will develop a GMP at which time the architect's contract will be taken over by the builder from the DGS.

In addition to the Phase 1 modernization effort there are a number of stabilization issues that are to be addressed during this initial phase of construction. These issues have been identified by the school staff and include proper food storage in the Cafeteria, water infiltration, and potential air quality issues.

According to the Education Specifications, the planned student capacity for Bruce Monroe at Park View Elementary School will be approximately 450 Pre-school through 5th Grade students.

The original portion of this building was originally constructed in 1916 with the addition of two wings in 1931. The original composition of the school is largely intact however many modern codes (including ADA accessibility) and much of the building systems are beyond their useful life-spans. In addition to the code issues and the building systems, the historic interior finishes and exterior envelope have become covered up with the addition of modern building elements.

The goal of this modernization will be to provide a fully modernized educational environment while maintaining the integrity of the historic context. In addition to the modernization of the school, we are proposing a restoration of this unique architectural structure to return it to its original glory.

The full school modernization will include:

- Interior improvements: According to DCPS Five Priority Areas - Lighting, Environmental/Air Quality, Acoustics, Technology, and Furnishings.
- Re-Programming of Spaces as required: According to the Educational Specifications for 450 students Pre-School through 5th Grades.
- Building Envelope Restoration and Improvements.
- ADA Accessibility
- Site Improvements

PHASING SUMMARY

The following is a preliminary outline of the project phasing:

- Phase 1: Core Academic Spaces including Classrooms, Corridors, Stairs, Restrooms, and Administrative Areas. New MEP/IT systems for these spaces.
- Phase 2: Academic Support Spaces including Cafeteria, Auditorium, Gymnasium, and Media Center. Complete ADA accessibility renovations.
- Phase 3: Remaining MEP/IT elements and outstanding site improvements.

As stated in the Master Facilities Plan, the first priority is to improve the classroom learning spaces - the place the children spend most of their time. The Phase 1 Modernization (Summer 2012) will seek to provide improved lighting, environmental, acoustic, and technological qualities of the Core Academic Spaces. Where required, non-load bearing walls will be removed to create spaces that comply with the requirements of the Educational Specifications. In an effort to retain all historic elements possible the removal of existing elements will be limited in scope. En suite bathrooms, sinks, and storage areas will be included as required per the Education Specifications.

ARCHITECTURAL NARRATIVE

The original portion of the Bruce Monroe at Park View Elementary School was constructed in 1916 with two additional academic wings added in 1931. This historic architectural structure is built of brick with limestone ornamentation in the way of decorative quoins, window and door trim,and crenellation along the parapet. The 1931 addition was built to match the original portion of the building and included educational spaces and spaces that were originally built as separate boy's and girl's gyms. A unique element of this school is the full sized Auditorium with stage that was built along with the 1916 construction. Typically Elementary Schools were built with singular large spaces that served as Cafeteria, Gymnasium, and Auditorium. The overall building organization is symmetrical leading to a highly formalized building.

An application which is still pending has been filed with the National Register of Historic Places for inclusion of the Bruce Monroe at Park View Elementary School. The design team will work with the DC Historic Preservation Office, the Commission of Fine Arts and all other historic preservation bodies to ensure that all renovation efforts maintain the integrity of this historic structure.

The building is situated in the middle of the block so that the front and side setbacks are similar, with the main entrance in the middle of the block facing Warder Street. The overall building site is elevated from the adjacent sidewalk with the site sloping away from Warder Street with all site entries consisting of a series of steps. The main building entrance leads from a paved terrace centered on Warder Street, while the remainder of the site is bordered by a brick and stone retaining wall. This elevated building site poses considerable challenges when considering the requirements of ADA accessibility. The design team proposes a combination of re-grading a portion of the site with the introduction of stone walls and a ramp to provide an ADA accessible entrance at the southeast corner of the building site. The southeast corner of the site is being proposed because this is the portion of the site with the smallest difference in grade between the adjacent public sidewalk and school walkway. It is not feasible to alter the historic Warder Street entrance to the school as would be required to install the ramp. Instead the building entrance facing 6th Street NW is being proposed as the accessible entrance. While this entrance is not the formal main entrance, its prominent location on the site and direct access to the main corridor make this a reasonable ADA accessible entry point.

The rear of the site contains a small parking area and a paved area immediately adjacent to the school. The design team is proposing that the parking area be expanded and that a loading area be created adjacent to the new kitchen. The remainder of the paved area at the rear of the building may be revised to include additional play areas once the loading requirement is accommodated. This reconfiguration of the parking and loading areas at the rear of the school will serve to separate the pedestrian/student circulation from the vehicular site access.

The building is a split-level configuration with the entrance midway between the Ground and First Floors. In order to achieve the required ADA accessibility, the design team is proposing the introduction of a new elevator adjacent to the existing stairwell so that the any of the floors may be accessed from this entry. This split level design also leads to some confusion upon entering the school's main entrance. It is unclear upon entering where the building administration and security are located. The introduction of a welcome center flanked by the principal's office and the security office to the first floor at the top of the entry stairs will alleviate this confusion. This new welcome center will have an all glass wall and door facing the main entrance providing a visual connection to the reception area and creating a dynamic space upon entering the school.

The existing building contains a large centrally located space on the second floor directly above the main entrance. Because of its location adjacent to the peak of the Auditorium roof, this is the only space within the building with both an eastern and a western exposure. This space is currently used in part as a classroom and in part as a larger meeting area. Under the proposed layout this space would become a state of the art Media Center centrally located at the heart of the building, accessible to students and the community. The addition of monitor type skylights would create a dynamic, brightly lit Media Center that would become a focal point for the school and could be used by the larger community.

The proposed reorganization of the classrooms would provide groupings of classrooms by grade with the pre-K and Kindergarten classrooms located on the Ground Floor adjacent to the play structures that are appropriate for their specific age groups. The older children would be located on the second floor along with the Computer Lab for their use. This grouping of classrooms by age is conducive to the bi-lingual curriculum employed by this school. The reorganization also places the administrative and common functions of the school at the main floor where they are easily accessible to all portions of the school without disrupting the educational spaces.

The existing interior finishes are largely the original plaster walls and ceilings with new fixtures and flooring throughout. The modernized spaces would include the installation of new acoustical ceilings to conceal the MEP components that are currently surface mounted. The existing corridors include marble base and aging VCT flooring. Research into the original building drawings indicates the possibility that terrazzo flooring may be under the VCT flooring in the corridors. Restoring this terrazzo flooring and removing the surface mounted elements would restore the original design to the school public spaces.

The renovation of the Bruce Monroe at Park View Elementary School is an opportunity to restore this historic building to its original glory while providing a state of the art environment to the school and the overall community.

Some highlights of the proposed renovation include the following:

- An accessible site and building using a combination of a re-graded site, stone walls and ramp, a new elevator and the introduction of H/C lifts at the Cafeteria and Gymnasium.
- The reconfiguration of the rear of the site to provide additional parking and a dedicated loading area. Thereby separating the vehicular and play areas.
- New age appropriate play structures located adjacent to the corresponding classrooms.
- A revised entry to the Cafeteria and Gymnasium including new interior windows linking these spaces to the adjacent Corridors.
- A new kitchen that is separate from the Cafeteria space with direct access to an exterior loading area.
- The introduction of a new welcome center at the main entrance to provide a clear path upon entry to the building.
- A centrally located Media Center with natural light that will become a focal point of the school and can be used by the larger community.

MECHANICAL, ELECTRICAL, PLUMBING AND TECHNOLOGY SYSTEMS SCHEMATIC DESIGN NARRATIVE

INTRODUCTION

Allen &Shariff Engineering has been selected to perform the design of the mechanical, electrical, plumbing and technology systems for the modernization of the Bruce Monroe @ Park View Elementary School. The modernization will occur in phases as follows:

Phase 1 – Classroom Modernization

The first phase of the modernizations will focus on the Academic Components of the schools-the classrooms, where students spend the majority of their time. Improvements to the classroom shall be comprised of HVAC modifications/upgrades, interior finishes, lighting and electrical improvements, daylighting, technology enhancements, and FF&E. In addition to the modernization of the classrooms, consisting of new entries, flooring and wall coverings, wayfinding, and ceilings. Only with the proposed base system will the new HVAC be operational at the end of phase one.

All alternates require the existing heating and cooling to remain in use for the renovated phase one areas. The spaces would not be able to utilize the new cooling/heating plants until the end of phase three.

Phase 2 – Support Spaces

The second phase of the modernization effort will address support components, which may include bathrooms, art and music rooms, gymnasium, cafeteria, kitchen, media center, and health suite.

Phase 3 – Base Building System Components

The final phase of the modernization will target the school's Systems Components, including - HVAC system (if required based on system chosen), plumbing system and fixtures, electrical system, the building's exterior envelope, including roof and windows, as well as technology system. Under the proposed base system, there will be no HVAC work to be accomplished under this phase.

The following is the concept narrative for the mechanical, electrical, plumbing and technology systems for the school in it's fully modernized condition.

MECHANICAL SYSTEMS

General Mechanical Narrative:

The building will be heated and cooled by a variable refrigerant flow (VRF) heat pump system, which will consist of multiple indoor units and outdoor condensing units. The VRF system will allow for maximum flexibility for phasing of the project and maintaining existing systems during the complete renovation schedule, while also providing a premium efficiency system. The distributed load on the roof will help to minimize any structural modifications, and the system will be operational at the end of phase one. The mechanical systems will be designed in accordance with the codes, guides and references listed below and to meet the energy performance requirements of the project. The mechanical systems will be designed and sized based on the design conditions listed below. We have estimated a building cooling load of 275 tons, based on a cooling requirement of one ton per 300 square feet of building area (82,000 gross). The cooling load for the renovated building takes into account energy recovery systems, recently completed fenestration replacement and no additional wall insulation.

The existing building consists of a central steam heating plant and individual window A/C units. Ventilation, in the original wing of the building, is provided by a heating-only air handling unit in the basement mechanical room. The built-up AHU is original to the building. Individual ducts lead off of this AHU to the individual classrooms. This is a similar design to Cardozo High School. Per OPEFM, the ductwork was replaced in 2009. ASE will investigate reusing this ductwork in the new design. With the exception of the ventilation ductwork, all existing mechanical systems will be removed in their entirety by the end of phase three.

The building will be designed with a fully integrated, direct digital control (DDC), energy management system (EMS). The EMS will control and/or monitor all mechanical equipment in order to maintain indoor design conditions during occupied periods. The EMS will also modulate mechanical equipment to maintain unoccupied set points. Control strategies will be implemented via the EMS to minimize the energy consumption of the MEP systems such as static pressure reset in VAV systems and Demand Control Ventilation.

Additional HVAC systems will be designed for specialized areas in the school. Supplemental HVAC systems will be provided for areas requiring cooling over a 24-hour period. General exhaust systems will be provided as required by code, and for odor control, in areas such as locker rooms, kitchenettes, garbage rooms, janitor's closets, printing labs, art room, scene shop room and electrical closets (supplemental A/C units will be provided where the transformer load is over 6,000 Btu/h). Code required toilet exhaust systems will be provided for all toilet rooms. Specialized exhaust systems will be provided for fume hoods, kitchen hoods, and dishwasher hoods.

Applicable Codes, Guides and References

Air Conditioning and Refrigeration Institute (ARI)

Air Movement and Control Association, Inc. (AMCA)

American National Standards Institute (ANSI)

American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE)

American Society of Mechanical Engineers (ASME)

ASME CSD-1 2009 Controls & Safety Devices for Automatically Fired Boilers

American Society of Testing and Materials (ASTM) Standards

Associated Air Balance Council (AABC) Standards

Environmental Protection Agency (EPA) Regulations

2006 International Building Code

2009 International Mechanical Code (upgrade code to be consistent with LEED/ASHRAE)

2006 International Energy Conservation Code

National Fire Protection Association (NFPA)

Occupational Safety and Health Administration (OSHA)

Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

Underwriters Laboratories, Inc. (UL)

2006 District of Columbia Public Schools Design Guidelines

2008 DCMR 12

RFP including addendums

Educational Specifications

HVAC Design Conditions:

The design parameters will be in accordance with the RFP and Educational Specifications for Bruce-Monroe at Park View Elementary School.

Outdoor Conditions:

Summer: 94ºF DB

76 º F WB

Winter: 16º F DB

Indoor Conditions:

The HVAC system for the classrooms will be designed to provide 75ºF DB and 50% RH (plus or minus 10%) during summer months and 70ºF DB, during winter in all areas that require air conditioning. HVAC background noise level to attain RC(N) Mark II level of 37. Acoustics shall comply with RFP requirements.

Base System: Variable Refrigerant Flow (VRF) Heat Pump Cooling/Heating System with Dedicated Outside Air Units

Cooling/Heating Equipment: Variable refrigerant flow heat pumps with multiple fan-coil units tied to each outdoor heat pump, and dedicated outside air units (DOAS) with energy recovery

Piping System: Refrigerant piping between indoor and outdoor units with branch controllers to regulate flow

Air Distribution: DX fan-coil units tied to VRF system for classrooms and offices, Split-system AHUs for larger spaces

Ventilation: Through variable air volume DOAS air-handling units with energy recovery and shutoff VAV boxes for each zone

The classroom and office areas cooling/heating load will be satisfied by outdoor, air-cooled heat pump units (approximately sixteen tons each) providing refrigerant for simultaneous heating and cooling to the indoor fan-coil units. The refrigerant for the heat pumps will be R-410a. Air distribution for the building will be accomplished using DX fan coil units. One unit will be provided for each classroom. Units may be located in closets adjacent to the classroom or in the ceiling with ductless ceiling cassette units. Smaller spaces (offices) with similar load characteristics may be served from one unit and multiple units may be utilized to serve larger areas.

Cooling/heating for the larger areas such as the gym, cafeteria, and auditorium will be satisfied by split systems comprising of DX AHUs mated to air-cooled heat pump units. The refrigerant for the heat pumps will be R-410a. Air distribution for these spaces will be ducted to the AHUs. One or more units will be provided for each space. Units may be located in closets adjacent to the space or in the ceiling.

Ventilation for the building will be accomplished utilizing air-cooled DOAS units. The outside air will be delivered to each space as required through demand control ventilation. Demand control ventilation will be accomplished through CO2 sensors in the spaces tied to shutoff VAV boxes on the ventilation supply duct. The ventilation air will be routed through the chases in the walls between the classrooms and the corridors. Return and relief air will be required to be ducted back to unit for energy recovery purposes. If a DOAS unit can be placed in the main mechanical room, utilization of the existing ventilation ducts in the tunnel for return/relief air will be considered. For units on the roof, it is anticipated that the new horizontal duct runs would be located in the attic and connect to risers located in the existing shaft walls. It is anticipated that three to four units will be required. One or two will be required for the original wing of the building. The original wing comprises classrooms, offices, and the auditorium. The unit(s) will be located on the roof and/or in the main mechanical room. Two additional units will be required for the cafeteria and gym wings, and one unit will be located on the roof of each wing.

The cafeteria kitchen hood will be exhausted through a dedicated exhaust fan with variable speed drive. This will be interlocked with a direct-fired makeup air unit.

ELECTRICAL SYSTEMS

General Electrical Narrative:

The proposed electrical system shall consist of incoming secondary services, lighting, power, and fire alarm systems. These systems shall comply with the latest applicable codes and program requirements of the modernization project for the school.

All existing electrical systems will be removed in their entirety.

Applicable Codes, Guides and References

The electrical system will comply with the latest editions including amendments and revision of the following codes and regulations.

2005 NFPA 70, National Electrical Code (NEC)

2005 NFPA 72, National Fire Alarm Code

2006 NFPA 101, Life Safety Code

2006 International Building Code

2006 International Energy Code Conservation

National Electrical Manufacturers Associations (NEMA)

Institute of Electrical and Electronics Engineers (IEEE)

Electronic Industries Application (EIA)

Insulated Power Cable Engineers Association (IPCEA)

Certified Ballast Manufacturers Association (CBM)

American National Standards Institute (ANSI)

American Society of Mechanical Engineers (ASME)

American Concrete Institute (ACI)

Illuminating Engineering Society of North America (IES)

ANSI/ASME Elevators and Escalators Safety Code A17.1

EPA Regulations

2006 District of Columbia Public Schools Design Guidelines

2008 District of Columbia Public Schools Design Guidelines – LEED for Schools Review

2008 DCMR 12

Electrical Service

Under any mechanical alternates one new 3,000A, 208Y/120V, 3-phase, 4 wire, electric service will be required. This service shall be derived from a PEPCO transformer. Coordination with PEPCO will determine if the existing transformer has enough power for the new electric service. If a new transformer is required, a new vault inside the school property will be required to house the PEPCO transformer. The utility transformer will feed a new 3,000A rated switchboard, with utility metering cabinets, and distribution sections via a new16-way underground duct bank.

Power Distribution System

A new 3,000A switchboard will be located in boiler room at the location of the existing incoming electric service. This switchboard will feed two 1,200A Main Distribution Panelboards, MDP-1, and MDP-2. This switchboard will have a pull section for incoming service lateral, Current Transformer section, Emergency Tap section, Main Breaker section, and two distribution sections. The building electric loads will be divided into two nearly equal loads. The 1,200A Main Distribution Panel MDP-1 will feed all lighting, eneral power, computer receptacles, kitchen, cafeteria, and low voltage miscellaneous loads via down stream panelboards inside the ground floor electric rooms. The 1,200A Main Distribution Panel MDP-2 will feed all mechanical loads via down stream panelboards inside the ground floor electric rooms. Large mechanical equipment such as chillers, DOAS units, and cooling towers, based on different alternates, will be feed from the switchboard directly.

The intent is to have the main electric service and switchboard at the location of the existing boiler room. Ground floor in the building will have three electric rooms to house the panelboards which will feed lighting, computers, general receptacles, mechanical loads, emergency life safety lighting, standby loads such as IT room loads, elevator loads. In addition, these rooms will house Fire Alarm Supply Panel (FASP), and Lighting Control Panel (LCP).

Emergency and stand by power distribution systems, as specified under Emergency Power Distribution System section, will be fed from the switchboard directly.

The feeder voltage drop will be less than 2% and the branch circuit voltage drop will be less than 3%.

Emergency Power Distribution System

An emergency power distribution system will be provided to serve the emergency electrical loads throughout the building. A 250 KW gas fired standby generator will feed for safety loads such as emergency lights and the fire alarm system, and legally required loads such as the elevator and fire pump, and optional loads such as IT room loads, walk in freezer and refrigerator, security system, and any other loads per Owner's direction. The generator will be in the location of the existing boiler room. A dedicated room near the generator will house the emergency electric power distribution system, which includes 208V life safety and standby panels, disconnect switches, and automatic transfer switches. own stream panelboards will be in floor electric rooms to feed the local loads. The feeder voltage drop will be less than 2% and the branch circuit voltage drop will be less than 3%.

DC Rectifier Power System (DCPS)

Two 50A, 208V special receptacles will be provided in each IT room for the DC power system provided by the school.

Wiring Methods

Incoming utility service conductors shall be installed in 4" PVC ducts encased in a concrete ductbank from the utility source to the switchboard.

Interior Distribution feeder conductors shall be installed in Electrical Metallic Tubing (EMT).

Interior Branch circuits installed in exposed dry areas shall be installed in EMT.

Exterior Branch circuits exposed to the weather shall be installed in Intermediate Metal Conduit (IMC).

Interior Branch circuits installed concealed in ceiling or wall spaces, shall generally be EMT. Metal-Clad or "MC" cable with an insulated green grounding conductor will be used for branch circuits 30A or less.

All fire alarm system wiring shall be required to be installed in conduit and subject to the constraints of

he installation applications noted above.

Equipment Connections

Disconnect switches will be provided for all electrical connections to mechanical equipment. Power connections will be provided for technology equipment.

Lighting:

The lighting systems for interior and exterior spaces will be energy efficient and will comply with IES recommendations, NEC and the OPEFM Educational Program.

Fluorescent lighting will be provided in most interior spaces as follows:

Classrooms, labs - linear direct/indirect suspended fixtures.

Offices - 2′ x 4′ Recessed high efficient parabolic fixtures.

Kitchen areas - 2′ x 4′ recessed fluorescent fixtures for clean area.

Gymnasium - 2′ x 4′ high bay fluorescent fixture with (8) 32W lamps.

General music room with high ceiling - 2′ x 4′ high bay fluorescent fixture with

(4) 32W lamps or suspended linear fixtures, and recessed can combinations with dimming system.

Auditorium and stage (Multi Purpose room) – Electrical design will include power and lighting control details for auditorium and Stage lighting designed by the architect's sub consultant.

Metal halide fixtures will be used for exterior parking lot lighting. Compact fluorescent fixture will be used for exterior wall sconces, and dimmable fluorescent fixture will be used where dimming is required.

Light Design Parameters:

Classrooms 50 f.C. at 30″ above finished floor

Art and computer Labs 50 f.C. at 30″ above finished floor

Corridor/lobby 10 f.C. at 0″ above finished floor

Storage Rooms 15 f.C. at 30″ above finished floor

Offices 50 f.C. at 30″ above finished floor

Gymnasium 50 f.C. at 0″ above finished floor

General music room 50 f.C. at 0″ above finished floor

Emergency Egress Lights

Emergency egress lights will be provided in all corridors, main egress paths, multi-purpose rooms, gymnasium, reading rooms, etc., in order to comply with ADA, NFPA, IBC and NEC codes.

Exit lights will be LED type. All emergency and exit lighting will be connected to the emergency generator system.

Lighting Control System

Lighting control devices will be local one way, three way or four way switches and occupancy sensors to meet the energy code requirements. For larger spaces like the gymnasium, multi purpose room etc., low voltage relays inside the lighting control panel(s) and time clock or EMS interface will schedule the lights and shut them off per schedule. Exterior lighting will control via photocell/time clock part of the lighting control panel(s). Corridor lighting will control by time clock, contactor combination. There will be two lighting control panels with Min. 42 low voltage relays to control lights in gymnasium, multi purpose room, media center, cafeteria, corridors, and exterior lighting. Multi switching will be required for classrooms, labs, multi purpose rooms, gymnasium, media center, and any large areas where the light controls by relays for automatic lighting shut down system to meet IECC requirements.

Receptacles

Each group of two computers in classrooms will have one quad receptacle, and each two quad receptacles will have a dedicated circuit. Maximum four receptacles, combination of computer receptacle and general receptacle will have a dedicated circuit. Wire size to be #12 for circuit length 70′ or less, #10 for circuit length between 70′ to 110′, and #8 with junction box to reduce the wire size to #12, for proper connection to the receptacles will be designed, for circuit longer than 110′. Dedicated receptacles will be specified per requirements. Day acre will have tamper resistance receptacle per IBC requirements.

Fire Alarm

The Fire Alarm and Detection system will be a fully addressable, non-interfering, multiplex system with an auto-dialer and/or Digital Alarm Communicator Transmitter (or DACT), to transmit alarms to the designated central station.

All devices including; manual stations, smoke and heat detectors, duct smoke detectors, flow alarms and tamper switches shall be completely addressable. Manual Stations shall be provides with audible alarm stopper covers to dissuade false alarm tripping.

Fire Alarm System Wiring: Initiating circuits will be Class ″A″, Style D; signaling line circuits will be Class ″A″, Style 2; and notification appliance circuits will be Class ″A″, Style Z.

In each electric room, there will be one fire alarm power supply panel, and one terminal cabinet.

Building Grounding System

A complete grounding system for the entire building, from service entrances to low voltage panel board, will be provided in compliance with the NEC.

PLUMBING SYSTEMS

General Plumbing Narrative:

Plumbing for this project includes sanitary systems, domestic water systems, storm water systems, natural gas systems, and plumbing fixtures and equipment. General plumbing system testing and warranties shall be included in the contract specifications. The entire plumbing system shall be designed in accordance with the latest applicable local codes and regulations.

The existing plumbing systems, piping, and equipment will be demolished in their entirety.

Applicable Codes, Guides and References

American National Standards Institute

American Society of Mechanical Engineers (ASME)

American Society of Testing and Materials (ASTM) Standards

2006 International Building Code

2006 International Plumbing Code

2006 International Fire Code

2006 International Fuel Gas Code

District of Columbia Construction Code Supplement (latest edition)

District of Columbia Public Schools Design Guidelines (2008 Ed.)

District of Columbia Water and Sewer Authority (DC WASA)

District of Columbia Department of Health

Environmental Protection Agency (EPA) Regulations

National Fire Protection Association (NFPA)

Occupational Safety and Health Administration (OSHA)

Underwriters Laboratories, Inc. (UL)

Plumbing and Drainage Institute (PDI)

Sanitary Systems

The existing building has multiple combined sanitary and storm sewer laterals including: two eight inch combined sewer laterals at the East and one eight inch combined sewer lateral at the South of the building which discharge into the existing public sewers. As the existing combined sanitary and storm laterals are nearly eighty to one hundred years old, all new sanitary laterals shall be provided. It is anticipated that three new sanitary laterals are expected, with two laterals located on the East and one at the South of the building preferably in the same location of the existing laterals. It is anticipated that each laterals shall be either four or six inches depending on the final fixture counts and sanitary demand.

Grease waste from all grease-laden fixtures and all three compartment sinks in the food service area shall be piped to an exterior below grade 1,500-gallon grease interceptor, located in an area that is convenient for cleaning preferably in the West parking lot adjacent to the existing cafeteria per DCPS Design Guidelines.

All plumbing fixtures, floor drains, and equipment shall be piped for gravity flow to the public sanitary sewer system. Interior below grade piping within the structure shall be service weight, hub and spigot cast-iron with cast iron fittings and compression type neoprene gaskets or lead and oakum joints at contractor option.

Interior sanitary, waste and vent piping above the lowest level within the structure shall be service weight, no-hub cast iron with cast iron heavy-duty fittings and neoprene gaskets with stainless steel clamp and shield assemblies or DWV copper at contractor option.

Elevator sump pumps shall be provided in each elevator pit and shall be tied-in to the sanitary system if required.

Domestic Water Systems

A fire flow test with the available static and residual pressure from the existing public water main shall be required in determining if a fire pump, with possibly a water storage tank system, and domestic water booster pump will be required for this building.

The existing service shall be removed and replaced with new four-inch domestic water service depending on final fixture counts and domestic water demands. Domestic water service shall include a new four-inch double check valve backflow preventer assembly and a duplex-domestic booster system with hydro-pneumatic tank as required. If required, booster pump package shall consist of duplex, vertical close-coupled, centrifugal, cast iron, bronze mounted pumps with all required piping and controls. The package shall include a hydro-pneumatic expansion tank. A minimum water pressure of thirty PSI shall be provided at the highest most remote fixture. The incoming water piping material below grade shall be either type K copper or ductile iron. All interior above grade piping material shall be type L copper. All interior cold, hot, and hot water recirculation piping shall be insulated in accordance with applicable standards. All piping shall be run within concealed spaces or above the ceiling. Water piping to island sinks shall be fed from the floor below or in an accessible trench in the floor with a removable cover for access. Where subject to freezing, piping shall be heat traced and insulated.

Domestic hot water shall be supplied from two new high efficiency natural gas-fired, 200-gallon storage type, water heaters. Estimated gas input for each water heater shall be 300 CFH with a recovery rate of 140 GPH at 100°F. Hot water calculation shall be based on District of Columbia Public Schools design guideline maximum consumption rate of 0.6 gallon per student per hour. Domestic hot water shall be heated to and stored at a temperature of not less than 140° F. 110° F. hot water shall be supplied to all plumbing fixtures and equipment via piping utilities tunnels with vertical riser within the building. Public hand washing lavatories and sinks shall be supplied with a point-of-use mixing valve complying with ASSE1070. Food service equipment requiring higher temperature water shall be provided with 140° F.

Hot water recirculation systems shall be provided to maintain a temperature drop of not more than 5° F. for both temperature systems. The recirculation system shall include a pre-packaged mixing valve and dual recirculation pump system pre-assembled in a cabinet for installation.

Refer to LEED Construction Option at the end of this narrative for rainwater harvesting, treatment and reuse system. System may be used to flush water closets and urinals.

Refer to LEED Construction Option at the end of this narrative for Solar Water Heating for Kitchen. System may be used for hot water demand for school cafeteria kitchen.

Storm Water Systems

Roof drainage shall be provided by exterior roof drains with internal rain leaders and/or exterior gutters with downspouts. Storm water will be collected and piped by gravity to the site storm water sewer laterals. An emergency secondary roof drainage system will also be provided by means of exterior parapet scuppers and/or emergency exterior overflow roof drains with internal emergency overflow rain leaders. Internal emergency overflow drain piping shall extend through building exterior wall and spill to a splash block eighteen inches above grade.

Based on roof square footage, two eight or three twelve inch storm water laterals are anticipated. New storm water rain leaders shall be located in the location of the existing leaders were possible. Interior below grade piping shall be hub and spigot cast-iron, and above grade piping shall be no-hub cast-iron with heavy-duty fittings. All horizontal roof drainage and secondary roof drainage piping and roof drain bodies shall be insulated.

Refer to LEED Construction Option at the end of this narrative for rainwater harvesting, treatment and reuse system. System may be used to flush water closets and urinals.

Natural Gas Systems

Natural gas distribution system will be designed for domestic water heating, food service equipment and the emergency generator. The local gas company shall determine if the existing service piping and meter can handle the new building demand capacity. It is anticipated that the existing gas service piping, gas meter and regulator shall remain in service. However, a new separate natural gas service, meter and pressure regulator will need to be installed next to the existing gas meter at exterior face of the building to serve the new natural gas emergency generator. This meter shall connect to the existing high-pressure gas service before the gas meter servicing the building.

A gas pressure regulator shall be provided for each piece of equipment, and gas pressure regulator vents shall be provided as required. Gas supply in the cafeteria kitchen equipment shall be interlocked with the Ansul fire protection system and mechanical fume hood exhaust fan as required.

The piping materials will be selected based on longevity. All interior gas piping shall be Schedule 40 black steel with welded fittings.

Plumbing Fixtures and Equipment

Fixtures shall include water closets, urinals, lavatories, showers, drinking fountains, and sinks. ADA fixtures and trim shall be provided as required. Water conserving fixtures shall be installed throughout the facility.

All water closets shall be wall hung, white vitreous china, and have a 1.28 gallon per flush valves or 1.6 / 1.1 gallon per flush dual flush valves (average of 1.28 gallon per flush per LEED calculation). All urinals shall be wall hung and white vitreous china and shall have an ultra low water consumption flush valve of either a pint gallon per flush or half gallon per flush.

All lavatories shall have push button metering faucets with a half gallon per minute flow rates. Sinks will be made of 18gauge,302 or 304 stainless steel. All shop and art sinks shall have gooseneck style faucets to facilitate cleaning.

Showers shall be designed with pressure-balanced low flow heads. Low flow shower head flow rate shall be one and a half gallon per minute and shall be control with a metering system.

Drinking fountains or electric water coolers will be provided throughout the facility as required per code.

A minimum of one mop/service sink per floor will be designed in the facility as required.

Recessed box type exterior wall hydrants shall be provided no more than one hundred feet apart around the perimeter of the building. Wall hydrants shall be freeze proof and provided with individual shut-off valves. Hose bibs will be provided in each large restroom, locker room, and mechanical room and shall be feed from the domestic cold water piping as required.

Floor drains shall be required in all toilet rooms, janitor's closets, shower areas, food service preparation areas, and mechanical/plumbing rooms. All drains not receiving a constant discharge from equipment shall have trap primer connections.

Fire Protection Systems

The installation of the fire protection system shall be determined by the DCPS owner's representative or by DCRA Fire Marshall.

The entire new facility shall be protected in accordance with NFPA and designed with a complete automatic wet sprinkler system, utilizing the available water pressure and supply from the public mains and a five hundred gallon per minute fire pump. A new six-inch fire service will be provided. The six-inch fire service will be provided with an approved double check detector assembly. A water storage system may be required as a result of insufficient water flow and pressure from the existing street main. Estimated required storage tank sized shall be based on supplying the system demand of one five hundred gallon per minute for thirty minutes; therefore, a fifteen thousand gallon tank will be required. The fifteen thousand gallon fire protection water storage tank shall be installed underground and a five hundred gallon per minute vertical turbine fire pump shall be located above the tank in a fire pump house. A five hundred gallon per minute horizontal split case fire pump shall be used in lieu of the five hundred vertical turbine pump if approved by DCRA. If the results of the fire flow test indicate adequate flow and pressure form the existing street main, the fire pump will be located inside the building.

Sprinkler risers will be designed in each egress stairwell as required. All sprinkler risers will be interconnected at the ground or basement level and shall be provided with control valves with tamper switches and flow alarm switches. A sprinkler system control valve with tamper switch, flow alarm switch

and check valve will be provided at each connection to the sprinkler riser.

Sprinklers shall be quick response type and located in the center of ceiling tiles. Areas subject to freezing will be protected with dry sprinkler systems or dry pendent type sprinkler heads. A water curtain with rated sprinklers shall be provided as required by NFPA 13 for enclosed courtyards and atrium areas. Sprinklers systems at these locations shall be fed from an independent sprinkler control valve assembly and all atrium systems shall be interlocked with the fire alarm and mechanical smoke control system as required by code. Elevator shafts shall be provide with fire sprinklers in accordance with NFPA 13.

A double-interlock preaction system and/or FM200 system shall be provided as required by the owner in rooms subject to severe equipment damage or property loss in the event of a sprinkler system activation.

A new siamese connection will provided with two 2-1/2" connections at the address side of the building, within one hundred feet of a fire hydrant. A new fire pump test manifold will be provided in order to facilitate fire pump testing.

The piping materials will be selected based on longevity. Material to be used shall be Schedule 40 standard weight black steel pipe. Dry pipe systems shall use Schedule 40 standard weight galvanized steel pipe.

SUSTAINABLE SYSTEMS OPTIONS

Rainwater Harvesting System

A rainwater harvesting, treatment and reuse system shall be designed to capture and reuse rainwater collected from available roof surfaces. Rainwater shall be collected, pre-filtered, stored, filtered, treated, and used for flushing water closets and urinals and/or the landscaping irrigation water supply. The system shall include a field fabricated cistern of between twenty and thirty thousand gallons located within the subbasement or basement, multiple storm water pre-filters, duplex sump pumps within cistern, dual filtration housings, a UV treatment system, a break tank, a duplex booster pump package with a dye injection system, and all necessary controls and valves. The cistern and storm water pre-filters shall have an overflow drain to the city storm water main. A building cold-water bypass connection, with a reduced pressure backflow preventer and a sub-meter, shall be provided in the event that the cistern does not have enough rainwater to meet the building demand.

Solar Water Heating for Kitchen

A solar water heating system shall be designed and installed to handle the complete hot water system demand for the school cafeteria kitchen. The system shall include multiple solar panel or multiple vacuum tube collector kits with roof mounting hardware, copper or stainless steel pipe, solar panel temperature sensors, expansion tank, solar storage tank with temperature sensor, solar control unit, fast air vent, air separator, pressure relief valve and pressure gauge, pumping station and system fill manifold.

TECHNOLOGY SYSTEMS

General Technology Narrative:

The proposed technology system shall consist of incoming data, phone, and cable services, and communication, security, audio visual, sound, and intercommunication and program systems. These systems shall comply with the latest applicable codes and program requirements of the modernization project for the school.

All existing technology systems will be removed in their entirety.

Communication Systems

Communications systems shall include the infrastructure to support voice and data communications within the building and connectivity to available communications service providers. This infrastructure shall include communication equipment spaces, cabling pathways, and cabling within the building. This infrastructure will be designed utilizing the current and accepted industry standards, as well as input from the end-user. The design shall accommodate active equipment to be specified and provided by others.

A dedicated Communications space in ground floor will be provided as demarcation to support the workspaces within the building. A dedicated Min. 9'-0" by 8'-6" at the ground floor, near demarcation room, should be considered for Main Distribution Frame (MDF), and two more dedicated 9'-0" by 8'-6" on ground floor northeast, and northwest wing, should be considered for Intermediate Distribution Frame (IDF). Horizontal cabling from outlet locations will be routed to these rooms via designated pathways for termination. Floor plan details and wall elevations will be developed for this space to reflect the location of items such as equipment, racks, termination fields, cable tray, and grounding systems.

The design will provide building communications (voice and data) service access from the outside plant duct bank into the Communications space. Designated pathways (using conduits, J-hooks and/or cable tray) will be provided to distribute horizontal cabling from the communications room to the Work Area Outlets (WAO's).

Fiber optic and copper cabling will be provided to the Communications space from the duct bank to provide connection to the customer premise systems. This entrance cabling will also support security system (CCTV and access control) interfaces within and around the building perimeter. Horizontal distribution to workspace outlets will be designed to comply with current industry standards and end-user requirements.

A dedicated grounding system will be provided to allow compliant grounding of communications equipment per EIA/TIA 607 and NEC standards.

One telephone drop will be in all classrooms and learning areas, offices, teacher prep rooms, conference rooms and workrooms, to provide internal and external communications. The system shall accommodate voice mail and have analog lines for faxes, modems, and security system.

The data drops for each independent computers and other electronic equipment shall communicate over a shared medium. Each classroom shall have a minimum of five data drops with RJ-45 jacks for student

computers and one data drop with RJ-45 jack for the teacher station computer, and one drop for printer.

A wireless system will be provided in the corridors.

Network Electronics

Network switches, Hubs, Routers, Servers, etc., are furnished and installed by Owner's representative (OCTO).

Security Systems

Security systems will be comprised of IP Based CCTV Cameras, access control components and intrusion detection, and will have local monitoring capabilities, and be interfaced with remote monitoring provided by an independent security contractor.

The building perimeter will incorporate surveillance cameras to allow central monitoring of all activity immediately surrounding the building as well as the adjacent streetscape. Points of ingress and egress will be equipped with cameras allowing local monitoring of activity/traffic. Additional cameras may be added, as the program develops, to provide monitoring of additional areas as designated by the end-user. Motion detectors will be provided to provide intrusion detection in corridors and large spaces.

Proximity card readers and required door hardware/accessories will be provided to control all exterior doors and interior doors as need is identified.

Monitoring of facility CCTV, access control status, and a panic button, will be provided at the main office and at any transaction points.

Audio Visual Systems

A television signal will be provided from a private CATV service provider and distributed to TV outlets located in areas designated by the end-user, such as classrooms, art lab room, computer lab, and so on, to satisfy the Education Specification.

Consideration should be given to providing digital announcement boards to identify and locate events being held throughout the building. These displays would be located at the main entrance points, lounge areas, and other high traffic areas.

Mobile Projector on cart, and screen for all pre school kindergarten classrooms, 1 to 5 classrooms, special education rooms, general music rooms and art lab rooms will be provided. Ceiling mounted digital projector or digital white board will be provided in computer lab. Conference/meeting rooms will be provided with plasma displays or projection screens and ceiling projectors per OPEFM request.

Special AV Requirements: It should be noted that all audiovisual sound systems will be designed to provide ADAcompliantassisted listening in all assembly spaces.

Sound Systems

Local sound systems to be used for presentations or lectures will be provided. A typical system would consist of ceiling mounted speakers, a local amplifier, and input capability from microphones and AV devices (projector, laptop, VCR, CD/DVD player, TV set) will be designed for all classrooms, art lab room, computer room, and special education rooms.

Also, a sound system will be provided for events in and around the gym. This system will consist of components, to include microphone jacks, speakers, and cabling, to provide adequate sound distribution throughout these areas. Individual controls will be provided in each space/zone.

Intercommunications and Program Systems (Paging and Clock System)

A school wide central processor controlled public address and clock system will be provided. Specific requirements, as provided by the end-user, shall include a building-wide system capable of providing announcements and paging, as well as music. This system should be provided as an overhead paging system, with tie in capabilities to the facility phone system. This system would be controlled locally within the admin area.

A fully programmable Master Clock system with automatic corrections for daylight savings and leap year will be proivded. The system shall have automatic and manual correction of all slave Clocks.

Clocks shall be provided in all corridors, classrooms, cafeteria, Conference and Meeting Rooms, and other spaces where students or faculty congregate.

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

EXISTING AERIAL SITE PLAN

PEDESTRIAN ACCESS
School access to existing alley leads students through vehicular path

CHAIN LINK ENCLOSED PARKING
Limited number of parking spaces. No designate loading area.

SECONDARY ENTRY

EXISTING PLAY STRUCTURE

STREET VIEW

ALLEY ACCESS
Poor visibility to main roadway for joint vehicular and pedestrian traffic

FLAT ROOF
Areas of ponding water. Repair or replacement needed

SCHOOL BUILDING
Approximately 85,000 sq. ft.

SECONDARY ENTRY

MAIN ENTRY
No ADA accessible entry

ACCESSIBLE ENTRANCE
Inaccessible raised entrance from street level

HISTORIC MAIN ENTRY
To be restored to original condition

BUILDING EXTERIOR
Exposed piping, electrical conduit and window A/C units to be removed

REAR PAVED AREA
Existing conflict between vehicular and pedestrian traffic

PARKING
Damaged paving and inadequate parking

ROOF
Condition and remaining life span of roof to be determined

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

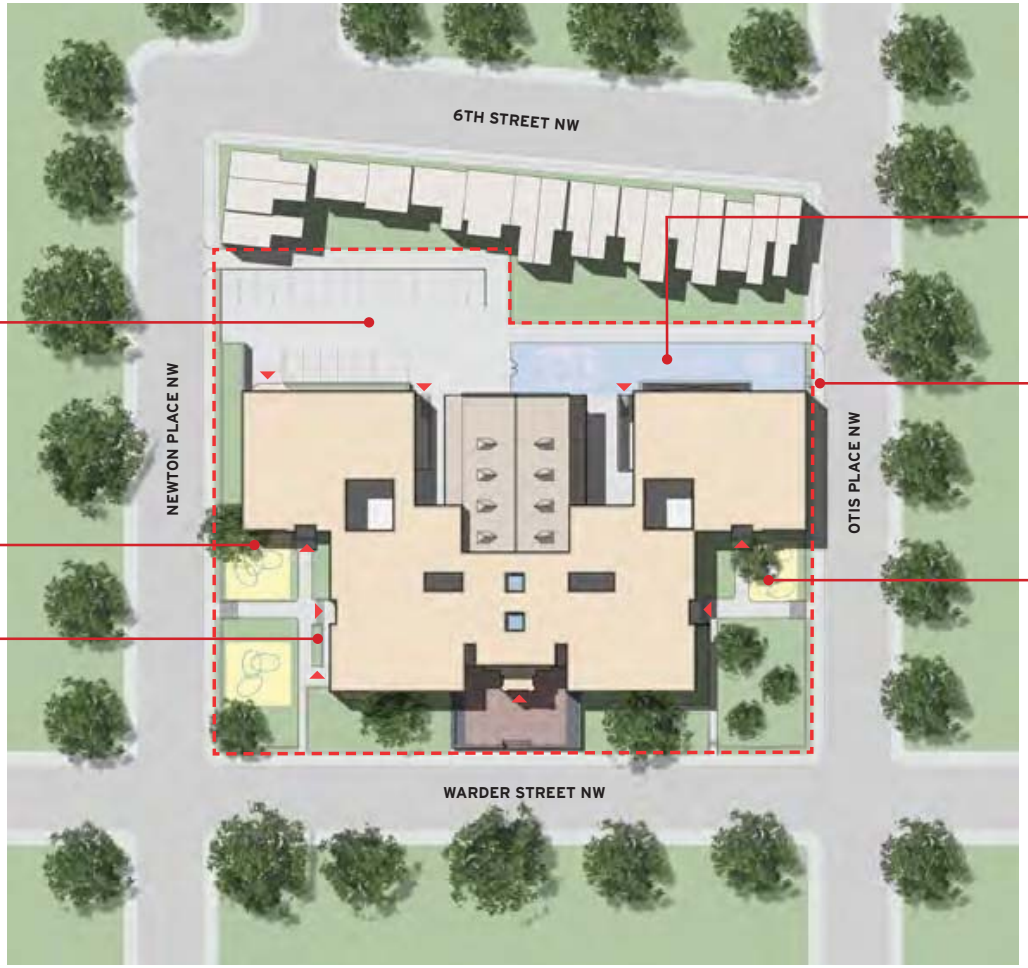
NORTHWEST WASHINGTON DC

PROPOSED SITE PLAN

ADDITIONAL PARKING
With kitchen loading area and secured with new fencing

ADDITIONAL PLAY AREAS
Sized to accommodate 3 distinct age group play structures

NEW ADA RAMP
Accessible ramp & sloped walk



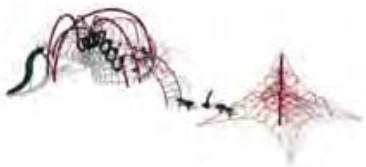
IMPROVED PAVED AREA
Varied materials and play graphics, separation between vehicular service & student play area.

NEW STAIR
Provides pedestrian access from Improved Play Area to sidewalk

ADDITIONAL PLAY AREAS
Sized to accommodate 3 distinct age group play structures

▲ ENTRY POINT

NORTH 0 16' 32' 64'



PLAY AREA

SITE ACCESSIBLE PATH

IMPROVED PARKING / SHADE AREAS

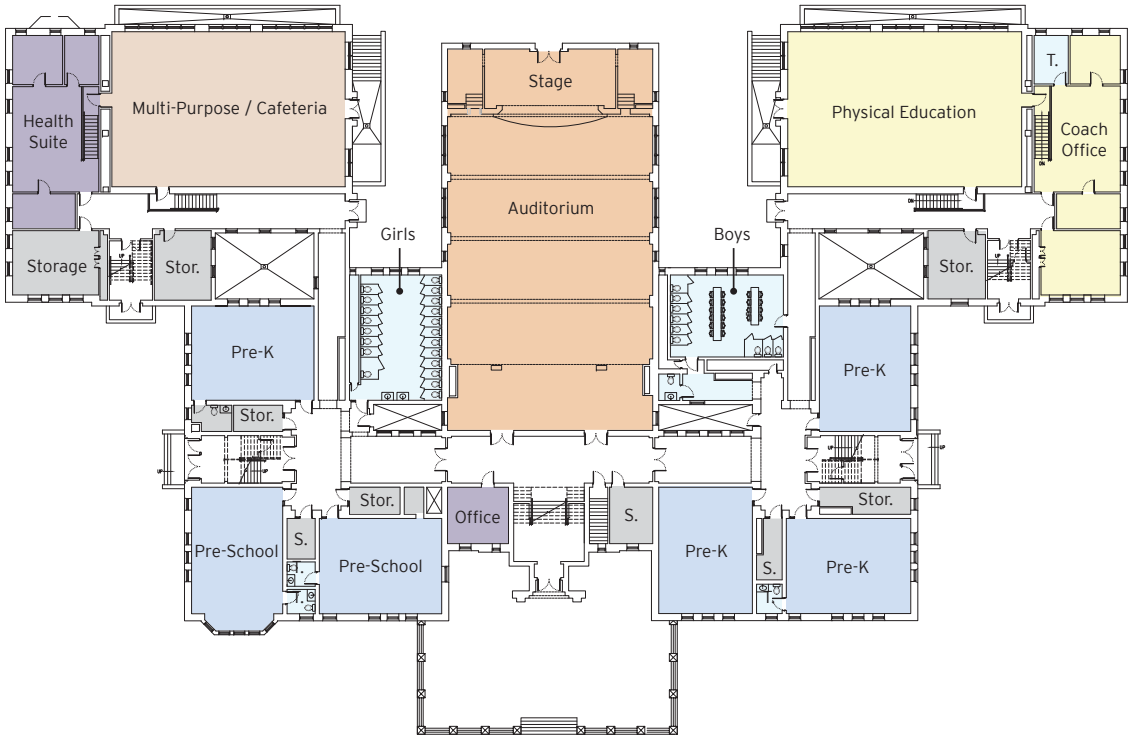
SITE FENCING

LANDSCAPING / STORMWATER MANAGEMENT

PLAY STRUCTURE

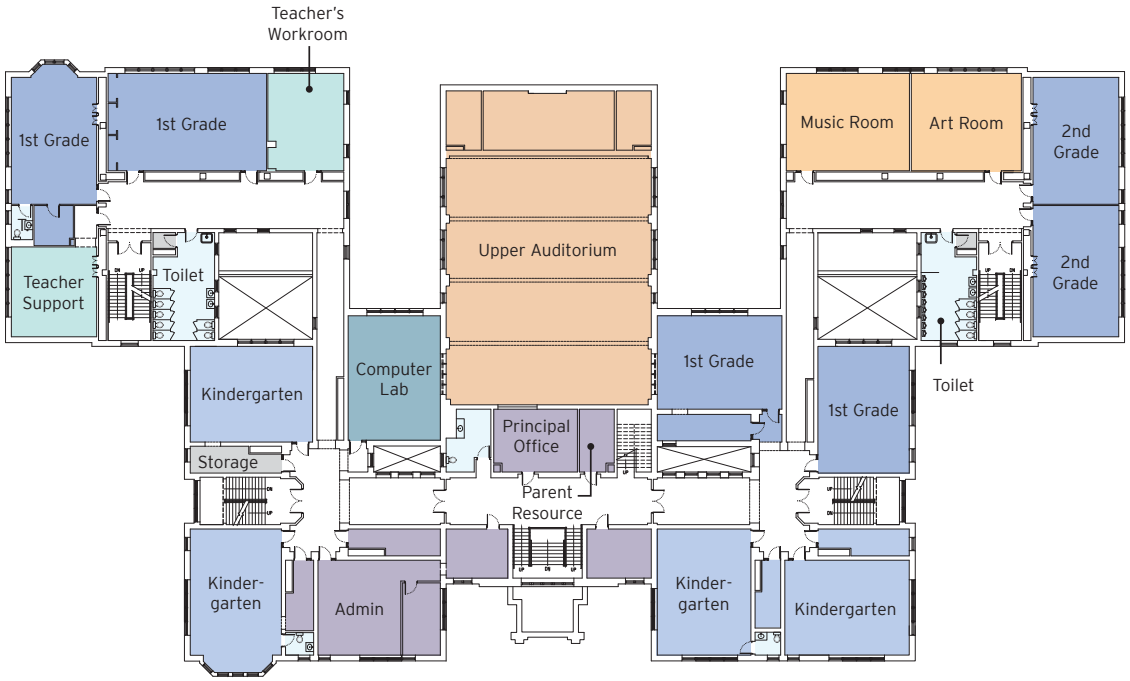
RUBBERIZED OR PERVIOUS PAVINGS

BICYCLE RACKS



LEGEND

- Administration/Health
- Auditorium
- Physical Education
- Cafeteria
- Pre-School/Pre-K
- Kindergarten
- Classroom 1-5
- Computer Lab
- Media Center
- Music/Art
- Other Core Academic Areas
- Special Ed
- Teacher Support/Workroom
- Restrooms
- Building Support
- Unassigned



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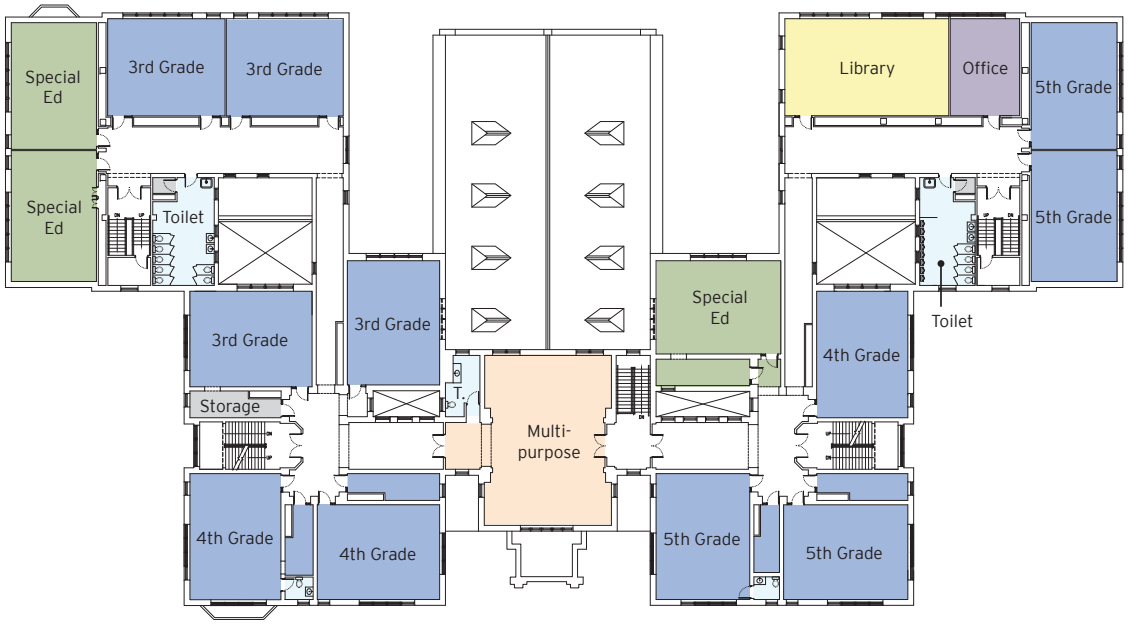

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- Unassigned

MAIN ENTRY
No clear indication where the administrative area is located and no obvious security presence

GYM/CAFETERIA ENTRY
Narrow entry stair with no visual link to space

CAFETERIA
No existing kitchen separate from cafeteria

MULTI-PURPOSE AREA
Location of inefficient under utilized space.

TOILET FACILITIES
Non-ADA, non-code compliant fixtures.
Outdated, exposed plumbing.

INTERIOR FINISH
Exposed conduit and piping

AUDITORIUM
Exposed HVAC elements

LEGEND

- Administration/Health
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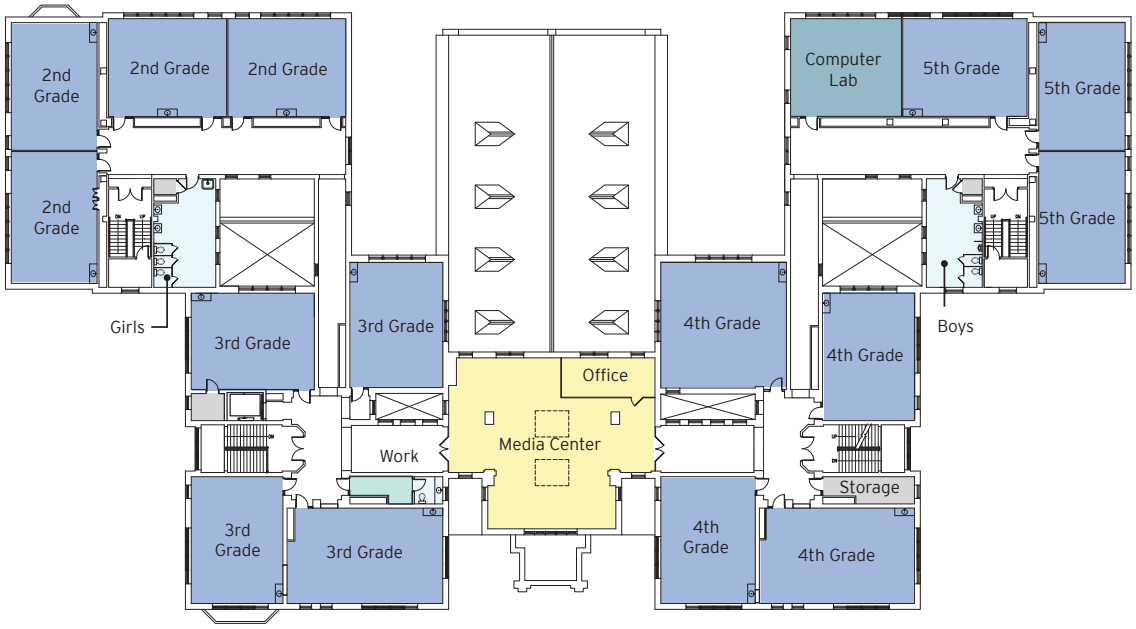

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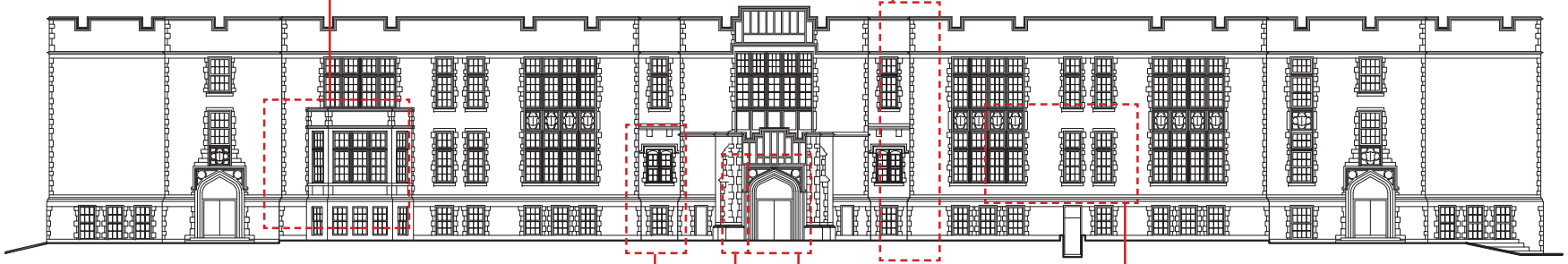
- Unassigned

North 0 16 32

EXISTING MASONRY
Clean and repoint stone and brick as required - typical throughout

MEP ELEMENTS
Existing piping and conduit to be removed and concealed within the building - typical throughout

EXISTING WINDOWS
Replace existing windows with new low-E windows per DCPS guidelines, typical throughout.



EXISTING SECURITY GRILLE
Replace existing metal grille and windows with new security glazing at lower two floors, per DCPS guidelines, typical throughout.

EXISTING STONE
Clean existing stone and repoint as necessary - typical throughout

EXISTING EXTERIOR DOORS
Replace existing metal doors with new paneled doors per DCPS guidelines and historic photographs, typical throughout.

ELECTRICAL
Replace existing exterior lighting and conceal conduit - typical throughout

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

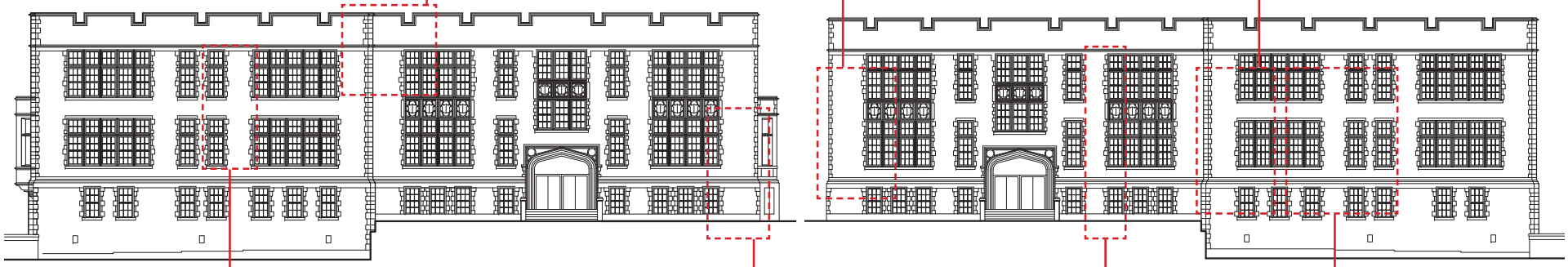
NORTHWEST WASHINGTON DC

EXISTING WINDOWS
Replace existing windows with new low-E windows per DCPS guidelines, typical throughout.

EXISTING STONE
Clean existing stone and repoint as necessary - typical throughout

EXISTING SECURITY GRILLE
Replace existing metal grille and windows with new security glazing at lower two floors, per DCPS guidelines, typical throughout

EXISTING MASONRY
Clean and repoint stone and bricks as required - typical throughout



ROOF DRAINAGE
Replace existing downspouts with new metal downspouts to match existing metal flashing - typical throughout

EXISTING EXTERIOR DOORS
Replace existing metal doors with new paneled doors per DCPS guidelines and historic photographs, typical throughout.

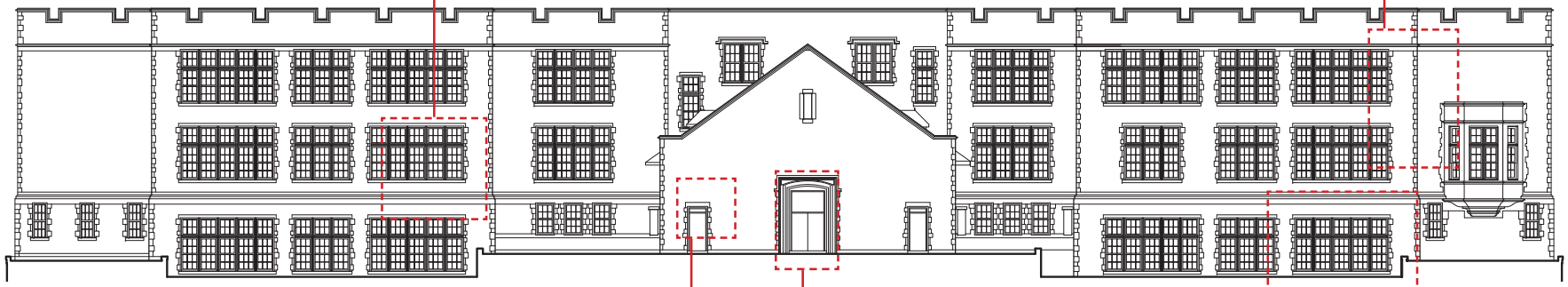
SECURITY
Replace security cameras and conceal conduit - typical throughout

HVAC
Replace existing window units with new central system - typical throughout

EXISTING STONE
Replace damaged existing stone as required - typical throughout

EXISTING WINDOWS
Replace existing windows with new low-E windows per DCPS guidelines, typical throughout.

MASONRY CRACK
Repair cracked brick at exterior wall.



EXISTING SECURITY GRILLE
Replace existing metal grille and windows with new security glazing at lower two floors, per DCPS guidelines, typical throughout.

EXISTING STONE
Clean existing stone and repoint as necessary - typical throughout

EXISTING EXTERIOR DOORS
Replace existing metal doors with new paneled doors per DCPS guidelines and historic photographs, typical throughout.

MASONRY CRACK
Repair cracked brick at exterior wall.

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

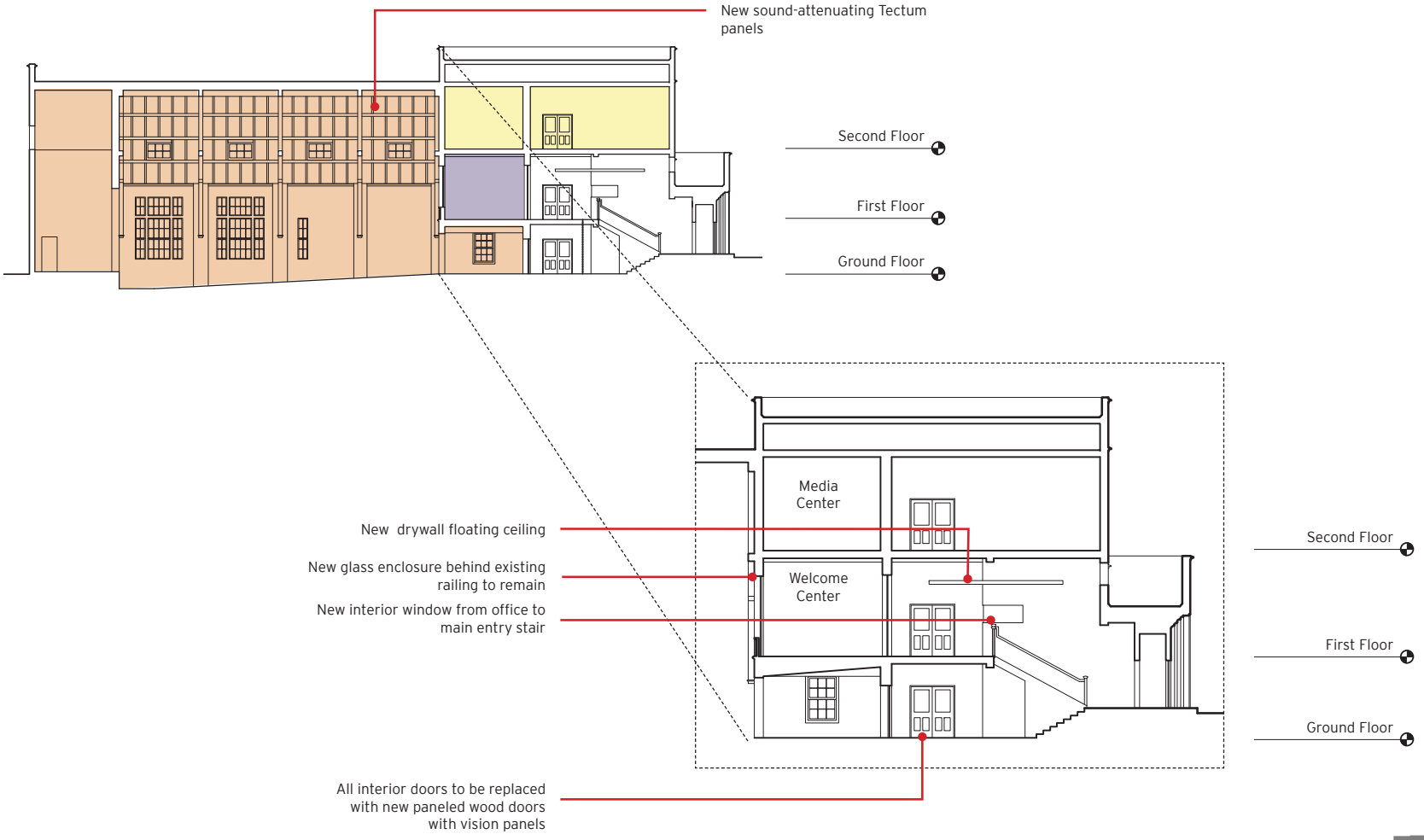
NORTHWEST WASHINGTON DC

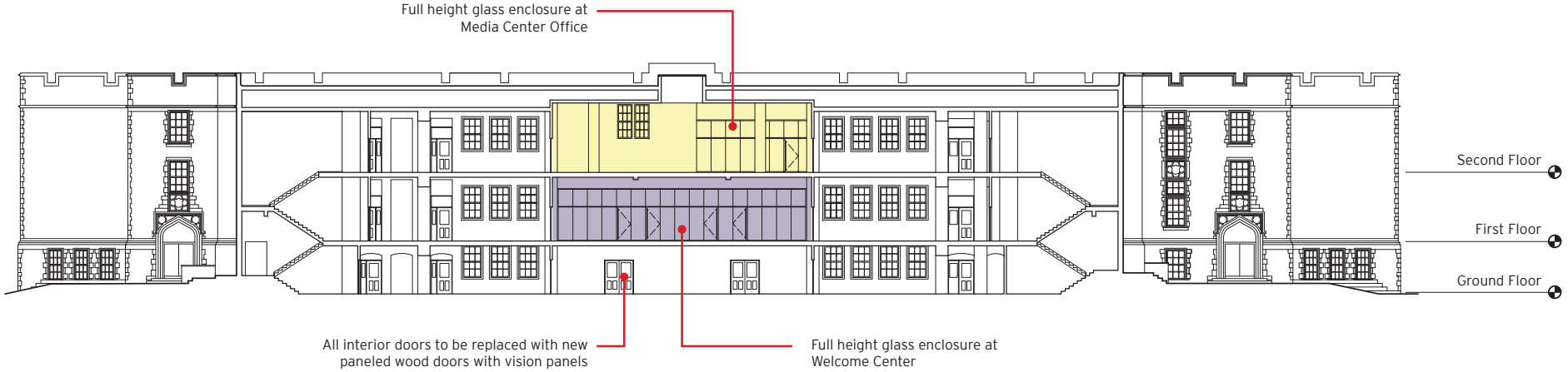
PROPOSED FULL BUILDING SECTIONS

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

PROPOSED FULL BUILDING SECTIONS




Full height glass enclosure at
Media Center Office
Second Floor
First Floor
Ground Floor
All interior doors to be replaced with new
paneled wood doors with vision panels
Full height glass enclosure at
Welcome Center

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

TYPICAL CLASSROOM FURNITURE AND EQUIPMENT PLAN

PRIMARY TEACHING WALL
With tack space, marker board, and smart wall technology

NEW ACOUSTIC TILES AND LINEAR LIGHTING
Improves acoustic and light qualities of teaching space

NEW CASEWORK
Furniture and casework to meet DCPS standards

SMART BOARD
New interactive whiteboards installed in all classrooms to enhance learning activities.

TEACHER'S WORKSPACE
Desk and chair provide a work environment and personal storage for teachers.

CUBBIES
New casework storage for students.

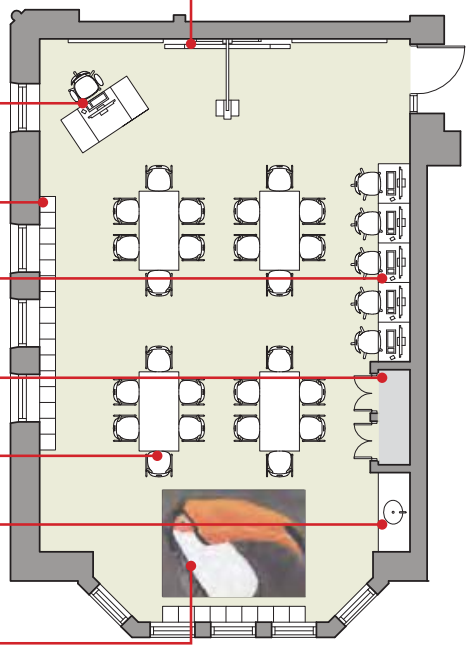
COMPUTER WORKSTATIONS
Continuous counter with computers, printer station and chairs.

CLOSET
Dedicated storage for teaching materials

TABLES AND CHAIRS
Furniture for various learning activities.

SINK
New plumbing fixtures and counters with additional storage

RUG
For group instruction and play per DCPS guidleines



EXISTING CLASSROOMS

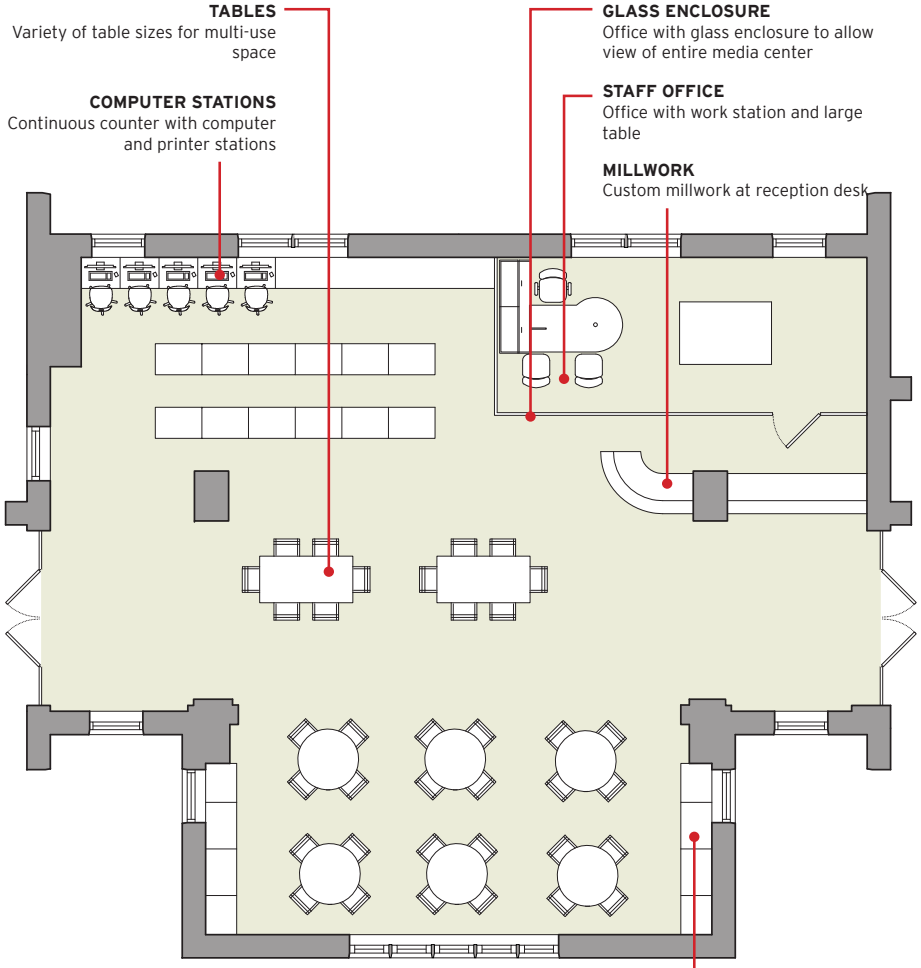
BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

LIBRARY / MEDIA CENTER FURNITURE AND EQUIPMENT PLAN

CASE WORK
New casework throughout to meet DCPS guidelines

EXISTING MEDIA CENTER



SKYLIGHT
New skylights to be installed at media center to provide natural light

COMPUTER STATIONS
State of the art media with computer stations

FURNITURE
New furniture to create various seating opportunities

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

PROPOSED MAIN ENTRY - EXTERIOR RENDERING

BRUCE MONROE AT PARK VIEW ELEMENTARY SCHOOL MODERNIZATION

NORTHWEST WASHINGTON DC

PROPOSED WELCOME CENTER SKETCH