

Richmond Elementary School

2944 Belgrade Street, Philadelphia, PA 19134



Addition and Major Renovation

Scope Determination Report

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1.0 Introduction

This report outlines a scope of work for the existing building renovation work and the new building addition at Richmond Elementary School.

A detailed review of the Richmond School was conducted with several members of the Capital Programs team. After an assessment of the facility and their educational program it has been determined that the following additions are necessary for daily operation. The school currently has a gym that serves as the cafeteria. The layout of the space is a poor design and only allows for prepackaged food to be served. A new kitchen and cafeteria is necessary to have an actual kitchen for fresh prepared food with an inviting cafeteria for children to dine. The current basement location is dark and uninviting for children to enjoy their meals.

An expansion of six classrooms is also necessary to provide the school with more space. They currently have a modular in the yard that houses one Kindergarten class. A Special Education classroom is in the basement, which is not accessible and needs to be relocated to the first floor. The current ESOL classroom is being housed in an office that is undersized. Health, Music and Instrumental Music would also be factored into the expansion. These specialty areas are valued and need appropriate space in the building.

1.1 Building Data:

Gross Area (SF): 48,300 (3-floors)
Year Built: 1929
Enrollment: 672
Grade: K-5
Replacement Value: \$21,952,188
Repair Cost: \$17,440,502.75

1.2 Historic Information:

The School is located at 2944 Belgrade St. in Philadelphia. The 3-story building was built in 1929. It has a total area of 70,230 SF including basement which is partially above ground. A portable concrete modular building was erected on the southern side of the school of the schoolyard in the 1970s.

According to the Bureau for Historic Preservation, the Pennsylvania Historical and Museum Commission, the Richmond Elementary School Building is listed (1980) on the National Register as a historical structure. The architectural style is Late Gothic Revival (1928). Irwin Catherine is the Architect of Record of the building.

2.0 Background

The scope of work is guided by the following key considerations:

The following are lists of deficiencies and recommended actions that define the scope of work in detail. They are divided into the following categories: Environmental, Building Envelope, Interiors, Mechanical, Electrical, and Plumbing.

The project is expected to include four multi-prime contracts: General Construction, Site Improvements, HVAC Construction, Plumbing Construction and Electrical Construction. The purpose of this report is to establish and verify costs for each of these contracts. Most of the scope of work recommended is due to “deferred maintenance” with building systems exceeding their life expectancy cycles. The scope of work developed for this report is based on information contained within the ongoing “Facility Condition Assessment” and as verified during a tour and survey of the school that included Capital Programs design and construction staff, as well as staff from the School District’s Operations and Maintenance Departments.

3.0 Scope of Work

3.1 Environmental

The School District of Philadelphia (SDP) Office of Environmental Management & Services (OEMS) will develop scope of work for remediation services where applicable. Work will involve removal of mold and asbestos containing materials, where applicable, prior to any investigation or repair can occur. Environmental budget and scope of work will also include abatement required for other work described hereinafter.

3.2 Site

A. Exterior Observations

The site is currently concrete and contains the main school building footprint along with one modular building along the western edge of the building. The modular building contains one classroom and appears to be on concrete piers. There is one active utility pole located between the modular building and the main school building. Concrete appears to be in good condition throughout with cracking and spalling in select squares. Dumpsters are located along E. Ann Street. Perimeter fence is ornamental and approximately 4' in height along Birch and E. Ann Streets, terminating at the main building and completely enclosing the yard. The fence contains 3 gates (one at each street, Birch, Belgrade, and Ann), each in good condition, operable, and lockable. The rear fence borders adjacent row-home backyards and is approximately 6' in height, comprised of chainlink, and mounted on a low concrete cheek wall. The chainlink fence in the rear yard, while not aesthetically pleasing, appears to be in good condition. The low concrete wall contains paintings by the students. The rear yard appears to be used most frequently for recess and is located to the north of the main school building.



B. Recommended Actions:

The scope of work includes demolition of the existing modular building and construction of the new addition to house 6 classrooms and a cafeteria. In order to avoid triggering stormwater management regulations with the construction of the addition the total site disturbance, including removal of modular building, construction of addition, and site disturbance due to construction activities, should be limited to less than 15,000 sf. Assumptions for the site scope include, at a minimum, the following items:

I. Demolition:

- a. Demolish modular building and associated concrete foundation (2000 sf).
- b. Disconnect and cap active utilities feeding the modular building including the power pole.
- c. Temporarily remove portion of existing perimeter fence (to be reinstalled after construction) (assume 100 lf)
- d. E&S measures must be provided in compliance with Philadelphia Water Department's regulations.

II. Site prep to accommodate new addition:

- a. Excavation, earthwork and grading for new foundation of addition (assume 10,000 sf footprint)
- b. New foundation for addition (see architectural/structural scope for assumptions) (assume 10,000 sf footprint)
- c. Utility connections and new lines to/from street – sewer, gas, electric
- d. Utility connections from ex. building to new addition – water

III. Pavement restoration:

- a. New pavement surrounding addition (assume 3000 sf concrete, assume 6" slab on 6" 2a modified stone base)
- b. Pavement restoration at modular demolition footprint (assume 2000 sf concrete, 6" slab on 6" 2a modified stone base)
- c. New dumpster pad (200 sf concrete, 8" slab, reinforced with galvanized wire mesh on 6" 2a modified stone base)

IV. Fence restoration:

- a. Fence restoration, black powder coated aluminum, 4' height (assume 85 lf)
- b. New dumpster fence enclosure, assume 60 lf, 6' height and double leaf gate.

V. Accessibility:

- a. Addition must be accessible.

3.3 Architectural

A. New Building Addition

Design of a multi-story classroom addition that consists of (6) classrooms, a cafeteria, and a full service kitchen. The addition must be connected to the existing building, and the addition must include an exterior ADA accessible ramp, an elevator and an exit stair tower, (the elevator and exit stair needs to access all floors of existing building including the basement), student restrooms to serve the cafeteria and the additional classrooms, as well as associated storage and mechanical/electrical/IT rooms. Design must be in compliance with all applicable International, City and Government Agency Codes and Requirements.

Minimum square footage requirements planned for each space is listed below:

Classrooms*	6 required	5,400 SF (900 SF each)
Cafeteria & Kitchen (Full Service)**	1 required	4,500 SF
Table Storage	1 required	315 SF
<hr/> Total		10,215 SF
Circulation	approx. 20% of bld'g space	2,000 SF
Stair	1 req'd (shaft-. 10' x 20')	800 SF
Building Storage	1 req'd	250 SF
Technology closet	1 req'd	100 SF
Elevator shaft	1 req'd	160 SF
Elevator Equip Room	1 req'd	80 SF
Mech/Elect room	1 req'd	500 SF
Student toilets	(calculate quantity)	500 SF
<hr/> Total – Non-Instructional space		4,390 SF

*Classrooms to include VCT flooring, ACT ceilings, 16'-0" of markerboard, 16'-0" of tackboard, (1) interactive panel board, power and data receptacles following SDP's Ideal Classroom Technology Standard, a wireless clock, and a telephone. Corridor and classroom walls should be masonry construction.

** Kitchen equipment shall include (but is not limited to):

- a. Utility Carts (4)
- b. Food Processor
- c. Preparation Table w/Sink (1)
- d. Preparation Table w/ Double Sink (1)
- e. Hand Sinks per code
- f. Work Tables with Can Opener (3)
- g. 40 Gal. Braising Pan
- h. Vulcan 4 Burner Gas Range w/ Oven
- i. Blodgett Double Convection Oven
- j. Groen Double Convection Steamer
- k. Hobart Automatic Slicer

- l. Overhead Ventilation System with Heat Sensor
- m. Manitowoc Ice Maker
- n. Garbage Disposer
- o. Hose Reel w/ Control Panel
- p. Champion Pot & Pan Washer
- q. 1200 CFM Exhaust Fan System
- r. Pot & Pan Rack (2)

Serving line equipment shall include (but is not limited to):

- a. (2) Milk Cabinets
- b. (2) Hot Food Serving Counters
- c. (4) Cold Food Serving Counters
- d. (2) Cashier Counter & Registers
- e. (2) Condiment Counters

B. Building Renovation

I. Exterior Doors

At the original building, there are thirteen pairs (26 total) of exterior hollow metal doors and frames positioned within existing masonry walls. These doors are rusting and generally in poor condition, and several frames show damage.

Recommended Action:

Replace all exterior hollow metal service doors, egress doors, and frames at original building.

II. Windows

The original exterior windows were replaced in 1990 with extruded aluminum, double hung, acrylic glazed windows. The windows are in poor condition. The acrylic glazing is dull and cloudy and the perimeter sealant is very deteriorated.

Recommended Action:

Replace existing acrylic glazing at all existing aluminum windows with new insulated glazing units. Existing window sashes and frame to remain. Fix the top panel of double hung window so that the window operates as a single hung window, and replace counter balances to accommodate the additional weight of the new glass unit.

Roof

The existing roof is approximately 13,500 sf and the consists of ballasted build up. The roof is in poor condition; there are several soft spot areas as well as areas of water ponding. The flashing is also in poor condition and is showing deterioration.

Recommended Action:

Remove existing ballasted roof, flashing, and insulation. Replace with 2-ply SBS-modified bitumen roofing system and associated insulation and flashing.

III. Interior Renovations

Recommended Action:

- a. Remove existing chalkboards and replace with 16'-0" of markerboard and 16'-0" of tackboard. Retain and refinish existing wood framing, where possible (23 classrooms)
- b. Fix folding wood partitions between classrooms in place and install new metal stud partition walls both sides with wood baseboard to match existing baseboard
- c. Replace ACT ceilings and ceiling grid in classrooms and hallways
- d. Remove existing door knobs and provide ADA compliant door hardware (1 door per grade; 6 doors total)
- e. Replace broken or missing toilet accessories and toilet partitions in all bathrooms.

3.3 Plumbing

I. Facility Water Distribution

- a. Backflow preventers: Watts 909 simplex installation condition good
- b. Recommendation: No action



II. Domestic Water Heater

- a. Water heater: Gas fired water heater condition adequate however the unit is vent to the existing chimney.
- b. Recommendation: No action address venting issue when required by fuel conversion or during boiler replacement.

III. Plumbing Fixtures

- a. Lavatories: In public toilet rooms are enameled cast iron. Condition appears adequate faucets are in fair condition.
- b. Toilets: Basement toilet rooms are typically wall hung blowout type. All other floors have floor mounted fixtures. Condition is adequate flush-o-meters appear operational with few exceptions. All fixtures are 3 GPF.
- c. Urinals: All urinals are wall hung condition is adequate flush-o-meters appear operational with few exceptions. All fixtures are 3 GPF.
- d. Recommendations: No ADA accessible toilet facilities. Provide each toilet room with accessible toilet and lavatory. Larger toilet rooms to also have ambulatory stall in addition to H/C.

IV. Drinking Fountains and Water Coolers

- a. Drinking Fountains: Basement level fountains are gang bubbler type. All other floors have individual bubblers. Condition appears adequate.
- b. Hydration Stations: Hydration stations are installed on each floor.
- c. Recommendations: Existing drinking fountains are not ADA accessible. Replace 1 existing fountain on each floor, except at the gymnasium, with dual height unit.

3.4 Heating, Ventilation and Air Conditioning

I. Facility Fuel System

- a. Fuel oil pump set: Unit is original to oil conversion. System is operational with no evidence of leakage.
- b. Fuel oil tank: Tank is indoor, single wall, 8,000 gallon unit. No evidence of leakage.
- c. Recommendation: No action required at this time. During boiler replacement provide 5k/g UST and new pump set.



II. Steam and Condensate Piping and Pumps

- a. Condensate return: Existing condensate pumps are operational, there is no evidence of issues in work orders.
- b. Recommendation: Delay any work excluding maintenance pending plant replacement

III. Breeching Chimneys and Stacks

- a. Breeching: Boiler breeching is in adequate condition. Work orders indicate repairs to breeching are ongoing but infrequent.
- b. Chimney: Chimney was not assessed as part of this investigation.
- c. Recommendations: No action required at this time. Pending plant replacement complete inspection of chimney by certified contractor and cleaning required for fuel conversion.

IV. Heating Boilers

- a. Boilers: Existing boilers are operational and have been re-burnered within the past five years.
- b. Recommendations: No action required at this time. Replace with dual fuel units during plant replacement



V. Indoor Central Station Air Handling Units

- a. House Fans: Existing house fan contains lead paint and asbestos flex connectors. Unit was taken off-line in 1976 per the Legionella outbreak. Status of motor, bearings and coils is undetermined.
- b. Recommendations: No action required at this time. This fan can be placed back in service during a plant replacement.

VI. Convection Heating Units

- a. Radiator and convectors: Have limited control and the traps have to a large extent failed.
- b. Recommendation: Replace all steam traps throughout the building. Add manual control valves to terminal radiation in all classrooms and occupied spaces.

VII. Integrated Automation

- a. Controls: Existing controls are a pneumatic based system that is largely inoperative.
- b. Recommendation: Repair of the existing system is not cost effective. Installation of manual valves on terminal equipment is recommended above. Install a time clock system for boiler operation.

Classroom Equipment Schedule

	Radiator			A/C					Floor	
Room #	Count	Type	Remarks	Count	Type	Sink	Toilet	Urinal	Drain	Exhaust
First Floor										
101	1	ST		1	PTAC					
102	2	CI		1	PTAC					
103	2	CI		1	PTAC					
104	1	CI		1	PTAC	1	1			

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106	1	CI		1	PTAC					
107	2	CI		1	PTAC	1	1			
Girl's Toilet						1	2		1	No
Kindergarden	2	CI	Vertical @ doors	2	PTAC	1	2			
Second Floor										
201	2	CI	no covers	1	PTAC					
202	2	CI	no covers	1	PTAC					
203	2	CI	no covers							
204	1	CI		1	PTAC					
205	1	ST		1	PTAC					
206	2	ST/CI		1	PTAC					
207	2	CI		1	PTAC	1	1			No
208	2	CI		1	PTAC					
209	1	CI	one rad missing	1	PTAC	DI				
Boy's Toilet			step up			1	1	2		No
Girl's Toilet						1	2		1	Yes
Third Floor										
301	2	CI		1	PTAC					
302	2	ST/CI		1	PTAC					
303	2	CI		1	PTAC					
304	2	CI		1	PTAC					
305	2	CI		1	PTAC	1				
306	2	CI		1	PTAC					
307	2	CI		1	PTAC	1				
308	2	ST/CI		1	PTAC					
309	2	CI		1	PTAC					
Boy's Toilet	1	CI				1	1	2		No
Girl's Toilet	1	CI				1	2		1	Yes

CI = cast iron, DI = drop-in sink, PTAC = window unit, ST = sloped top enclosure

3.5 Electrical

C. Existing Electrical Service

The existing electrical distribution system is rated at 400A, 240V, 2 phase and 5 wire. The peak demand load will decrease due to relighting with LED luminaires.

D. Interior Lighting

I. Existing Conditions:

- a. The lighting in the classrooms and hallways is a mixture of 2-4 lamp T8 and T12 fluorescent type. There is no lighting control for hallways and stairs. These lights are manually controlled by maintenance at the lighting panels.
- b. The gymnasium has 15 metal halide pendants.
- c. The cafeteria has fluorescent lights.
- d. The path of egress may require more exit signs to better direct occupants in an emergency evacuation.
- e. The existing 40KW generator feeds the emergency lighting system.

II. Recommended Action:

- a. Relight the entire school with LED luminaires controlled by occupancy sensors and/or time clock.
- b. Replace gymnasium metal halide pendants with LED high bay luminaires controlled by occupancy sensors. This will provide up to 60% reduction in lighting energy consumption and building maintenance will no longer need to manually control the lighting in the hallways.
- c. Replace all obsolete exit signs with LED type, provide additional thermoplastic exit signs in the path of egress, and connect to existing emergency circuits with spare capacity.
- d. Replace the classroom fluorescent luminaires with dimmable LED type. Selection of LED luminaire type and mounting style shall be coordinated with final classroom architectural finishes. Provide dimmer switches readily accessible to teachers. Provide minimum 2 zones of lighting controls: first zone shall be the teaching wall lighting and second zone shall be rest of luminaires in the classroom other than the teaching wall lighting. Each classroom shall be provided with a room occupancy sensor.

E. Exterior Lighting:

IV. Existing Conditions:

- a. The exterior lighting fixtures around the school are HID type.
- b. The total quantity is around 8.

V. Recommended Action:

- a. Replace exterior wall mounted luminaires with LED luminaires with integral photocells rated for outdoor use and comply with applicable lighting pollution regulations.
- b. Provide new time clock in electrical room for exterior LED circuits. The new time clock shall be calibrated per Philadelphia code. Provide additional LED wall packs where areas do not have exterior lighting or insufficient illumination.
- c. Note: Some exterior lights may be emergency lights only. These emergency lights only turn on if the generator is running and may only be connected to the emergency only split bus in the emergency panel. Therefore, further investigation

is required to identify how the emergency panel operates and distinguishes the normal and emergency lights. The normal exterior lights are the only ones required to be on a time clock. The emergency only lights are exceptions to the energy code so photocells and time clock are not required.

F. Fire Alarm System

I. Existing Conditions:

- a. The existing fire alarm system is a mixture of bells in common areas and horns in classrooms.
- b. The manual pull stations are located in egress paths.

II. Recommended Action:

- a. Provide a new fire alarm system including horn and strobe devices in common areas and classrooms.
- b. The path of egress shall have smoke detectors per NFPA 72.
- c. The mechanical and electrical rooms shall be provided with conventional heat detectors and supervised using fire alarm monitoring modules.
- d. The gym, cafeteria, auditorium, main office, building engineer's office and boiler room shall be provided with pull stations equipped with protective covers and local battery operated alarms.

G. Generator

I. Existing Conditions:

- a. The emergency generator is a 40 kW, 208/120V, 3-phase generator made by MTU.
- b. The generator feeds a customized three way switching emergency panel for life safety loads.

II. Recommended Action:

- a. The generator and ATS are both in working condition. No recommended action.

H. Mechanical and Plumbing

I. Recommended Action

- a. Refer to Mechanical and Plumbing sections for details.
- b. Reuse circuits for new mechanical and plumbing equipment if practical.
- c. Any faulty or undersized circuits shall be replaced.
- d. Provide new circuits for any new HVAC and plumbing equipment.
- e. Provide new supply and return duct detectors if AHU is over 2000 cfm.

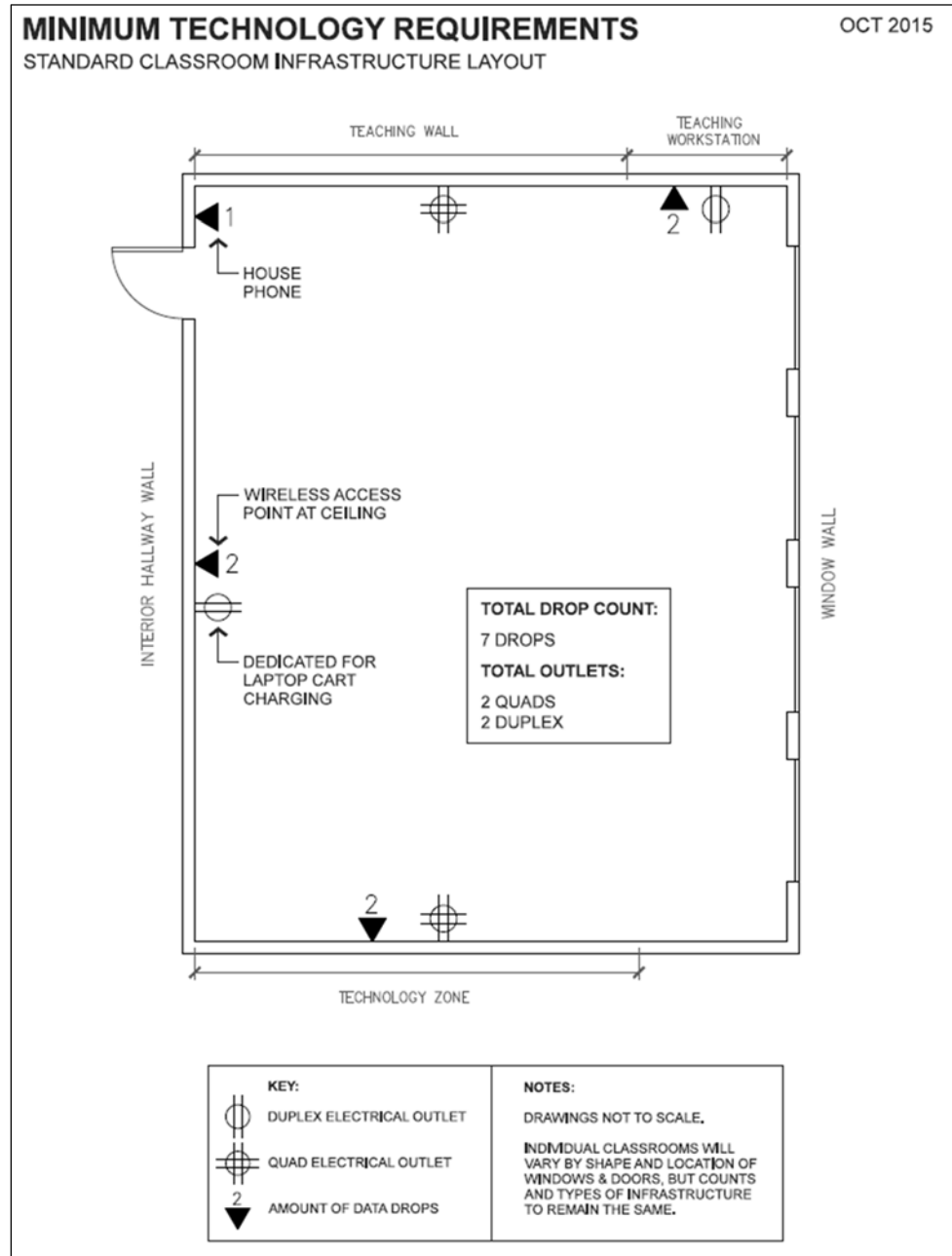
I. Power and Data at Classroom

I. Existing Conditions:

- a. The existing quantity of power receptacles and data receptacles is not sufficient.

II. Recommended Action:

- a. Provide additional power and data receptacles. The optimum solution would be to meet Minimum School District technology requirement, specifically at classrooms in the Addition (see image below). Provide as many receptacles as possible in the existing classrooms where electric loads and service size allows it.



J. Clock System

Recommended Action:

Replace existing clock system with a wireless central clock system.

K. Public Announcement System

Recommended Action:

Reuse existing public announcement system.

L. Miscellaneous

Recommended Action:

- a. Remove all televisions, mounting brackets, and coaxial cable for television system.
- b. Abandon conduit in place and cap safely for future use.
- c. Provide cover plates for existing coaxial cable connections.
- d. Repair wall at removed brackets (approximately 1 SF per classroom).

M. New Cafeteria, Classroom and Elevator Addition

Recommended Action:

Provide a new electrical distribution system rated at 600A, 208/120V, 3 phase and 4 wire for the new cafeteria, classrooms, and elevator addition.