

# **EXHIBIT “A”**

# **James Rhoads Elementary School**

**4901 Parrish Street  
Philadelphia, Pennsylvania 19139**



## **Project Determination Report Major Renovation**

**October 26, 2018**

**School District of Philadelphia  
Office of Capital Programs  
440 North Broad Street  
Philadelphia, PA 19130**

## I. General

The existing building is a four story 69,000 square foot masonry structure on a 53,000 square foot site. The building was completed in 1960 and is approximately 58 years old. Current student population is 538. This project consist replacement of the HVAC system, elevator rehabilitation, fire alarm system replacement, door and window replacement.

## II. Windows & Doors

The windows are original to the building and equipped with window guards on all four floors. There are 245 windows to be replaced. Total window square footage is 9,300. Classrooms are typically a combination of both hopper and awning types windows. All windows are single pane. The corrugated aluminum filler panel installed at each column line is also to be replaced. Caulking is suspected to be asbestos containing. The first brick course below the windows on the second through fourth floors shows evidence of movement. A thorough examination of the existing conditions to determine the root cause is required. Probing at a minimum of three locations shall be required to diagnose the problem prior to any corrective action being determined.



Existing exterior doors and frames are in fair to poor condition. Deterioration of frames and doors at several locations is extreme. There are eighteen pairs of double doors and four single leaf door serving the first floor. Two separate storefront systems with double doors will be replaced in their entirety. Existing roof access door to remain.



## Scope of Work:

### A. Environmental

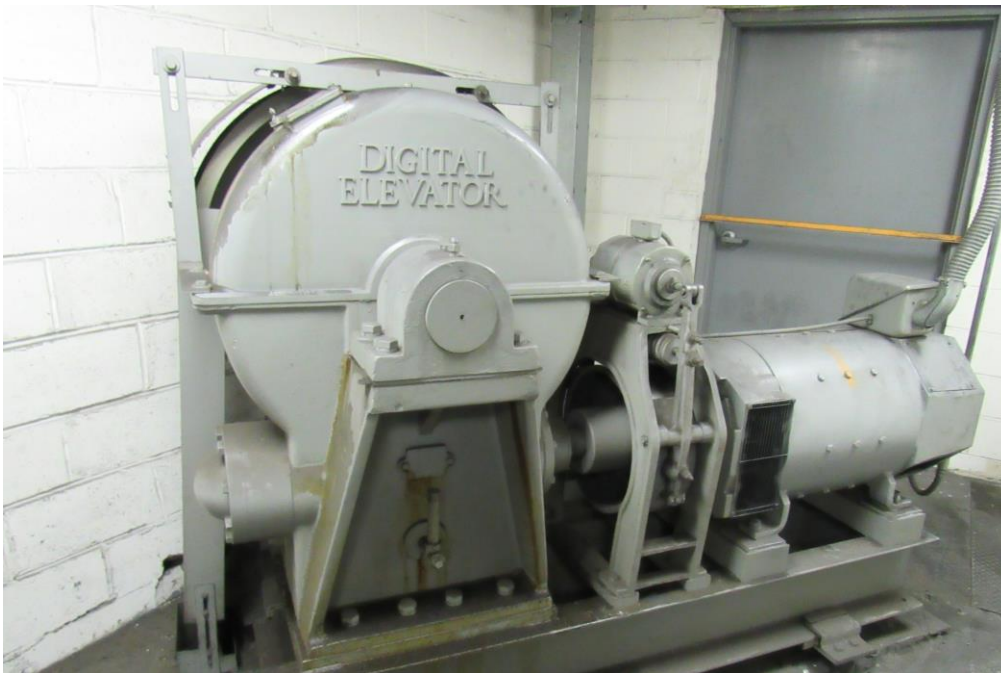
1. Removal
  - a. Windows - Asbestos caulk

### B. General Construction

1. Repair existing masonry at window openings on floors second, third and fourth floors.
2. Remove and replace 245 window units. New windows shall be double pane low-E type in compliance with SDP standards. Provide a hopper style window in each assembly.
3. Provide a replacement for the corrugated metal panels between windows that complements the new window installation.
4. Remove and replacement window guards. New window guards shall be integrated part of the new window system. Window guards are only to be installed at the first floor level.
5. All exterior doors and frames at grade level are to be replaced in accordance with SDP standards. Doors shall be 14 gauge insulated assembly. Frame are to be 12 gauge. There are eighteen pairs of double doors and four single leaf doors.

### III. Elevator

The existing elevator is rated at 12,000 lbs and serves four floors and basement of the building. Replacement elevator is to maintain the existing load capacity and speed. The cab is approximately 13'-6" x 8-3". The elevator is a traction type with motor generator set and is original to the building. The cab and controls were overhauled in 1998 however the existing drive system was not replaced. The intent is to replace the existing drive system while retaining existing components following inspection. All life safety and ADA requirements are to be incorporated in the rehabilitation.



#### Existing Elevator Information:

##### Elevator Data:

Elevator Motor Company:	Imperial
Capacity:	12,000 lbs.
Type:	Passenger
Drive:	Traction
Travel:	54'-0"

Stop/Openings: Five stops. Basement, Ground, Second, Third, and Fourth Floor  
Power: 240, 3 phase, 3W, 60HZ  
Speed: 100 fpm  
Drive Unit Rating: 75 HP  
Motor Generator Rating: 75 HP

**Scope of work:**

1. Retain licensed elevator professional and structural engineer to assess the following items to determine if replacement and/or servicing is required:
  - a. Buffer
  - b. Car sling, platform, crosshead, hitch plate, stiles, brace rods, safety plank, toe guard, platform, and isolators
  - c. Counterweight, frame and fillers
  - d. Door detector and operator
  - e. Elevator Car
  - f. Elevator room slab (adequate for future loads)
  - g. Emergency Call
  - h. Governor tension sheave assembly
  - i. Hoist beam
  - j. Hoistway frame, doors, and sills
  - k. Overspeed governor
  - l. Safety
2. Provide the following new equipment:
  - a. Cables
  - b. Controls
  - c. Fire Man Recall System
  - d. Guide Shoes
  - e. Handicapped Pictograph Signage
  - f. Hoist motor
  - g. Pit Ladder
  - h. Pit lights (50 foot candles)
  - i. Pit GFCI receptacle at 4'-0" aff
  - j. Pullies
  - k. Rope break
  - l. Sheeves
  - m. Spare Keys (provide 30 spares)
  - n. Warranties 3 years parts and service
3. Elevator shafts shall be inspected for any structural damage and repairs made where required.
4. Provide sump pump in elevator pit including piping to discharge collection point, receiver, power and control.
5. Provide split DX system for penthouse machine room including power.
6. Patch 30" x 30" wall penetration in elevator machine room vacated by exhaust fan.

**IV. Fire Alarm System**

The Fire Alarm system is manufactured by S.H. Couch Inc. The system is approximately 30 years old. The present Fire Alarm system does not meet current code and needs to be replaced.

**Scope of Work:**

The scope of the fire alarm system replacement project is identified as follows:

1. Remove existing fire alarm system completely including fire alarm control panel, coded pull stations, bells, duct detectors, fire alarm wiring and power wiring to the fire alarm control panel (demo after new FA is certified).
2. Provide new addressable fire alarm system including control panel, remote power booster panels, pull stations, speakers, smoke detectors, duct detectors, heat detectors, fire alarm wiring, power wiring,

remote annunciator panels, etc. The new system shall be warranted for 3 years including maintenance service.

3. Provide pull stations in high ceiling areas like auditorium and cafeteria, etc..
4. Provide new duct detectors in supply and return air ducts of air handling units. Provide fan shutdown wiring to the existing motor starters of the HV and AC units.
5. Provide control modules in elevator machine room for elevator recall system.
6. Provide 3 remote annunciators, one at main entrance; one in main office and one in building engineer office.
7. Fire alarm system shall be designed per current prevailing code.
8. Basis of design shall be Edwards, Siemens, Notifier or pre-approved equal.
9. Refer to SDP Fire Alarm variance.

## **V. Heating Plant**

The heating plant is original to the building and the boilers are approximately 59 years old. The plant consisted of three oil fired cast iron sectional steam boilers. One boiler has been demolished. A stainless steel quadruplex feedwater unit has been installed by the maintenance department in the past ten years and should be salvaged. The boiler room slab is partially brick and must be removed. There is insufficient combustion air for the boiler and existing wall space above grade is not available. Existing breeching is grossly oversized and the masonry chimney is in fair condition but exceedingly high for pressurized boilers.



### **Scope of Work:**

#### **A. General Construction**

1. Chimney – Reduce height, clean, re-point and provide new masonry cap. To reduce repair cost height can be reduced to a minimum of 10'-0" above the adjacent roof. Inspection by a certified chimney contractor shall be provided under consultant services as reimbursable cost. Cost not to exceed \$8,000.
2. Areaway – Provide an areaway encompassing the both existing coal chutes in the rear courtyard. Dimensions shall accommodate requirements for combustion air to supply new boilers. Provide areaway drainage.
3. Concrete
  - a. Housekeeping pads – provide for continuous pad for boilers and water treatment equipment. Provide individual pads for pumps (circulating sump), oil pump set, etc.
  - b. Replacement portions of boiler room slab where brickwork has been removed. Brick removal maybe treated as hazardous based on coal dust between blocks.
4. Fencing - Provide new fenced enclosure for gas meter set with bollards and pads.
5. Louvers – Provide louvers in areaway of sufficient capacity to accommodate combustion air volume.

#### **C. Electrical Construction**

1. Electrical service
  - a. Existing service sufficient for replacement loads however no circuits existing for new equipment.
  - b. Provide new conduit and wiring to support new equipment.
2. Lighting - Provide relighting of boiler room, and adjacent mechanical rooms.
  - a. General lighting levels shall be 50 footcandles.
  - b. Service locations shall be lit to 100 footcandles
    - 1.) Boiler burner service area
    - 2.) Circulators
    - 3.) Shot feeders

#### **D. Environmental**

1. Removal
  - a. Boilers (2)
  - b. Breeching (all)
  - c. Domestic hot water tank
  - d. Incinerator
  - e. Fuel oil tank (10,000 gallons)

#### **E. HVAC**

1. **Boilers**
  - a. Boilers - condensing hot water boilers
  - b. Burners - linkageless natural gas
  - c. Controls - Provide controllers capable of data collection and trending. Unit shall provide 20:1 turndown, lead lag control, output to pump controller with 10" touchscreen
2. **Ductwork** - Provide two combustion air plenums with dedicated motorized dampers with both high and low motorized louvers interlocked with burner controls
3. **Piping** – Remove existing steam and condensate piping throughout building. Provide PEX-A piping up to 3" and copper or ferrous metal for 4" and larger.
4. **Unit Heater (gas)**
  - a. Provide two 350MBH high efficiency gas fired unit heaters
5. **Water Treatment**
  - a. Provide one shot feeder for each boiler
6. **Stack & Breeching**

a. Stack four stories in height with termination cap. Provide flashing to enclose masonry chimney termination.

Provide a chimney liner to the new termination point. Install a stainless steel cap over the masonry opening and cap.

7. **Underground Fuel Oil Tank** – Install 5,000 gallon tank at current 10,000 gallon tank location.

8. **Insulation** – All equipment and piping shall be insulated in accordance with ASHRAE guidelines.

#### F. **Air Handlers**

1. **Auditorium** – Replace two floor mounted air handling units. New units shall be vertical type units with hot water coils and two way coil valves, combination filter mixing boxes and local controls. Provide demand control ventilation controller with self-calibrating CO<sub>2</sub> sensors at each unit and 100% outdoor air economizer.

2. **Cafeteria/Gym** - Replace two ceiling hung air handling units. New units shall be horizontal type units with hot water coils and two way coil valves, combination filter mixing boxes and local controls. Provide demand control ventilation controller with self-calibrating CO<sub>2</sub> sensors at each unit and 100% outdoor air economizer.

#### G. **Classroom Unit Ventilators**

1. **Classrooms** – Replace all classroom unit ventilators. Units shall be equipped with hot water coils. Provide demand control ventilation controller with self-calibrating CO<sub>2</sub> sensors at each unit and 100% outdoor air economizer.

a. Five units at 750 CFM

b. Thirty-five at 1,000 CFM

#### H. **Fan Coils**

1. **Crawlspace** – Replace four unit ventilators in the crawlspace. Modify the existing ductwork and install one fan coil at each location. Units shall be equipped with hot water coils and two way coil valves. Provide 100% outdoor air economizer.

#### I. **Convectors**

1. Replace finned radiation to accommodate reduced loop temperature

#### J. **Plumbing Construction**

1. **Backflow Preventer** – Provide new 4" backflow preventer and 2" inch protected bypass

2. **Domestic Water Heater** – Provide high efficiency 80 gallon gas fired hot water heater.

3. **Booster Pump** – Remove and replace existing booster pumps with dual VFD booster pump package.

4. **Gas Service**

a. Provide gas booster for to service new boilers

b. Repipe gas service to accommodate segregated services for IT and MS gas fired equipment.