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Code Review
Facilities Services
Construction Services
Geological
Landscape Architecture
Environmental

Property Condition Assessment

FOR

Hopewell Elementary, SLSD

4625 West Hopewell Road, Center Valley, PA 18034

DATE: June 5, 2013

BIA PROJECT #: 1046311.006

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I Executive Summary

A. General Description

Barry Isett and Associates, Inc. (BIA) performed a visual survey of the subject property on March 27, 2013 and again on April 1, 2013. Mr. Todd Bergey, of Southern Lehigh School District, was present during our walk through to guide us and answer questions.

The building is located at the intersection of West Hopewell Road and Bowood Street in Center Valley, Pennsylvania. For the purpose of this report, East will be considered the front of the building. The building is arranged in a roughly triangular shape when viewed from aerial imagery with the portion nearest the entrance serving as common space including gymnasium, cafeteria and administrative offices. The two wings serve as educational space and include classrooms, computer labs and a library. The structure totals approximately 53,000 square feet. The plans that were made available to our office indicate that construction dates to about 1968. Conversation with the teaching and administrative staff at Hopewell reveals that the space does not function well for current educational practice in that the "pod" layout at Hopewell does not readily allow for breakout sessions or small group instruction. Another important consideration when deciding whether to renovate Hopewell or build anew is the number of trades and expense required to complete construction on existing conditions. In order to affect the upgrades to restrooms and plumbing it will be necessary to demolish the floors, lay the pipe and fixtures, then pour new concrete floors and apply finishes. In addition to the increased expense, the time requirements to complete this construction are likely to exceed what can be accomplished during a typical summer construction period. Furthermore, because of the dry time and moisture content of the new low VOC mastics and glues used, this time can not be decreased by additional manpower or shifts.

The primary structural system for Hopewell Elementary is masonry block and cast-in-place concrete floor. The roof deck is noted on the drawings to be "wood fiber decking" and appears to be similar in composition to Tectum Panels.

Access to the site is provided by one entrance which serves as both a bus loop and access to paved parking. Total on-site parking is provided for approximately 80 vehicles.

B. General Physical Condition

Overall the building appeared to be sound and in generally good condition considering the age. We were unable to observe components that were not readily visible due to exterior and interior finishes. The primary structural systems of Hopewell Elementary are generally in fair condition. Repairs in the form of steel plates are evident to the laminated wood roof framing. Long term water infiltration except for some isolated roof leaks are not in evidence.

The building façade is generally in good condition. A small amount of cracking was observed in the façade as well some localized missing mortar joints.

The roof is an EPDM membrane which is in fair condition but nearing the end of its lifecycle. It was coated with a liquid membrane to extend its service life and the only remaining warranty is on the coating. Only a few areas of ponding water were observed on the roof. The roof drains are well maintained and no accumulated debris

was observed.

The domestic water system appeared to be in fair, operable condition with varying signs of wear. . The building is connected to the public sewer system. The condition of all the building's piping could not be verified since most of it is located underslab or above the ceiling.

The HVAC systems appear to be in poor but operable condition. The building is serviced by rooftop units utilizing direct expansion for cooling and electric heat for heating. The air distribution system that services the classroom is of an antiquated design, and comfort and noise issues persist.

The electrical system, including lighting, appears to be in fair operable condition. Due to the availability of electric heat the electrical service has substantial capacity, but distribution beyond the swith gears is inadequate for the technological needs of the modern classroom.

The fire alarm system and security system appear to be in fair and operable condition. It is a possibility that the alarm system will need to be upgraded to comply with code requirements. The fire alarm frontend that is currently installed has not been manufactured since 1996 and replacement part availability may become an issue. The telephone/data systems appear to be in fair condition but may require expansion/adjustments depending on the future upgrades made to the building.

C. Recommendations

There were items that require immediate repair and are considered significant deficiencies. Selective maintenance repairs including cleaning, repointing, sealing around windows, when other work is completed, and copings, and crack repair are recommended for the façade.

The roof framing which consists of laminated timber beams supporting a wood fiber deck warrants careful review prior to replacing the roofing system and adding any roof top units. It was observed that the laminated beams have steel plates through bolted in a sandwich configuration to provide additional rigidity. Prior to affecting the roofing structure this arrangement should be reviewed by an Engineer licensed in the state of Pennsylvania to ensure compliance with current loading requirements.

Consideration should be given to upgrade the plumbing fixtures and the quantity of fixtures throughout the building. All sanitary piping should be tested for any signs of leaks, cracks, and proper slope. An HVAC inspection is recommended for all equipment and consideration should be given to upgrade to a more energy efficient system that utilizes natural gas as a source of heating. Testing of the lighting fixtures and emergency lighting fixtures is recommended to verify proper operation and adequate coverage and any malfunctioning fixtures should be replaced. The security, alarm, and data systems should all be tested for proper operation and capacities.

II. Purpose and Scope

A. Purpose

This study was conducted in an effort to determine the current condition of the building for the purpose of identifying significant defects and/or items of deferred maintenance that can affect the operation and value of the property. Our scope did not include any demolition or testing of building materials or operation of equipment. Our findings are based solely on the results of our visual survey.

B. Scope and Exceptions

The scope of the assessment includes a visual, non-intrusive and non-destructive evaluation of various external and internal building components. Representative samples of the major building components were observed and physical conditions evaluated. These systems include the building envelope; roofing; and mechanical, electrical, fire protection, and plumbing systems. Photographs were taken to provide a record of general conditions of the building, as well as possible specific deficiencies observed. This assessment shall not be construed as a building code, safety, regulatory or environmental compliance inspection.

This report is based upon the physical condition of the components, their ages and their expected useful life. The conclusions presented are based upon our professional judgment. The actual performance of individual components may vary from a reasonably expected standard and will be affected by circumstances that occur after the date of the evaluation. This report does not consider any future programmatic changes and how those would impact systems capacities and distribution.

The report does not identify minor, inexpensive repairs or maintenance items but rather does identify infrequently occurring maintenance items of significant cost, such as roofing, deferred maintenance and repairs and replacements that normally may involve major expense or outside contracting.

The following terms are used throughout the report and are defined as follows:

Excellent: New or like new.

Good: Average to above-average condition for the building system or material assessed with consideration of its age, design, and geographical location. Generally, other than normal maintenance, no work is recommended or required.

Fair: Average condition for the building system evaluated. Satisfactory, however some short term and/or immediate attention is required or recommended, primarily due to the normal aging and wear of the building system, to return the system to a good condition.

Poor: Below average condition for the building system evaluated which would require immediate repair, significant work, or replacement to return the building system or material to an acceptable condition.

Unless stated otherwise in this report, the systems reviewed are considered to be in good condition and their performance appears to be satisfactory.

C. Reliance

The conclusions and recommendations stated herein are intended as guidance and not necessarily a firm course of action except as where explicitly stated as such. BIA makes no warranties, expressed or implied, including without limitation, as to merchantability; or fitness, of the property for a particular purpose. In addition, the information provided within this report is not to be considered legal advice. The results of this assessment may not be relied upon by any party other than SLSD without prior written consent of BIA.

III. System Description and Observations

A. Structural Frame and Building Envelope

1. Substructure

Description: The primary structural system for Hopewell Elementary is masonry block. The foundation is a conventional strip footer. The roof framing consists of laminated lumber. The school was observed to be structurally sound with no significant cracking, damage, failure, or movement of loadbearing elements with the exception of steel plates spliced into the roof framing.

Comments:

- No significant cracks were observed either from settlement.

2. Superstructure

Description: The primary structural system for Hopewell Elementary is a masonry cavity wall consisting of a brick outer wythe backed by a CMU inner wythe. Cast-in-place, reinforced concrete comprises the floor. The building was observed to be structurally sound with no significant cracking, damage, failure, or movement of loadbearing elements. Access to observe the structural elements were extremely limited due to finishes.

Comments:

- Water-stained ceilings were noted at various locations.

3. Exterior Walls

Description: Hopewell Elementary is clad with brick over a masonry unit backup wall. The façade is generally in good condition. Localized signs of this deterioration include efflorescence (white mineral deposits from water which is leeching through the wall), loss of mortar, cracking or gapping of mortar joints. Most sealant observed had exceeded its useful life.

Comments:

- Maintenance repairs to the facade include general cleaning; selective repointing; general sealant replacement including around all windows and at expansion/ control joints; and crack repair. These repairs should occur in the next 5 years to prevent further deterioration of the façade.

4. Roofing

Description: The roofing is an EPDM (rubber) membrane roof which was observed to be in fair condition considering the application of the liquid coaing.. The flashings and terminations appeared to be in generally good condition, too. Water is removed from the roof by way of drains which are plumbed through the building shell. Drains were observed to be clear and well maintained.

Comments:

- The roof was in fair to good condition and should provide at another 5-7 years of service with good maintenance. The joints in the aluminum parapet coping should be sealed to prevent water infiltration at the time that the roof is replaced.

Note: The condition of the structural roof deck could not be determined on a large scale. When the existing roofing materials are removed, a contingency should be allowed to repair any deteriorated roof deck structure (above and below) and the parapets.

B. Mechanical, Electrical, and Plumbing Systems

1. Plumbing

a) Domestic Water System

Description: Domestic water is supplied to the building, via a 4" water service, through the storage room adjacent to the electrical room, where the backflow preventer and main shutoff valve is located.

The building contains only one set of gang restrooms and various single use restrooms. The restrooms contained both floor and wall mounted water closets with flush valves. They also contained wall mounted sinks.

The building contained a medium sized kitchen area with a one (3) compartment sink, one (2) compartment sink, and a couple hand sinks. The dishwasher is newer and was recently replaced. There were multiple janitor closets located throughout the building, each containing a mop sink. Hot water is provided to the restroom lavatories, kitchens, and janitor closets via gas fired and electric water heaters.

Comments:

- All visible domestic water piping, kitchen and restroom fixtures appeared to be in an operational condition with varying degrees of wear and tear.

Although the actual age of the fixtures could not be determined through visual inspection, they all appeared to be original and approximately 40 years old.

- There are (3) electric water heaters in fair condition and (1) gas fired hot water heater appeared to be in good condition and approximately 2 years old.

- Overall, the visible portions of the domestic water system appear to be in a functional condition with no issues that require immediate repair. All piping should be pressure tested to verify integrity of all concealed piping since leaks have occurred over the past ten year period. It is likely that with the numerous repairs the plumbing no longer acts as a cohesive system and that further damage to the system will be accelerated due to additional turbulence.

- Much of the plumbing is contained within the block walls and therefore requires substantial demolition to access and make repairs.

- Based on the overall age of the system, although much of the plumbing was concealed, we anticipate that overall the system is nearing the end of its useful life.

- Consideration should be given to upgrading the existing plumbing fixtures with new fixtures and faucets utilizing new low flow devices. Also, new toilet rooms are required to bring the building up to current elementary school standards.

- It has been reported to us that insufficient hot water is available in the restrooms.

- The addition of additional restrooms or upgrades to existing restrooms will require extensive demolition not only of plumbing systems, but also cast in place flooring and floor finishes will need to be demolished and replaced. The effect on budget and schedule of this additional work must be carefully considered and planned prior to undertaking these upgrades.

b) Sanitary System

Description: The building is connected to the public sewer system. The building sanitary discharge location to the sewer appears to be in the front of the building by the front entrance. The existing sanitary piping is located under slab. As visual inspection was not possible for all areas of the building, the condition, size, and routing of the sanitary system was not determined.

Comments:

- The sanitary piping system appears to be in good working order with no noted issues or signs of cracks or leakage. All piping should be tested to verify integrity of all concealed piping.
    - Based on the overall age of the system, although much of the plumbing was concealed, we anticipate that overall the system is nearing the end of its useful life.

2. Heating, Ventilation, and Air Conditioning

   Description: The building currently has (12) rooftop units utilizing direct expansion for cooling and electric heat for supplying hot and cold air to the building. Multiple split systems air conditioners were observed servicing various portions of the building. Most of the rooftop units and the split systems are towards the end of their life cycle and are in need of replacement.

   Controls for all space conditioning equipment consist of a Trane front end and localized temperature sensors tied into the DDC (direct digital controls) system. This control system ranges between 20 and 43 years old. In 2006 the front end of the control system was replaced, however, it was not engineered to be part of a cohesive system and has its failings.

   Comments:

   - A thorough inspection and servicing of all equipment is recommended, but based on the age of the equipment, consideration should be given to a system upgrade to improve system reliability, operation and energy efficiency.
   - The ductwork and dampeners range in age but are typically 43 years old and were not engineered to work with the replacement roof top units (RTUs).
   - Providing new or additional ductwork will require that additional drop ceiling and other modifications be made to accommodate the passage of ducts.

3. Electrical System

   a) General Power System

      Description: The building electrical power is supplied by PPL. The utilization voltage is 277/460V three phase. The secondary line comes off a grade mounted transformer along the side of the building, into a main switchboard with a meter located in the electrical room. The main switchboard is serviced by a 2000 amp 460V three phase main circuit breaker. This main breaker supplies power to (9) three-phase breakers.

      The existing 40 KW natural gas emergency generator appeared to be in fair operable condition; however the generator is original to the building.

      Electrical feeders on the inside of the building were in primarily EMT conduit.

      Comments:

      - The main distribution panel and other major electrical distribution equipment are roughly 45 years old. All distribution equipment appears to be in fair condition with no major issues.

      - Useful life of electric equipment, based on industry standards, is approximately 50 years. As such, expected useful life for the electrical distribution equipment is 5 years.

      - The generator is cooled by a direct pass water cooler which discharges into the sewer system. Should a blockage occur in the sanitary system or

immediate drain flooding could result. Furthermore, should the water supply be compromised or frozen, the generator would be unable to operate.

- Power beyond the switchgear and main distribution is limited for today's needs. Providing additional electrical distribution will require installing new drop ceiling throughout much of the building to cover the distribution network. The effect on budget and schedule must be carefully considered when undertaking to provide additional electric distribution.

b) Lighting System

Description: The general illumination throughout the building is accomplished through a large mix of styles, fixture types, lamp types and control mechanisms.

The emergency lighting on the interior of the building is provided by ceiling and wall mounted fixtures fed from the emergency generator. It could not be confirmed if the lights and exit signs were provided with remote battery backup.

The exterior lighting system consists of building mounted light fixtures on the building.

Comments:

- The overall condition of the lighting in the building varies, as some areas have undergone renovations in the last 5-10 years. In general the fixtures themselves appear to be in mostly fair condition. However, overall fixture spacing and quantities appear to provide sufficient lighting levels.

- The exterior lighting was observed during day light hours and its function was not verified. Fixture quantity and locations appear to provide minimum required lighting levels at the exits and parking lot.

- Testing of the batteries on all the emergency lighting fixtures should be continued on a weekly basis as they are now and any malfunctioning fixtures should be replaced. All existing lighting fixtures should be tested to verify proper operation and any malfunctioning fixtures replaced.

C. Life Safety/Fire Protection

1. Alarm Systems

Description: The building appears to have a basic fire alarm system installed. It is unclear exactly how it is integrated with the security system. The fire alarm panel is located in the Clerk area outside the Principal's Office and Conference room. Spot-type smoke detectors are located throughout the building. There was not a fully ADA compliant strobe system in place.

Comments:

- It is likely the building will require a complete fire alarm renovation to comply with the latest building code requirements of full strobe coverage and alarm notification. Existing proper operation of the alarm systems was not verified.

The alarm system should be tested to confirm it is operating correctly in its current state.

D. Other Systems

1. Security

Description: The security system should be improved upon and upgraded.

Comments:

- The security alarm system appears to be in fair condition. Proper functioning of the alarm system was not tested.

2. Telephone / Data System

Description: The building is provided with telephone/data service with telephone and data jack locations throughout the building at appropriate places.

Comments:

- The telephone/data system appears to be fair condition. It may require expansion/adjustments depending on the building use.

3. Kitchen
Description: The full service kitchen is original to the buildings.

Comments:

- With the exception of the dish washer the kitchen equipment is original to the building and has exceeded its useful life.
- The counter heights and work flow of the kitchen are not conducive to ergonomics or work flow.
- The stippled/ perforated ceiling finish is difficult to clean and has been commented on by the Health Inspector for the same reason.

E. Site Improvements

1. Asphalt Paving:

Descriptions: Vehicle and limited pedestrian access to the school are accomplished with asphalt paving.

Comments:

- The asphalt paving on site has reached the end of its useful life. Widespread alligator cracking and the formation of potholes are in evidence.

2. Concrete Paving

Descriptions: Access to the main entrance as well as the two courtyards are constructed of concrete paving.

Comments:

- The concrete paving on site was observed to have heaved in several locations. This is most likely the result of placing the concrete on expansive soils. During the time of the initial construction at Hopewell it was common to used slag from Bethlehem Steel for sub-base material. This slag has proven unsuitable for such uses over time due to its expansive nature and relatively low bearing capacity.
- The concrete paving has spalled, particularly at the edges.
- In general, ADA access does not meet current code.

F. ADA Compliance

Description: Generally Hopewell Elementary was constructed before accessibility guidelines became codified. As such, much of the construction is grandfathered until renovations are made.

Comments:

- When renovating, 20% of the construction value must be upgrades to Accessibility.
- Access into the school, as well as emergency egress from the pods does not meet current accessibility guidelines.
- The ramps within the hallways which run from near the offices up into the pods exceed the allowable 1:12 pitch. Because of fixed elevations such as door ways and landings, it is not possible to remedy this condition by reconfiguring the ramp.
- The restroom configurations do not meet current ADA guidelines both in fixture count and physical configuration.

IV. Opinions of Probable Cost

Preliminary opinions of probable cost for significant deficiencies identified are attached. These costs should not be construed as 'not to exceed' and contingencies are given as a range to account for unknown information that will need to be determined by additional testing, invasive engineering investigation, and design.

Based on our observations, items not listed in the opinion of cost are understood to not require immediate replacement / repair. However, based on Owner's program and use, building systems may require upgrades and/or replacement. Beyond functionality, the Owner may want to upgrade the existing systems to meet the needs of the future use.

The probable costs should be used only as budgetary figures. The contingency figures are included to account for items which are either unknown or are not known in sufficient detail to quantify the associated costs. In providing opinions of probable cost, Client understands that the consultant has no control over the cost or availability of labor, equipment, materials, or over market conditions or the contractor's method of pricing. The consultant makes no

warranty, express or implied, that the cost of the Work will not vary from the consultant's opinion of probable construction cost. In addition, these costs refer to direct costs only. We define direct costs as the cost of labor and material actually incorporated into the project. We exclude such indirect costs as design, finance charges, permits/inspections, legal fees, insurance, taxes, bonding, etc.

V. Limitations

Property condition assessments are observational in nature. Information contained in this report was obtained by means of site observations, interviews and Client-provided documents. Evaluation by visual observation is specifically limited to those items or components that are readily accessible and visible to the unaided eye. No testing, either destructive or non-destructive, was performed, and no calculations were performed to determine capacities of existing building systems. The observation of concealed or inaccessible areas of the subject property, which would have required the use of destructive investigation, was beyond the contracted scope of this assessment. The information presented in this report represents the condition of the subject property at the time of BIA's site visit; other problems may develop with time that were not evident at the time of this assessment. No other expressed or implied warranty is made regarding the content of this assessment.

The section "Out of Scope Considerations" of the ASTM "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process" (ASTM E 2018-01) is incorporated by reference.

Items identified as requiring action are so noted. BIA's conclusions and recommendations should not be construed in any way to constitute a warranty or guarantee regarding the current or future performance of the facility.

This report is intended to be read in whole. Information provided in the various sections is complementary and in some instances provides additional explanation of information concerning the assessment. Therefore, interpretations and conclusions drawn by reviewing only specific sections are the sole responsibility of the user. Should you have any further questions, please do not hesitate to contact our office.

VI. Qualifications

We have performed our services and prepared this report in accordance with generally accepted engineering and construction practices. We make no other warranties either expressed or implied, as to the character and nature of such services and product. The findings, conclusions, and recommendations of this report are based only on our visual observations. Our findings do not include any demolition, equipment start-up or testing of building materials and building components. Reports prepared by others and provided by the Client for our reference were assumed to be accurate. If you have any further questions, please do not hesitate to contact our office.

VII. Photographs

Walled courtyard looking towards main entrance

Egress from classrooms at rear of school.

Exterior pathway, typical

Joint in parapet capping

Asphalt Paving, typical

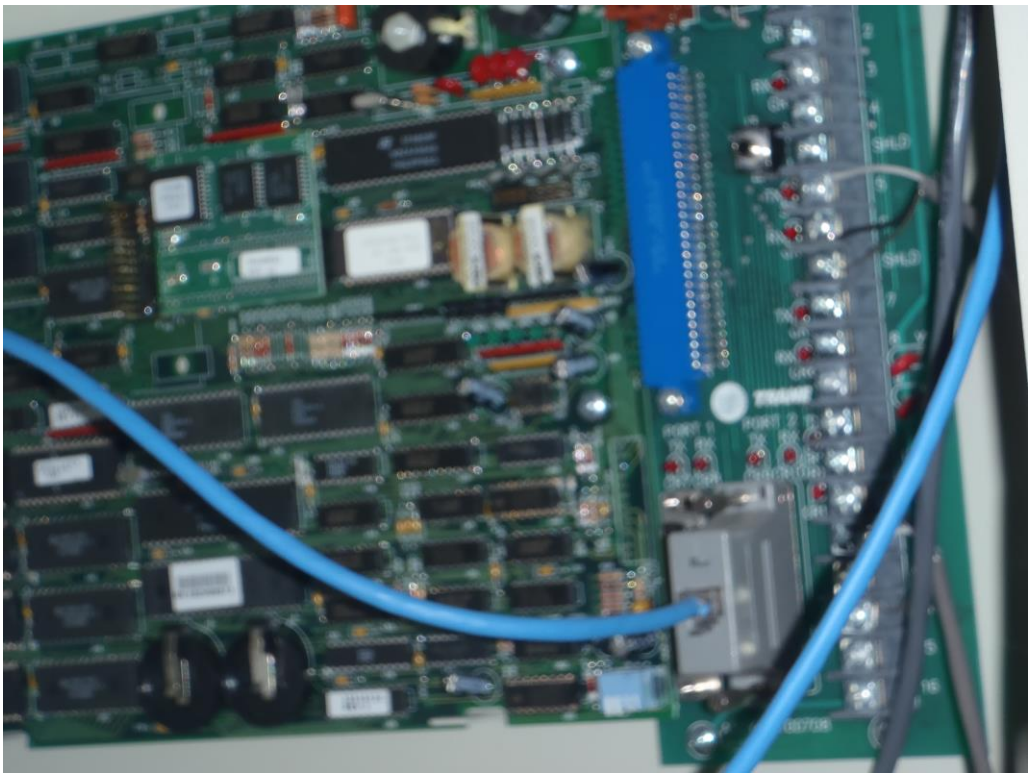
Asphalt near dumpster/loading area. BIA recommends a reinforced concrete pad to withstand the loading in this area.

Deteriorated site wall at courtyard near main entrance.

Typical wall pack lighting and public address system.

Generator

Electrical Distribution near gymnasium.



Communications panel

Water Supply

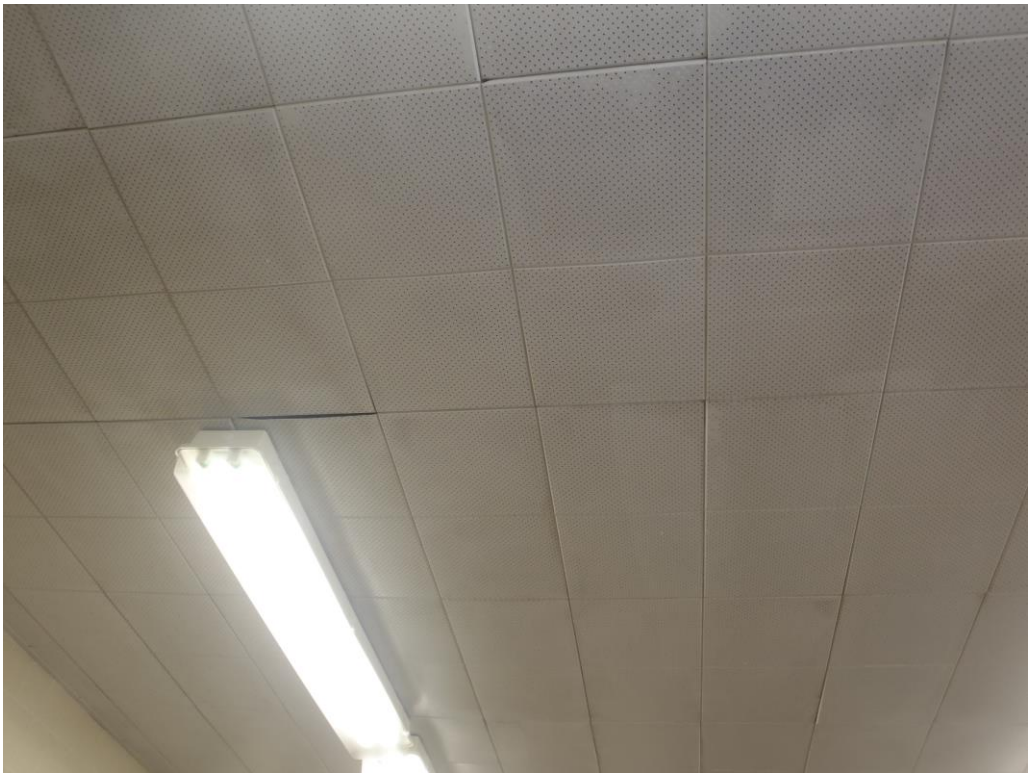
Hot water heater

Typical classroom cabinets and sink. Note peeling veneer on doors.

Typical duct system

Cafeteria

Kitchen



Ceiling grid in kitchen.

Roof top units

Roof top Unit

Roof, typical

Space above ceiling tiles.

Typical Registers

Educational Space

Inside of Roof Top Unit

Hopewell Elementary				
Div	Description	Value	Age	Service Life
			In years	
	Class Room Cabinets		43	20-25
	Demolition	$8,750		
	Sinks (25)	$17,550		
	Cabinets/ counters (25)	$43,750		
	Total	$70,050		
	Convert RTU's to 4 Pipe Chiller System for HVAC			25-30
	Chiller System	$2,024,000		
	Roof Replacement, 60 mil EPDM	$440,000		
	Demolish and patch existing RTU's	$72,000		
	Total	$2,536,000		
	Convert Existing Bathrooms to ADA		43	
	Includes 1 Boys and one Girls		Proposed Work	
	General Conditions	$12,000		
	Selective Demo	$10,000		
	Temp Facilities and Controls	$7,000		
	Tiling	$20,000		
	Painting	$4,000		
	Toilet Compartments and Accessories	$25,000		
	Plumbing	$13,000		
	HVAC	$20,000		
	Fire Protection	$4,000		
	Electrical and Lighting	$12,000		
	Allowances for Unforeseen	$17,500		
	Total	$144,500		
	Convert 1 Classrooms to Provide adequate Fixture Count including ADA			
	Includes 1 Boys and 1 Girls		Proposed Work	
	General Conditions	$50,000		
	Selective Demo	$14,000		
	Temp Facilities and Controls	$14,000		
	Demolish and Repair Concrete Slab/ Floor	$100,000		
	New CMU walls	$22,500		
	New Doors	$5,750		
	Infill existing windows	$3,500		
	Underslab piping, service/ sanitary	$44,000		
	Tiling	$40,000		
	Painting	$5,000		
	Toilet Compartments and Accessories	$55,000		
	Plumbing	$26,000		
	Hot Water Heater and associated Piping	$22,000		
	HVAC	$40,000		
	Fire Protection	$7,000		
	Electrical and Lighting	$48,000		
	Allowances for Unforeseen	$42,500		
		$539,250		

Replace Generator					
	Demolish Existing, provide fuel source		$22,500	43	0
	Install New		$75,000		
		Total	$97,500		
Upgrade Electrical System					
	Demolish Existing Electrical System		$129,250	43	25
	Install New		$1,250,000		
	Install/ Replace new Ceiling Grid & Lighting		$930,750		
		Total	$2,310,000		
Asphalt Paving					
	Remove Existing Paving and excavate to			43	25
	subgrade. Haul offsite.		$78,500	varies	
	6" 2A Sub-base		$84,000		
	4" 25mm Base Course		$118,000		
	1.5" 9.5 mm wearing course		$88,500		
		Total	$369,000		
Concrete Paving Including Ramps					
	Remove Existing Concrete Paving and			43	25
	excavate to subgrade. Haul offsite.		$8,500		
	6" AASHTO 57 Drainage Course		$8,500		
	6" Class A Concrete Walks		$8,500		
		Total	$25,500		
Kitchen			$385,000	43	25
Fire Protection			$91,000	proposed	
Contingency			$975,000		
		Grand Total=	**$7,472,750**		