EDDINGTON ELEMENTARY SCHOOL

ASSESSMENT REPORT

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EDDINGTON ELEMENTARY SCHOOL BUILDING ASSESSMENT

The following is a summary of our findings related to Eddington Elementary School. This report should be used as a tool and continue to grow in depth as we move forward. Input for this report was compiled based on observation from a single site visit, potential needs by staff, and the Maine Department of Education database, etc. Many of the tasks are specific while other projects are common for all spaces. The scope of the projects/items has not been fully developed and will need to be further investigated prior to design.

The estimates were established based on square foot, per linear foot, and allowance costs obtained during past projects, or from other sources such as RS Means. EUL = Estimated Useful Life of site or building component.

Each of the tasks is ranked based on priority. Priority 1 shall mean currently critical and should be dealt with immediately. Priority 2 tasks shall be those that are considered potentially critical and should be addressed within the first year or so. Priority 3 projects are deemed necessary, but can wait a few years, until years two to five. Priority 4 issues are those that are recommended because they make sense and could reduce overall maintenance costs. Priority 5 includes those projects that are either in very good condition, and no action is anticipated for 10-15 years unless modifications affecting them are undertaken.

The Eddington Elementary School campus of approximately 7.6 acres is located on the Main Road/Route 9 in Eddington, Maine. The school currently serves 120± students, grades Pre K – 1, with a staff of 15±. The one-story building is 22,256 sf. The initial wing constructed circa 1955 is 9,400 sf. In 1974 four classrooms were added with a total of 4,032 sf. The 1992 additions on the east and west sides are 8,824 sf. The site includes an athletic field, playground, parking, as well as municipal water and on-site septic system.

I. SITE

A. Site Condition – Sidewalks/Pavement

The large front parking area provides an adequate student bus drop-off route and parking spaces. There is a dedicated entrance and exit from the parking lot. The pavement is in fair condition with large cracks scattered across the site. A paved drive extends around the building and is in fair condition. At the rear is a large paved playground area that was paved in 2015 and in good condition. There are concrete slab entrances are in the front entrance and side gymnasium entrance. The concrete is in good condition with some weeds growing out of the joints.

Action: Crack seal joints to extend the life of the existing pavement
Priority: 2 $ 2,000

Action: Pave remaining area (1½" overlay). *Priority:* 3 $ 50,000
(Priority 1 if piping is replaced for sprinkler system)

Action: Maintain concrete sidewalk.

B. Site Signage

Located along Rte. 9 is the school sign. It consists of a 4'x8' wood painted sign, with a message board of plastic numbers. Two pressure treated posts support the sign. All components are in good condition. There are two sets of flashing school zone warning signs located on Route 9 about 100 yards from the school. Both should be upgraded so that they can be programmed remotely. Install signage to better improve and define main/office entrance.

Action: Add signage and stripping. *Priority:* 2 $ 12,000

Action: Replace and reposition flashing traffic lights. *Priority:* 1 $ 20,000

D. Site Lighting

Site lighting consists of (3) pole lights in the front parking lot, which consist of aluminum poles with downward shielding fixtures. Building mounted fixtures are in place around the building. Additional LED fixtures should be placed in the parking lot and access drive around the school to provide secure lighting in several dark areas.

Action: Add additional site lighting. *Priority:* 1 $ 18,000

E. Landscaping

The landscaping consists of various trees and shrubbery located around the site. The grass areas are well maintained.

Action: No Action at this time.

F. Utilities

1. Water

The water is supplied by Bangor water, which has a main line that runs alongside the main road, also known as Route 9. A hydrant is located near the front of the school with shut offs. A 2" ductile iron line runs from the main line underground. The 2" piping is converted to polyethylene piping at the building's exterior wall. This piping was recently replaced due to pipe movements at the exterior wall which resulted in the original pipe bursting. The piping then reduces to a 2" copper line within the boiler room. Prior to the 2" copper line, the piping is reduced to a 1" copper pipe which also houses the water meter. This sudden reduction in pipe size causes the water pressure to be much higher and can cause the pipe to corrode at an abnormally high rate. There is no sprinkler line into the building.

Action: Replace the 1" and 2" piping with new piping, backflow preventer, water meter, and appropriate connections at the exterior wall piping penetration. *Priority*: 3 $ 5,000
(Priority 1 if piping is replaced for sprinkler system)

2. Sewer System

   The sewer system consists of two onsite-engineered systems. Plans show the original gravity system was replaced in 2002 with effluent from the building to a 2000-gallon concrete septic tank continuing to a disposal field to the southwest of the building. This system serves the primary wing. The second system, for the 1992 addition, is located at the northeast side of the building adjacent to the ball field. Two 2000-gallon concrete septic tanks and a 1000-gallon grease trap from the kitchen feed into three large disposal fields.

   The original disposal field is approaching the end of its useful life; although with proper maintenance, they can last much longer. Recommend continuing maintenance of the systems such as regular pumping of the septic tanks and grease trap, cleaning the filter at the tank often, and inspect the monitoring stations for any warning signs of water. In the advent of a failed system, recommend the school have additional sites earmarked for a replacement system. Ensure grease traps and oil water separators are emptied in a timely manner and maintained and inspected on a regular schedule.

   Action: Replace disposal fields. *Priority*: 5 $ 80,000

3. Drainage and Storm Water

   Overall site appears to be well drained of storm water. The north side of the building has three catch basins that drain the ball fields and rear parking lot. This line daylights to the northeast of the property in a rip rapped drainage swale. The front parking lot drains towards the road into a ditch. One area of concern is the entrance to the lower basement area behind the gymnasium. This area has many rooflines that drain in this area and water infiltrates into the boiler room and underground oil tank storage.

   Action: Recommend adding catch basins in the area near the entrance to the Boiler Room to remove water from this area. *Priority:* 5 $ 15,000

4. Electrical

   The primary electric service is feed from an overhead line along Rte. 9 to a pole with transformers set at the corner of the property near the gymnasium. From there, the secondary load side drops underground into the lower boiler room to the MDP (Main Distribution Panel). See Electrical Section below.

   Action: No action needed at this time.

5. Gas

   Propane gas is used in the building for cooking in the Kitchen. This area is serviced by two vertical 250-gallon propane tanks. The tanks are owned and maintained by the fuel company. The tanks are next to the building located outside the back door. Recommend reviewing requirements for clearances per code.

   Action: Verify proper clearances are met.

II. BUILDING ENVELOPE

A. Building Façade

The 1955 and 1992 additions are wood stud wall construction. The exterior walls have vinyl siding and metal clad trim, in fair to good condition. Plywood sheathing is attached to the wall studs; no infiltration barrier was noted on the existing sheathing to protect the plywood. We expect the insulation within the walls to vary given the different ages of construction but mostly consist of fiberglass insulation and rigid board sheathing. The foundation system consists of slab on grade construction in good condition

Action: Maintain siding and trim as needed. *Priority:* 1 $ 2,000/yr

B. Building Structure

The building is conventionally framed with wood studs and plywood sheathing, which provides a lateral force bracing system. However, given the age, hold-down devices are not likely present. No evidence of stress cracking was noted.

Action: Monitor and note any future stress cracking.

C. Windows

The majority of the windows in the 1955 building are older vinyl double-hung replacement windows in poor to fair condition, some of the windows are easy not easy to open and close. Staff has reported air infiltration in the winter. The 1992 additions have original vinyl clad double hung windows in fair to good condition.

Replace the exterior classroom windows with new vinyl single-hung replacement windows. Modern windows are much improved with higher R-values and should improve energy savings. Monitor the condition of the 1992 windows (36) for replacement in the future.

Action: Replace classroom windows (40) *Priority:* 2 $ 35,000

Action: Replace 1992 windows (36) *Priority:* 3 $ 32,000

Action: Add egress window to Clinic/Nurse's Office *Priority:* 1 $ 1,500

D. Exterior Doors

Insulated steel doors and frames, some with windows are located around the school. The main entrance has double entry door system in good condition. The main gym entrance and rear exit double doors in the classroom building have new aluminum storefront type doors installed in 2015 and appear to be in good condition. Appropriate door hardware, such as closures and lever door handles are in place. Most of the doors were installed in the 1992 addition and are well maintained and in good condition. There are 6 sets of double doors and 6 single

exterior doors. Consider adding card swipe security at all exterior doors. See Building Security section of narrative for additional information.

Action: Continue to maintain exterior doors.

E. Roof

The 1955 roof consist of wood truss systems with 1x boards with asphalt shingles. The gymnasium and cafeteria roof is incorporated within its glulam frame and is also covered with asphalt shingles on plywood sheathing. The 1992 library addition consists of trusses with plywood sheathing and asphalt shingles. The 1955 roof shingles were replaced on the west side in 2001 and on the east side in 2009. The 1992 gym roof was shingled in 2007 on the east side; new shingles were installed over the gym entry roof in 2007. The Library roof is original (1992) and is in fair condition. Noted severe curling in the roof valleys over the teacher's room, due to size of valley and closed type shingles. In some areas of roofing over the 1955 building, nails are pulling out of the shingles; this may be due to shorter fasteners or existing sheathing failure. Roof ventilation in the 1955 building consists of soffit and gable venting. The attic insulation consists of 6" of blown insulation at R-15. Some of the soffit ventilation is blocked by the insulation. The 1955 attic is separated by smoke partitions.

Action: Replace shingles and ridge cap on west side of 1955 wing.
Priority: 2 $ 30,000

Action: Replace shingles and new ridge cap on west side of library roof.
Priority: 2 $ 10,000

Action: Add additional insulation to R-49 with proper vents in the 1955 building. *Priority:* 2 $ 30,000

F. Chimney

A brick chimney is present and is located in the boiler room and exits thru the roof above. The chimney within the 1955 wing appears to be in good condition. We recommend inspecting the liner for any defects. Also recommend re-pointing top portion of the chimney as loose mortar was noted at some of the joints.

Action: Inspect the chimney lining and repoint exterior chimney masonry block. *Priority:* 1 $ 10,000

G. Boiler Room

The boiler room is located under the original building. The boiler room is in poor condition. The ceiling has numerous holes and penetrations due to water leaks, poor installation of piping, supports, and the age and material of the ceiling. All boiler rooms require the rooms to be completely sealed and rated. Infiltration of ground water from utility trenches is a problem and a sump pump is used to evacuate the water. Within the last 5 years the power was lost and the sump pump failed, which caused the boiler room to flood to the ceiling. The flooding

has happened several times in the life of the building. Much of the equipment is damaged and must be replaced. The electrical equipment is located here also and it is a very corrosive environment and unsafe condition.

Action: Construct a new self-contained boiler room and reconnect all piping, vents, and associated electrical components. (See Boiler section below.)

III. INTERIOR FINISHES

A. Floors

The school has a combination of flooring. Most classrooms have vinyl asbestos tile in poor condition. The hallway was encapsulated with VCT in the hallway in fair condition. The gang bathrooms in the classroom area have ceramic tile flooring in fair condition. The individual classroom and unisex bathrooms have VCT. Carpet is in place in the library and main office area and is in good condition. The gymnasium/stage consists of VCT floor in good condition. The kitchen has VCT flooring in fair condition. The vestibules also have VCT flooring in good condition.

Action: Remove asbestos tile in 1955 classrooms and install new.
Priority: 1 $175,500

Action: Replace VCT in kitchen with quarry tile. *Priority:* 2 $ 10,000

Action: Replace library carpeting. *Priority:* 2 $ 12,000

Action: Replace gang bathroom ceramic flooring. *Priority:* 2 $ 8,000

B. Walls

The walls throughout the 1955 building have painted CMU walls while the hallway has wallboard. The gang bathrooms have wainscoting of ceramic tile in fair condition. The 1974 classrooms have wallboard on the walls. The walls in the 1992 addition have drywall in good condition including the gymnasium and bathrooms. Recommend updating the walls as per current fire code.

Action: Remove exposed fiberboard and plywood in 1955 areas, replace with drywall. *Priority:* 2 $ 20,000

Action: Continue to maintain drywall, patch/paint (yearly allowance).
Priority: 1 $ 3,000/yr

C. Ceilings

The ceilings consist mostly of suspended acoustical tile grid system in fair condition. The library and stage/storage room have painted drywall ceilings and are in good condition.

Action: Replace/install suspended ceilings as they fail (yearly allowance).
Priority: 1 $ 2,000/yr

Action: Continue to maintain drywall, patch/paint (yearly allowance).
Priority: 1 $ 1,000/yr

D. Interior Doors

Interior doors consist mostly of solid wood doors. The 1955 doors have wood frames and the 1992 doors have metal frames. The mechanical areas consist of hollow metal doors with hollow metal frames. The hallways have double wood fire doors with magnetic releases in good condition. The entry double doors have double metal doors with appropriate hardware and in good condition. Some of the doors have windows with tempered glass. Hardware is specific to the use. The doors and hardware appear in good condition, although some updates from knobs to levers should be completed.

Action: Continue to maintain doors and update hardware. *Priority:* 3 $10,000

F. Restrooms

Student multi-stall restrooms, as well as a few single use restrooms for the faculty and library, are placed throughout the facility. The restrooms appear to be in fair to good condition. The flooring, walls, and ceilings have been addressed earlier in this narrative. Restroom plumbing fixtures are separated by painted metal partitions. For the most part the restroom plan and fixtures meet ADA standards for handicap accessibility; however several conflicting clearance issues were noticed. Also, the installation of a molded wrap on the exposed drain piping under the restroom lavatories is required. It was noted that not all restrooms had the appropriate grab bars and some toilet accessories mounting heights were not current with ADA code.

Action: Renovate 2 restrooms in the 1955 wing. *Priority:* 2 $100,000

Action: Add grab bars and other accessories to proper height.
Priority: 2 $ 20,000

G. Kitchen and Cafeteria

The Kitchen is a full commercial kitchen with appliances, walk-in freezers, coolers, ranges, ventilation hoods, wash stations, and serving lines. The condition and operation of equipment and interiors appear to be in good order. The kitchen hood and makeup air unit did not appear to be operational during testing. The units should be studied further to ensure adequate ventilation and exhaust rates are being met.

Action: Install a commercial thermostatic mixing valve designed for kitchen equipment within the boiler room or a dedicated kitchen water heater with mixing valve**.** *Priority:* 1 $ 10,000

Action: Perform a kitchen ventilation study to determine if equipment meets ventilation rates required and replace hood. *Priority:* 1 $ 50,000

IV. ACCESSIBILITY/LIFE SAFETY/BUILDING SECURITY

A. Handicap Accessibility

Currently most spaces within the school are accessible, such as the hallways, doorways, and drinking fountain. The bleachers in the gymnasium may need to be modified to accommodate wheelchair accessibility. The stage can be reached by a ramp, however it does not meet current ADA standards. As previously mentioned in this narrative the campus has several areas which do not meet current standards for ADA. The compliance problems for some of the restrooms should be addressed.

Action: Reconstruct the interior ramp system to meet current ADA requirement. *Priority:* 1 $ 50,000

B. Building Security

The Front Entrance is non-secure in the present configuration. Once visitors enter the building, it is up to them to check into the office, which is located off from the Lobby. Any visitor could roam the school once in the Lobby before registering at the front office. Other doors around the building should be secured with access control hardware. Recommend implementing a card-reading system.

Re-configure the Front Entrance to provide check-in before entering the school. A possible solution would be to rearrange the admin area with a check-in window at the Lobby wall and adding a locked set of doors once the visitor is identified to enter the building. Reconfigure the door security from the exterior side of the portable classroom fencing.

Action: Reconfigure the Front Entrance to provide security check-in before entering the school. *Priority:* 1 $200,000

Action: Add fencing to separate school property from the woods and adjacent property. (1700' @ $40/ft) *Priority:* 2 $ 68,000

C. Fire Alarm System

The fire alarm control panel is located in the office area. The panel controls devices, such as smoke alarms, pull stations, strobe lights, etc. throughout the main school building, and is tied into a single phone. The fire alarm panel is in good condition but does not meet current code as is not addressable. Note: There is a portion of the building with sprinkler system in the building.

Action: Replace system with new addressable system, including new wiring, devices, etc. *Priority:* 1 $ 75,000

Action: Relocate pull stations to correct height. *Priority:* 1 $ 5,000

D. Security System

The security system consists of a simple voice control system at the main entrance, which notifies the office of visitors.

Action: Recommend installation of video IP system with access control, including card readers, cameras, etc. for adequate security. *Priority:* 1 $ 75,000

Action: Implement card reader system at critical doors. *Priority:* 1 $ 16,000

Action: Install security cameras at key locations. *Priority:* 1 $ 20,000

E. Sprinkler System

A partial sprinkler system was added in 2012/13 by approval of State fire Marshal's office to allow storage in the attic of the 1955 section system in place at the school. The attic storeroom, gym area associated storage areas were sprinklered including sprinkler piping, sprinkler heads, and 3-1,000 gallon plastic tanks located in janitors room off from classroom wing. The agreement at the time was to sprinkler the rest of the building within 5 years. This system appears to be a Life Safety System, not an NFPA 13 system.

Action: Complete sprinkler system. *Priority:* 1 $ 60,000*

*Assumes fire main and entrance piping are sufficiently sized. If NFPA 13 system deemed required by State Fire Marshal a new fire main will need to be installed, new entrance riser, piping and sprinkler heads ($150,000-$200,000).

V. ELECTRICAL (*Service-Panels-Lighting/Switching)*

A. Emergency Generator

No standby generator located at this school. We recommend installing a generator to provide standby power in the event of a utility power failure.

Action*:* Install new generator. *Priority:* 4 $150,000

B. Lighting Fixtures

A variety of lighting fixtures are in place throughout the classrooms and common areas. The majority are fluorescent fixtures and appear to be in fair condition. Energy savings can be improved with newer LED style light fixtures that also come with occupancy sensors to shut down lighting when not being used. Replacement should result in noticeable energy savings.

Action*:* Replace interior lighting with LED fixtures throughout.

Priority: 3 $110,000

C. Lighting Controls

Lighting controls as mentioned above can be incorporated in new fixtures. Occupancy sensors can be installed to control lighting when not occupied. A newer panel would also give more options for lighting control.

Action: Add occupancy sensors throughout the building.

Priority: 3 $ 5,000

D. Electrical

The primary electric service is feed from an overhead line along Route 9 to a pole with transformers set at the corner of the property near the gymnasium. From there, the secondary load side drops underground into the boiler room to the 120/208V three phase MDP (Main Distribution Panel). The MDP feeds all sub panels located throughout the building and is in poor condition. The MDP feeds all branch panelboards throughout the building. The panelboards appear to be in fair condition; however a few code related concerns were present. There is also a lack of general use receptacles and circuits available.

Recommend a detailed evaluation of the system to ascertain any potential failures to the system. Also consider a Power Monitoring System that would provide valuable information for energy usage. The conduits and raceways within the boiler room need to be replaced due to severe corrosion and damage. We also recommend replacing sub panel doors with a lockable panel door where required. There are several pipes that are over the conduits, raceway, and MDP. The pipes should be relocated out of the working space required at all electrical panels or disconnect switches.

Action: Relocate and replace MDP, associated conduits and conductors.

Priority : 2 $100,000

Action: Install new circuits and receptacles where required. *Priority:* 2 $ 25,000

Action: Repair existing code deficiencies where required. *Priority*: 2 $100,000

E. Data/Communications

The voice and data systems appear to be in good condition and serviced regularly. PA system appears to be in working order.

Action: No known issues, continue to monitor and service system.

Action: Consider new communications system. *Priority:* 2 $ 40,000

VI. HEATING (*Boilers-Fuel Tanks-Piping/Coils-Terminal Units/Pumps/Controls)*

A. Boilers

The boilers are oil fired 1992 HB Smith's that heat the entire building, as well as the domestic hot water utilizing internal coils. The boilers are fueled by No. 2

heating oil from an underground 5,000-gallon storage tank. The underground storage tank has a severe water infiltration issue. The water appears to be entering through the foundation as well as near the surface due to poor grading of the surrounding asphalt. The boilers utilize Carlin burners. As part of the heating plant, there are numerous pumps, tanks, and supply and return piping. Consider replacing the original boilers as they are past their useful lives. The pumps that distribute the hydronic heat to each wing are single speed. We recommend replacing the pumps with new variable speed pumps, which will help reduce energy consumption. The piping that is connected to the boilers is in poor condition and should be replaced alongside the boilers.

Action: Replace original boilers and burners. *Priority:* 2 $100,000

Action: New heating mains to existing headers. *Priority:* 2 $ 75,000

Action: New piping, and controls. *Priority:* 2 $100,000

Action: The underground oil tank is beyond its useful life and should be replaced with new fuel tanks (TBD). *Priority:* 2 $100,000

Action: Provide building addition for Boiler Room above grade. *Priority:* 1 $250,000

B. Hydronic Pumps

As mentioned above pumps are included in the heating delivery system. The pumps are located in the Boiler Room and should consider replacement due to the condition of the boiler room and the corrosive environment. Consideration for pump replacement should be based upon the decision to move forward with the boiler replacement project.

Action: Replace pumps with variable speed pumps. *Priority:* 2 $ 50,000

C. Oil and Gas Burners

As mentioned above, oil burners are part of the boiler and hot water heating systems.

Action: If Boilers are replaced, consideration should be given to making the switch to propane only. If propane selected consider switching to gas fired appliances. Tanks and site piping above. *Priority:* 1 $ 25,000

D. Boiler Exhaust

The boilers are exhausted through a masonry chimney from each boiler through the roof. The chimney appears to be lined but could not verify at this time.

Action: Inspect chimney for any defects or combustible deposits, and repair as stated previously.

E. Hydronic System

The hydronic heating system consists of water being heated through the boilers internal coils and the hot water is then distributed through piping to various air handlers and cabinet heaters and then re-circulated back to the boilers via a return piping system. The system is made up of numerous valves, pumps, dampers, etc. The system has original piping, which should be replaced due to the age of the piping as well as the corrosion from previous flooding events.

Action: Replace piping and valves within the boiler room. *Priority:* 2 $ 45,000

Action: Replace piping as required throughout the building. *Priority:* 3 $175,000

F. Unit Heaters and Cabinet Univents

The Classrooms are heated with unit ventilator heaters. The ventilators supply both heat and limited ventilation to the Classrooms. The units provide conditioned air during the heating season only. Many of the units have malfunctioning dampers, control valves, and relays. The low proximity of the outdoor air louvers to the ground can cause the units to fail, or limit the amount of fresh air that is available to offset the levels of CO2 within each space. Proper ventilation and heating in the Classroom is important for conducive learning. The unit consists of a fan, coil, filter, controls, and dampers. The controls are pneumatic and do not have up to date programming, and lack scheduling capabilities. Dampers are not operating properly as some are stuck open/close. Actuators and linkages need servicing. Motors and fans are in need of servicing. The unit ventilators have reached their useful life and should be replaced with high efficiency units and controls.

Action: Replace Unit heaters throughout the building. *Priority:* 1 $100,000

Action: Service univents regularly per manufacturer's recommendation. Inspect and change filters as required. Clean inside units on a regular basis as dust can create pollutants and cause inefficiencies in the units operation. Ensure controls are updated regularly.

Priority: 1 $ 5,000/yr

G. Finned Tube Radiation and Convectors

Fin tube radiation is installed in a few various locations within the building including the offices and the library. The radiation provides heat delivered from the boiler through a system of hot water piping. Fin tube radiation has slotted covers over them to protect the equipment. The heating element should be cleaned once a year. More frequent cleanings should occur if the heating element appears to have a build-up of contaminants. Remove any dirt by brushing or vacuuming the heating element. High-pressure air may be blown through the heating element to dislodge any build-up contaminants. Check to see if all air bleeder valves working properly and operate occasionally.

Action: Continue annual maintenance to extend life. *Priority:* 1 $ 2,000/yr

VII. COOLING (*Chillers/Condensers-Piping/Coils-Terminal Units)*

A. Condensing Units, and Mini Split unit Heat Pumps

There is no cooling or central system for cooling in the building. There are several window A/C units placed in some offices.

Action: Unless a request for cooling is presented a cooling system is not required. We recommend regular maintenance of the window A/C units.

Priority: 2 $ 1,000/yr

VIII. VENTILATION (*Air Handlers-Fans-Ductwork-Filters)*

A. Heat and Ventilation Units

There are numerous heat and ventilation units located throughout the building. H&V-1 serve the multi-purpose space, gymnasium, and cafeteria. H&V-2 serves the office administration area. H&V-3 serves the library area. The units were installed around 1993, which is beyond their useful life. H&V units provide mechanical ventilation to occupied areas. These units draw in fresh, outside air through a set of intake louvers and then through a bank of filters. The units are not very efficient and do not recovery available wasted energy. We recommend installing newer high efficiency energy recovery units to replace the existing units. Exhaust ventilation is provided by ceiling-mounted return vents ducted back to H&V units. Heat is provided from the boiler through plumbing lines to a heating coil in the unit and fans circulate the conditioned air through ductwork to vents in the spaces needed. Preventative maintenance should be considered for all ventilation equipment and should include changing air filters, cleaning air ducts, and external and internal components of the system, replacing any worn parts. A proper maintenance and inspection program will extend the useful life of the equipment.

Action: Detailed HVAC Evaluation *Priority:* 2 $ 5,000

Action: Replace HVAC Units, thermostats, and CO2 sensors for required indoor air quality ventilation levels. *Priority:* 3 $400,000

B. Exhaust Fans

Exhaust fans are located throughout the building and restrooms. Recommend regular service, which would include servicing the motors, belts, and cleaning. Check to hear any abnormal noises.

Action: Exhaust Fan regular maintenance *Priority:* 4 $ 5,000/yr

C. CO2 Control

Provide CO2 control for HVAC equipment to provide proper ventilation rates. This is a requirement for school buildings to ensure proper indoor air quality levels are met.

Action: Add CO2 demand control for HVAC ventilation. *Priority:* 3 $ 30,000

D. Boiler Room Combustion Air System

The Boiler Room combustion air is provided by two louvers with motorized damper with automatic temperature control. Verify link/dampers/controls are working properly. Verify CO detector is installed within the Boiler Room and proper operating condition.

Action: Continue maintenance, and add CO detector as required within the boiler room. *Priority:* 1 $ 4,000

Action: Install new combustion/ventilation air system. *Priority:* 2 $ 15,000

IX. BUILDING AUTOMATION SYSTEM

At present, the building HVAC control system is pneumatic. The individual units are controlled by thermostats which control the temperature and ventilation levels. This relies on individuals to set temperatures as needed but may not be the most efficient operation for energy savings. Recommend scheduling of systems is up to date, and modify as required to help reduce energy levels. We would also recommend installing a DDC (Direct Digital Control) system. This will give better control, help maintain scheduling, and help reduce energy.

Action: Review controls, schedules, and modify as required. *Priority:* 2 $ 5,000

Action: Install new DDC system throughout. *Priority:* 4 $100,000

X. PLUMBING (*Water Service-Piping-Sewer/Piping-Pump Stations-Fixtures-Domestic Water Heating & Scald Protection))*

A. Domestic Hot Water System

The domestic hot water is produced by coils within each boiler. This requires firing of the boilers to produce hot water even during the summer months. The pipes should also be checked for corrosion issues. Observed some missing insulation on piping within the Boiler Room which is required by code. The master thermostatic mixing valve, did not appear to be working. We would consider replacing the mixing valve as soon as possible to ensure the proper temperature of water is distributed.

Action: Replace coils with instantaneous on demand hot water system with master mixing valve. The on demand unit will help to reduce energy consumption. *Priority:* 1 $ 20,000

B. Plumbing Fixtures

The plumbing fixtures appear to be in good condition overall. The number of plumbing fixtures throughout the building appears to meet the plumbing code requirements. Replace individual fixtures (with low flow) on an as needed basis or as part of larger restroom renovation projects.

Action: Install low flow plumbing fixtures (yearly allowance).

Priority: 2 $ 2,000

Limitations

The following are some limitations inherent in this type of inspection. Please note them carefully.

A single project that incorporates several of the task items would certainly be less expensive than completing each task one at a time. Estimated costs have been determined from our experience with removal, disposal, undiscovered deterioration, and installation of listed items, as well as input from local contractors/suppliers/engineers and RS Means Cost Data Guides.

The assessment is not a formal repair and replacement schedule and should not be used as an exact replacement schedule. The assessment is an estimate of anticipated needed replacements/repairs for the property over time and their costs and replacement needs can be shifted based on funds available.

The goal of the assessment is not to set the replacement times; it is to have funds available to replace items as needed. The assessment should not be used to mandate replacement time for all building components.
This inspection report is limited to observations made from visual evidence and discussions with the Owner's Representative. No destructive or invasive testing was performed. The report is not to be considered a guarantee of condition and no warranty is implied.

As Engineers, our responsibility is to evaluate available evidence relevant to the major systems in this building. We are not, however, responsible for conditions that could not be seen or were not within the scope of our service at the time of the inspection.

It should not be assumed that no rot exists in any of the inaccessible areas, such as wood foundations in contact with the ground. Rot can result from moisture accumulating underneath the siding, behind trim, beneath the roof surface, or within wall cavities should the normal drying process be restricted by insulation or other obstacles.

Our investigation of the mechanical and electrical systems is limited to the visible components. A larger portion of the mechanical and electrical systems is hidden behind walls and ceilings, and, obviously, all the conditions relating to these unseen areas cannot be known. While some deficiencies in the systems are readily discernible, not all conditions that can lead to the interruption of electrical service or that are hazardous can be identified.

While some references to hazardous materials may be made, our report is **not a complete investigation** for toxic wastes in the building or adjacent soils, hazardous materials, or public records affecting this property. We suggest that a specialized company be consulted to perform a thorough report of hazardous materials.

While some references to handicap accessibility may be made, our report is **not** intended to be a complete investigation for conformance to the Americans with Disabilities Act (ADA) or any other State or Federal handicap accessibility standards. Such an investigation is beyond the scope of this inspection.

While we often comment on major code violations, this report should not be construed as a specific code compliance investigation. This property is also subject to many local and state ordinances and codes, which do change from time to time. The judgment and decisions made by local code and fire officials can vary significantly from one community to the next.

For the purposes of this report, we recommend that 20% be added to the totals to cover construction contingencies and price changes over the next few years. As this report evolves in the future, the unknowns will become less and the contingency can be lowered. We also recommend that 10% be included to cover the cost of design work, bidding services, and construction administration. We assume some of the projects be packaged together for bid, while others may be administered by in-house staff.

EDDINGTON ELEMENTARY SCHOOL

SUMMARY BY PRIORITY

EDDINGTON ELEMENTARY SCHOOL ASSESSMENT
SUMMARY BY PRIORITY

Note: Priority number is years from date of list.
Cost data is dollar value as of list date.

Date: 11/5/2019

Priority	Section	Brief Description of Item	Cost	Subtotal
1	I	Add additional site lighting.	$18,000	
1	I	Replace and reposition flashing traffic lights.	$20,000	$38,000
1	II	Maintain siding and trim as needed (yearly allowance).	$2,000	
1	II	Add egress window to Clinic/Nurse's Office	$1,500	
1	II	Inspect chimney lining and repoint exterior chimney masonry block.	$10,000	$13,500
1	III	Replace asbestos tile in 1955 classroomsand install new.	$175,000	
1	III	Continue to maintain drywall, patch/paint (yearly allowance).	$3,000	
1	III	Replace/install suspended ceilings as they fail (yearly allowance).	$2,000	
1	III	Continue to maintain drywall, patch/paint (yearly allowance).	$1,000	
1	III	Install a commercial thermostatic mixing valve in Boiler Room or a dedicated kitchen water heater with mixing valve.	$10,000	
1	III	Perform a kitchen ventilation study to determine if equipment meets ventilation rates required and replace hood.	$50,000	$241,000
1	IV	Reconstruct interior ramp system to meet ADA requirements.	$50,000	
1	IV	Reconfigure Front Entrance to provide a more secure check-in.	$200,000	
1	IV	Replace fire alarm system with new addressable system.	$75,000	
1	IV	Relocate fire alarm pull stations to correct height.	$5,000	
1	IV	Install video IP system with access control, card readers, cameras, etc.	$75,000	
1	IV	Implement card reader system at critical doors.	$16,000	
1	IV	Install security cameras at key locations.	$20,000	
1	IV	Complete sprinkler system.	$60,000	$501,000
1	VI	Provide building addition for Boiler Room above grade.	$250,000	
1	VI	Make switch to propane only if Boilers are replaced, switch to gas fired appliances.	$25,000	
1	VI	Replace Unit Heaters throughout the building.	$100,000	
1	VI	Service univents regularly (yearly allowance).	$5,000	
1	VI	Continue annual maintenance of fin tube radiation (yearly allowance).	$2,000	$382,000
1	IX	Continue maintenance and add CO2 detector as required in Boiler Room.	$4,000	$4,000
1	XI	Replace coils with instantaneous on demand hot water system with master mixing valve.	$20,000	$20,000
1				**$1,181,500**
2	I	Seal pavement cracks as they appear.	$2,000	
2	I	Add site signage.	$12,000	$14,000
2	II	Replace classroom windows (40).	$35,000	
2	II	Replace roof shingles and ridge cap on west side of 1955 wing.	$30,000	
2	II	Replace roof shingles and new ridge cap on west side of library roof.	$10,000	
2	II	Add additional insulation to R-49 with proper vents in 1955 building.	$30,000	$105,000
2	III	Replace VCT in kitchen with quarry tile.	$10,000	
2	III	Replace Library carpet.	$12,000	
2	III	Replace gang bathroom ceramic flooring.	$8,000	
2	III	Remove exposed fiberboard and plywood in 1955 areas, replace with drywall.	$20,000	
2	III	Renovate 2 restrooms in the 1955 wing.	$100,000	
2	III	Add grab bars and other accessories at proper height in restrooms.	$20,000	$170,000
2	IV	Add fencing to separate school property from the woods and adjacent property.	$68,000	
2	V	Relocate and replace MDP, associated conduits and conductors.	$100,000	
2	V	Install new electrical circuits and receptacles where required.	$25,000	
2	V	Repair existing code deficiencies where required.	$100,000	
2	V	Consider new communications system.	$40,000	$265,000
2	VI	Replace original boilers and burners.	$100,000	
2	VI	New heating mains to existing headers.	$75,000	
2	VI	New heating piping, pumps, and controls.	$100,000	
2	VI	Replace underground oil tank.	$100,000	

Priority	Section	Brief Description of Item	Cost	Subtotal
2	VI	Replace hydronic pumps with variable speed pumps.	$50,000	
2	VI	Replace hydronic system piping and valves within the Boiler Room.	$45,000	$470,000
2	VII	Regular maintenance of window A/C units (yearly allowance).	$1,000	$1,000
2	VIII	Detailed HVAC evaluation.	$5,000	
2	VIII	Install new combustion/ventilation air system.	$15,000	$20,000
2	IX	Review Building Automation System controls, schedules; modify as required.	$5,000	$5,000
2	X	Install low flow plumbing fixtures (yearly allowance).	$2,000	$2,000
2				**$1,120,000**
3	I	Pave remaining area (1½" overlay)	$50,000	
3	I	Replace water piping, backflow preventer, water meter and connections at exterior wall penetration.	$5,000	$55,000
3	II	Replace 1992 windows (36).	$32,000	$32,000
3	III	Continue to maintain interior doors and update hardware.	$10,000	$10,000
3	V	Replace interior lighting with LED throughout.	$110,000	
3	V	Add occupancy sensors throughout the building.	$5,000	$115,000
3	VI	Replace hydronic system piping as required throughout the building.	$175,000	$175,000
3	VIII	Replace HVAC units, thermostats, and CO2 sensors.	$400,000	
3	VIII	Add CO2 demand control for HVAC ventilation.	$30,000	$430,000
3				**$817,000**
4	V	Install new generator.	$150,000	$150,000
4	VIII	Exhaust fan regular maintenance (yearly allowance).	$5,000	$5,000
4	IX	Install new DDC System.	$100,000	$100,000
4				**$255,000**
5	I	Replace sewage disposal fields.	$80,000	
5	I	Add catch basins to lower basement area behind gym.	$15,000	**$95,000**
5				
		Total Priorities 1 thru 5		**$3,468,500**

Section	Description
I	Site
II	Building Envelope
III	Interior Finishes
IV	Accessibility/ Life Safety/ Building Security
V	Electrical
VI	Heating
VII	Cooling
VIII	Ventilation
IX	Building Automation System
X	Plumbing

EDDINGTON ELEMENTARY SCHOOL

SITE MAP

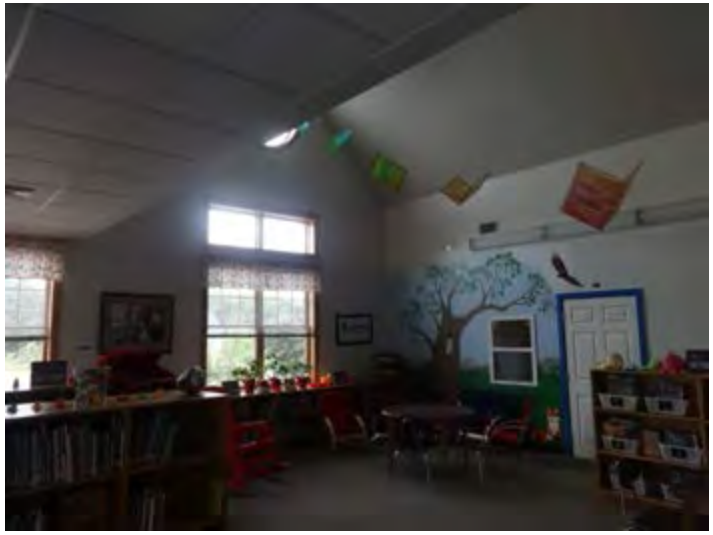
Eddington Elementary School Site

EDDINGTON ELEMENTARY SCHOOL

PHOTOS

Paving

Mechanical Room

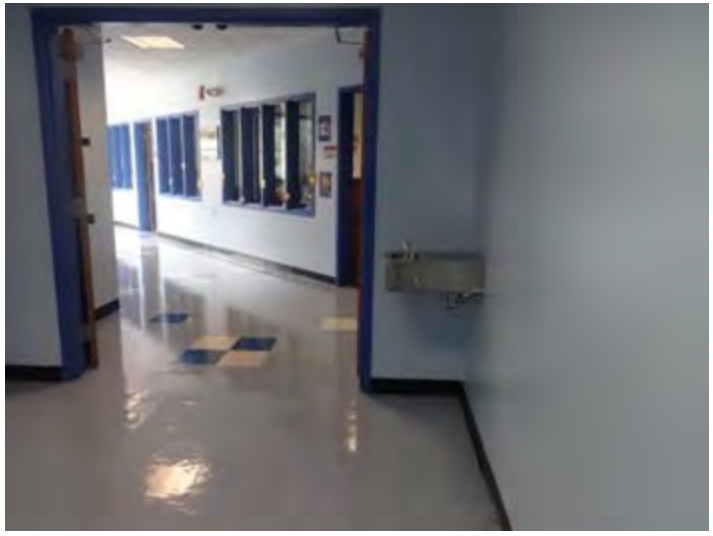


Classroom Windows

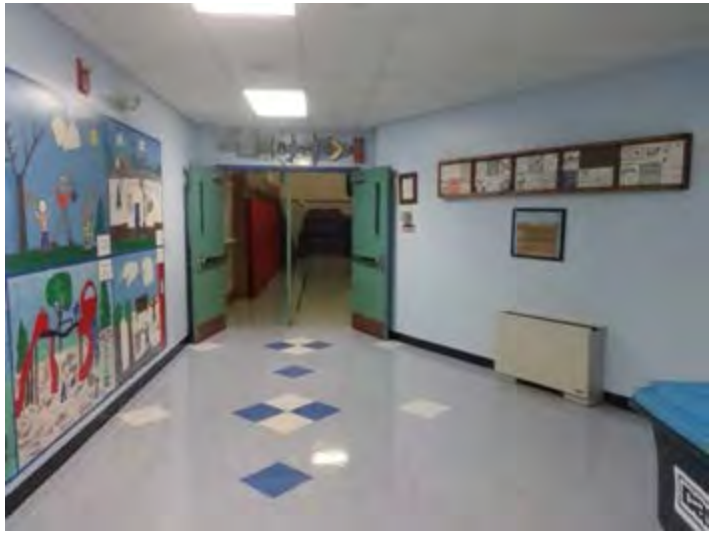
Mechanical Room

Library Carpet

Bathroom Tile Flooring



Common Hallway Tile Floor



Tile Floor

Kitchen Floor

Kitchen

Restroom

Restroom Flooring

Main Entrance

Classroom

Gymnasium Lighting

Mechanical Room

Mechanical Room

Boilers

Mechanical Room

Mechanical Room