

# **HOLDEN ELEMENTARY SCHOOL**

## **ASSESSMENT REPORT**

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**PREPARED BY:**



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## **HOLDEN ELEMENTARY SCHOOL BUILDING ASSESSMENT**

The following is a summary of our findings related to Holden 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 Holden Elementary School campus of approximately 12.5 acres is located on the Route 1A in Holden, Maine. The school currently serves approximately of 150± students, grades 2-4, with 20± staff members. The one-story building is 23,287 sf. The initial structure was constructed in 1955 and is 11,792 sf. In 1974 two classrooms were added with a total of 2,035 sf. In 1990, additions totaling 9,460 sf were built on the west and northeast sides. The site includes an athletic field, playground, parking, as well as on-site water and septic systems.

### **I. SITE**

#### **A. Site Condition – Sidewalks/Pavement**

There is a paved entrance and exit drive from Route 1A that leads to a drive around the building, with parking on the east side as well as the west side. A large parking lot added in 2008 extends to the west of the exit drive. The site includes a network of sidewalks. The pavement is in fair condition overall. The majority of the paved sidewalks are in good condition. Handicap parking, striping and signage, including van accessible parking, should be marked. Access into and out of the site appears to be adequate.

<b><u>Action:</u></b> Continue to maintain pavement, crack sealing is recommended to extend the life of the pavement.	<b><u>Priority:</u></b> 1	\$ 2,000/yr
<b><u>Action:</u></b> Repave parking and drives (1 ½" overlay).	<b><u>Priority:</u></b> 3	\$ 75,000
<b><u>Action:</u></b> Pave existing gravel area (3" overlay).	<b><u>Priority:</u></b> 4	\$ 18,000

**Action:** Repave sidewalks (back side of school). **Priority:** 1      \$ 12,000

**Action:** Pavement markings/restripe **Priority:** 3      \$ 5,000

**B. Site Signage**

Located along Route 1A is the school sign. It consists of a 4' x 6' metal sign, with a message board of plastic letters. It is landscaped with stonework and plantings. All components are in good condition. The school's main entrance and exit have signage for direction. The rest of the site is marked with adequate signage.

**Action:** Replace signage as needed. **Priority:** 5      \$ 10,000

**Action:** Install remote programming/control capability to flashing lights.  
**Priority:** 1      \$ 4,500

**C. Site Lighting**

Site lighting consists of 5 pole lights installed in 2008 at the new parking lot, which consist of downward shielding fixtures. The parking lots on either side of the building and athletic fields lack adequate lighting for safety. Building mounted fixtures are in place around the building. We recommend replacing all existing fixtures with LED fixtures. Additional LED fixtures should be placed on the west and east sides of the school to provide secure lighting in several dark areas.

**Action:** Replace existing with LED fixtures (includes wall packs).  
**Priority:** 2      \$ 35,000

**Action:** Add additional site lighting. **Priority:** 2      \$ 40,000

**D. 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.

**E. Utilities**

1. **Water**

The water is supplied via the original well which is located in the courtyard near the boiler room entrance. A 1-1/4" plastic water line enters the building inside the boiler room. The water pressure tank is located in the boiler room. There is a water treatment system located in this area as well. Due to a lack of space, one of the treatment tanks sits on the boiler room entrance stairwell. The well requires frequent testing due to state rules.

**Action:** Replace water service entrance piping and pressure tanks.  
**Priority:** 2      \$ 15,000

2. Sewer System

The sewer system consists of an onsite-engineered system installed in 1990. Plans show the original gravity system with effluent from the original building and 1990 gym addition via 6" SDR pipe to 2-2000 gallon concrete septic tanks continuing to four disposal fields northeast of the building. A 750-gallon grease trap located outside the kitchen ties into the septic tanks at this point.

The disposal fields are approaching the end of their 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, 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 are emptied in a timely manner and maintained and inspected on a regular schedule.

**Action:** Replace disposal fields. **Priority:** 3      \$100,000

3. Drainage and Storm Water

Overall site appears to be well drained of storm water. The north side of the building near the walkout maintenance area appears to collect surface water and runoff water from the roofs, which produces ponding near the door. The other three sides of the school site are relatively flat although it appears drainage away from the main building is not a problem.

**Action:** Recommend a topography survey and engineering study to alleviate storm water issues in the maintenance entrance area.

**Priority:** 3      \$ 5,000

**Action:** Reconstruct grades to allow for proper drainage. **Priority:** 3      \$ 25,000

4. Site Electrical

The primary electric service is fed from an overhead line along Route 1A to a utility pole with transformers set at the rear of the building. From there, it goes through the generator transfer switch, then the secondary load side drops underground into the lower boiler room to the MDP (Main Distribution Panel). See Electrical Section below.

**Action:** None at this time.

5. Gas

Propane gas tanks used for heating were installed in 2013. These areas are serviced by four large 1000-gallon propane tanks. The tanks are owned and maintained by the fuel company. There is also a 250-

gallon tank near the kitchen area. This tank appears to be too close to the building.

**Action:** Relocate if tank clearances are not met. Priority: 1 \$ 2,000

## II. **BUILDING ENVELOPE**

### A. **Building Façade**

The older wing (1955) has CMU (Concrete Masonry Unit) wall construction. The 1990 additions are wood wall construction, with the gymnasium having a glulam arch system with wood end walls. The 1990 additions are wood wall construction. The exterior walls of the 1990 additions have vinyl siding and metal clad trim, in good condition. The original 1955 building has painted CMU block in fair condition. We expect the insulation within the walls to vary given the different ages of construction. As the norm, whenever an older building has outdated windows or the exterior eliminated, the void in the wall is framed in, insulated, sheathed, and sided with present day materials.

The school has several entrances. Consider expanding the entrance space to delineate doors to be used by visitors. This modification may be incorporated with proposed Building Security which is addressed later in the narrative.

**Action:** Repoint and paint CMU Block **Priority:** 2 \$ 30,000

**Action:** Front entry expansion-see Building section below.

### B. **Building Structure**

The building structure overall appears sound, with no structural problems observed. In the original 1955 building at the east end the trusses have been covered with plywood and bolted in place. There is no record of this work.

**Action:** Recommend an engineering review to identify current conditions and any other deficiencies. **Priority:** 3 \$ 3,000

### C. **Windows**

The windows located in the original 1955 classrooms are double hung vinyl windows with estimated age of installation in the 90s. Some windows open with difficulty and do not stay open in some cases. The 1990 additions have wood casement windows with stained wood trim. Some of the windows cranking system did not work. There are some windows with condensation between the panes indicating seal failure. Overall the windows are in poor to fair condition.

**Action:** Replace the exterior wood windows (100±) with new vinyl single-hung and casement windows. Modern windows are much improved with higher R-values and should improve energy savings.

**Priority:** 2 \$ 80,000

**D. Exterior Doors**

Insulated steel doors and frames with windows and side lites are located around the school. Appropriate door hardware, such as closures and lever door handles are in place. Most of the doors are well maintained and in good condition. Continue to maintain door and hardware, paint any rusted surfaces to prolong the life of the doors.

**Action:** No action at this time

**E. Roof**

The majority of the roofs consist of wood truss systems with asphalt shingles. The gymnasium and cafeteria roof is incorporated within its glulam frame and is also covered with asphalt shingles. The gym roof shingles were replaced in 2008. The shingles on the west side of the 1955 classroom building were replaced in 2013 and appear in good condition. The rest of the building has shingles approaching the end of their useful life and should be replaced. The valleys in the areas of the new addition and original building have shingles that are severely cupping. The attic space above the 1955 classroom is lacking adequate ventilation and insulation (6"). This may have caused some of the severe wear on the shingles. Also, the attic space above the original building has no draft stopping per fire codes. Because the average estimated life of asphalt shingles is 20 years, we also recommend roofing to be removed and replaced.

**Action:** Replace asphalt shingles. **Priority:** 2 \$120,000

**F. Chimney**

The brick chimney is located in the boiler room. The chimney appears to be in fair condition.

**Action:** Inspect the chimney lining and re-point exterior chimney masonry block. **Priority:** 1 \$ 10,000

**G. Retaining Wall & Loading Dock**

The loading dock is constructed with wood and has concrete blocks for supports. The concrete blocks do not offer resistance to frost movement.

**Action:** Install frost protected loading dock supports. **Priority:** 3 \$ 30,000

**H. Boiler Room**

The original boiler room is located under the 1955 wing. The boiler room is in very poor condition. The ceiling has numerous holes and penetrations due to water leaks, poor installation of piping and associated supports, and the age and material of the ceiling. All boiler rooms are required to be completely sealed and fire rated. Water infiltration thru the utility trenches is evident and a sump pump is located in the floor. The doghouse roof is in poor condition and wood framing

is not fire protected. The doors are wood and do not seal the boiler room. The boiler room is a very corrosive environment that houses the boiler, water distribution system, as well as the main electrical panelboard and associated wiring. This is a safety concern.

**Action:** See Boiler section below.

### **III. INTERIOR FINISHES**

#### **A. Floors**

The school has a combination of flooring. Most hallways and classrooms have well maintained, vinyl composite tile (VCT) in good to fair condition. The restrooms have ceramic tile in good condition. Carpet is in place in the library and is in good condition. The gymnasium and cafeteria consists of standard maple sports plank flooring with a urethane finish and appears to be in good condition. The adjacent stage has a urethane wood floor in good condition. The kitchen has sheet vinyl flooring in good condition.

**Action:** Continue to maintain flooring as needed.

#### **B. Walls**

The walls throughout the school consist mostly of drywall in the newer addition which appear to be in good condition. The older wing walls have painted CMU block in all classrooms and in the hallways. The lower portion of the gymnasium walls are covered with a carpet-like material in good condition. Recommend replacing carpet on walls with more appropriate material to meet flame spread requirements per fire code. The upper portion of the gym wall is drywall which is in good condition. The restrooms in the gymnasium area have drywall which is in good condition. There is also a Folding Wall system on stage in fair condition that was installed in 1990.

**Action:** Replace carpet on walls in gymnasium and replace with more appropriate material. **Priority:** 2      \$ 25,000

#### **C. Ceilings**

The ceilings consist of mostly suspended acoustical tile grid system in good condition. Continue to replace damaged tile as necessary.

**Action:** Replace suspended ceiling tiles as they fail (yearly allowance) **Priority:** 1      \$ 1,000/yr

#### **D. Interior Doors**

Interior doors consist mostly of solid wood doors with metal frames in the classrooms and other various rooms. Some of the doors have windows with tempered glass. The mechanical areas consist of hollow metal doors with hollow metal frames. Hardware is specific to the use. The doors and hardware appear in



good condition. The double hallway wood doors are fire rated and have magnetic releases for fire requirements.

**Action:** Continue to maintain doors. Update hardware as required.

**Priority:** 3      \$ 16,000

#### **F. Restrooms**

Student multi-stall restrooms have painted metal partitions to separate the plumbing fixtures. Single use toilet rooms are in the three 1990 classrooms. A large single use room is available for handicap use within classroom #39. A single use faculty restroom is in the Teacher's Room. Two single use restrooms are near the gymnasium. All restrooms appear to be in fair condition with flooring, walls, and ceilings addressed earlier in this narrative. Only the large restroom in room #39 meets ADA standards for handicap accessibility. All other restrooms do not have the proper clearance requirements and/or proper fixtures. It was noted that not all restrooms had the appropriate grab bars and some toilet accessories mounting heights were not current with ADA code. Also, the installation of a molded wrap on the exposed drain piping under the restroom lavatories is recommended.

**Action:** Renovate two multi stall restrooms (#37 & #38). Work to include removal of one water closet, one urinal, and updating toilet partitions.

**Priority:** 1      \$ 40,000

**Action:** Renovate two multi stall restrooms (#15 & #17). Work to include removal and relocating plumbing fixtures and toilet partitions. Permanently remove swinging restroom doors.

**Priority:** 1      \$ 50,000

**Action:** Renovate one gymnasium restroom to be fully ADA compliant, with space taken from adjacent storage room.

**Priority:** 1      \$ 20,000

**Action:** Install molded wrap throughout.

**Priority:** 2      \$ 8,000

#### **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 walls are painted drywall and the floors are vinyl sheet goods. The condition and operation of equipment and interiors appear to be in good order. The kitchen's domestic electric hot water is served via water heater in the janitor's room below the kitchen. The hot water tank is a 40-gallon unit that was replaced within the past several years; however the tank does not appear to have a thermostatic mixing valve, which is required by the state plumbing code. The kitchen hood and makeup air unit should be studied further to ensure adequate ventilation and



exhaust rates are being met. The makeup air unit did not appear to be operational during our visit.

**Action:** Install a commercial thermostatic mixing valve designed for kitchen equipment. **Priority:** 1 \$ 10,000

**Action:** Provide ventilation study 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 fountains. The bleachers in the gymnasium may need to be modified to accommodate wheelchair accessibility. The stage can be reached by a chairlift, which is in battery operated. As previously mentioned in this narrative the campus has several areas which do not meet standards for ADA. The compliance problems with the site, most of the restrooms should be addressed, see full narrative for recommend solutions.

##### **B. Building Security**

The Front Entrance is non-secure in the present configuration except for camera in office which does not have total face recognition. 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:** Install fencing along campground side of school property. **Priority:** 1 \$ 25,000

##### **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 in each of the portable classrooms. The fire alarm panel is in good condition and has regular yearly maintenance. There were several outdated devices, as well as some of the pull stations were not mounted at the code required height.

**Action:** Provide new compliant addressable fire alarm system with wiring, devices, etc. **Priority:** 1 \$ 75,000

**D. Security System**

The security system consists of limited monitoring cameras and alarm devices. The system is continually being upgraded with new devices, as required. The aged system was upgraded in 2016 and consideration should be given for an upgrade to video IP.

**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**

The school gym is sprinklered with a life safety style system. The well fills 2-275 gallon tanks located in the basement to provide the 10-minute storage for a three head calculation system. The remainder of the school is unsprinklered. We recommend the installation of a NFPA 13 system including sprinkler piping, sprinkler heads, dedicated well, well house, fire pump, dedicated generator, and a buried water storage tank.

**Action:** Pump, storage, generator, etc. **Priority:** 1 \$450,000

**Action:** Sprinkler System **Priority:** 1 \$135,000

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

**A. Emergency Generator**

The emergency generator is a 175kw military surplus generator. The generator is designed to automatically run once there is a loss of power and service the entire building during power outages. The generator is fueled via Diesel. The generator is not currently operational and needs to be replaced.

**Action:** Replace generator and transfer switch. **Priority:** 1 \$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. The Gymnasium, Library, and Kitchen have more specific task lighting. 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 for daylight harvesting and unoccupied periods. A new dimmer control panel for the Stage area was indicated as needing replacement. A newer panel would also give more options for lighting control.

**Action:** Add occupancy sensors throughout the building. **Priority:** 3      \$ 15,000

**Action:** New dimmer control panel for Stage. **Priority:** 3      \$ 5,000

### **D. Electrical**

The primary electric service is feed from an overhead line along Route 1A to a utility pole with transformers set at the rear of the building. From there, the secondary load side drops underground into the boiler room to the 120/208V 800 amps three phase MDP (Main Distribution Panel). The MDP appears to be in good condition, however it should be noted the MDP has several code deficiencies that should be addressed. There are several pipes over the MDP that should be relocated. 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. 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 MDP and replace 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. A new intercom system was installed in 2018.

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

**Action:** Consider new communication system. **Priority:** 4 \$ 40,000

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

**A. Boilers**

Two hydronic boilers heat the building. The boilers are dual fueled by No. 2 heating oil and propane from an underground 4,000-gallon storage tank, as well as a propane tank farm near the back of the property. Boiler one is a 1996 HB Smith and the other boiler is a 1998 HB Smith. The boilers are fueled with Webster burners. The burners were replaced several years ago, however due to the extremely corrosive environment the burners need to be replaced. As part of the heating plant, there are numerous pumps, tanks, and supply and return piping. Consider replacing the original boilers as it is at the end of their useful life. Continue to maintain equipment per specifications according to Operation and Maintenance manuals. 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 reduce energy consumption. The piping that is connected to the boilers is in poor condition, as well as much of the piping that is connected to pumps and associated valves should be replaced as well.

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

**Action:** New heating main feed 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 removed. **Priority:** 1 \$ 15,000

**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.

**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:** Replace burners as part of the new boilers project.

**D. Boiler Exhaust**

The boilers are exhausted through a masonry chimney from each boiler through the roof. The chimneys appear 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 boiler and hot water being distributed through piping to various air handlers, cabinet heaters, fin-tube radiation and then being recirculated back to the boiler. The system is made up of numerous valves, pumps, dampers, etc. The system has original piping which should be replaced. Schedule regular maintenance as required. Several valves were witnessed to be non-operational due to corrosion.

**Action:** Replace piping and valves within the boiler room.

**Priority:** 2      \$ 45,000

**Action:** Replace system piping as required.

**Priority:** 4      \$ 175,000

**F. Unit Heaters and Cabinet Univents**

The Classrooms are heated with unit ventilator heaters. They supply both heat and ventilation to the Classrooms. The unit provides conditioned air during heating season for ventilation. 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 direct digital control (DDC) but do not have up to date programming, and lack scheduling capabilities. Teachers have complained about erratic temperature fluctuations in the Classrooms. Some Classrooms have complained about loud fan noise, which is a common complaint. 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:** 3      \$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 such as the new kindergarten area, office and some hallways within the building to provide heat

delivered from the boiler through a system of hot water piping. Ceiling cabinet heaters are located at the entrances to provide heat. 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 built-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. Ventilation Units**

The ventilation for the classrooms are served via the unit ventilators as mentioned above. The ventilation units do not have adequate ventilation per ASHRAE standards, and the units lack proper CO2 demand control ventilation. Recommend to evaluate each unit by a qualified HVAC technician to determine if current operation is in proper sequence, determine any worn parts, and determine if unit is operating at maximum efficiency. Also, recommend a scheduled preventive maintenance program be set up by a qualified contractor to be performed at least once a year. Preventative maintenance 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

### **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. CO2 control is required to meet IAQ requirements.

**Action:** Add CO2 demand control for HVAC ventilation **Priority:** 3 \$ 10,000

**D. Boiler Room Combustion Air System**

The Boiler Room combustion air is provided via louvers as stated above. The existing louvers do not meet current guidelines and should be replaced with larger units. Verify link/dampers/controls are working properly. Verify CO detector is installed within the Boiler Room and proper operating condition.

**Action:** Continue maintenance add CO detector as required. **Priority:** 1 \$ 4,000

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

**IX. BUILDING AUTOMATION SYSTEM**

At present, the classrooms are controlled by individual thermostats which control temperature. 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 reduce energy levels.

**Action:** Review controls, schedules, and modify as required. **Priority:** 4 \$ 5,000

**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. One of the tanks has a slow leak and should be replaced. The pipes should also be checked for corrosion issues. Observed some missing insulation on piping in the Boiler Room at the hot water tank. 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:** Inspect tanks and piping for corrosion. **Priority:** 1 \$ 2,000

**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 \$ 15,000



## **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.

There are two drinking fountains located throughout the building, one in the main lobby by the gymnasium, and one in the 1955 east wing. The fountain in the gymnasium is in good condition and handicap accessible; while the fountain in the 1955 west wing is not. There are no bottle filling fountains.

**Action:** Install new handicap accessible drinking fountain in the west wing with water bottle station. **Priority:** 1      \$ 5,000

**Action:** Install low flow plumbing fixtures (yearly allowance). **Priority:** 2      \$ 3,000/yr

## **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.

**HOLDEN ELEMENTARY SCHOOL**

**SUMMARY BY PRIORITY**

**HOLDEN 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	Continue to maintain pavement (yearly allowance)	\$2,000	
1	I	Repave sidewalks.	\$12,000	
1	I	Maintain grease traps (yearly allowance).	\$1,000	
1	I	Relocate Propane tank if clearances are not met.	\$2,000	
1	I	Install remote programming/ control capability to flashing lights.	\$4,500	\$21,500
1	II	Inspect chimney lining and re-point exterior chimney masonry block.	\$10,000	
1	II	Continue to maintain drywall patch/ paint (yearly allowance)	\$3,000	\$13,000
1	III	Replace suspended ceiling tiles as they fail (yearly allowance).	\$1,000	
1	III	Renovate two multi stall restrooms (#37 & #38)	\$40,000	
1	III	Renovate two multi stall restrooms (#15 & #17)	\$50,000	
1	III	Renovate one gymnasium restroom to be fully ADA compliant	\$20,000	
1	III	Install commercial thermostatic mixing valve in kitchen.	\$10,000	
1	III	Provide kitchen ventilation study and replace hood.	\$50,000	\$171,000
1	IV	Reconfigure front entrance to provide security check-in before entering the school	\$200,000	
1	IV	Install fencing along campground side of school property	\$25,000	
1	IV	Provide new compliant addressable fire alarm system with wiring.	\$75,000	
1	IV	Recommend installation of video IP system with access control, including card reader, cameras, etc. for adequate security.	\$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	Pump, storage, generator, etc. for sprinkler system.	\$450,000	
1	IV	Sprinkler system.	\$135,000	\$996,000
1	V	Replace generator and transfer switch	\$150,000	
1	VI	Remove underground oil tank.	\$15,000	\$165,000
1	VI	Provide building addition for Boiler Room above grade.	\$250,000	
1	VII	Service univents regularly.(yearly allowance)	\$5,000	
1	VII	Maintain fin tube radiation (yearly allowance)	\$2,000	\$7,000
1	VIII	Continue maintenance of Boiler Room Combustion Air System, add CO detector.	\$4,000	\$4,000
1	X	Inspect water tanks and piping for corrosion, replace single tank	\$2,000	
1	X	Replace coils with instantaneous on demand hot water system with master mixing valve.	\$15,000	
1	X	Install new handicap accessible drinking fountain in west wing with water bottle station.	\$5,000	\$22,000
1				<b>\$1,649,500</b>
2	I	Replace exterior lighting with LED fixtures, including wall packs.	\$35,000	
2	I	Add additional site lighting	\$40,000	
2	I	Replace water service entrance piping and pressure tanks.	\$15,000	\$90,000
2	II	Repoint and paint CMU Block	\$30,000	
2	II	Replace wood windows with new vinyl single-hung and casement windows.	\$80,000	
2	II	Replace asphalt roof shingles.	\$120,000	
2	II	Replace carpet on walls in gymnasium with more appropriate material.	\$25,000	\$255,000
2	III	Install molded wrap on drain piping in restrooms.	\$8,000	\$33,000
2	V	Relocate Main Distribution Panel and replace associated conduits and conductors.	\$100,000	
2	V	Install new electrical circuits and receptacles where required.	\$25,000	
2	V	Repair existing electrical code deficiencies where required.	\$100,000	\$225,000

Priority	Section	Brief Description of Item	Cost	Subtotal
2	VI	Replace original boilers and burners.	\$100,000	
2	VI	New heating main feed to existing headers.	\$75,000	
2	VI	Install new heat piping, pumps and controls	\$100,000	
2	VI	Replace hydronic pumps with variable speed pumps	\$50,000	
2	VI	Replace piping and valves within Boiler Room	\$45,000	\$370,000
2	VII	Perform regular maintenance of window A/C units (yearly allowance)	\$1,000	\$1,000
2	VII	Detailed HVAC evaluation	\$5,000	
2	VIII	Install new combustion/ ventilation air system.	\$15,000	\$20,000
2	X	Install low flow plumbing fixtures (yearly allowance)	\$3,000	\$3,000
				<b>\$972,000</b>
3	I	Repave parking and drives.	\$75,000	
3	I	Pavement markings/ rstripe	\$5,000	
3	I	Replace sewer system disposal fields.	\$100,000	
3	I	Topo survey and engineering study to investigate ways to alleviate storm water issues in the maintenance entrance area	\$5,000	
3	I	Reconstruct grades to allow for proper site drainage.	\$25,000	\$210,000
3	II	Recommend an engineering review to identify possible structural issues.	\$3,000	
3	II	Install frost protected loading dock supports	\$30,000	\$33,000
3	III	Continue to maintain doors, update hardware.	\$16,000	\$16,000
3	IV	Install sprinkler system	\$135,000	\$135,000
3	V	Replace interior lighting with LED fixtures.	\$110,000	
3	V	Add lighting occupancy sensors throughout the building.	\$15,000	
3	V	New dimmer control panel for stage.	\$5,000	\$130,000
3	VI	Replace hydronic system piping throughout the 1962 & 1967 wings	\$185,000	\$185,000
3	VI	Replace Unit Heaters throughout the building.	\$100,000	\$100,000
3	VIII	Add CO2 demand control for HVAC ventilation.	\$10,000	\$10,000
				<b>\$819,000</b>
4	I	Pave existing gravel area (3" overlay)	\$18,000	\$18,000
4	IV	Consider new communication system	\$40,000	\$40,000
4	VII	Replace hydronic system piping as required.	\$175,000	\$175,000
4	VIII	Exhaust fan maintenance (yearly allowance)	\$5,000	\$5,000
4	IX	Review building automation system controls and schedules, modify as required	\$5,000	\$5,000
				<b>\$243,000</b>
5	I	Replace site signage as needed	\$10,000	<b>\$10,000</b>
		<b>Total Priorities 1 thru 5</b>		<b>\$3,693,500</b>

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

# **HOLDEN ELEMENTARY SCHOOL**

## **SITE MAP**



# Holden Elementary School Site



Google Earth

© 2018 Google

500 ft





**HOLDEN ELEMENTARY SCHOOL**

**PHOTOS**

## Holden Elementary



Front Entrance



Front Entrance



Sidewalk



Lighting on Athletic Field

# Holden Elementary



Entrance Lighting & Paving



Electrical



Holding Tanks



Rear Exterior Drainage



# Holden Elementary



Exterior Drainage



Exterior Drainage



Exterior CMU



Steps Down to Mechanical Room

## Holden Elementary



Boiler



Mechanical Room



Classroom Lighting and Windows



Classroom Wood Framed Windows



# Holden Elementary



Exterior Windows



Attic



Chimney



Loading Area

# Holden Elementary



Gymnasium



Restroom



Restroom



Entrance to Restroom



# Holden Elementary



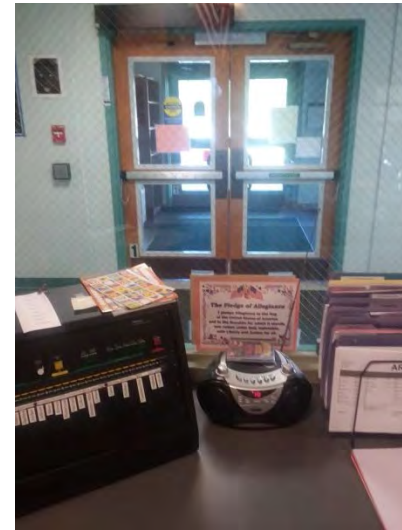
Restroom Flooring



Restroom



Kitchen



Building Entrance

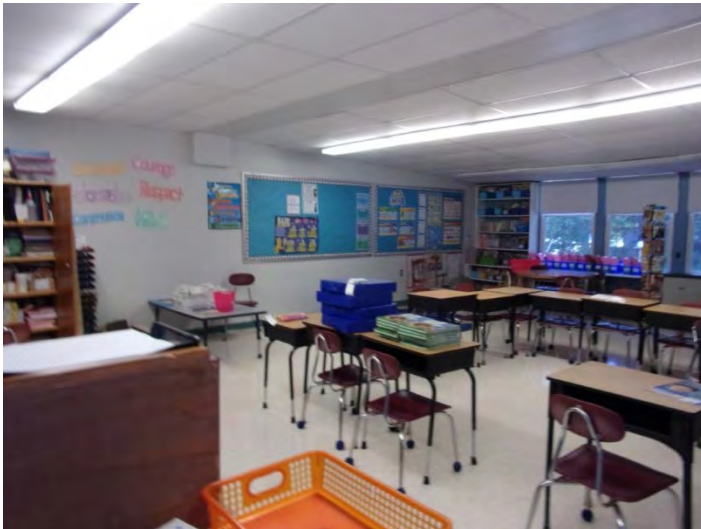
# Holden Elementary



Generator



Gymnasium Stage



Classroom Lighting



Mechanical Room





Mechanical Room



Mechanical Room



Mechanical Room