

## 6 | Easterly Parkway Elementary School

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<b>Address:</b>	234 Easterly Parkway State College, PA 16801
<b>Construction Timeline:</b>	Originally constructed in 1955; renovation/addition in 2002.
<b>Building Square Footage:</b>	55,895 sf
<b>Site Acreage:</b>	11.4 acres



### Building Summary

Easterly Parkway Elementary School is a 2-story building located in State College Boro, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.

### Site Conditions

The site is bordered on all sides by community suburbs. The property slopes down noticeably from south to north.

### Paving & Walkways:

Vehicular access to the site is from Easterly Parkway. There is one drive loop to the north side of the school which allows parents to pick up and drop off students. There is a separate drive loop to the southwest side of the school for buses to drop off and pick up.

Deliveries are made at either the main southwest entrance or the northeast entrance. Staff and visitors park in a paved lot southwest of the school. Staff also park in a lot north of the school and south of the

school. There are ADA accessible parking spaces in the staff/visitor lot to the southwest of the school, and an accessible route from the parking spaces to the front entrance of the building.



Some of the concrete walks are aging and starting to show signs of wear in that the aggregate (in the concrete) is beginning to show through to the outside surface. The concrete is also stained in many places. Cracking is occurring on some of the paved surfaces. Some of the games painted on the paved surfaces years ago are wearing off and hard to be used for the games they were intended.



#### Recommendations:

- The short-term recommendation for paving is to apply a pourable sealer to the cracks, seal the paving, and repaint lines. The long-term recommendation is to a mill and overlay of existing paved surface and to provide a new wearing course with any new building project. The short-term recommendation for the concrete walks is to clean and remove stains and provide a sealer. The long-term recommendation is to replace the concrete with any new building project.

#### Play Areas & Equipment:

The site has two hard-surface play areas, including one with a basketball court. All are in good condition. The site also has multiple soft-surface play areas with play equipment. These are surfaced in loose wood chips. There are also large expanses of grassy areas. All play areas are well separated from vehicular traffic.



#### Recommendations:

- None currently.

#### Athletic Facilities:

There are no *athletic facilities beyond elementary play space on the property.*

#### Recommendations:

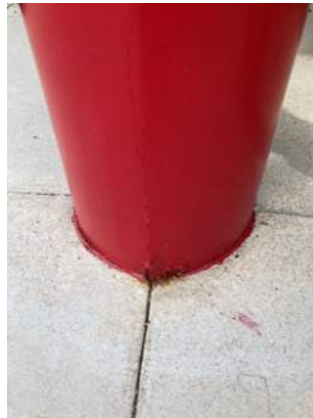
- None at this time.

#### Exterior Building Conditions

##### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with various brick and CMU veneers and CMU backup. Masonry walls are in very good condition with plenty of control joints located throughout the building envelope. There is some staining on the face brick below overflow scuppers where downspouts were not provided to collect the water. Windowsills are cast stone and in good condition, however some of the sills are becoming stained. Portions of the building are clad in various colors of corrugated metal wall panels as well as precast wall panels.







#### Recommendations:

- General cleaning of brick veneer, cast stone sills, and precast and metal wall panel systems. May want to consider painting of metal wall panels where colors are beginning to fade or eventual replacement.. At precast wall panels, tuck point joints between panels and caulk.
- Metal column covers are beginning to deteriorate at the base where water tends to settle and wear through the paint finish. Consider patching column bases and re-painting.
- Monitor caulking at control joints and replace with any new building project.

#### Roofing:

The original roof of the 2002 addition is a built-up modified bitumen roofing system and is at the end of its warranty. Typically modified bituminous roof life expectancy can be extended substantially beyond warranty period, but requires monitoring and routine maintenance. Study will evaluate with SCASD, schedule for eventual replacement.

The one roof that is part of the original 1955 building was re-roofed in 2020 with a fully adhered white TPO/EPDM membrane roof and is in good condition.

#### Recommendations:

- Monitor the roofs of the 2002 addition to determine when they should be replaced.

#### Doors & Windows:

Windows are clear anodized and combination of operable (awning type) and fixed windows with window treatment mounted to the head of the opening. Entrances are also clear anodized aluminum storefront with the wide style door design. Aluminum is beginning to show signs of aging with discoloration.



#### Recommendations:

- None at this time, however should consider replacement with any building renovation project, since they are coming to the end of their life expectancy, however they should easily operate for 10+ years longer if maintained correctly.

#### Interior Building Conditions

##### Structure:

The building is a 2-story masonry load bearing structure. The multi-purpose room has exposed steel trusses and roof deck. Overall, the building structure does not have any major cracks and appears to be in good condition.

Recommendations:

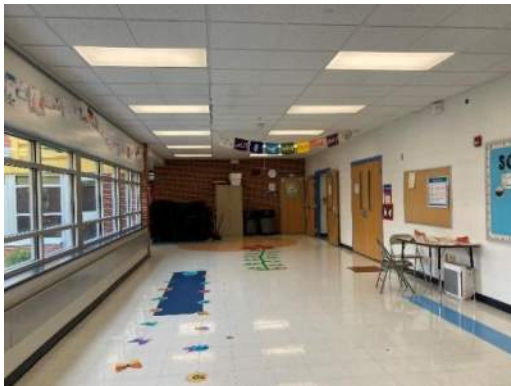
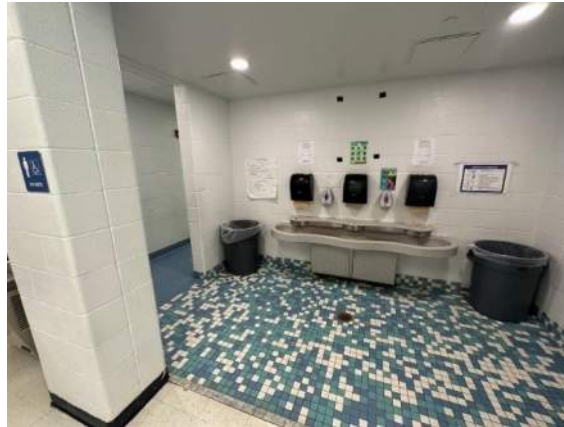
- None at this time.

### Finishes:

VCT exists throughout most of the school, including corridors and classrooms. The library and main office contain carpet tiles and are in good condition. Flooring in toilet rooms is porcelain tile, and quarry tile in kitchen areas. Mechanical areas have painted concrete. The gymnasium appears to have sheet vinyl flooring which is in good condition.

Interior walls are mainly painted CMU and are in good condition. There are areas of exposed brick which is also in good condition. There are also painted GWB partitions in areas where the carpet occurs. Those partitions could use some repair in selected areas and touch-up paint.

Acoustical ceilings throughout the building are in good condition. There are also painted GWB ceilings at the entrance to the group toilet room and other minimal selected areas and are also in good condition. Where GWB ceilings occur, access panels to access plumbing and HVAC items have been provided.







#### Recommendations:

- Patch and repair GWB in-house over the summer or as part of a project.

#### Doors:

Interior doors are solid core wood and painted hollow metal in painted hollow metal frames and are in good condition. Interior aluminum doors and side lights are also in good condition.



#### Recommendations:

- None at this time.

#### Casework & Built-in Equipment:

Interior casework is in good condition. Sinks in the countertops throughout the building allow for a forward approach for accessibility.



#### Recommendations:

- None at this time.

#### Specialty Equipment:

Gymnasium equipment in the multi-purpose room consists of retractable, ceiling-hung and wall-hung basketball backstops. There is also a folding partition that separates the room into 2 teaching stations. Acoustical wall panels are mounted high on the walls of the multi-purpose room to help with the acoustical performance of the room. All are in good condition. The stage curtain and lighting are original to the building and are assumed to have been replaced in 2002, they are also in good condition.



#### Recommendations:

- None at this time.

#### Code & Accessibility:

The building is fully protected by an automatic fire sprinkler system.

Existing exit access stairs and intercommunicating stairs and railings are designed to meet the current code and are in good condition.

The stage/platform does not have ramp access or a lift, but is accessed from the elevator.



Water closets in accessible toilet stalls have lavatories located across from them. This is no longer allowed with the current accessibility code.

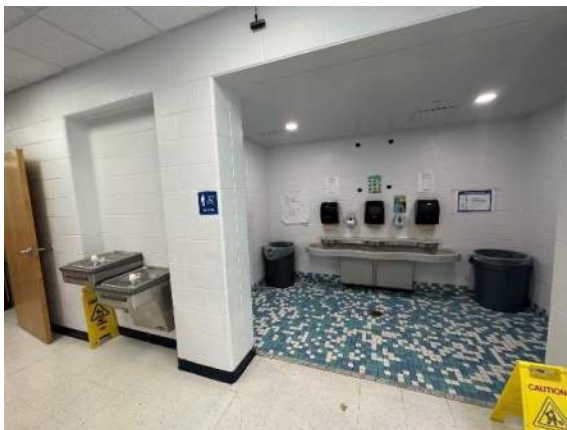
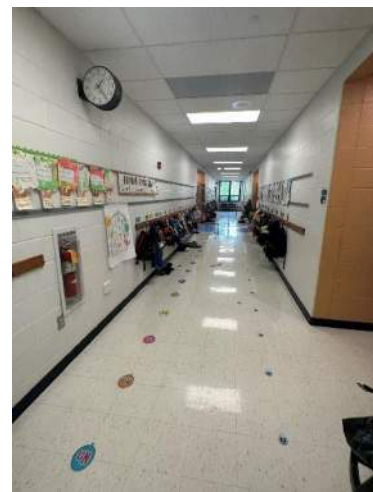
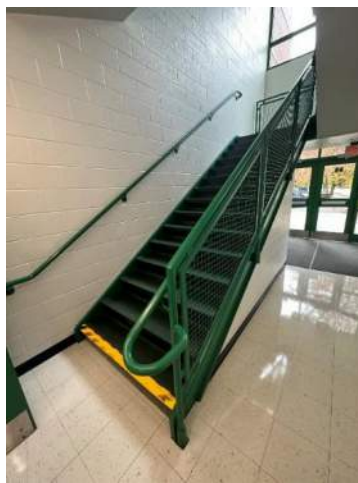
Door hardware throughout the building has ADA compliant lever-style handles.

Water coolers are high/low type for ADA accessibility.

Room signage does not appear to have the braille tactile writing system.

Fire extinguisher cabinets are fully recessed with clear plastic projected front and mounted at the correct height.

There is an elevator that serves both floors and the stage and appears to be ADA compliant.





#### Recommendations:

- Provide new room signage with the braille tactile writing system with any comprehensive renovation project.

#### Food Service Equipment:

Most of the food service equipment is original to the building's renovation in 2002. In 2023 a new diswash and steamer was installed. No other immediate replacements are scheduled with the food service department. While it may not be achievable onsite, if a separate gym & cafeteria was ever planned, an expanded kitchen would be a strong enhancement to the school which is currently undersized and has a cafeteria that is only 1/3 of the multipurpose when the folding partition is closed.



#### Recommendations:

- See comments above.

#### Heating, Ventilation & Air Conditioning (HVAC)

##### HVAC System:

- The building is served by a four-pipe hot and chilled water heating and cooling system. Most of the system and components date back to the 2001 additions and renovation project.
- Note that there are penetrations in the boiler room walls that are not currently fire sealed to code. These penetrations should be addressed.



- Two Unilux flex tube boilers (2001) with gas fired burners develop heating hot water for the school. The boilers appear to be in good condition. The tube boilers are very serviceable as the tubes can be replaced in the event of failure.
- The Gordon Piatt burners appear to be in good to fair condition, but it is likely that they will need to be replaced in advance of the boilers. In addition, Gordon Piatt is no longer in business so parts can be difficult to obtain. Consideration should be given to replacing the burners in advance of any major failure to avoid significant downtime.
- Duplex hot water pumps circulate hot water throughout the school. These pumps were installed in 2001 and are in fair condition. They were running rough at the time of our site visit. The pumps do not have VFD's. If a motor were to fail, a replacement motor should be inverter duty for use with a VFD.
- Blend pumps on the boilers are original and in poor condition. While the motors have been replaced, the pump bodies are corroded. They should be replaced in the next few years.
- The expansion tank appears to be original, but it seems to be operating properly and is in good condition. We were not able to inspect the bladder.
- The gas fired makeup air unit for the boiler room is operable and in fair condition. We were not able to inspect the heat exchanger, but the normal life cycle of this type of unit is around 20 years.
- A York split system chiller is utilized to develop chilled water for cooling. This chiller was installed in 2018, utilizes R410a, and is in good condition.
- Duplex chilled water pumps circulate chilled water throughout the school. These pumps were installed in 2001 and are in fair condition. There is some corrosion and deterioration which appears to be a result of condensation from failed insulation. The extent of the corrosion was not able to be verified as the pump is covered with insulation. The pumps do not currently have VFD's. If replacement were to occur, the new pumps shall be inverter duty and include VFD's.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.
- The chilled water pipe insulation is deteriorating, and moisture related issues were evident in some areas. We recommend that any damaged pipe insulation be replaced.
- HVAC valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.



- Classrooms are mainly served by vertical 4-pipe unit ventilators on the exterior walls. These units are original but appear to be in good condition.
- Note that classroom unit ventilators have many shortcomings including high noise levels, excessive room drafts, temperature variations, and inconsistent ventilation. They are no longer an industry recommended approach to providing HVAC in a learning environment.
- Some of the larger spaces are served by McQuay 4-pipe and DX split system air handlers. These units are original but appear to be in good condition.
- LG VRF systems are installed for a few internal areas of the school.
- The outdoor condensing units appear to be in good condition and utilize current refrigerants (R410a).
- Exhaust fans throughout appear to be in good condition.



#### Recommendations:

- Repair/seal penetration in the boiler room fire walls.
- Replace the burners.
- Replace the boiler blend pumps.
- Replace the chilled water pumps.
- Replace and damaged pipe insulation.
- Replace strategic HVAC valves for improved maintenance serviceability.



#### Automatic Temperature Control:

- The building is controlled by an ALC control system.
- For HVAC units that are retained, we suggest that the controls be upgraded, the actuators be replaced, and the units be recommissioned. In addition, we recommend that the 3-way valves be replaced with 2-way valves to provide the ability to save on pump power using the pump VFD's.
- The HVAC pumps do not have VFD's. We recommend that variable system flow strategies be applied for energy savings.

#### Recommendations:

- Install VFD's on HVAC pumps.
- For HVAC units that are retained, we suggest that the controls be upgraded, the actuators be replaced, and the units be recommissioned. In addition, we recommend that the 3-way valves be replaced with 2-way valves to provide the ability to save on pump power using the pump VFD's.



## Plumbing

#### Sanitary and Storm Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an in-floor grease trap. We recommend that this grease trap be replaced with an exterior type as part of any future renovation for improved maintenance and sanitation.
- Trap primers throughout no longer operate. We did not notice any sewer gas issues from traps, but consideration should be given to eliminating the failed trap primers and installing trap guards where that condition occurs.
- There is a roof drain/storm sewer pipe leak condition at the kitchen which needs to be addressed.



#### Recommendations:

- Replace existing in-floor grease trap with an exterior type as part of any future renovation.
- Install trap guards where needed.
- Repair and address the leaking roof drain/storm sewer pipe system at the kitchen.

#### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- Plumbing valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- The domestic water system includes a water softening system. The softeners tanks look to be in good condition, but the condition and age of the heads is unknown.



#### Recommendations:

- Replace strategic plumbing valves for improved maintenance serviceability.



#### Domestic Water Heating System:

- Domestic hot water is developed by a Bock gas fired water heater that was installed in 2013. The unit is in good condition and should provide several more years of service. It does not, however, have a backup heater. This is highly recommended in case the water heater fails.
- The mixing valve appears to have been replaced and was reported to be in good operating condition. The piping around the water heater and mixing valve is not insulated.

#### Recommendations:

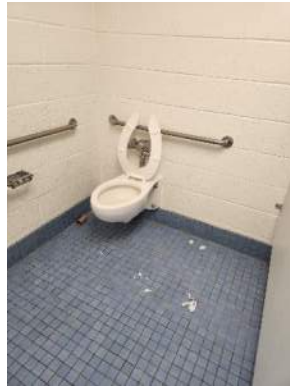
- Install a second water heater for backup.
- Install insulation on the domestic hot water piping.



#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Multi-station lavatories are utilized at group toilet rooms. These units include hands free faucets. There were not any reported issues with these units.
- Classroom sinks include bubblers and faucets with blade handles.
- Water coolers do not all meet ADA, but they do include bottle fillers.





Recommendations:

- Upgrade fixture to ADA.

#### Sprinkler System:

- The building is fully protected by a fire sprinkler system. The system is served off a 4" public water service.
- The system utilizes a wet pipe system.

Recommendations:

- None.



## Electrical

#### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire, and fed from an exterior utility pad mounted transformer. There are two service entrance distribution switchboards that have been installed back-to-back. One of them has a 1200-amp main breaker and the other has a 600-amp main breaker. All the breakers used in the switchboards are obsolete but there are equivalent replacements available. The 1200-amp switchboard does not meet the current NEC requirements. Both main breakers appear to have ground fault protection settings.
- Dry-type transformers are used to step down voltage to 208/120-volt.
- 480/277-volt and 208/120-volt branch circuit panelboards provide power throughout the building. The panelboard types used have been replaced with newer equipment versions. Circuit breakers are still available for the existing panelboards.
- Electrical distribution equipment was manufactured by Schneider/Square D and installed in the 2001/2002 construction project. It appears to be in good condition.
- Obsolete customer meters are located on the switchboards.
- Feeder wiring and raceways appear to be in good condition.



Recommendations:

- Upgrade electrical distribution equipment to meet current code requirements with any building wide renovations.
- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Follow the manufacturer's recommended maintenance requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.

### Emergency Power

- This building does not have an emergency generator. Plans are in place to install an emergency generator and a concrete pad has been poured outside along the driveway.
- Life-safety egress emergency lighting consists of wall-mounted battery-pack units with integral and remote mounted heads. Also, lamps were used inside fluorescent luminaires that operate on batteries upon a power loss condition.
- Self-contained exit signs with battery back-up are installed in the building and some are in poor condition.
- Newer style battery pack units and integral LED heads and LED remote heads have been installed in this building.



#### Recommendations:

- Complete the installation of the emergency generator and the associated equipment and wiring.
- Replace exit signs that are in poor condition.
- The new generator should be sized to include the building heating equipment branch circuit loads IE: Boilers, blend, and circulator pumps to keep system equipment from damage during a utility power loss.

### Lighting

- Interior luminaires have all been replaced with LED types in classrooms, corridors, and other learning spaces.
- LED retrofit lamps have been used to replace fluorescent PL lamps.
- LED retrofit lamps have been used to replace fluorescent T-8 lamps in open industrial type luminaires used in storage and mechanical rooms.
- Exterior building mounted and pole mounted lighting has been upgraded to LED type fixtures and is in good condition.
- Lighting controls do not meet current energy code requirements for automatic switching, daylight harvesting, and dimming.



#### Recommendations:

- New luminaires with LED lamps are in good condition and no further action is required.
- The existing fluorescent luminaires that are used with replacement LED lamps could need to be replaced in the future due to the age of the remaining components that are still in use. Plan for a future replacement as needed.
- Install energy code compliant controls with any major building renovation.
- Exterior LED lighting is in good condition and no further action is required.

### Power

- The wiring devices are from the 2001 construction project and are in fair to good condition.
- Receptacles do not meet current codes.
- The wiring appears to be in good condition.

#### Recommendations:

- Receptacles should be replaced with tamperproof type for any building renovations.



- Wiring devices and branch circuit wiring should be reviewed and updated as needed with any building renovations.
- Current codes require receptacles to have ground-fault circuit interrupter protection at additional locations. Devices should be changed where required for personnel protection.

#### Data/Communication/Technology

- Category 6 cables/jacks and Wi-Fi wireless access devices are used throughout the building and appear in good condition.
- A VoIP phone system appears to be in use in the building.
- A Rauland Telecenter ICS Intercom system is used in the building and is original to the 2001 renovation. This system is obsolete and service parts may start to be difficult to get.
- Sapling analog clocks are used throughout the building, and they are original to the building 2001 renovation project. The system appears in fair condition.



#### Recommendations:

- The School District is upgrading the data telecommunication systems.
- Remove existing telecommunications systems equipment and cables that are no longer in use. This is a code requirement.
- Upgrade the obsolete Intercom system with a newer IP-based system.
- Plan on replacing the clocks and associated equipment as they are very close to their life expectancy.

#### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.
- Audio systems with older technologies are used in the building and appear to be original to the last building renovation in 2001.
- There appears to be abandoned cables and equipment that are no longer in use in this building.

#### Recommendations:

- Upgrade the existing learning areas and Classrooms with newer A/V technology systems and wiring systems.
- Remove existing low-voltage cables and associated equipment when no longer needed or in use.

#### Fire Alarm

- A Simplex 4010 panel is used in this building. The panel is an addressable system with horn/strobe notification devices and appears to be in good condition but is outdated. The manufacturer's technicians are servicing the system. Simplex is now a part of Johnson Controls (JCI). The system is not compliant with current codes and requirements.
- There are system panels installed that do not appear to be in use.



#### Recommendations:

- There is a piece of Romex wiring used to power the fire alarm communicator. Replace the nonmetallic sheathed cable (Romex) with MC cable or conduit to meet requirements of an educational/commercial installation.
- Remove equipment that is not in use or planned for future use.

- The fire alarm system panels and equipment should be replaced with any major building renovations.
- The new fire alarm system installations will require the use of voice-based speaker notification systems to meet the NFPA requirements.
- Carbon monoxide sensors should be used in areas where fuel combustion occurs inside the building.

#### Security

- A partial intrusion system appears to be installed in the building.
- Access card readers are in use at selected exterior doors.
- An audio-visual intercom system is being used at the main entrance.
- CCTV cameras are in use at interior and exterior location.
- Panic buttons are installed in the receptionist areas.
- Motion detectors are in some of the corridor ceilings, but it is unknown if they are still in use.

#### Recommendations:

- Systems appear to be in good condition. Upgrade systems as needed to meet the School District and any future renovation requirements.
- Maintain system per manufactures requirements.
- Remove any devices, wiring, and equipment that are no longer in use or planned for use.

## 6 | Gray's Woods Elementary School

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<b>Address:</b>	160 Brackenbourne Drive Port Matilda, PA 16870
<b>Construction Timeline:</b>	Originally constructed in 2002; renovation/addition in 2011
<b>Building Square Footage:</b>	56,795 sf
<b>Site Acreage:</b>	15 acres



### Building Summary

Gray's Woods Elementary School is a 1-story building located in Patton Township, Port Matilda, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.



## Site Conditions

The site is bordered on the south and east side by heavily forested state game lands. The property is relatively flat in the center, sloping gradually down from the center in all directions.

### Paving & Walkways:

Vehicular access to the site is from Brackenbourne Drive and Grays Woods Boulevard. Parents and buses pick up and drop off from a drive running parallel with the front of the school and side of the school. Traffic appears to be currently managed well at both start of school and dismissal.

Deliveries are made at the front entrance of the school and side entry for receiving. Staff park in the paved lots east and south of the school. Visitors park in the paved lot east of the school. There are ADA accessible parking spaces in the staff/visitor lots, and an accessible route from the parking spaces to the front entrance of the building.



### Recommendations:

- Limited recommendations at this time, traffic appears to be controlled at this time.

### Play Areas & Equipment:

The site has 2 hard-surface play areas with basketball backboards. One backboard is heavily damaged. There are also 2 soft-surface play areas with play equipment. All play areas are in good condition. The 2 soft-surface play areas are surfaced in loose wood chips. All play areas are well separated from vehicular traffic.

### Recommendations:

- Replace damaged basketball backboard. This is considered routine maintenance.



### Athletic Facilities:

There are no athletic facilities or fields on the property at this time.

Recommendations:

- None currently.

### Exterior Building Conditions

#### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with modular brick veneer and split face CMU and CMU backup. Window stools are precast concrete and in good condition. Some stools are moderately stained.



Recommendations:

- Clean exterior precast concrete stools to remove staining.
- Inspect weep holes at the base of the exterior walls to make sure they are not blocked and trapping moisture within the wall cavity.

### Roofing:

The existing asphalt shingle roofs that were part of the original building constructed in 2002 were replaced in 2023.

The flat roofs associated with the original building constructed in 2002 are a modified bitumen built-up roofing system and are now out of warranty. These roofs are at the end of their life expectancy and should be monitored closely to determine when they should be replaced in the next 5-10 years. If maintained, life expectancy can be extended.



The two small flat roofs at the end of each of the classroom wings that were added in 2011 are fully adhered TPO/EPDM roofs and are in good condition.

For most of the building where the sloped roofs occur, rainwater is collected by gutters and downspouts that ultimately tie into an underground storm system. Roofing and rainwater conveyance appear to be in good condition.



Recommendations:

- None at this time.

#### Doors & Windows:

Windows are combination of operable and fixed window units with window treatment mounted at the head of the window. The blinds and shades appear to be in good condition. Entrances are clear anodized aluminum storefront with the wide style door design. Windows and storefront entrances are in good condition.





#### Recommendations:

- Windows and doors are original to when the building was built in 2002 and are in good condition, they will be at the end of their life expectancy in the coming 10 years, but if recaulked regularly and maintained life expectancy can be extended for another 10-20 years.

#### Interior Building Conditions

##### Structure:

The building is a 1-story masonry load bearing structure with a slab on grade foundation. There is exposed steel structural support at exterior canopies and overhangs. Overall, the building structure does not have any major cracks and appears to be in good condition.



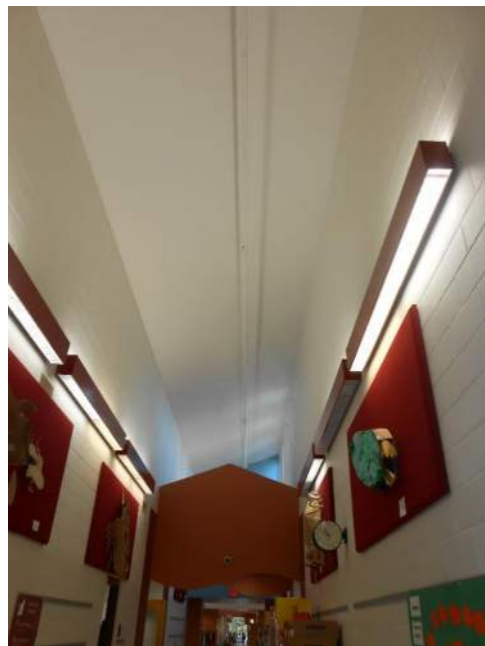
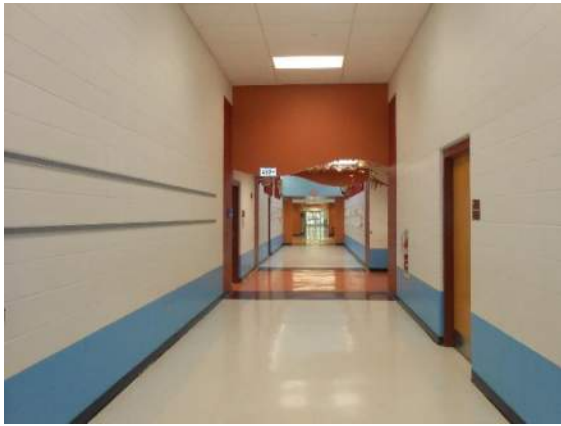
#### Recommendations:

- None at this time.

##### Finishes:

Most of the flooring is VCT throughout, including classrooms and corridors. It is in good condition. There is carpet flooring in the library and administration areas. The carpet is in good condition. The flooring in toilet rooms is porcelain tile. The gymnasium/cafeteria has sheet vinyl flooring which is in good condition.

Interior walls are predominantly painted CMU and are in good condition. There are areas in corridors that have painted gypsum wallboard, which is in good condition. Acoustical ceilings throughout the building are in good condition, as are the gypsum wallboard ceilings and bulkheads.



Recommendations:

- None currently.

### Doors:

Interior doors are solid core wood and painted hollow metal in painted hollow metal frames and are in good condition.



Recommendations:

- None at this time.

### Casework & Built-in Equipment:

Interior casework is in good condition. Casework allows for forward approach to sinks for accessibility.



Recommendations:

- None at this time.

### Specialty Equipment:

The multi-purpose room equipment consists of retractable, ceiling-hung basketball backstops, scoreboard and folding partition. All are in good condition. Folding partitions also exist between several of the classrooms, and the fabric is peeling off of these partitions in several locations. The stage curtain and lighting are original to the building but are also in good condition.

Recommendations:



- Replace peeling fabric on folding partitions in the classrooms. This may require replacement of partitions and should be discussed with the manufacturer.

### Food Service Equipment:

Most of the food service equipment is original to the building's construction in 2002 and thus is 22 years old. Recent replacement in the last 2 years have included new Warmer, dishwasher replacement, new oven and steamer. The kitchen also does not have a toilet which typically would be designed for a school kitchen.

### Recommendations:

- All equipment is being maintained within capital and department budgeting at this time, so no replacements are required. If a separate kitchen from the multipurpose gym would ever be considered a new kitchen should be discussed at that time. Currently, the kitchen is undersized and has only 1 serving line. In addition, the location of the folding partition in the gym has limited the cafeteria to 1/3 of the multipurpose room. These concerns could justify an expanded kitchen and cafeteria in the future.

### Code & Accessibility:

The building is fully protected by an automatic fire sprinkler system.

The stage has a ramp to access the stage which appears to be accessible.

*Water closets in accessible toilet stalls have lavatories located across from them. This is no longer allowed with the current accessibility code. It meets code for when it was built, but should be of note for any long range planning that would be more than 20+ years out.*

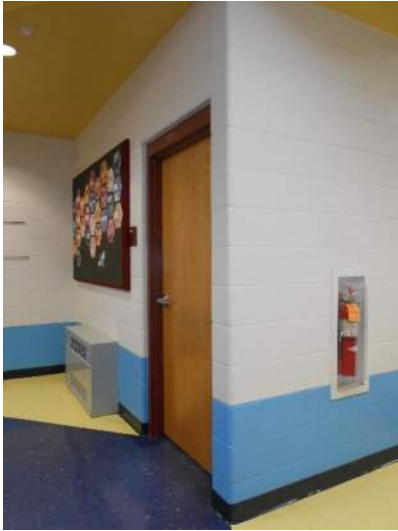
Door hardware throughout the building has ADA compliant lever-style handles.

Room signage does not appear to have the braille tactile writing system.

Fire extinguisher cabinets are fully recessed with clear plastic projected front and mounted at the correct height.

Water coolers are high/low type for ADA accessibility.





Recommendations:

- None currently.

## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a four-pipe hot and chilled water heating and cooling system. Most of the system and components are original and date back to 2001/2002.
- Two Bryan bent tube boilers (2001) with gas fired burners develop heating hot water for the school. The boilers appear to be in good condition. Bent tube boilers are very serviceable as the tubes can be replaced in the event of failure.
- The Power Flame burners also appear to be in good condition, but it is likely that they will need to be replaced in advance of the boilers.
- Duplex hot water pumps circulate hot water throughout the school. These pumps were replaced in 2022, include VFD's, and are in excellent condition. It was not clear how the VFD's are currently operating. We recommend that control strategies be implemented to allow for variable system flow to reduce pumping power and energy use.
- Blend pumps on the boilers are original and beginning to show signs of aging. They will likely need to be replaced in the next few years.
- The hot water system air separator is in poor condition and should be replaced.
- One of the expansion tanks is original and in need of being replaced.
- The gas fired makeup air unit for the boiler room is operable and in fair condition. We were not able to inspect the heat exchanger, but the normal life cycle of this type of unit is around 20 years.



- A McQuay split system chiller is utilized to develop chilled water for cooling. This chiller is original and utilizes R-22 refrigerant. Three of the four compressors are original and have lasted beyond their normal expected lifecycle. R-22 refrigerant has been phased out of production in 2020 due to its ozone depleting characteristics. We highly recommend that the chiller be replaced with a new unit that uses current refrigerants and provides improved energy efficiency.
- The spring isolators on the chiller are in poor and failing condition. These components should be replaced as part of any chiller project.
- The chiller refrigerant piping insulation system has fully deteriorated and needs to be replaced.
- Duplex chilled water pumps circulate chilled water throughout the school. These pumps are original and are starting to show signs of their age. There is some significant deterioration which appears to be a result of condensation from failed insulation. We recommend that the pumps be replaced as part of any chiller replacement project. Consideration should be given to utilizing a primary/secondary pumping arrangement to allow constant flow through the chiller and variable flow to the building. This will result in pump energy savings.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.
- The pipe insulation is deteriorating in some areas. We recommend that any wet or damaged pipe insulation be replaced.
- HVAC valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- Classrooms are served by vertical 4-pipe unit ventilators on the exterior walls. Some of the larger spaces are served by McQuay 4-pipe air handlers. These units are original but appear to be in good condition.
- Note that classroom unit ventilators have many shortcomings including high noise levels, excessive room drafts, temperature variations, and inconsistent ventilation. They are no longer an industry recommended approach to providing HVAC in a learning environment.
- DX cooling units are installed in several areas including the office, library, and server room. The units are original and utilize R-22 refrigerant. R-22 refrigerant has been phased out of production in 2020 due to its ozone depleting characteristics. We highly recommend that the units be replaced with new units that use current refrigerants and provide improved energy efficiency.
- Note that some of the exterior condensing unit fins are damaged. This can result in poor performance and a reduction in efficiency.
- Exhaust fans throughout are original but appear to be in fair condition.



#### Recommendations:

- Replace the burners.
- Replace the boiler blend pumps.
- Replace the air separator and the old expansion tank.
- Replace the chiller system.



- Replace the chilled water pumps and specialties.
- Replace and damaged pipe insulation.
- Replace strategic HVAC valves for improved maintenance serviceability.
- Replace R-22 DX cooling systems.
- Repair/comb the damaged fins on the exterior condensing units.

#### Automatic Temperature Control:

- The building is controlled by an ALC control system.
- For HVAC units that are retained, we suggest that the controls be upgraded, the actuators be replaced, and the units be recommissioned. In addition, we recommend that the 3-way valves be replaced with 2-way valves to provide the ability to save on pump power using the pump VFD's.
- The hot water pumps have VFD's, but the chilled water pumps do not. We recommend that variable system flow strategies be applied for energy savings.

#### Recommendations:

- Replace 3-way valves with 2-way valves and implement variable flow.
- Replace aged actuators and controls throughout as part of any future comprehensive system upgrade.

### Plumbing

#### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an in-floor grease trap. We recommend that this grease trap be replaced with an exterior type as part of any future renovation for improved maintenance and sanitation.
- Trap primers throughout no longer operate. We did not notice any sewer gas issues from traps, but consideration should be given to eliminating the failed trap primers and installing trap guards where that condition occurs.

#### Recommendations:

- Replace existing in-floor grease trap with an exterior type as part of any future renovation.
- Install trap guards where needed.

#### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.



- Plumbing valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- The domestic water system includes a water softening system. The softeners appear to be original to the building construction. It is likely that these units will need to be replaced in the next few years.

Recommendations:

- Replace strategic plumbing valves for improved maintenance serviceability.
- Replace the water softening system.



Domestic Water Heating System:

- Domestic hot water is developed from two PVI high efficiency gas water heaters that were installed in 2021. They are in good condition and do not need any attention.
- The related hot water recirculation pumps appear to have been replaced as part of the water heater replacement work.
- The domestic hot water mixing valve appears to be operational and in good condition.

Recommendations:

- None.



Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Multi-station lavatories are utilized at group toilet rooms. These units include hands free faucets. There were not any reported issues with these units.
- Classroom sinks include bubblers and faucets with blade handles.
- Bi-level water coolers are ADA and include bottle fillers.



Recommendations:

- None.

Sprinkler System:

- The building is fully protected by a fire sprinkler system. This system is served off a 4" public water service.
- The system includes both wet pipe and dry pipe systems.
- The dry pipe air compressor is in good condition.
- The piping in the dry pipe system was replaced in 2023.

Recommendations:

- None.



## Electrical

### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire, and fed from an exterior utility pad mounted transformer. There are two service entrance distribution switchboards that have been installed back-to-back. One of them has a 1200-amp main breaker and the other has an 800-amp main breaker. All the breakers used in the switchboards are obsolete but there are equivalent replacements available. The 1200-amp switchboard does not meet the current NEC requirements. Both main breakers appear to have Ground Fault protection settings.
- Dry-type transformers are used to step down voltage to 208/120-volt.
- 480/277-volt and 208/120-volt branch circuit panelboards provide power throughout the building. The panelboard types used have been replaced with newer equipment versions. Circuit breakers are still available for the existing panelboards.
- Electrical distribution equipment was manufactured by Schneider/Square D and installed in the 2001/2002 construction project. Equipment appears to be in good condition.
- Obsolete Customer meters are located on the switchboards.
- Feeder wiring and raceways appear to be in good condition.



Recommendations:

- Upgrade electrical distribution equipment to meet current code requirements with any building wide renovations.
- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Follow the manufacturer's recommended maintenance requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.

### Emergency Power



- This building does not have an emergency generator.
- Life-safety egress emergency lighting consists of wall-mounted battery-pack units with integral and remote mounted heads. Also, lamps are used inside fluorescent luminaires that operate on batteries upon a power loss condition.
- Self-contained exit signs with battery back-up are installed in the building.
- Emergency equipment is in poor to fair condition and has had multiple charging board and battery failures requiring replacements. Complete battery-pack replacements have been observed. This type of equipment requires ongoing maintenance and the purchasing of equipment.
- The equipment being replaced is using LED heads.

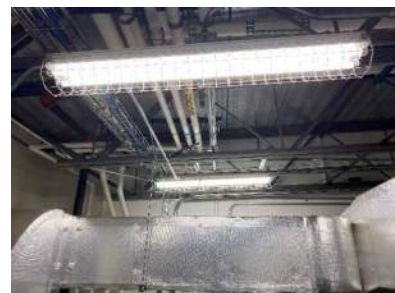


#### Recommendations:

- Install a generator with automatic transfer switches, normal/emergency panelboards and associated equipment. The generator would be used for life-safety egress emergency lighting and could also be used for optional equipment loads like kitchen walk-in refrigerators, freezers, and mechanical equipment.
- A New generator should be sized to include the building heating equipment branch circuit loads IE: Boilers, blend, and circulator pumps to keep system equipment from damage during a utility power loss.

#### Lighting

- Corridors are primarily using 2'x 4' recessed luminaires with prismatic lenses and T-8 fluorescent lamps. There are also some recessed high hats using PL fluorescent lamps and some surface wall-mounted linear fluorescent luminaires using T-8 lamps.
- Classrooms have recessed 2' x 4' luminaires with deep cell open parabolic lens and T-8 fluorescent lamps.
- Most areas are controlled by wall switches without energy management devices.
- The (4) newer classrooms are using wall switches and ceiling mounted occupancy sensors.
- Exterior luminaires appear to be using a combination of retrofit LED lamps, HID and PL fluorescent lamps.
- Lighting controls do not meet current energy code requirements for automatic switching, daylight harvesting, and dimming. They are no longer working correctly.



#### Recommendations:

- Luminaires are 22 years old. Fluorescent lamps and ballast will become more difficult and expensive to purchase. The luminaires should be replaced with luminaires using LED lamps and energy code compliant controls should be installed with any planned renovations.
- Upgrade exterior luminaires with LED type.
- Replace lighting controls with new energy code compliant lighting controls.

#### Power

- The wiring devices were installed during the 2001/2002 construction project and are in fair condition.
- Receptacles do not meet current codes.
- The wiring appears to be in good condition.

Recommendation:

- Receptacles should be replaced with tamper resistant type for any building renovations and maintenance.
- Wiring devices and branch circuit wiring should be reviewed and updated as needed with any building renovations.
- Current code requires receptacles to have ground-fault circuit interrupter protection at additional locations. Devices should be changed where required for personnel protection.

### Data/Communication/Technology

- Category 6 cables/jacks and Wi-Fi wireless access devices are used throughout the building and appear in good condition.
- A VoIP phone system appears to be in use in the building.
- A Rauland Telecenter ICS Intercom system is used in the building and is original to the 2001/2002 construction. This system is obsolete and service parts will be difficult to get.
- Sapling analog clocks are used throughout the building, they are original to the 2001/2002 construction. Digital clock segments are no longer working at the head end location, and the system is in fair condition.



Recommendations:

- The School District is currently upgrading data telecommunication systems.
- Remove existing telecommunications systems equipment and cables that are no longer in use.
- Upgrade/Replace the obsolete Intercom system with a newer IP-based system.
- Upgrade/Replace the clocks and associated equipment as they are very close to their life expectancy.

### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.
- Audio systems with older technologies are used in the building and appear to be original to the building construction.
- There appears to be abandoned cables and equipment that are no longer in use in this building.



#### Recommendations:

- Upgrade the existing learning areas and Classrooms with newer A/V technology system equipment and wiring systems.
- Remove existing low-voltage cables and associated equipment when no longer needed or in use.



#### Fire Alarm

- A Simplex 4010 panel is used in this building. The panel is an addressable system with horn/strobe notification devices and appears to be in good condition but outdated. The manufacturer's technicians are servicing the system. Simplex is now part of Johnson Controls (JCI). The system is not compliant with current codes and requirements.
- Strobe devices appear to be installed lower than they are required to be.
- There are system panels installed that do not appear to be in use.
- Any new systems installed will be required to have voice/speaker notification devices.



#### Recommendations:

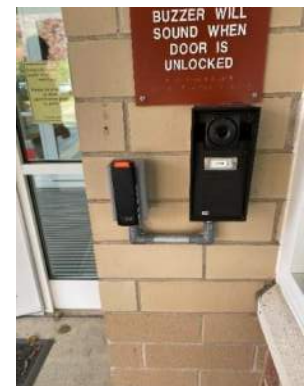
- Review strobe notification device installations and confirm required heights are correct. Correct as needed.
- There is a short piece of Romex wiring used to power the fire alarm communicator. Replace the nonmetallic sheathed cable (Romex) with MC cable or conduit to meet requirements of an educational/commercial installation.
- Remove equipment that is not in use or planned for future use.
- The fire alarm system panels and equipment should be replaced with any major building renovations.
- The new fire alarm system installation will require the use of voice-based speaker systems to meet the NFPA requirements.
- Carbon monoxide sensors should be used in areas where fuel combustion occurs inside the building.

#### Security

- A partial intrusion detection system appears to be installed in the building.
- Access card readers are in use at selected exterior entry doors.
- An audio-visual intercom system is being used at the main entrance.
- CCTV cameras are in use at interior and exterior locations.
- Panic buttons are installed in the receptionist areas.

#### Recommendations:

- Systems appear to be in good condition. Upgrade systems as needed to meet School District and any future renovation requirements.





- Maintain systems per manufactures requirements.

#### Roof

- A lightning protection system is located on the building roof and includes the roof top mechanical equipment. It is in fair condition.



## 6 | Park Forest Elementary School

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<b>Address:</b>	2181 School Drive State College, PA 16803
<b>Construction Timeline:</b>	Originally construction completed in 2005.
<b>Building Square Footage:</b>	62,326 sf
<b>Site Acreage:</b>	25 acres



### Building Summary

Park Forest Elementary School is a 2-story building located in Patton Township, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.

## Site Conditions

The site is bordered on the west side by heavy tree coverage and on the east by townhome communities. To the south of the site, across School Drive, is Park Forest Middle School. The property is lightly rolling, drainage does not seem to be an issue.

### Paving & Walkways:

Vehicular access to the site is from School Drive and Amblerwood Way. There is a drive running parallel with the front of the school on which parents pick up and drop off students. There is a separate entrance drive for buses to pick up and drop off, which loops around a parking area for staff.

Deliveries are made to south and southeast entrances of the school. Staff park in the paved lot located to the south of the school. Visitors park in the paved spaces across from the main entrance of the school. There are ADA accessible parking spaces in the in both parking areas, and an accessible route from the parking spaces to the front entrance of the building.



### Recommendations:

- Visitor parking could be expanded in the future if possible, which is limited at this time.

### Play Areas & Equipment:

The site has one hard-surface play area, which includes a basketball backboard. There are multiple soft-surface play areas with play equipment, which are surfaced in loose wood chips. The site also features two grass fields. All are in good condition and all play areas are well separated from vehicular traffic.





Recommendations:

- None at this time.

### Athletic Facilities:

There are no athletic facilities or fields on the property at this time.

Recommendations:

- None currently.

### Exterior Building Conditions

#### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer or split face CMU at select locations and CMU backup. Window stools and headers are cast stone and in good condition. In some areas the stools and headers are darkened and stained. There is significant staining and efflorescence along some of the split face CMU along the 2-story wing, which appears to be caused by the exterior window shade devices.



#### Recommendations:

- Clean exterior brick and masonry veneer to remove efflorescence and staining, most notably at windows and where sun shading devices are located.
- Inspect weep holes at the base of the exterior walls to make sure they are not blocked and trapping moisture within the wall cavity.
- Inspect exterior window shade devices to ensure proper installation and care.

#### Roofing:

All three types of roofs (asphalt shingles at sloped roofs, built-up roofing system at flat roofs and metal roofing at sloped roof canopies at entrances) are original and are at the end of their life expectancy and should be monitored closely to determine when they should be replaced in the near future. This should be a capital project in the coming 5-10 years.

Where the sloped roofs occur, rainwater is collected by gutters and downspouts that ultimately tie into an underground storm system. Roofing and rainwater conveyance appear to be in good condition.



#### Recommendations:

- Monitor to determine replacement.

#### Doors & Windows:

Windows are combination of operable and fixed window units with window treatment mounted at the head of the window. The blinds and shades appear to be in good condition. Entrances are clear anodized aluminum storefront with the wide style door design.

Upper and lower-level windows on the south sides of the building have integral shading devices with the aluminum storefront system.



#### Recommendations:

- Windows and doors are original to when the building was built in 2005 and are in good condition, they will be at the end of their life expectancy in the coming 10 years, but if recaulked regularly and maintained life expectancy can be extended for another 10-20 years.

#### Interior Building Conditions

##### Structure:

The building is a 2-story masonry load bearing structure. Exterior canopies are supported with steel beams and columns. Overall, the building structure does not have any major cracks and appears to be in good condition.





#### Recommendations:

- None at this time.

#### Finishes:

Most of the flooring throughout the school is VCT and is in good condition. Carpet exists in the main office and is well maintained. The flooring in toilet rooms is porcelain tile. Mechanical areas have painted concrete. The gymnasium has sheet vinyl flooring which is in good condition.

Interior walls are predominantly painted CMU and are in good condition. Acoustical and gypsum board ceilings and bulkheads throughout the building are in good condition.





#### Recommendations:

- Due to the building being 19 years old, while VCT is in good condition, it would be recommended to plan for VCT replacement in the next 10 years as a capital project.

#### Doors:

Interior doors are solid core wood and painted hollow metal in painted hollow metal frames and are in good condition. Interior aluminum doors are also in good condition.



#### Recommendations:

- None at this time.

#### Casework & Built-in Equipment:

Interior casework is in good condition. Casework underneath the sinks throughout the building do not allow for a forward approach for accessibility.



#### Recommendations:

- Provide casework that includes sinks that meet ADA accessibility guidelines. This should only occur if a future casework replacement would occur. Casework met code requirements when installed and does not require replacement at this time.

#### Specialty Equipment:

The multi-purpose room equipment consists of retractable, ceiling-hung and wall-hung basketball backstops. There is a folding wall partition for the multi-purpose room and the stage. All are in good condition. The stage curtain/ folding partition and lighting are original to the building but are also in good condition.



#### Recommendations:

- None at this time.

#### Code & Accessibility:

The building is fully protected by an automatic fire sprinkler system.

The guard rails and handrails at the main entrance stair are code compliant.

The stage is accessible via stairs and a lift.

Some grab bars do not meet current ADA requirements.

Door hardware throughout the building has ADA compliant lever-style handles.

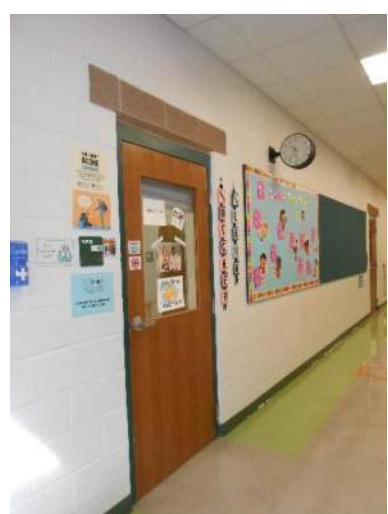
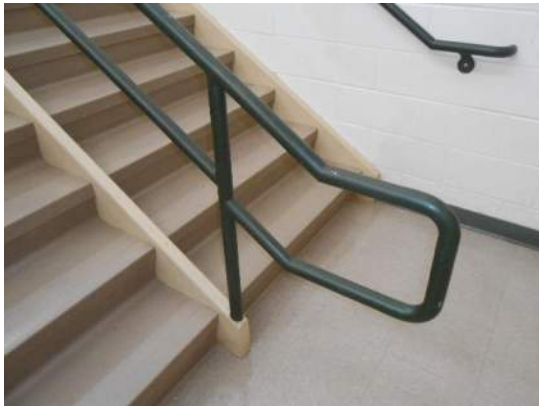


Room signage does not appear to have the braille tactile writing system.

Fire extinguisher cabinets are fully recessed with clear plastic projected front and mounted at the correct height.

Water coolers are the new ones where bottles can be refilled.

There is an elevator that serves both floors and appears to be ADA compliant.



#### Recommendations:

- Provide ADA compliant grab bars in group toilet rooms.
- Provide new room signage with the braille tactile writing system with any comprehensive renovation project.

#### Food Service Equipment:

Most of the food service equipment is original to the building's construction completed in 2005. Replacement of equipment has occurred over the past 19 years including the refrigerator, Oven in 2022, Steamer in early 2024 and dishwasher which is scheduled for summer 2024.

#### Recommendations:

- None at this time, due to routine replacements by the maintenance & food service departments, the kitchen is in good condition moving forward and falls under SCASD's food service standard department budget.

### Heating, Ventilation & Air Conditioning (HVAC)

#### HVAC System:

- The building is served by a four-pipe hot and chilled water heating and cooling system. Most of the system and components are original and date back to 2005.
- Two cast iron Smith 350 Mills boilers (2005) with gas fired burners develop heating hot water for the school. The boilers appear to be in good condition. It should be noted that these boilers are no longer manufactured by Smith. They stopped casting new sections several years ago, so parts availability could be a challenge if a section were to crack or fail.
- The Power Flame burners also appear to be in good condition, but it is likely that they will need to be replaced in advance of the boilers.
- Duplex hot water pumps circulate hot water throughout the school. These pumps appear to be original and include newer VFD's. They were running well at the time of our observation. It was not clear how the VFD's are currently operating. We recommend that control strategies be implemented to allow for variable system flow to reduce pumping power and energy use.
- Blend pumps on the boilers are original and beginning to show signs of aging. One of the pumps has a newer motor. They will likely need to be replaced in the next few years.
- The expansion tank appears to be original, but it seems to be operating properly and is in good condition. We were not able to inspect the bladder.
- The gas fired makeup air unit for the boiler room is operable and in good condition. We were not able to inspect the heat exchanger, but the normal life cycle of this type of unit is around 20 years.
- A roof mounted McQuay split system chiller is utilized to develop chilled water for cooling. This chiller is original and utilizes R-134a refrigerant. Based on its age, the chiller will likely need significant maintenance or replacement in the next few years.
- The unit frame and spring isolators on the chiller are rusting and in poor condition.
- The internal bundle is in the ceiling of the mechanical room and is difficult to access.
- Duplex chilled water pumps circulate chilled water throughout the school. These pumps appear to be original and include newer VFD's. They were running well at the time of our observation. It was not clear how the VFD's are currently operating. We recommend that control strategies be implemented to allow for variable system flow to reduce pumping power and energy use.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.
- The pipe insulation is deteriorating in some areas. We recommend that any wet or damaged pipe insulation be replaced.



- HVAC valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- Classrooms are served by vertical 4-pipe unit ventilators on the exterior walls. Some of the larger spaces are served by McQuay 4-pipe air handlers. These units are original but appear to be in good condition.
- Note that classroom unit ventilators have many shortcomings including high noise levels, excessive room drafts, temperature variations, and inconsistent ventilation. They are no longer an industry recommended approach to providing HVAC in a learning environment.
- DX cooling units are installed in several areas including the office, library, and server room. Some units have new compressors. The units are original and utilize R-22 refrigerant. R-22 refrigerant has been phased out of production in 2020 due to its ozone depleting characteristics. We highly recommend that the units be replaced with new units that use current refrigerants and provide improved energy efficiency.
- Exhaust fans throughout are original but appear to be in fair condition.



#### Recommendations:

- Consider boiler and burner replacement. Replace them with high efficiency gas boilers.
- Replace the hot water pumps and the boiler blend pumps as part of any boiler project.
- Replace the chiller.
- Replace the chilled water pumps as part of any chiller replacement project.
- Replace/repair and damaged HVAC pipe insulation.
- Replace strategic HVAC valves for improved maintenance serviceability.
- Replace R-22 DX cooling systems.

#### Automatic Temperature Control:

- The building is controlled by a Nexgen control system that was recently upgraded (2023).
- For HVAC units that are retained, we suggest that the controls be upgraded, the actuators be replaced, and the units be recommissioned. In addition, we recommend that the 3-way valves be replaced with 2-way valves to provide the ability to save on pump power using the pump VFD's.

#### Recommendations:

- Replace 3-way valves with 2-way valves and implement variable flow.
- Replace aged actuators and controls throughout as part of any future comprehensive system upgrade.

#### Plumbing

##### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an in-floor grease trap. We recommend that this grease trap be replaced with an exterior type as part of any future renovation for improved maintenance and sanitation.
- There are two lift stations in the basement mechanical room. We were not able to inspect or determine the condition of the pumps.



#### Recommendations:

- Replace existing in-floor grease trap with an exterior type as part of any future renovation.

#### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition, but we noted that some copper piping was replaced with PEX. We recommend that further inspection be carried out to determine if the pipe systems have internal or pin hole issues.
- Plumbing valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- The domestic water system includes a water softening system. The softeners appear to be in good condition.



#### Recommendations:

- Inspect the internal condition of the domestic water piping.
- Replace strategic plumbing valves for improved maintenance serviceability.

#### Domestic Water Heating System:

- Domestic hot water is developed from two PVI gas fired water heaters that were installed in 2005. They are in fair condition. Based on age, it is likely that they will soon need to be replaced.
- Note that the water heaters are not currently interconnected. We recommend that the new system be piped together to provide redundancy/backup capabilities.
- The hot water recirculation pumps appear to be in aged and poor condition and should be replaced as part of any water heating system upgrade.
- The domestic hot water mixing valve appears to be in aged and poor condition and should be replaced as part of any water heating system upgrade.



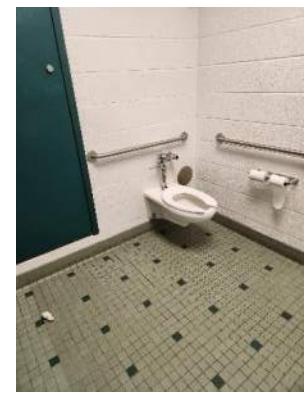
#### Recommendations:

- Replace/upgrade the domestic water heating system.

#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Multi-station lavatories are utilized at group toilet rooms. These units include hands free faucets. There were not any reported issues with these units.
- Classroom sinks include bubblers and faucets with blade handles.
- Water coolers include bottle fillers. They do not appear to all be ADA compliant.





#### Recommendations:

- Address ADA issues with fixtures.

#### Sprinkler System:

- The building is protected by a fire sprinkler system. This system is served off a 4" public water service.
- The system utilizes a wet pipe system.
- The attic area of the school includes exposed wood construction. This space does not appear to have protection and does not meet current standards.

#### Recommendations:

- Extend sprinkler coverage to attic areas as part of any building renovation.



#### Electrical

#### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire and fed from an exterior utility pad-mount transformer. The service entrance distribution switchboard has a 1600-amp main breaker and a distribution section. It appears to have GF settings. It does not meet the current NEC requirements.
- The switchboard includes customer metering.
- 208/120-volt is provided in the building via dry-type step-down transformer and a 1200-amp switchboard. The switchboard does not meet the current code requirements to have arc-fault reduction.
- 480/277-volt and 208/120-volt panelboards provide branch circuit power throughout the building.
- Electrical distribution equipment was manufactured by Schneider/Square D and is original to the building construction. It appears to be in good condition.
- Feeder wiring and raceways are in good condition.

#### Recommendations:

- Upgrade electrical distribution equipment to meet current requirements with any building wide renovations.
- Follow the Manufactures recommended maintenance requirements.



- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.

### Emergency Power

- A 150kW natural gas generator provides emergency power.
- The generator is manufactured by Olympian and the automatic transfer switches are manufactured by ASCO.
- Both life-safety and optional-standby building loads each have a separate automatic transfer switch for emergency power distribution.
- The generator, transfer switches and area protection panel are in good condition.
- The life safety equipment is in the same room as the service entrance and building electrical distribution systems. This does not meet the code requirements.
- Generator has one distribution breaker that is used for both Life safety and Optional standby distribution systems.
- Boilers, blend pumps and circulator pumps appear to be backed up by the generator.



### Recommendations:

- The emergency power distribution system is in fair to good condition.
- Relocate life-safety equipment as needed to meet code requirements.
- Anchor/fasten generator to foundation per manufactures requirements.
- Maintain generator per manufacturer's requirements.
- Review building equipment systems that are to be powered by the generator upon a utility power loss with owner and address as needed.
- Confirm the heating systems are backed up by the emergency generator.
- Review adding a dedicated breaker on gen set and feeder for life safety systems.

### Lighting

- Interior lighting is primarily recessed 2' x 4' fluorescent lamp luminaires with prismatic lens (in corridors), direct/indirect pendants (in classrooms and special areas), and compact fluorescent downlights.
- It appears that standard 4' fluorescent lamps are still being utilized but the compact fluorescent lamps are being replaced with LED type lamps.
- The multi-purpose room has linear fluorescent high-bay lighting fixtures.
- Exterior post-top lantern luminaires are used at the driveway with canopy and wall mount luminaires. Lamps in use appear to be LED, HID and PL fluorescent types. Luminaires appear to be in good condition.
- Emergency lighting is integrated into the standard lighting fixtures.
- Corridor and exterior Lighting is controlled through a central relay panel. Controls include occupancy sensors.
- Exit signs are LED type with battery back-up.
- Lighting controls do not meet current energy code requirements for automatic switching, daylight harvesting, and dimming.



### Recommendations:

- Luminaires and controls are in good condition and will operate adequately for a few years to come; however, fluorescent lamps will become more scarce and costly to replace.



- Interior lighting and lighting controls should be replaced throughout with LED type luminaires and energy code compliant controls. It is our understanding that lighting upgrades are scheduled for this year..
- Exterior LED lighting is in good condition and no further action is required.

#### Power

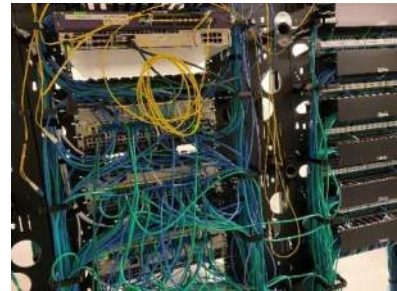
- The wiring devices are original to the 2005 building construction, and they are in fair to good condition.
- Receptacles do not meet current codes.
- The wiring is in good condition.

#### Recommendations:

- Current code requires receptacles to have ground-fault circuit interrupter protection at additional locations. Devices should be changed where required for personnel protection.
- Receptacles should be replaced with Tamper-Resistant type for any building renovations or maintenance.
- Wiring devices and branch circuit wiring should be reviewed and updated with any building renovations.

#### Data/Communication/Technology

- Category 6 cables/jacks and wireless access devices are used throughout the building and appear to be in good condition. This appears to have been an upgrade from the system installed in 2005.
- Hardwired data drops and Wi-Fi coverage are provided throughout the building, and in good condition.
- A VoIP phone system is used in the building.
- A Rauland Telecenter intercom system with a digital master clock is installed in the building and it is original to the 2005 construction. The intercom system is obsolete.
- Sapling analog clocks are used throughout the building, and they are also original to the 2005 construction.



#### Recommendations:

- The School District is upgrading data telecommunication systems.
- Remove existing telecommunications systems equipment and cables when no longer in use.
- Plan on upgrading the clocks and associated equipment.
- Plan on upgrading the intercom system to an IP based system.
- Monitor maintenance activities as the equipment is 19-years old and is at or near life expectancy. Plan upgrades as needed.



#### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.
- The multi-purpose room has an AV system that is most likely from 2005.

- A portable projector is used in the multi-purpose room.

#### Recommendations:

- Upgrade the existing learning areas and classrooms with newer A/V technology systems.
- Upgrade components in multi-purpose room system. Items such as cassette players are out of date.



### Fire Alarm

- A Siemens MXL-IQ addressable fire alarm system panel and horn/strobe notification devices are used in this building. This panel and some of the associated devices that are used with it are obsolete. The system is not compliant with current codes and requirements.
- System testing appears to be completed by JCI.
- The system does not provide notification in classrooms and public spaces per code requirements.
- The existing building horn-based notification system is grandfathered, but current NFPA codes require voice-based (speaker) annunciation in education buildings. Voice fire alarm communication capabilities and speaker-type notification devices will need to be installed for any future renovations that require changes to the fire alarm system.
- There is a sprinkler flow and tamper switch located in an open ceiling area that is not being monitored by the fire alarm system. This should be reviewed and corrected if in use.



#### Recommendations:

- Future renovations will necessitate installation of voice communication capabilities for the fire alarm system. Audio Horn devices will need to be replaced with speaker type notification devices.
- The fire alarm system should be considered for full replacement with any major building renovations.
- Add a fire alarm monitoring device and associated wiring to the sprinkler system unmonitored valve and flow switch if it is in use.

### Security

- Access card readers are used at selected exterior entry doors.
- CCTV cameras are in use at the interior and exterior locations of the building.
- An audio-visual intercom is used at the main entrance.
- Panic buttons are installed in the receptionist areas.

#### Recommendations:

- Systems appear to be in good condition. Upgrade systems as needed to meet School District and any future renovation requirements.
- Maintain systems per manufactures requirements.



### Roof

- A lightning protection system is located on the building roof and includes the roof top mechanical equipment. It is in fair condition.



## 6 | Ferguson Township Elementary School

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<b>Address:</b>	215 W Pine Grove Road, Pine Grove Mills, PA 16868
<b>Construction Timeline:</b>	Constructed in 1931, Additions and Renovations in 2011
<b>Building Square Footage:</b>	64,500 sf
<b>Site Acreage:</b>	9.2 acres



### Building Summary

Ferguson Township Elementary School is a 2-story building located in Ferguson Township, Pine Grove Mills, PA. The school currently houses grades K-5. The property is served by public water and sewer but does not have access to natural gas. The building does use propane.

## Site Conditions

The site is in the small town of Pine Grove Mills, surrounded by single family homes. The property on which the building sits slopes down from south to north. Drainage does not seem to be an issue.

### Paving & Walkways:

Vehicular access to the site is from West Pine Grove Road. There is a drive loop along the east side of the school which is used for parent pick up and drop off. There is another drive loop to the west of the school that is used by buses to pick up and drop off students.

Deliveries are made at the northwest corner of the school. Staff park in the paved lot to the west of the school. Visitors park in the paved lot to the east of the school. There are ADA accessible parking spaces in the in both parking areas, and an accessible route from the parking spaces to the front entrance of the building.

Some of the concrete walks are aging and starting to show signs of wear and tear, in that the aggregate (in the concrete) is beginning to show through to the outside surface. The concrete is also stained in many places. Cracking is occurring on some of the paved surfaces.



### Recommendations:

- The short-term recommendation for paving is to apply a pourable sealer to the cracks, seal the paving, and repaint lines. The long-term recommendation is to remove 1" to 1-1/2" of existing surface and to provide a new wearing course with any new building project. The short-term recommendation for the



concrete walks is to clean and remove stains and provide a sealer. The long-term recommendation is to replace the concrete with any new building project.

### Play Areas & Equipment:

The site has one hard-surface play area which includes basketball backboards. There are multiple soft-surface play areas with play equipment, which are surfaced in loose wood chips. The site also features a large grass field. All are in good condition and all play areas are well separated from vehicular traffic.



Recommendations:

- None at this time.

### Athletic Facilities:

There is one athletic field to the north of the site. It appears in good condition.

Recommendations:

- None currently.

### Exterior Building Conditions

#### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer, CMU, and architectural metal panel and CMU backup.

On the original building where there is original wood siding, cornice, arches and brackets, the existing lead paint was recently abated, and all of the wood was re-painted. The existing copper roofed cupola on the original building has been cleaned and re-coated.

At the base of some of the masonry walls there is a moisture build-up and is creating staining on the masonry. Weep holes should be checked to make sure they are not plugged up or covered. Window stools are metal drip edges and are in good condition.





#### Recommendations:

- Clean stained masonry and clean out weep holes in the masonry.

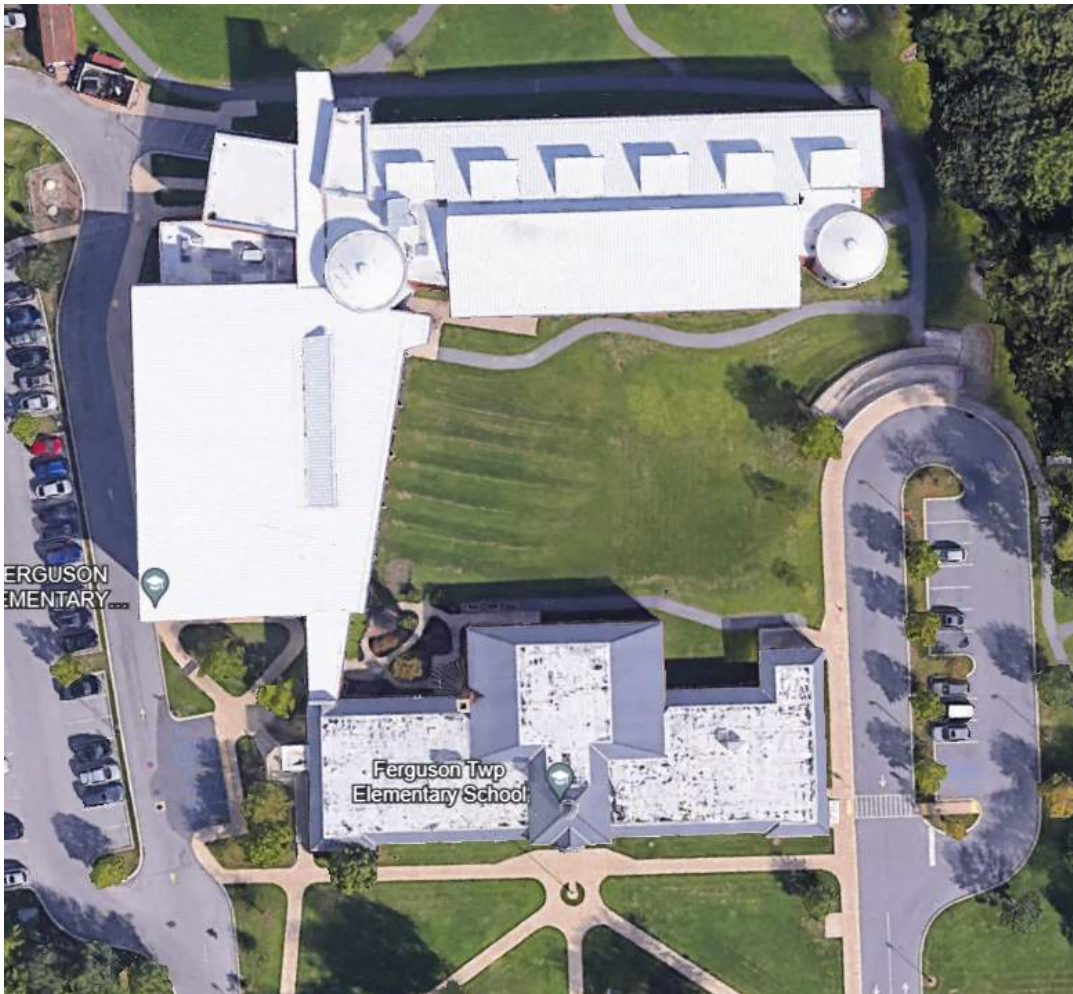
#### Roofing:

The original 1931 building has a combination sloped “mansard” type roof with rubber tiles to simulate slate shingles that were installed in 2018.

The flat roof behind the mansard roof currently has a urethane coating that was installed over the existing roof; however, this will need to be replaced with a fully adhered white TPO/EPDM roofing system to match the flat roofs installed on the 2011 additions.

The roofing associated with the 2011 addition is predominately sloped clear anodized metal roofing and is in good condition. Flat roofs on the 2011 addition are a fully adhered white TPO/EPDM roofing system that are in good condition.

Rainwater for the most part is collected in metal gutters and taken down metal downspouts that tie into an underground storm system. Roofing and rainwater conveyance appear to be in good condition except for the one downspout/underground stormwater piping (shown below) that may be clogged and is staining the face brick.



#### Recommendations:

- Replace the existing flat roof behind the mansard roof on the 1931 original building. This cost will be identified in the 5-10 year capital projects.

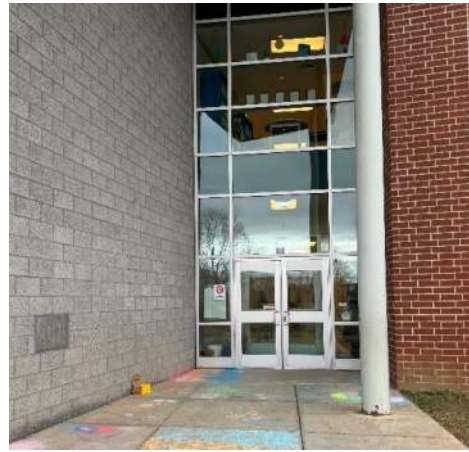
#### Doors & Windows:

Windows are combination operable, awning type and fixed windows with window treatment mounted to the window head opening.



Lower-level windows on the south sides of the building have integral shading devices with the aluminum storefront system. Entrances are clear anodized aluminum storefront. Windows and doors appear to be in good condition.

Doors and windows on the original 1931 building were replaced with the 2011 addition.



Recommendations:

- None at this time.

### Interior Building Conditions

#### Structure:

The building is a 2-story steel frame structure with masonry infill construction. The multi-purpose room has an exposed steel structure. Exterior canopies are supported with exposed steel columns that are wrapped with a metal enclosure. Overall, the building structure appears to be in good condition.





#### Recommendations:

- None at this time.

#### Finishes:

Most of the flooring throughout the school is VCT and is in good condition. There is a portion of the original school that contains hardwood flooring, which is also in good condition. Carpet exists in the main office and in the library and is well maintained.

The toilet rooms have porcelain tile flooring and the kitchen has quarry tile flooring, which are both in good condition. Mechanical areas have sealed concrete.

The multi-purpose room has wood flooring which is in good condition.

Interior walls are predominantly painted GWB or painted CMU and are in good condition. Acoustical and gypsum board ceilings and bulkheads throughout the building are in good condition.

Some of the main corridors have exposed painted steel structure and acoustical roof deck and look to be in good condition.





#### Recommendations:

- None at this time.

#### Code & Accessibility:

The guard rails and handrails in the building are code compliant and are in good condition. Two handrails are provided, one for adult mounting height and one for children mounting height. Exit stairs are enclosed.

The stage is accessible via stairs and a lift.

Toilet rooms are accessible with required clearances and grab bars.

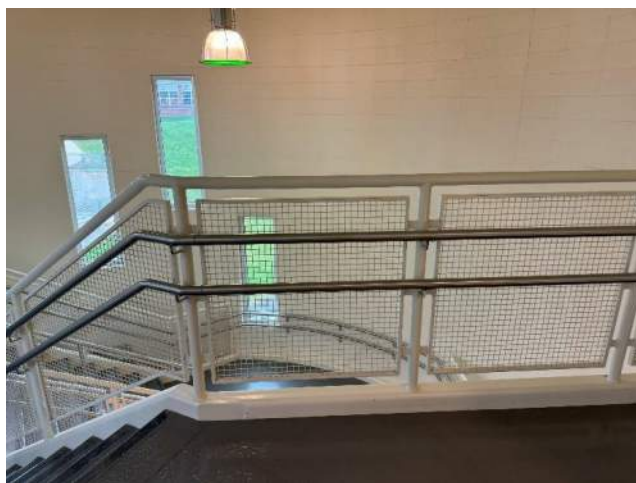
Door hardware throughout the building has ADA compliant lever-style handles.

Room signage does not appear to have the braille tactile writing system.



There is an elevator that serves both floors and appears to be code compliant.

Fire extinguisher cabinets are semi-recessed with clear plastic bubbled front and mounted at the correct height.





Recommendations:

- None at this time.

#### Doors:

Interior doors are solid core wood and painted hollow metal in painted hollow metal frames and are in good condition. Interior aluminum doors are also in good condition.



Recommendations:

- None at this time.

#### Casework & Built-in Equipment:

Interior casework is in good condition. Casework underneath the sinks throughout the building allows for a forward approach for accessibility.



Recommendations:

- None at this time.

### Specialty Equipment:

The multi-purpose room equipment consists of retractable basketball backstops. There is a folding wall partition for the multi-purpose room. All are in good condition. The stage curtain and lighting are also in good condition.



Recommendations:

- None at this time.

### Food Service Equipment:

The food service equipment was installed in the 2011 addition and renovation project. Recently one of the ovens and steamer were replaced and the dishwash was replaced approximately 5-6 years ago.



Recommendations:

- None at this time. Kitchen is being maintained within current food service budget with routine updated equipment.

## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a closed loop ground source geothermal heat pump system. Most of the system and components date back to the 2011 additions and renovation project.
- The wellfield includes 35 bores at 365' deep located adjacent to the building. Loop water from the building is circulated through the piping system to reject heat or absorb heat dependent on the season and building loads. There were not any reported issues in the field related to leaks or pressure loss. Closed loop systems generally last through several connected equipment lifecycles, so this field should be serviceable for many years.
- Two sets of duplex loop water pumps circulate a 15% propylene glycol solution through the field and the related indoor heat pumps. One set is for the main building, and one is for the admin area. These pumps were installed in 2011 and are in good condition. The pump VFD's vary system flow based on demand.
- The loop water system includes a glycol solution for freeze protection. The feeder is in the pump room and appears to be in good operating condition. It is important to test and maintain the good water chemistry for both freeze protection and to prevent pipe deterioration due to biological growth within the loop.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.
- Classrooms are mainly served by ducted vertical geothermal Climate Master heat pumps located in closets. The units utilize R-410a, are serviceable, and were found to be in good condition. These units typically have a 20-year lifecycle if properly serviced and maintained.
- The closets act as a return air plenum. Plenums should be cleaned regularly to help maintain clean air and prevent filter clogging.
- Each geothermal heat pump includes a hose kit with a 2-way control valve. The valves open and close based on unit operation. This helps to reduce unnecessary water flow and results in pumps savings.
- Some of the loop water pipe insulation is failing and in need of repair or replacement. Condensation was evident because of the failed or inadequate pipe insulation.
- Outdoor air ventilation is provided by five roof mounted energy recovery ventilators with wheels. Pre-conditioned air is delivered to the closets and circulated through the plenum returns. These units were found to be in good operating condition.
- Large zones utilize roof mounted units with compressors to provide HVAC to the related space. These units were found to be in good operating condition.
- Mini split units are provided for several IT areas. All were noted to be in good operating condition.
- Electric unit heaters and cabinet heaters are utilized for specific space heating only needs.





- Exhaust fans throughout appear to be up to current standards and in good condition.
- There is a radon ventilation system for a portion of the school.

Recommendations:

- Test and verify water chemistry and glycol concentration.
- Clean classroom heat pump closet plenums.
- Replace/repair damaged pipe insulation.

Automatic Temperature Control:

- The building is controlled by an ALC control system.
- The heat pumps utilize factory control boards. They have been problematic and should be upgraded.

Recommendations:

- Replace the failing factory heat pump unit controllers with new ALC controllers for full integration.



## Plumbing

### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an outside grease trap. This trap was reported to be in good working order.

#### Recommendations:

- None.



### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- The domestic water system includes a triplex water softening system. The softeners are in good condition.



#### Recommendations:

- None.

### Domestic Water Heating System:

- Domestic hot water is developed by multiple AO Smith high efficiency propane fired water heaters located in various areas of the school.
- Propane storage is located adjacent to the building in underground tanks.
- The single water heater in the lower mechanical room was installed in 2016. The unit appears to be in good condition. It does not, however, have a backup heater. This is highly recommended in case the water heater fails.
- The mixing valve in the lower mechanical room is valved off and bypassed. It was not evident as to the issue. We recommend that this be repaired or replaced so it can be put back into service.
- Duplex water heaters are installed in the upper mechanical room above the stairs. These units were installed in 2011. They appear to be in good condition, but their typical lifecycle is 12-15 years. Replacement may be necessary in the next few years.
- The mixing valve in the upper mechanical room appears to have been replaced and was reported to be in good operating condition. The piping around the mixing valve is not insulated.
- Hot water recirculation pumps all appear to be in good working condition with no reported issues.



#### Recommendations:

- Install a second water heater for backup in the lower mechanical space.
- Repair or replace the lower mechanical room mixing valve.
- Install insulation on the domestic hot water piping at the mixing valve.
- Replace the water heaters in the upper mechanical room in the next few years.

#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Multi-station lavatories are utilized in group toilet rooms. These units include hands free faucets. There were not any reported issues with these units.
- Classroom sinks include bubblers and faucets with blade handles.
- Dual level water coolers appear to meet ADA and include bottle fillers.



#### Recommendations:

- None.

#### Sprinkler System:

- The building is fully protected by a fire sprinkler system. The system is served off a 6" public water service.
- The system includes both wet pipe and dry pipe systems.

#### Recommendations:

- None.





## Electrical

### Electrical Distribution System:

- A GE Spectra Series 1200-amp 480/277-volt 3-phase, 4-wire switchboard is installed and is fed from an exterior utility pad-mount transformer. The service and distribution equipment were installed during the 2011 construction project. It does not meet current code requirements.
- The switchboard includes ground-fault protection, customer metering and surge protection.
- 208/120-volt is provided in the building via dry-type step-down transformers.
- 480/277-volt and 208/120-volt panelboards provide branch circuit power throughout the building.
- Electrical distribution equipment appears to be in good condition.
- Feeder wiring and raceway are in good condition.



#### Recommendation:

- The distribution system is in good condition. Upgrade to meet current codes as needed with any renovations.
- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.

### Emergency Power

- A 125kW natural gas generator provides emergency power.
- The generator is manufactured by Kohler and was manufactured in 2010.
- Both life-safety and optional-standby building loads each have a separate automatic transfer switch for emergency power distribution.
- The generator, transfer switches and area protection panel are in good condition.

#### Recommendation:

- The emergency power distribution system is in good condition.
- Panelboard NELEQGA used for normal emergency power of optional loads has a damaged Transient Voltage Surge Suppressor and appears to have a line 1 failure and is in an alarm condition. The Unit should be serviced and replaced if needed.



### Lighting

- Interior lighting is primarily comprised of 2' x 4'recessed fluorescent luminaires with prismatic lens. (in corridors), direct/indirect pendants (in classrooms and special areas), and compact fluorescent downlights.
- It does not appear that LED retrofit lamps have been utilized.
- The multi-purpose room is lighted with linear fluorescent high-bay lighting fixtures.
- Exterior building mounted and pole mounted lighting has been upgraded to LED type fixtures and is in good condition.
- Emergency lighting is integrated into the standard lighting fixtures.
- Lighting controls include low-voltage multi-button preset switches, occupancy sensors and daylight harvesting.
- Exit signs are LED type.



Recommendation:

- LED retrofit lamps should replace fluorescent lamps throughout the building until a renovation occurs.
- The lighting and controls are in good condition and will operate adequately for a few years to come; however, fluorescent lamps will become more scarce and costly to replace.
- Interior lighting should be replaced throughout with LED type luminaires and energy code compliant controls with any major building renovation.
- Exterior LED lighting is in good condition and no further action is required.
- Lighting controls are not working properly and could need to be replaced/updated.



### Power

- Wiring devices were upgraded in the 2011 renovations. Devices are in good condition.
- The wiring is in good condition.

Recommendation:

- The Current code requires ground-fault protection at additional locations. Devices should be changed where required for personnel protection.
- The current code requires Tamper-Resistant Receptacles to be installed. Replace existing with Tamper-Resistant type for any building renovations or maintenance repairs.

### Data/Communication/Technology

- Telecommunications systems were updated during the 2011 renovations.
- Hardwired data drops and Wi-Fi coverage are provided throughout the building, and in good condition.
- Data cabling is Cat-6 and in good condition.
- A VoIP phone system is used.
- A Rauland Telecenter intercom system with Sapling master clock system was installed during the 2011 renovations. The intercom system is obsolete.
- Digital clocks are in educational spaces, corridors, and offices. A couple of clocks have digital segments missing and are starting to dim. Clock replacements should be planned.



Recommendation:

- Upgrade/Replace the existing obsolete intercom system.
- Replace/Repair failing digital clocks.
- Upgrade Data Telecommunications system as needed to meet the School Districts requirements with any planned building renovation.

### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in classrooms. Teachers have input stations at their desks. Equipment is dated with older equipment types.
- The Multi-purpose Room has the AV system from 2011. It appears to be used and in fair condition, but a portable sound system was also set up at the time of the survey.
- A cart with multiple projectors was at the Audio Closet in the Multi-purpose Room.

#### Recommendation:

- The multi-purpose room sound system should be further investigated to determine the use of the portable system.
- Upgrade the building with new A/V Technology equipment and wiring systems.



### Fire Alarm

- The existing fire alarm system (Siemens) is a zone addressable system with horn/strobe alarm notification. The system is not compliant with current codes and requirements.
- The main fire alarm panel was replaced during the 2011 renovations and appears to be in fair condition. It is our understanding that there have been issues with maintaining this system.
- Smoke detector coverage and manual pull stations are provided where required.
- The existing building horn-based notification system is grand-fathered, but current NFPA codes require voice-based (speaker) notification in education buildings. Voice fire alarm communication capabilities and speaker type notification devices will need to be used for any future renovations that requires changes to the fire alarm system.
- A rescue assistance system exists at the stair locations and appears in good condition. Maintain per manufactures requirements.

#### Recommendation:

- The fire alarm system is having maintenance and servicing issues and should be considered for full replacement with a new code compliant system.





### Security

- A partial Intrusion detection system appears to be installed in the building.
- Access card readers are in use at selected exterior doors.
- CCTV cameras are in use at interior and exterior locations.
- An audio-visual intercom system is being used at the main entrance.
- Panic buttons are installed in the receptionist areas.

#### Recommendation:

- Systems appear to be in good condition. Upgrade systems as needed to meet any future renovation requirements.
- Maintain systems per manufactures requirements.



## 6 | Mount Nittany Elementary School

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<b>Address:</b>	700 Brandywine Drive, State College, PA 16801
<b>Construction Timeline:</b>	Constructed in 2011
<b>Building Square Footage:</b>	59,946 sf
<b>Site Acreage:</b>	60.6 acres



### Building Summary

Mount Nittany Elementary School is a 2-story building located in College Township, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.

## Site Conditions

The site is bordered on all sides by residential communities. The property on which the building sits slopes down from north to south. Drainage is an issue at the south wall of the southernmost classroom wing. There is also a sink hole located between the two existing classroom wings.

### Paving & Walkways:

Vehicular access to the site is from Brandywine Drive. There are two separate drive loops at the front of the school, one for bus drop off and pick up and one for parent drop off and pick up.

Deliveries are made at the east side of the school, off of the current parent drop off loop. Staff and visitors park in the main lot to the northeast of the school. There are ADA accessible parking spaces in the in the parking area, and an accessible route from the parking spaces to the front entrance of the building.



Recommendations:

- None at this time.

### Play Areas & Equipment:

The site has two hard-surface play areas which includes basketball backboards. There are multiple soft-surface play areas with play equipment, which are surfaced in loose wood chips. The site also features two baseball fields and two soccer fields. All are in good condition and all play areas are well separated from vehicular traffic.

Recommendations:

- None at this time.

### Athletic Facilities:

There are two baseball fields and two soccer fields on site. They all appear to be in good condition.

Recommendations:

- None currently.

## Exterior Building Conditions

### Exterior Walls:

The building exterior consists of insulated cavity walls with brick veneer or metal panel and insulated backup. Window stools are break metal and are in good condition.



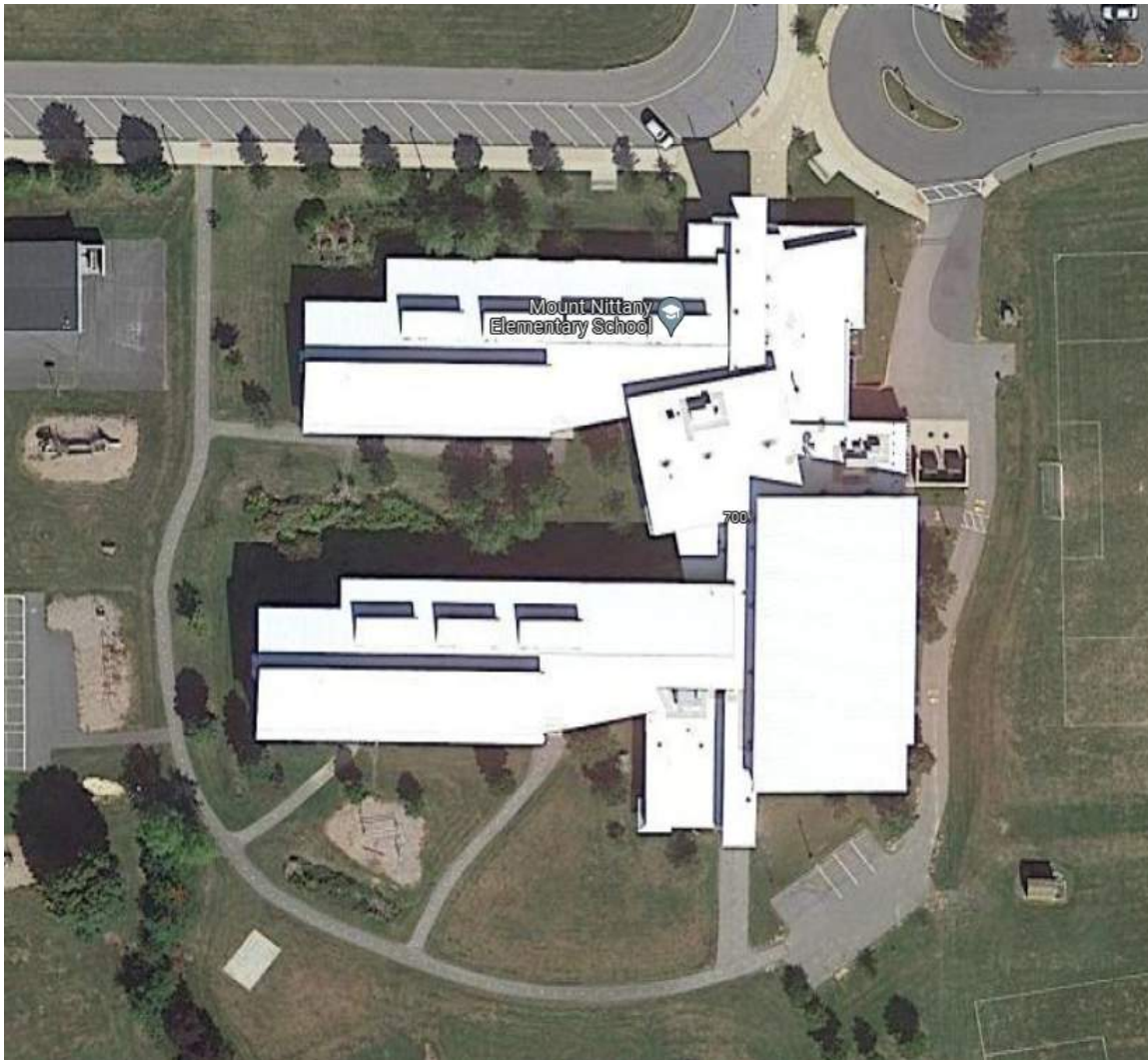


#### Recommendations:

- None at this time.

#### Roofing:

The existing roofs are a combination of sloped metal roofs and white flat fully adhered TPO/EPDM roofing systems and are in good condition. Rainwater is taken off of the sloped roofs with gutters and downspouts with cast iron boots that tie into an underground storm system. Roofing and rainwater conveyance appear to be in good condition.



Recommendations:

- None at this time.

### Doors & Windows:

Windows are a combination of fixed and operable awning type window units with blinds mounted to the window head opening. There are also exterior shade devices positioned two-thirds of the way up many of the windows. Entrances are clear anodized aluminum storefront. Windows and doors are in good condition.



Recommendations:

- None at this time.

### Interior Building Conditions

#### Structure:

The building is a 2-story steel supported structure. The multi-purpose room, library, and classrooms have an exposed steel structure. Exterior canopies are supported with exposed steel columns. Overall, the building structure appears to be in good condition.







#### Recommendations:

- None at this time.

#### Finishes:

Most of the flooring throughout the school is VCT and is in good condition. Carpet exists in the main office and is well maintained. The toilet rooms have tile flooring. Mechanical areas have sealed concrete. The multi-purpose room has wood flooring which is in good condition.

Interior walls are mainly painted GWB or painted CMU and are in good condition. Acoustical and gypsum board ceilings and bulkheads throughout the building are in good condition.





Recommendations:

- None at this time.

### Doors:

Interior doors are wood and are in good condition. Interior aluminum doors are also in good condition.



Recommendations:

- None at this time.

### Casework & Built-in Equipment:

Interior casework is in good condition. Casework underneath the sinks throughout the building allow for a forward approach for accessibility.



Recommendations:

- None at this time.

### Specialty Equipment:

The multi-purpose room equipment consists of retractable and wall mounted basketball backstops. There is a folding wall partition for the multi-purpose room. All are in working order and in good condition.

The stage curtain and lighting are also in good condition.



#### Recommendations:

- None at this time.

#### Code & Accessibility:

The building is fully protected by an automatic fire sprinkler system.

The guard rails and handrails in the building are code compliant. Two handrails are provided, one for adult mounting height and one for children mounting height.

The stage is accessible via stairs and a lift.

Toilet rooms are accessible.

Room signage appears to be ADA compliant.

Door hardware throughout the building has ADA compliant lever-style handles.

Electric water coolers are hi/low type and are ADA compliant.

Fire extinguisher cabinets are recessed with clear plastic bubbled front and mounted at the correct height.

There is an elevator that serves both floors and is ADA compliant.





Recommendations:

- None at this time.

#### Food Service Equipment:

Food service equipment is original to the building's construction in 2011.

Recommendations:



- With the addition that is currently under design that will be built in 2024-2025, the kitchen will be relocated to the new addition and be new construction. It has been discussed with SCASD staff distributing some of the current equipment throughout other schools within SCASD. The new kitchen will be sized comparable to Radio Park, having 2 serving lines for larger student capacity and possible induction electric cooking that is currently under review with SCASD.

## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a closed loop ground source geothermal heat pump system. Most of the system and components date back to the original construction in 2011.
- The wellfield includes 64 bores at 365' deep located under the front field. There are two supply vaults and two return vaults. Each vault has either supply or return headers that serve four branches of eight bores. The entire field is fed from a 6" main that is extended to/from the building pumps.
- Loop water from the building is circulated through the piping system to reject heat or absorb heat dependent on the season and building loads. There were not any reported issues in the field related to leaks or pressure loss. Closed loop systems generally last through several connected equipment lifecycles, so this field should be serviceable for many years.
- Two sets of duplex loop water pumps circulate a 15% propylene glycol solution through the field and the related indoor heat pumps. One set is for the main building, and one is for the admin area. These pumps were installed in 2011. Pump P-1 was running rough at the time of our visit and may require service. The pump VFD's vary system flow based on demand. The pumps were generally found to be in good condition.
- The loop water system includes a glycol solution for freeze protection. The feeder is in the pump room and appears to be in good operating condition. It is important to test and maintain the good water chemistry for both freeze protection and to prevent pipe deterioration due to biological growth within the loop.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.
- Classrooms are mainly served by ducted vertical geothermal Climate Master heat pumps located in closets. The units utilize R-410a, are serviceable, and were found to be in good condition. These units typically have a 20-year lifecycle if properly serviced and maintained.
- The closets act as a return air plenum. Plenums should be cleaned regularly to help maintain clean air and prevent filter clogging.
- Each geothermal heat pump includes a hose kit with a 2-way control valve. The valves open and close based on unit operation. This helps to reduce unnecessary water flow and results in pumps savings.
- Some of the loop water pipe insulation is failing and in need of repair or replacement. Condensation was evident because of the failed or inadequate pipe insulation.
- Classroom outdoor air ventilation is provided by AAON roof mounted energy recovery wheels. Pre-conditioned air is delivered to the closets and circulated through the plenum returns. These units were found to be in good operating condition.
- Large zones utilize roof mounted units with compressors to provide HVAC to the related space. These units were found to be in good operating condition.



- Mini split units are provided for several IT areas. All were noted to be in good operating condition.
- Electric unit heaters and cabinet heaters are utilized for specific space heating only needs.
- Exhaust fans throughout appear to be up to current standards and in good condition.

Recommendations:

- Test and verify water chemistry and glycol concentration.
- Clean classroom heat pump closet plenums.
- Replace/repair damaged pipe insulation.

Automatic Temperature Control:

- The building is controlled by an ALC control system.
- The heat pumps utilize factory control boards. They have been problematic and should be upgraded.

Recommendations:

- Replace the failing factory heat pump unit controllers with new ALC controllers for full integration.



## Plumbing

### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an outside grease trap. This trap was reported to be in good working order.

#### Recommendations:

- None.

### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- The domestic water system includes a duplex water softening system. The softeners are in good condition.

#### Recommendations:

- None.

### Domestic Water Heating System:

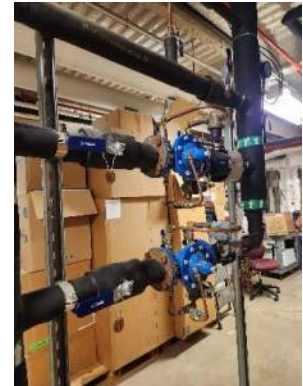
- Domestic hot water is developed by two AO Smith high efficiency gas fired water heaters. One unit is dated 2010 and the second unit is dated 2023. The older unit appears to be in good condition, since their typical lifecycle is 12-15 years, replacement should be planned in the next couple of years.
- The mixing valve appears to be original, but it was reported to be in good operating condition. The piping around the mixing valve is not insulated.
- Hot water recirculation pumps all appear to be in good working condition with no reported issues.

#### Recommendations:

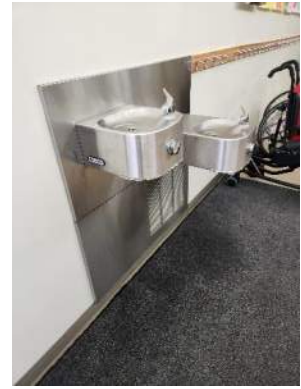
- Replace the older water heaters in the next few years.
- Install insulation on the domestic hot water piping at the mixing valve.

### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Multi-station lavatories are utilized in group toilet rooms. These units include hands free faucets. There were not any reported issues with these units.
- Classroom sinks include bubblers and faucets with blade handles.
- Dual level water coolers appear to meet ADA and but do not include bottle fillers.







Recommendations:

- Consider installing bottle fillers in the school.

**Sprinkler System:**

- The building is fully protected by a fire sprinkler system. The system is served off a 6" public water service.
- The building is served by a wet pipe system.

Recommendations:

- None.



## Electrical

### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire, and fed from an exterior utility pad-mount transformer. The service and distribution equipment were installed during the 2011 construction project.
- The switchboard has a 1200-amp main breaker with a distribution section and includes ground-fault protection, customer metering and surge protection. It does not meet current code requirements.
- 208/120-volt is provided in the building via dry-type step-down transformer.
- 480/277-volt and 208/120-volt panelboards provide branch circuit power throughout the building.
- Electrical distribution equipment was manufactured by Siemens and is in good condition.
- There is a Wind Turbine generator that is connected to this electrical distribution system.

#### Recommendation:

- Update if needed to meet code requirements and renovation is planned.
- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.



#### Emergency Power

- A natural gas 125KW, 480/277-volt, 3-phase, 4-wire generator is installed inside the building and appears to be an original

installation from the 2011 building construction.

- A separate 70A automatic transfer switch is used for life safety and the optional equipment loads.
- The automatic transfer switches, generator and associated equipment were manufactured by Cummins and installed during the 2011 building construction and are in good condition.

#### Recommendation:

- Maintain generator system per manufactures requirements.

### Lighting

- Interior lighting is primarily comprised of 2' x 4' recessed fluorescent luminaires with prismatic lens. (in corridors), direct/indirect pendants (in classrooms and special areas), and compact fluorescent downlights.
- It does not appear that LED retrofit lamps have been utilized.
- The multi-purpose room is lighted with linear fluorescent high-bay lighting fixtures.
- Exterior building mounted and pole mounted lighting have been upgraded to LED type fixtures and are in good condition.
- Emergency lighting is integrated into the standard lighting fixtures.
- Lighting controls include low-voltage multi-button preset switches, occupancy sensors and daylight harvesting and are not working correctly.
- Exit signs are LED type.



#### Recommendation:

- LED retrofit lamps should replace fluorescent lamps throughout the building until a renovation occurs.
- Luminaires and controls are in good condition and will operate adequately for a few years to come; however, fluorescent lamps will become more scarce and costly to replace. Interior lighting should be replaced throughout with LED type luminaires and energy code compliant controls with any major building renovation.
- Exterior LED lighting is in good condition and no further action is required.
- Replace/upgrade lighting controls and associated equipment that are no longer working correctly.



#### Power

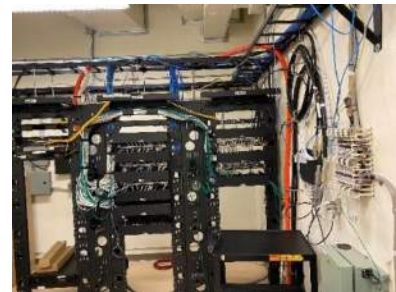
- Wiring devices and receptacles were upgraded in the 2010 renovations. Devices are in good condition.
- The wiring is in good condition.

#### Recommendation:

- Current code requires ground-fault protection at additional locations. Devices should be changed where required for personnel protection.
- Receptacles should be replaced with Tamper-Resistant type for any building renovations or maintenance.

#### Data/Communication/Technology

- Telecommunications systems were installed during the 2011 building construction.
- Hardwired data drops and Wi-Fi coverage are provided throughout the building and in good condition.
- Data cabling is Cat-6 and in good condition.
- A VoIP phone system is used.
- The Rauland Telecenter intercom and Sapling master clock systems were installed during the 2011 building construction. The Rauland Telecenter intercom system is obsolete and service parts will be difficult to get.
- Digital clocks are in classrooms and other educational spaces and offices throughout the building. The digital clocks are starting to have failed digital segments and reduced lumen levels.



#### Recommendation:

- The School District is currently upgrading data telecommunication systems.
- Remove existing telecommunications systems equipment and cables that are no longer in use.
- Upgrade/Replace the obsolete Intercom system with a newer IP-based system.
- Upgrade/Replace the clocks and associated equipment as they are very close to their life expectancy.

#### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.



- The multi-purpose room has the AV system from 2010. It appears to be in fair condition.
- A portable projector is used in the multi-purpose room.

Recommendation:

- Upgrade the building with new A/V Technology equipment and wiring systems.



### Fire Alarm

- The existing fire alarm system is a Notifier and manufactured by Honeywell. It is a zone addressable system with horn/strobe alarm notification.
- It was installed as part of the 2010 renovations and is in good condition.
- Smoke detector coverage and pull stations appear to be provided where required.
- The existing fire alarm system is grandfathered, but current NFPA codes require voice-based (speaker) notification in educational buildings. Voice fire alarm communication capabilities and speaker notification devices will need to be introduced for any future renovations that require changes to the fire alarm system.
- A rescue assistance system exists at stairs where egress is restricted.



Recommendation:

- Future renovations will necessitate installation of voice communication capabilities for the fire alarm system. Horn based notification devices will need to be replaced with speaker type devices, and additional modules/components will be required at the head-end fire alarm control panel.
- The fire alarm system should be considered for full replacement with any major building renovations.



### Security

- Card access readers are in use at selected exterior doors.
- An audio-visual intercom system is being used at the main entrance.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are installed in receptionist areas.

Recommendation:

- Systems appear to be in good condition. Upgrade systems as needed to meet the School District and any future renovation requirements.
- Maintain systems per manufactures requirements.

## 6 | Radio Park Elementary School

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<b>Address:</b>	800 West Cherry Lane, State College, PA 16803
<b>Construction Timeline:</b>	Constructed in 1963, Entire Facility Renovated and/or Built in 2019
<b>Building Square Footage:</b>	89,038 SF
<b>Site Acreage:</b>	26 acres



### Building Summary

Radio Park Elementary School is a 2-story building located in State College Borough, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.

## Site Conditions

The site is bordered on all sides by residential communities. The property on which the building sits slopes predominantly from north to south. Drainage is not a concern due to recent renovation in 2019.

### Paving & Walkways:

Vehicular access to the site is from West Cherry Lane. There are two separate drive loops at the front of the school, one for bus drop off and pick up and one for parent drop off and pick up.

Deliveries are made at the west side of the school, off of the parent drop off loop. Staff and visitors park in either of the two paved lots at the front of the school. There are ADA accessible parking spaces in both parking areas, and an accessible route from the parking spaces to the front entrance of the building is fully provided.



### Recommendations:

- None at this time.

### Play Areas & Equipment:

The site has one hard-surface play area which includes basketball backboards. There are multiple soft-surface play areas with play equipment, which are surfaced in loose wood chips. The site also features a baseball field. All are in good condition and all play areas are well separated from vehicular traffic. It is understood that routine maintenance is required by staff for the naturalized play equipment.





Recommendations:

- None at this time.

### Athletic Facilities:

There is one athletic baseball field to the south of the site. It appears in good condition.

Recommendations:

- None currently.

### Exterior Building Conditions

#### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer, stone and CMU backup along with some limited metal panel. Window stools are brick and some limited precast stone and are in good condition.



Recommendations:

- None at this time.

### Roofing:

The existing roof was replaced in 2019 as part of the construction project for both the new construction and existing and is currently under warranty. Rainwater is conveyed away from the building by roof drains, gutters and downspouts that tie into an underground storm system. Roofing and rainwater conveyance are in good in good condition.



### Recommendations:

- None at this time.



### Doors & Windows:

Windows are operable, awning windows with blinds mounted to the window head opening. Entrances are anodized black aluminum storefront. Windows and doors are in good condition.



Recommendations:

- None at this time.

### Interior Building Conditions

#### Structure:

The building is a 2-story masonry load bearing for recent additions and steel frame for the original 1963 structure. The multi-purpose room has an exposed steel structure. Exterior canopies are supported with exposed steel columns that are wrapped. Overall, the building structure appears to be in good condition.



Recommendations:

- None at this time, structure is in good condition.



### Finishes:

Most of the flooring throughout the school is VCT and is in good condition. Carpet exists in the main office and is well maintained. The toilet rooms and kitchen have resinous flooring. Mechanical areas have sealed concrete. The multi-purpose room has wood flooring which is in good condition.

Interior walls are painted GWB or painted CMU and are in good condition. Acoustical and gypsum board ceilings and bulkheads throughout the building are in good condition.



### Recommendations:

- None at this time, finishes are in good condition, excluding minor routine maintenance.

### Code & Accessibility:

The guard rails and handrails in the building are code compliant. The stage is accessible via stairs and a lift.

Toilet rooms are accessible.

Door hardware throughout the building has ADA compliant lever-style handles. There is an elevator that serves both floors.



### Recommendations:

- None at this time.

### Doors:

Interior doors are wood and are in good condition. Interior aluminum doors are also in good condition.



Recommendations:

- None at this time.

### Casework & Built-in Equipment:

Interior casework is in good condition. Casework underneath the sinks throughout the building allow for a forward approach for accessibility.



Recommendations:

- None at this time.

### Specialty Equipment:

The multi-purpose room equipment consists of retractable basketball backstops. There is a roll down curtain for the multi-purpose room. All are in good condition. The stage curtain and lighting are in good condition which is located in the cafeteria.



Recommendations:

- None at this time.

#### Food Service Equipment:

The kitchen was a 100% replacement as part of recent construction project completed in 2019, due to this the kitchen is in good/new condition.

Recommendations:

- None at this time, due the new/good condition of the entire kitchen, no large expenditures should be planned at this time, beyond routine maintenance and/or equipment issues that might occur periodically and be budgeted in a yearly food service capital budget.

## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a water source heat pump system. Most of the system and components date back to the 2019 additions and renovation project.
- Duplex loop water pumps circulate water through the building systems. These pumps include VFD's to vary system flow based on demand. The pumps are in good condition.
- Loop water temperature is maintained using a closed-circuit cooling tower in the cooling season and boilers in the heating season.
- The SPX closed-circuit cooling tower is installed remote from the building. There are 6" underground loops connecting the tower to the building system. Loop water is circulated through the tower to reject heat from the heat pump loop to the outside.
- The tower was found to be in fair condition. It was reported that there have been coil freeze issues with the tower. We suggest that a control strategy be implemented to circulate water through the tower to prevent freezing in the future. A flow meter should be added and monitored through the DDC system to verify that adequate flow is being circulated.
- The tower is showing general signs of corrosion. Cleaning and refinishing the surfaces will help to extend the unit life.
- Patterson Kelly high efficiency gas boilers are utilized to heat the loop during the heating season. The boilers were found to be in good condition.
- Classrooms are mainly served by vertical Florida Heat Pump (Bosch) heat pumps located in closets. The units utilize R-410a, are serviceable, and were found to be in good condition. These units typically have a 20-year lifecycle if properly serviced and maintained.
- The closets act as a return air plenum. Plenums should be cleaned regularly to help maintain clean air and prevent filter clogging.
- Each heat pump includes a hose kit with a 2-way control valve. The valves open and close based on unit operation. This helps to reduce unnecessary water flow and results in pumps savings.
- Classroom outdoor air ventilation is provided by Greenheck roof mounted energy recovery wheels. Pre-conditioned air is delivered to the closets and circulated through the plenum returns. These units were found to be in good operating condition.
- Large zones utilize roof mounted units with compressors to provide HVAC to the related space. These units were found to be in good operating condition.
- Mini split units are provided for several IT areas. All were noted to be in good operating condition.
- Electric unit heaters and cabinet heaters are utilized for specific space heating only needs.
- Exhaust fans throughout are up to current standards and in good condition.



Recommendations:

- Implement freeze protection flow strategies on the existing tower system.
- Clean and refinish the tower surfaces that are showing signs of corrosion.
- Test and verify water chemistry and glycol concentration.
- Clean classroom heat pump closet plenums.

Automatic Temperature Control:

- The building is controlled by a Nexgen ATC system.

Recommendations:

- None.

Plumbing

Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an outside grease trap. This trap was reported to be in good working order.

Recommendations:

- None.

Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- The domestic water system includes a Marlo duplex water softening system with an exterior brine tank system. The softener system is in good condition.

Recommendations:

- None.

Domestic Water Heating System:

- Domestic hot water is developed by two Lochinvar Armor high efficiency gas fired boilers tied to a 318-gallon storage tank. The tank was found to be in good condition.
- A Leonard high/low mixing valve is used for temperature control. The valve is in good condition.
- The hot water recirculation pumps are in good working condition with no reported issues.

Recommendations:

- None.

Plumbing Fixtures:





- Plumbing fixtures throughout appear to be in good condition. Fixtures and fittings are low flow for water savings.
- Water closets and urinals utilize automatic hands-free flush valves.
- Multi-station lavatories are utilized in group toilet rooms. These units include hands free faucets.
- Classroom sinks include bubblers and faucets with blade handles.
- Dual level water coolers appear to meet ADA and include bottle fillers.

Recommendations:

- None.



#### Sprinkler System:

- The building is fully protected by a fire sprinkler system. This system is served off a 6" public water service. There are multiple feeds to separate sections of the building based on fire areas.
- The system is a wet pipe system.

Recommendations:

- None.



#### Electrical

##### Electrical Distribution System:

- The electric service entrance comes into the building from a 300 KVA pad-mounted Utility transformer to a three section 4000-amp, 208/120-volt, 3-phase, 4-wire switchboard with a 4000-amp main breaker with 2500a trip setting in one section and two sections for distribution circuit breakers.
- Utility CT's and meter are located at the pad mounted utility transformer.
- The Switchboard has a surge suppression device and a customer meter.
- Distribution and branch circuit panelboards are located throughout the building.
- All electrical distribution equipment was manufactured by Schneider/Square D and installed during the 2018-2019 project. The equipment appears to be in very good condition.



- The Switchboard does not appear to meet the current code requirements to have Arc Energy Reduction which became an adopted code requirement after this project was completed.
- There is a Solar Photovoltaic System located on the roof of this building and its service disconnect is located on the rear exterior wall across from the utility transformer.

#### Recommendation:

- Maintain equipment per manufactures requirements.
- Replace surge suppression devices. It is our understanding that the Surge Suppression Devices have been recalled by the manufacturer and that the Owner is working with Farfield Electrical contractor and Schneider/Square D to replace them.
- Review ways to address new Arc Energy Reduction code requirement.

### Emergency Power

- An exterior pad mounted 125 KW, 208/120v, 3 Ph, 4 W, Natural Gas generator is used for both life safety loads and optional equipment loads in this building.
- There are three separate automatic transfer switches and distribution panels used for life safety loads and optional standby equipment loads. They are located together in their own dedicated room away from the normal distribution equipment.
- There are separate life safety and optional standby branch circuit panelboards located at multiple locations in the building.
- Generator and Automatic Transfer Switches are manufactured by Kohler and all equipment appears to be in good condition.
- Emergency generator and associated equipment were installed in 2019 when the building renovations and additions were being completed.
- A wall mounted generator remote annunciator is in the receptionist office area.



#### Recommendation:

- Maintain Generator per manufactures requirements.

### Lighting

- Site lighting consists of LED type luminaires.
- 2'x 2' recessed LED luminaires with prismatic lens are used in corridor areas.
- 2'x 2' recessed LED luminaires with opal diffuser are used in classrooms.
- The library is using 8' recessed linear LED luminaires and pendant mounted LED downlights.
- The Cafeteria has pendant mounted LED luminaires with white diffuser and recessed LED downlights. Also, Ellipsoidal performance luminaires are installed in front of the platform area.
- LED strip luminaires with diffusers are used in the mechanical/electrical, storage rooms and platform areas.
- Luminaires are controlled by Energy Management Devices.



- All LED luminaires and energy management devices were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.

Recommendation:

- None



### Power

- Wiring devices and receptacles were installed during the 2019 renovation and building addition project. They are in good condition.
- The wiring is in good condition.

Recommendation:

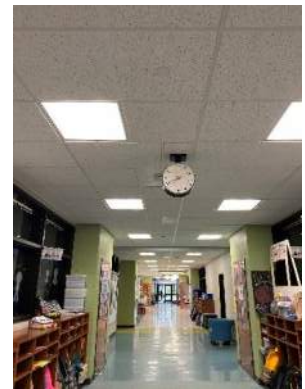
- None

### Data/Communication/Technology

- Data cable is Category 6 and in good condition.
- WiFi coverage is provided in classrooms and learning areas throughout the building.
- A VoIP phone is used.
- A Rauland Telecenter IP intercom system and call stations are used in this building.
- Analog IP Clocks manufactured by Sapling are used throughout the building in classrooms, corridors, office areas, Multi-Purpose, Library and other learning areas.
- A small nurse call system is in use in the nurse suite area.
- New systems were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.

Recommendation:

- None



### Audio/Visual

- Wall mounted projectors with white boards are used in every classroom.
- Wall mounted projector is used in LGI/learning stairs area.
- A rear mount projector is used with a projection screen on the stage area.
- Crestron A/V systems are used in classrooms and other learning spaces.
- All installations were completed during the 2018-2019 renovation and building addition project. They appear to be in good condition.

Recommendation:

- None



### Fire Alarm



- The Fire alarm system is manufactured by Simplex and a 4100ES panel is installed. It is serviced by JCI technicians.
- Protective covers are used on pull stations.
- The Remote annunciator is in the corridor by the main vestibule entrance.
- Area of rescue assistance stations are used in this building with the annunciator located in corridor by main vestibule entrance.
- Systems were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.
- The Exterior key lock box is located at the main building entrance.



Recommendation:

- None

### Security

- Card readers are in use at selected exterior doors.
- An Audio/Visual entrance system is being used at the main entrance of this building.
- Keypads are used at selected doors for third party deliveries.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are installed in the receptionist areas.
- All systems installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.
- A Radio/Cellular signal boosting system appears to have been installed in this building.



Recommendation:

- None

## 6 | Spring Creek Elementary School

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<b>Address:</b>	217 Scholl Street State College, PA 16801
<b>Construction Timeline:</b>	New building completed in 2019.
<b>Building Square Footage:</b>	76,342 sf
<b>Site Acreage:</b>	30 acres



### Building Summary

Spring Creek Elementary School is a 2-story building located in College Township, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer, and natural gas.

### Site Conditions

The site is bordered by residential neighborhoods and a community park. The property around the school is predominantly flat with subtle and gentle slopes. Where the property joins the community park, there is a steeper slope. See below:



### Paving & Walkways:

Vehicular access to the site for both bus and parent drop off is from Houserville Road. Drop off areas are separate which helps with the congestion of both happening at the same time. Parents are aware when buses arrive for drop off and picking up students and also are aware that the buses take precedence in accessing the site, separation was designed and approved as recommended by PA Department of Education. Paving and concrete walkways are in good condition. Paved walkways the perimeter of the building are also in good condition.

Deliveries are made from the same access drive as the one for the bus drop off and are made before or after students are dropped off or picked up. Staff and visitors park in the paved parking area directly in front of the main entrance. There are ADA accessible parking spaces in the staff/visitor lot, and an accessible route from the parking area to the front entrance of the building is provided.



### Recommendations:

- None at this time.

### Play Areas & Equipment:

The site has multiple play areas with some containing play equipment and soft wood chip surfaces which does require routine maintenance and one hard court area with basketball backstops and painted game lines. All are in good condition.





Recommendations:

- None at this time.

#### Athletic Facilities:

Most of the playfields are open grass areas with soccer and baseball fields located on adjacent community park property.

Recommendations:

- None at this time.

#### Exterior Building Conditions

##### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with combination of brick, ground face CMU, and manufactured stone veneer, with CMU backup. Cavity insulation is spray foam insulation. There is minor staining on the face brick where rainwater conductors for overflow drains empty out onto grade.

Cement board siding is also used as an accent between first and second floor windows.

Exterior window sills are the veneer materials with slopes integrated with the brick and ground face units.

All face masonry is in excellent condition.



#### Recommendations:

- Minor cleaning of face brick where stains have occurred. This is localized to only 2 or 3 locations building wide and is a routine cleaning item.

#### Roofing:

The roof is a white fully adhered TPO roofing system and is in very good condition. Some of the small roofs outside second floor spaces have a river stone ballast for aesthetic purposes where viewable from second story spaces.

#### Recommendations:

- No Recommendations at this time.

#### Doors & Windows:

Windows are combination operable, awning type windows and fixed windows. Finish is dark bronze anodized aluminum and are in very good condition.

Windows on both floors on all sides of the building have integral shading devices with the aluminum storefront system and are in very good condition.

The entrances are dark bronze anodized aluminum storefront with insulated wide style aluminum doors and are also in very good condition.





Recommendations:

- None at this time.

### Interior Building Conditions

#### Structure:

The building is a 2-story masonry load bearing structure. There does not appear to be any visible cracks on interior masonry walls. The central core of the building is a steel structure with exposed steel and roof deck. Overall, the building structure is in very good condition.

Recommendations:

- None at this time.

#### Finishes:

VCT exist throughout most of the school. The VCT floor tile is located in the corridors and the VCT continues in the classrooms. All are in good condition.

Carpet tiles are found in the main office, miscellaneous offices throughout, and in the Media Center and is in good condition. A recessed entrance mat is included in the secure vestibule at the main entrance.

Flooring in the group and single compartment toilet rooms, Art Room and Kitchen area is poured resinous flooring and base and is in very good condition.

Flooring in stair towers is VCT floor tile with one-piece treads/risers for the stairs.

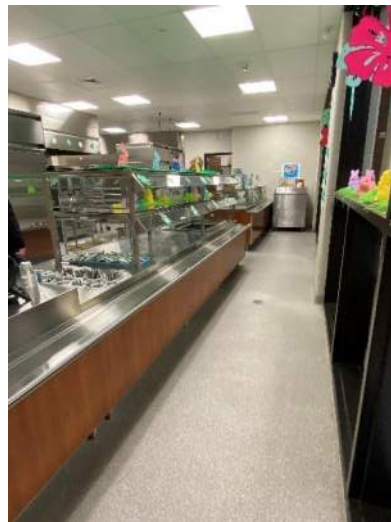
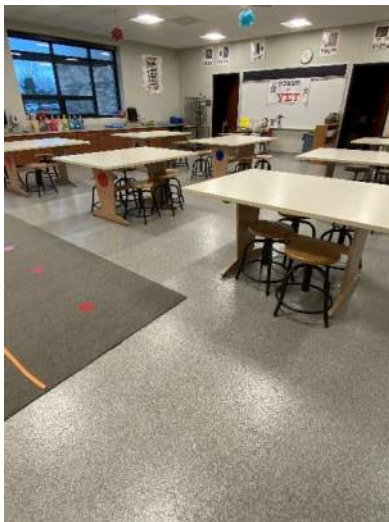
The Gymnasium has a competition wood floor that is in very good condition.

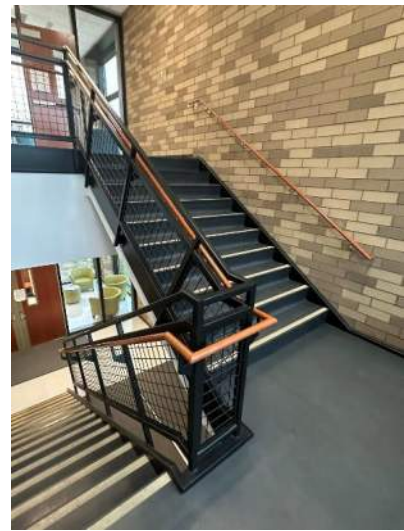
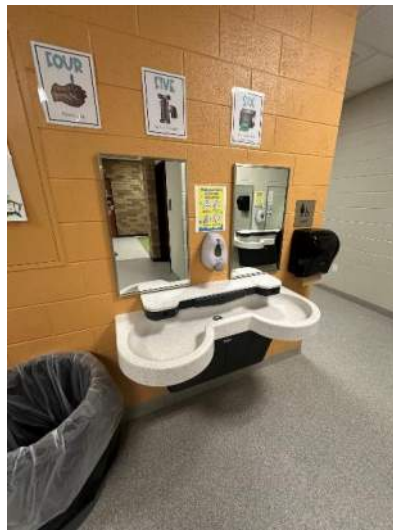
Mechanical areas have sealed concrete. The cafeteria has VCT which is in good condition.

Interior walls are combination of exposed brick, manufactured stone, painted CMU and gypsum wallboard.

Acoustical ceilings throughout the building are in good condition.







Recommendations:

- None at this time.

### Doors:

Interior doors are solid core wood or painted hollow metal in painted hollow metal frames, and are in very good condition.

Interior aluminum doors and frames match the color of the exterior frames and are also in very good condition.



Recommendations:

- None at this time.

### Casework & Built-in Equipment:

Interior casework is plastic laminate and in very good condition. Casework allows for forward approach to sinks for accessibility.





Recommendations:

- None at this time.

### Specialty Equipment:

Gymnasium equipment consists of retractable, ceiling-hung basketball backstops, ceiling mounted retractable curtain, badminton and volleyball nets. All are in working order and in good condition.

The stage curtain and lighting and sound systems in the Cafeteria are also in good condition.

Acoustical wall panels are in both the Gymnasium and Cafeteria to control noise.



Recommendations:

- Not at this time.

### Code & Accessibility:

The building is protected throughout with an automatic fire sprinkler system.

The guard rails and handrails in the building are code compliant and are in very good condition. Two handrails are provided, one for adult mounting height and one for children mounting height. Exit stairs are enclosed.

The stage/platform is accessible via stairs and a lift.



Toilet rooms are accessible with required clearances and grab bars.

Door hardware throughout the building has ADA compliant lever-style handles.

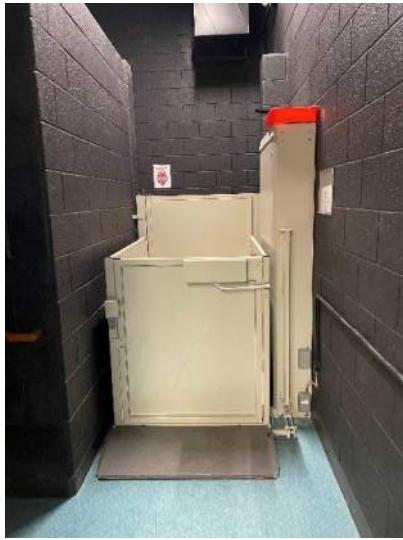
Electric water coolers are hi/low type and are ADA compliant.

Room signage appears to have the braille tactile writing system and is ADA compliant.

There is an elevator that serves both floors and is code compliant.

Fire extinguisher cabinets are semi-recessed with clear plastic bubbled front and mounted at the correct height.





### Food Service Equipment:

The food service equipment is original to the building's construction in 2019 and is in very good condition.



### Recommendations:

- None at this time.



## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a water source heat pump system. Most of the system and components date back to the 2019 additions and renovation project.
- Duplex loop water pumps circulate water through the building systems. These pumps include VFD's to vary system flow based on demand. The pumps are in good condition.
- Loop water temperature is maintained using a closed-circuit cooling tower in the cooling season and boilers in the heating season.
- The Baltimore Aircoil closed-circuit cooling tower is installed remote from the building. There are 6" underground loops connecting the tower to the building system. Loop water is circulated through the tower to reject heat from the heat pump loop to the outside. The tower was found to be in good condition. It was reported that there have been coil freeze issues with the tower. We suggest that a control strategy be implemented to circulate water through the tower to prevent freezing in the future. A flow meter should be added and monitored through the DDC system to verify that adequate flow is being circulated.
- Lochinvar high efficiency gas boilers are utilized to heat the loop during the heating season. The boilers were found to be in good condition.
- Classrooms are mainly served by vertical heat pumps located in closets. The units utilize R-410a, are serviceable, and were found to be in good condition. These units typically have a 20-year lifecycle if properly serviced and maintained.
- The closets act as a return air plenum. Plenums should be cleaned regularly to help maintain clean air and prevent filter clogging.
- Each heat pump includes a hose kit with a 2-way control valve. The valves open and close based on unit operation. This helps to reduce unnecessary water flow and results in pumps savings.
- Classroom outdoor air ventilation is provided by York roof mounted energy recovery wheels. Pre-conditioned air is delivered to the closets and circulated through the plenum returns. These units were found to be in good operating condition.
- Large zones utilize roof mounted units with compressors to provide HVAC to the related space. These units were found to be in good operating condition.
- Mini split units are provided for several IT areas. All were noted to be in good operating condition.
- Electric unit heaters and cabinet heaters are utilized for specific space heating only needs.
- Exhaust fans throughout are up to current standards and in good condition.





Recommendations:

- Implement freeze protection flow strategies on the existing tower system.
- Test and verify water chemistry and glycol concentration.
- Clean classroom heat pump closet plenums.

#### Automatic Temperature Control:

- The building is controlled by a Nexgen ATC system.

Recommendations:

- None.



#### Plumbing

##### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an outside grease trap. This trap was reported to be in good working order.

Recommendations:

- None.

##### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- The domestic water system includes a Marlo duplex water softening system with an exterior brine tank system. The softener system is in good condition.



Recommendations:

- None.

##### Domestic Water Heating System:

- Domestic hot water is developed by two Lochinvar Armor high efficiency gas fired boilers tied to a 318-gallon storage tank. The tank was found to be in good condition.
- A Leonard high/low mixing valve is used for temperature control. The valve is in good condition.
- The hot water recirculation pumps are in good working condition with no reported issues.

Recommendations:

- None.



#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition. Fixtures and fittings are low flow for water savings.
- Water closets and urinals utilize automatic hands-free flush valves.
- Multi-station lavatories are utilized in group toilet rooms. These units include hands free faucets.
- Classroom sinks include bubblers and faucets with blade handles.
- Dual level water coolers appear to meet ADA and include bottle fillers.

Recommendations:

- None.



Sprinkler System:

- The building is fully protected by a fire sprinkler system. This system is served off a 6" public water service. There are multiple feeds to separate sections of the building based on fire areas.
- The system is a wet pipe system.

Recommendations:

- None.



Electrical

Electrical Distribution System:

- The electric service entrance comes into the building from a 300 KVA pad-mounted Utility transformer to a two section 4000-amp, 208/120-volt, 3-phase, 4-wire switchboard with one section containing the 4000A main frame breaker with 2500a trip setting and one section for distribution circuit breakers.
- Utility CT's and meter are located at the exterior pad mounted CT cabinet located next to the building across from the utility transformer.
- The Switchboard has a surge suppression device and a customer meter.
- Branch circuit panelboards are located throughout the building.



- All electrical distribution equipment was manufactured by Schneider/Square D and installed during the 2018-2019 building construction. The equipment appears to be in very good condition.
- The Switchboard does not appear to meet the current code requirements to have Arc Energy Reduction which became an adopted code requirement after this project was completed.
- There is a Solar Photovoltaic System located on the roof of this building and its service disconnect is located on the exterior wall beside the pad mounted CT cabinet across from the utility transformer.



#### Recommendation:

- Maintain equipment per manufactures requirements.
- Replace surge suppression devices. It is our understanding that the Surge Suppression Devices have been recalled by the manufacturer and that the Owner is working with Farfield Electrical contractor and Schneider/Square D to replace them.
- Review ways to address new Arc Energy Reduction code requirement.

### Emergency Power

- An exterior pad mounted 125 KW, 208/120v, 3 Ph, 4 W, Natural Gas generator is used for both life safety loads and optional equipment loads in this building.
- There are three separate automatic transfer switches and panelboards used for life safety loads and optional standby equipment loads. They are in their own dedicated room away from the normal distribution equipment.
- There are separate life safety and optional standby branch circuit panelboards located at multiple locations in the building.
- Generator and Automatic Transfer Switches are manufactured by Kohler and all equipment appears to be in good condition.
- Emergency generator and associated equipment were installed in 2018-2019 during the building construction project.
- A wall mounted generator remote annunciator is in the receptionist office area.



#### Recommendation:

- Maintain Generator per manufactures requirements.

### Lighting

- Site lighting consists of LED type luminaires.
- 2'x 2' recessed LED luminaires with prismatic lens are used in corridor areas.
- 2'x 2' recessed LED luminaires with opal diffuser are used in classrooms.
- The library has recessed linear LED luminaires, pendant mounted LED luminaires with white diffuser, pendant mounted and recessed downlight LED luminaires.
- The cafeteria has pendant mounted LED downlight luminaires and recessed LED linear luminaires.
- LED strip luminaires with diffusers are in the mechanical/electrical, and storage rooms areas.
- Luminaires are controlled by Energy Management Devices.





- All LED luminaires and energy management devices were installed during the 2018-2019 building construction project. They appear to be in good condition.

Recommendation:

- None



#### Power

- Wiring devices and receptacles were installed during the 2018-2019 building construction project. They are in good condition.
- The wiring is in good condition.

Recommendation:

- None

#### Data/Communication/Technology

- Data cable is Category 6 and in good condition.
- WiFi coverage is provided in classrooms and learning areas throughout the building.
- A VoIP phone is used.
- A Rauland Telecenter IP intercom system with call stations is in use in this building.
- Analog IP Clocks manufactured by Sapling are used throughout the building in classrooms, corridors, office areas, Multi-Purpose, Library, and other learning areas.
- A small nurse call system is in use in the nurse suite area.
- New systems were installed during the 2018-2019 building construction project. They appear to be in good condition.



Recommendation:

- None

#### Audio/Visual

- Wall mounted projectors with white boards are used in every classroom.
- Wall mounted projector is used in learning stair area.
- A rear mount projector is used with a projection screen on the stage area.
- Crestron A/V systems are used in classrooms and other learning spaces.
- All installations were completed during the 2018-2019 building construction project. They appear to be in good condition.

Recommendation:

- None



## Fire Alarm

- The Fire alarm system is manufactured by Simplex and a 4100ES panel is installed. It is serviced by JCI technicians.
- Protective covers are used on pull stations.
- The Remote annunciator is in the corridor by the main vestibule entrance.
- Area of rescue assistance stations are used in this building with the annunciator located in corridor by main vestibule entrance.
- Systems were installed during the 2018-2019 building construction project. They appear to be in good condition.
- The Exterior key lock box is located at the main building entrance.

### Recommendation:

- None



## Security

- Card readers are in use at selected exterior doors.
- An Audio/Visual entrance system is being used at the main entrance of this building.
- Keypads are used at selected doors for third party deliveries.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are installed in the receptionist areas.
- All systems installed during the 2018-2019 building construction project. They appear to be in good condition.
- A Radio/Cellular signal boosting system appears to have been installed in this building.

### Recommendation:

- None



## 6 | Corl Street Elementary School

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<b>Address:</b>	235 South Corl Street State College, PA 16801
<b>Construction Timeline:</b>	Majority of building constructed in 2019 and limited amount of building retained from 1952 to 1968 construction periods. Entire facility brought up to new condition in 2019 for equity.
<b>Building Square Footage:</b>	64,086 SF
<b>Site Acreage:</b>	4.7 acres



### Building Summary

Corl Street Elementary School is a 2-story building located in State College Borough, State College, PA. The school currently houses grades K-5. The property is served by public water, sewer and natural gas.



## Site Conditions

The site is bordered on all sides by a suburban community. The property on which the building sits is mostly flat, while the play area is slightly elevated. Drainage is not an issue being fully addressed with above and below ground retention in 2019.

### Paving & Walkways:

Vehicular access to the site is from South Corl Street. There is a drive running parallel with the front of the school on which parents pick up and drop off students and also from S. Corl Street. There is another drive along W. Highland Alley that connects from the front drive that runs parallel to the north side of the school which is used by buses to pick up and drop off.

Deliveries are made along West Highland Alley. Staff park is located in the paved lot located at the back of the school in the northeast corner. Visitors park in the paved spaces across from the main entrance of the school. There are ADA accessible parking spaces in both parking areas, and an accessible route from the parking spaces to the front entrance and rear entrance of the building exist at both locations.



### Recommendations:

- None at this time.

### Play Areas & Equipment:

The site has one hard-surface play area in the northeast corner of the site, which includes a basketball court with backboards. There is a large soft-surface play area with naturally designed play equipment, and is surfaced in loose wood chips that does require routine maintenance. The site also features a small grass play area. All are in good condition and all play areas are well separated from vehicular traffic.



Recommendations:

- None at this time.

#### Athletic Facilities:

There are no athletic facilities or fields on the property at this time beyond the play areas..

Recommendations:

- None currently.

#### Exterior Building Conditions

##### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer and concrete plank over CMU backup. Window stools are brick and in good condition.





Recommendations:

- None at this time.

Roofing:

The existing roof was replaced in 2019 and is under warranty. Rainwater is conveyed away from the building by roof drains, gutters and downspouts that tie into an underground storm system. Roofing and rainwater conveyance are in good condition.





Recommendations:

- None at this time.

#### Doors & Windows:

Windows are operable, awning windows with blinds mounted to the window head opening. Entrances are anodized aluminum storefront. Windows and doors are in good condition.



Recommendations:

- None at this time.

## Interior Building Conditions

### Structure:

The building is a 2-story masonry load bearing & central steel frame structure along the main street of the school and central public program functions. The multi-purpose room has an exposed steel structure. Exterior canopies are supported with steel beams and columns. Overall, the building structure is in good condition.



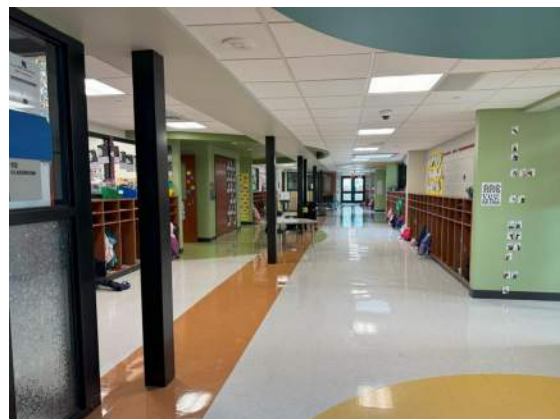
### Recommendations:

- None at this time.

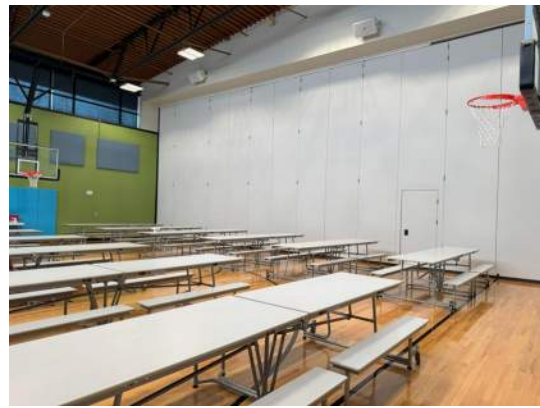
### Finishes:

Most of the flooring throughout the school is VCT and is in good condition. Carpet exists in the main office and is well maintained. The toilet rooms and kitchen have a resinous floor. Mechanical areas are sealed concrete. The multi-purpose room is wood flooring which is in good condition.

Interior walls vary between exposed brick, tile, and CMU and are in good condition. Acoustical and gypsum board ceilings and bulkheads throughout the building are in good condition.







#### Recommendations:

- None at this time.

#### Code & Accessibility:

The guard rails and handrails in the building are code compliant. The stage is accessible via stairs and a lift.

Toilet rooms are accessible.

Door hardware throughout the building has ADA compliant lever-style handles. There is an elevator that serves both floors.





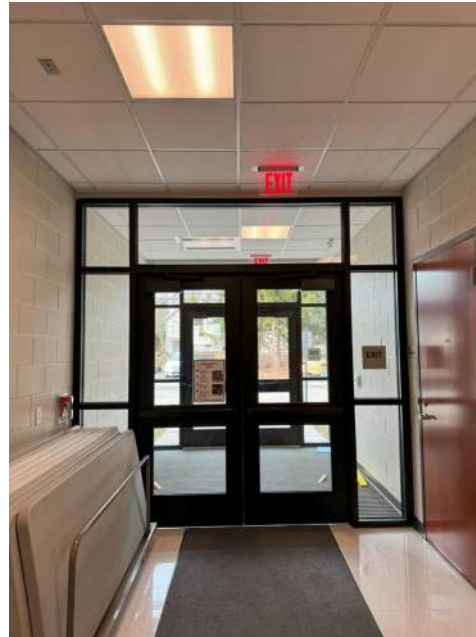


Recommendations:

- None at this time.

#### Doors:

Interior doors are wood and are in good condition. Interior aluminum doors are also in good condition.



Recommendations:

- None at this time.

#### Casework & Built-in Equipment:

Interior casework is in good condition. Casework underneath the sinks throughout the building allow for a forward approach for accessibility.



Recommendations:

- None at this time.

### Specialty Equipment:

The multi-purpose room equipment consists of retractable basketball backstops. There is a folding wall partition for the multi-purpose room. All are in good condition. The stage curtain and lighting are also in good condition.



Recommendations:

- None at this time.

### Food Service Equipment:

The kitchen was a 100% replacement as part of recent construction project completed in 2019, due to this the kitchen is in good/new condition.



Recommendations:

- None at this time, due the new/good condition of the entire kitchen, no large expenditures should be planned at this time, beyond routine maintenance and/or equipment issues that might occur periodically and be budgeted in a yearly food service capital budget.



## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a water source heat pump system. Most of the system and components date back to the 2019 additions and renovation project.
- Duplex loop water pumps circulate water through the building systems. These pumps include VFD's to vary system flow based on demand. The pumps are in good condition.
- Loop water temperature is maintained using a closed-circuit cooling tower in the cooling season and boilers in the heating season.
- An EVAPCO closed-circuit cooling tower is installed at the rear of the building. Loop water is circulated through the tower to reject heat from the heat pump loop to the outside. It was reported that there have been coil freeze issues with the tower. We suggest that a control strategy be implemented to circulate water through the tower to prevent freezing in the future. A flow meter should be added and monitored through the DDC system to verify that adequate flow is being circulated.
- The tower fan shafts are showing signs of corrosion. Clean and refinish to extend the life.
- Lochinvar Crest high efficiency gas boilers are utilized to heat the loop during the heating season. The boilers were found to be in good condition.
- Classrooms are mainly served by vertical Water Furnace heat pumps located in closets. The units utilize R-410a, are serviceable, and were found to be in good condition. These units typically have a 20-year lifecycle if properly serviced and maintained.
- The closets act as a return air plenum. Plenums should be cleaned regularly to help maintain clean air and prevent filter clogging.
- Each heat pump includes a hose kit with a 2-way control valve. The valves open and close based on unit operation. This helps to reduce unnecessary water flow and results in pumps savings.
- Classroom outdoor air ventilation is provided by Cook roof mounted energy recovery wheels. Pre-conditioned air is delivered to the closets and circulated through the plenum returns. These units were found to be in good operating condition.
- Large zones utilize roof mounted units with compressors to provide HVAC to the related space. These units were found to be in good operating condition.
- Mini split units are provided for several IT areas. All were noted to be in good operating condition.
- Electric unit heaters and cabinet heaters are utilized for specific space heating only needs.
- Exhaust fans throughout are up to current standards and in good condition.



Recommendations:

- Implement freeze protection flow strategies on the existing tower system.
- Clean and refinish the tower fan shafts.
- Test and verify water chemistry and glycol concentration.
- Clean classroom heat pump closet plenums.

#### Automatic Temperature Control:

- The building is controlled by a Nexgen ATC system.

Recommendations:

- None.



#### Plumbing

##### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes an outside grease trap. This trap was reported to be in good working order.

Recommendations:

- None.

##### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- The domestic water system includes a Marlo duplex water softening system with an exterior brine tank system. The softener system is in good condition.



Recommendations:

- None.

##### Domestic Water Heating System:

- Domestic hot water is developed by two Lochinvar Armor high efficiency gas fired boilers tied to a 318-gallon storage tank. The tank was found to be in good condition.
- A Leonard high/low mixing valve is used for temperature control. The valve is in good condition.
- The hot water recirculation pumps are in good working condition with no reported issues.



Recommendations:

- None.

#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition. Fixtures and fittings are low flow for water savings.
- Water closets and urinals utilize automatic hands-free flush valves.
- Multi-station lavatories are utilized in group toilet rooms. These units include hands free faucets.
- Classroom sinks include bubblers and faucets with blade handles.
- Dual level water coolers appear to meet ADA and include bottle fillers.

Recommendations:

- None.



Sprinkler System:

- The building is fully protected by a fire sprinkler system. This system is served off a 6" public water service.
- A fire pump is installed to support flow and pressure in the system. The pump is in good condition.
- The system is a wet pipe system.

Recommendations:

- None.



Electrical

Electrical Distribution System:

- The electric service entrance comes into the building from a 225 pad-mounted Utility transformer to a four section 4000-amp, 208/120-volt, 3-phase, 4-wire switchboard with a fire pump tap section, 4000-amp Main Frame Breaker with 2000-amp trip setting section and two sections for distribution circuit breakers.
- Utility CT's and meter are located at the pad mounted utility transformer.
- The Switchboard has a surge suppression device and a customer meter.
- Branch circuit panelboards are located throughout the building.
- All electrical distribution equipment was manufactured by Schneider/Square D and installed during the 2018-2019 project. The equipment appears to be in very good condition.
- The Switchboard does not appear to meet the current code requirements to have Arc Energy Reduction which became an adopted code requirement after this project was completed.

KVA

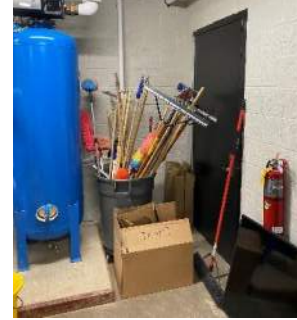




- There is a Solar Photovoltaic System located on the roof of this building and its service disconnect is located on the exterior wall of the enclosed courtyard with the generator and utility transformer.

#### Recommendation:

- Maintain equipment per manufactures requirements.
- Replace surge suppression devices. It is our understanding that the Surge Suppression Devices have been recalled by the manufacturer and that the Owner is working with Farfield Electrical contractor and Schneider/Square D to replace them.
- Review ways to address new Arc Energy Reduction code requirement.
- Relocate maintenance items and boxes in front of the second main electrical room exit door.



#### Emergency Power

- An exterior pad mounted 200 KW, 208/120v, 3 Ph, 4 W, Natural Gas generator is used for life safety loads, optional stand by equipment loads and the fire pump in this building.
- There are two separate automatic transfer switches and panelboards used for life safety and optional standby equipment. They are located together in their own dedicated room away from the normal distribution equipment.
- The fire pump has its own transfer switch/controller and is located with the fire pump.
- There are separate life safety and optional standby equipment branch circuit panelboards located at multiple locations in the building.
- Generator and Automatic Transfer Switches are manufactured by Kohler and all equipment appears to be in good condition.
- Emergency generator and associated equipment was installed in 2018-2019 when the building renovations and additions were being completed.
- A wall mounted generator remote annunciator is in the receptionist office area.



#### Recommendation:

- Maintain Generator per manufactures requirements.



#### Lighting

- Site lighting consists of LED type luminaires.

- 2'x 2' recessed LED luminaires with prismatic lens are used in corridor areas.
- 2'x 2' recessed LED luminaires with opal diffuser are used in classrooms.
- The Library is using pendant mounted LED luminaires with white diffuser, recessed and pendant mounted LED downlights.
- The Multi-purpose room has pendant mounted LED industrial luminaires with wire guards. Ellipsoidal performance luminaires in protective cages are installed in front of the platform area.
- LED strip luminaires with diffusers are used in the mechanical/electrical, storage rooms and stage areas.
- Luminaires are controlled by Energy Management Devices.
- All LED luminaires and energy management devices were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.

Recommendation:

- None



### Power

- Wiring devices and receptacles were installed during the 2018- 2019 renovation and building addition project. They are in good condition.
- The wiring is in good condition.

Recommendation:

- None.

### Data/Communication/Technology

- Data cable is Category 6 and in good condition.
- WiFi coverage is provided in classrooms and learning areas throughout the building.
- A VoIP phone is used.
- A Rauland Telecenter IP intercom system with call stations are in use in this building.
- Analog IP Clocks manufactured by Sapling are used throughout the building in classrooms, corridors, office areas, Multi-Purpose, Library and other learning areas.
- A small nurse call system is in use in the nurse suite area.
- New systems were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.



Recommendation:

- Add speaker and clock in storage room 129 being used as office.

### Audio/Visual

- Wall mounted projectors with white boards are used in every classroom.
- Pendant mounted projector is used in LGI/learning stairs area.
- A rear mount projector is used with a projection screen on the stage area.
- Crestron A/V systems are used in classrooms and other learning spaces.



- All installations were completed during the 2018-2019 renovation and building addition project. They appear to be in good condition.

Recommendation:

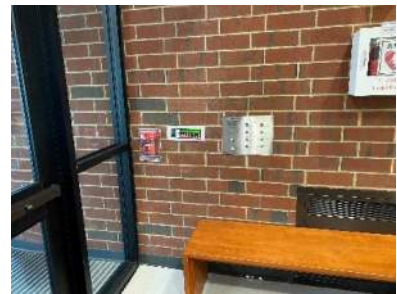
- None

### Fire Alarm

- The Fire alarm system is manufactured by Simplex and a 4100ES panel is installed. It is serviced by JCI technicians.
- Protective covers are used on pull stations.
- The Remote annunciator is in the corridor by the main vestibule entrance.
- Area of rescue assistance stations are used in this building with the annunciator located in corridor by main vestibule entrance.
- Systems were installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.
- The Exterior Key lock box is located at the main building entrance.

Recommendation:

- Add notification device in storage room 129 being used as office.



### Security

- Card readers are in use at selected exterior doors.
- An Audio/Visual entrance system is being used at the main entrance of this building.
- Keypads are used at selected doors for third party deliveries.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are installed in the receptionist areas.
- All systems installed during the 2018-2019 renovation and building addition project. They appear to be in good condition.
- A Radio/Cellular signal boosting system appears to have been installed in this building.

Recommendation:

- None





<b>Address:</b>	2180 School Drive State College, PA 16803
<b>Construction Timeline:</b>	Originally constructed in 1971; renovation/addition in 1995
<b>Building Square Footage:</b>	147,060 sf
<b>Site Acreage:</b>	30 acres



### Building Summary

Park Forest Middle School is a 1-story building located in Patton Township, State College, PA. The school currently houses grades 6-8. The property is served by public water and sewer, however, is not using natural gas in the school building. The emergency generator serving the school runs off natural gas.

### Site Conditions

The site is bordered to the north by Park Forest Elementary School and shared parking lots. To the east and west are community suburbs, and to the south are playfields. The property around the school is mostly flat but does slope more significantly towards the north and there are substantial flooding issues when there is heavy rain.

### Paving & Walkways:

Vehicular access to the site is predominantly from Amblerwood Way. Parents and buses pick up and drop off from the drive loop at the front of the school. Buses currently pick up and drop off students at the school and is overlapping with parking and parent pick-up. Traffic is problematic particularly in

the afternoon with the number of parents picking up their children at different times. This also does not separate traffic patterns as recommended by PDE and is a constraint set by the existing site.

Paving and walkways are cracked and spalling in many locations. Some are original to the original construction in 1971 and is in poor condition.

Deliveries are made at two separate areas on the southwest end of the school for kitchen along with access to the mechanical and building receiving at the southeast end of the school. Staff and visitors park in the paved lot south of the school. There is a second parking lot to the north of the school for additional staff parking. There are ADA accessible parking spaces in the staff/visitor lot to the south of the school, and an accessible route from the parking spaces to the front entrance of the building.



#### Recommendations:

- Vehicular circulation should be improved to clearly separate buses and parents, however, while this is a recommendation it appears to not be able to be achieved due to the constrained site.
- Parking for staff should be consolidated to prevent being distant from the school. Again, this appears to not be achievable at the existing site location.
- Paving and walkways should be repaved or patched to remove cracks and/or fill in missing pavement. Consideration should be made to do a mill and overlay for the paving and concrete replacement with any comprehensive renovation project or if the building is maintained.

#### Play Areas & Equipment:



The site has one hard-surface play area with one main basketball court and multiple basketball backboards. The basketball backboards are rusting and in poor condition. There are benches that surround the hard-surface play area that are also in poor condition. There is a hard-surface patio area at the north end of the school which is heavily cracked and floods during heavy rain. The site also has two play/baseball fields in fair condition.



#### Recommendations:

- Replace basketball backboards and benches.
- Patch and repair paved areas.

#### Athletic Facilities:

There are two baseball fields surrounded by trees to the south of the school. The fields appear to be in fair condition.

#### Recommendations:

- None at this time. Possibly update and repair if a renovation would occur. If PFMS is relocated across Valley Vista to a new site, fields could be reorganized as expanded athletic facilities for SCASD.

#### Exterior Building Conditions

##### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer and CMU backup. Window stools are a sloped brick rowlock course and show signs of staining and efflorescence in addition to some of the mortar joints beginning to spall and deteriorate. The soldier brick course going around the top of the exterior walls is stained and darkened in several areas as well as areas above the soldier course and along finish floor. Some of the mortar joints where this is happening the worst are also beginning to



spall and deteriorate. This is a sign of moisture getting trapped behind the face brick and either the weep holes being clogged or nonexistent.

Some exterior EIFS/Exterior Portland Cement Plaster has cracking and is beginning to stain.

There is exposed exterior steel at some of the entrances and the steel is beginning to deteriorate at the base where the steel meets the ground.



Recommendations:

- Clean exterior brick veneer to remove efflorescence and staining.



- Inspect weep holes at the base of the exterior walls to make sure they are not blocked and trapping moisture within the wall cavity. If weep holes are nonexistent will have to remove brick and install through wall flashing, cavity drainage material and weep holes and/or cavity vents.
- Cap all brick rowlock windowsills with metal.
- Repair exposed steel at base and re-paint.
- Repair and clean EIFS/Exterior Portland Cement Plaster.

### Roofing:

The roofs that are lighter in color on the plan below were roofs replaced in 2015 with a white TPO/EPDM membrane roofing system. The remainder of the flat roofs are built-up roofs that were replaced in 2009. One of the higher roofs has a mansard style roof with wood shingles and a flat roof in the middle that was one of the roofs replaced in 2015. The wood shingles appear to be in fair to poor condition. Rainwater is collected via roof drains and the internal roof water conductors run vertically to a point underground. From there they run horizontally and tie into exterior underground storm water piping.



### Recommendations:

- Replace wood shingles with asphalt shingles or reconfigure the mansard style with a vertical surface and accent the building with metal wall panels to give the building a modern and fresh look.

### Doors & Windows:

Windows are a combination of operable awning type windows with fixed glass above. The frames are clear anodized and may have been replaced with the 1995 addition and renovation project and are in fair condition. Entrances for the most part are clear anodized aluminum storefront. Doors are the wide style but do not have the intermediate horizontal stile where the panic hardware is usually mounted on. Some of the storefront framing and entrance doors appear to have been painted perhaps to extend the life of the storefront. Those doors and frames appear to be rusting and chipping and are in poor condition.



### Recommendations:

- Replace all windows and entrance framing and doors with any potential renovation project.

### Interior Building Conditions

#### Structure:

The building is a 1-story masonry load bearing structure. The tech workshop and woodshop have exposed steel trusses. Overall, the building structure is in fair condition.

### Recommendations:

- None at this time.



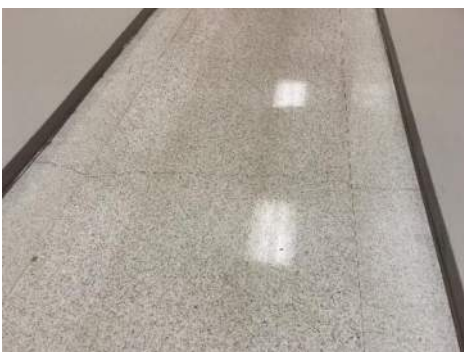
## Finishes:

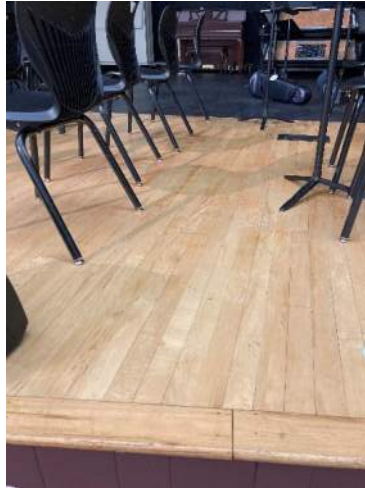
VCT and terrazzo exist throughout most of the school. The terrazzo is located in the corridors, while the VCT is located in the classrooms and also in some of the corridors, where it was part of a floor replacement project. There is significant cracking in some areas of the terrazzo as well as some terrazzo patching that has already occurred.

Carpet is in the main office, library, and auditorium. The carpet in the auditorium has stains and is showing signs of age.

Interior walls are exposed brick, painted gypsum wallboard, paneled wall systems, or painted CMU. Acoustical ceilings throughout the building are in good condition.

There is a solid wood floor on the stage in the auditorium and appears to be in good to fair condition.





#### Recommendations:

- Replace carpet in the auditorium.
- Repair and/or recondition the terrazzo floors throughout.
- Refinish wood floor on auditorium stage with any renovation project.

#### Doors:

Interior doors are painted wood or painted hollow metal in painted hollow metal frames. Some interior doors have wire glass in the door or in the adjacent sidelight.





Recommendations:

- Replace wire mesh in glazing with glazing that is code compliant.

### Casework & Built-in Equipment:

Interior casework is plastic laminate and in fair condition. Not all casework underneath the sinks allows for a forward approach for accessibility.



Recommendations:

- Casework should include sinks that meet ADA accessibility guidelines.

### Specialty Equipment:

Gymnasium equipment consists of retractable, ceiling-hung basketball backstops, scoreboard, and folding partition. All are in good condition.

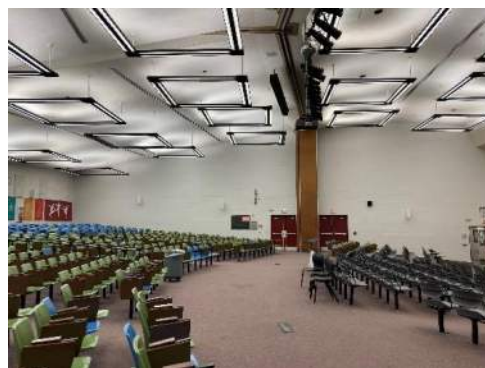
Folding partitions exist between some of the classrooms, however, the fabric is peeling off of those partitions. A folding partition exists in the auditorium to break up the room for a large group instruction, however, it appears the spot lighting for the stage keeps the partition from opening completely.

Single tier corridor lockers throughout appear to have been replaced and are in very good condition.

The stage curtain and lighting and sound equipment are original to the building but are in good condition.

Auditorium seating is original to when it was installed in the building and is at the end of its useful life.

There is minimal acoustical treatment to the walls in the auditorium and no suspended clouds from the roof deck.





#### Recommendations:

- Replace peeling fabric on folding partitions in the classrooms.
- Replace auditorium seating.
- Improve acoustics in auditorium.
- Relocate lighting to open the folding partition in the auditorium.

#### Code & Accessibility:

The building is not fully protected by an automatic fire sprinkler system.

There are stairs located in the corridors next to and at the back of the auditorium that do not have proper handrails per ADA accessibility standards. The stage has a lift to access the stage. However, the stairs to the stage do not have proper handrails per ADA accessibility standards.

Water closets in accessible toilet stalls do not have the required fixture clearances around them due to lavatories being installed directly adjacent to them. Grab bars do not meet current ADA requirements, and accessories are not installed within reach range.

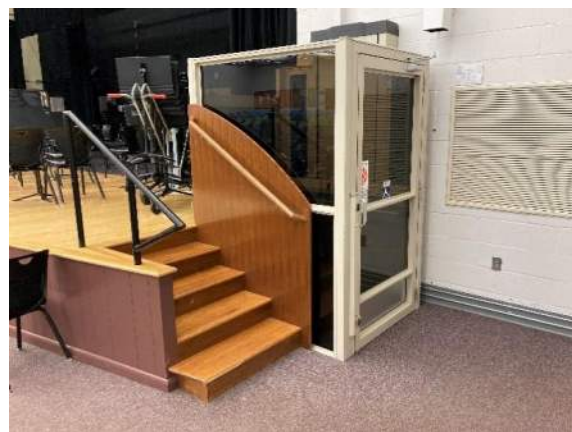
Not all drinking fountains are ADA accessible. Some are the old design that are probably original to the 1971 building.

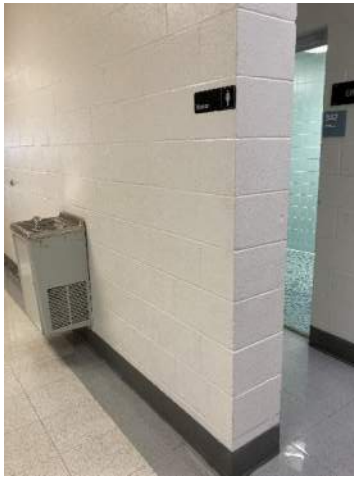
Not all door hardware throughout the building has ADA compliant lever-style handles.

Room signage does not appear to have the braille tactile writing system.

Fire extinguisher cabinets are fully and semi-recessed with clear plastic projected front and mounted at the correct height.

Most of the glass in interior doors and hollow metal frames is wire glass which is not code compliant.





#### Recommendations:

- The recommendation would be to install an automatic fire sprinkler system throughout the building with any comprehensive renovation project.
- Provide ADA compliant lever-style handles for all doors.
- Provide properly designed ADA accessible handrails.
- Provide accessible drinking fountains throughout the building.
- Provide new room signage with the braille tactile writing system with any comprehensive renovation project.
- Replace wire glass with clear code compliant glass.

#### Food Service Equipment:

Food Service equipment is in fair condition and equipment has periodically been replaced over the life of the building. However, much of the equipment and serving lines is built into the building. With the knowledge that a renovation or replacement was going to occur at some point in the past 10+ years, SCASD purposely did not replace equipment for the entire kitchen to be efficient with financial resources and allow a large construction project to address concerns and layout changes.



#### Recommendations:

- Due to SCASD Board of Directors decision to plan for a new construction option for Park Forest's Middle Schools future, the existing kitchen will eventually be replaced and or demolished in the next 5 years. At this time, it is recommended to maintain the existing kitchen through routine maintenance, but not to spend additional dollars at this time that can be focused to funding o the new construction. It should be anticipated that due to the age and built nature of the majority of existing equipment, that no equipment would be repurposed to other schools after the new school is completed.

### Heating, Ventilation & Air Conditioning (HVAC)

#### HVAC System:

- The HVAC system serving the building is all electric. Most of the equipment is well beyond lifecycle and in need of total replacement.
- The existing HVAC systems were developed under 1970 codes and do not comply with current codes or standards. This includes not meeting current ventilation and energy standards.
- Rooftop packaged multizone units and split system DX cooling units with electric heat coils are used to serve most areas of the school. The units are no longer manufactured or supported by the original manufacturer. While required maintenance and repairs have resulted in some upgraded components, most of the units are original and in need of replacement.
- The units utilize hot and cold decks to provide air to the classroom spaces. Some areas also include electric reheat coils in the classrooms for added temperature control. This approach does not comply with the current energy codes.
- The gym HVAC units appear to have been replaced more recently and are in good condition.
- There are significant control issues throughout the school due to the type of system applied.
- The HVAC units utilize R-22 refrigerant. R-22 refrigerant was phased out of production in 2020 due to its ozone depleting characteristics. Any new equipment should utilize current refrigerants.





- The ductwork from the RTU's to the classroom is all original. This ductwork system would not likely be able to be reused in a future renovation. If reuse were to be considered, it will need to be inspected, cleaned, and reinsulated.
- Some of the newer classrooms are served by unit ventilators on the exterior walls. These units have electric heating coils and split system condensing units on the roof. They appear to be in good condition.
- Note that classroom unit ventilators have many shortcomings including high noise levels, excessive room drafts, temperature variations, and inconsistent ventilation. They are no longer an industry recommended approach to providing HVAC in a learning environment.
- Exhaust fans throughout are original but appear to be in fair to poor condition. Some are no longer operating properly. Most do not comply with current air volume standards.
- The dust collection system was installed in 2008 and is in good condition.



#### Recommendations:

- Complete HVAC system replacement.
- Provide systems that meet current codes and accepted design standards.

#### Automatic Temperature Control:

- The building controls are ALC.
- While the control system has been partially upgraded, it will need to be totally upgraded with any HVAC system replacement.

#### Recommendations:

- Complete control system replacement in conjunction with the HVAC system.

### Plumbing

#### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- Based on age, we highly recommend that the underground sanitary piping be scoped and internally inspected before reuse were to occur.
- The kitchen utilizes an exterior grease trap. While operational, the trap does not comply with current standards and should be replaced.

#### Recommendations:

- Replace existing grease trap with a code compliant trap.
- Scope and internally inspect sanitary piping systems.

#### Domestic Water System:

- The school is served off a public water service. The service size is adequate for the school's needs. There were not any observed or noted issues.

- The piping system was reported to be in good condition. Based on age, we recommend that further inspection be carried out to inspect the internal condition prior to reuse. We also recommend that the piping points be tested for lead solder.
- Plumbing valves throughout are gate type and original. It was noted that most valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.

#### Recommendations:

- Inspect the internal condition of the domestic water piping.
- Replace strategic plumbing valves for improved maintenance serviceability.

#### Domestic Water Heating System:

- Domestic hot water is developed from a large horizontal storage tank with electric coils. The tank is dated 1970 and is original to the building construction. The electric coils have been replaced over the years as they fail. The tank is well beyond its expected lifecycle.
- The hot water recirculation pumps are not original and have been replaced over the years.
- The recirculation system does not meet current standards.
- It was noted that there are other electric water heaters in the building to provide specific needs or to boost the temperature. All the units are electric.
- Insulation on the domestic water piping does not meet current energy codes.



#### Recommendations:

- Replace/upgrade the entire domestic water heating and recirculation systems.



#### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be in good condition.
- Water closets and urinals utilize manual flush valves.
- Lavatories utilize manual faucets.
- Faucets are mainly aged and in need of replacement.
- Toilet rooms and fixtures do not generally comply with current ADA standards.
- Water coolers and drinking fountains do not appear to be ADA compliant. Some are aged and may not meet current lead free standards.





#### Recommendations:

- Replace faucets.
- Install hands free fittings on lavatories.
- Upgrade system to be ADA compliant.
- Replace older water coolers.

#### Sprinkler System:

- The building is not protected by a fire sprinkler system.

#### Recommendations:

- Provide full coverage in entire school to meet current codes and standards.

### Electrical

#### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire, and fed from an exterior utility pad mounted transformer. A 4000-amp QMB switchboard is installed, it has two 2000-amp main bolt-loc switches and fusible distribution disconnects. The bolt-loc main switches can be unreliable and the switchboard is obsolete. The switchboard does not meet current code requirements and is over 50 years old. The switchboard is in poor condition.
- Dry-type transformers are used to step down voltage 208/120-volt.
- 480/277-volt and 208/120-volt branch circuit panelboards provide power throughout the building. The panelboard types are obsolete.
- There are a few branch circuit panelboards that were manufactured in 1994 that were part of a building addition that are in poor to fair condition.
- Electrical distribution equipment was manufactured by Square D and Cutler Hammer/Westinghouse.



#### Recommendations:

- Most of the existing equipment is over 50 years old. All the electrical distribution equipment and all associated distribution wiring should be replaced.



## Emergency Power

- A 208/120-volt, 3-phase, 30KW natural gas generator is installed. It is manufactured by Onan and appears to be original to the building. It is in poor condition.
- A replacement Cummins automatic transfer switch and area protection panel appear to have been installed in 2017 and are in good condition. The location of the automatic transfer switch does not meet the requirements of the codes.
- Self-contained exit signs with battery back-up are being used throughout the building and most are in poor condition.
- Designated recessed downlight luminaires are connected to the emergency system and are used for emergency lighting.



### Recommendations:

- Install new generator, life-safety and optional equipment automatic transfer switches, distribution equipment, and new raceways and wiring.

## Lighting

- Corridors and most classrooms use 2'x 4' recessed luminaires with deep cell parabolic lenses and T-8 fluorescent lamps. Also, some Classrooms are using 2'x 4' recessed trougher luminaires with Holophane 8224 lenses and T-8 fluorescent lamps.
- Kitchen luminaires are surface-mounted fluorescent luminaires and have wrap-around boxed prismatic lens and T-8 fluorescent lamps.
- Mechanical and storage room Luminaires are using T-12 and T-8 fluorescent lamps.
- The multi-purpose room appears to be using high-bay type fluorescent luminaires.
- Existing luminaires use 120-volt and 277-volt for power.
- The Auditorium has pendant stem-mounted luminaires assembled in a square shape using fluorescent lamps.
- Existing lighting controls do not meet current energy code requirements for automatic switching, daylight harvesting, and dimming.
- Exterior lighting consists of luminaires using HID, PL fluorescent lamps and LED lamps.



Recommendations:

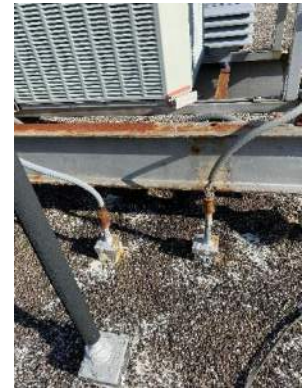
- Luminaires are outdated and in poor to fair condition and should be replaced with new LED luminaires.
- Install new lighting controls that will meet the energy code requirements.
- Replace exterior luminaires that have not already been replaced with new luminaires with LED lamps.

## Power

- The wiring devices are in poor to fair good condition.
- Receptacles do not meet current codes.
- Auditorium floor receptacles are flush mounted without protective covers and do not meet the code requirements.
- Equipment wiring on roof is in poor condition. Broken raceways and open conductors have been observed.

### Recommendations:

- Repair worn out raceways/wiring used for equipment connections on roof.
- Wiring devices and branch circuit wiring should be replaced for any building renovation.
- Receptacles should be replaced with Tamper-Resistant type for any building renovations.
- Current code requires receptacles to have ground-fault circuit interruption protection at additional locations. Devices should be changed for personnel protection.



## Data/Communication/Technology

- A Rauland Telecenter intercom system appears to be original to the last building renovation and is obsolete. IP intercom systems are being used as replacements.
- Category 5E cables/jacks and Wi-Fi wireless access devices are used throughout the building and appear in poor to fair condition.
- A VoIP phone system appears to be in use in the building.
- Simplex and other manufacturers analog clocks are used in the building. Clocks are failing and being replaced with stand-alone battery clocks.

### Recommendations:

- Replace/Upgrade clock and intercom systems with any planned building renovation.
- This building uses older data systems than other school buildings in the school district. Upgrade data and telecommunication systems as needed to meet the School Districts requirements with any planned building renovation.

## Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.
- Audio systems with older technologies are used in the building.

### Recommendations:

- Upgrade the building with new A/V Technology equipment and wiring systems.





## Fire Alarm

- A Simplex 4100 panel and an addressable controller panel are in use in this building.
- Notification devices and their installations do not meet current code requirements.
- Classrooms do not have the code required notification devices in them.
- An Edwards fire alarm system panel and pull stations appear to still be in use from the original building construction in 1971.

### Recommendations:

- Completely replace existing fire alarm system and devices with a new fire alarm system.
- A new system will be required to be voice-based speaker notification devices to meet NFPA requirements.



## Security

- Access card readers are in use at selected exterior doors.
- An audio-visual intercom system is being used at the main entrance.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are installed in receptionist areas.

### Recommendations:

- Systems appear to be in good condition. Upgrade systems as needed to meet the School District requirements.
- Maintain systems per manufactures requirements.



## 6 | Mount Nittany Middle School

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<b>Address:</b>	656 Brandywine Drive State College, PA 16801
<b>Construction Timeline:</b>	Originally constructed in 1995
<b>Building Square Footage:</b>	153,329 sf
<b>Site Acreage:</b>	60.6 acres



### Building Summary

Mount Nittany Middle School is a 2-story building located in College Township, State College, PA. The school currently houses grades 6-8. The property is served by public water, sewer and natural gas.

### Site Conditions

The site is bordered on one side by new townhouse construction and a residential neighborhood on the other. The other two sides are bordered by the Mount Nittany campus including a large open play area at the center of the campus and a parking and drop off areas serving this school and Mount Nittany Elementary School.

### Paving & Walkways:

Vehicular access to the site is from Brandywine Drive. Parents and buses pick up and drop off from the drive loop at the front of the school. These pick up and drop off areas are shared with the elementary school on the opposite side of the parking area. The pick up and drop off times of the two schools are different which helps with traffic, however traffic can be problematic, particularly in the afternoon with the number of parents picking up their children varies with after school activities. Paving and concrete walkways are in good condition at the drop off area with some cracking occurring down the middle of some of the paved access drives and also the concrete walks in the rear of the building, that were installed when the building was constructed, are showing signs of aging.

Deliveries are made at the opposite side of the school in the rear of the building. Staff and visitors park in the paved parking area out front that is also shared with the elementary school and also in the parking area in the rear of the school. There are ADA accessible parking spaces in the parking area in the front, and an accessible route from the parking spaces to the front entrance of the building.



#### Recommendations:

- Use pourable sealer on crack and monitor to see if crack increases in size. Provide seal coat over rear parking area.
- Replace concrete in rear of building with any renovation project.

#### Play Areas & Equipment:

Since this is a middle school there are no “play areas” and play equipment needed.



Recommendations:

- None at this time.

### Athletic Facilities:

There is the open playfield at the center of the campus and additional fields around the perimeter of the campus that are well maintained and in good condition.

Recommendations:

- None at this time.

### Exterior Building Conditions

#### Exterior Walls:

The building exterior consists of insulated masonry cavity walls with brick veneer and precast or cast stone accent bands with CMU backup. Windowsills are also precast or cast stone.

Masonry screen walls with precast or cast stone caps and accent bands in the rear of the building are badly stained with efflorescence and dirt. Masonry seat walls with precast or cast stone caps outside the Gymnasium entrance are also badly stained with efflorescence and dirt.

The paint on the exterior hollow metal doors and frames is faded.

Exterior masonry on the building was repaired and cleaned in 2023.





#### Recommendations:

- Clean exterior brick veneer to remove efflorescence and staining on masonry screen and seat walls that were not part of the building cleaning in 2023.
- Prep and paint exterior hollow metal doors and frames.

#### Roofing:

The roof on the building was replaced in 2016 with a white fully adhered TPO roofing system and is in good condition. Rainwater is collected via roof drains. Roofing and rainwater conveyance appear to be in good condition.



Recommendations:

- None at this time.

### Doors & Windows:

Windows are a combination operable, casement-style and fixed white anodized aluminum window units. Aluminum windows are original to when the building was built and showing signs of age.

Entrances are clear anodized aluminum storefront with custom wide stile insulated aluminum doors. Aluminum doors and entrances are original to when the building was built and showing some signs of age.



Recommendations:

- Replace aluminum windows, doors and entrances with any new renovation project as they are at the end of their life expectancy. However, if maintained life can be extended 10+ years and not to be added to the current capital budget.

### Interior Building Conditions

#### Structure:

The building is a 2-story masonry load bearing and steel structure. There does not appear to be any visible cracks on interior masonry walls. Overall, the building structure is in good condition.

Recommendations:

- None at this time.

#### Finishes:

VCT and terrazzo tiles (Fritz Tile) exist throughout most of the school. The terrazzo tiles are located in the corridors and stair towers (including stair treads), while the VCT is located in the classrooms. Over the years the terrazzo tiles were replaced with thinset terrazzo at each of the water coolers as water was getting under and loosening the tiles.

Carpet is found in the main office, miscellaneous offices throughout the school, Media Center, and Auditorium. Carpet throughout is showing signs of age.

Flooring in toilet rooms is porcelain tile, and quarry tile in kitchen areas. Both are in good condition.



The gymnasium has a competition wood floor which is well maintained and in good condition. Locker rooms are poured resinous flooring and are also in good condition.

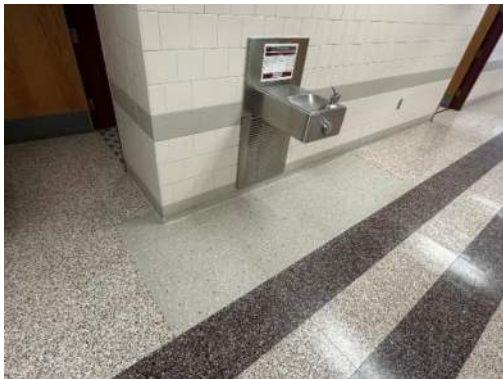
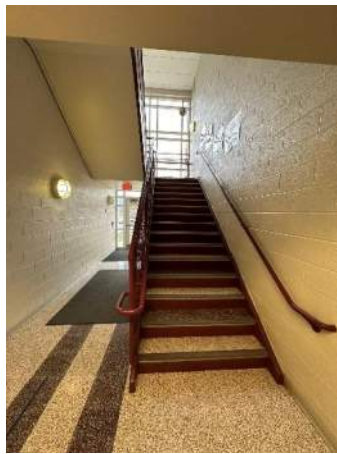
Mechanical areas have painted concrete.

Interior walls are porcelain tile in the corridors and are in good condition.

Stair towers, toilet rooms and maintenance areas are painted CMU and are also in good condition.

There is also miscellaneous painted GWB in the administration area, stair towers under stairs and where upper GWB walls and bulkheads occur throughout.

Acoustical ceilings throughout for the most part are in good condition with the exception of miscellaneous stains on tiles.





#### Recommendations:

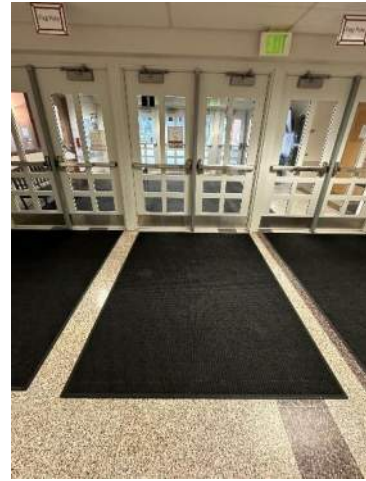
- Replace carpet throughout with any renovation project.
- SCASD staff indicated they are also investigating replacement of the corridor floors in the future, investigate further with interiors team and SCASD.

#### Doors:

Interior doors are solid core wood or painted hollow metal in painted hollow metal frames. Most of the interior doors and side lites have glazing with wire mesh which does not meet the current code.

Where interior aluminum entrance doors in aluminum frames occur at interior vestibules, doors and frames are in fair condition.





#### Recommendations:

- Replace wire mesh in glazing with clear glazing that is code compliant.
- Replace aluminum entrance doors and frames with any new renovation project as the existing doors and frames are at the end of their life expectancy.

#### Casework & Built-in Equipment:

Interior casework is plastic laminate and in good condition.



#### Recommendations:

- The casework is at the end of its life expectancy and should be replaced with any renovation project.

#### Specialty Equipment:

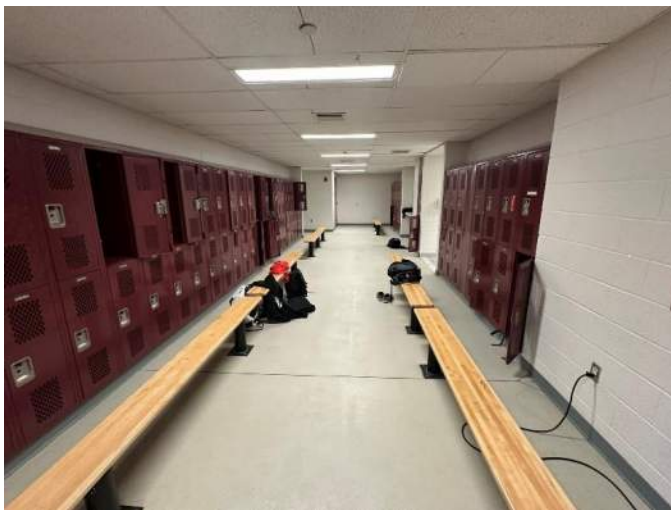
Gymnasium equipment consists of retractable, ceiling-hung basketball backstops, scoreboard, wood bleachers and folding partitions. All are in fair to good condition. The folding partitions are electrically operated and are in working order. It appears that the staff does periodically have issues with the backstops going up and down. The wood bleachers are not ADA compliant.

Athletic welded steel lockers in the locker rooms as well as the wood benches appear to be in good condition, however provisions for an ADA compliant locker and bench were not provided.

The metal corridor lockers appear to be in good condition, however that are no lockers labeled to be ADA compliant lockers.



The auditorium seating appears to be original to when the building was constructed and is in fair condition. Some of the seats do not fold up when they are not being used.  
The rigging and lighting on the stage are original to when the building was constructed.



Recommendations:

- Replace the athletic equipment and folding partitions with any renovation project as it has exceeded its life expectancy.
- Renovate a portion of the existing corridor lockers to be ADA compliant lockers.

- Replace the auditorium seating and stage rigging and lighting with any renovation project as they have exceeded their life expectancy.
- Renovate a portion of the existing welded steel lockers in the locker rooms to be ADA compliant lockers and add a separate 24"x48" ADA compliant bench.

#### Code & Accessibility:

The guard rails and handrails in the stair towers were code compliant at the time the building was built. The current code does not allow more than 4" between railings or between railing and stair stringer. The handrails for the stairs accessing the stage appear to be ADA compliant.

The stage in the auditorium is accessible having to leave the auditorium going down the corridor and entering into the stage area from the corridor, since they are on the same floor level. This is not an accessible means of accessing the stage anymore as they want people in a wheelchair to be able to access the stage within the auditorium without having to leave the auditorium to do so.

Toilet rooms are accessible except that the 18" high vertical grab bar above the horizontal grab bar is not provided.

Room signage appears to be ADA compliant.

Door hardware throughout the building has ADA compliant lever-style handles.

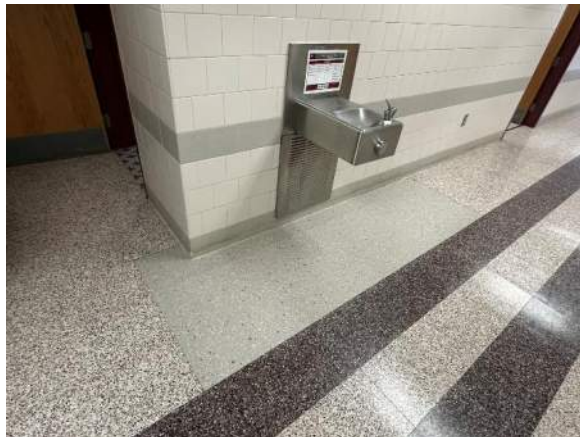
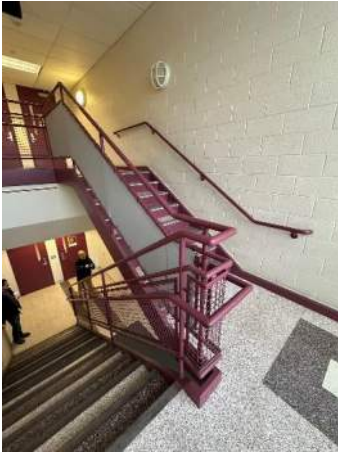
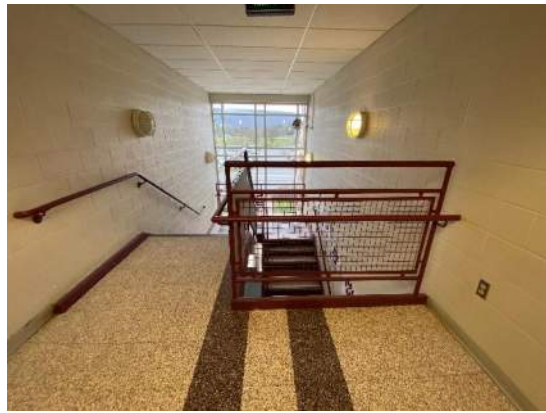
Most of the electric water coolers are original to when the school was constructed and are not compliant to the visually impaired. Some of the water coolers have been replaced with one's that include the bottle fillers and are ADA compliant.

Fire extinguisher cabinets are recessed with clear plastic bubbled front and mounted at the correct height.

There is an elevator that serves both floors and appears to be ADA compliant.







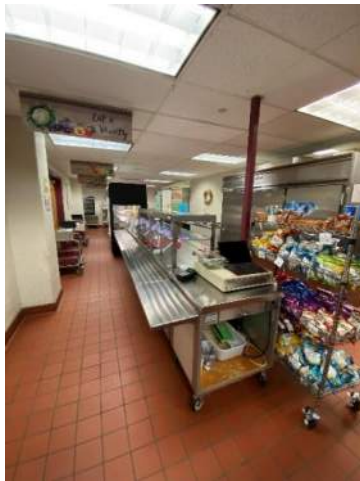


Recommendations:

- Update grab bars in toilet rooms and add additional intermediate horizontal handrail or mesh to reduce the open space between handrails to be 4" maximum.
- Replace all original electric water coolers with ADA compliant water coolers or possibly find an apron that can be added to the bottom of the water cooler to meet the requirements of the visually impaired.
- Install a chair lift in the Auditorium to access the stage from the seating area.

Food Service Equipment:

Most of the food service equipment is original to the building's construction and is in good to fair condition. SCASD is currently planning to replace the hoods and HVAC equipment serving the kitchen in 2024. Additional work includes replacement of the serving lines and the diswash equipment was replaced in 2019.



Recommendations:

- While some of the equipment is approaching 30 years the current projects in process at this time along with routine capital budgeting will maintain the equipment into the foreseeable future.

## Heating, Ventilation & Air Conditioning (HVAC)

### HVAC System:

- The building is served by a four-pipe hot and chilled water heating and cooling system. Most of the HVAC systems and components appear to date back to a 1994/1995 system upgrade.
- Three Weil McLain Series 88 cast iron boilers with gas fired burners develop heating hot water for the school. The boilers appear to be in fair to good condition. One boiler was disassembled and under repair due to a cracked section. Note that the Series 1 version of these boilers has been discontinued and no longer serviced. Obtaining sections and related parts can be difficult. We suggest that the district plan for replacement in the next few years.
- The Power Flame burners appear to be in good condition, but it is likely that they will soon need to be replaced.
- Duplex hot water pumps circulate hot water throughout the school. These pumps utilize VFD's and appear to be in good condition. It was not clear how the VFD's are currently operating. We recommend that control strategies be implemented to allow for variable system flow to reduce pumping power and energy use.
- Blend pumps for the boilers appear to be in good condition.
- Two Carrier packaged air cooled chillers develop chilled water for cooling. The chillers were manufactured in 2019 and utilize R-134a refrigerant. They were found to be operating well and in good condition.
- The piping for the chiller is buried between the remote chiller enclosure and the pumps in the mechanic room. The age and condition of this piping system was unknown. We highly recommend that this be further evaluated as accessing the pipe for an unplanned repair will be difficult, expensive, and time intensive.
- The chilled water system operates off a primary/secondary pumping arrangement.
- Primary chilled water pumps circulate water through the chiller to maintain the minimum flow requirements.
- Secondary pumps circulate water to the building HVAC unit coils based on the building load and related flow demands.
- All chilled water pump sets are duplex systems with VFD's. The pumps were found to be in good condition.
- The chilled water loop includes a propylene glycol solution and feeder. The feeder is in good condition.
- The internal condition of the HVAC piping system is unknown, but we would expect that it is in good condition based on the report that the district maintains a good water treatment program.



- The chilled water pipe insulation is deteriorating in many areas. This is a sign of age and high humidity. We recommend that all wet or damaged pipe insulation be replaced.
- HVAC valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- Classrooms are served by vertical 4-pipe unit ventilators on the exterior walls. The units are vintage 1994 and do not have integral reheat for humidity control.
- Note that classroom unit ventilators have many shortcomings including high noise levels, excessive room drafts, temperature variations, and inconsistent ventilation. They are no longer an industry recommended approach to providing HVAC in a learning environment.
- Larger spaces are served by constant volume Trane 4-pipe indoor and outdoor air handlers that were installed in 1994. The indoor units appear to be in good to fair condition and the outdoor units are in fair to poor condition. All 1994 units are beyond normal lifecycle. The units could be refurbished to extend their life if desired, but replacement should be considered and planned. There was one newer Carrier unit on the roof that was installed in 2019 and found to be in good condition.
- DX cooling units are installed in several areas including the office, library, and server room. The units are original and utilize R-22 refrigerant. R-22 refrigerant has been phased out of production in 2020 due to its ozone depleting characteristics. We highly recommend that the units be replaced with new units that use current refrigerants and provide improved energy efficiency.
- Exhaust fans throughout are a mix of original and replacement units. All appear to be operating and in good condition.
- The dust collection system does not meet current standards and is aged. We recommend replacement with any planned wood shop renovation.



#### Recommendations:

- Replace the boilers.
- Test and inspect the underground chilled water piping system.
- Reinsulate the chilled water piping system.
- Replace strategic HVAC valves for improved maintenance serviceability.
- Replace the HVAC equipment and provide humidity control as part of any planned renovation or system upgrade.



#### Automatic Temperature Control:

- The building is controlled by an ALC control system.
- For HVAC units that are retained, we suggest that the controls be upgraded, the actuators be replaced, and the units be recommissioned. In addition, we recommend that the 3-way valves be replaced with 2-way valves to provide the ability to save on pump power using the pump VFD's.

#### Recommendations:

- Replace 3-way valves with 2-way valves and implement variable flow.
- Replace aged actuators and controls throughout as part of any future comprehensive system upgrade.

## Plumbing

### Sanitary Sewer System:

- The school is connected to the public sewer system. There were not any reported issues with sewer flow or related piping systems.
- The kitchen utilizes in-floor grease traps. We recommend that this grease trap be replaced with an exterior type as part of any future renovation for improved maintenance and sanitation.

#### Recommendations:

- Replace existing in-floor grease trap with an exterior type as part of any future renovation.

### Domestic Water System:

- The school is served off a public water service. The 4" service size is adequate for the school's needs. There were not any observed or noted issues.
- The water service includes a code compliant backflow prevention device that appears to be operational.
- The piping system was reported to be in good condition with no known pipe issues.
- Plumbing valves throughout are original. It was noted that some of the valves no longer hold, making service and maintenance difficult. We recommend that key valves be replaced when a comprehensive upgrade occurs.
- The domestic water system includes a simplex water softening system that was recently installed. We recommend that additional softeners be provided to provide redundancy and to allow regeneration based on use. We also noticed that the system was leaking and in need of repair.



#### Recommendations:

- Replace strategic plumbing valves for improved maintenance serviceability.
- Provide redundancy for the water softening system and repair leak.

### Domestic Water Heating System:

- Domestic hot water is developed from two PVI high efficiency gas water heaters that were installed in 2022. They are in good condition and do not need any attention.
- The domestic hot water mixing valve and the recirculation pumps were also replaced in 2022 and appear to be in good condition.

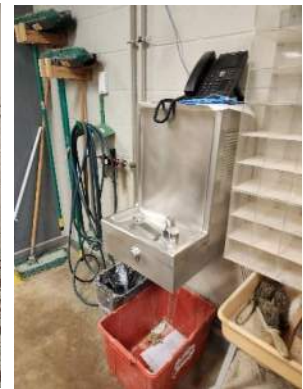


#### Recommendations:

- None.

### Plumbing Fixtures:

- Plumbing fixtures throughout appear to be aging but in good condition, but they do not appear to comply with current ADA standards.
- Water closets and urinals utilize manual flush valves.
- Wall hung lavatories are utilized with manual faucets.
- Water coolers do not appear to comply with current ADA standards.



#### Recommendations:

- Install hands free faucets on lavatories.
- Provide ADA upgrades where required.

#### Sprinkler System:

- The building is fully protected by a fire sprinkler system. The system is served off an 8" public water service.
- The system includes three wet pipe risers.

#### Recommendations:

- None.





## Electrical

### Electrical Distribution System:

- The existing electrical service is 480/277-volt, 3-phase, 4-wire, and fed from an exterior utility pad mounted transformer. A 3000-amp QMB service entrance switchboard is installed. It has a 3000-amp bolt-loc main switch and distribution sections using fusible disconnects and an I-line panelboard is mounted beside this switchboard. The switchboard would not meet current code requirements.
- Dry-type transformers are used to step down voltage to 208/120-volt.
- A 300KVA step down transformer with an 800-amp 208/120-volt QMB fusible distribution panelboard is used for electrical distribution.
- 480/277-volt and 208/120-volt branch circuit panelboards provide power throughout the building. The NEHB type branch circuit 480-volt panels are obsolete and circuit breakers are no longer available. The 208-volt NQOD type panels are also obsolete however circuit breakers are still available for them.
- The electrical distribution equipment was manufactured by Schneider/Square D and installed during the 1995 construction project. It appears to be in fair condition.
- Feeder wiring and raceways appear to be in fair to good condition.



#### Recommendation:

- The bolt-loc switches can be unreliable and not operate correctly. This switch should be serviced by the manufacture's technicians to service and confirm that the operation will be reliable.
- Replace/Upgrade electrical distribution equipment to meet current code requirements with any building wide renovations.
- Inspect electrical equipment connections including thermal imaging, visual inspection and wire connection torque values confirmed with manufactures requirements.
- Follow the manufacturer's recommended maintenance requirements.
- Have a study completed to identify arc flash and PPE requirements for electrical equipment.

### Emergency Power

- A natural gas 125KW, 480/277-volt, 3-phase, 4-wire, generator is installed inside the building and appears to be an original installation from 1995.
- A single 225A automatic transfer switch is used for both emergency life safety and optional standby loads.
- All equipment was manufactured by Cummins/Onan.
- Installations do not meet NFPA code requirements. Life safety loads must be separated from optional equipment loads.
- The equipment appears to be in fair condition.



#### Recommendation:

- Separate Life Safety loads from optional equipment loads.
- Have oil tested to determine engine wear.
- Maintain generator system per manufactures requirements.

- Confirm heating system loads are connected to this system.

### Lighting

- Classrooms use 2' x 4' recessed fluorescent luminaires with T-8 fluorescent lamps and Holophane open deep cell parabolic lens.
- Corridors are using 2' x 4' recessed fluorescent luminaires with T-8 fluorescent lamps and open deep cell parabolic lens.
- Restrooms have recessed linear wall slot luminaires with T-8 fluorescent lamps and open parabolic lens. Also, recessed high hats are used in these areas.
- The Media Center has 1' x 4' recessed fluorescent luminaires with T-8 fluorescent lamps and open parabolic lens. Also, there are pendent mounted indirect luminaires using fluorescent lamps.
- The Gym appears to have a high bay luminaire using fluorescent lamps and integral occupancy sensors.
- High wall mounted luminaires are used in corridor/lobby for indirect lighting that appear to be using HID and LED replacement lamps.
- Most luminaire installations appear to be original to the building construction.
- Exterior lighting consists of wall mounted and parking lot luminaires using HID lamps and retrofit LED lamps.
- Exit signs appear to have been installed in the last renovation and are failing. Some exit signs have been replaced and are self-contained with battery back-up.
- Wall switches are used for controlling luminaires.
- Luminaires are in fair condition.



### Recommendation:

- Fluorescent lamps and ballast will become more scarce and costly to replace. Interior lighting should be replaced throughout with LED type luminaires and energy code compliant controls with any major building renovation.
- Exterior luminaires should be upgraded to LED type.

### Power

- Wiring devices appear to be original to the 1995 construction. Devices are in fair condition.
- The wiring is in fair to good condition.

#### Recommendation:

- Current code requires ground-fault protection at additional locations. Devices should be changed where required for personnel protection.
- Receptacles should be replaced with Tamper-Resistant type for any building renovations or maintenance.



### Data/Communication/Technology

- Cat 6 cables/jacks are used in the building.
- Wi-Fi wireless access devices are installed in classrooms and other learning spaces and appear to be in good condition.
- A new Rauland Telecenter IP intercom system and a Sapling master clock system have been recently installed in the head end equipment rack and are in new condition. Existing intercom speakers and clocks have not been replaced and are still in use with this system.
- Combined wall mounted speaker/analog clock assemblies are used in the classrooms and other learning areas. The clocks are manufactured by Lathem. They appear to be original to the 1994/1995 construction of the building. Clocks are starting to fail and will need to be replaced.
- A VoIP phone system appears to be in use in the building.



#### Recommendation:

- Upgrade data telecommunications system as needed to meet the School Districts requirements with any planned building renovation.
- Upgrade/replace the existing intercom speakers, clocks, and wiring with new equipment with any planned building renovation.

### Audio/Visual

- Ceiling-mounted projectors with an audio speaker and pull-down projection screens are used in the classrooms. Teachers have input stations at their desks. Equipment is dated with older connection types.
- Audio systems with older technologies are used in the building.

#### Recommendation:

- Upgrade the building with new A/V technology equipment and wiring systems.





### Fire Alarm

- A new Siemens Cerberus fire alarm system and associated equipment with new notification speaker/strobe devices and wiring has recently been installed and is in a new condition.
- A rescue assistance system is installed. It appears to be in good condition.

Recommendation:

- None



### Security

- Card access readers are in use at selected exterior doors.
- An audio-visual intercom system is being used at the main entrance.
- CCTV cameras are in use at the interior and exterior locations of the building.
- Panic buttons are used in receptionist areas.

Recommendation:

- Systems appear to be in good condition. Upgrade systems as needed to meet the School District requirements.
- Maintain systems per manufactures requirements.

