Building Conditions Investigations Report

DRAFT

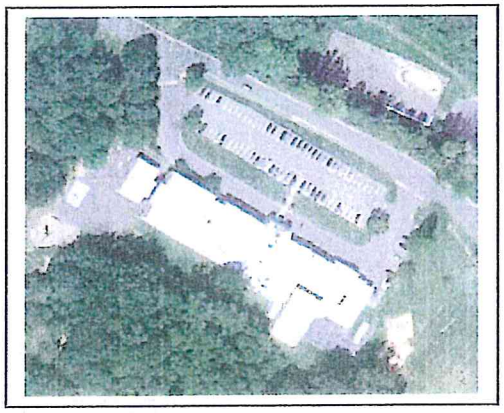
Anna H. Rockwell Elementary School:
400 Whittlesey Drive
Bethel, CT

About 440 Students currently enrolled.
Occupancy 600 (owner's Report)
27 Classrooms
Grade Levels K, 1, 2, and 3.
51,003 Square Feet total gross area. (Per AIA standard calculation methods, to outside of outside walls, except not including lower level mechanical spaces.)

49,727 Square Feet total gross area. (Per BSF standards, to inside surface of outside walls.)
Constructed 1980
No significant additions or major renovations since constructed.

Utilities / Services:

- Oil: 10,000 gallon underground tank installed in 2005.
- No Gas
- 1600 amp electrical service. Transformer located on east end of building.
- Propane: exterior above-ground tanks serve cooking equipment in Kitchen.
- Town-supplied well water. 3" service.
- Public sewer system.



Site:

Drives and Parking:

- Bus loading and drop-off drive in front (North side of building).
- Steep access drive, busses use upper level drive closer to the building; parents use lower level drive. Students must climb a long and steep set of stairs after being dropped off by private cars, to get to the front entrance.
- Visitor and staff parking is located along the sides of the private vehicle drive at the lower level, in front of building; approx. 85 spaces. 4 designated accessible parking spaces are located at the upper level bus drive, directly adjacent to the main doors. These spaces are nose-in parking against the side of the building, with no wheel-stops.
- Overall parking capacity is adequate for normal daily operations, but inadequate for special events. There is additional parking in a lot to the northeast of the building, across the main road. At special events, people tend to park illegally along the entranceway drives, rather than park in this more remote lot.
- All pavement markings including parking space striping, are faded and in poor condition.
- There is no continuous paved fire-lane around the entire building, for fire-fighting apparatus. Fences obstruct fire-fighting access. Much of the rear of the building has

steeply graded grass slopes. There is a fire drive which approaches the South (rear) of the building from the public road, providing emergency personnel access.

- Drives in general are in fair to poor condition. At some specific locations, the paving has failed and the sub-grade is exposed and subject to erosion.
- Curbing is mostly asphalt, in poor condition. The curbing along the front of the building is concrete, in poor condition.
- Accessible parking is not in compliance with regulatory requirements. The quantity of spaces, at 4, is adequate. However, there is no 'van accessible' designated parking, and signage is not in compliance with regulations. The short bituminous paved 'ramp' from the accessible parking spaces, has uneven pavement and does not meet code requirements.

Walks, ramps and steps:

- Walks. Bituminous pavement typical, uneven, fair condition generally with some specific areas in poor condition.
- Ramps. There are no ramps, other than curb-cuts, which are non-compliant.
- Steps. Existing steps from the lower level parking area are concrete, with metal tread nosings. The steps are very steep and are only in fair overall condition.
- Handrails. Do not meet current code requirements for accessibility. Rails are discontinuous at landings, and do not have level extensions at the top or bottom.
- Accessible Route. There is no fully-compliant accessible route from parking to the building, or from the building to play fields.

Plantings etc.:

- Shrubs. Minimal, in fair condition.
- Grass lawn areas. Minimal, in good condition. Steep slopes must be difficult for mowing operations.

Drainage:

- Landscaped areas: Very steeply sloped. At the rear of the building, drainage is towards the building, and the ground is perpetually wet in the area of the catch basin. Water drains towards the wall of the gymnasium. At the front of the building, the slope is away from the building.
- Roadways. No issues with roadway drainage.
- Grading for drainage: is good on the front side (north side) of the building, but poor on the rear/south side of the building because water flows towards the building.

Recreation

- Play fields are located adjacent to the building on the east side.
- Paved play areas, and play structures, are located at each end of the building. The play structure at the east end of the building has a wood chip ground cover; otherwise it appears to meet accessibility requirements with transfer stations.

Interior Rooms and Finishes:

- *Corridor Walls:* Painted CMU (concrete block) on both levels; fair condition.
- *Classroom Walls:* Painted CMU, generally in good condition
- *Doors:* Natural finish wood in good condition for operation, but in poor to very poor condition for appearance. Door hardware and latch-side clearance issues are significant deficiencies; see section on accessibility.
- *Toilet rooms:* 1" ceramic mosaic tile, in good condition. Painted CMU on 3 walls in good condition. 4" square ceramic wall tile on one wall, in good condition. Painted metal toilet stall partitions at the main student toilet rooms are in fair to poor condition. Painted metal toilet stall partitions at the lobby toilet rooms are in good condition.

- *Ceilings:* Generally 2' x 4' suspended acoustical tile ceilings, in poor condition. Ceiling panels are sagging, soiled, and damaged in some cases.
- *Floors:* Terrazzo floors in corridors on both levels, and on stairs. These are durable surfaces in generally good condition, with some minor cracking at some specific locations Classrooms on both floors have 12" square vinyl-composition tile, (VCT) in good condition.
- *Specialty floors:*
  - The Cafetorium floor is 12" square VCT in fair condition.
  - The Media Center floor is carpet, in very poor condition, and needs to be replaced (almost 'failed' condition).
  - The Main Office floor is carpet, in good condition.
  - The Gymnasium floor is constructed of short, narrow strips of maple wood, has been recently restored, and is in generally good condition. There is some remaining evidence of prior moisture damage (darkening) at the two southerly corners of the room, but it is not clear if moisture is continuing to enter the building here. (This is the end of the gymnasium which is set into the hill, and so these corners are about 5' below exterior grade.

Casework / Equipment / Furnishings:

- Classroom casework is generally solid wood with original clear finish, in good functional condition, but poor visual condition. Classroom casework generally has plastic laminate counters, and non-accessible sinks and drinking fountains set into the counters.
- Teaching boards are original black chalkboards, with over-laid white marker boards in most cases. Some chalkboards have no overlay.
- Media Center shelving is clear finish wood, aged appearance. Functionality is questionable for young children, and units along the walls are 8' tall, and the upper shelves are not used.
- Media Center furnishings are oak and plastic laminate, in good condition.
- Gym equipment is in fair condition
- Nurses equipment and furnishings are in fair condition; also see accessibility information.
- Kitchen equipment appears to be in generally good functional condition, with some older pieces. The Owner reports that the walk-in cooler units 'break down constantly', and that the local health department has requested the installation of a grease separator. This work has been delayed, because modifications to other equipment are needed in order to accommodate the revised layout.
  The main serving line is new.
  The gas range has constant pilot lights that consume gas and throw off heat from 6 burners (as compared to electronic ignition).
  The main exhaust hood does not have a fire suppression system.
  The kitchen is operated by an outside vendor; "Sodesco"
- There are no student lockers in the corridors.

Elevators / Lifts:

- The building does have an elevator, centrally located in the classroom wing. The Town currently has a cost proposal for reconstruction of the elevator at a new location in the building, which is necessary to make the cab larger and to make the operating controls accessible.

- The stage in the cafetorium has no ramp or lift, and is not accessible to persons with mobility impairments.

General Life-Safety / Code Compliance Issues:

- No known open citations issued by local code enforcement officials.
- Fire alarm system is in good condition.
- Exit doors are generally in good condition and freely operating.
- Guardrails at stairs do not meet current code requirement. These guardrails have large unprotected areas, and could be considered dangerous for small children. At the west end of the building, a clear plastic panel has been installed as added protection.
- See engineer's report paragraphs for additional information, including more information on alarms, exit signs, and emergency lighting.
- Owner reports traffic flow and parking issues at pick-up and drop-off times of the day as a safety concern that requires close monitoring. Most parents are familiar with the requirement to use the lower level drive; occasionally a grandparent or other person unfamiliar with the requirement, will drive up the bus lane to the upper level.
- Lack of continuous sidewalks for walkers to approach the school is noted as a safety concern. Sidewalks do exist, but are interrupted at locations. Pedestrians must leave the sidewalk and either walk on the grass, or pass behind parked automobiles.
- Uneven paving on walkways should be replaced.
- Site lighting appears to be adequate, with lights mounted on the building, as well as on tall poles in the parking area.
- See paragraph on accessibility, below.

Accessibility:

- No known citations or formal complaints filed.
- Building does not meet currently acceptable standards for accessibility, in general.

Accessible Route (site):

- Accessible entrance is intended at the main front door, but does not meet current access regulatory requirements due to the lack of a clear level paved area beyond the swing of the doors.
- The main entrance also has poor quality and irregular paving at the ramp from the designated accessible parking spaces, and no curb-cut facing the main drop-off area.
- Most exits from the building have one or more steps, making the exits inaccessible to persons with mobility impairment. 50% of exits are required to be accessible under current regulations.
- There is no accessible pathway from the school to the play structures.

Building Interior:

- Classroom (and other spaces) entryway doors do not meet accessibility requirements; insufficient clearance on the latch side of the door is a typical condition. 18" clear floor space is required.
- Door hardware is generally non-compliant; most doors have 'knob' hardware (estimated at about 85% of the existing doors) which cannot be operated with a closed fist and in a single motion. 'Lever' style hardware is required.
- Door widths are too narrow in many instances, including doors to toilet rooms in the lobby, and the men's and women's rooms near the main office. The width of most classroom doors is acceptable, but the latch-side clearance is not (as noted above).

- Steps to stage; no ramp or lift.
- Drinking fountains in general do not meet current access requirement. The pair of drinking fountains at the gymnasium are capable of being used by same persons in wheelchairs, but these are older style units that do not meet all of the technical requirements of current access regulations. Also, the low drinking fountain at the cafeteria is accessible, but a bi-level higher unit should also be provided, for persons with bending difficulties. It appears that there are no bi-level fully-compliant accessible drinking fountains in the building.
- There are no fully compliant accessible toilet facilities in the building. Some modifications have been made in the main level boys and girls rooms, but the configuration does not meet current code requirements. The general level of accessibility for toilet facilities throughout the building is very poor.
- The nurse's toilet rooms are also non-accessible, and there is no showering or laundry facility in that area, and no accessible private exam/changing area.

Hazardous Materials:

A review of existing records, and 'walk-through' review of the existing building, was conducted by Fuss & O'Neill EnvrioScience, LLC. See attached report. Findings are summarized here:

Asbestos:

Mold:.

Radon:.

PCB's in Caulking and Glazing Compounds: Due to ages of the earlier portions of the building indicate that this material could be present. Testing and positive results triggers automatic (expensive) mitigation. No testing was done as part of this current study, but the issue is noted and should be resolved early in the planning process of any future possible renovation project that might disturb these areas of the building.

Exterior:

- *Walls:* Primarily split-face concrete masonry in good condition, above brick masonry. Brick masonry also at front entrance and loading dock area. All masonry is in generally very good condition. With aluminum vertical curtainwall window sections.
- *Doors:* All generally in fair to good condition. All exterior doors observed are painted metal (steel) doors in steel frames. Operation verified to be OK, but doors are aging, in some cases require extra effort to open due to minor sticking.
- *Windows:* Single pane aluminum-framed curtainwall window system. Operable portions of windows are small. Window size in general is small, providing limited daylighting to interior of building. Windows are a source of heat loss, and should be replaced. It appears that, at the time of original construction, it may have been necessary to modify the installed windows to remove one small 'hopper' style ventilation window in each classroom, and replace it with a slightly large swing-style operable window, for suitable emergency egress use. See photo.
- The gymnasium is solid masonry construction, with no windows or other daylighting.
- *Roof:* The existing roof on the building is in poor condition. Installation date of the roof is thought to be between 1997 and 2000, so that the roof is now about 11 to 14 years old. The pitch of the roofs appears to be less than 1/8" per foot in some areas. This does not meet current CT requirements of minimum 1/2" per foot pitch for new roofs. Observations on the roof indicated multiple attempts to patch leaks, both in the field areas and particularly along perimeter flashings. The roof appears to be a two-ply modified asphalt built-up system, with a granulated rolled roof cap sheet. Test cuts were

not made to verify the number of plies. The roofing has blistered and bubbled in some locations. Ponding exists at the two back corners of the gymnasium roof. Drains appear to be functioning adequately, but re-roofing to new BSF standards (and current codes) will force the installation of additional roof drains and associated piping inside the building. The granular surface is wearing off of the cap sheet material, leaving it vulnerable to further and more rapid deterioration due to ultraviolet degradation.

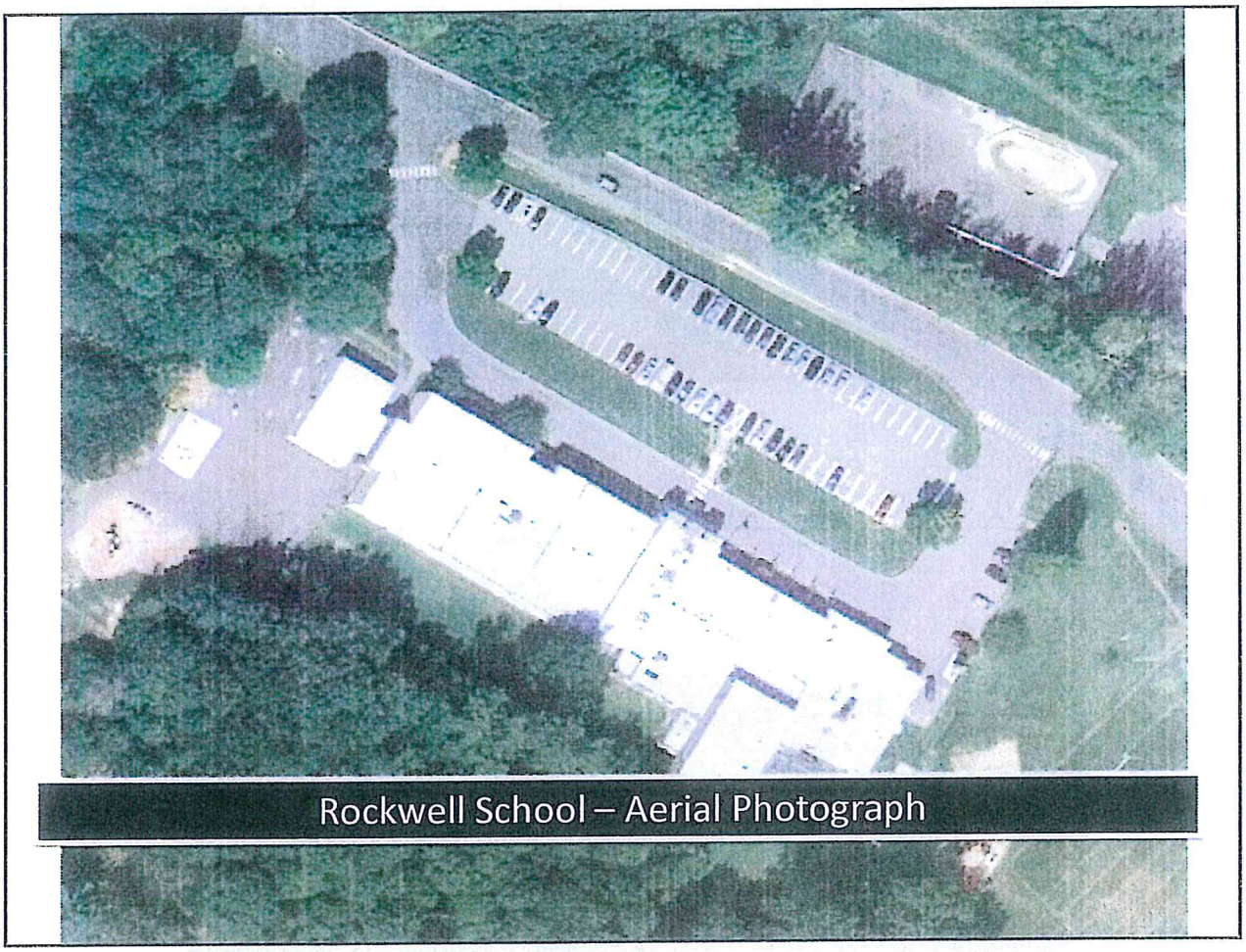
Structure:

- No observed significant structural deficiencies.
- Minor step cracking at CMU block wall of the Media Center (the east wall).
- The foundation of the building is poured concrete.
- The structural roof framing at the gymnasium, the longest span condition, is a deep ribbed structural steel deck, carried by structural steel beams at about 20' on center.

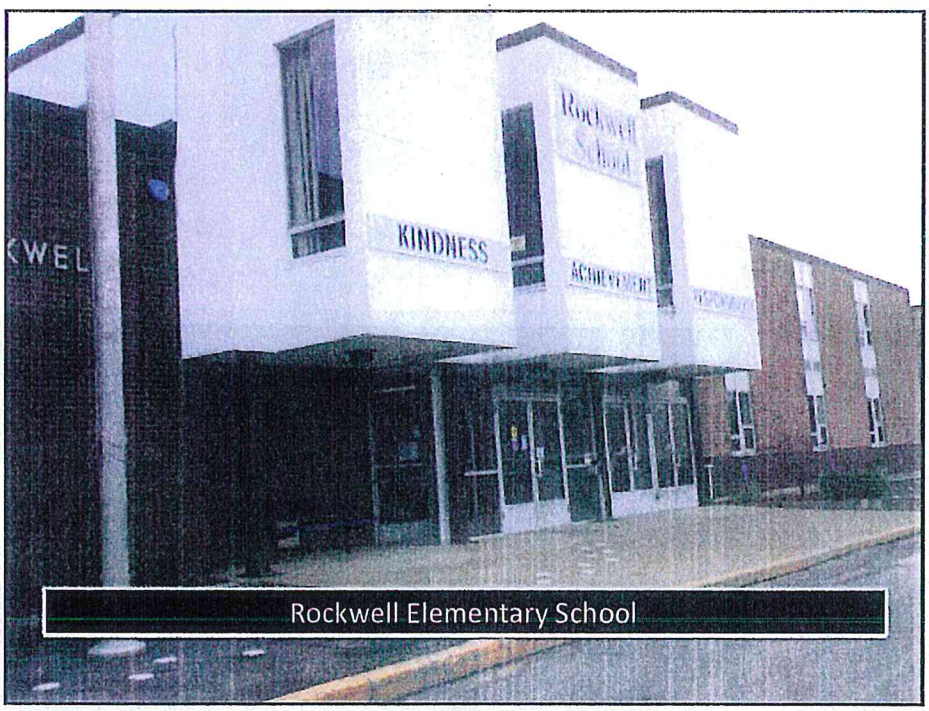
Other General Issues:

- The overall general impression of the building is not untypical for older CT schools in similar communities; a generally aging facility in fair condition, with some specific deficiencies that need correction (such as roofing and mechanical/electrical issues), and generally poor accessibility for the disabled.
- The building has utilitarian durable interior materials. The building has the advantage of very durable terrazzo floors in the main corridors. Painting is generally good. Ceilings are generally 'tired' looking in appearance, and are overdue for replacement.
- The cafetorium needs significant work to make the stage accessible, and to support small theatrical productions with appropriate rigging, lighting and sound.
- The gymnasium is undersized for today's sports programs and has no spectator seating.
- The media center is in generally poor condition, and reportedly suffers from overheating.
- General temperature control issues are a significant problem; both overheating and under-heating of spaces are reported at various times of the year. The gymnasium is reported to 'like a sauna' at some times. See HVAC issue of this report for additional information.

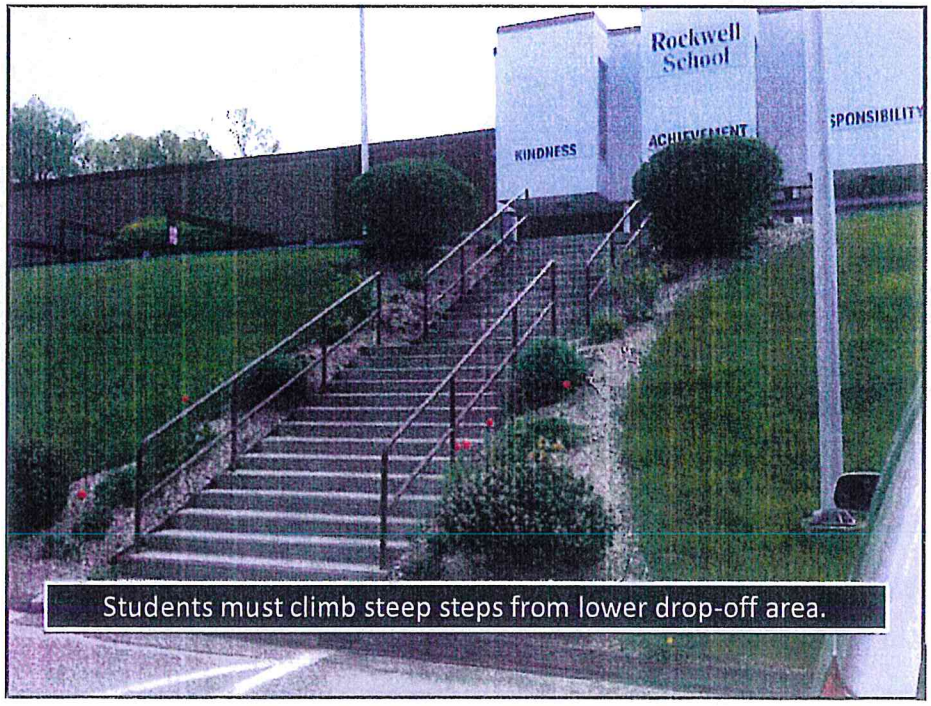
For more detailed information on Mechanical, Electrical, and Fire-Protection systems, see the attached report by CES Engineers.



Rockwell School – Aerial Photograph



Rockwell Elementary School



Students must climb steep steps from lower drop-off area.


Handrails do not comply with current code requirements; must be 'continuous' to meet code.

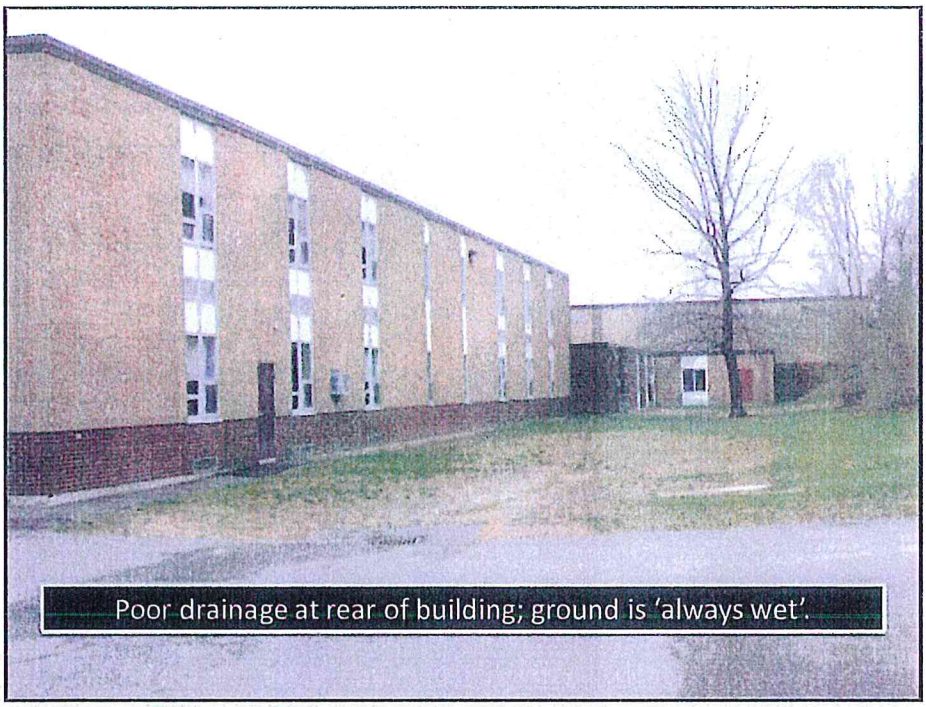

NESS
ACHIEVEMENT
RESPONSIBILITY
Main entry; no curb-cut; no level space at doors for wheelchairs

Access control should not be behind swing of opening door.

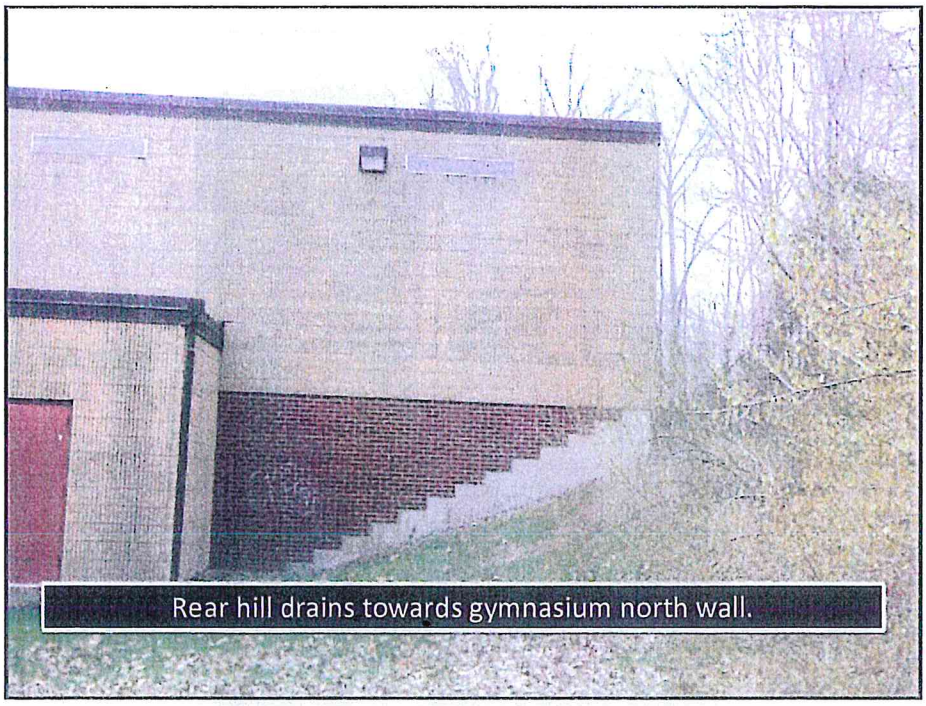
Asphalt pavement 'ramp' from accessible parking does not meet current code requirements.


Exterior materials are split-face concrete block and brick masonry; in good condition. Accessible parking signage not per code

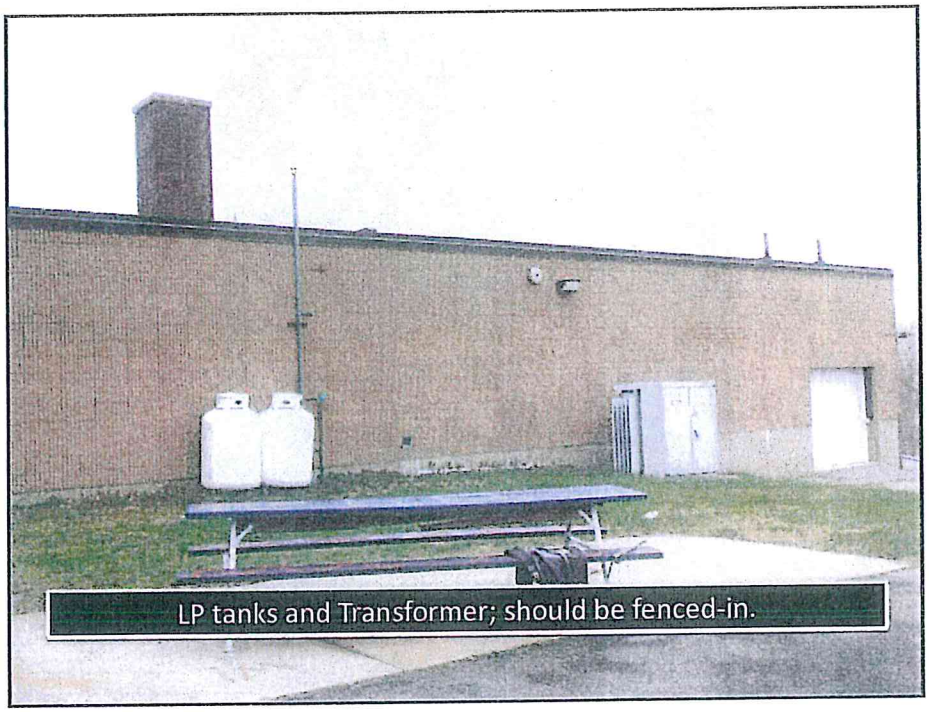

Vertical 'curtainwall' windows; single glazed with aged unit vents



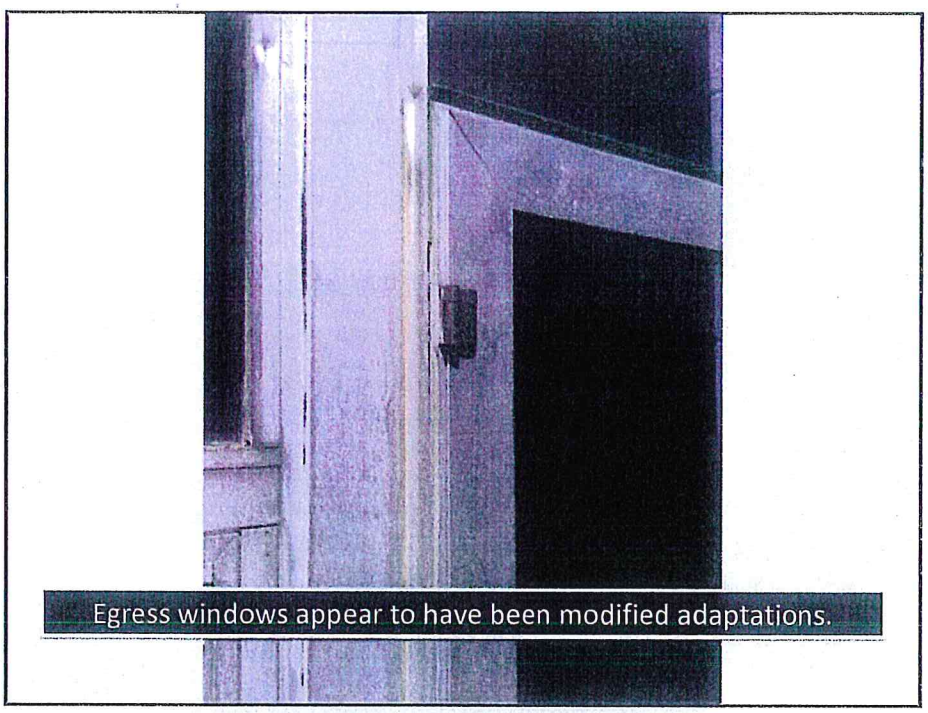
Poor drainage at rear of building; ground is 'always wet'.



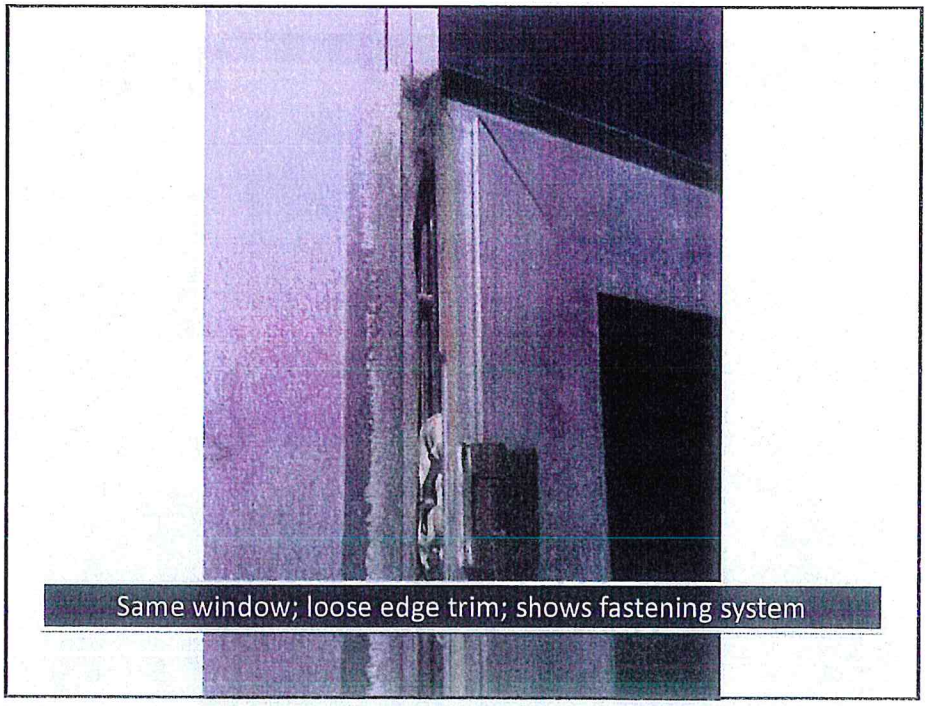
Rear hill drains towards gymnasium north wall.


LP tanks and Transformer; should be fenced-in.


Interior view of windows; small; egress window on left.



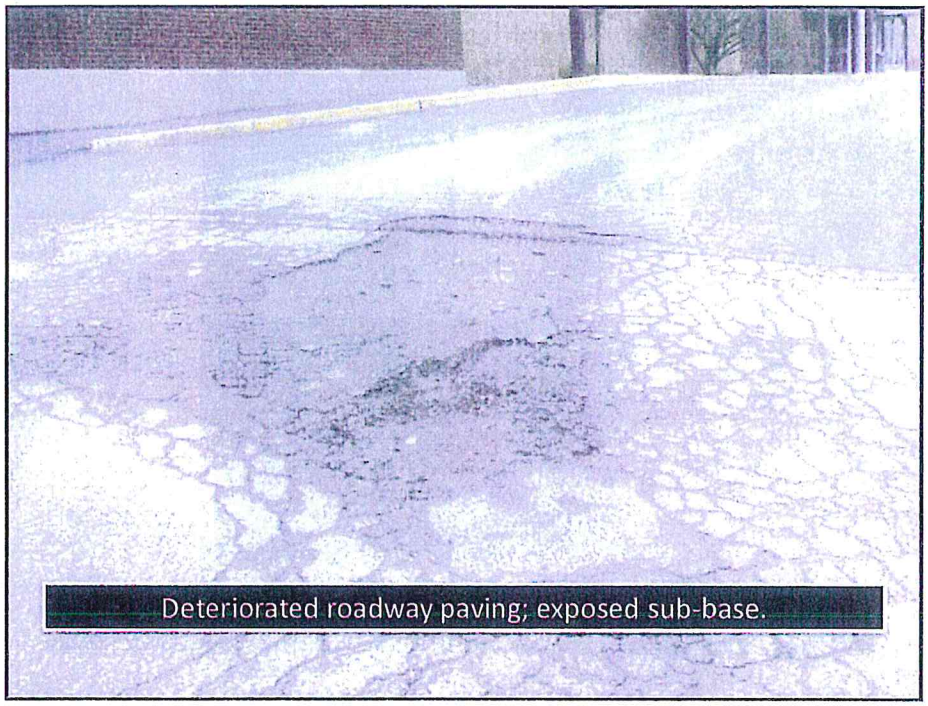
Egress windows appear to have been modified adaptations.



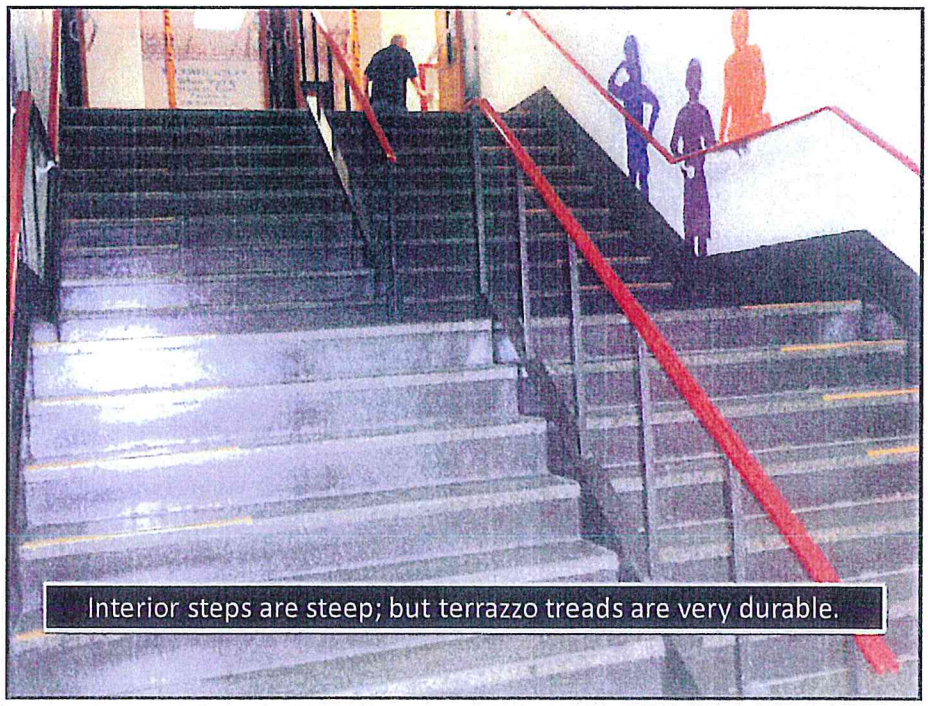
Same window; loose edge trim; shows fastening system


Single-glazed windows are source of heat loss

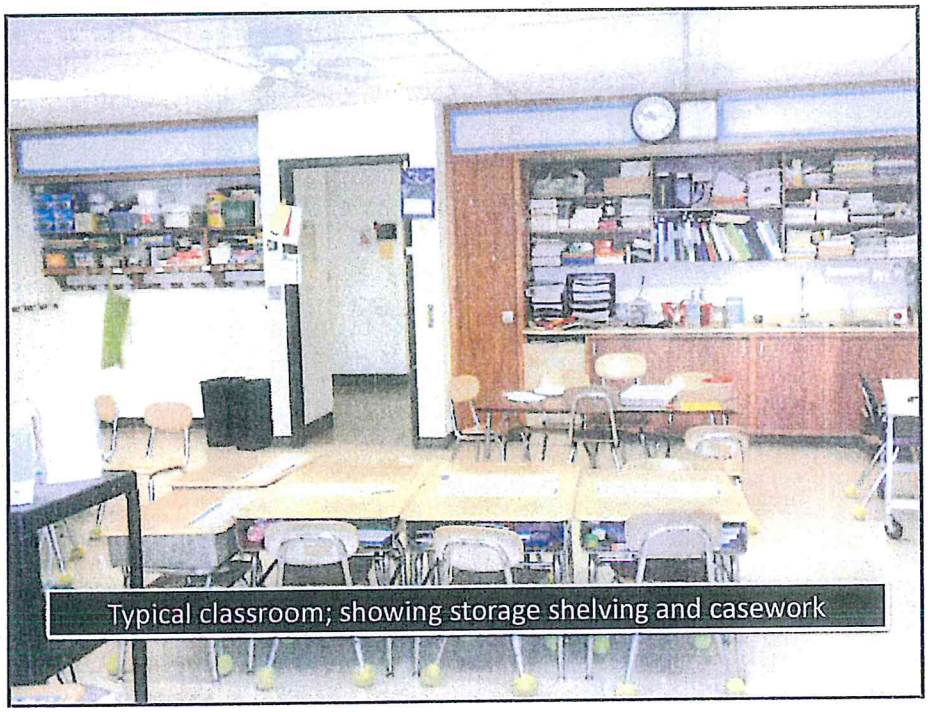

Cracked paving at drive, curb, and sidewalk; faded striping.



Deteriorated roadway paving; exposed sub-base.



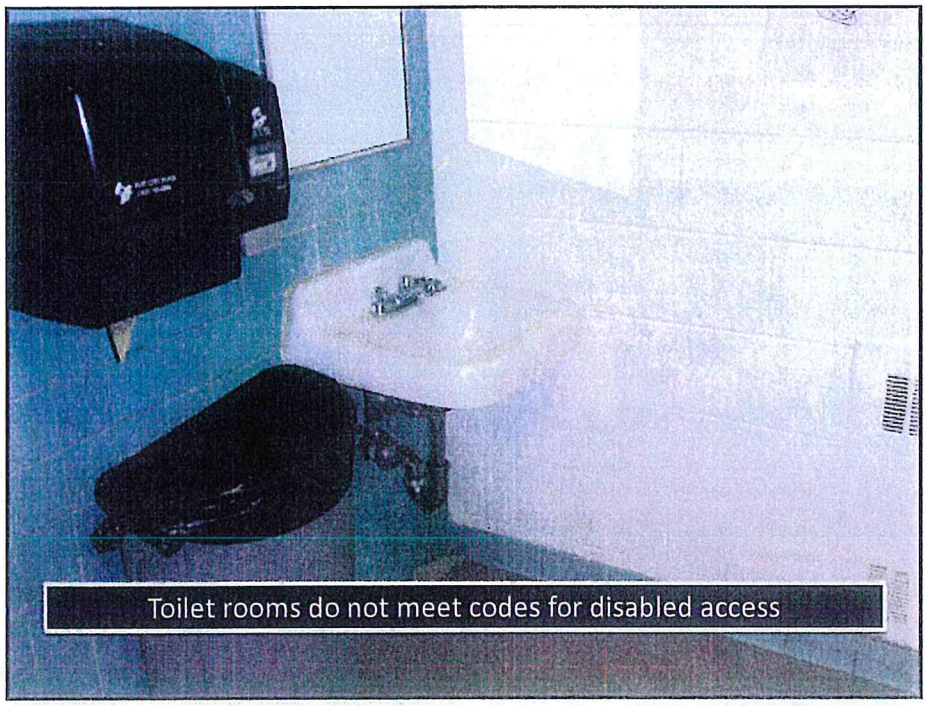
Interior steps are steep; but terrazzo treads are very durable.



Typical classroom; showing storage shelving and casework

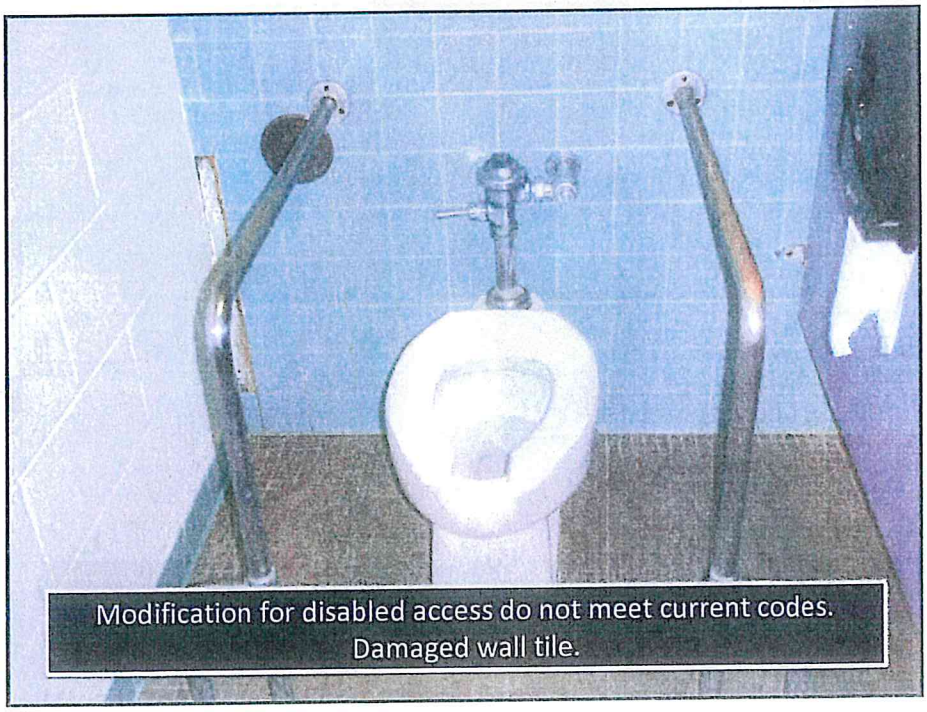
Typical Classroom; small window area; ceiling fans

Doors to toilet rooms are too narrow; do not meet code.



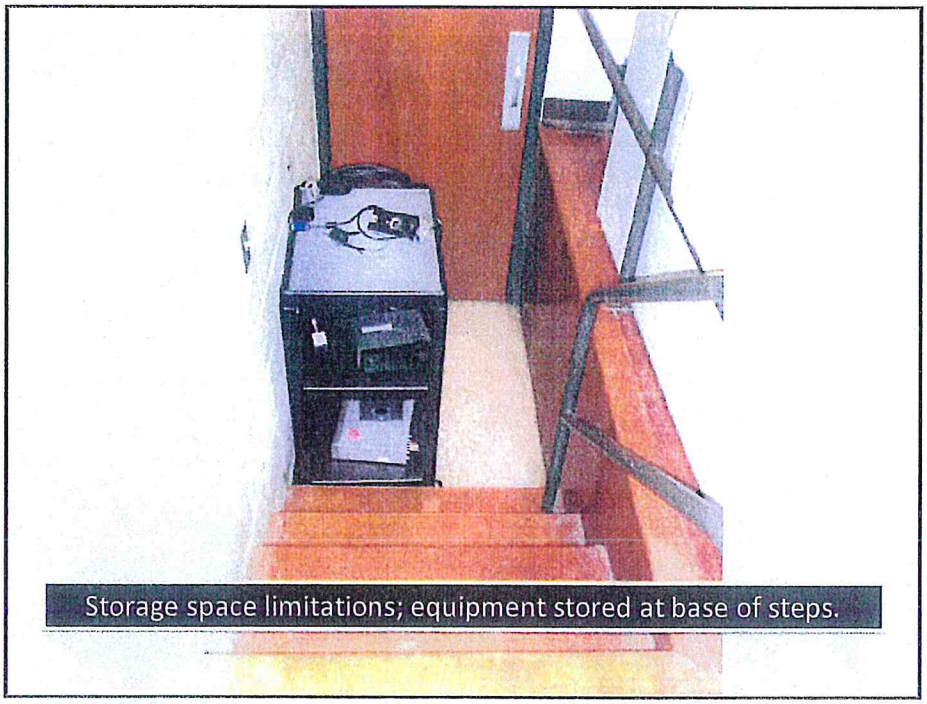
Toilet rooms do not meet codes for disabled access

Non-accessible fixtures in men's room.



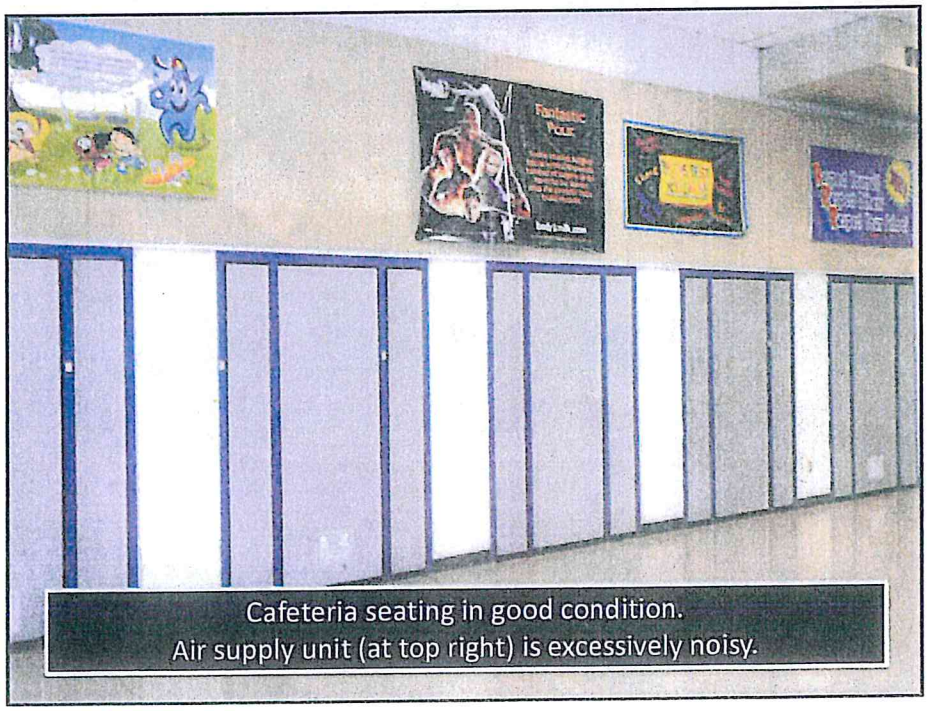
Modification for disabled access do not meet current codes.
Damaged wall tile.

Typical door which does not meet codes for 18" clear pull-side clearance on latch side of door.

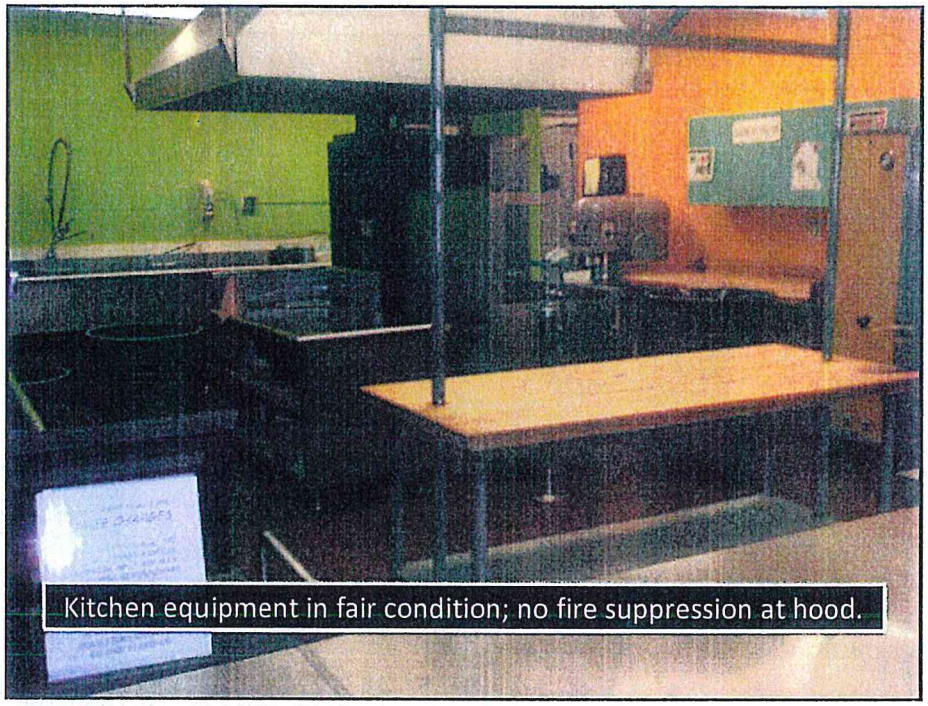


Storage space limitations; equipment stored at base of steps.

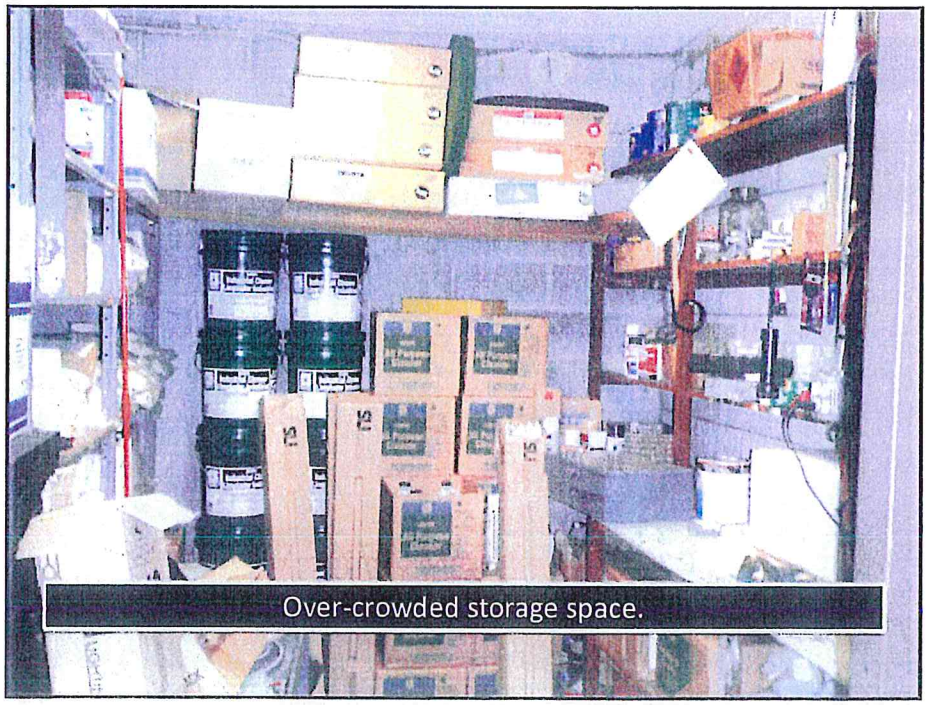
Stage is non-accessible; requires ramp or lift.



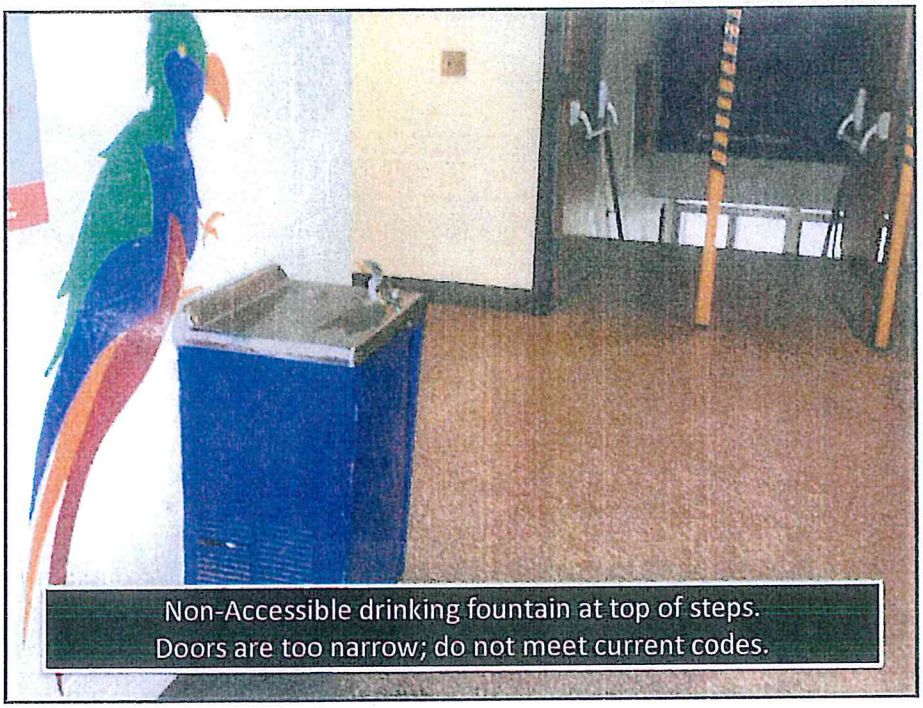
Cafeteria seating in good condition.
Air supply unit (at top right) is excessively noisy.



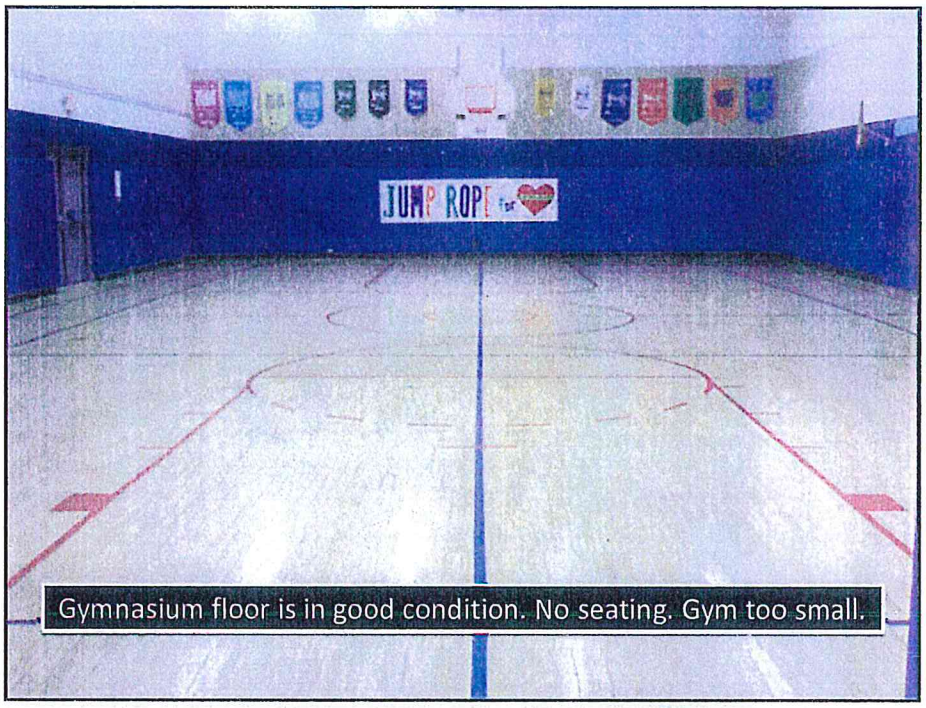
Kitchen equipment in fair condition; no fire suppression at hood.



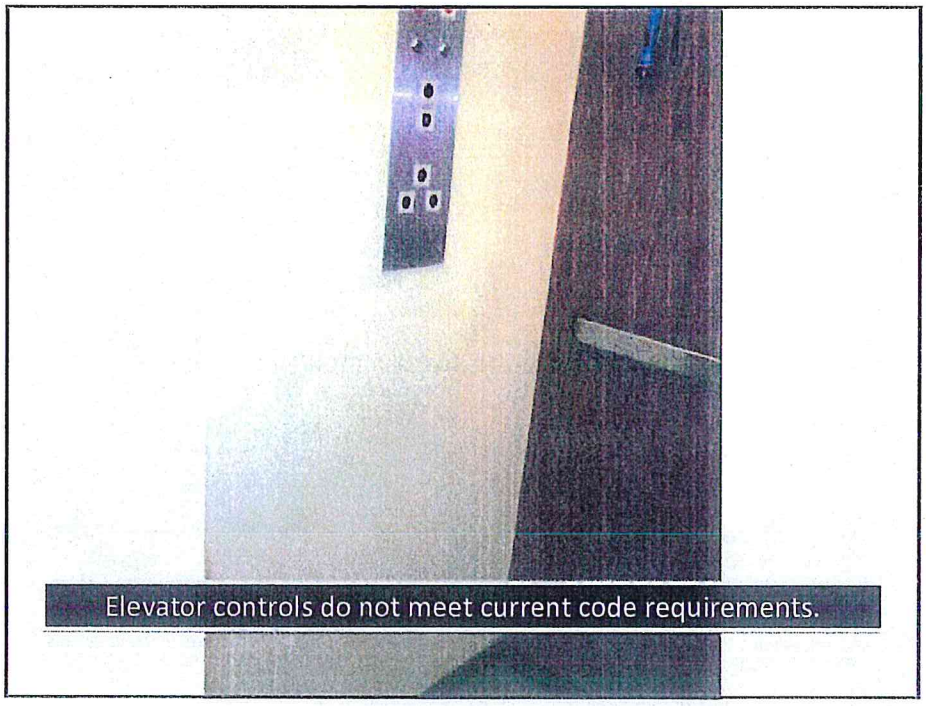
Over-crowded storage space.

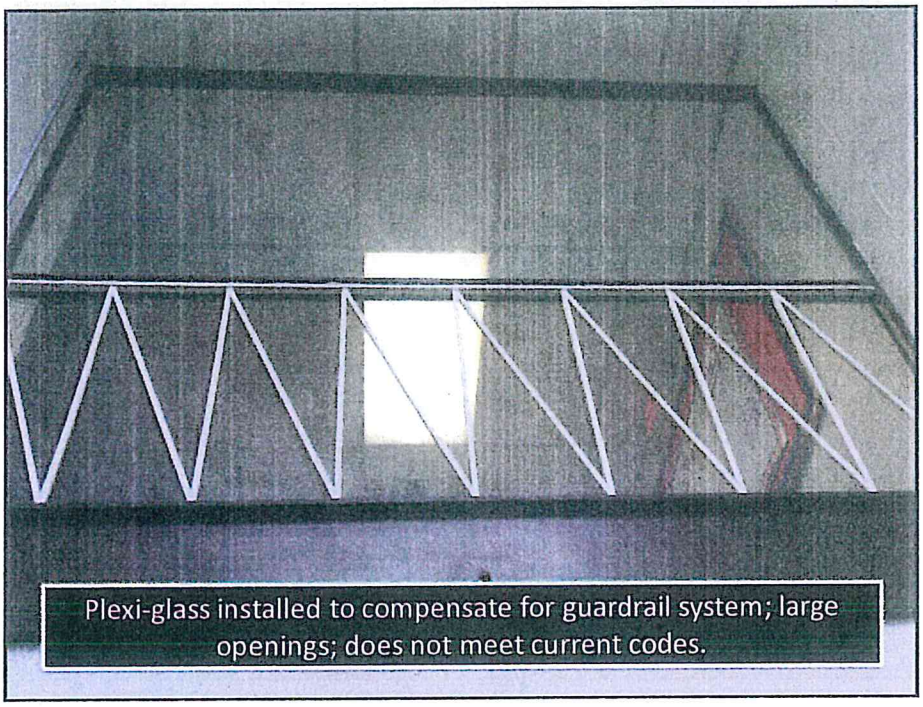

Non-Accessible drinking fountain at top of steps.
Doors are too narrow; do not meet current codes.


Drinking Fountain does not meet code for accessibility.



Gymnasium floor is in good condition. No seating. Gym too small.


Elevator controls do not meet current code requirements.



Plexi-glass installed to compensate for guardrail system; large openings; does not meet current codes.

Roof over gymnasium; poor drainage due to low slope.

Ponding of water on roof; does not flow towards drains.

Roof has numerous leaks; step cracks in masonry wall (red circles)

Roofing shows ponding, blistering, and multiple patches.

Mechanical and Electrical Systems
Existing Conditions Narrative

Anna H. Rockwell School
Bethel, Connecticut

June 27, 2011

Prepared By
Consulting Engineering Services, Inc.
811 Middle Street, Middletown, Connecticut 06457
CES Project No. 2011079.00

APPLICABLE CODES AND STANDARDS

The mechanical, electrical, plumbing, and fire protection systems will be reviewed in conformance with the requirements of the following codes and regulations and all applicable local authority requirements, including the Bureau of School Facilities.

A. 2005 Connecticut State Building Code

B. 2005 Connecticut State Fire Safety Code

C. 2003 International Building Code(IBC)

D. 2003 International Plumbing Code

E. 2003 International Energy Conservation Code

F. NFPA, All applicable code sections, Latest Version

G. ASHRAE 90.1

H. State Department of Education School Construction Program

I. State of Connecticut High Performance Construction Standards

PLUMBING NARRATIVE

PLUMBING UTILITIES

1. Domestic Water:
   a. Existing Domestic Water Service: The existing building is currently served by a 3 inch domestic water service. The domestic water service equipment includes a 2 inch water meter and isolation valves. This water service currently serves all of the Schools domestic water needs and has adequate pressure. The water distribution system is original to the building.

2. Natural Gas:
   a. Existing Natural Gas Service: There is currently no natural gas service to the building.
3. Propane Gas:

a. There are existing 100lb propane tanks that serve the stove in the kitchen. These tanks are located on the exterior of the building. Additional protection, such as fencing should be provided.

4. Sanitary:
   a. Existing Sanitary Service: The School's sanitary sewer system provides sanitary waste drainage for plumbing fixtures located throughout the School. The piping material above grade is primarily cast iron. The Plumbing fixtures drain to buried sanitary waste piping to the buildings exterior and to the municipal sewer system.
   b. The Owner reports that on many occasions, at least twice yearly, certain portions of the existing below grade sanitary piping needs to be cleaned due to poor drainage. Based on this, the existing piping below grade appears to be in poor condition and should be replaced.
5. Storm:
   a. The facility had a new roof installed approximately 10 years ago and new roof drains were installed in areas such as the gymnasium. The storm piping is primarily cast iron and drains to the municipal storm water system.
   b. The new roof drains are in good condition however, there are a number of the drains where the roofing has not been cut out to the full diameter of the drain. This should be corrected.
   c. There are no reports of problems with the storm water piping below grade.

PLUMBING FIXTURES AND SPECIALTIES

1. Existing plumbing fixtures are as follows:
   - Water closets are floor mounted; flush valve, vitreous china. These fixtures are non-water conserving type in fair condition.

- Urinals are wall hung, vitreous china, with flush valves. These are non-water conserving type and in fair condition.

- Lavatories are wall hung vitreous china. Faucets are a combination of single lever handle and two lever handle faucets. The lavatories are in fair condition. The faucets and drains are non-ADA compliant.

Drinking fountains are surface mounted stainless steel units or vitreous china, non-ADA compliant and in fair condition.

- Stainless steel sinks with kitchen type faucets are used in various locations, such as faculty work rooms, etc. These sinks are non-ADA compliant and in fair condition.

DOMESTIC HOT WATER SYSTEMS

1. Existing Domestic Hot Water System: The Schools domestic hot water is generated by two Riello Delta Elite, Model F-47 oil fired domestic water heaters. The water heaters were installed in 2007 and are in very good condition.

FIRE PROTECTION NARRATIVE

FIRE PROTECTION SERVICE

1. There is no fire protection system (sprinklers) currently at the facility.

MECHANICAL SYSTEMS:

EXISTING SYSTEMS

1. The existing building is heated by (2) oil fired hot water boilers. Boilers, pumps and hot water specialties in the boiler room were replaced in 2007. This equipment is in very good condition.

2. The present Heating and Ventilating systems consist of hot water finned tube radiation, hot water convectors, unit ventilators, window unit air conditioning units and exhaust systems. The mechanical equipment is located primarily in various indoor hallways, rooms and areas throughout the building. Exhaust fans air components are located on the roof. Air-handling units have hot water heating coils, filter sections, and exhaust fans. Exhaust ductwork is located above the ceilings.

3. Gymnasium heating consists of air-handling units with hot water heating coils and roof mounted exhaust fans for ventilation.

4. Corridors and Entry/Lobby heating consists of hot water convectors and unit ventilators.
5. Administration and general office heating consists of hot water unit ventilators with ventilation thru a single ceiling mounted exhaust grille. Air conditioning is provided using individual window air conditioning units.
6. General Storage heating consists of hot water unit heaters.
7. 1st and 2nd floor Classroom heating and ventilating systems consist of hot water unit ventilators and finned tube radiation, and general exhaust systems with a single exhaust grille per room.
8. Library heating and cooling consists of hot water unit ventilators with cooling coils for air conditioning. The condensing units serving cooling coils are roof mounted. Ventilation consists of a roof mounted exhaust fan.
9. Kitchen/Cafeteria heating consists of hot water unit ventilators with fresh air intakes. Ventilation consists of roof mounted exhaust fans.

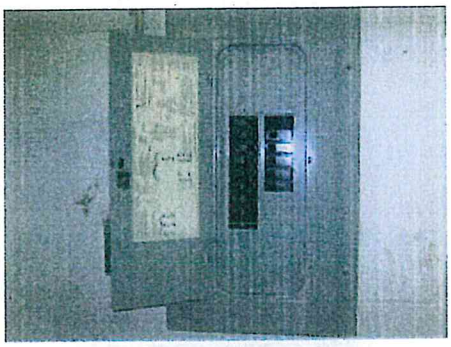
10. The existing temperature controls in the school are pneumatic. The temperature control system air compressor is located in the boiler room and includes a dryer. There have been problems reported with air leaks associated with this system causing erratic operation. The building also has an Invensys control system with a graphical interface that is web based.

11. With the exception of the boilers, domestic water heaters, and other equipment within the boiler room, the existing HVAC equipment is original to the facility and in poor condition.

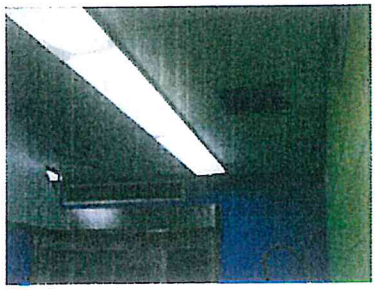
ELECTRICAL NARRATIVE

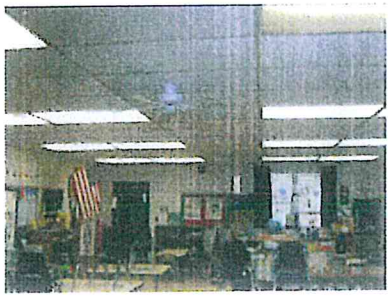
EXISTING SYSTEMS

1. The building is served by a single electrical service rated 1,600amperes, 208Y/120volts, 3-phase, 4-wire. This service equipment consists of a utility company transformer, 1,600amp main disconnect switch, distribution section and metering per utility company requirements. The service equipment is original to the building and is in fair condition.
2. There are a number of electrical panels located throughout the facility. These panelboards are original to the facility. The condition of these panelboards is fair. The majority of the panelboards do not have spare circuit breakers available for new circuits to be added, or have space to add new circuit breakers.

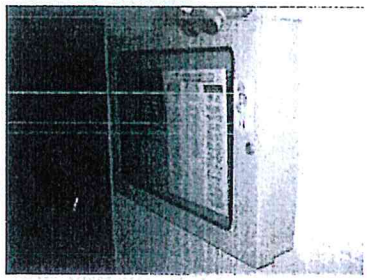


3. The lighting throughout the facility consists primarily of recessed mounted acrylic lensed fluorescent fixtures in the classrooms, hi-bay industrial fluorescent fixtures in the gymnasium, and surface mounted fluorescent fixtures in other areas. The lighting throughout the facility has been upgraded to T8 lamps and electronic ballasts in the last few years. Overall, the lighting is in fair to good condition and the light levels are within recommended levels.





4. Site lighting is limited and consists of pole mounted flood lights.
5. The fire alarm system is manufactured by FCI/Silent Knight. The system includes manual pull stations, horn strobes, and ceiling mounted smoke of heat detectors. This system is approximately 5 years old and in good condition. The coverage if smoke detectors and other devices appear to be adequate. Additional devices, such as horn/strobe units, are required to comply with current ADA requirements.
6. The emergency lighting is primarily served by a Holophane inverter with ceiling mounted lighting fixtures. This system is original to the facility and is operational. The inverter system has been supplemented by 2-head emergency lighting units with integral battery packs. Due to the age of the inverter system, replacement is warranted.
7. The existing paging/intercom system is a Dukane/Bogen system. This system is in poor condition and operation is not consistent.
8. The existing master clock system is a Simplex system. This system is not fully operational and individual battery operated clocks have been installed in many locations.



MEP SYSTEMS CONCLUSION

In general, the existing facility has been well maintained. The heating plant and domestic water heating equipment was updated in 2007. The other systems are original to the building and are 30+ years old and have met their useful life expectancy. The system components are very inefficient. The ventilation system does not meet current code requirements. We recommend that most of the systems be replaced with new. The following capitol needs survey form highlights the major systems in need of replacement and their respective capitol costs to implement.