



**Taconic & Green  
School District**



**FACILITIES EVALUATION REPORT  
SCHOOLS OF THE TACONIC + GREEN REGIONAL SCHOOL DISTRICT  
JUNE 11, 2024**

- CURRIER MEMORIAL SCHOOL
- THE DORSET SCHOOL
- FLOOD BROOK SCHOOL
- MANCHESTER ELEMENTARY MIDDLE SCHOOL
- SUNDERLAND ELEMENTARY SCHOOL

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**Taconic & Green  
School District**



## **SUNDERLAND ELEMENTARY SCHOOL**





### **A BRIEF BUILDING HISTORY AND OVERVIEW**

Sunderland Elementary School serves K through 6th grade students in Sunderland, Vermont. Currently, the school has approximately 54 students. The building is approximately 15,000 sf and was originally built in 1969. The parcel is approximately 9.4 acres. The site is bordered on the east by Sunderland Hill Road and to the south by Bear Ridge Road. The bus drop off area is in front of the main entry to the east of the school. Parents, staff, and visitors park in the parking area in front of the main entrance.

Sunderland Elementary School is a one-story, 2x wood-framed structure built over a crawl space. The floor structure is wood sheathing over wood floor joists, supported by steel beams bearing on CMU foundation walls. The multi-purpose (gym/cafeteria) area is a steel-framed structure with open web steel joists, supported by steel beams and columns, with 2x wood-framed infill walls. The floor of the multi-purpose area is a slab on grade. The main areas of roof were not observed on site, but the facilities manager confirmed them to be a low-slope, single-ply PVC roof, with integral roof drains, installed in 2007. The front entry vestibule has a sloped, standing seam metal roof. Siding consists of painted plywood sheathing, with painted wood trim. Windows are vinyl-framed with a combination fixed over casement configuration. Exterior doors and door frames are hollow metal.

Interior finishes consist of interior gypsum wallboard and homasote wall paneling, vinyl composition tile (VCT) or carpet tile flooring, gypsum ceilings, and 2x4 drop-in acoustic ceilings (ACT) at the multi-purpose space. Interior doors are a combination of clear finish wood veneer and painted wood.

No built-in casework was observed at the classrooms.

All classrooms have egress doors directly to the exterior.

**FINDINGS**

Below is a summary of the major architectural facility issues requiring attention at Sunderland Elementary School. Please see the engineering reports for site, structural, and HVAC findings.

**Exterior Envelope** The exterior envelope assembly does not have a proper air barrier system and does not meet current energy code. Some areas of siding at grade level have areas of rot. Vertical siding battens are missing or damaged at many locations. Horizontal trim and exterior plywood sheathing does not have proper horizontal flashing at the top edge. Classroom exhaust louvers are no longer in use and are a source of heat loss. Exterior concrete steps and window alcove shelves have spalling of concrete and rusting of the supporting metal deck. The concrete foundation has some areas of rust jacking and spalling of concrete.

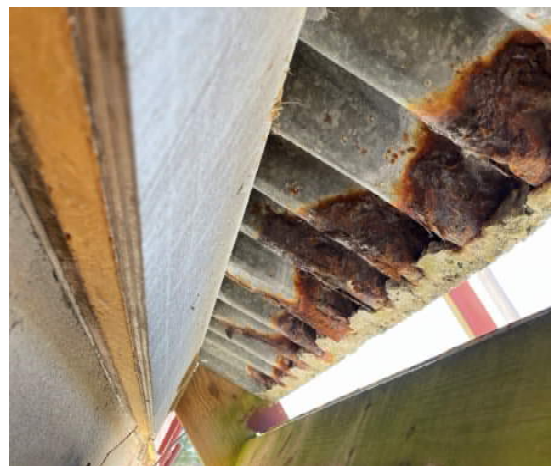
**Roofing** The roofing was not observed, but is a single-ply PVC membrane roof installed in 2007. The roof soffit vent was observed ripped and displaced at many locations around the building perimeter.

**Windows** Windows are vinyl-framed. The windows likely do not meet energy code. Windows do not have proper head flashing. Window upgrades could contribute to significant energy savings.

**Doors** Some exterior hollow metal doors and door frames have visible rust at the base. Some interior wood veneer doors have damaged veneer. Most interior painted doors have damaged or worn finish. Some doors were observed with door knob hardware instead of lever hardware. Some doors were observed with failing door hinges causing the door to hit the frame and not close fully. No closers were observed at classroom or office doors to the corridor.



Damaged exterior siding trim



Corrosion of metal deck at entry slabs



Displaced soffit vent

**Casework** No built-in casework was observed at the classrooms. Most office casework is in good condition, but newer laminate countertops have edge banding that is missing.

**Flooring** Deflection in the flooring over the crawl space can be felt when walking over. 9"x9" vinyl asbestos tile (VAT) flooring was observed at storage, mechanical, and janitor rooms. The corridor, restrooms, kitchen, and gym floors have VCT flooring that is cracked and separating at the joints. The classrooms, library and office spaces have carpet flooring in good condition. The main entry vestibule floor was observed with some damage along the exterior hollow metal door frame.

**Ceilings** The ACT ceiling at the gym has many areas of water damaged and displaced ceiling tiles, and areas of damaged finish at the ceiling grid.

**Interior Finishes** Areas of damaged drywall and horizontal trim were observed at the corridors. Classroom walls have extensive gapping at homasote paneling joints, popping of fasteners, and areas of unfinished drywall patches. Water damage was observed at wall paneling by the corridor drinking fountains and classroom sinks.

**Bathrooms** VCT flooring is cracked and separating at the joints. Many sinks do not have required P-trap protection.

**Furniture / Fixtures / Equipment** Corridor lockers are in poor condition. Gym fire alarm strobes and emergency lighting is missing protective cages. Cafeteria tables have areas of rust at the metal storage enclosures.

**Code / Life Safety** Exterior classroom egress doors do not meet code for egress requirements. Some exterior ramps at egress doors appear to be steeper than the code required slope.



Cracked VCT flooring



Corridor lockers in poor condition



Classroom egress doors—not accessible

**FINDINGS**

Sunderland Elementary School is located approximately 9 miles south of the Manchester Elementary Middle School (MEMS), on Sunderland Hill Road in the Town of Sunderland, Bennington County. The school serves approximately 53 students, 13 faculty, and 11 administrative staff. The school is surrounded by wooded, undeveloped, and sparsely populated residential properties to the north, west, and south, and Sunderland Hill Road to the east, with very limited development in the vicinity of the school. Sunderland Hill Road is posted with a 35-mph speed limit and there is not a school speed limit zone directly in front of the school. There is no public infrastructure on Sunderland Hill Road or pedestrian egress into the school.

The school campus includes a 16,870 SF+/-, one-story building, parking areas and an access drive to the east of the building, a basketball court and playground area to the south of the building, and athletic fields to the west of the building. There are two wooden shed/garages north of the main building where a bus was parked. There is a chain link fence along the southern property line that has some damaged portions. According to VT ANR Mapping, the total site area for the facility is 9.4 acres+/- . The SPAN number is 633-199-10628.

There were no reported drop-off/pick-up issues for the facility. There is one main loop used for drop-off/pick-up, with the parents and buses utilizing the same travel path. Neither drop-off or pick-up was observed, but given the small number of students to this facility and the large entrance drive and turnaround, drop-off/pick-up appears to be sufficient.

Parking for the facility is provided in the lot located to the east of the building. This parking area is approximately 35 parking spaces and includes two ADA spaces (one van accessible and one standard). There is a small area between the wooden sheds and the main building, north of the main building, where one to two buses park at times.



No school speed limit zone



Exterior egress ramp not compliant

While the Town of Sunderland does not have parking regulations, it would appear that the school has at least one parking space for all of the 24 faculty and staff, as the facility has 35 +/- parking spaces. Per Table 208.2 of the 2010 ADA Standards for Accessible Design, for a parking area of 35 total spaces, two ADA spaces (including one van accessible space) is required. The facility appears to meet the ADA standards.

The pavement condition in the parking areas appeared to be of satisfactory condition, and no drainage problems were noticed or observed in the paved areas. It appears the school has had a pavement overlay completed recently, given how new the striping and pavement looks. There is a minimal amount of sidewalk at the front entrance to the building, which is in satisfactory condition. There are some concrete egress pads at the doors that, while steep and have steps to grass, look to be in satisfactory condition.

The dumpsters are located north of the parking area. There are no enclosures or concrete pads for the dumpsters, and the dumpsters are sitting on grass. The staff reported that there were problems with bears and other animals getting into the dumpsters.

Water is supplied by a well. There were no fire hydrants located within the vicinity of the site. It was reported that the building does not have a sprinkler fire protection system. Emergency service vehicles are not able to access the back of the building, as there are no paved surfaces behind the building.

The building is serviced by an on-site sewage disposal area, located in the grass area to the west of the building, according to the staff. While there were no drawings available for this system, it was noted from the staff that the sewer flows via gravity to a septic tank and leach field; however, the location of this system was not found. The system most likely is located on the east side of a drainage ditch that bisects the lawn areas west of the building. The staff did not report issues with this system.

The building is serviced by 3-phase power, and it was reported that there were no exterior lighting issues with the facility. According to staff, there are (4) 500-gallon oil tanks at the facility. The locations of these tanks are unknown. There are no propane tanks for the facility.

Drainage for the site generally flows from east to west towards a drainage swale along the back of the site. This drainage swale bisects the western portion of the property between the athletic fields and the school building and lawn areas. This swale appears to convey runoff from a class II wetland at the north of the site, towards the south, where it seems to enter an overland open drainage system. Standing water was observed in the drainage swale in some locations and the staff reported the area to be very wet at times. There is one small overland crossing to access the athletic field that was wet at the time. This would seem to cause issues with students accessing the athletic fields after runoff events. One solution would be to install a culvert and build up a crossing that remains dry. Roof drains/downspouts appear to daylight and there does not appear to be a closed drainage conveyance system, as most of the runoff appears to flow overland.

Per soils mapping, the majority of the developed site is located on Georgia loam, which are well draining soils. This would make this site potentially viable to provide infiltration stormwater management practices if additions or modifications are made to the facility in the future, depending on the exact location of the existing septic system and other infrastructure not located. From VT ANR Mapping, it appears that the site to the north has class II wetlands, so any development would potentially have to comply with rules within the wetland buffer area on the northern portion of the site.

**I | SCOPE AND BASIS OF REPORT**

The purpose of this report is to describe, in broad terms, the structure of the existing building, comment on the existing condition and structural integrity of the structure, and discuss any potential structural impacts related to future renovations and additions to the building.

Engineering Ventures performed a preliminary structural assessment of the existing structure on February 20, 2024. The investigation of the existing structure was limited to visual observation of the exterior façade from grade, and of primary structural elements, where readily exposed to view. No finishes were removed, nor was any non-destructive or destructive testing performed. Partial sets of original design drawings, depicting the existing construction, were made available for use and were reviewed as part of this investigation.

As a part of the assessment, Engineering Ventures reviewed the building’s structure, took representative photos of the building’s construction types and conditions, and reviewed sizes and spans of structural members based on the information provided by the existing drawings.

The general condition of the buildings is good. This report identifies items that are of fair or poor condition. As part of this investigation, structural items observed that were not explicitly identified are deemed to be in good condition or better. Evaluation of framing capacity and code compliance is based on the 2015 Vermont Fire and Building Safety Code and 2015 International Building Code, as adopted by the state.

**II | CURRENT DESIGN LOADS**

Design loads per ASCE 7-10 “Minimum Design Loads for Buildings and Other Structures:”

Snow Loads:

Ground Snow Load	=	50 psf
Flat Roof Snow Load	=	40 psf

Live Loads:

Classrooms	=	40 psf
First Floor Corridors	=	100 psf
Corridors above First Floor	=	80 psf
Gymnasium	=	100 psf
Cafeteria	=	100 psf
Offices	=	50 psf

### III | SUNDERLAND SCHOOL

The building, constructed in 1969, is a one-story, wood-framed structure with a one-story, steel-framed multi-purpose room. According to the existing structural drawings, the roof framing consists of 2x14 and 2x16 sawn lumber rafters, spanning between wood bearing walls at the corridors and exterior walls. The roof and wall framing was concealed by finishes and was not readily visible. The first floor framing consists of wood joists, supported on steel beams in the crawl space. The crawl space steel beams are supported by CMU piers and perimeter CMU frost walls on concrete footings. It is not clear if there is a slab-on-grade in the crawl space due to a vapor barrier covering the ground. The multi-purpose room framing consists of open web steel joists, supported on steel beams and columns. The multi-purpose room has a shallow foundation system that consists of reinforced concrete frost walls and slab on grade. It is unlikely that the crawl space extends under the multi-purpose room.

Original structural drawings of the building were provided. The existing drawings do not indicate the design loads or the lateral load-resisting system.

The building structure has been well maintained and is generally in good structural condition. A limited number of items are suggested to be monitored, maintained, and/or repaired to preserve the longevity of the school's structural integrity. These items are noted in the attached spreadsheet. In particular, it should be noted that the first floor steel framing in the crawl space is in poor condition. There is a significant amount of corrosion of the steel beams. It is recommended that the steel beams be cleaned and that a qualified structural engineer be engaged to review the capacity of the floor framing.



Cracks in exterior CMU foundation wall



Corrosion of steel floor framing at crawl space



Spalling of exterior concrete slab

**IV | POTENTIAL STRUCTURAL IMPACTS OF FUTURE RENOVATIONS/ADDITIONS**

A core concept to keep in mind when planning future use of space is to generally maintain shear walls. Eliminating such walls in a localized area would trigger the requirement for a global analysis of the lateral force resisting system. This would likely require reinforcing of the lateral load-resisting system, affecting the cost of any proposed floor plan alterations. If wall removals or relocations are nonetheless desirable, costs for structural evaluation and design of lateral reinforcement should be included in any estimates.

Any changes to the roof, including the addition of new equipment or insulation would require further evaluation of the capacity of the existing roof framing, as well as possible reinforcing of the existing roof framing for the added loads.

A potential addition taller than the existing building could impact the existing building by creating a snow drift on the existing roof framing. This would require an evaluation, and possible reinforcing, of the existing roof framing for additional drifting snow loads from the new roof.

**MECHANICAL EXECUTIVE SUMMARY**

The school was constructed around 1969. It was originally designed as an electrically heated school and was converted to an oil-fired heating system around 1986. Mechanical systems have been replaced and upgraded since the building was originally constructed. In general, the replacement systems are in good repair.

In general, each classroom, the library, and the gym are provided with a unit ventilator, which appear to be in good repair and appear to date from the 1986 renovation. These units are nearly 40 years old and need to be replaced.

The office area does not have ventilation. A heat recovery ventilation system will be required.

There are no air conditioning systems installed in the building. We **recommend** installing cooling and dehumidification systems to improve comfort.

The oil-fired boilers should be replaced.

The existing indoor oil tanks should be replaced with double-wall oil tanks, with spill containment and leak detection systems.

The existing control system is antiquated and should be replaced with a new web based DDC control system.

The existing kitchen does not have a kitchen exhaust hood. We **recommend** installing a commercial hood with fire suppression.

The crawlspaces should be provided with a ventilation and dehumidification system to control humidity levels and air quality in the structure. We also **recommend** installing a vapor barrier with rat slab.

Existing toilet room exhaust systems and controls should be replaced.

### HEATING & COOLING SYSTEMS

The building is provided with a two Buderus model G-305-11 section oil-fired boilers, each with a gross rating of 393 MBH. Both boilers were installed as part of the heating system retrofit in 1986. Both boilers should be replaced.

Heating pumps in the boiler room are electronically commutated motor (ECM) type pumps and are in good condition.

Fuel oil is stored in four, 275-gallon indoor oil tanks. These tanks are single-wall and do not include containment or leak detection systems.

The heating distribution piping dates from 1986. Many of the original heating valves are still in service and should be inspected and replaced with new valves as needed.

There are no air conditioning systems installed in the building. We **recommend** installing cooling and dehumidification systems to improve comfort.

The crawlspaces should be provided with a dehumidification systems to control humidity levels and air quality in the structure. We **recommend** installing a vapor barrier with rat slab in the crawlspace.

The entire building should be provided with cooling using a variable refrigerant flow (VRF) cooling system to provide dehumidification of the space in the summer months.

### VENTILATION SYSTEMS

Each classroom, the library, and the gym are provided with unit ventilators. These units should be replaced, as they are at or near the end of their useful life.

Exhaust fans in the toilet rooms are controlled with manual control switches. These fans appear to be original and should be replaced.

There is no ventilation in the nurse's office or main office areas. These areas should be provided with a heat recovery unit, with heating and cooling.

The kitchen does not have a kitchen exhaust hood.

The crawlspaces should be provided with ventilation to control air quality in the structure. We **recommend** installing a vapor barrier with rat slab in the crawlspace.



Oil boiler—near end of useful life



Kitchen—no dishwasher or grease trap observed

**PLUMBING SYSTEM EXECUTIVE SUMMARY**

All ball valves in the original water distribution piping systems should be replaced.

All sanitary waste piping and roof leader piping was installed in 1969 and is original to the building. All piping should be jet flushed and internally inspected by camera to determine the condition of the piping and to maintain the system for the future.

The original 1965 domestic water piping valves should be replaced with new valves.

The kitchen does not have a dishwasher. We **recommend** installing a commercial grade dishwasher in the kitchen. A grease trap should be installed on the waste line.

The boys' and girls' rooms do not appear to have accessible plumbing fixtures; we **recommend** renovating the plumbing facilities to provide accessible plumbing fixtures.

**DOMESTIC WATER SYSTEM**

The original building was constructed in 1969. Domestic water systems are original to the building and should be replaced. Valves in this system should be replaced to address leaks and to provide for adequate servicing.

The building is provided with an on-site well, with a 1 1/4" water service which is connected to (2) indoor hydro-pneumatic tanks.

There is a 60-gallon heat pump water heater in the boiler room and an electric point of use water heater located at the nurses' room sink.

The boys' and girls' rooms do not appear to have accessible plumbing fixtures; we **recommend** renovating the plumbing facilities to provide accessible plumbing fixtures.

The thermostatic mixing valve for the water heater should be inspected for proper operation.

**SANITARY WASTE & VENT SYSTEM**

The plumbing piping is original to the building and all piping should be jet flushed and internally inspected by camera to determine the condition of the piping and to maintain the system for the future.

Roof leader piping for flat roofs should also be jet flushed and internally inspected by camera to determine the condition of the piping and to maintain the system for the future.

The boys' and girls' rooms do not appear to have accessible plumbing fixtures; we recommend renovating the plumbing facilities to provide accessible plumbing fixtures.

A grease trap should be installed for the kitchen waste line.

**ELECTRIC SERVICE**

Underground from a pad-mounted transformer, the 1200 Amp 120/208V 3 phase service terminates in the main distribution panel (MDP).

**DISTRIBUTION**

The 1200 Amp main circuit breaker panelboard (MDP), feeds panelboards, located throughout the building, and the emergency generator automatic transfer switch (ATS).

The main panel (MDP) is located in the electrical room.

Distribution equipment is roughly 50 years old. The equipment is generally in fair condition, but replacement parts will become scarce.

**GENERATOR**

None noted.

**SOLAR**

None noted.

**WIRING METHODS**

Wiring methods are generally individual conductors in raceway (electrical metallic tubing, EMT) and metal clad cable (MC cable).

**DEVICES & GFCI**

There appears to be adequate receptacles throughout the building.

The coverage of GFCI protected receptacles appears to be Code compliant.

Receptacle devices are original to construction. The current Code requires tamper-resistant receptacles for school buildings as a measure of added safety to prevent shock hazards.

**LIGHTING—INTERIOR**

Re-lamped fluorescent luminaires are utilized in most interior spaces. In the past year, there was a facilities project to replace all the fluorescent lamps with LEDs.

Lighting levels vary due to old re-lamped fluorescent luminaires. Classrooms with LED replacement lamps had fair light levels at work surfaces.

Replacement of linear lamps with LED does result in energy savings. However, the luminaires are old and the ballasts in the luminaires waste energy and will eventually fail and require replacement. A better solution would be to replace the fluorescent luminaires with LED luminaires, linear, downlights and pendants. This would allow for new controls to be installed to include dimming, which would comply with the current energy code and create a better environment.



Original electrical gear—nearing end of useful life

**LIGHTING—INTERIOR CONTROLS**

Interior lighting controls are generally on/off toggle switches.

**LIGHTING—EXTERIOR**

Parking lot lighting is accomplished by utility pole-mounted lighting.

**LIGHTING—EXTERIOR CONTROLS**

It appears that exterior lighting is controlled on/off via photocell.

**EXIT SIGNAGE**

Exit signs are internally lit, with batteries for self-powering during loss of utility power. The light source appears to be LED. Signs were randomly tested and were operational, although this was not a full 90-minute test.

**EMERGENCY LIGHTING**

Emergency lighting appears to be completed through emergency battery units only.

**FIRE ALARM**

There is a zoned fire alarm control panel that covers the egress paths only – **Code deficient**.

Fire alarm system should be brought up to current Code requirements for schools, which would entail its replacement with an EVAC system (emergency voice alarm communications system).

**CLOCKS**

All clocks in the building were recently upgraded (WIFI enabled and battery powered).

**PA SYSTEM**

The public address/paging system consists of speakers in the corridors and classrooms, accessed through the voice over internet protocol (VOIP) system.

**TELEPHONE**

A VOIP system is located in each classroom, library, office, and similar space. Phones are utilized to provide access to the PA system as well as communications in/out of the school.

**A/V**

There are no central A/V systems in the school. Where AV systems exist, they are localized.

**ETHERNET**

The building ethernet system, including CAT6 cabling, wireless access points, and head-end equipment was recently redone.

**SECURITY**

None noted.