

**Building Code Evaluation**  
*for the*  
**Nathaniel H. Wixon School**  
**901 Route 134**  
**South Dennis, MA**



*July 26, 2023*

**J H**  
**JACUNSKI HUMES**  
**ARCHITECTS, LLC**

15 MASSIRIO DRIVE SUITE 101  
BERLIN, CONNECTICUT  
(860)-828-9221 FAX (860)-828-9223

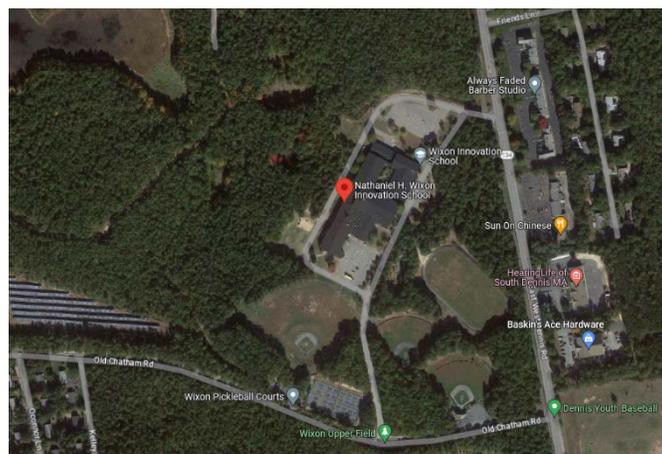
**NATHANIEL H. WIXON SCHOOL**  
**901 ROUTE 134**  
**PARCEL 217-1-0**  
**SOUTH DENNIS, MA**

July 26, 2023

To whom it may concern,

The Town of Dennis MA has contracted the services of Jacunski Humes Architects, LLC to provide building and site evaluation services leading to the feasibility of the existing building to be further utilized by the Town of Dennis MA.

It is understood that the Nathaniel H Wixon School, 901 Route 134, South Dennis, Massachusetts has been vacated by the Dennis Yarmouth Regional School District after serving the educational needs of the district for over fifty (50) years. Through correspondence from the District's Superintendent, Ms. Carol Woodbury, to Town Administrator, Elizabeth Sullivan, the Dennis Yarmouth Regional School District plans to terminate the lease of the school effective August 31, 2023. In addition to serving the educational needs of middle school aged children, the Nathaniel H Wixon School has also served the needs of the Town of Dennis for Annual Town Meetings (auditorium) Little League Baseball (fields and concession stands), Pickleball (14 courts), softball, running track, playground structures, and as a municipal voting site within the town. The site location is graphically central to the community and the Cape and Islands region making the location a benefit for continued community use.



## HISTORY OF THE SITE

The Nathaniel H. Wixon school was first constructed in 1969 and later expanded in 1990 to include additional classrooms and a smaller gymnasium. The building totals 117,500 square feet on a parcel size of 34.40 acres. The building is primarily a 1-story, slab on grade facility but a sloping site allows a lower-level classroom wing at the rear. The building was constructed of exterior brick veneer with exposed concrete masonry units (CMU) on the interior at both the original building and addition. Roofing is a single ply roof membrane on sloping tectum panels on steel framing. Interior partitions are primarily CMU construction. Exterior fenestration is aluminum framed doors and windows with single pane glazing. Ceilings are either exposed tectum panels or suspended acoustic tile ceilings with recessed fluorescent lighting. The building includes an enclosed courtyard, an auditorium, large and small gymnasium, cafeteria, commercial kitchen facilities, boy's / girl's locker rooms, administrative offices, in addition to educational instructional classrooms. The majority of mechanical, electrical, and plumbing systems are original to their date of installation. One (1) hydraulic passenger elevator is also original to the building.

The property, 34.40 acres, has been utilized and developed to support the parking needs of the school and the recreational needs of the students and community. Multiple septic systems are reported to be utilized for sanitary needs. The potential for localized contaminated soils exists due to abandoned, or non-compliant, underground storage tank(s) (UST's) discovered during a recent Phase 1 site environmental study. The building continues to utilize a UST for fuel oil to supply dual fuel burners at two (2) lower-level boilers.

To support the recreational needs of the students and community, the site includes baseball/softball fields (Dennis Little League), fourteen (14) pickleball courts (Dennis Pickleball), tot lot playground structures, and a 5-lane quarter mile running track. In 2005, the community supported a local effort to design and construct a new 1,340 s.f. concession stand to support the baseball fields. This effort was accomplished through local labor and fundraising without the use of municipal investments.

The building and site are located within the Old King's Highway Historic District and directly accessible from Route 134 and Old Chatham Road. A portion of the site adjacent to Old Chatham Road is utilized as a solar field with ground mounted photovoltaic (PV) panels. Additional PV panels are roof mounted on the school but have been reported to be non-functional.

## THE STUDY

To determine future viability of the building and site to meet the programmatic needs of the community, we have been tasked to investigate the existing building in accordance with current building codes and standards within the Commonwealth of Massachusetts. Our agreement specifically identified that we consider the building's compliance in accordance with the provisions of the Massachusetts Building Code, 780 CMR, 9<sup>th</sup> edition, Chapter 34.

Chapter 34, or "Existing Building Code", came into full force and effect on January 1, 2018, and is based on modified revisions of the following 2015 International Codes as published by the International Code Council (ICC):

- International Building Code (IBC)
- International Existing Building Code (IEBC)
- International Mechanical Code (IMC)
- International Energy Conservation Code (IECC)
- Portions of the International Fire Code (IFC)

Massachusetts regularly amends these codes fairly significantly to accommodate unique issues within the Commonwealth. These amendments are all contained with the current edition (9<sup>th</sup> edition) of MA 780 CMR and forms the Massachusetts Building Code. (As a side note, Massachusetts is currently considering the future release of the 10<sup>th</sup> edition of 780 CMR.)

In addition to the building codes listed above, the Commonwealth of Massachusetts has also adopted the following standards for accessibility:

- MA Architectural Access Board (MAAB, 521 CMR, Section 3.3.1)
- Americans with Disability Act Accessibility Guidelines (ADAAG)

Through a code evaluation of the existing building, the Town of Dennis can ascertain the effects of any proposed use, or re-use, of the building with regards to its structure, egress, life safety, sanitation, fire protection levels, energy conservation measures, light and ventilation systems for the spaces under consideration for use.

From an historical perspective, the Commonwealth of Massachusetts did not utilize a uniform building code when the Nathaniel H. Wixon School was first constructed in 1969. In January 1975, the Massachusetts State Building Code, Chapter 802 of the Acts of 1972, as amended, went into effect in the City of Boston and superseded all previous building codes. Prior to 1975, each municipality enforced its own codes and standards for building construction and site development.

To assist in our code evaluation for mechanical, electrical, plumbing, fire protection systems, we engaged the services of Building Engineering Resources (BER) Inc., North Easton, MA. On Tuesday, July 18, 2023, we collectively performed on-site inspections of the building's existing conditions.

A fundamental understanding that one must comprehend regarding building codes and standards is that they are not reciprocal except for fire codes. ADA accessibility guidelines are not enforceable by local building officials as they are under the purview of the U.S. Department of Justice. Municipalities do run the risk of civil penalties for non-compliance with the ADAAG.

As such, it must be assumed that the Nathaniel H. Wixon School was code compliant at the time of construction, or when additions / renovations were performed. Further, any future modifications, alterations, reconfigurations, additions to the existing facility are what require compliance with current codes and standards. In addition, the proposed level of each modification will determine the level of code compliance. For instance, any "significant improvement", defined as that which exceeds 50% of the assessed value of the facility, will require 100% conformance to current codes. The assessed value of 901 Route 134 for Fiscal Year 2023 is \$12,346,700 (\$791,800 land; \$11,270,100 building).

### CHANGE OF USE

Another component of the Building Code that triggers full compliance with applicable codes and standards regardless of the extent of renovation / addition scope is a "change of use". The building was originally constructed as a school and is classified as an E-Educational primary use group. Large gathering spaces with the school carry an accessory use group of A-Assembly. Chapter 3 of the 2015 IBC outlines occupancy classifications for the primary purpose of the building, or portions thereof, based on the primary purpose of the building, or portion thereof, based on the nature of the hazards and risks to building occupants generally associated with the intended purpose.

If the Wixon School was to continue its primary use as an educational facility, then further compliance with the building code is not mandated. If the primary use was to change, then code compliance would be enforced based upon that change of use. The facility would then be required to meet the code requirements within that newly established Use Group as per Chapter 3, Section 302, Occupancy Classification.

## BUILDING MODIFICATIONS REQUIRED FOR CODE COMPLIANCE

If the Town of Dennis considers a “change of use”, or “significant improvements” to the Nathaniel H. Wixon School, the following building modifications will be necessary to conform with current codes and standards:

### ACCESSIBILITY (MAAB / ADA)

- Provide compliant restroom facilities, drinking fountains, kitchen server, sinks.
- Provide compliant accessibility to stage area
- Provide compliant seating areas distributed throughout Auditorium
- Provide compliant signs
- Enlarge Entry Vestibules or add automatic opening doors
- Provide compliant elevator controls, call buttons, hall stations, etc.
- Provide required door clearances for access / egress (push / pull clearances)

### SAFETY

- Provide compliant handrails / guardrails at stairs
- Adjustments to stair nosings at stairs
- Provide fire suppression system to resolve lack of wall ratings within Corridors
- Improve grounding and bonding of electrical systems

### ENERGY CONSERVATION

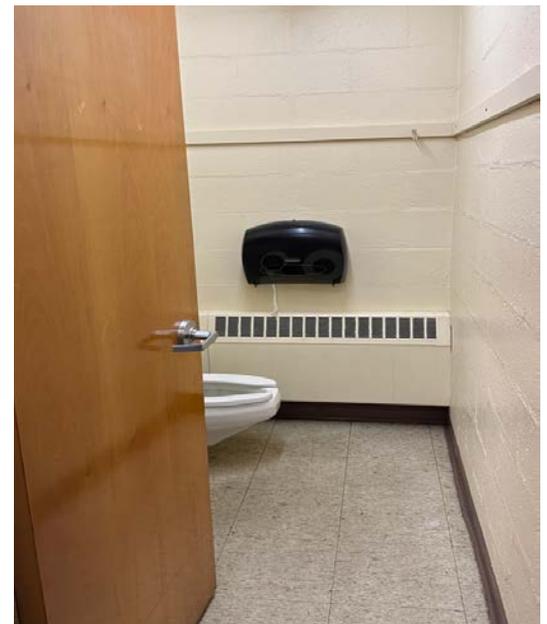
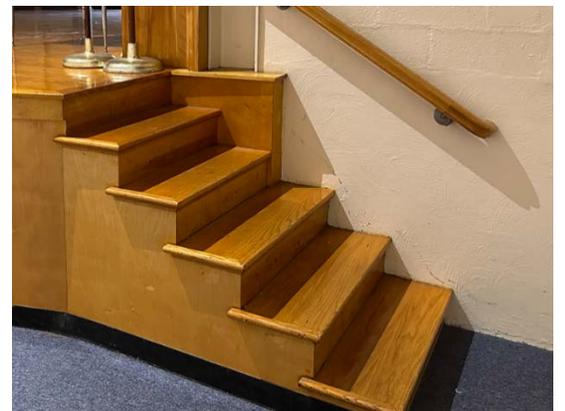
- Increase overall R-values for exterior envelope including provisions for continuous insulation at exterior wall construction.
- Provide new windows / doors with insulated glazing
- Provide make-up air for Kitchen exhaust hood
- Provide new energy efficient lighting and controls
- Provide low flow plumbing fixtures and faucets

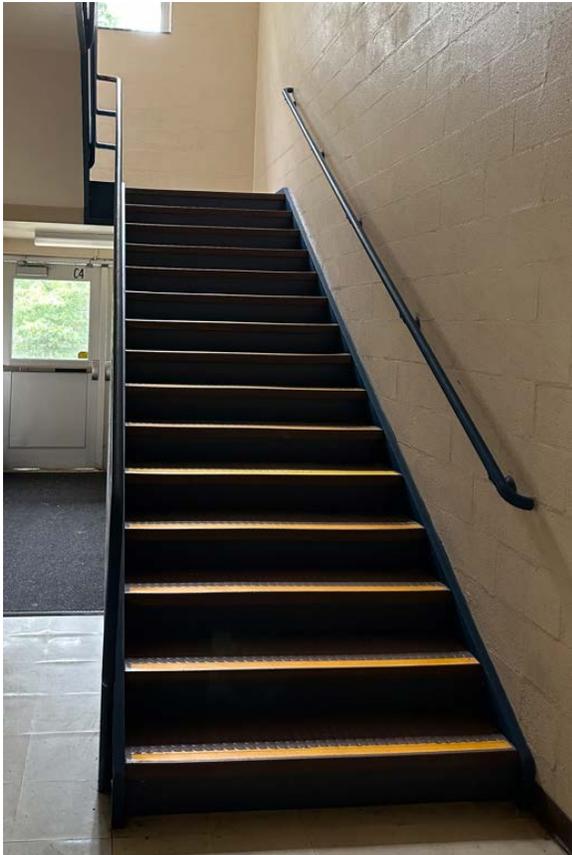
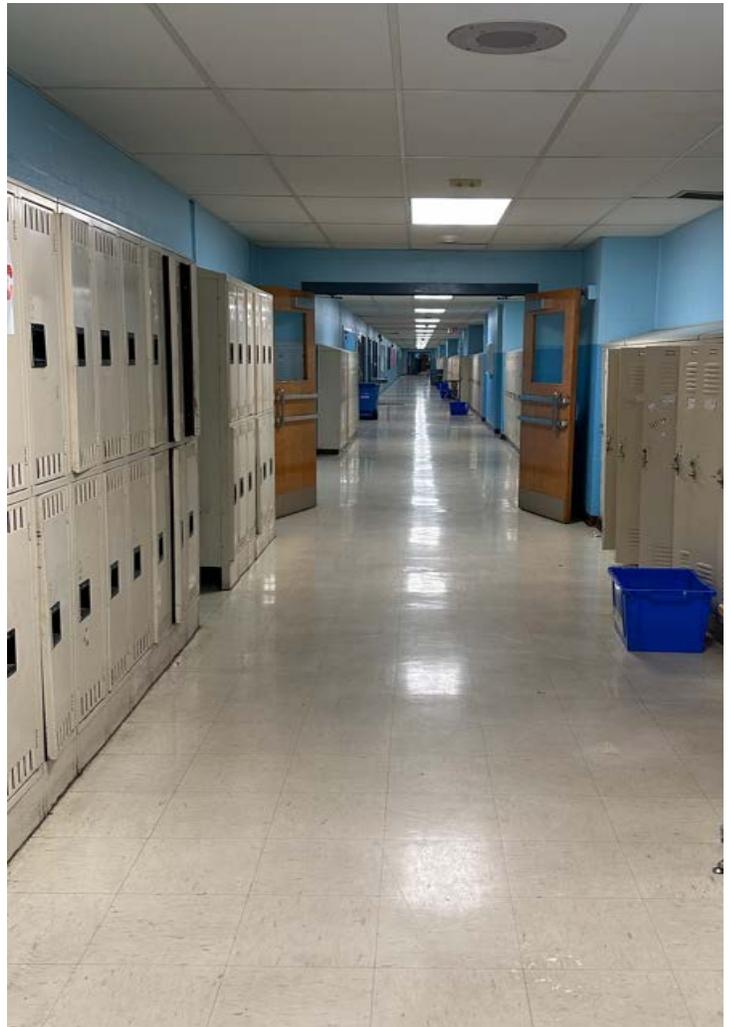
### VENTILATION

- Provide new HVAC systems to provide compliant fresh air to all occupied spaces
- Seal ductwork to current standards

## STRUCTURAL

- Determine structural capacity of existing roof to accommodate increased R-values.
- Install seismic clips at all structural elements





## DEFERRED MAINTENANCE

Due to the age of the structure and equipment, it would be advisable to include the following items within any facility improvement project:

### ARCHITECTURAL

- New membrane roofing
- Remove / replace existing Kalwall fenestration
- New interior wall / floor finishes and ceilings
- Replace interior / exterior joint sealants
- Replace auditorium seating, stage rigging

### MECHANICAL / ELECTRICAL / PLUMBING / FIRE PROTECTION

- Remove / replace original plumbing distribution systems
- New electrical switchgear
- Improvements to existing septic systems
- New technology systems and security
- New HVAC controls with BMS / DDC controls
- New fully condensing boilers

### SITework

- New paving and striping
- Improvements to playfields and running track



## OTHER

No scope was included within our agreement pertaining to the discovery, identification, or handling of potentially hazardous materials within, or around, the building. Such hazardous materials could include asbestos, lead, PCBs, or soil contamination. The age of the structure would historically suggest that certain building products could contain hazardous materials. A thorough evaluation of existing building products should be conducted by a licensed Industrial Hygienist prior to any destructive work being performed.

In addition to building code compliance items related to the potential reuse of the existing building, the insurance industry also has provisions regarding the insurability of structures deemed to be only partially occupied. It would be prudent for the Town of Dennis to investigate the cost and availability of insurance coverage based upon the planned use and occupancy of the building, or portions thereof.



## CONCLUSION

I trust that this satisfies our contractual obligations regarding the code compliance matters related to the existing Nathaniel H. Wixon School, 901 Route 134, Parcel 217.1.0, South Dennis, MA with regards to the Massachusetts Building Code, 780 CMR, 9<sup>th</sup> edition, ADAAG, and MAAB.

While the existing building is code compliant in its current use as an educational facility, the Dennis Yarmouth Regional School District has indicated their desire to discontinue this location to serve their educational needs.

As the Town of Dennis considers continued use of the facility and site, alternate uses of the 117,500 s.f. building will possibly require the structure to undergo a “change of use” or “significant improvements” based upon its age and current conditions. If this occurs, then full compliance with current codes and standards will be required that will result in a significant investment. Hopefully, this code analysis will provide a clearer indication regarding the scale of work that would be required to accomplish that task.

I am available at your convenience to further discuss any aspects of this report and code analysis and thank you for this opportunity to be of service to the Town of Dennis.

Very truly yours,



Brian Humes, AIA, LEED AP  
MA license #9657

Encl: BER's Field Observation Report, dated July 24, 2023 (2 pages)



Building Engineering Resources, Inc.

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## FIELD OBSERVATION REPORT

**REPORT DATE:** July 24, 2023

**WRITTEN TO:** Brian Humes – Jacunski Humes

**PROJECT NAME:** Nathaniel H. Wixon School  
Dennis, Massachusetts

**WRITTEN BY:** Rich Fitts

The following report includes items that require completion and/or correction for the above mentioned project. These items were noted during our field observation on [07/18/2023]. Items included in this report are limited to those that were accessible and visible during the time of the field observation. Completion and/or correction of those items included in this report does not relieve the contractor of their responsibility to provide complete and operational systems in accordance with the contract documents.

### **FIRE PROTECTION:**

1. There is no sprinkler system installed within the building.

### **PLUMBING:**

1. Existing water service enters the building within the mechanical room.
2. Service passes thru a 4-inch meter and is distributed throughout the building.
3. The plumbing fixtures that were reviewed consisted of manual flush valves on the urinals and toilets. All faucets at sinks consisted of manual hot and cold controls. Most units were not ADA accessible.
4. Hot water is supplied via a relatively new high efficiency condensing type unit.

### **MECHANICAL:**

1. Other than a window mounted unit in the admin area, it does not appear there was any other air conditioning within the building.
2. Heating for the building is supplied via (2) dual fuel boilers manufactured by Weil McLean.
3. Circulation pumps associated with heating system are located in the mechanical room. Newer VFD's have been installed.
4. New controls have been provided at each of the boilers
5. Heat and ventilation for the classrooms is supplied via original unit ventilators located at the exterior wall. If the units are not running, ventilation air is not provided.
6. Two (2) heating and ventilation units are provided within the gym. They are exposed to the space and run the width of the space. The units appear to be original to the building.

7. Heating and ventilation within the auditorium is supplied via multiple concentric diffusers. The units which serve these diffusers were inaccessible on the day of this survey.
8. The kitchen within the cafeteria has a grease exhaust hood over several pieces of kitchen equipment. There is also a hood over the dishwasher. Grease exhaust hood possessed Ansul heads and appeared to extend over all required equipment.

**ELECTRICAL:**

1. The main switchboard for the building is rated for 1600 amps at 120/208 volts. It was manufactured by Kinney Electrical and is original to the building.
2. Main overcurrent device consists of a bolted pressure switch, which is housed within the main switchboard. Other components within this switchboard are a distribution panelboard and a branch circuit board.
3. Also housed within the main electric room is a 600 amp disconnect switch which is labeled as "Main Disc New Addition".
4. A third component within the main electric room is an automatic transfer switch. It is labeled as "ATS1" but there is no indication of what it is serving.
5. Adjacent to the disconnect switch for the new addition is the point of entry for the copper telephone line and a fiber optic service. There is evidence that overheating has occurred at the telephone network equipment.
6. Multiple panelboards were encountered throughout the visit. The majority of the panels appeared to be original to the building. There were however, several panelboards that had been installed within the past ten to fifteen years.
7. The majority of the light fixtures within the building are fluorescent type fixtures – both surface and recess mounted were encountered.
8. Directly off the mechanical room, a second electrical room was reviewed. Housed within this room were two (2) automatic transfer switches – labeled as "ATS 2" and "ATS 3". Also located within this room were two (2) distribution panelboards. It is assumed that the loads that are served by these panelboards are all backed up by the generator.
9. The generator is located outside of the building in an exterior housing. Access to the generator was not possible.
10. The fire alarm system consists of a new panel – Honeywell Model SK-5208, which is located at the main entrance. The initiation devices installed within the building included manual pull stations, smoke and heat detectors. Not all areas possessed these spot-type detectors. Notification appliances were horn-strobe type. Current Codes require voice type notification appliances for educational use groups.
11. It appears that there is a master clock/intercom system installed within the building. The main controllers for these systems could not be found but the majority of the clocks indicated the correct time. The intercom system was not tested during this visit.

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