



HVAC

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Electrical

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Plumbing

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Fire Protection

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Code

Due Diligence Study Scituate Town Hall Buildings

CODE EVALUATION & MEP/FP SYSTEMS NARRATIVE

June 3, 2014

**R.W. Sullivan
Engineering**

The Schrafft Center
529 Main Street
Suite 203
Boston, MA 02129

617.523.8227
www.rwsullivan.com

Prepared for:
Town of Scituate



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I. INTRODUCTION

On March 25, 2014, a site visit was conducted by Patrick Curran, P.E. LEED AP and Don Contois P.E. of RW Sullivan. The purpose of this site visit was to understand the goals and needs of the four town buildings. They included the following:

- A. Town Hall – 600 Chief Justice Cushing Highway
- B. Fire Station – 600 Chief Justice Cushing Highway
- C. Senior Center – 27 Brook Street
- D. Police Station – 600 Chief Justice Cushing Highway

A meeting was held at Town Hall with Scituate officials including Kevin Kelly – Facilities Director, Albert Bangert – Special Projects Director and Karen Pritchard – Scituate Public Facilities Master Plan and Committee.

A follow-up site visit was conducted to each of the buildings to view the existing MEP systems and observe Code deficiencies.

II. EXISTING CONDITIONS

A. BUILDING (780 CMR) / ACCESSIBILITY (521 CMR) CODE

1. Town Hall

- a. **Use Classification:** The building currently contains the following uses:

- 1) Use Group A-3 – Meeting Rooms
- 2) Use Group B – Offices
- 3) Use Group S-1 – Record Storage

- b. **Egress:** In general, the means of egress capacity appeared to be sufficient for the anticipated number of occupants within the building. The main floor has sufficient egress lighting and exit signs. However, the Basement requires additional egress lighting and exit signs coverage. In addition the exit stair contains storage and the door closer is broken.



Storage in Town Hall Exit Stair

- c. **Fire Resistance Ratings:** Also, the boiler room door separating the space from the corridor is outdated and does not close or latch properly.



Boiler Room Door

- d. **Handicap Accessibility:** The main floor of the building is generally usable by persons with a disability. However, the following major building elements are not accessible:
- 1) The main entrance to the building is not provided with a ramp (521 CR 25.1).



Town Hall Main Entrance

- 2) The accessible entrance ramp is not compliant due to the landing, which cannot be curved (521 CMR 24.4). In addition, the exterior walkways including the path from the accessible parking to the building entry door including the stair contains cracks, uneven surfaces, and handrails that are not compliant.



Town Hall Accessible Entrance

- 3) The accessible parking is not provided with a 5' access aisle (521 CMR 23.4.6).



Accessible Parking Spaces

- 4) The building signage generally does not contain Braille or other accessible features (521 CMR 41.1.1).



Door to Public Health

- 5) The building contains a mix of retrofitted lever hardware and door knobs. The door knobs are not compliant since they require tight grasping and twisting of the wrist (521 CMR 26.11.1).



Door to Public Health

- 6) The stairs contain abrupt nosings and noncompliant handrails (521 CMR 27.3 & 27.4).

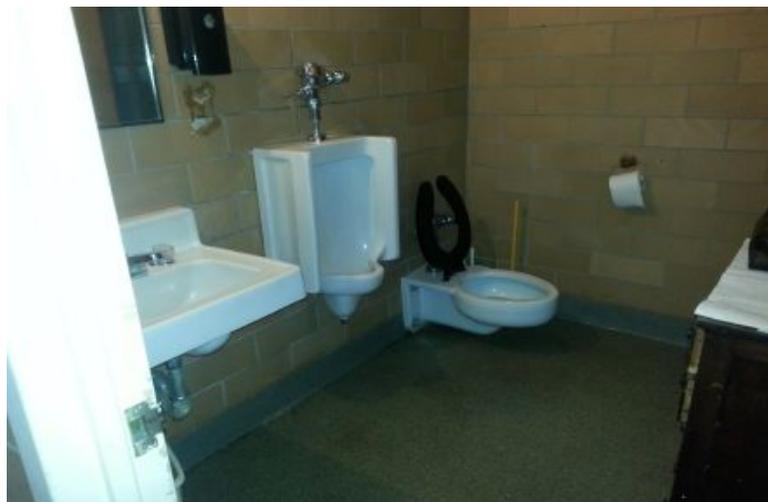


Stair in Town Hall

- 7) The Basement is not provided with elevator access (521 CMR 20.1).

2. Fire Station

- a. **Use Classification:** The building currently contains the following use:
 - 1) Use Group B – Fire Station
 - 2) Use Group R – Living Quarters
 - 3) Use Group S-1 – Storage
- b. **Egress:** In general, the means of egress capacity appeared to be sufficient for the anticipated number of occupants within the building. The building size is such that a single means of egress from the public areas as well as the living quarters is sufficient.
- c. **Handicap Accessibility:** The building is generally not usable by persons with a disability.



Toilet Room in Fire Station

3. Senior Center

a. **Use Classification:** The building currently contains the following uses:

- 1) Use Group A-2 – Dining
- 2) Use Group A-3 – Meeting Rooms
- 3) Use Group B – Offices
- 4) Use Group S-1 – Record Storage

b. **Egress:** In general, the means of egress capacity appeared to be sufficient for the anticipated number of occupants within the building. The building has sufficient egress lighting and exit signs. However, the exit from the kitchen was blocked with storage.



Blocked Kitchen Exit

c. **Handicap Accessibility:** There are major building elements that are not compliant:

- 1) The accessible entrance ramp is not compliant due to the slope and handrails (521 CMR 24.4).



Rear Accessible Entrance

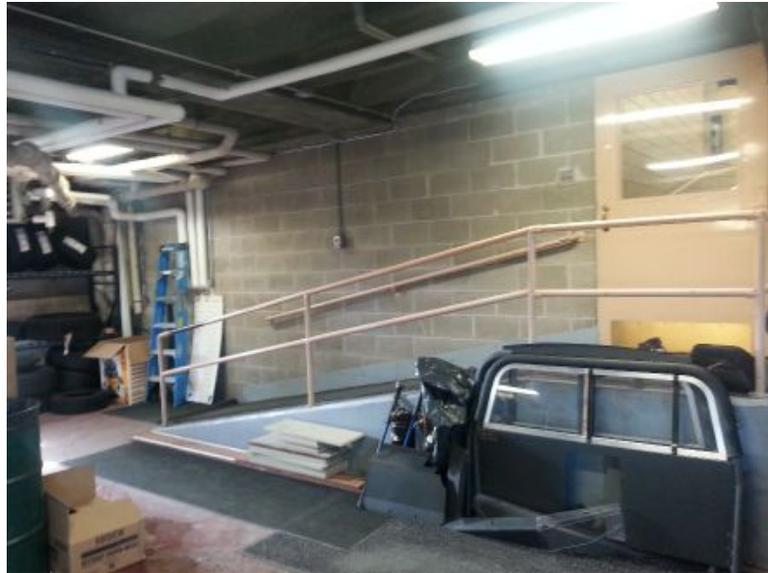
- 2) The accessible parking is not level or provided with a marked 5' access aisle (521 CMR 23.4.6).



Accessible Parking Spaces

4. Police Station

- a. **Use Classification:** The building currently contains the following uses:
 - 1) Use Group B – Offices
 - 2) Use Group I-3 – Cells
 - 3) Use Group S-1 – Record Storage
- b. **Egress:** In general, the means of egress capacity appeared to be sufficient for the anticipated number of occupants within the building. The addition has sufficient egress lighting and exit signs. However, the original building is lacking in exit sign coverage.
- c. **Handicap Accessibility:** The building is not compliant, not usable by persons with a disability including the following major building elements:
 - 1) The ramp from the garage to the cells is not compliant due to the slope and handrails (521 CMR 24.4).



Ramp from Garage

- 2) None of the adult cells contain any accessible features (521 CMR 15.1).
- 3) The building signage does not contain Braille or other accessible features (521 CMR 41.1.1).
- 4) The door hardware throughout the building consists of door knobs. The door knobs are not permitted since they require tight grasping and twisting of the wrist (521 CMR 26.11.1).



Door to Toilet Room

- 5) The stairs contain abrupt nosings and noncompliant handrails (521 CMR 27.3 & 27.4).
- 6) The toilet rooms within the original building are not accessible (521 CMR 30.1).
- 7) The Basement is not provided with elevator access (521 CMR 20.1).

B. HVAC

1. Town Hall

- a. The building is heated by two (2) gas-fired hot water boilers manufactured by Lochnivar. The boilers are rated for 750 mbh input and 660 mbh output. Hot water is circulated by the use of inline circulator pumps to the town hall, police station and fire station. Piping is routed underground to these buildings. The physical condition of the buried piping is unknown.



Boilers at Town Hall

- b. The offices are heated utilizing fan coil units. The units are controlled manually. Controls are integral to the unit. This results in the offices being overheated. No ventilation is provided at the fan coil units.
- c. Window AC units provide air conditioning. Fresh air is provided by operable windows. They do not interfere with fresh air or heating. (PHOTO)



Window Air Conditioners

- d. Town Archives Room has no heat, ventilation or air conditioning. The humidity and temperature in this room should be controlled to preserve records.
- e. The garage has a separate Trane, gas-fired unit with sidewall exhaust fans. The age of this equipment is unknown.
- f. Selectmans office has a 1 ½ ton split system.
- g. The building likely contains asbestos within the piping joints.

2. Fire Station

- a. Heating to the building is provided by hot water generated at town hall. Heating piping enters the building through an exterior wall and then feeds hot water unit heaters in the bay area.
- b. Ventilation is provided by operable windows. An overhead carbon monoxide system provides an exhaust hookup for the fire trucks. Fresh air is brought back into the building via a supply fan and "duct sock".
- c. There is no air conditioning in the building.



Flex Exhaust for Engine

3. Senior Center

- a. Heating and air conditioning is provided by a single zone, split system gas fired air handler. Air is circulated by the use of ductwork above the ceiling. A wall mounted thermostat controls the unit.



Furnaces at Senior Center

- b. According to the town, the second floor is not habitable. There are complaints from occupants about being too hot or cold.
- c. The kitchen does have an exhaust hood with internal suppression system over the cooking area.

4. Police Station

- a. The original building is heated by hot water generated at Town Hall. Hot water is circulated to perimeter fin tube radiation. There is no central air conditioning. Some rooms have window air conditioners.



- b. The 19xx addition is heated and cooled by the use of a packaged gas-fired roof top unit. The age of the unit is approximately 15 years old.
- c. There are no dedicated ventilation systems. Ventilation is poor throughout the original building. This includes the locker rooms, basement areas, storage areas, record storage, cell areas, old firing range and booking areas.
- d. Cell areas have a noisy circulation fan for each cell. Cells don't meet current criteria, for heating and ventilation. The locker room has no visible exhaust or make up air. What limited ventilation exists is provided by operable windows. The new addition has ventilation provided at the unit.
- e. The garage had a strong odor of vehicle exhaust. There is no carbon monoxide exhaust system. Vehicles enter the garage end doors are closed, with engines idling while prisoners are transferred between the building at the vehicles.
- f. The building likely contains asbestos within the piping joints. Visual inspection and age suggest that there is. Numerous locations were in poor condition.

C. ELECTRIC

1. Town Hall

- a. The electric service enters the building at the basement level main electric room and connects to a 400 amp, 208/120V, 3 phase, and 4 wire main switchboard.



Electric Meter at Town Hall



Electric Service

2. Fire Station
 - a. The existing electrical service is 200 amps.
3. Senior Center
 - a. The existing electric service is 200 amps. The panel is in poor condition. Breakers are taped, which suggest problems with the breakers and potential safety hazards and the panel appears to be at maximum capacity.



Senior Center Electric Service

4. Police Station
 - a. The existing electrical service is 200 amps. The new addition is 125 amps. There is a limited amount of receptacles and IT outlets within the original building. The existing transfer switch for the generator

is located in the basement. The E-911 server is also located in the basement.

D. PLUMBING

1. Town Hall

- a. Domestic water is provided by a water line from Chief Justice Highway. Water distributed within the building is done via copper piping to the plumbing fixtures.
- b. Sanitary system collects wastewater by gravity from plumbing fixtures down through the building and out to the street.
- c. The physical condition of the piping appears fair.
- d. Storm drainage is collected from roof drains and piped down to building where it exits the building.
- e. Natural gas is piped into the building from the street.
- f. Domestic hot water is provided by electric storage type water heater. The exact size is unknown but it appears in adequate shape.
- g. Plumbing fixtures are in adequate condition.

2. Fire Station

- a. Plumbing fixtures are in good condition. The floor drain in the bay area is plugged with lead.
- b. Fluid is squeegeed off the floor and out the overhead door. Any hazardous fluids should be removed by a hazardous waste company.

3. Senior Center

- a. Plumbing fixtures are in good condition. Piping is not visible.

4. Police Station

- a. Plumbing fixtures in general areas are in good condition. However, plumbing fixtures within the cell areas are porcelain and cracked. They can be used as a weapon. Stainless steel, correctional type fixtures should be used in cell areas.



Cell Area Toilet

- b. The floor drain in the garage area has been plugged.
- c. Any fluid on the floor would have to be squeegeed towards the door or removed by a hazardous waste company (i.e. clean harbors). The domestic water lines insulation should be tested for asbestos containing materials (ACM).

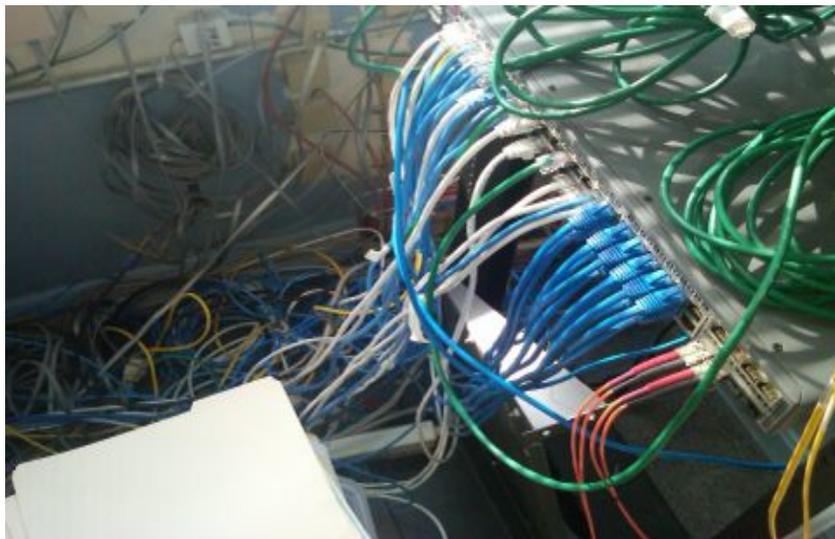
E. FIRE PROTECTION

1. Town Hall
 - a. There is no active sprinkler system. The fire alarm system was updated 1 ½ years ago. The fire alarm consists of an addressable system with the fire alarm control panel located on the first floor.
2. Fire Station
 - a. There is no active sprinkler system. The building did not contain a fire alarm system other than residential style smoke detectors in the living quarters.
3. Senior Center
 - a. There is no active sprinkler system in the building. There is an addressable fire alarm system with smoke detectors and pull stations.
4. Police Station
 - a. There is no active sprinkler system within the original building or new addition. There is a fire alarm control panel within the new addition. Smoke detectors are also provided.

F. COMMUNICATIONS

1. Town Hall

- a. General – Cabling is a mess in all buildings and much of it is unsecured. There should be a town wide study undertaken to evaluate the town's current and future needs for all buildings. Some general observations during the walk through included the following:
 - 1) Service room in the town hall had insufficient air conditioning in the main (server?) room.
 - 2) 911 server rack in police station next to sump pump pit.
 - 3) All buildings should have dedicated server rooms with temperature and humidity control.



IT Cabling

III. RECOMMENDATIONS

The following recommendations are divided into 2 categories, short term and long term. The short term recommendations are items that would result in immediate cost savings or systems that are not sufficient for their current use. The long term recommendations include items that would be needed if the building will continue to be used for the same purpose for more than a few years. For the MEP/FP recommendations, each item also has a cost estimate for the system and basic installation on a cost per ft² basis. Note that architectural alterations or more complicated upgrades that require feedback from the Town are indicated as needing further study. These recommendations will require a more comprehensive study of the building and desired improvements.

Town Hall		
1. Short Term		Cost Estimate
a.	Remove storage from the exit stair.	N/A – Completed in house
b.	Replace boiler room door.	System Cost: \$1,000 Installation Cost: Needs Study
c.	Restripe parking lot to create compliant accessible parking spaces	N/A – Completed in house
d.	Retrofit door knobs with lever hardware.	N/A – Completed in house
e.	Provide new gas fired boilers.	System Cost: \$50,000 Installation Cost: \$15 / ft ²
f.	Provide new energy management system.	System Cost: \$250,000
g.	Increase ventilation throughout the building.	System Cost: \$30,000 Installation Cost: \$10 / ft ²
h.	Provide temperature and humidity control in Archives room and Records storage.	System Cost: \$10,000
i.	Provide new low flow plumbing fixtures.	System Cost: \$200 each Installation Cost: \$300 each
j.	Increase IT capability.	Needs Study
2. Long Term		Cost Estimate
a.	Make main entry accessible.	Needs study
b.	Replace existing entry ramp at accessible entrance	Needs study
c.	Repair / replace all exterior walkways on site.	Needs study
d.	Replace all building signage	N/A – Completed in house
e.	Replace stair handrails.	Needs study
f.	Make stair nosings compliant.	Needs study
g.	Provide elevator so basement can be available for use.	Needs study
h.	Renovate building to incorporate larger meeting spaces and office in the basement.	Needs study
i.	Improve building envelope including roof and windows to be more energy efficient.	Needs study
j.	Replace fan coil units with new.	System Cost: \$5,000 each Installation Cost: \$10 / ft ²
k.	Provide air conditioning through the building with a central system.	Installation Cost: \$15 / ft ²
l.	Upgrade electrical system.	Installation Cost: \$20 / ft ²
m.	Upgrade IT system.	Installation Cost: \$5/ ft ²
n.	Provide sprinkler coverage throughout the building.	Installation Cost: \$5 / ft ²
o.	Upgrade lighting.	Installation Cost: \$10/ ft ²
p.	Unplug floor drain.	System Cost: \$500
Fire Station		
1. Short Term		Cost Estimate
a.	Fix broken SCBA filling station	Needs study
b.	Improve ventilation in bay area.	System Cost: \$20,000
c.	Provide low flow toilet fixtures.	System Cost: \$200 each Installation Cost: \$300 each

d.	Replace lighting.	Installation Cost: \$10/ ft ²
2. Long Term		Cost Estimate
a.	Create accessible toilet room if the building will be used for public education / tours.	Needs study
b.	Renovate building to create decontamination area, triage room, exercise area, and turn-out gear storage room.	Needs study – will likely require an addition to accommodate space
c.	Expand bays to accommodate larger pieces of apparatus.	Needs study
d.	Improve building envelope including roof and windows to be more energy efficient.	Needs study
e.	Provide individual heating system.	Installation Cost: \$25 / ft ²
f.	Provide sprinkler coverage throughout building.	Installation Cost: \$5 / ft ²
Senior Center		
1. Short Term		Cost Estimate
a.	Remove storage blocking kitchen exit.	N/A – Completed in house
b.	Restripe parking lot to create compliant accessible parking spaces	N/A – Completed in house
c.	Improve HVAC system.	Installation Cost: \$20 / ft ²
d.	Upgrade electrical service.	Installation Cost: \$20 / ft ²
e.	Provide low flow plumbing fixtures.	System Cost: \$200 each Installation Cost: \$300 each
f.	Increase ventilation.	Installation Cost: \$10 / ft ²
g.	Upgrade lighting.	Installation Cost: \$10/ ft ²
2. Long Term		Cost Estimate
a.	Replace rear entry ramp.	Needs study
b.	Regrade accessible parking spaces.	Needs study
c.	Renovate building to create consultation rooms.	Needs study
d.	Improve building envelope including roof and windows to be more energy efficient.	Needs study
e.	Replace HVAC system in its entirety.	Installation Cost: \$20 / ft ²
f.	Replace kitchen exhaust hood and provide make up air in kitchen.	System Cost: \$50,000 Installation Cost: \$50,000
g.	Provide sprinkler coverage throughout building.	Installation Cost: \$5 / ft ²
Police Station		
1. Short Term		Cost Estimate
a.	Provide exit signs in the original building.	System Cost: \$25 Installation Cost: Needs Study
b.	Retrofit door knobs in areas open to the public with lever hardware.	N/A – Completed in house
c.	Provide increased ventilation throughout the original building.	Installation Cost: \$15 / ft ²

d.	Provide individual split systems for record storage and new dispatch area.	System Cost: \$20,000
e.	Provide code recommended ventilation for new cell areas.	System Cost: \$50,000
f.	Increase fire alarm system to provide complete coverage throughout the building.	Installation Cost: \$5 / ft ²
g.	Replace toilets in cell area with new correctional type fixtures.	System Cost: \$1,000 each Installation Cost: \$1,000 each
h.	Test pipe insulation for asbestos.	System Cost: \$1,000 L.S.
i.	Provide new carbon monoxide system in garage area.	System Cost: \$30,000
j.	Provide dedicated IT Room.	Installation Cost: \$50 / ft ²
k.	Replace windows.	System Cost: \$1,000 each Stet Cost: \$1,000 each
l.	Unplug floor drain.	System Cost: \$1,000
2. Long Term		Cost Estimate
a.	Renovate the original building to create a larger more efficient dispatch center and command center.	Needs study
b.	Create a larger and more secure / efficient evidence storage area.	Needs study
c.	Create a secure lobby for visitors.	Needs study
d.	Create interview rooms that in the public area of the building.	Needs study
e.	Create training room for 50 – 60 seats.	Needs study – will likely require an addition to accommodate space
f.	Create shooting range	Needs study
g.	Improve parking lot around building to improve and increase vehicle storage	Needs study
h.	Create accessible and DPH compliant cells by enlarging and replacing finishes.	Needs study
i.	Replace ramp in garage	Needs study
j.	Replace all building signage	N/A – Completed in house
k.	Replace stair handrails.	Needs study
l.	Make stair nosings compliant.	Needs study
m.	Provide elevator so basement can be available for use to civilians.	Needs study
n.	Make all toilet rooms accessible that are for use by civilians.	Needs study
o.	Improve building envelope including roof and windows to be more energy efficient.	Needs study
p.	Replace all MEP Systems with new. (New individual boilers)	Installation Cost: \$20 / ft ²
q.	Provide sprinkler coverage throughout building.	Installation Cost: \$5 / ft ²
r.	Provide air conditioning throughout building.	Installation Cost: \$15 / ft ²

