Mechanical and Electrical Systems
Existing Conditions Narrative

Memorial Hall
Madison, Connecticut

4/5/10

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A. ***PLUMBING NARRATIVE***

APPLICABLE CODES AND STANDARDS

The plumbing systems will be reviewed in conformance with the requirements of the following codes and regulations and all applicable local authority requirements.

1. 2005 Connecticut State Building Code
2. 2005 Connecticut State Fire Safety Code
3. 2003 International Building Code(IBC)
4. 2003 International Plumbing Code
5. 2003 International Energy Conservation Code
6. NFPA, Latest Version
7. ASHRAE 90.1

PLUMBING UTILITIES

1. Domestic Water:
   a. Existing Domestic Water Service: The building is currently served by a domestic water main fed from Connecticut Water Company. This water service currently serves all of the building's domestic water needs. The water distribution system is original to the building.
2. Natural Gas:
   a. Existing Natural Gas Service: The building is currently served by natural gas fed from the local utility's distribution system.
3. Sanitary:
   a. Existing Sanitary Service: The building's sanitary sewer system provides sanitary waste drainage for plumbing fixtures located throughout the building. The sanitary waste piping discharges to a septic tank and leaching field.
4. Storm:
   a. Existing Storm System: Building is served primarily by gutters.

PLUMBING FIXTURES AND SPECIALTIES

1. Existing plumbing fixtures are as follows:
   a. In general, fixtures are in good condition.
   b. Water closets are floor mounted; tank type, vitreous china.
   c. Lavatories are vitreous china. There are a variety of types of faucets.

DOMESTIC HOT WATER SYSTEMS

1. Existing Domestic Hot Water System: The domestic hot water is generated by an electric water heater which is in good condition.

B. ***FIRE PROTECTION NARRATIVE***

APPLICABLE CODES AND STANDARDS

The sprinkler systems will be reviewed in conformance with the requirements of the following codes and regulations and all applicable local authority requirements.

1. 2005 Connecticut State Building Code
2. 2005 Connecticut State Fire Safety Code
3. 2003 International Building Code(IBC)
4. NFPA 13, Latest Version

FIRE PROTECTION SYSTEM

1. The building is fully sprinklered and is served by a 6” water main with reduced pressure backflow preventer. There is one 4” dry type, alarm check valve at the water service. The sprinkler system is in good condition.

C. ***MECHANICAL NARRATIVE***

APPLICABLE CODES AND STANDARDS

The mechanical systems will be reviewed in conformance with the requirements of the following codes and regulations and all applicable local authority requirements.

1. 2005 Connecticut State Building Code
2. 2005 Connecticut State Fire Safety Code
3. 2003 International Building Code(IBC)
4. 2003 International Mechanical Code
5. 2003 International Energy Conservation Code
6. NFPA, Latest Version
7. ASHRAE 90.1

EXISTING SYSTEMS

1. Boiler Plant: The building is heated by a two section Slant Fin Caravan modular boiler which also serves the buildings listed below. The boiler utilizes natural gas and is served by three in-line circulating pumps. There are no backup/redundant pumps. Each pump is dedicated to its respective building as follows:
    a. Memorial Hall
    b. Visitor's Center ("Powder House")
    c. Lee Academy

2. Air Conditioning: The building is served by two split system, ducted air handling units and three ductless split air conditioning units which were installed when the building was renovated in 1997.

3. Ventilation is provided via mechanical ventilation at the ducted air handling units. Other spaces rely on natural ventilation (operable widows) for fresh air.
4. The temperature control system in the building is an SNE Building Systems/Barber Coleman DDC system which was upgraded in 2009.
5. Toilet rooms and misc spaces are served by dedicated exhaust systems.

D. ***ELECTRICAL NARRATIVE***

APPLICABLE CODES AND STANDARDS

The electrical power, interior lighting, and fire alarm systems will be reviewed in conformance with the requirements of the following codes and regulations and all applicable local authority requirements.

1. 2005 Connecticut State Building Code
2. 2005 Connecticut State Fire Safety Code
3. 2003 International Building Code(IBC)
4. 2003 International Energy Conservation Code
5. 2005 National Electrical Code, NFPA 70 (NEC)
6. Illuminating Engineering Society Lighting Handbook (IESNA), 9th Edition
7. ASHRAE 90.1

EXISTING SYSTEMS

1. The building is served by a General Electric distribution panel, rated at 600 amperes, 208Y/120volts, 3-phase. This service equipment consists of a 600amp main disconnect switch, distribution section and metering per utility company requirements. The service equipment is in fair condition. The service feeds adjacent buildings through circuit breakers at the main distribution panel as follows:
    a. Visitor's Center ("Powder House"): 100 amp, 3 pole breaker

2. Lighting, in general, consists of fixtures with T8 fluorescent lamps. The meeting room at the upper level is served by decorative metal halide fixtures.
3. Site lighting has fair to good coverage with pole mounted fixtures and building mounted fixtures.
4. The fire alarm system is an EST (manufacturer) zoned system. There are manual fire alarm pull stations throughout the building.
5. Emergency lighting is handled by 2-head emergency lighting fixtures with integral battery packs.

E. ***MEP SYSTEMS CONCLUSION***

In general, the MEP systems are in good condition. Miscellaneous recommendations regarding improvements are:

1. Add backup pumps to hot water system.
2. Add ducted mechanical ventilation to all spaces.

Town of Madison

Capital Needs Survey Form

Memorial Hall

Total Floor Area (sf): 9,000

Note: The "System Priority Rating" (1 to 4 rating) and "Condition of the Existing System Rating" (1 to 5 rating) are to be reviewed together to assist in prioritizing replacement and/or upgrades. As an example, we recommend line items with a System Priority rating of 1 and Existing Conditions rating of 1 be prioritized for replacement and/or upgrades.

SYSTEM	System Priority 1 to 4 (1-Highest Priority, 4-Lowest Priority)	Condition of the Existing System 1 to 5 (1 Poor, 5 Excellent)	Last Major Reconstruction (Year)	Projected Replacement (Year)	Quantity	Unit Price	Current Replacement Cost	REMARKS
Division 2 - Site Construction								
Site - Electrical								
Site - General								N/A
Division 15 -Plumbing								
Water Main								
Water Distribution System			1994					No short term recommendations.
Plumbing Fixtures			1994					No short term recommendations.
Water Heater	3	3	1994	2014	9,000	$0.5	$4,500	
Division 15 - HVAC								
Hot Water Boilers	3	3	1994	2019	9,000	$2.5	$22,500	Replace existing boilers
Hot Water Distribution			1994					No short term recommendations.
Add Hot Water Pumps	1	2	1994	2010			$30,000	Add backup pumps and controls
Upgrade Mech Ventilation (includes upgrades to A/C)	3	3	1994	2015	9,000	$30	$270,000	
Division 16 - Electrical								
Electrical Service/Distributions Panels			1994					No short term recommendations.
Lighting								
General upgrades			1994					No short term recommendations.
Lighting Controls	3	3	1994	2012	9,000	$3	$27,000	Occupancy sensors, daylighting
Emergency Lighting			1994					No short term recommendations.
Fire Alarm System			1994					No short term recommendations.
							$ 354,000	
							$ 39	per sf