Mechanical and Electrical Systems
Existing Conditions Narrative

Town Hall
Madison, Connecticut

3/11/10

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CES Project No. 29066.00

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 2" 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 renovations in 1994.
2. Natural Gas:
   a. Existing Natural Gas Service: The building is currently served by natural gas fed from the local utility's distribution system. Equipment which the gas main currently serves includes the boilers and water heater.
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 original to the building renovations in 1994 and are in good condition.
   b. Water closets are floor mounted; tank type, vitreous china; original to the building.
   c. Lavatories are wall hung vitreous china. Faucets are installed with single lever handle faucets.

d. Urinals are wall mounted with flush valves.

DOMESTIC HOT WATER SYSTEMS

1. Existing Domestic Hot Water System: The domestic hot water is generated by an A.O. Smith gas fired water heater. The water heater is original to the building renovations in 1994 and is in fair 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 alarm check valve at the water service. The sprinkler system is original to the building renovations in 1994 and 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 four section Slant Fin Caravan modular boiler which uses propylene glycol and is interconnected with the heat pump loop.

2. Air Conditioning Plant: The building is cooled by an Imeco forced draft, cooling tower located outside. The tower is closed coil type which uses propylene glycol and is interconnected with the heat pump piping loop. The sump is drained in the fall for winterizing. The cooling tower is showing signs of rust. A magnetic water treatment system was added to the closed loop part of the system during summer of 2009.

3. HVAC Distribution and controls:
   a. The temperature control systems throughout the building is an Alerton DDC system; original to the building renovations in 1994.
   b. Toilet rooms and misc spaces are served by dedicated exhaust systems.
   c. The IT room is served by a ductless split air conditioning unit.

d. The building is primarily served by forty one (41) water cooled heat pumps. The heat pumps are ducted supply air and return air and provide mechanical ventilation through roof mounted air intake hoods. The units are located in “crawl spaces”.

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 Westinghouse distribution panel, rated at 600 amperes, 480Y/277volts, 3-phase. This panel is fed from an 800 amp disconnect switch located at the Town Gym. The feeders from the Town Gym to the Town Hall are installed underground. The service equipment at the Town Gym consists of a 1200 amp main disconnect switch and distribution gear to the Town Gym, Town Hall and Arts Barn. The service equipment and distribution panels are in good condition. Also refer to the MEP Narrative of Existing Conditions at the Town Gymnasium.

2. Emergency Generator: The generator located adjacent to the Town Gym is a 350 KW Kohler with a 550 gallon diesel tank. The generator provides backup power to the Town Gym, Town Hall and Arts Barn.
3. Lighting, in general, consists primarily of fixtures with acrylic lenses and T8 fluorescent lamps.
4. Site lighting has good coverage with pole mounted fixtures and bollards.
5. The fire alarm system is an EST zoned system. There are manual fire alarm pullstations throughout the building.

E. ***MEP SYSTEMS CONCLUSION***

In general, the MEP systems were installed when the building was renovated in 1994 and are in good condition. The cooling tower is the primary item that is showing signs of age.

Town of Madison								
Capital Needs Survey Form								Total Floor Area (sf):
Town Hall								22,600

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 - General								N/A
Division 15 -Plumbing								
Water Distribution System			1994					No short term recommendations.
Plumbing Fixtures			1994					No short term recommendations.
Water Heater	4	3	1994	2014	22,600	$0.5	$11,300	
Division 15 - HVAC								
Cooling Tower	2	2	1994	2012	22,600	$3	$67,800	Replace existing tower
Hot Water Boilers	3	3	1994	2019	22,600	$2.5	$56,500	Replace existing boilers
General HVAC includes	4	3	1994	2019	22,600	$5.0	$113,000	Replace equipment as it fails
Heat Pumps								
Exhaust Systems								
Temperature Control Systems								
Division 16 - Electrical								
General Electrical maintenance	4	4	1994	2019	22,600	$2	$45,200	
Lighting								
General upgrades	4	4	1994	2019	22,600	$2	$45,200	
Lighting Controls	3	3	1994	2012	22,600	$3	$67,800	Occupancy sensors, daylighting
							$ 406,800	
							$ 18	per sf