Mechanical and Electrical Systems
Existing Conditions Narrative

Town Gymnasium
Madison, Connecticut

3/11/10

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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 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.
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.
   c. Lavatories are vitreous china.
   d. Urinals are wall mounted with flush valves.
   e. Showers are gang type.

DOMESTIC HOT WATER SYSTEMS

1. Existing Domestic Hot Water System: The domestic hot water is generated by an A.O. Smith Model #BT100-230, 100 gallon, gas fired water heater. The water heater is original to the building renovations in 1994 and is in good condition.

B. ***FIRE PROTECTION NARRATIVE***

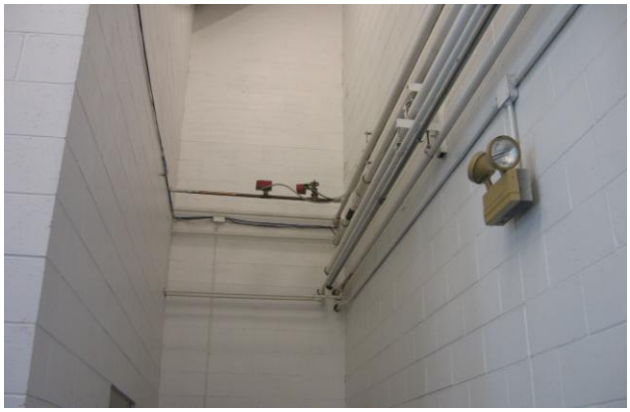
APPLICABLE CODES AND STANDARDS

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. Parts of the building are served by a limited area sprinkler system fed off the domestic water supply.



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 three section Slant Fin Caravan modular boiler and two in-line hot water circulating pumps; one pump is back-up.

2. Heating and Ventilating (H&V) Units: The gymnasium is served by a ducted H&V unit located in the Boiler room.
3. HVAC Units: The Dance Studio and Fitness Room are served by a common split system type unit with a hot water coil for heating.
4. The temperature control system in the building is an SNE Building Systems/Barber Coleman DDC system which was upgraded in 2009.

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 Westinghouse distribution gear, rated at 1200 amperes, 480Y/277volts, 3-phase and a Kohler automatic transfer switch. The service equipment and distribution panels are in good condition.

2. The feeders out of the gear enter a “tap box” and are distributed to three disconnect switches with ratings as follows:
    a. Town Gym: 400 amp disconnect switch.
    b. Town Hall: 800 amp disconnect switch.
    c. Arts Barn: 400 amp disconnect switch.

3. Generator: The generator is located outside and is a 350 KW Kohler with a 550 gallon diesel tank was installed in 1994. The generator provides backup power to the Town Gym, Town Hall and Arts Barn.

4. The Gym floor area is served by T5 fluorescent fixtures. Other areas consist primarily of fixtures with T8 fluorescent lamps. Lighting throughout the facility is in good condition and light levels are within recommended levels.

5. Site lighting has fair to good coverage with pole mounted fixtures and building mounted fixtures.
6. Emergency lighting is handled by 2-head emergency lighting fixtures with integral battery packs.
7. The fire alarm system is a Firelite zoned system.

E. ***MEP SYSTEMS CONCLUSION***

In general, the MEP systems were installed when the building was renovated in 1994 and are in good condition. Long term planning should include replacement of the generator in approximately 10 to 12 years. The following capital needs survey form highlights the major systems in need of replacement and their respective capital costs to implement.

Town of Madison								
Capital Needs Survey Form								Total Floor Area (sf):
Town Gymnasium								12,394

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 - Lighting								
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	12,394	$1.0	$12,394	
Division 15 - HVAC								
Hot Water Boilers	3	3	1994	2019	12,394	$4	$49,576	
Hot Water Distribution	4	3	1994	2019	12,394	$5	$61,970	Replace pumps, valves, etc
General HVAC includes	4	3	1994	2019	12,394	$5.0	$61,970	Replace equipment as it fails
Air Handling Units								
Exhaust Systems								
Temperature Control Systems								
Division 16 - Electrical								
Emergency Generator - 350 Kw	1	3	1994	2015			$95,000	
General Electrical maintenance	4	4	1994	2019	12,394	$2	$24,788	
Electrical Service/Distribution Panels			1994					No short term recommendations.
Lighting								
General upgrades	4	4	1994	2019	12,394	$2	$24,788	
Lighting Controls	3	3	1994	2012	12,394	$3	$37,182	Occupancy sensors, daylighting
Emergency Lighting			1994					No short term recommendations.
							$ 367,668	
							$ 30	per sf