Mechanical and Electrical Systems
Existing Conditions Narrative

Public Works Garage
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 domestic water main fed from Connecticut Water Company. This water service currently serves all of the building's domestic water needs.
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 fair condition. There is only one toilet room.
   b. The water closet is floor mounted; tank type, vitreous china.
   c. The lavatory is a "tub" type sink fixture with a kitchen type faucet.
   d. The urinal is wall mounted with a flush valve.
   e. There is an emergency combination eyewash/shower in one of the garage bays. This fixture is fed with cold water only, not tepid water as required for new installations.

f. There is an air compressor in one of the garage bays that is approximately 30 years old.

DOMESTIC HOT WATER SYSTEMS

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

B. ***FIRE PROTECTION NARRATIVE***

FIRE PROTECTION SERVICE

C. There is no central fire protection system (sprinklers) currently at the facility.

D. ***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. The office/kitchenette area is served by a gas fired furnace located in the attic. The furnace provides heat and ventilation air and is in good condition.

2. Buried Fuel Tanks: Refer to 2004 Underground Storage Tank Report done by Flagship Environmental LLC, 2004. The fuel tanks are monitored by a Veeder Root TLS-300C controller mounted inside the building.
3. Temperature controls are local, stand alone electric type.
4. HVAC Distribution – misc comments:
   a. There is a window air conditioner serving the office area.
   b. Garage bays are heated by gas fired unit heaters.
   c. Toilet rooms and misc spaces are served by dedicated exhaust systems.
   d. The garage bays lack mechanical ventilation.
   e. The upstairs attic space is partially occupied and heated. There is no insulation at the roof level and most of the attic floor.

E. ***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 circuit breaker panel rated at 100 amperes, 240 volts, 1 phase. The electrical service is in poor condition and should have additional capacity to serve the electrical loads in the building.

2. Backup Generator: The 12 Kw generator is located in a shed and is gas fired with a manual transfer switch located at the exterior of the building.
3. Lighting, in general, consists primarily of older T12 fixtures.
4. There are no emergency light fixtures in the building.
5. Site lighting has fair to good coverage with pole mounted and building mounted fixtures.
6. There is no fire alarm system serving the building.

F. ***MEP SYSTEMS CONCLUSION***

The MEP systems are below fair condition and should be scheduled for replacement and/or upgrading in the near future. In particular, the building is lacking in electrical power and ventilation systems. HVAC systems should be upgraded to be DDC type. The following capital needs survey form highlights the major systems in need of replacement and their respective capital costs to implement.

In addition, the Town Department of Public Works and Facilities Planning are considering modest renovations to the building. Mechanical and electrical upgrades should be planned accordingly.

Town of Madison								
Capital Needs Survey Form								Total Floor Area (sf):
Public Works Garage								4,000

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	2	2		2015	1	$ 30,000	$30,000	
Site - Lighting	2	3		2015	1	$ 20,000	$20,000	
Other Site - Included in line items below								
Division 15 - Fire Protection								
Overall Fire Protection Reno - includes:	1	2		2015	4,000	$10	$40,000	
New fire service from street								
New sprinkler system throughout								
Assumes a fire pump is not needed								
Division 15 -Plumbing								
Overall Plumbing Renovations - includes:	2	2		2015	4,000	$15	$60,000	
Water Distribution System								
Plumbing Fixtures								
Compressed Air								
Water Heater								
Division 15 - HVAC								
Overall HVAC Renovations - includes:	1	1		2015	4,000	$25	$100,000	
New Hot Water Boilers or furnaces								
Ventilation Systems								
Air Handling Systems								
Exhaust Systems								
Temperature Control Systems								
Nominal Air Conditioning								
Division 16 - Electrical								
Overall Electrical Renovations - includes:	1	1		2015	4,000	$18	$72,000	
Electrical Service								Upgrade to 400A - 480Y/277V
Distribution and Local Panels								
Lighting								
Emergency Lighting								
Misc Low Voltage Systems								
Fire Alarm System								
							$ 322,000	
							$ 81	per sf