

Fuller Middle School Feasibility Study  
Framingham, MA  
Plumbing Existing Conditions Systems Report  
J#680 015 00.00  
L#58619/Page 1/November 1, 2017

## **PLUMBING**

### **Executive Summary:**

Presently, the Plumbing Systems serving the building are cold water, hot water, sanitary, waste and vent system, storm drain piping, and natural gas. Municipal sewer and municipal water service the Building.

The majority of the plumbing systems are original to the building and its additions. Portions of the system have been updated as part of building renovation and upgrade projects. The plumbing systems, while continuing to function, have served their useful life. Due to its age, a complete new water piping system is recommended. The copper piping is in fair condition and has served its useful life.

The plumbing fixtures are in fair condition. The gang toilet rooms have had the lavatories up graded to one piece countertop with integral sinks. In general, the fixtures appear to have served their useful life. Current Access Code requires accessible fixtures wherever plumbing is provided. In terms of the water conservation fixtures, their use is governed by the provisions of the Plumbing and Building Code. Essentially, the code does not require these fixtures to be upgraded, but where new fixtures are installed, as may be required by other codes or concerns, the new fixtures need to be water conserving type fixtures. All new fixtures are recommended.

Cast iron is used for sanitary and storm drainage. Rainwater from roof areas is collected by interior rain leaders which appear to discharge to a below grade drainage system. Where visible, the cast iron pipe appears to be in fair condition. Smaller pipe sizes appear to be copper. In general, the drainage piping can be reused where adequately sized for the intended new use.

The existing domestic hot water is supplied from one (1) Weil-McLain boiler piped to three (3) 120 gallon storage tanks. There is a master Leonard mixing valve and one B&G hot water return pump. The system is in good condition.

### **Fixtures:**

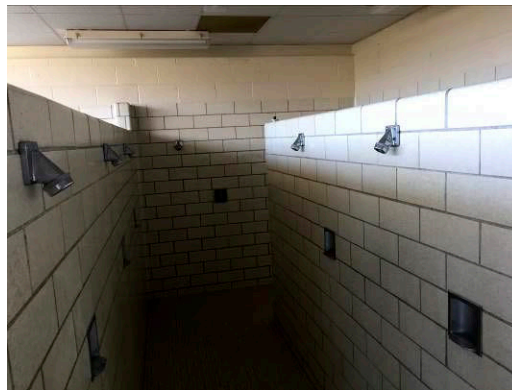
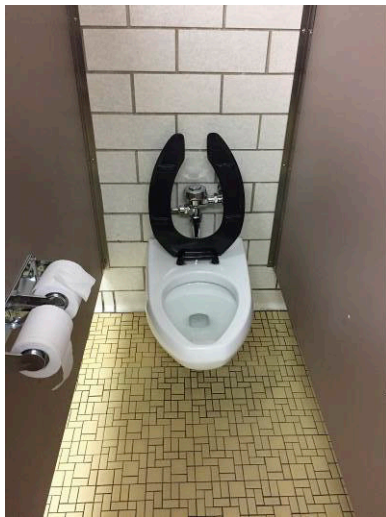
The water closets are predominately wall hung vitreous china with manual flush valves.

Urinals are wall hung vitreous china with manual flush valves.

Lavatories are wall hung vitreous china. The majority of lavatories have been retrofitted with push handle faucets, no mixing valve provided.

Shower rooms have gang type showers with main mixing valve and control valve.

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*Typical Bathroom Fixtures & Showers*

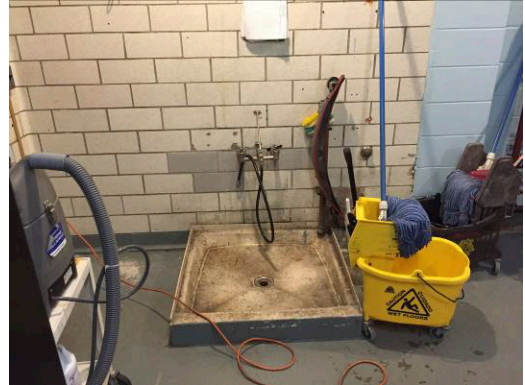
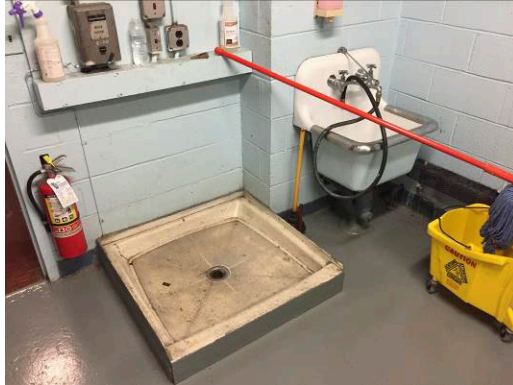
Drinking fountains consist of wall hung stainless steel, non-accessible.



*Drinking Fountain*

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Janitor's rooms are provided with floor mounted mop receptor and wall hung service sink. Floor mounted mop receptor is not provided with faucet, it is used only for waste drainage. The service sink is provided with faucet with vacuum breaker and the faucet has hose connection.



*Typical Janitor's Room*

Science classroom sinks are resin type with cold and hot water faucets. Faucets are equipped with vacuum breakers. Classrooms contain an emergency shower fixture fed by the cold water system. Sinks are piped to an interior lime stone chip acid neutralization system located in the crawl space that ultimately discharges to the municipal sewer. The benches are provided with gas turrets, the gas is not turned on to the benches. No master gas valve shut off was provided.



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*Typical Science Classroom*

Kitchen area fixtures are in poor condition. The pot washing sinks are fitted with grease interceptor located in the crawl space. The gas fired equipment is not provided with master gas shut off valve.



*Typical Kitchen Equipment*

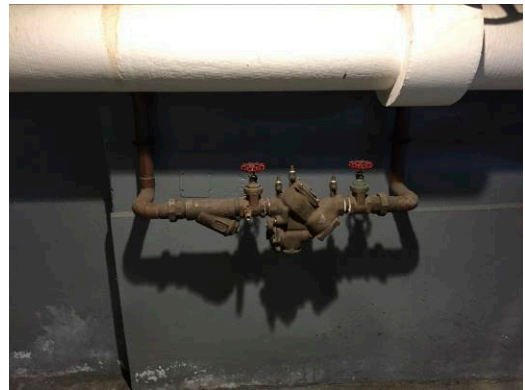
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**Water Systems:**

The main domestic water service is located in the Basement Mechanical/Boiler Room. The service is 6" in size and reduces to 4" and includes a 4" meter. The water main reduces to 3" with 2" by-pass and backflow preventer. The system gauge reading was between 70-80 PSI. The main domestic cold-water distribution is 3" in size. A 3" pressure reducing backflow preventer is provided after the meter. The majority of the domestic distribution piping is located in crawl space throughout the building.



*Domestic Water Service*



*HVAC Equipment Make-Up*

Piping, where exposed, appears to be copper with sweat joints. The majority of the piping is insulated. Due to the lack of accessibility a major renovation should include all new domestic water piping.

Domestic hot water in Buildings and the Science Classrooms are generated through one (1) Weil-McLain boiler piped to three (3) 120 gallon storage tanks. There is a master Leonard mixing valve and one B&G hot water return pump. The system is in good condition.



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*Domestic Water Heater System*

**Gas:**

Natural gas is supplied to the building. Exterior gas meter is located at front of the building. Natural gas is distributed throughout the building in the crawl space.



*Gas Meter*

Gas piping is black steel with a combination of screwed and welded joints and fittings depending on the time of installation.

Natural gas is provided in the science classrooms. Classrooms are not equipped with emergency shutoff valves.

Natural gas is provided for kitchen cooking equipment. Kitchen supply is not equipped with an automatic shutoff valve.

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*Gas Connection*

**Drainage Systems:**

Cast iron is used for sanitary and storm drainage. Where visible, the cast iron pipe appears to be in fair condition. Smaller pipe sizes appear to be copper

In general, the cast iron drainage piping can be reused even in a major renovation where adequately sized for the intended new use.



*Crawl Space*



*Roof*

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**Garage Systems:**

Cast iron drains with gasoline/oil separator located in crawl space.



**Recommendations:**

- Replace all domestic water piping.
- Provide all new plumbing fixtures and science room equipment.
- Replace all natural gas piping.