

Westport High School  
Westport, MA  
Plumbing Existing Conditions Systems Report  
J#680 012 00.00  
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## **PLUMBING**

### **Executive Summary:**

The building was originally constructed in 1950. Presently, the Plumbing Systems serving the building are cold water, hot water, sanitary, waste and vent system, storm drain piping, laboratory waste, vent system, Kitchen waste, vent, and natural gas. Septic sewer and well 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, including domestic well water and water heating equipment which was installed in 1992. The plumbing systems beyond Mechanical Rooms appear to be in poor condition. The school plumbing distribution systems, including piping, hangers, valves and insulation have exceeded their life expectancy and should be replaced.

The plumbing fixtures are in fair condition but are antiquated. It appears as though most bathroom fixtures do not meet current accessibility codes. Current Access Code requires accessible fixtures wherever new 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.

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 site drainage system. Where visible, the cast iron pipe appears to be in poor condition and there are multiple locations where the drainage piping has been replaced throughout the School. Smaller pipe sizes appear to be copper. In general, the drainage piping should be replaced. Portions of the storm piping are not insulated.

Corrosion Resistant polyethylene piping and mechanical fittings are used for Laboratory waste and vent systems. The Laboratory waste system is directed to an exterior acid neutralization tank. The Staff indicated that the acid neutralization tank is no longer maintained. The types of chemicals being used in the Science Programs would determine if neutralization is required.

### **Fixtures:**

The water closets are predominately wall hung vitreous china fixtures with manually operated flush valves.

*Typical Water Closet*

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Urinals are wall hung vitreous china with manually operated flush valves.

#### *Typical Urinals*

Lavatories are wall hung vitreous china. Some lavatories have been retrofitted to include metering faucets. None of the lavatories are fitted with protective insulation on traps, stops, and supplies as required per current Accessibility Codes. Some original Toilet Rooms include a vitreous china wash fountain type fixture with single cold water faucet.

#### *Wall Hung Lavatories*

#### *Solid Surface Lavs*

Drinking fountains consist of either surface mounted or wall mounted stainless type electric water coolers. There are original vitreous china drinking fountains that are not in operation.

#### *Water Cooler*

Janitor's sinks are generally trap standard mounted, enameled cast iron sinks. Faucets are not equipped with vacuum breakers.

Boy's Locker showers are stainless steel wall mounted enclosures with institutional valves and shower heads. Girl's locker showers are stainless steel institutional units on columns each with a drain at base. The Boy's and Girl's shower fixtures include tempered water from a Master Mixing Valve.

#### *Boys Showers*

#### *Girls Showers*

Science classroom sinks are resin type with cold and hot water faucets. Faucets are equipped with vacuum breakers. Science Classrooms contain an emergency eyewash fixture and an emergency shower head fed by the cold water system. Current Codes require emergency fixtures to provide tepid water which is served by a mixing valve that blends hot and cold water. Sinks are piped by a corrosion resistant drainage system that ultimately discharges to the acid neutralization tank, which is no longer maintained.

#### *Science Sink*

#### *Eyewash*

#### *Emergency Shower*

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Art Classroom sinks do not include a plaster trap below the counter.

Kitchen area fixtures are in fair condition. The pot washing sink is fitted with a point of use grease interceptor. The dishwasher drainage is not directed to a point of use grease interceptor. All of the Kitchen waste is directed to the sanitary drainage system beyond the Kitchen.

*Hand Sink*

*2 Pot Wash Sink*

*Dishwasher Drain*

### **Water Systems:**

The main well water service is located in the Mechanical Room. There are (6) six bladder tanks and an inline jet pump which directs the well water into (2) two large water storage tanks. The storage tanks supply the domestic water to the building with a duplex domestic water booster pump system with each pump being 10 horsepower. The main domestic cold-water distribution is 4" in size. The majority of the domestic distribution piping is located above ceilings throughout the facility.

*Water Meter*

*Backflow Preventer*

The domestic water throughout the building is in poor condition including piping, fittings, valves and insulation.

Piping, where exposed, appears to be copper with sweat joints. The majority of the piping is un-insulated and not labeled. Isolation valves appear to be original gate valves which may not be operable.

Domestic hot water for the Building is generated through (2) two gas fired, condensing water heaters with (4) four auxiliary storage tanks. Each water heater has a natural gas input of 240,000 BTUH and the tanks are each 120 gallons. The heater and storage tanks are new and in good condition. An expansion tank is provided on the cold water make-up to water heaters. From the storage tanks, hot water is blended by (2) two master mixing valves piped in parallel to deliver 120 degree hot water to the plumbing fixtures in the Main High School Building. The domestic hot water piping is recirculated back to water heaters.

*Water Heaters*

*Storage Tanks*

*Recirc. Pump*

*Mixing Valve*

A backflow preventer is installed for HVAC make-up water and is showing signs of corrosion.

*Backflow for Make-up*

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**Gas:**

An elevated pressure natural gas is supplied to the building. An exterior gas meter is located in an alcove outside of the building exterior wall. Natural gas is distributed throughout buildings from this location.

*Gas Meter*

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

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

*Gas Turrets**Emergency Gas Shutoff*

Natural gas is provided for kitchen cooking equipment. Kitchen supply is equipped with an automatic shutoff valve.

*Kitchen Gas***Drainage Systems:**

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

*Storm Piping*

Acid waste and vent piping for the most part is polypropylene with mechanical couplings. The exterior acid neutralization tank has been abandoned and no longer maintained.

*Acid Waste**Acid Neutralization Tank*

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In general, the drainage piping should be replaced.

Roof drains consist of large sump receivers with cast iron domes.

*Roof Drain*

There is a sump pump installed in a pit in the Basement floor for groundwater.

*Sump Pump*

A duplex sewage ejector system in a pit within the Basement floor is utilized for lifting the Mechanical Room drainage. The ejector pit and pumps appear to be in need of replacement.

*Sewage Ejector*