Plumbing: Plumbing Assessment

Plumbing Assessment Philosophy

Plumbing systems in historic houses present a view into the evolution of this technology. Plumbing includes water delivery for a range of activities from heating to waste removal to fire suppression. As plumbing technology evolved, historic houses may have different generations of the technology. In some cases, the technology may still be functioning reliably; in other cases the technology may be an inactive example of prior use and adaptation. As water can cause significant damage to buildings in a very short period of time, understanding the quality of plumbing in an historic house is critical to the successful management of the resource. From a safety and efficiency perspective, these plumbing systems should be assessed and any upgrades or changes performed in a thoughtful manner that is consistent with preservation philosophies but also provides required functionality.

Plumbing Assessment Guidelines

- Some plumbing fixtures and piping may be historically significant and should be treated as historic fabric.
- Inefficient plumbing fixtures are not necessarily “bad”, however their functionality and use should be carefully assessed.
- Older plumbing systems may not support the pressure and waste removal requirements of modern functions.
- Valves and visible piping runs should be clearly labeled.
- Initial inventory and assessment can be performed by preservation staff.
- A licensed plumber should perform inspections regarding the repair of failing systems, the upgrade of existing systems and the addition of new systems as necessary. The estimate should provide as much detail as possible so that the scope of work is clear.
- Any changes in plumbing should be performed by a licensed plumber that is reasonably versed in older plumbing techniques.

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Technical Information - Plumbing Inventory and Inspection

The plumbing inventory and inspection has been broken into three sections, or tiers, of progressively more detailed inspection. The first two can be performed by trained staff however the third tier relies on a licensed plumber to perform.

First Tier Inspection:

- Inspect all visible waste lines:
  - Look for corrosion and leaks.
  - Identify if it is a septic system or city sewer.
  - Locate the main drain and the septic field or cess pool.
- Inspect all visible hot and cold water:
  - Look for corrosion and leaks.
  - Assess vulnerability of pipes to freezing.
  - Is there insulation on any of the piping?
- Inspect general water supply:
  - Look at general condition.
  - Identify whether it is city water or well water.
- Inspect all shut offs:
  - Locate all shutoffs and inspect general condition.
  - Identify number and location of exterior faucets and review their ability to be shut off and drained.
  - Verify that seasonally used fixtures (bathrooms, sinks, etc) have accessible shut offs and draining capability.
- Inspect all fixtures:
  - Look at general condition for leaks
  - Verify accessible shut offs under fixtures.
  - Assess water conservation issues relating to fixtures.
- Action Items:
  - Annotate a plan and take a digital image showing the location of:
    - Water meter
    - Exterior faucets
    - Waste line exit from structure
    - Hot water heater location
    - Plumbing fixtures (distinguishing between functional and non-functional)

Second Tier Inspection:

- Label all shut offs in the structure identifying that 1) it is a shut off and 2) what the device shuts off.
  - Start with paper tags while on site reviewing plumbing issues.
  - Replace with laminated tags for permanence.
- Install insulation on all cold and hot water pipes. Insulation on cold pipes helps prevent condensation issues.

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Third Tier Inspection: *Requires Licensed Plumber*

- Inspect all visible waste lines:
  - Look for corrosion and leaks, proper venting, and proper pitch.
- Inspect all visible hot and cold water:
  - Look for corrosion and leaks, piping support, and proper pitch.
  - Assess vulnerability of pipes to freezing.
- Inspect general water supply:
  - Look at general condition.
  - Inspect cross connection (backflow prevention).
  - Verify ball valve shut off after the water meter (for city water).
  - Verify Wye strainer with 100 mesh screen after the water meter and shut off to reduce large debris going to our equipment. An additional water filtration device may be necessary for sites with poor water quality.
  - Verify pressure reducer valve after the meter and the Wye strainer with pressure meters before and after the valve (for city water).
  - Check general water pressure and water flow. Pressure should be set at a maximum of 50 psi.
  - Check condition of well pressure tank and function of pressure switch.
- Inspect all shut offs:
  - Locate all shutoffs and inspect general condition.
  - Verify boiler has shut off (if pertinent) and that the water heater has a shut off for both hot and cold water (makes removal and installation of hot water heater simpler).
  - Verify number of exterior faucets and ability to shut off and drain line?
  - Verify seasonally used fixtures (bathrooms, sinks, etc) have accessible shut offs and draining capability.
- Inspect all fixtures:
  - Look at general condition.
  - Verify accessible shut offs under fixtures.
  - Assess water conservation issues relating to fixtures where appropriate.
- Other Issues:
  - Discuss any other code issues discovered.
  - Discuss filtration options if water quality is poor.
  - If site needs sump pump get estimates for pump and piping and discuss a plan for the piping and discharge location.
  - Check well pump conditions and operations (if pertinent).
  - Inspect waste pump and sewage injector conditions.

Installation specifications:

- Specify Type L copper for line replacements.
- Specify 2 options for waste line replacement: Black ABS and cast iron.
- Install/Replace all valves with Apollo ball valve or their equivalent.