

Module 4: Developing a Sampling Plan

Conducting a Walkthrough and Determining Sample Locations

Conduct a Walkthrough

Conduct a walkthrough of the facility and create an inventory. Take note of all sinks and fountains used for human consumption. If a floor plan is available, mark each tap and water filler on the floor plan and assign a unique identification. It may be helpful to take pictures when conducting this walkthrough. A plumbing profile can be created by answering a series of questions about the building's plumbing. The plumbing profile questionnaire in Appendix G can be used as a worksheet and recordkeeping tool. It may also be helpful to interview custodial staff and the teachers about water use.

Take note of the visible plumbing for these outlets. Staff creating the inventory may need to look under sinks or behind cabinets. Document whether faucets have aerators or filters in place to understand all possible sources of lead and any current remediation efforts at each fixture. Aerators should not be removed while conducting sampling for lead. If your facility has additions, wings or multiple buildings built during different years, a separate plumbing profile is recommended for each. Examples of plumbing configurations for a single-level building and a multilevel building are illustrated in Exhibit 1 and Exhibit 2, respectively.

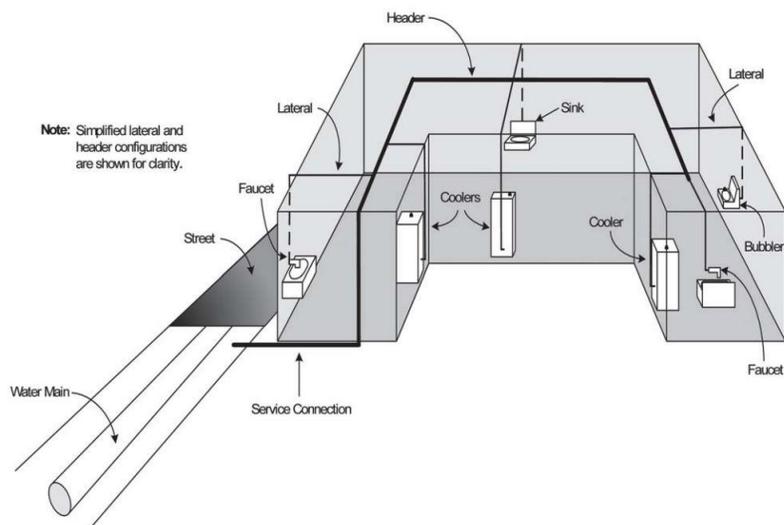


Make sure to note any lead-lined storage tanks or lead parts such as those noted in the [Lead Water Coolers Banned in 1988 factsheet](#). Water coolers identified by EPA as having lead-lined storage tanks or lead parts should be removed.

Conducting this survey of the building's plumbing will enable schools to:

- Understand how water enters and flows through building(s)
- Identify and prioritize samples
- Identify additional sites staff or students may be using for drinking water, such as bathroom faucets, locker room showerheads and non-traditional drinking water outlets that might be used to fill water jugs

Exhibit 1: Plumbing Configuration for a Single-Level Building



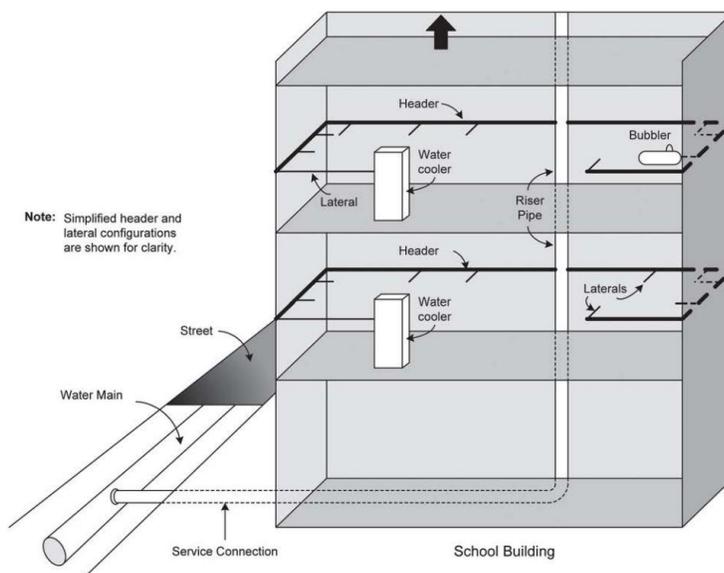
Header: The main pipe in the internal plumbing system of a building. The header supplies water to lateral pipes.

Lateral: A plumbing branch between a header or riser pipe and a fixture or group of fixtures. A lateral may or may not be looped. Where more than one fixture is served by a lateral, connecting pipes are provided between the fixtures and the lateral.

See [Module 1](#) for additional definitions.

As shown in Exhibit 1, in single-story buildings, the water comes from the service connection via main plumbing branches, often called headers. These, in turn, supply water to laterals. Smaller plumbing connections from the laterals and loops supply water to the faucets, drinking water fountains, and other outlets. In multilevel buildings (Exhibit 2), water is carried to the different floors by one or more riser pipes. In addition, in some buildings, water may be stored in a tank prior to being distributed to the drinking water outlets and fixtures.

Exhibit 2: Plumbing Configuration for a Multilevel Building



Remember, for sampling purposes, that water within a plumbing system moves from the water main in the street through the service connection and through the building. Sample collection should typically start on the bottom floor then continue up. However, the water main can enter the building from the first floor and splits to the riser running up to the second, third floors, etc., and the riser can lead to the basement. This configuration may also be different if the water tank is on the roof. Try to learn more about how water flows in your facility to better inform your sampling plan.

Determine Sampling Locations

Decide where to take samples and how to prioritize the sample sites based on responses to the plumbing profile questionnaire and knowledge of the building(s). This should include drinking fountains, kitchen sinks, kitchen kettle filler outlets, classroom combination sinks, and drinking fountains, home economics room sinks, teachers' lounge sinks, nurse's office sinks, and any other sink known to be or visibly used for consumption (e.g., coffeemaker or cups are nearby). Faucets that are not used for human consumption, such as sinks in janitor's closets or outdoor hoses, should not be sampled. If there is potential that these may be used (e.g., janitor closet is close to kitchen and is used for cleaning appliances or the outdoor hoses are used to fill water jugs for sports activities), use clear signage to notify people that the faucet should not be used for drinking or cooking, or include the fixture in your sampling plan.

Important: schools and child care facilities should not use sample results from one outlet to characterize potential lead exposure from all other outlets in their facility. This approach could miss localized lead problems that would not be identified.

Make sure to prioritize outlets that are used by children under the age of 6 years or pregnant women (e.g., drinking fountains, nurses' office sinks, classrooms used for early childhood education, kitchen sinks, teachers' lounges).

During the process of determining sample locations, it will be helpful to code each outlet using a system that will allow each unique outlet to be identified by location, type, and other relevant characteristics. [The "Develop a Code System" factsheet](#) provides examples and templates.

Do You Have a Lead Service Line?

Lead pipes were used for service connections, or service lines, in some locations. Other materials used for service lines include copper, galvanized steel, plastic, and iron. In larger schools, the service line is probably not lead because lead is impractical for the larger service lines typically used in these facilities; however, many child care facilities reside in small buildings and are at a higher likelihood of being served by lead lines.

Regardless of building size, make sure to check the service line. The water system may be able to provide information about whether there is a lead service line or can help identify the service line for your facility.

Lead service lines may be visible and are generally a dull gray color and very soft. They can be identified easily by carefully scratching with a key. If the pipe is made of lead, the scratched area will turn a bright silver color. Do not use a knife or other sharp instruments and take care not to puncture the pipe.

Helpful Tip...

Don't forget to include kitchen kettles in your sampling plan. Kitchen kettles are large containers of water that are then heated to steam or cook things like vegetables, sauces, pastas, rice, etc. They are used in larger kitchens, like some school kitchens, and sample results taken from these have found to contain elevated lead.

Picture of a Scratch on a Lead Service Line

