

Water Service Line Construction Material

KDHE is requiring the city to catalog all service line material, size, and date of installation. The easiest way to determine the material and size of the customer's side is a visual inspection. Water service lines are often found entering the house through a basement wall, slab floor, or crawl space. A water valve typically is located directly after the water service line enters the dwelling. There are many types of materials service lines could be made of. We will cover the majority of them and what to look for.

Lead:

Lead water lines were a commonly used material during the construction of our original water distribution system, beginning in 1888. It was popular due to its flexibility and ease of use. In the 1930s lead began to be replaced by copper and galvanized lines. And in 1988 Kansas outlawed lead piping altogether.

Lead pipes entering a dwelling or building can be easily identified. They will have a dull grey finish and will easily scratch with a sharp object or a

coin. A strong magnet will not stick to lead pipe. They will often form a "bulb" at the location where the lead pipe has a threaded fitting, typically where the main shut-off valve is found.



Lead Pipe Size Guide	
Lead Pipe Size	Actual Outside Diameter
1/2"	7/8"
5/8"	1 1/8"
3/4"	1 1/4"
1"	1 1/2"

Since lead pipe is very thick-walled, it can be misleading as to what size the pipe actually is. Use the chart to the left to estimate the size of your service line if it is a lead pipe.

Copper:

Copper pipe is the most common service line and home plumbing material. It typically has a color similar to a penny and will become shinier as it is polished. A magnet will not stick to copper. It will either have soldered fittings (what looks like a pipe inside of another pipe and sealed with a silver-colored solder) or will have brass fittings which are typically threaded.



Copper



Copper looks like a penny
Usually soldered but may have
brass compression or flared fittings

COPPER PIPE SIZE	ACTUAL OUTSIDE DIAMETER
1/2"	5/8"
3/4"	7/8"
1"	1 1/8"
1 1/4"	1 3/8"
1 1/2"	1 5/8"
2"	2 1/8"
2 1/2"	2 5/8"
3"	3 1/8"
4"	4 1/8"

Copper Size Chart



Copper will have a much more uniform pipe size compared to lead pipe. Use the chart to the left to determine what size of copper pipe you have.

Lead Solder:

Until 1989, it was common practice to use solder-containing lead to bond copper pipes together. If your plumbing was installed before 1989, there is likely lead-based solder holding your copper pipes together. Lead was also used in the construction of drinking water pipes, drinking water faucets, pipe fittings, and fixtures until it

was banned in 2014. If you have copper plumbing installed between 1989 and 2014, your plumbing could also contain certain amounts of lead.

Galvanized Steel:

Galvanized pipe was commonly installed in houses before the 1960s. Service lines of galvanized steel are less common, but a short piece of galvanized pipe may have been used when the service line went through a basement wall or foundation. Galvanized pipes will have a nickel color when new and typically fade to a much duller grey as they age. Pipes can also be painted which will make identification harder. The easiest way to determine galvanized pipe is to look for threaded ends to the pipe, and a strong magnet will stick to the pipe.

Galvanized Iron



Magnet sticks

Galvanized pipes have "threads" at connections.

Galvanized Pipe Size Guide	
Galvanized Pipe Size:	Outside Diameter:
1/2"	7/8"
3/4"	1"
1"	1 3/8"

While galvanized pipe itself does not contain any harmful components, it is known to bond to lead particles which can break away upstream. These particles can break away at a later date and enter the water line, long after any lead upstream has been removed.

PVC:

PVC service lines and plumbing became popular in the late 1960s. They are typically white in color, but can also be dark grey or a yellow tint of white if they are CPVC. They commonly have glue on the fittings.



PVC Size Name	Actual Outside Diameter ¹		
	Fraction	Decimal	Metric
1/2"	13/16"	0.814"	22mm
3/4"	1-1/16"	1.050"	27mm
1"	1-5/16"	1.315"	33mm
1-1/4"	1-9/8"	1.660"	42mm
1-1/2"	1-7/8"	1.900"	49mm

HDPE:

HDPE stands for High-Density Polyethylene. HDPE pipe was first approved for use in the late 1970s. Today, it is quickly becoming the most popular material for water service lines, due to its cost, flexibility, and ability to better handle freeze and thaw. HDPE pipe comes in a range of colors but is commonly black or blue in color. The easiest way to tell HDPE from other types is it will have some flexibility, and it will have some type of metal fitting when transitioning to valves or other fittings. They can be brass compression-type fittings or as simple as hose clamps. HDPE will usually have the size labeled on the pipe or the fittings.



PEX:

PEX is a brand of HDPE pipe commonly used for whole-house plumbing but can be used for service lines. PEX comes in white, blue, and red colors, and can be distinguished from HDPE by the fittings used. Size is typically written on the pipe as well.



Asbestos-Cement:

Asbestos Cement pipes are cement lines mixed with asbestos. They gained popularity in the late 1930s to early 1940s. It was believed these pipelines were resistant to corrosion. Most of the Asbestos-Cement water pipes at the time were city-owned water mains. The City of Oberlin does NOT have any Asbestos water

lines, but homeowners may have this material on the customer side and in the house. Asbestos pipes do carry their own health risk if the asbestos breaks away from the pipe and can be digested. If you suspect you have asbestos pipes, you should contact a licensed plumber to do an inspection.



Asbestos pipe can be identified by its dull grey color and a rougher exterior.

Water Service Line Installation Date

EPA and KDHE are also wanting an approximate date for when your water service line was installed. We realize this can be a difficult question because many service lines have been in service since before our time in the dwelling. Unless you have had the service line replaced or know of a previous owner replacing the line, it is reasonable to assume the service line is original to the dwelling's construction. You can also use the pipe material as a guide to the age of the material.

Point of Entry Filtration

All municipalities in the state of Kansas are required to take samples for levels of lead and copper in drinking water. These are typically done at multiple locations inside a customer's home/building. The State requires samples to be taken from an unfiltered sink. These include whole-house filters, water softeners, and reverse osmosis filtration. This question is mainly for the city's records so we can determine which houses are eligible for sampling.



Whole Home Filters are typically found close to the entry point of the service line. Water will enter on one side and exit on the opposite, and they typically have a plastic "cup" on the bottom where the filter is located. See the picture to the left

Water softeners are also typically located close to the entry point of water. They commonly have two parts, one a plastic tank, and a pressurized tank with a mechanical or digital timer. See the picture to the right.



Reverse Osmosis filters are commonly found under kitchen sinks or nearby. They are used to filter drinking water and will have a small pressure tank, with multiple water filters and small supply lines. See the picture to the left.

Home Internal Plumbing

The goal of this EPA project is to remove all lead from drinking water pipes, including potential contamination points inside the home. KDHE is requiring we collect information on the dwellings' most common, and second most common internal plumbing material. If unfamiliar with the different plumbing materials listed, please use the Water Service Line Material Guide above. The section under Lead Solder will help you distinguish if you have copper, or copper pipe with lead solder.



Inspect the visible plumbing in your dwelling to determine the primary and secondary plumbing material. If most plumbing is hidden, you can inspect areas where the plumbing connects to faucets, water heaters, softeners, outside spigots, etc. Try to be as accurate as possible.

COMMONLY USED PIPES

Stainless Steel Pipe	PEX Pipe	Copper Pipe	PVC Pipe	Galvanized Pipe	Brass Pipe	Cast Iron Piping
Used in areas subject to corrosion	Popular in residential and small business applications	Used for hot and cold water	Used for cold and hot potable water	Used for grey water	Used for water tanks and wells	Used for water distribution systems

the balance