



PILLAR TO POST -
THE PUTNAM TEAM

HOME SERIES: PLUMBING

Your home's plumbing system is a complex network of water supply pipes, drains, and vents. It's designed to bring fresh water in and take wastewater out. Regular checks can prevent leaks, clogs, and other issues, keeping your home safe and water-efficient. Understanding the different components of this system, including the types of piping used for water supply, drainage, and ventilation, is crucial for homeowners. This knowledge not only aids in routine maintenance but also in making informed decisions during home inspections. This brochure aims to demystify the plumbing system, focusing on its key elements and their functions within the household.

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Types of Piping

Water Supply Piping

- **Copper:** Durable, resistant to corrosion, and widely regarded for its longevity. Copper piping is commonly used for water supply lines due to its reliability.
- **PVC (Polyvinyl Chloride):** A plastic piping that's lightweight, easy to install, and resistant to corrosion and chemical damage. PVC is typically used for cold water lines.
- **CPVC (Chlorinated Polyvinyl Chloride):** Similar to PVC but capable of withstanding higher temperatures, making it suitable for hot water lines.
- **PEX (Cross-linked Polyethylene):** Flexible, resistant to scale and chlorine, PEX is increasingly popular for its ease of installation and durability. It's used for both hot and cold water supply.

Drainage, Waste, and Vent (DWV) Piping

- **PVC and ABS (Acrylonitrile Butadiene Styrene):** Both are used for drain, waste, and vent lines due to their resistance to corrosion and ease of installation. ABS is black, while PVC is white or light-colored.
- **Cast Iron:** Known for its durability and sound-dampening properties, cast iron is often used in commercial buildings and in residential homes for main sewer lines.

Service Piping from the Street

- Service piping connects the municipal water supply or sewer system to a home, playing a crucial role in ensuring a consistent flow of water into and waste out of the property.

The materials used for these pipes vary based on durability, resistance to corrosion, and the era of installation:

- **Copper:** Renowned for its longevity and resistance to corrosion, copper has been a material of choice for service lines for many years. It doesn't leach harmful substances and can last over 50 years.
- **PVC and HDPE (High-Density Polyethylene):** These plastic materials are now commonly used for service lines due to their resistance to corrosion, ease of installation, and cost-effectiveness. HDPE, in particular, is flexible, making it suitable for areas prone to soil movement.
- **Ductile Iron:** Known for its strength, ductile iron piping is often used for main water lines in municipal systems and can be a choice for service lines due to its durability.

Older homes may contain a variety of piping materials that are no longer commonly used due to concerns over durability, safety, or efficiency:

- **Galvanized Steel:** Found in many homes built before the 1960s, galvanized pipes were once popular for their strength. However, they're prone to corrosion and sediment buildup over time, leading to reduced water pressure and potential water quality issues.
- **Lead:** Used in very old plumbing systems, lead pipes are now known to pose significant health risks due to lead leaching into drinking water. Replacement of these pipes is critical for safety.
- **Cast Iron:** Similar to galvanized steel but more commonly used for waste pipes, cast iron is durable but can rust and crack over time, leading to leaks and blockages.

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Sewer Laterals: The Connection to Wastewater Management

Sewer laterals are an essential component of a home's plumbing system, carrying wastewater from the home to the public sewer system or a septic tank. The material and condition of these pipes can significantly affect their efficiency and the potential for issues.

Materials Used in Sewer Laterals

- **Cast Iron:** Durable and with a long lifespan, cast iron was commonly used in older homes. Over time, however, it can corrode and develop rust, leading to blockages or leaks.
- **PVC (Polyvinyl Chloride):** PVC is a plastic piping that's resistant to corrosion and chemical damage, making it a popular choice in modern plumbing systems for its longevity and lower maintenance needs.
- **Clay:** Used in many older sewer systems, clay pipes can last a long time but are susceptible to cracking and root intrusion, which can cause significant blockages and leaks.
- **Concrete:** Concrete pipes are sturdy but can be prone to cracking and are often found in older systems or larger municipal connections.

Typical Issues Found in Sewer Laterals

During inspections, especially those conducted with camera technology, several common issues can be identified, including:

- **Root Intrusion:** Tree roots can penetrate clay, concrete, and even some older PVC or cast iron pipes, causing blockages or damage.
- **Blockages:** Accumulation of grease, debris, and non-flushable items can lead to severe blockages in the lateral.

- **Cracks and Leaks:** Age, shifting soil, or heavy above-ground pressure can cause pipes to crack, leading to leaks that may undermine the structural integrity of the plumbing system and surrounding property.
- **Corrosion and Deterioration:** Over time, materials like cast iron can corrode, reducing the pipe's diameter and flow capacity, or even leading to collapses in severe cases.

The Role of Camera Inspections

Camera inspections are a valuable tool in diagnosing the health of sewer laterals. By providing a visual assessment of the pipe's interior, these inspections can pinpoint exact locations of damage or blockage without the need for extensive excavation. Homeowners are encouraged to conduct these inspections if experiencing recurrent drainage issues, before purchasing a home, or as part of regular maintenance for older plumbing systems.

Addressing Issues in Sewer Laterals

Upon identifying issues, several repair or replacement options can be considered, ranging from spot repairs for localized damage to full replacement in cases of extensive deterioration. Trenchless repair methods, such as pipe lining or bursting, offer less invasive alternatives to traditional excavation, minimizing disruption and potentially lowering repair costs.

Conclusion: Understanding and Maintaining Sewer Laterals

Maintaining the integrity of sewer laterals is crucial for the overall health of a home's plumbing system. Being aware of the materials used in these pipes and the common issues that can arise helps homeowners anticipate and address problems effectively. Regular inspections, particularly with camera technology, play a key role in identifying and rectifying issues before they lead to more significant damage or disruption.

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The Heart of Hot Water: Water Heaters Explained

Water heaters are pivotal for comfort and daily convenience, supplying hot water for showers, washing dishes, and more. Different types cater to various needs and preferences, from traditional tank storage models to energy-efficient tankless, hybrid, and solar options.

Types of Water Heaters

- **Traditional Tank Storage Water Heaters:** Utilize a reservoir to store hot water, ensuring availability when needed. They can be powered by gas, electricity, or oil.
- **Tankless Water Heaters:** Provide hot water on demand, reducing energy costs but requiring a higher initial investment.
- **Hybrid Water Heaters:** Combine conventional technology with a heat pump to use less electricity.
- **Solar Water Heaters:** Harness solar energy to heat water, offering significant energy savings over time.

Maintenance for Longevity and Efficiency
Maintaining your water heater is vital for its longevity and efficiency. Annual draining, temperature regulation, and component checks can prevent common problems like sediment buildup and corrosion. Understanding and implementing routine maintenance ensures a reliable hot water supply and can extend the life of your water heater.

Enhancements and Considerations for Water Heating

- **Expansion Tanks:** These are added to water heater systems to absorb excess water pressure, protecting the system from thermal expansion damage.
- **Dielectric Unions:** Special fittings that prevent galvanic corrosion by isolating dissimilar metals in the plumbing connections, crucial for water heater longevity.

Familiarity with your water heater and other associated components can help you identify and troubleshoot common issues, such as insufficient hot water, leaks, or noises caused by sediment buildup. Early detection and intervention can prevent more severe problems and ensure efficient operation.

An understanding of both your broader plumbing system and the specifics of your water heating setup empowers you to maintain a safe, efficient home. Regular checks, timely maintenance, and an awareness of how different components interact can prevent issues and save costs, ensuring your home remains comfortable and your plumbing system operates seamlessly.

This comprehensive guide aims to equip homeowners with the knowledge necessary to understand and manage their home plumbing systems effectively, including the crucial aspect of water heating. Whether dealing with day-to-day maintenance or considering upgrades, this integrated approach helps homeowners make informed decisions for a well-maintained home.