

How Water Works

ILLUSTRATED PROCESSES, EQUIPMENT, AND TECHNOLOGY

An Inside Look at Residential Water Use

North American households use approximately 146,000 gal of water annually, according to the Awwa Research Foundation. Of this amount, 42 percent is used indoors, and the remaining 58 percent is used outdoors. By far the largest percentage of indoor water use occurs in the bathroom for toilet flushing (20.1 gal/person/day) and showering (13.3 gal/person/day). Clothes washers were the second largest water users (15 gal/person/day). For information on residential water efficiency, visit the Water Saver Home website (www.h2ouse.org), a virtual encyclopedia of water-saving tips, and AWWA's drinktap.org consumer website. Next month, How Water Works details fire-flow requirements and backflow prevention considerations for commercial facilities.

1. Distribution mains are the pipelines that carry water from the transmission mains and distribute it to the customers and fire hydrants throughout the water system. Mains in residential areas should be at least 6–8 in. in diameter.
2. Service lines carry water from the utility's water mains to the consumer's home, building, or other point of use. Average single-family homes are adequately served with a ¾-in. service.
3. A shutoff valve, or curb stop, is used to easily turn off the service line for repairs or nonpayment of the water bill.
4. Water meters calculate how much water is used. In cold climates, indoor meters should be located as close as possible to where the pipe enters the home. Meters in warmer climates are often located on an outside wall or in a lawn pit.
5. Backflow-prevention devices may be installed to create an isolated or closed plumbing system, preventing water from flowing back into the public water pipes.
6. In the building, fresh water fills the hot water heater (6a), and piping is split to supply cold (blue) and hot (red) water to taps and fixtures, including outdoor irrigation systems.
7. Drain/waste/vent piping (brown) disposes of used water and waste, exhausts sewer gases, and provides proper pressure for drainpipes.



ILLUSTRATION: RON KNOWLTON

Some illustration elements exaggerated for emphasis.