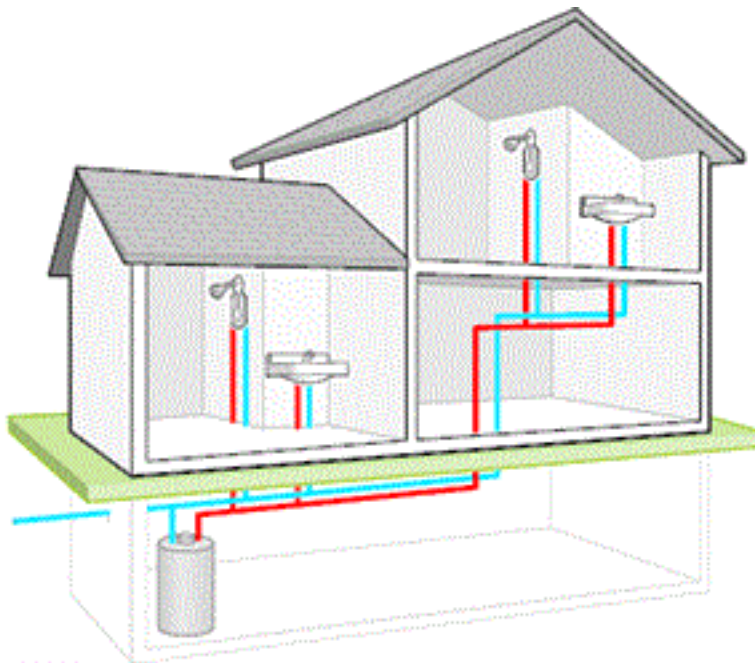


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- **Game Changer**

Evener Flow

Codes and standards lean toward delivering hot water more quickly and more efficiently.

By [John Caulfield](#)



Gary Klein has been in hot water for more than 20 years.

Klein is managing partner of [Affiliated International Management](#), a Newport Beach, Calif.–based consultancy that specializes in designing plumbing and heating systems that make homes more efficient by reducing energy and water usage.

As houses have gotten larger, builders regularly hear complaints from owners about how long it takes water flowing to showerheads and faucets to get hot. That delay, Klein explains, is mainly a function of the distance between the water source and the farthest-away fixture. (In a 2,400-square-foot house, there can be 120 feet of pipe between a water heater and a second-floor bathroom.)

Thirty percent of a house's total energy consumption goes toward heating water, according to

[GreenCE](#), an online resource for design professionals. As owners run water till it's hot, a lot of water and energy go down the drain. For every 10 gallons wasted through normal distribution, one kilowatt-hour of energy is expended.

Klein advocates reducing water and energy usage by means of a structured plumbing system with a recirculation loop primed by a demand-control pump.

But most codes and standards don't give builders credit for installing such systems. So Klein has been working with several code-setting agencies and is confident that "base codes" such as the [International Energy Conservation Code](#) and the [Uniform Plumbing Code](#) will incorporate such plumbing systems into their 2015 revisions.

Efficiency guidelines are moving in this direction. California's Title 24 and the EPA's WaterSense 1.1 give builders credit for adding a demand-control pump to a home's plumbing system. Klein says he has been talking with officials at [ResNet](#) and [Energy Star](#) about updating their calculations so builders earn credits when their plumbing systems save water and energy. "The water-heating budget is going to be the next big thing in Energy Star" ratings, Klein predicts.

Dave Grieshop, managing partner with **Error! Hyperlink reference not valid.**, a consulting firm in Sierra Vista, Ariz., calculates that installing a demand-control pump into a new home could save the owner \$92 to \$140 per year and reduce water wasted by 6,100 gallons. But many builders and home buyers remain unaware of these savings, "or simply accept plumbing for what it is," Grieshop says. Costa Mesa, Calif.-based [Advanced Conservation Technology](#) (ACT), a leading distributor of demand-control pumps in all 50 states, Canada, Mexico, and Australia, sells only about 25,000 units per year, says its CEO Larry Acker.

Acker concedes the price tag—\$375 to \$800 per pump—limits greater penetration with production builders, some of whom "wouldn't put windows in their houses if they didn't have to," he quips. Still, ACT's builder customers include [Toll Brothers](#) (which installs pumps in all of its homes in southern California), [Standard Pacific](#), and [Shea Homes](#). "In Orange County, Habitat for Humanity won't build a house without a pump," Acker says.

He also sees opportunities in the retrofit market because "there are 40 million homes out there wasting 8,000 to 11,000 gallons of water per year."

Keywords

Subject

[Building Technology](#), [Codes and Standards](#), [Plumbing](#)

Person

[Larry Acker](#), [Dave Grieshop](#), [Gary Klein](#)

Organization

[Habitat for Humanity](#), [Shea Homes](#), [Standard Pacific](#), . . .