

A Closer Look:

Green Plumbing Trends 2011

The green building boom isn't only for builders. Plumbers, too, can take advantage of the growing demand for green products and services, and they are positioned to do just that in 2011.



In the last several decades, little in the plumbing industry has changed. But with a more eco-conscious approach to every industry, plumbers are now looking at new practices and technologies that drive water conservation and energy efficiency.

“Although plumbing products’ design and performance didn’t change much in the last 100 years, it is now changing very rapidly,” says Barbara C. Higgins, executive director of the Plumbing Manufacturers Institute (PMI) in Rolling Meadows, Ill.

Bold solutions to water and energy scarcity

Higgins cites concerns about water scarcity and the growing population as major driving forces in the future of the plumbing and water management technologies.

“Because there’s increased pressure on saving water, manufacturers have to be very innovative and clever to make sure products are performing up to consumer expectations while also using less water,” she says. “Modern plumbing products

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—Pete DeMarco, director of special programs,
International Association of Plumbing and Mechanical Officials (IAPMO) Ontario, Calif.

WaterSense: The future of plumbing

WaterSense is a government-run program that creates and maintains voluntary water efficiency standards. Launched by the EPA in 2006, WaterSense is considered a major driver of green technology within the plumbing industry. By using water-efficient products and practices, the EPA argues, consumers save natural resources, reduce water consumption and save money. In order to help realize these savings, WaterSense helps consumers identify products and services that use less water while performing as well as or better than conventional models.

Products bearing the WaterSense label:

- Perform as well or better than their less efficient counterparts.
- Are 20 percent more water-efficient than average products in their category.
- Realize water savings on a national level.
- Provide measurable water savings results.
- Achieve water efficiency through several technology options.
- Are effectively differentiated by the WaterSense label.
- Obtain independent, third-party certification.

For manufacturers to use the WaterSense label—which can be found on bathroom sinks and faucets, new homes, showerheads, toilets and urinals—they must sign a WaterSense partnership agreement that defines the roles and responsibilities of EPA and the partnering organization, as well as proper use of the label on products, packaging and in marketing materials. For more information, visit www.epa.gov/WaterSense. Products bearing the WaterSense label are also available at your local Lowe’s.

are highly engineered, and as areas experience more drought and an increased population, our engineers will continue to be challenged to create a new generation of water-efficient plumbing products.”

If water conservation is the lead driver in the rapid evolution of plumbing technology, energy efficiency is next in line, according to Pete DeMarco, director of special programs for the International Association of Plumbing and Mechanical Officials (IAPMO) in Ontario, Calif.

“Although it historically has been slow compared to many other industries, the pace of change for the plumbing industry is about to accelerate,” DeMarco says. The two major driving forces for this change are water scarcity and energy conservation, he says.

“As our population grows we’re going to be tasked with using the same amount of water, but sharing it with more people,” DeMarco says. “And there’s a ton of embedded energy in water, which has to be pumped from a source, treated and then transported to our homes, where it’s used, then moved again, treated again and put back into the water table—all of that requires energy.”

DeMarco adds that in Southern California alone, 19 percent of all the state’s energy consumption is consumed in that process. Together, water scarcity and embedded energy have made it necessary for the plumbing industry to develop new technologies for using water more efficiently.

Top plumbing trends of 2011 and beyond

Between municipal mandates and homeowner demand, plumbers are well positioned to benefit from the development of new “green” plumbing technologies.

“There’s a whole new market [in the United States] for folks in the plumbing industry,” he says. “There’s a lot of new opportunity being created with green consumerism, and contractors who learn about emerging technologies are the ones who are going to reap their benefits.”

Driven by government regulation and consumer demand, the following five trends in green plumbing technology are the most promising for plumbers in 2011 and beyond, according to industry experts:

1 High-efficiency plumbing products: In 2007 the Environmental Protection Agency released final specifications for toilets certified under its new WaterSense water efficiency program. New WaterSense labeled toilets are 20 percent more efficient and use less than 1.28 gallons a flush. These toilets are not only more efficient than past models, but they are more effective fixtures in general as well.

Although the WaterSense standard is voluntary, it will be law in several states, including California and Texas, by 2014. For that reason, high-efficiency toilets are leading the way in plumbing technology trends, according to PMI President Lee Mercer, who says the next frontier for water efficiency is showers. “That’s definitely a growing trend: Plumbing manufacturers are now coming out with new water-efficient showerheads that allow you to reduce the flow and still have a high-performance shower that allows you to get the soap out of your hair,” he says.

2 Water reuse applications: Water reuse systems are becoming even more mainstream, according to DeMarco, who predicts more widespread adoption of these systems in 2011. “Increasingly, we’re going to see those systems installed by folks who are interested in being more water-efficient—especially in the more arid states out west,” he says. “All these systems will need to be installed and maintained properly, so there’s a big opportunity coming for folks in the trade.”

3 Energy-efficient water heaters: Plumbers and homeowners alike are now very familiar with tankless water heaters, which save energy over standby tank systems by

By the Numbers: Water (in)efficiency in the U.S.A.

10% Households with leaks that waste 90 gallons or more of water per day

200% Increase of water usage in between 1950 and 2000

36 Number of U.S. states predicted to experience a water shortage by 2013

400 Average gallons of water used in a day by a U.S. family of four*

\$170 Average annual water bill savings a household achieves with simple improvements

\$500 Average annual amount a household spends on water and sewer utilities

\$6 billion Estimated value of water wasted every year due to running toilets, dripping faucets and other household leaks**

\$18 billion

Estimated annual savings if all U.S. households installed water-efficient appliances

3 trillion

The number of gallons of water that could be saved if all U.S. households installed water-efficient appliances

* Equivalent to double the European average

** Equivalent to 1 trillion gallons; the annual water use of Los Angeles, Chicago and Miami combined

Sources: U.S. Environmental Protection Agency, U.S. Geological Survey

producing hot water on-demand. But there are more efficient and “natural” ways to heat water, says Mike Cudahy, codes and training specialist for the Plastic Pipe and Fittings Association (PPFA) in Glen Ellyn, Ill.

- Solar water heaters store water in an outdoor tank and pre-heat it in the sun before it is pumped into a home’s traditional water heater, greatly reducing the need for gas or electric heat. “Most people think they’re being green by putting a big solar panel on the roof to generate electricity, then using that electricity to heat their water,” Cudahy says. “They’re beginning to realize, though, that it’s cheaper and more efficient to put a hot water system on the roof that heats the water directly.”
- Ground source pumps use geothermal ground loops of plastic pipes filled with water and antifreeze to naturally heat or cool a home’s air and water using the earth’s thermal mass. “Some systems can even produce hot water as a second product, and a well-designed geothermal ground loop system can cut water heating and air conditioning energy use by 50 percent,” Cudahy says. “It’s not a minor savings; it’s significant.”

4 High-efficiency distribution systems: According to DeMarco, a new technology is heat exchangers that take advantage of the heat in the water that you bathe with. “As you let the water down your drain, these systems capture that heat and use it to heat the water going into your water heater,” he says. “Another one is hot water recirculation systems, some of which work on a timer or a call switch; so, before you get up in the morning the system turns on and heats the water so it’s ready when you turn the water on for your shower.”

Cudahy prefers a different technology that delivers hot water to a specific location only when it’s needed. “Constant recirculation loops or timer recirculation loops aren’t green; they do save water, but there’s so much radiant heat loss that you’re basically doubling your energy use and energy bills,” he says. “I prefer what I like to call hot water priming systems. Basically, there’s a motion detector or a push button; when you need hot water, the motion sensor triggers the hot water pump to provide on-demand hot water.”

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5 Clean-water fixtures and fittings: Green building is as much about health as it is energy-efficiency. With that in mind, lead-free fixtures and fittings have become much more popular. Mercer cites a California law that was passed in 2007, requiring all drinking water faucets sold in the state after Jan. 1, 2010, to contain no more than 0.25 percent lead. “The California law has changed the way manufacturers do things from a materials perspective,” he says, adding that plumbers working in lead-free states will have to educate themselves about which products meet state requirements. “Traditionally, most fixture fittings are brass, and lead is a component of brass. Now we’re focused on developing new brass alloys that replace lead with other materials, but perform just as well as leaded brass.”

Is there a learning curve?

Innovative plumbing technologies create new opportunities for plumbers, but, with the exception of geothermal systems, installing them doesn’t typically require new skills, according to DeMarco.

“For the most part, these products are relatively straightforward and plumbers will be able to handle their installation with the skills they already possess,” he says. “The key is keeping up with the trends in the first place and making sure you understand not only the new opportunities, but also the new challenges.”