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Product Pros and Cons: Tankless Water Heaters vs. Conventional Storage Tanks

Determine which system is right for your homes.

By:

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Rinnai controllers allow home owners to adjust their tankless water heaters from inside any room in the house.

Hot water is a hot issue for builders, architects, and remodelers these days.

Why? Many current buyers are interested in homes that are energy efficient and economical to operate, which are factors that can be dramatically affected by a home's hot water usage. According to the DOE's Office of Energy Efficiency and Renewable Energy, water heating is the third-largest expense in most homes, accounting for 14% to 25% of a home's expenses. In some cases, that percentage may even be higher, which means energy-conserving hot water solutions also could result in big cost savings for homeowners in this difficult economy.

Currently, the most popular energy-efficient option for water heating is a tankless water heater, also known as an on-demand system. Unlike a traditional tank that heats a reservoir of water 24 hours a day, a tankless unit activates only as needed. When there is a demand for heated water, cold water travels through the tankless unit, where a gas burner quickly heats it to the preset temperature.

According to www.smarterhotwater.com, a Web site launched by Alabama-based Rheem Manufacturing, the average annual operating cost for a conventional storage is between \$230 and \$285, nearly twice the cost for a tankless system. (Rheem estimates a tankless hot water heater would cost \$165 to \$170 annually to operate.)

Given those numbers, the decision to go tankless seems a simple equation; tankless water heaters have proved popular in Europe and Asia, according to W.B. "Butch" Aikens, tankless resource manager for Rheem, which manufactures both tankless and conventional tank water heaters. But like many other construction technologies, tankless water heater usage in the United States lags behind the rest of the world, Aikens says.

Cost could be a factor for the low penetration in the U.S. market--tankless heaters cost significantly more than a conventional system. But it also could be a matter of educating the American market about the product. In recent years, manufacturers say awareness has grown significantly, and so has usage, which has seen double-digit increases. The driving force? Consumers. They are "mainly the ones driving this demand for tankless water heaters more than builders," Aikens says.

Does that mean that every builder and remodeler should install tankless in their projects? Maybe, maybe not. While tankless technology can reduce a home's energy costs by as much as 25% annually compared to a standard 40-gallon tank heater, there are other considerations. Standard storage tanks now qualify for Energy Star certification. And tankless systems may have other issues that negate its energy performance and lower operating costs.

What's a smart builder to do? Make the best decision possible, given the parameters of your homes, buyers, business, and locality. Here's a handy guide outlining the pros and cons of tankless water heaters versus conventional storage tanks that you can use to evaluate the options for your customers.



Conventional gas storage water heaters are now Energy Star rated.

Conventional Hot Water Storage Tanks

Pros for Conventional

Proven technology that builders and home owners know and trust. The straightforward system has been around for years and works well.

Low product cost and low installation cost. A basic 30-gallon electric tank can be purchased for less than

\$300. Installation is fairly simple.

Inexpensive replacement cost. If and when a water heater goes bad, the system can easily be replaced with a similar unit for about \$500 to \$800.

Energy Star tanks are now available. As of this year, the Energy Star program certifies conventional high-efficiency gas water heaters, so it's possible to save energy and money. Units must have an energy factor of .62.

Cons for Conventional:

Conventional tanks are always on. No matter how energy efficient it is, a storage tank cycles on a regular basis to heat and reheat water at a preset temperature, using energy to heat the water whether a homeowner needs it or not.

Big and bulky. Most storage tanks take up precious real estate in a mechanical or laundry room, especially in smaller homes such as apartments, condos, or townhouses.

May be inadequate. Depending on the capacity and household hot water needs, a conventional storage tank may not be able to meet demand. "If not sized correctly for peak demand, tank water heaters will run out of hot water," according to www.smarterhotwater.com. In addition, only about 70% of the hot water in a typical storage tank is available for use, says Aikens.

Less versatile installation. The unit needs a fairly large space for installation and cannot be located outside the home.

Less durable. The life expectancy of a conventional hot water tank is about 12 to 15 years.



Tankless water heaters reduce energy use up to 25%, but they cost twice as much as standard storage units.

Tankless Hot Water Heater

Pros for Tankless:

Saves energy. The unit only operates when there is a demand for hot water, which can reduce its energy cost by about 25% annually.

Highly efficient. The most efficient storage tank has an energy factor of about .67, but, according to Energy Star, some tankless units have energy factors as high as .95.

Reliable. If a unit is sized properly, a gas tankless heater can deliver a continuous supply of water at a preset temperature (plus or minus one degree) at a rate of typically 2 gallons to 5 gallons per minute. The units never run out of hot water, though the flow rate may be inadequate during times of peak demand, according to www.smarterhotwater.com.

Compact size. The typical tankless heater is about the size of a small suitcase, which takes up significantly less space than a conventional tank.

Durable. It has a life expectancy of 20 years or more.

Versatile. The unit is easy to zone and it can go almost anywhere in the house. It also can be installed outside on a wall.

Cons for Tankless:

Tankless units cost about twice as much as traditional storage tanks. A typical tankless unit may cost about \$700 and can easily top \$1,500.

Installation is expensive. In addition to the high product cost, installation for the unit and the necessary piping can be pricey. They also need very good venting, which is also expensive.

Retrofit is pricey and complicated. Unlike a traditional tank, retrofitting a home with a tankless unit is difficult and expensive. "In new construction, the labor time required to install a tankless water [heater] is about the same as a tank water heater," according to www.smarterhotwater.com. But the equation changes in a remodeling situation. The process is complicated, and the installed costs to replace a tank water heater with a tankless unit can be as high as \$3,000.

Best performance comes from gas units. Though gas-fired tankless units are great performers for whole-house use, electric units are woefully inadequate. Electric units are not Energy Star-rated, Aikens says, and "require significant amounts of energy to use."

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