

Why Tankless?



Connect your clients with
the latest advances in
tankless water heating technology

BY RINNAI



Your customer's conventional water heater with a storage tank uses a lot of energy to make hot water that goes to waste. Incoming cold water is heated to the correct temperature — usually about 120°F — and stored until the homeowner needs it, whether that's two hours or two weeks away. As the water slowly cools, known as the standby losses, it must be warmed back up. According to government estimates, a typical water heater accounts for about 18% of all energy used by an average U.S. household, adding up to several hundred dollars a year.

One route to lowering a home's energy use is by having its owners invest in a tankless water heater. Not only are standby losses eliminated, lowering energy use by as much as one-third, but a tankless heater never runs out of hot water. As long as there's a supply of water and gas, the hot water keeps flowing to your client's fixtures.

Tankless water heaters are smaller than their conventional counterparts— about the size of a suitcase — and some models can be installed outdoors, expanding the options for installation. Additionally older tanks can accumulate rusty sediment over time and leak all over your floor. Rinnai tankless water heaters have a longer life span, up to twice as long as a traditional tank.

Tankless water heaters do have a higher

upfront cost. But in new construction, the higher cost of a tankless heater can be bundled into a mortgage with the small monthly bump in payments more than outweighed by lower gas bills. The choice may not be as simple in existing construction. Whether the higher initial cost and are offset by higher efficiency and greater convenience will depend on specific site conditions.

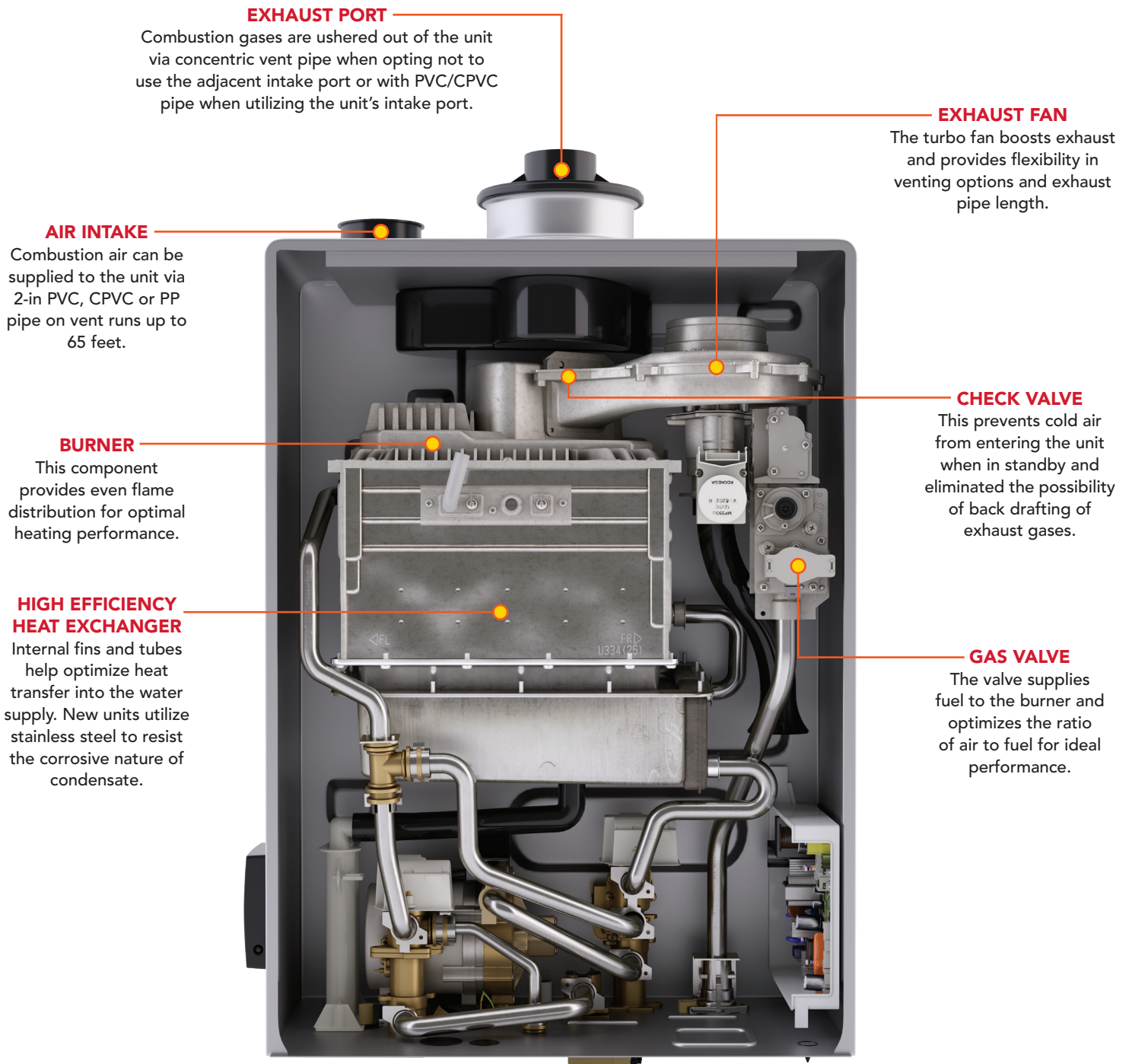
How tankless heaters work

Many clients will be curious how tankless water heaters differ from the tank-style units they regularly encounter. Like a conventional water heater, a tankless heater is connected to a cold-water supply. But unlike a conventional heater, nothing happens until they turn on a hot-water tap and water

“According to government estimates, a typical water heater accounts for about 18% of all energy used by an average U.S. household, adding up to several hundred dollars a year.”

INSIDE A TANKLESS HOT WATER HEATER

Though tankless water heaters are well engineered, they're not overly complex. Here are the critical components that make up a tankless hot water heater's inner workings.



begins flowing. Once water flow reaches a certain threshold, gas ignites inside a heat exchanger in the tankless unit and brings water up to temperature within a few seconds. The heater automatically adjusts, so the outgoing water is at the set temperature.

When the tap is turned off and the flow of water stops, the heater shuts itself off and waits until hot water is required again. As long as there's a demand for hot water, a tankless heater will continue to produce it — long after a 40- or 50-gallon tank would have been depleted.

Rinnai tankless water heaters, specifically, use very little electricity when in standby mode, and because ignition is electronic, rather than via a pilot light, the unit isn't burning any gas unless it's heating water.

While the units produce hot water almost instantly, it can still take time for the hot water to reach the point of use — a distant shower, for example, or the kitchen sink. Locating the heater near the master shower and the kitchen sink is a good strategy if possible. When that's not an option, a recirculation system can be integrated to guarantee a no-wait delivery by keeping the line charged with hot water. Rinnai recirculation systems can be activated wirelessly, with a motion-sensing switch, or with a timer to be sure that hot water is in the supply line when homeowners are most apt to need it. In 2018 Rinnai's 2.0 version of its app will allow for voice activated recirculation as well.

The right unit in the right location

There are many Rinnai tankless models to choose from. In consulting with your subcontractors and homeowners when deciding on which one to pick, the most important factors are how much hot water it's capable of producing (measured in gallons per minute), whether it will be installed indoors or outdoors, and how the unit will be vented.

To size a heater, the Department of Energy recommends starting with the number and flow-rates of the fixtures the heater will serve. For example, if the heater will simultaneously supply hot water to two showers, each with a 2.5 gallon-per-minute (gpm) shower heads, the total flow would be roughly 5 gpm of water, which is typically a mixture of hot and cold.

Add to the equation the difference between the temperature of incoming water, let's say 50°F, and outgoing water, 120°F. That scenario would require a 70°F temperature rise.

“The other variable is whether the water heater should be installed indoors or out — and that's largely a function of climate.”

In this case, you'd need a heater with a minimum flow rate of 5 gpm at a temperature rise of 70°F. In parts of the country where incoming water is warmer (and the temperature rise therefore lower), the unit would be able to supply hot water at a higher rate because it's not adding as much heat to the flow.

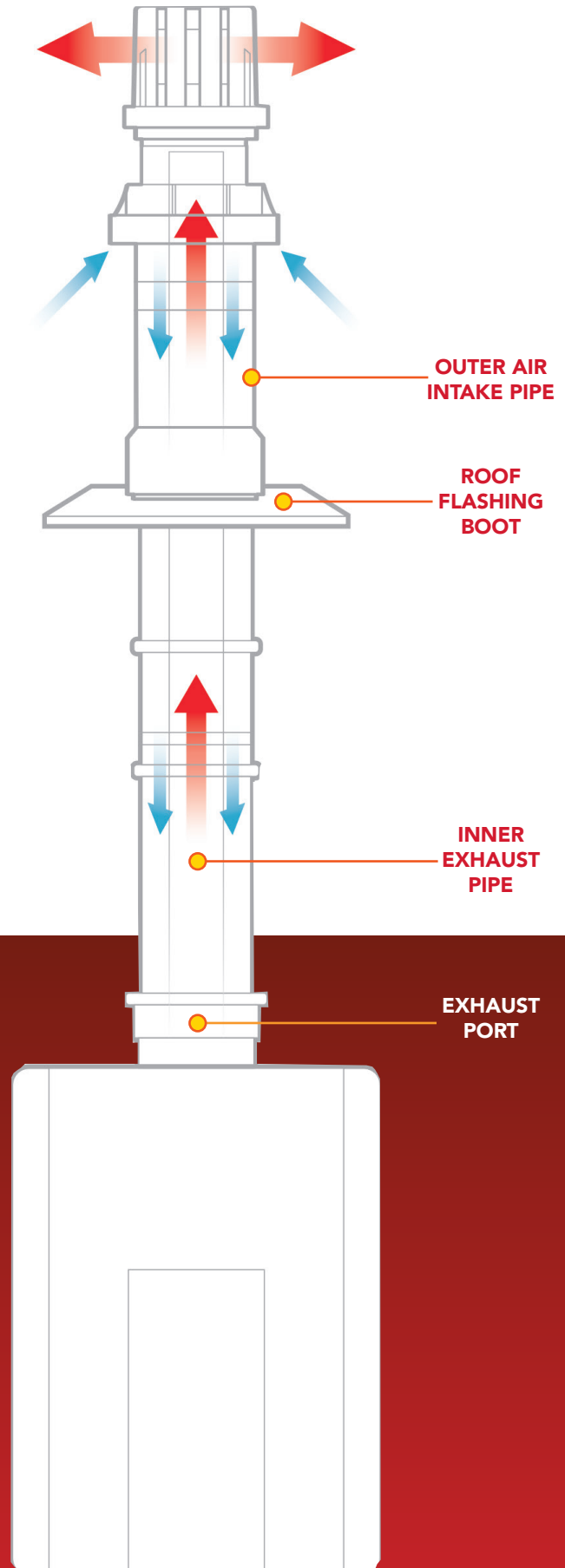
The other variable is whether the water heater should be installed indoors or out — and that's largely a function of climate. In areas not subject to freezing temperatures, an outdoor unit will be less expensive to install because it doesn't require any venting.

Joe Holliday, Rinnai's senior director of business and product development, says the company can help installers size units correctly based on specific local conditions.

What's included and what's not

Rinnai heaters will come with most of what the installer will need — the heater itself, plus the isolation valves that allow water to be shut off when the heater requires servicing.

Two things the installer will need to consider are the type of vent, described in more detail in the sidebar below, and whether timers or motion sensors will be included in a



A Venting Overview

Rinnai condensing tankless water heaters can be vented in one of two ways: Either with a single, concentric vent pipe that contains both an air intake pipe and an exhaust pipe, or with a double PVC or CPVC pipe configuration.

The concentric pipe connects to a single port on top of the heater and creates a sealed combustion unit. The outer 5-inch diameter orifice handles incoming combustion air while the 3-inch orifice inside of that vents exhaust gases out. One advantage of a concentric vent installation is that it requires only one penetration through the building envelope.

Concentric vents are ideal for installations where the heater is hung on an outside wall and needs a short run of vent, a simple elbow and straight discharge. But because the concentric vent pipes are more expensive, installations that require long runs of vent may be less expensive to do in PVC.

hot water recirculation system. Those parts will need to be ordered separately.

Another important consideration is the home's existing gas service. Although Rinnai tankless heaters are designed to run with a 1/2-inch diameter gas supply line, be sure that the installer measures the gas flow to ensure the supply is adequate. Depending on incoming gas pressure, the line between the main service and the appliance may need upgrading.

Condensing vs. non-condensing units

Rinnai's non-condensing units run with an efficiency of about 82% and require a metal internal flue to handle the elevated temperature of exhaust gases. A more recent series of heaters, condensing gas water heaters, run at efficiencies of 95% or more because of a secondary heat exchanger that extracts additional heat from the exhaust flue. Because the vent is running at a cooler temperature, it can be made of PVC or CPVC pipe.

Condensing units are a little more expensive than non-condensing units, but because vents are plastic instead of metal the installation costs may turn out to be roughly the same.

Choosing the fuel and the installer

Rinnai's tankless heaters can run on either propane or natural gas, and the choice depends on the fuel that's available at the site. Some units are flexible. If, for example, a homeowner starts with a propane-powered unit and natural gas subsequently becomes available at the house, the heater can be adapted in the field for the new fuel by swapping out an internal component.

When surveying the market, you'll encounter some tankless water heaters that run on electricity, which may make sense on homes that are completely powered by solar or simply don't have another fuel option. But, be warned, one primary reason that Rinnai doesn't offer an electric unit is the amount of electricity they require. The amount of electricity needed to heat water quickly is not efficient or cost effective.

Rinnai suggests subcontractors be trained in tankless installations before tackling their

first projects. HVAC contractors and plumbers familiar with gas appliances will benefit from instruction on sizing the unit, measuring gas pressure to determine whether the line is big enough, and sizing up venting options.

The tankless payoff

Tankless water heaters will go on delivering a reliable supply of hot water long after a tank-style heater would have run out — a big plus when the homeowner is hosting a crowd for the weekend. As important, the elimination of standby losses means lower energy bills overall.

Homeowners will be curious about the maintenance of tankless water heaters too. It's minimal. Well water in some regions may deposit scale on the inside of the heat exchanger, but it can be cleaned with household vinegar (and the water heater will alert the homeowner when that's necessary). Heat exchangers and other components can be easily replaced if needed; Rinnai units have been designed so all components can be removed with only a Phillips screwdriver.

Undoubtedly your clients will ask about the financial value of investing in a tankless water heater. In new construction, Holliday says, "The upcharge of the heater is amortized over the life of the mortgage for pennies a month, while the unit will save the homeowner \$8 or \$10 a month in gas expenses." That financial equation speaks for itself.

"Tankless water heaters will go on delivering a reliable supply of hot water long after a tank-style heater would have run out."

Rinnai
TANKLESS WATER HEATERS

YANK THE TANK



INTRODUCING THE NEW RINNAI® SENSEI™ GO TANKLESS. IT JUST GOT EASIER.

The **Rinnai Sensei Tankless Water Heater** shrinks install time, big time. And service? Done in minutes. Plus, it comes with the most affordable financing options ever. All from the most reliable name in tankless.

See it to believe it at InstallTankless.com.



Most flexible venting options



Simple Wi-Fi monitoring



Quickly replace key components