

Residential New Construction Water Heating & Plumbing Reference



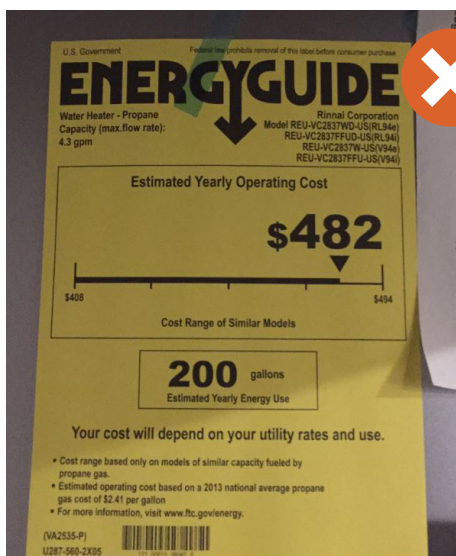
Requirements

There are two main water-related specifications for meeting Efficiency Vermont's Residential New Construction program requirements:



1. Install an ENERGY STAR® certified water heater

As of January 1, 2018, all projects must install ENERGY STAR (or equivalent) water heaters. Since ENERGY STAR criteria vary by water heater type and testing protocol, and equipment may not always be properly labeled (see below), visit www.energystar.gov/products/water_heaters for to find qualifying equipment.



This EnergyGuide label does not have the ENERGY STAR logo.



ENERGY STAR logo is printed on the lower right corner of the EnergyGuide label.



Efficiency Vermont offers cash back on qualifying ENERGY STAR heat pump water heaters.



2. Install low-flow bathroom plumbing fixtures

Low-flow fixtures are widely available and will save water and energy at little-to-no additional installed cost. Current WaterSense flow rate maximums are 2.0 gpm for showerheads, 1.5 gpm for bath faucets, and 1.28 gallons per flush for toilets. Products with the WaterSense label are also required to undergo testing to ensure that they function well for homeowners.¹

While we recommend that all fixtures are WaterSense, to meet program requirements 2/3 of the home's showerheads, toilets, and bathroom sink faucets must be WaterSense or flow-equivalent fixtures. For example, a home with 2.5 baths likely has 8 fixtures (2 showerheads, 3 toilets, 3 bath taps); 2/3 of 8 is 5.3, so at least 6 of these 8 fixtures would need to meet low flow requirements.

¹ See <https://www.epa.gov/watersense> for more information on the WaterSense label and its requirements.

Plumbing Best Practices

The following items are not required for Efficiency Vermont certifications or incentives, but represent some of the best practices seen on residential new construction projects in Vermont.

Smart plumbing layouts: Using the right water heater is only part of the picture. A smart plumbing layout utilizes a central plumbing core with bathrooms and hot water fixtures located close to the water heater. By stacking bathrooms above or below the water heater and limiting the length of hot water runs, you not only reduce wasted water and energy, you minimize wait times for the homeowner (and likely installation costs, too).

For long runs (e.g. over 30 feet) consider a demand-controlled recirculating loop, where hot water is pumped to the fixture and not run down the drain. If you do this, consider installing a switch that controls the recirculation pump from the distant bathroom rather than running it 24/7 or on a timer or motion sensor.³

Drain water heat recovery: These systems use heat exchangers to capture the heat from water going down the drain and use it to warm up the cold water entering the water heater. This can enhance the effective efficiency and capacity of the water heater, especially during showering. Models are available in both vertical and horizontal drain pipe configurations.

³ For further reference, see *Hot-water circulation loops* by Martin Holladay in the April/May 2013 edition of Fine Homebuilding; also available at: <http://www.finehomebuilding.com/2013/03/07/hot-water-circulation-loops>.