Heat Pump Water Heater Quality Installation Report

Installer:

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Installation Date: July 7, 2023

Installation Address: 123 Foo Dr, Otsego, Michigan 49078

Building Number

A photo of the building showing the building number.

Timestamp: Missing
Geolocation: Missing

About the Report

The photos in this report are intended to document the critical details of upgrading to a heat pump water heater, from pre-installation steps to the completed HPWH installation.

The photos and information in this report use timestamps and geotags to prevent the reuse of photos from an unrelated project. The customer is encouraged to retain a copy of this report which could help add value to a home sale and foster buyer confidence in the quality of the energy efficiency upgrade work that was performed.

The report includes the following quality installation photos:

1. A (wide-angle) photo of the space where the HPWH is/will be installed
2. A photo of the adjacent space if an adjacent space supplying air to meet the air volume requirement of the HPWH is used via a louvered door, high and low air grill, or ducting
3. A photo of the nameplate of the old water heater.
4. A wide-angle photo of the completed HPWH installation
5. Photo of the HPWH nameplate
6. Photo of the HPWH screen showing the mode
7. Photo of the utility energy management communication module CTA-2045 module if one is installed

HPWH Space Evaluation

The successful installation of a heat pump water heater (HPWH) begins in the planning stage by assessing whether the location where the HPWH will be installed is suitable. The space around the HPWH must be:

1. Large enough to meet the minimum HPWH air volume requirement of 700 ft^3
2. Where some compressor and fan noise (50 to 65 dB, normal conversation loudness) is acceptable

3. Where the cooled air exhausted from the HPWH (approximately a half-ton) is acceptable or desirable
4. More than 8 ft line-of-sight from a thermostat to prevent the cool air from affecting the thermostat
5. Not dusty, or where a significant amount of dust is generated
6. Tall enough (~12″ taller than the tank height, ~76″ if < 65 gals to ~86″ if ≥ 80 gals) to allow the filter in the HPWH to be periodically accessed for cleaning
7. Where there is access to a drain, drain line, or utility sink for condensate
8. In the 40°F–125°F (4.4°C–51°C) temperature range year-round

It is possible to also meet the air volume requirement of the HPWH by installing it next to a louvered door, or ducting the supply, exhaust, or both the supply and the exhaust of the HPWH to an adjacent space. It is also possible to install a condensate pump where a drain located below the elevation of the HPWH's condensate outlet is not available.

1. HPWH Location – Photo

This wide-angle photo helps document that the HPWH Space Evaluation conditions 1-8 have been met.

Timestamp: 2022:04:22 09:07:41
Geolocation: 0°0′0″N 0°0′0″E

2. Adjacent Space – Photo

This photo shows the adjacent space that will supply air to meet the air volume requirement for the HPWH. This is applicable to HPWH installations that will utilize a louvered door or ducting to meet air volume requirements.

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Air Volume of the Space: 751 ft^3

Old Hot Water Heater

3. Old Water Heater Nameplate – Photo

This photo shows the name plate of the old water heater. It may be used for rebate purposes or to determine the energy savings.

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Installation Day Photos

4. Completed Installation – Photo

This wide-angle photo shows the completed HPWH installation including the exhaust, insulated hot water line, pressure relief valve discharge, and condensate drainline.

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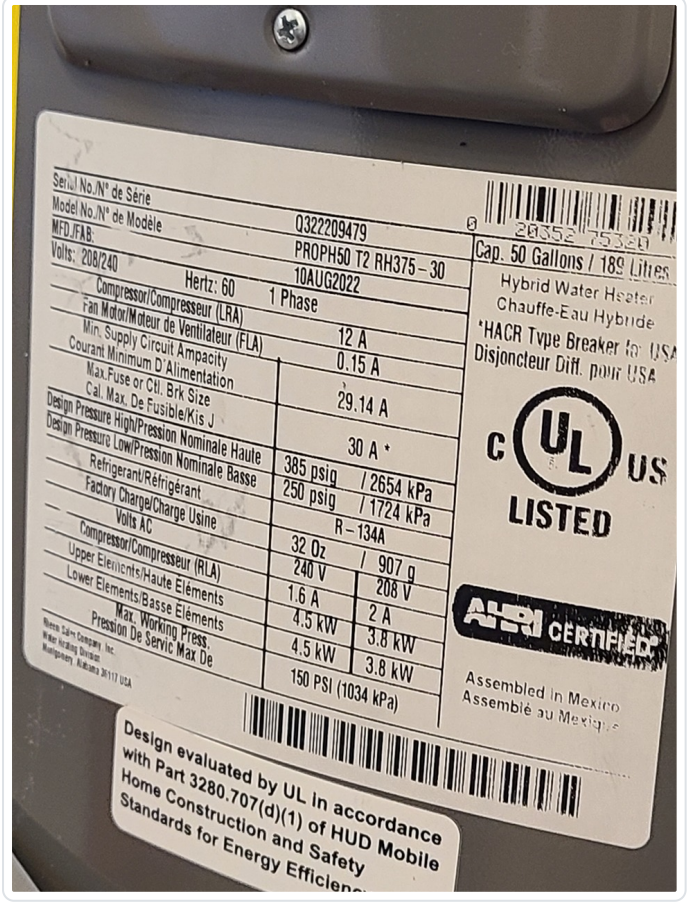
5. Nameplate – Photo

This close-up photo of the nameplate of the installed system shows the model number and serial number. A correctly-sized water heater is important for providing enough hot water while also being efficient.



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6. HPWH Screen with Mode – Photo

This close-up photo shows the mode seeting of the HPWH.

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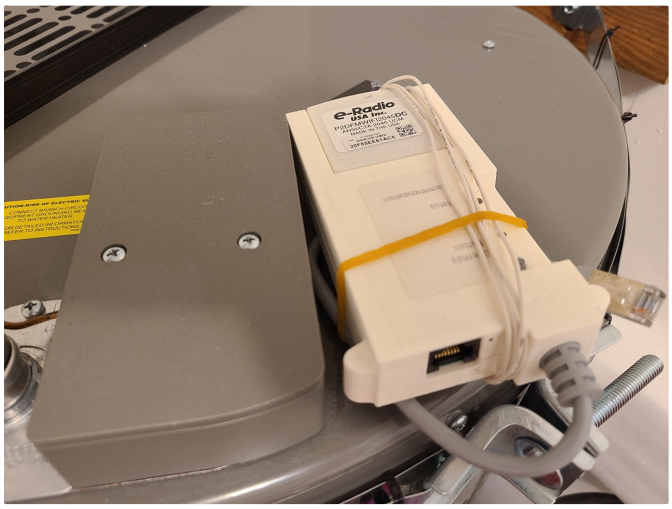
7. CTA-2045 Module – Photo

This photo shows the installed CTA-2045 Module. This module is used by the electric utility to manage peak-time energy usage.



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HPWHW Post-Installation

The HPWH has an air filter that must be checked and cleaned every 3 months. If dirty, clean the air filter by vacuuming the dust and washing with mild soap and detergent. Thoroughly dry before

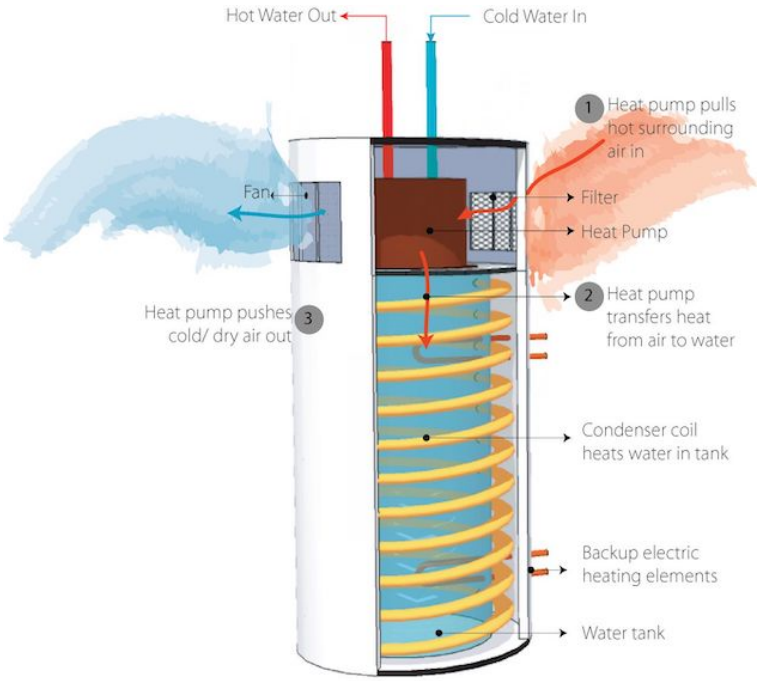
reinstalling.

The following HPWH checks should be performed annually:

1. Check the pressure relief valve by placing a small bucket at the end of the discharge pipe and pull and rotate the handle to open the valve for a few seconds to ensure it opens fully. When performing this check, stand back and wear closed-toe shoes to protect your feet from hot water. Once you begin to rotate the handle back close it should snap close by itself. The discharge pipe should stop dripping shortly. If it continues to drip, call a plumber to have the pressure relief valve replaced.
2. Check the expansion tank. Remove the cap and briefly press in the Schrader valve to check that air (and not water) is expelled. If water is expelled the thermal expansion tank has failed and will need replacement, call a plumber to have the thermal expansion tank replaced. If air is expelled, the thermal expansion tank is working as expected. The pre-charge pressure of the thermal expansion tank can be checked by turning off the cold water main, opening a faucet to relieve the water pressure in the pipes, then checking the pre-charge with a tire pressure gauge. Adjust as needed using a tire pump to match the pressure written on the tank. Reinstall the cap on the Schrader valve if one is present, and reopen the cold water main shutoff valve.

General HPWH Information

An illustration of how a HPWH works is shown below.



The components in a common HPWH (BASC 2015)

The heat pump uses 1/3 to 1/4 of the electricity to deliver the same heat into the water in the tank as an electric resistance element, but requires more time to do it. Most HPWHs have electric resistencce elements to provide supplemental heat in certain modes. The HPWH will operate less efficiently when the electric resistance elements are used to provide supplemental heat. If the typical hot water demands are mostly satisfied by the stored hot water in the tank, then it does not affect user comfort whether the HPWH replenishes the heat in the tank quickly but less efficiently using the electric resistence elements or slower but much more efficiently using the heat pump.