Heat Pump Water Heaters for Accessory Dwelling Units (HPWHs for ADUs)

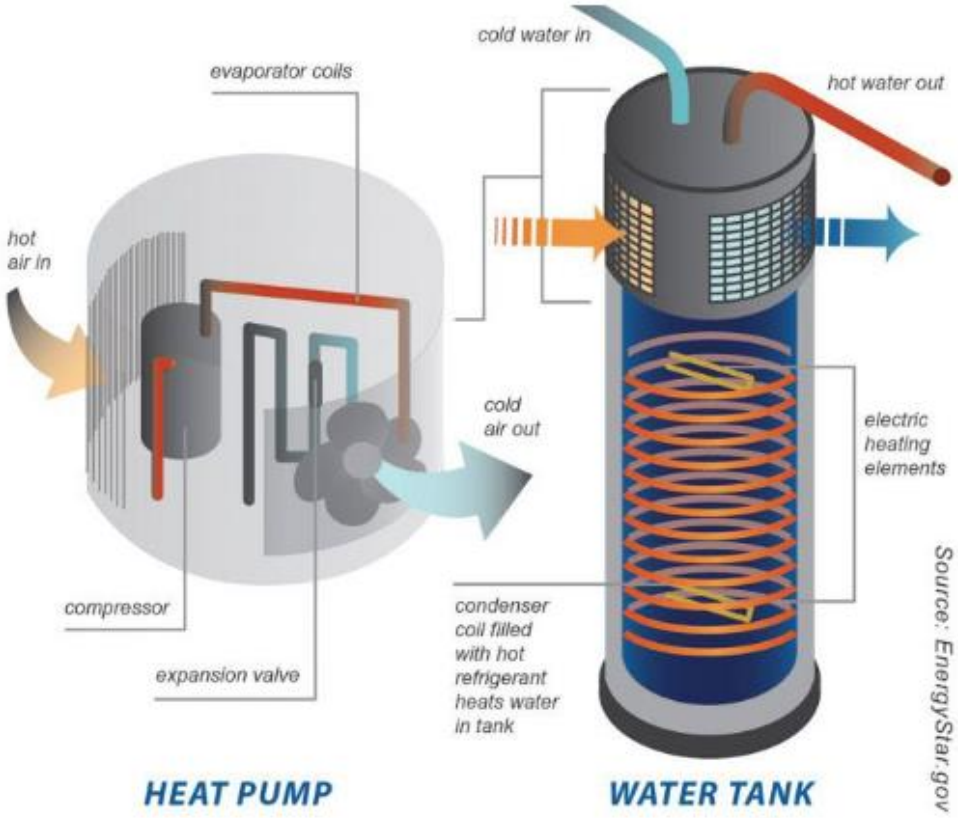
Heat pump water heaters can be a good choice for ADUs, rather than a traditional gas water heater. Heat pump water heaters are highly energy efficient and offer a range of benefits compared to traditional electric and gas water heaters.

Because they are electric, heat pumps don't require extending the gas line to the ADU. Some cities may require newly constructed ADUs to be all electric. Head pumps also:

- Are extremely efficient and save energy
- Reduce air pollution and carbon emissions that contribute to climate change
- Avoid the health and safety issues of burning natural gas

What is a heat pump water heater?

It looks a lot like a conventional gas storage-type water heater—it's a big cylindrical tank with one pipe that brings cold water in and another pipe that sends hot water out. The heat pump unit is typically built into the top of the unit. A heat pump uses electricity, refrigerant and a compressor to move heat from surrounding air and to the water in the tank. The technology is the same used in a refrigerator, only in reverse.



BAYREN
Local Governments Empowering Our Communities

Heat Pump Water Heaters for Accessory Dwelling Units

Installation Requirements and Considerations

Electrical

- Follow National Electrical Code requirements.
- ADUs typically have very small electrical service. Be sure to account for the extra load of the HPWH.
- Most HPWHs require 240 V, 30A electrical supply. Some products require 220 V, **15A.**
- Some HPWHs only require a 120 V, 15A-20A circuit. These HPWHs may or may not require their own dedicated circuit depending on the model.
- The system will require an appropriately sized disconnect switch to be installed within close proximity of the unit.

Clearance

- Consider minimum clearance requirements specified by the manufacturer, especially for ADUs which are very limited for space. In particular, consider clearance above the unit for air filter cleaning if necessary.
- HPWHs require adequate air volume or ventilation: 750 – 1000 cubic feet in room OR vents allowing air flow from a neighboring space. HPWHs may not operate as well if placed within a closet situation even if louvered doors are present[1]. Always follow manufacturer's specs.

Location

- HPWHs have a condensate line that will need to be drained outside to appropriate location (similar to air conditioner condensate).
- When considering a location, keep in mind that a by-product of HPWHs is cool exhaust air, and that HPWHs can be noisy.
- Some HPWHs have separate heat pump units (split systems). Some have ducted supply and exhaust air.

Other

- Solar electric panels and HPWHs go hand in hand. Consider designing the solar system's capacity to accommodate a HPWH.
- For ADUs that are occupied only part time, a Wi-Fi enabled HPWH makes it easier to monitor control and can prevent it running when not needed.
- Keep in mind that if you choose a gas or propane storage water heater for an ADU that qualifies as new construction or an addition, the California Energy Code has "Electric Ready" requirements that call for designated space, electrical components, piping, and condensate drainage in preparation for a future HPWH– **see section 150.0(n)1 for detailed requirements if considering this option**.
- HPWHs can be modeled for **performance** approach credits using approved software. ADUs are good candidates for an energy credit called "compact hot water distribution" due to their small size. Be sure to consult with a qualified energy consultant when evaluating compliance with the Energy Code.
- Rated HPWHs can be identified in the NEEA Qualified Products List: https://neea.org/img/documents/qualified-products- list.pdf

[1] For best performance in a small closet, the exhaust should be ducted in accordance with manufacturer specs and a 3/4 inch door undercut. If installing without ducts in a small closet, use a fully louvered door or a door with upper and lower louver sections in combination with an undercut and other vents to obtain net free area of at least 250 sq. in.

BAYREN
Local Governments Empowering Our Communities