Day-of-installation tips for 120V HPWHs

If the 120V HPWH has to be moved up or down stairs…	Make sure **two people** are present for installation, or that the installer has access to an electric dolly. Most of the shared circuit HPWHs installed in this study were heavier and larger than their gas or electric resistance counterparts.
Make sure to bring...	• Appropriate manufacturer-supplied ducting materials. Be ready to install ducting if necessary. • Condensate pumps and tubing.
Check the screws in the top of the shell.	Ensure that the screws in the top of the water heater tank shell are not flush against another surface after piping. They may need to be removed to access the unit's thermistors if they need to be replaced.
Don’t forget to install…	• Backflow prevention valves with the water heater. 120V HPWH operation is more sensitive to poor installation conditions such as backflow due to slower reheat times. • A mixing valve if a unit does not have an integrated mixing valve.
Recommend (and offer to install) low-flow fixtures.	Install low-flow fixtures, particularly showerheads, if they are not already present. Limiting the amount of water used will help households maintain hot water.
Educate the customer on how HPWHs work compared to other water heaters.	Educate the customer on the recovery time of the unit, tank temperature, mixing valves, and the cooling, dehumidification, and noise during operation. Educate the customer on the HPWH's controls and encourage them to download the manufacturer's controller app, if applicable.

Before selecting a 120V HPWH, consider....

Always present 240V units and relevant incentives as an alternative to 120V heat pump water heaters (120V HPWHs). List the pros and cons of each technology to ensure the customer is fully informed of the potential drawbacks of 120V units.

Upsize the old water heater by two size categories for a shared circuit 120V unit, and ideally one size category for a dedicated circuit 120V unit. Confirm that the installation location can accommodate a larger unit. Closets, low ceilings, raised stands or poured concrete blocks, ducts, furnaces, and pipes can constrain the space. Consider using the PNNL HPWH installation tool for guidance in sizing and installing the unit.

Install 120V units only when a customer has a constrained budget that does not allow for 240V electrical upgrades such as running new circuits or upgrading their panel and service. If an electrical upgrade is found to be required to add a new circuit for the 120V HPWH, a 240V unit is a better option.

Install 120V units only where there is a nearby outlet for unit's 8-foot cord, or where an alternative electrical solution is devised by the installer beforehand.

Prioritize the installation of 120V units with backup resistive heating elements. This can decrease incidents of hot water runouts and increase customer satisfaction.

Confirm that the room hosting the water heater is large enough for full functionality, and that there are 700 cubic feet of air surrounding the heater. If not, ensure that there is a space that the unit could be ducted into (or connected to via a louvered door) that meets these requirements, and that the necessary equipment for this process is brought to the installation.

If ducting is needed, inform occupants of the need for this work as soon as possible and present a plan for the job at that time.

Do not install 120V HPWHs at locations where:

- The occupancy/potential occupancy of the home is more than four people. If there are four occupants, do either or both of:
    - Install a dedicated circuit unit
    - Ensure that the household takes short (~5 min) showers, does not take baths, and has low-flow showerheads in all showers
- The household runs out of hot water often with their existing water heater.
- The household frequently uses a lot of water in a short time (i.e. multiple people taking long showers consecutively).

Our field study found that consuming a tank-worth of water greatly increases the chance of running out of hot water in the following hours. 120V units heat water more slowly than 240V units, even with a backup resistance element, so water goes out for longer.

About the 120V HPWH Field Study

On behalf of Consumers Energy, ComEd, Xcel Energy, and Focus on Energy, Slipstream conducted a field study to test how well 120V HWPHs work in real Midwest homes. We found that 120V HPWHs can meet hot-water demand even in colder climates.

The field study yielded important real-world data about what installers and distributors should consider when recommending a 120V HPWH for customers. This Installation Recommendations guide is a summary of our top-level findings.

Read more about the field study here: https://slipstreaminc.org/research/midwest-120-volt-hpwh-study

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