

Basics and Homeowner Experience

1. Why choose a heat pump?

- a. A heat pump provides multiple benefits in one heating and cooling system. It can provide cooling at twice the efficiency of common window unit air conditioners and can save between 30% and 55% on heating costs compared to other electric and propane heating types. This provides better energy savings, more comfort, and lower carbon emissions.

2. How does it work?

- a. A heat pump works by gathering and transferring heat energy from the outside air. Like an air conditioner or a refrigerator, heat pumps use electricity to move heat from one place to another. Heat pumps are special because they can provide heating, in addition to cooling, by running in reverse.
- b. There are two general types of heat pumps: “centrally ducted” and “ductless,” (or “mini-splits”). A ducted system uses the existing ductwork in your home to move heated and cooled air. For homes that do not have ductwork, ductless/mini-split systems can heat a portion or all of your home, with options to provide zonal control for both heating and cooling.

3. How does it work in our climate? How low can it deliver heat in cold weather?

- a. Even on the most frigid Minnesota days, heat is still present in the outside air. This means a heat pump with cold-climate specifications can efficiently extract heat from the outside even when the air temperature is as cold as 5°F. Cold-climate heat pumps can still extract heat from the outside air all the way down to -13°F, though efficiency decreases at lower temperatures.

4. What does it look like? Sound like?

- a. For centrally ducted systems, there is an outdoor unit, much like an air conditioner, and there will be no noticeable difference inside the home. For ductless units, the indoor unit is often mounted high on a wall. Recessed indoor units that sit inside your ceiling are also a possibility for a more seamless look.
- b. Heat pumps have two components: the indoor and outdoor unit. Indoor units in mini-split systems run as quiet as a whisper. Outdoor units make about as much noise as a running refrigerator. See page 2 for images of typical indoor and outdoor units.

5. Where does it go?

- a. With a ductless/mini-split system, the heat pump serves one or two rooms. Alternatively, you can select a multi-zone system in which indoor units would be installed throughout the home to provide heating and cooling. The indoor units that distribute the conditioned air are usually mounted on the wall, floor, or ceiling.
- b. For a ducted system, the heat pump heats and cools all areas of the home through existing ductwork.

Cost and Installation

6. How much does the initial purchase cost?

- Total installation cost can vary from \$3,000 to \$11,000 depending on the system your home needs.

7. How do I find a contractor?

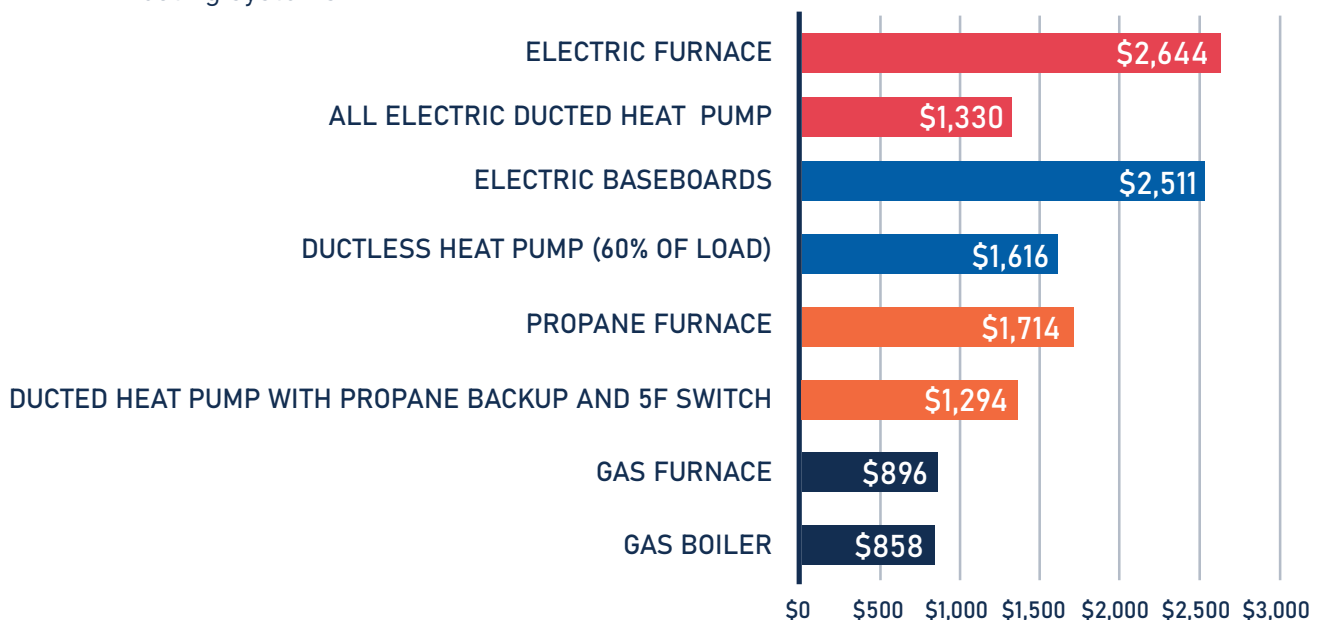
- Connect with your utility for a list of qualified contractors in your area. The ASHP Collaborative also hosts the **Preferred Contractor Network**, with a list of experienced HVAC contractors committed to quality heat pump installations and maintenance.

8. Are rebates, financing, and tax credits available?

- Substantial resources are available to assist in financing heat pump installations. Utility rebates range from \$50 to \$2,200, depending on system type and size. Connect with your utility to learn what they offer or view the **ASHP Collaborative interactive map** to see rebates available in your area. Center for Energy and Environment offers **low interest loans** to finance heat pump projects, and homeowners can claim **\$300 in federal tax credits**.

9. What is the cost of using a heat pump? How does it compare to other heating systems?

- A heat pump's impact on your utility bills will depend on your current heating and cooling systems. For homes currently heated with propane, heat pumps can reduce propane use by 63% and provide 30% heating cost savings. For homes currently heated with electric baseboards, heat pumps can reduce electricity use and cost by more than 50%. Cost savings for electric customers will depend on your utility rate structure. **Customers on off-peak electric pricing will still see cost savings, but the dollar amounts will be lower based on the lower cost per kilowatt-hour of that rate structure.**
- It's a little more complicated to compare heat pumps with natural gas furnaces. Currently, natural gas typically costs less than electricity. For homes with natural gas furnaces, heat pumps would offer savings in the cooling season and may be cost-effective when provide heating down to 30°F–40°F. The local price of gas and electricity will determine whether it will cost more or less to switch to a heat pump. The following chart from Center for Energy and Environment's research shows average annual heating costs for different types of heating systems.



10. What does installation entail?

- Installation will differ based on whether you are installing a ducted or ductless system; whether you want to condition a portion or all of your home; and whether you're focused on cooling, heating, or both. If your home already has ductwork, the heat pump simply feeds into that system. If your home does not have ductwork, a small hole is drilled in the wall to connect the interior and exterior units. The interior units are mounted in locations for optimal indoor airflow.

11. What is needed to provide heat for my whole house?

- Providing heating for the whole home involves weighing the costs and benefits of your current heat system versus a potential new system. In some cases, it may make the most sense for heat pumps to provide all of the heating in your home. In other cases, it may make sense for heat pumps to provide supplemental heat or only heat a portion of your home. Talk with your contractor about your installation goals and options.

Operation and Maintenance

11. How does the heat pump work with my existing heating system?

- Heat pumps can replace existing cooling systems and either replace or displace existing heating systems. Talk with your contractor about how your heat pump should be designed and the lowest temperature at which you should rely on the system to provide heating. For homes currently heated with propane or electric baseboards, heat pumps can provide heating cost-effectively down to 0°F. For homes currently heated with natural gas, it's more economical to use a heat pump for heating down to 30°F or 40°F **due to the currently low** cost of natural gas.

12. What do I need to know about maintaining my heat pump?

- Cleaning and changing the filters is recommended at regular intervals, and every 2–3 years a professional should make a service visit.
- Heat pump maintenance costs are similar to other HVAC systems.
- Cleaning and changing filters is an easy task and can likely be done on your own. Other repairs should be left to professionals!
- Work with your installer to discuss maintenance or check with your local utility for lists of recommended tune-up contractors.

13. What is the life span of a heat pump?

- According to Center for Energy and Environment's research, the expected life span of a heat pump is 18 years.



Learn more

Visit mnashp.org/for-homeowners to find more resources or email us at info@mnashp.org with additional heat-pump questions.