

Residential HVAC System Installation Q&A

FACT SHEET



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Wisconsin's diverse climate offers plenty of challenge for homeowners looking to stay comfortable all year round. If you're in the market for a home heating or cooling system, you most likely have questions about how to choose the right contractor and equipment for the job. This fact sheet answers those questions—and maybe some you hadn't considered.



CHOOSING THE RIGHT CONTRACTOR

Hiring the right contractor is an important step in any energy efficiency improvement project. Here are some things to look for and questions to ask before hiring a contractor to do your job.

Will I need a permit for the work?

Does my contractor need to be licensed?

Some cities require contractors to submit a load calculation to ensure that the equipment to be installed is sized appropriately for the building; HVAC licenses are required in these cities. Contractors must pass a test to ensure they are qualified to install the equipment in accordance with state and local codes. If the work is completed by a contractor who is not licensed, the unit may need to be removed and reinstalled by a licensed contractor.

Who will do the work—the contractor's own employees, or someone else?

While subcontracting is not unusual in large commercial jobs, small residential jobs should be performed by the contractor you hire, or the contractor's own employees. This ensures you are able to communicate with the people who installed your system if you should be unsatisfied or require maintenance work in the future.

Has the contractor earned a certificate of training from the manufacturer of the heating and cooling equipment he or she is installing?

Hiring a certified contractor ensures the installer is knowledgeable about the equipment and up to date on revisions and known issues. Manufacturers often make minor changes or upgrades to their products, and they communicate these changes to their certified contractors.

Are the contractor's air conditioner technicians certified by the Environmental Protection Agency?

Under the federal Clean Air Act, air conditioner technicians must be EPA certified to verify they are knowledgeable about refrigerant handling. Refrigerant has been proven to be directly related to ozone depletion, and EPA certified technicians have been trained on how to contain and dispose of refrigerant to ensure that little or none escapes from your air conditioner during setup and maintenance.

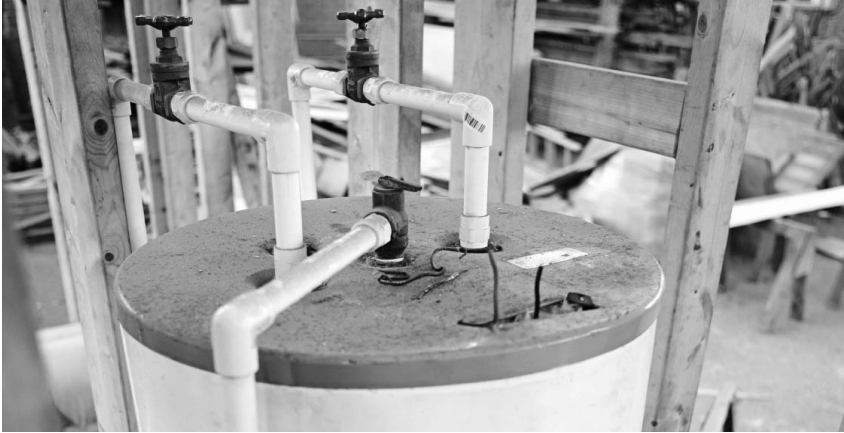
Do I need a written contract before work is started?

It's a good idea to ask your contractor for a written contract detailing the work to be done and equipment to be installed—before any work is started. This helps ensure you will receive the products and services on which you have agreed.



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The power is within you.



CHOOSING THE RIGHT EQUIPMENT

The right HVAC equipment can provide many years of economical comfort and trouble-free operation. The wrong equipment will waste energy and cost you money. This section will help you choose your new equipment wisely.

What is a “load calculation” and why do I need one?

A load calculation is an analysis performed by your contractor to determine the proper size system for your home. It factors in a number of criteria, including your home’s square footage, the number of windows, insulation and year-round weather. A load calculation is important because proper size is critical to obtaining optimum efficiency from heating and cooling equipment.

Equipment that is too large or too small will not last as long as equipment that is properly sized. Oversized equipment has a tendency to short cycle, which prevents peak performance and causes uneven heating and cooling, as well as poor dehumidification in the case of air conditioners. Undersized equipment is forced to run for long periods of time and will struggle to heat or cool to its intended temperature. A properly sized system will help ensure you enjoy long-lasting, reliable comfort all year round.

How efficient is the equipment I am buying?

Furnaces. Nine out of ten Wisconsin homeowners purchase a furnace rated at least 90% AFUE (annual fuel utilization ratio). This means that approximately 90 percent of the fuel is utilized to provide warmth to your home, while only 10 percent escapes as exhaust.

Focus on Energy recommends furnaces that feature two stages of heating and a variable speed motor (also known as an ECM) for added gas and electric savings. These features will also help to maintain a constant temperature and reduce noise.

Central air conditioners. The federal minimum rating is 13 SEER (Seasonal energy efficiency ratio). Focus recommends 15 SEER or greater for added efficiency. Two-stage units increase both efficiency and comfort, but may not be the best option for every home. Ask your contractor for a recommendation based on your home’s heating unit and how you use your air conditioner.

Hot water boilers. The current ENERGY STAR® standard is 85 percent AFUE. Focus recommends models with a rating of 90 percent AFUE, a modulating burner and an outdoor temperature reset to save gas and help regulate the temperature.

Will I need a new thermostat?

If your thermostat is an older dial or lever-operated model, you may want to consider updating to an electronic programmable thermostat. These models can be programmed to automatically adjust the temperature depending on the time of day and day of the week, saving you money and energy.

Focus recommends setting back your thermostat no more than five degrees. A greater set back may require more energy to return the home to the desired temperature.

Does the type of refrigerant matter?

Refrigerant found in residential heat pump and air-conditioning systems is generally one of two types. R-22 is an older refrigerant being phased out of the industry because it directly contributes to global warming if released. As of 2010, manufacturers will no longer be able to produce equipment that uses R-22 refrigerant. While R-22 will likely remain available until 2030 for repairs, its cost is expected to rise after 2010.

R-410A is a newer refrigerant replacing R-22. It is considered more environmentally friendly because it does not directly contribute to global warming, although it may contribute to the greenhouse effect if released in large quantities. Focus recommends choosing equipment that uses R-410A.

How long can I expect my new equipment to last?

Your contractor should provide approximate life expectancy for all installed equipment. Again, equipment that is too large or too small for the application will not last as long as equipment that is properly sized.

I have rooms that are too hot or too cold. What can I do?

The answer may be as simple as opening or closing some dampers, which are devices used to cut off air distribution to a room. Or, you may need to have additional dampers installed. In severe cases, extra ducting may be needed, along with zone dampers to control heating and cooling to specific areas of the house.

Should I replace an atmospherically drafted furnace with a direct-vent model?

Yes. Not only are direct-vent furnaces more energy efficient, they are also safer because they reduce the risk of carbon monoxide poisoning. If you are replacing your atmospherically drafted furnace with a direct-vent furnace that no longer uses your chimney, your contractor should also perform a flue closure to prevent air from infiltrating your house. If only your water heater is still venting through the chimney, your contractor should install a chimney liner to prevent harmful gases from escaping back into the home.

MAINTENANCE

Preventive maintenance is important to ensure the energy efficiency and performance of your heating and cooling system. Equipment that hasn't been properly serviced tends to be less efficient and work significantly harder. The small price of maintaining your equipment is easily offset by the savings you will see in your utility bills and replacement costs.



How often will my equipment need service?

An annual maintenance check will help you find and fix small problems before they require costly repairs. The contractor will check equipment parts, clean the unit, and fine-tune the system to keep your equipment operating at peak efficiency and help extend the life of the unit.

What can I do to maintain my system?

The following tips can help you maintain performance and extend the life of your equipment:

- a. Replace the air filter regularly. Dirty filters can increase your furnace electrical costs by up to 40 percent. Fiberglass filters should be changed every 30 days; media filters twice a year. If filters are extremely dirty you should change them more often to ensure proper airflow.
- b. Check your PVC vent pipes. If you notice graying or blackening of the PVC pipes venting outside from your furnace, contact your equipment dealer immediately. You may have a cracked heat exchanger.
- c. Rinse the air conditioner. Rinse the outside air conditioner unit with your garden hose every 30 days. If you notice oil or other liquids seeping from the unit, contact your equipment dealer immediately.

FOR MORE INFORMATION

focusonenergy.com

Contact Focus on Energy to learn more about smart energy choices.

energystar.gov

The ENERGY STAR program provides information on energy efficient products that meet high efficiency standards.

comfortinstitute.org

This Web site provides free consumer protection reports on buying equipment and choosing a contractor.

aceee.org

The American Council for an Energy Efficient Economy publishes the “Consumer Guide to Home Energy Savings.”