

Select the Best Heat System for Your Home



Above, shelled corn can be burned in corn stoves and some pellet stoves. Corn bought directly from the farm is one of the least expensive home heat sources.

Photo by James Dulley

Top, a high-efficiency oil boiler for floor radiant or baseboard heating. Gas and propane models also are available.

Photo courtesy of Burnham KO



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Q: My heating and cooling system is 20 years old and it's time to replace it. I am trying to decide which type of system is best. What do you recommend?

A: When changing the entire system, you have the option of many fuel types for heating. Electricity is the only cooling fuel option for an air conditioner or heat pump.

Operating cost and comfort are the primary factors in selecting a new system. Efficiency and relative cost of the various fuels determine the operating cost. Fuel prices can fluctuate dramatically, as we have seen recently with fuel oil and propane.

A geothermal heat pump is the most efficient year-round system because it heats and cools using stored heat from the ground. Select a two-speed or variable-speed model for the best comfort. It

continuously matches heating and cooling output to the house needs.

The initial cost of a geothermal system is substantially more than other complete systems, but the utility bill savings easily pays back its higher cost. There still is a 30 percent federal tax credit for geothermal heat pumps installed before 2017.

Install a heat pump instead of a standard central air conditioner even if you plan to have a fossil fuel furnace (called a hybrid system). The installed cost of the system with a heat pump is not significantly more expensive, and your annual utility bills will be lower.

The advantage of a heat pump is it heats efficiently during mild spring and fall weather. During these times, it runs instead of the furnace burners to heat the house. When it gets much colder, the furnace takes over. A heat pump cools as efficiently as a central air conditioner during summer.

If natural gas is available in your area,

a condensing furnace generally is the most cost-effective choice. With the glut of domestic natural gas from fracking, there should be an adequate supply at reasonable prices for the foreseeable future. Efficiencies are as high as 97 percent.

Since natural gas is not available in many rural areas, a propane or oil furnace provides equally comfortable heating. A propane furnace is almost identical to a gas one, but propane is typically more expensive to use and can be in short supply as it was several winters ago. Oil is readily available, but oil furnace efficiency is not as high and requires more extensive maintenance.

Also consider alternative fuels such as firewood, corn, pellets, etc., for supplemental heating. Newer models are convenient to use, and the fuel is renewable. For example, new dual-fuel wood furnaces automatically switch to gas or propane when the wood burns out during the night.

To compare operating costs, use the following heat contents and your local fuel costs: natural gas is 1,025 Btu a cubic foot; oil, 138,700 Btu a gallon; propane is 91,000 Btu a gallon; electricity is 3,414 Btu a kilowatt-hour; firewood, 22 million Btu a cord; and corn, 448,000 Btu a bushel. Divide your local cost per Btu by the various system efficiencies to compare operating costs. ■

Tips for Efficiency

- ▶ Set your thermostat as low as is comfortable—68 degrees while at home and even lower when out or asleep.
- ▶ Keep the system clean. Dirty filters, coils and fans reduce airflow, decrease performance and can damage the system.
- ▶ Weatherstrip ducts and windows.
- ▶ Check outdoor units and ensure they are not covered by debris.