Electric heating is any process in which electrical energy is converted to heat, including resistance and radiant electric systems:

- **Baseboard convector**s are a common way to distribute supplemental heat into areas that don’t receive sufficient heat from the primary system, such as basements. Directly connected into the house’s wiring system, baseboard convector are inexpensive to install. They are usually controlled with a thermostat on the unit or on a nearby wall.

- **Electric furnaces** use an electric resistance coil located in the ductwork of a forced-air system. Because it can share the fan and ductwork, this type of system is compatible with central air conditioning units. Some models can also accommodate thermal storage devices, to take advantage of off-peak electric savings programs.

- **Electric plenum heaters** are typically used in combination with a gas- or oil-fired forced-air furnace system. They are usually installed to supplement a more costly or less available delivered fuel source, also to take advantage of off-peak electric savings programs. Installed in the furnace plenum or main trunk line of the ductwork, it uses the existing furnace fan to move air through the ducting system. Although a plenum heater and the furnace often use the same thermostat controls, they can also be controlled separately, allowing for independent fuel selections.

- **Radiant electric heating** consists of cables that are typically installed in floors, although they can be used in ceilings or wall panels as well. When installed in a floor, the cables usually heat a thermal mass (such as concrete or tile) which then transfers the heat slowly to the room over time. In-floor systems with thermal mass storage can also take advantage of off-peak electric rates to reduce operating costs. Wall or ceiling panels operate on the thermal principle of radiance, and the cables emit infrared rays that warm bodies more than the air or other things in a room. Electric radiant heating is most easily installed during new construction or major remodeling and is appropriate for energy-saving zoned heating.

**Electric heating repairs & maintenance**

Because there are few moving parts, most electric systems have a very long expected lifetime. As with combustion furnaces, electric furnaces require similar maintenance regarding filters and other controls. Other potential problems may occur with zoning switches or thermostats, remedied by cleaning and replacement as needed. Occasionally, breaks in lines or circuits can occur, due to floor or wall movement or other construction projects. These may require an electrician to isolate and repair or replace damaged sections. In the case of cable buried in concrete, repair costs may be prohibitive.

**How efficient is electric heat?**

The efficiency of electric heating is 100% because all the purchased energy is converted to heat—there are no heat losses that go up the chimney or out of the vent pipes. (An exception are those electric heaters that are located outside the living space, such as attics or porches. These will lose some heat to the surrounding air, thus reducing their effective efficiency.) However, if the generation and distribution of the electricity is considered, the overall efficiency drops. When compared with other fuels used for home heating, electricity use also contributes more CO₂ to the environment per BTU and—depending on current costs—can cost more per BTU.

In locations with limited home heating options, electric heat can be a good choice. Installing zoning and taking advantage of less expensive off-peak usage can make electric heating cost-effective.