**What Components Make Up a Home HVAC System?**

In order to properly care for your home HVAC system, it helps to know a little about the components it contains. The hot, humid weather around the Southeast places a lot of demand on your air conditioner in particular, but your furnace also works hard in cooler weather. Understanding your system and maintaining it correctly will help you prevent expensive the breakdowns all that stress can cause.

HVAC is an acronym for “heating, ventilation and air conditioning.” For most homes in our area, that means a furnace, an air conditioner and a duct system that distributes air throughout the house. These systems are interconnected, and some of the same components are used by both the heating and cooling systems.

Furnace

The furnace is a large appliance that turns fuel or electricity into heat. It’s usually installed in the basement, attic or a closet. Gas, oil or another fuel is burned or electricity is drawn to create heat that warms the air passing through. The warm air is then blown into the duct system and out to your rooms.

Today’s high-efficiency furnaces reach efficiencies of up to 98 percent. Because their exhaust fumes are cool, they need only a PVC pipe to release them outdoors. Their electronic ignition systems save fuel compared to a standing pilot light.

Heat Exchanger

Every furnace contains a heat exchanger. This component is typically made of steel sheet metal shaped as a plate or tube. Its job is to transfer heat. When the burners ignite and burn fuel, the heat exchanger heats up. It then transfers this warmth to the air flowing through it.

The heat exchanger is one of the most important components in your home HVAC system and must be kept clean and free of cracks.

Evaporator Coil

The evaporator coil works with the air conditioner, but it’s physically attached to the furnace. This A-shaped aluminum component sits in a metal enclosure on the top or side of the furnace or inside the air handler.

The evaporator coil works when the A/C is running. Cold refrigerant from the outdoor unit enters the coil, making the entire coil cold. The blower fan pulls warm air from your home over the coil. The refrigerant inside absorbs heat as the coil condenses humidityfrom the air. The air, now cooler and drier, continues down the ducts and to your rooms.

Condensing Unit

This is the large, square component that sits outside your home. It’s surrounded by thin aluminum fins and has a grate on top. Hot refrigerant gas coming from the indoor evaporator coil flows out to the [compressor](https://airconditioningsoutheast.com/blog/2013/03/why-does-my-ac-compressor-cycle-on-and-off), a type of pump in the outdoor unit. This component increases the refrigerant’s pressure and temperature.

The hot, high-pressure gas then flows to the condenser coils, which dissipates heat to the outdoor air. As the refrigerator gas cools, it turns back into a liquid.

Refrigerant Lines

The refrigerant lines are copper or aluminum tubes that carry refrigerant between the outdoor condensing unit and the indoor evaporator coils.

Ducts

[HVAC air ducts](https://airconditioningsoutheast.com/blog/2014/04/tighter-ducts-sensible-advice-for-improving-your-savings-and-comfort) are long conduits made of sheet metal, fiberglass or flexduct (plastic over a wire frame). They run through ceilings, walls, the attic, crawl space or basement, and/or garage and carry warm or cool air from the furnace or air conditioner.

Because both heating and cooling systems depend heavily on the ducts, it’s important to keep the ducts well sealed and insulated.

Vents

The vents are the points where ducts open into individual rooms. These are usually in the walls or floors, but can occasionally be found in ceilings. Supply registers are the small rectangular vents that deliver warm or cool air.

Return vents, usually square and larger than supply registers, draw room air back into the home HVAC system to be re-heated or re-cooled. Because indoor air is already close to a comfortable temperature, recirculating it is more efficient than drawing air from outdoors.

Thermostat

The thermostat controls the operation of your whole home HVAC system. Simple mechanical thermostats can be set to a particular temperature and will turn on the system as needed to maintain that particular temperature.

[Programmable thermostats](https://airconditioningsoutheast.com/blog/2013/05/cut-your-ac-budget-with-a-programmable-thermostat) can be programmed to maintain different temperatures for different times of the day and different days of the week automatically.

If your home HVAC system needs professional care or you’d like tips on improving its efficiency, contact [AirConditioningSouthEast.com](https://airconditioningsoutheast.com/contractors/) for help finding a contractor in your area.

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