Air Conditioners

An air conditioner, as part of a central heating and cooling system, draws heat energy out of the house and transfers it to the outside air.

An air conditioner can change the temperature, humidity or general quality of the air. More specifically, an air conditioner makes your home cooler, by drawing heat energy out of the house and transferring that heat to the outdoors, then replacing the air inside your home with cooler air.

How an air conditioner works

The air conditioner in a central heating and cooling system provides cool air through ductwork inside your home, by providing a process that draws out the warm air inside, removing its heat.

In a split system, the compressor condenses and circulates the refrigerant through the outdoor unit, changing it from a gas to a liquid. The liquid is then forced through the indoor evaporator coil or cooling compartment. The indoor unit's fan circulates the inside air to pass across the evaporator fins. The evaporator's metal fins exchange the thermal energy with the air around it. There, the refrigerant turns from liquid into vapor, removing any heat from the surrounding air. As the heat is removed from the air, the air is cooled and blown back into the house.

From that point, the condenser or outdoor unit then turns the refrigerant vapor back into a liquid, removing any heat. By the time the fluid leaves the evaporator again, it is a cool, low-pressure gas, eventually returning to the condenser to begin its trip all over again. This process continues again and again until your home reaches the cooling temperature you want, as programmed and sensed by your thermostat setting.

Source: https://www.trane.com/residential/en/resources/hvac-basics/how-does-an-air-conditioner-work.html