

# HOW AN AIR CONDITIONER WORKS



Air conditioners provide cool air inside your home by removing the heat and humidity from the air inside your home. It returns the cool air to the indoor space and transfers the unwanted heat and humidity outside.

The air conditioning process involves two actions that occur simultaneously, one inside the home and one outside the home.

## Inside the Home

Sometimes referred to as the “cold side” of the system, warm indoor air is cooled as it blows across a cold cooling coil full of refrigerant. Heat from indoor air is absorbed into the refrigerant as the refrigerant turns from liquid to gas. The cooled air is distributed back to the house.

## Outside the Home

Sometimes referred to as the “hot side” of the system, the refrigerant gas is compressed before entering a large coil in the outdoor unit. Heat is released outside as the refrigerant turns back to a liquid and a large fan pulls outdoor air through the outdoor coil rejecting the heat absorbed from the house.

The result is a continuous cycle of heat and humidity being removed from indoor air, cool air returning to the home, and heat and humidity exiting the home.

This diagram (we will need to create one or use the one from the Department of Energy) shows the various components, what they do, and how they work together.

### Inside Unit

**A. Evaporator** – Cooling coils remove heat and humidity from the indoor air using refrigerant.

**B. Blower** – The blower circulates air over the evaporator, dispersing chilled air.

**C. Filter** – Located in the air conditioning unit it traps particles (dust, dirt, pollen) from the air.

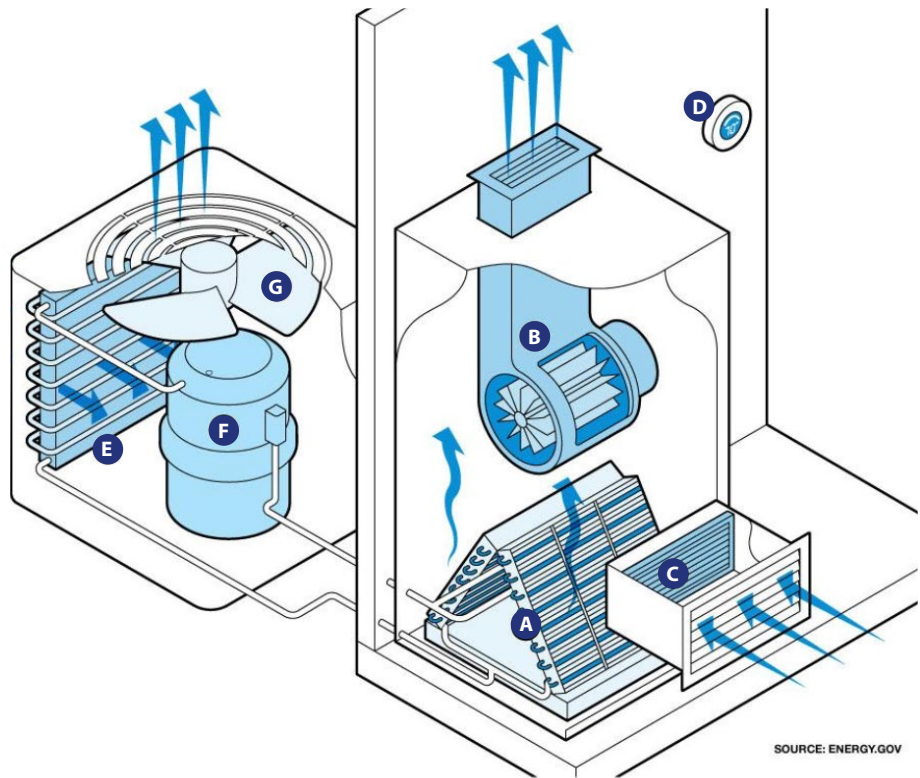
**D. Thermostat** – The control system that regulates the amount of cool air that is distributed.

### Outside Unit

**E. Condenser** – Hot coils release the collected heat into the outside air.

**F. Compressor** – A pump that moves refrigerant between the evaporator and the condenser to chill the indoor air.

**G. Fan** – The fan blows air over the condenser to dissipate the heat outside.



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