

HVAC From A to Z

Air Conditioner

A system or an assembly comprised of certain system components which are designed for the control of air temperature, relative humidity and air flow in a living or working space.

Air Cooled System

A type of air conditioning system that uses air as a condensing medium and R-22 or R-410A as a refrigerant. In most air cooled systems, the condenser is located outside and the refrigerant is piped to it from the indoor unit. In air conditioning, the heat from the indoor space is transferred to the outside air. In a heat pump, the heat is drawn from the outdoor air and is used to heat the indoor air.

Air Handling Unit (or Air Handler)

The portion of the central air conditioning system that moves heated or cooled air throughout a home's ducts, though it does not include the ductwork. Typically it is located inside and includes a blower, dampers and other equipment in direct contact with air flow.

Blower

A piece of equipment designed to move air through a system. Usually refers to the air handling unit or air handler.

Charge

The amount of refrigerant in a system.

Coil (Indoor Coil)

Equipment that enables heat transfer to and from the refrigerant and the air when installed inside an air handling unit. The indoor coil often features two rectangular coil surfaces connected at the top and open at the bottom. From the side, this configuration looks like the letter "A."

Compressor

The 'pump' that circulates vapor refrigerant throughout the system from the indoor evaporator to the outdoor condenser and back.

Condenser Coil

A series of tubes filled with gas (vapor) refrigerant that carries heat from the home and removes it outdoors allowing the refrigerant to condense or liquefy and start the process again.

Condensing Unit

A device that condenses a substance from a gaseous to a liquid state, typically by cooling it. In the process the latent heat is given up by the substance and will transfer to the condenser coolant.

Duct

Any pipe or closed chamber, usually made of sheet metal or fiberglass, that is used for housing and conducting air flow from an air handling unit to the conditioned space.

Ductless Mini-Split

A type of air conditioning system that does not use ducts to transfer cool air and instead the outdoor condenser unit is connected directly to an interior air handler. Because of this direct connection, generally only one room or space can be cooled at a time making ductless mini-splits a viable option for room additions or add-ons, but potentially troublesome for whole-home solutions.



Duel Fuel System

A heating solution that combines a furnace and a heat pump to provide an economical way to heat a home. A heat pump is activated for moderate heating needs and a furnace is switched on when higher levels of heat are needed. This system helps maximize the energy efficiency of each unit.

EER (Energy Efficiency Ratio)

A ratio to determine the energy efficiency of an air conditioner. The higher the EER rating, the more efficient the unit. EER ratings are generally lower than SEER ratings because SEER ratings are seasonally adjusted while EER ratings are calculated against a fixed ambient temperature.

Efficiency

A measure of how much energy is used to accomplish a cycle, measured by Seasonal Energy Efficiency Ratio (SEER) or Energy Efficiency Ratio (EER). The higher the rating, the more efficient a system is and the lower your energy consumption will be.

Evaporator Coil

A series of tubes filled with liquid refrigerant that absorb heat from the air as the liquid refrigerant is 'evaporated' into vapor.

Fresh Air Intake

An opening through which outdoor air is drawn into a system.

Furnace

The component in an HVAC system that adds heat to air by burning fuel in a heat exchanger.

Heat Pump

An air conditioner that has a reversing valve allowing it to alternate between heating in the winter and cooling in the summer.

HSPF

An industry term that stands for Heating Seasonal Performance Factor. It is a measure of efficiency for air source heat pumps. A higher number represents higher efficiency.

HVAC

A term that stands for Heating, Ventilation, and Air Conditioning.

Humidity

A measure of the amount of moisture in the air.

Load Calculation

A measure to determine heat gain and loss within a structure so that properly sized HVAC equipment can be installed.

Payback Analysis

A measure of the value of your system that determines the number of months required before monthly energy cost savings offset the purchase price.

R-22

An HCFC (hydro chlorofluorocarbon) refrigerant, widely known as Freon®, used primarily in residential air conditioning systems. It is being phased out for its higher global warming potential (GWP) and ozone depleting properties.



R-410A

A non-ozone depleting refrigerant that has replaced R-22 as the preferred refrigerant of choice in the U.S., Japan and Europe. R-410A performs at a higher pressure than R-22 and requires the use of different equipment than with R-22.

Refrigerant

A chemical, usually a vapor, which can be used in a mechanical system to produce a cooling heat transfer effect while changing the pressure of the refrigerant. Many air conditioning and refrigeration systems use refrigerants which change from vapor (gas) to liquid and back to a vapor during the heating and cooling process.

Register

A grille and damper assembly that covers the opening or end of an air duct.

Relative Humidity

The ratio of the amount of moisture in the air compared to the amount of moisture the air could hold at the current temperature, expressed as a percentage.

Return Air

The air drawn into the heating unit after having been circulated through a room.

Room Air Conditioner (Window Unit)

Standalone air conditioning unit that cools only where needed, usually installed in a window space. Generally less efficient than central air conditioning, but less expensive to operate.

SEER

A rating that expresses the efficiency of air conditioning equipment throughout an entire average cooling season, including both the hottest and coolest days. It stands for Seasonal Energy Efficiency Ratio. The higher the SEER rating, the more efficient the system.

Split System

The most common type of residential system, it consists of two main components – a compressor and condensing unit installed outdoors, and an air-handler installed indoors.

System

A general term that refers to the set of components that perform an HVAC function.

Tonnage

A unit of measure used to describe the cooling capacity of an air conditioning system. One ton of cooling is the amount of heat needed to melt a one-ton block of ice in a 24-hour period.

Zoning

A method of providing independent heating or cooling to different areas or rooms within a building or home, typically controlled by separate controls or by opening or closing the vents and ducts in each zone.

