AspenAir Reference

industry terminology& glossary

When choosing an investment for your family, home, or even business - you'll want to know exactly what you are choosing and why. Below you will find industry terms and definitions that will allow you to better understand the product and the investment you are selecting

AC Abbreviation for alternating current, a type of electric current in which the polarity is constantly reversing causing the electron flow to reverse.

ACCA Air Conditioning Contractors of America

Acoustical Pertaining to sound.

AC or DC Abbreviation for equipment capable of operating on alternating or direct current.

A-Coil Heat exchanger consisting of two diagonal coils that are joined together in a manner that looks like the letter "A".

AFUE Annual Fuel Utilization Efficiency. A measure of a gas furnace's efficiency in converting fuel to energy - the higher the rating, the more efficient the unit.

AGA Abbreviation for American Gas Association, Inc.

Air Conditioner Any device that can change the temperature, humidity or general quality of the air.

Air cleaner Any device that removes undesirable particles from moving air.

Air flow volume The amount of air the system circulates through your home, expressed in cubic feet per minute (cfm). Proper air flow depends on the outdoor unit, the indoor unit, the ductwork and even whether the filters are clean.

Air handler An air moving and/or mixing unit. Residential air handlers include a blower, a coil, an expansion device, a heater rack and filter. Heaters for air handlers are sold as accessories. In some models heaters are factory installed.

ARI Air Conditioning & Refrigeration Institute

ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers

BTU British thermal unit; the amount of heat required to raise or lower the temperature of one pound of water one degree Fahrenheit. The heat extracted from your home by an air conditioner is measured in BTUs.

BTUh British thermal units per hour. 12,000 BTUh equals one ton of cooling.

Burner A device that uses fuel to support combustion.

Burner orifice The opening through which gas flows to the air/gas mixing chamber of the burner.

Burner (sealed combustion) A burner that obtains all air for combustion from outside the heated space.

Capacity The output or producing ability of cooling or heating systems. Cooling and heating capacities are referred to in British thermal units (BTUs) per hour.

Celsius The metric temperature scale in which water freezes at zero degrees and boils at 100 degrees, designated by the symbol "C". To convert to Fahrenheit, multiply a Celsius temperature by 9, divide by 5 and add 32 (25 x 9 equals 225, divided by 5 equals 45, plus 32 equals 77 degrees Fahrenheit).

CFM Abbreviation for cubic feet per minute, a standard measurement of airflow. A typical system requires 400 cfm per ton of air conditioning.

Charge To add refrigerant to a system. This is refrigerant contained in a sealed system or in the sensing bulb to a thermostatic expansion valve.

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Compressor This is the heart of an air conditioning or heat pump system. It is part of the outdoor unit and pumps refrigerant in order to meet the cooling requirements of the system.

Condensate Vapor that liquefies due to the lowering of its temperature to the saturation point.

Condenser coil (or outdoor coil) In an air conditioner, the coil dissipates heat from the refrigerant, changing the refrigerant from vapor to liquid. In a heat pump system, the coil absorbs heat from the outdoors.

Condenser fan The fan that circulates air over the air-cooled condenser.

Contactor A switch that can repeatedly cycle, making and breaking an electrical circuit. When sufficient current flows through the A-coil built into the contactor, the resulting magnetic field causes the contacts to be pulled in or closed.

Crankcase heater This is the electric resistance heater installed on compressor crankcases to boil off liquid refrigerant that may have combined with compressor oil. Many newer cooling systems do not require crankcase heaters, however heat pumps do require crankcase heaters.

CSA Canadian Standards Association.

DC Direct current electricity This type of electricity (as opposed to Alternating Current, or AC) flows in one direction only, without reversing polarity.

Damper Found in ductwork This movable plate opens and closes to control airflow. Dampers can be used to balance airflow in a duct system. They are also used in zoning to regulate airflow to certain rooms.

Defrost To melt frost; as in from an air conditioner or heat pump coil.

Degree-day A degree-day is a computation that gauges the amount of heating or cooling needed for a building. A degree-day is equal to 65 degrees Fahrenheit minus the mean outdoor temperature.

Dehumidifier An air cooler that removes moisture from the air.

Diffuser A grille over an air supply duct having vanes to distribute the discharging air in a specific pattern or direction.

DOE Department of Energy

Downflow furnace A furnace that intakes air at its top and discharges air at its bottom.

Drain pan This also referred to as a condensate pan. This is a pan used to catch and collect condensate (in residential systems vapor is liquefied on the indoor coil, collected in the drain pan and removed through a drain line).

Dry bulb temperature Heat intensity, measured by a dry bulb thermometer.

Dry bulb thermometer An instrument that measures air temperature independently of humidity.

Ductwork A pipe or conduit through which air is delivered. Ducts are typically made of metal, fiberboard or a flexible material. In a home comfort system, the size and application of ductwork is critical to performance and is as important as the equipment.

DX Direct expansion Asystem in which heat is transferred by the direct expansion of refrigerant.

EER Energy Efficiency Ratio (steady state)

ENERGY STAR® Products are more energy efficient and help reduce our whole earth's pollution problems.

EPA Environmental Protection Agency

Expansion Valve A refrigerant-metering valve with a pressure or temperature controlled orifice.

Evaporator coil (or indoor coil) The other half of your air conditioning system located inside your home in the indoor unit. This is a tubing coil in which a volatile liquid evaporates and absorbs heat. This is where the refrigerant evaporates as it absorbs heat from the indoor air that passes over the coil.

Fahrenheit The temperature scale on which water freezes at 32 degrees and boils at 212 degrees; designated by the letter F. To convert Fahrenheit to Celsius, subtract 32 from the Fahrenheit number, multiply by 5 and divide by 9 (77 -32 equals 45, times 5 equals 225, divided by 9 equals 25 degrees Celsius).

Fan Any device that creates air currents.

Filter Any device that removes impurities through a straining process.

Flue Any vent or passageway that carries the products of combustion from a furnace.

Furnace That part of the heating system in which the combustion of fossil fuel and transfer of heat occurs.

Fuse A metal strip in an electrical circuit that melts and breaks the circuit when excessive current flows through it. The fuse is designed to break in order to save more expensive electrical components.

Gas Furnace Heat Exchanger Located in the furnace, the heat exchanger transfers heat to the surrounding air, which is then pumped throughout your home.

Heat Exchanger An area, box or coil where heat flows from the warmer to the colder fluid or surface.

Heat Gain Heat added to the conditioned space by infiltration, solar radiation, occupant respiration and lighting.

Heating Coil Any coil that serves as a heat source.

Heat Loss The rate of heat transfer from a heated space to the outdoors.

Heat Pump A mechanical-compression cycle refrigeration system that can be reversed to either heat or cool the controlled space.

Heat Transfer The movement of heat energy from one point to another. The means for such movement are conduction, convection, and radiation.

Hertz In alternating current (AC electricity), the number of cycles per second.

HSPF Heating Seasonal Performance Factor. This rating is used in measuring the heating efficiency of a heat pump. The higher the number the more efficient the heat pump system.

Humidifier A machine that adds water vapor to the air to increase humidity.

Humidistat A humidity-sensing control that cycles the humidifier on and off.

Humidity The presence of water vapor in the air.

Humidity, absolute Weight of water vapor per cubic foot of dry air, expressed as grains of moisture per cubic foot.

Humidity, relative The amount of moisture in the air expressed as a percentage of the maximum amount that the air is capable of holding at a specific temperature.

HVAC Abbreviation for Heating, Ventilating and Air Conditioning

Ignition The lighting of a fuel to make it burn.

Kilowatt (kW) 1,000 watts.

Latent Heat A type of heat, which when added to or taken from a substance, does not change the temperature of the substance. Instead, the heat energy enables the substance to change its state.

Media The material in a filter that traps and holds the impurities.

NEC National Energy Council / National Electric Code

NEMA National Electrical Manufacturing Association

OEM Original equipment manufacturer.

Orifice An opening or hole; an inlet or outlet.

Package Unit A heating and cooling system contained in one outdoor unit. A package unit is typically installed beside, on the roof, or sometimes in the attic of a home.

PSI Pounds per square inch.

PSIA Pounds per square inch, absolute.

PSIG Pounds per square inch gauge.

PVC Polyvinyl chloride; a type of plastic.

Reciprocating Compressor A compressor whose piston or pistons move back and forth in the cylinders.

Refrigerant A chemical that produces a refrigerating effect while expanding and vaporizing. Most residential air conditioning systems contain R-22 refrigerant. R-22 is regulated under the Montreal Protocol and in the United States by the Environmental Protection Agency. R-22 is scheduled to be in production until the year 2020. It's used in approximately 95 percent of air conditioning equipment manufactured in the U.S. today.

Refrigerant Charge The required amount of refrigerant in a system.

SEER Seasonal Energy Efficiency Ratio; a measure of cooling efficiency for air conditioners and heat pumps. The higher the SEER, the more energy efficient the unit.

Self-contained System A refrigerating system that can be moved without disconnecting any refrigerant lines; also know as a package unit.

Sensible Heat That heat which, when added to or taken away from a substance, causes a rise or fall in temperature.

Sensor Any device that reacts to a change in the conditions being measured, permitting the condition to be controlled.

Setpoint The temperature or pressure at which a controller is set with the expectation that this will be a nominal value depending on the range of the controller.

Spine Fin™ Coil All-aluminum outdoor coil that features the patented Spine Fin™ design. It provides greater heat exchanging capabilities (meaning higher efficiencies) and is more resistant to corrosion than traditional copper/aluminum

Split System The combination of an outdoor unit (air conditioner or heat pump) with an indoor unit (furnace or air handler). Split systems must be matched for optimum efficiency.

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Thermostatic Expansion Valve A refrigerant metering device that maintains a constant evaporator temperature by monitoring suction vapor superheat; also called a thermal expansion valve.

Thermostat A thermostat consists of a series of sensors and relays that monitor and control the functions of a heating and cooling system.

Ton A unit of measurement used for determining cooling capacity. One ton is the equivalent of 12,000 BTUs per hour.

Two-stage heating / Two-stage cooling Two-stage heating and cooling is considered to be more efficient, because it operates at low speed most of the time. However, on days when more heating or air conditioning is required, it switches to the next stage for maximum comfort.

U-Factor The factor representing resistance to heat flow of various building materials.

UL Underwriters Laboratories

Upflow Furnace A furnace in which air is drawn in through the sides or bottom and discharged out the top.

Vacuum A pressure below atmospheric pressure. A perfect vacuum is 30 inches Mercury (periodic symbol "Hg").

Variable-speed motor(s) The fan motor inside Trane's variable-speed air handlers is designed to vary its speed based on your home's heating and air conditioning requirements. Working in conjunction with your thermostat, it keeps the appropriate-temperature air (e.g. warm air on cold days) circulating throughout your home, reducing temperature variances in your home. It also provides greater air circulation and filtration, better temperature distribution, humidity control, higher efficiency, and quiet performance.

Volt The unit of measure used to describe a difference in electrical potential; abbreviated by the symbol "v".

Voltage The force that pushes electrical current along wires and cables.

Watt The unit of electrical power equal to the flow of one amp at a potential difference of one volt.

Wet Bulb Thermometer A thermometer whose bulb is covered with a piece of water-soaked cloth. The lowering of temperature that results from the evaporation of water around the bulb indicates the air's relative humidity.

Zoning System A method of dividing a home into different comfort zones so each zone can be independently controlled depending on use and need; an air conditioning system capable of maintaining varying conditions for various rooms or zones.AC Abbreviation for alternating current, a type of electric current in which the polarity is constantly reversing causing the electron flow to reverse.