

Glossary of Terms

Alternating Current (AC) Electricity

A flow of electric charge that undergoes periodic reverses in direction, 60 times per second in the United States. AC is the form of electricity delivered to businesses and residences; it is preferred to DC electricity because it travels farther without losing energy and can transfer different amounts of power through a generator.

Building Envelope

The building envelope includes everything that separates the interior of a building from the outdoor environment, including the windows, walls, foundation, basement slab, ceiling, roof, and insulation.

Compact Fluorescent Light bulbs

Also known as CFL's, these light bulbs are ENERGY STAR qualified, and provide the same amount of light (lumens) as standard incandescent bulbs, but have lower wattage ratings. They use 66% less energy than a standard incandescent bulb and last up to 10 times longer.

Direct Current (DC) Electricity

An electric current flowing in one direction only. DC is commonly found in many low-voltage applications, especially where these are powered by batteries, or solar power systems which can produce only DC. DC electricity is low powered and has limited duration (the time it takes electrons to move from one end of the conductor to the other).

Energy Factor (EF)

The measure of overall efficiency for a variety of appliances. The higher the energy factor, the greater energy efficiency.

- For water heaters, the energy factor is based on three factors: 1) the recovery efficiency, or how efficiently the heat from the energy source is transferred to the water; 2) stand-by losses, or the percentage of heat lost per hour from the stored water compared to the content of the water; and 3) cycling losses.
- For dishwashers, the energy factor is defined as the number of cycles per kWh of input power.
- For clothes washers, the energy factor is defined as the cubic foot capacity per kWh of input power per cycle.
- For clothes dryers, the energy factor is defined as the number of pounds of clothes dried per kWh of power consumed.

FSC

The Forest Stewardship Council is a nonprofit organization in the United States, founded with the purpose to promote responsible forest management. Many logging practices destroy the forest and destruct wildlife habitats. However, lumber endorsed with the FSC label validates the dedication to improved forestry practices and a sustainable ecosystem.

Geothermal Heat Pump

Similar to an ordinary heat pump, it uses the ground instead of outside air to provide heating, air conditioning and, in most cases, hot water. Because it uses the earth's natural heat, it is among the most efficient and comfortable heating and cooling technologies currently available.

Glazing

The glass or plastic panes in a window, door, or skylight.

Glycol

Clear, colorless, slightly syrupy liquid at room temperature. Used as an antifreeze in cooling and heating systems. Also used in plastic tubing for radiant heat.

Heat Recovery Ventilators

Also known as HRV's, which remove indoor stale air, while introducing fresh air. It operates with an air-to-air duct system. One set of ducts collects moist, stale air and eliminates it outdoors. The other set of ducts extracts clean air from the outdoors through the HRV unit. When the two air streams pass each other, the heat from the outgoing, stale air is transferred to the incoming, clean air within the heat exchanger core. Up to 85% of the energy is retained through this transfer in the HRV unit, and delivered to your home.

HEPA

High Energy Particulate Air Filter designed to remove at least 99.97% of the dust, pollen, mold, bacteria, and airborne particles, 0.3 micrometers in diameter, from the air. If the particle is bigger, or smaller, the HEPA is more efficient at removing the harmful particles from the air. The result is cleaner, healthier air to breathe.

HSPF

HSPF stands for Heating Season Performance Factor. Simply put, it is a measure of how efficiently a heat pump performs during colder months, when it is used for heating. The higher the HSPF number, the more efficiently the heat pump heats.

HVAC

Acronym for Heating, Ventilating, Air Conditioning. It is a system designed to reduce the environmental impact of buildings by filtering and ventilating indoor air, eliminating many harsh pollutants.

Hydronic

A heating or cooling system that transfers heat by circulating a fluid, such as water, through a closed system of pipes.

Icynene

A water-blown, spray-in-place, light-density expanding foam insulation. The 100% water-blown Icynene insulation and air barrier system creates an airtight seal that completely seals the building envelope to reduce random air leakage through the walls, limit the penetration of outdoor allergens and pollutants, and help control moisture problems. This all leads to a reduction in energy costs as your heating and cooling systems will operate more efficiently due to less air leakage and low moisture diffusion.

Insulating Concrete Forms (ICF)

Rigid plastic foam forms that hold concrete in place during curing and remain in place afterwards to serve as thermal insulation for concrete walls. The ICF's are stacked up in the shape of your house, reinforcing steel is placed inside and then concrete is poured in between to create a high performance, solid structural wall. The ICF's remain in place after the concrete sets, and continue to function as thermal and acoustical insulation, an air and vapor barrier, and exterior wall sheathing. The foam blocks, or planks are lightweight and result in energy-efficient, durable construction.

Inverter

Converts DC electricity to AC electricity for use in the home or business. The solar electricity generated by the Photovoltaic (PV) cells is DC, which is not easily distributed or usable with standard, energy consuming devices found in residences and businesses today. The inverter uses this clean, DC energy, and converts it to utility-grade AC power.

Long-wave Energy

The radiant energy which leaves the earth in the infra-red part of the spectrum. This outgoing long-wave energy is partially trapped by greenhouse gases such as carbon dioxide, methane and water vapor which then radiate the energy in all directions, warming the atmosphere.

Low-Emissivity

Commonly known as "low-E"; a special thin-film metallic or oxide coating which allows the passage of short-wave solar energy into a building but prevents long-wave energy produced by heating systems and lighting from escaping outside. Low-E glass thus allows light to enter while also providing thermal insulation. Windows manufactured with low-E coatings typically reduce energy loss by as much as 30–50%.

Modified Energy Factor (MEF)

A new equation that replaced Energy Factor as a way to compare the relative efficiency of different units of clothes washers. The higher the Modified Energy Factor, the more efficient the clothes washer is. MEF takes into account the amount of dryer energy used to remove the remaining moisture content in washed items.

Photovoltaic Energy

Also known as PV energy, it is the conversion of solar light into electricity by way of solar cells, or photovoltaic cells. Sunlight is absorbed into the solar cells, which are made of highly refined silicon alloys. Cells join to make a panel, which then assembles as an array. The array, more commonly known as a solar panel, absorbs the solar rays and produces electricity. The greater use of arrays produces greater amounts of solar electricity.

R-Value

Represents a material's ability to resist heat loss. A high R-value indicates the ability of the material, such as insulation, to retain heat in the winter, and the ability to resist heat in the summer. For Oregon, the Revised Energy Code calls for walls to be rated R-21, floors R-25, flat ceilings R-38, and vaulted ceilings R-30.

Radiant Energy

Energy contained in light rays, which may be absorbed by a man-made solar energy collector, such as solar panels, and dispersed as heat.

Radiant Heat

The use of plastic tubing installed beneath the flooring, which is filled with glycol. The furnace heats the glycol and radiates the heat to your home through the floor. The radiant heat allows the thermostat to be set lower, saving energy, and decreasing the level of harmful particles released into the air through your heating and cooling methods.

SEER

Acronym for seasonal energy efficiency ratio. It measures how efficiently a residential central cooling system (air conditioner or heat pump) will operate over an entire cooling season, as opposed to a single outdoor temperature. A high SEER reflects a more efficient cooling system. By federal law, every central split cooling system manufactured or sold in the U.S. today must have a seasonal energy efficiency ratio of at least 10.0.

Short-wave Energy

Light energy from the sun, which arrives at the earth in the visible part of the spectrum. The atmosphere is transparent to short-wave energy, and most of the solar energy reaches the surface of the earth, where it is absorbed. This energy warms the surface of the earth, which in turn warms the atmosphere with long-wave energy.

Solar Power

Energy derived from the Sun or sunlight for use as a source of electricity.

Sustainable

The method of harvesting or using a resource so that the resource is not depleted or permanently damaged.

U-Value

An energy efficiency rating, used to indicate actual heat of an entire assembly of materials in a building component or section. A low U-value indicates high energy efficiency. For Oregon, the Revised Energy Code calls for windows to be rated at U-0.40, and skylights at U-0.50. Main entry doors need to be rated at U-0.45, and other exterior doors require a U-0.20 rating.

VOC

Volatile Organic Chemicals are carbon-based compounds that evaporate readily into the air and are a source of indoor air pollution. VOC's may be emitted through products like paint and lacquers, cleaning supplies, building materials and furnishings, and many glues and adhesives. The health effects from VOC exposure may be great, ranging from eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment. VOC's include several known carcinogens. Using products with low VOC levels, eliminating products containing organic chemicals, and keeping the area well ventilated will decrease the effects of VOC's.

