Building Code and Related Definitions

AHAM: Association of Home Appliance Manufacturers
ANSI: American National Standards Institute.
ARI: Air-Conditioning and Refrigeration Institute.
ASHRAE: American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME: American Society of Mechanical Engineers.
ASTM: American Society for Testing and Materials
BCAP: Building Codes Assistance Project
BOCA: Building Officials and Code Administrators International, Inc.
BOMA: Building Owners and Managers Association
CRRC: Cool Roof Rating Council
ICAA: Insulation Contractors Association of America.
ICBO: The International Conference of Building Officials.
ICC: The International Code Council.
IECC: The International Energy Conservation Code formerly known as the MEC. The IECC was published in 1998, 2000, 2003, and 2006.
IEEE: Institute of Electrical and Electronics Engineers, Inc.
IES: Illumination Engineering Society
IESNA: Illuminating Engineering Society of North America
NASEO: National Association of State Energy Officials
NFPA: National Fire Protection Agency International
NFRC: National Fenestration Rating Council
RESNET: Residential Energy Services Network

ACH

Air changes per hour.

Addition

An extension or increase in the height, conditioned floor area, or conditioned volume of a building. The code applies to additions of existing buildings.

Adopting Authority

The agency or agent that adopts this standard.

AFUE

Annual fuel utilization efficiency; combustion heating equipment efficiency is expressed in terms of AFUE. New equipment typically ranges from about 78- to 96-percent AFUE. Higher AFUE ratings indicate more efficient equipment.

Air Economizer

A duct and damper arrangement and automatic control system that together allow a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

Air Economizer Systems

Ducting arrangements and automatic control systems that allow a cooling supply fan system to supply outdoor (outside) air to reduce or eliminate the need for mechanical refrigeration during mild or cold weather.

Attic and Other Roofs

All other roofs, including roofs with insulation entirely below (inside of) the roof structure (e.g., attics, cathedral ceilings, and single-rafter ceilings), roofs with insulation both above and below the roof structure, and roofs without insulation but excluding metal building roofs.

Authority Having Jurisdiction

The agency or agent responsible for enforcing this standard.

BSR

Board of Standards Review.

BTU

British thermal unit, which is the quantity of heat required to raise the temperature of 1 pound (0.454 kg) of water 1°F

Budget Building Design

A computer representation of a hypothetical design based on the actual proposed building design. This representation is used as the basis for calculating the energy cost budget.

Building

A structure wholly or partially enclosed within exterior walls, or within exterior and party walls, and a roof, affording shelter to persons, animals, or property.

Building Entrance

Any doorway, set of doors, turnstiles, or other form of portal that is ordinarily used to gain access to the building by its users and occupants.

Building Envelope

A building envelope includes all components of a building that enclose conditioned space. Building envelope components separate conditioned spaces from unconditioned spaces or from outside air. For example, walls and doors between an unheated garage and a living area are part of the building envelope; walls separating an unheated garage from the outside are not. Although floors of conditioned basements and conditioned crawlspaces are technically part of the building envelope, the code does not specify insulation requirements for these components.

Building Envelope Interior

The elements of a building that separate conditioned space from unconditioned space or that enclose semi-heated spaces through which thermal energy may be transferred to or from the exterior, unconditioned spaces, or conditioned spaces.

Building Information Model (BIM)

A digital representation of the building process. The BIM facilitates exchange and interoperability of information in digital format.

Building Official

The officer or other designated representative authorized to act on behalf of the authority having jurisdiction.

CDD

Cooling degree day.

CE

Combustion efficiency.

Ceiling

The ceiling requirements apply to portions of the roof and/or ceiling through which heat flows. Ceiling components include the interior surface of flat ceilings below attics, the interior surface of cathedral or vaulted ceilings, skylights, and sloped building assemblies less than 60 degrees from horizontal, but excluding skylight shafts.

CFM

Cubic feet per minute. A standard measurement of airflow.

Daylight Glazing

Exterior glazing over 6 feet above the finished floor.

DDC

Direct Digital Control.

Degree Day Base 50F, CDD50

For any one day, when the mean temperature is more than 50 degrees F, there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and 50 degrees F. Annual cooling degree days (CDDs) are the sum of the degree days over a calendar year.

Demand

The highest amount of power (average kW over an interval) recorded for a builder or facility in a selected time frame.

Design Capacity

Output capacity of a system or piece of equipment at design conditions.

Design Energy Cost

The annual energy cost calculated for a proposed design.

DOE

U.S. Department of Energy

Domestic Water Heating System

DWH systems may be circulating or non-circulating.

Door

Doors include all openable opaque assemblies (which are not fenestration) located in exterior walls of the building envelope. Doors with glass can be treated as a single door assembly, in which case an aggregate U-factor (a U-factor that includes both the glass and the opaque area) must be used, or the glass area of the door can be included with the other glazing, and an opaque door U-factor can be used to determine compliance of the door.

Door Area

Total area of the door measured using the rough opening and including the door slab and the frame. See "Fenestration Area."

Duct

A tube or conduit used for conveying air. The air passages of self-contained systems should not be construed as air ducts.

Duct System

A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans, and accessory air-handling equipment and appliances.

Economizer

A duct and damper arrangement and automatic control system that allow a cooling supply fan system to supply outdoor air to reduce or eliminate the need for mechanical refrigeration during mild or cold weather.

Efficacy

A metric used to compare light output to energy consumption. Efficacy is measured in lumens per watt. Efficacy is similar to efficiency but is expressed in dissimilar units. For example, if a 100-watt source produces 9000 lumens, then the efficacy is 90 lumens per watt.

Efficiency

Performance at specified rating conditions.

Electric Resistance

The property of an electric circuit or of any object used as part of an electric circuit that determines for a given circuit the rate at which electric energy is converted into heat or radiant energy and that has a value such that the product of the resistance and the square of the current gives the rate of conversion of energy.

Electric Supplier

An agency that sells and/or distributes electric power.

Electronic High Frequency Ballasts

Electronic ballasts improve fluorescent system efficacy by converting the standard 60 Hz input frequency to a higher frequency, usually 25,000 to 40,000 Hz. Lights operating on these frequencies produce about the same amount of light while consuming up to 30% less power than a standard magnetic ballast.

Emergency Power System (EPS)

A system that is required by codes or other laws to automatically supply illumination or power or both in the event of failure of the normal supply or in the event of accidents to such systems. Such systems may also include standby loads incidental to system operations but shall not include systems for optional standby loads only.

Emittance

The ratio of the radiant heat flux emitted by a specimen to that emitted by a blackbody at the same temperature and under the same conditions.

Enclosed Space

A volume substantially surrounded by solid surfaces such as walls, floors, roofs, and openable devices such as doors and operable windows. Spaces not meeting these criteria for enclosure are considered to be exterior to the building for purposes of determining envelope requirements. For example, most parking garages do not qualify as enclosed space.

Enclosure

The case or housing of an apparatus, or the fence or walls surrounding an installation, designed to prevent personnel from accidentally contacting energized parts and to protect equipment from physical damage.

Energy

The capacity for doing work. It takes a number of forms that may be transformed from one into another such as thermal (heat), mechanical (work), electrical, and chemical. Customary measurement units are British thermal units (Btu).

Energy Cost Budget

The annual energy cost for the budget building.

Energy Efficient Ratio (EER)

The ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions. When consistent units are used, this ratio becomes equal to the coefficient of performance.

Energy Factor (EF)

A measure of water heater overall efficiency.

Energy Performance Rating

The energy use of the proposed building under actual operating conditions. Projected energy use targets can be used for buildings in the design or construction process. Examples include kBtu/sf/yr, $/sf/yr, $/gross sales, Energy Performance Rating Score (US EPA), or like expressions of energy performance.

Envelope Components

The building assemblies that provide a barrier between conditioned space and unconditioned space. This includes the floors, walls, and ceiling/roof assemblies of the building.

Envelope Floor

That lower portion of the building envelope, including opaque area and fenestration, that has conditioned or semi-heated space above and is horizontal or tilted at an angle of less than 60 degrees from horizontal but excluding slab-on-grade floors. It is needed to determine building envelope requirements.

Equipment

Devices for comfort conditioning, electric power, lighting, transportation, or service water heating including, but not limited to, furnaces, boilers, air conditioners, heat pumps, chillers, water heaters, lamps, luminaires, ballasts, elevators, escalators, or other devices or installations.

Equipment Efficiency

The measure of equipment efficiency varies with equipment type.

Exfiltration

Uncontrolled outward air leakage from inside a building including leakage through cracks and interstices around windows and doors and through any other exterior partition or penetration.

Existing Building

A building or portion thereof that was previously occupied or approved for occupancy by the authority having jurisdiction.

Existing System

A system or systems previously installed in an existing building.

Exterior Lighting Power Allowance

The maximum lighting power in watts allowed for the exterior of a building.

Exterior Wall

An above-grade wall enclosing conditioned space. Includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof, and basement walls with an average below grade-wall area that is less than 50 percent of the total opaque and non-opaque area of that enclosing side.

F

Fahrenheit.

F-Factor

The perimeter heat loss factor for slab-on-grade floors, expressed in Btu/h x F.

Facade Area

Area of the facade, including overhanging soffits, cornices, and protruding columns, measured in elevation in a vertical plane parallel to the plane of the face of the building. Non-horizontal roof surfaces shall be included in the calculation of vertical facade area by measuring the area in a plane parallel to the surface.

Fan Coil

A fan-coil terminal is essentially a small air-handling unit which serves a single space without a ducted distribution system. One or more independent terminals are typically located in each room connected to a supply of hot and/or chilled water. At each terminal, a fan in the unit draws room air (sometimes mixed with outside air) through a filter and blows it across a coil of hot water or chilled water and back into the room.

Fan System Energy Demand

The sum of the nominal power demand (nameplate horsepower) of motors of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors.

Feeder Conductors

The wires that connect the service equipment to the branch circuit breaker panels.

Fenestration

All areas (including the frames) in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, glass doors that are more than one-half glass, and glass block walls. A skylight is a fenestration surface having a slope of less than 60 degrees from the horizontal plane. Other fenestration, even if mounted on the roof of a building is considered vertical fenestration.

Fenestration Area

Total area of the fenestration measured using the rough opening and including the glazing, sash, and frame. For doors where the glazed vision area is less than 50% of the door area, the fenestration area is the glazed vision area. For all other doors, the fenestration area is the door area.

Fixture

The component of a luminaire that houses the lamp or lamps, positions the lamp, shields it from view, and distributes the light. The fixture also provides for connection to the power supply, which may require the use of a ballast.

Floor

A horizontal exterior partition, or a horizontal demising partition, under conditioned space which separates conditioned space from unconditioned space.

Fluorescent Lamps

A light source consisting of a tube filled with argon, along with krypton or other inert gas. When electrical current is applied, the resulting arc emits ultraviolet radiation that excites the phosphors inside the lamp wall, causing them to radiate visible light.

Flue Damper

A device in the flue outlet or in the inlet of or upstream of the draft control device of an individual, automatically operated, and fossil fuel-fired appliance that is designed to automatically open the flue outlet during appliance operation and to automatically close the flue outlet when the appliance is in a standby condition.

Fossil Fuel

Fuel derived from a hydrocarbon deposit such as petroleum, coal, or natural gas derived from living matter of a previous geologic time.

Fuel

A material that may be used to produce heat or generate power by combustion.

General Lighting

Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within an area.

General Service Lamp

A class of incandescent lamps that provide light in virtually all directions. General service lamps are typically characterized by bulb shapes such as A, standard; S, straight side; F, flame; G, globe, and PS, pear straight.

Generally Accepted Engineering Standard

A specification, rule, guide, or procedure in the field of engineering, or related thereto, recognized and accepted as authoritative.

Glazed Wall System

A category of site-assembled fenestration products, which includes, but is not limited to, curtain walls and solariums.

Glazing

Any translucent or transparent material in exterior openings of buildings, including windows, skylights, sliding doors, the glass area of opaque doors, and glass block.

Glazing Area

The area of a glazing assembly is the interior surface area of the entire assembly, including glazing, sash, curbing, and other framing elements. The nominal area or rough opening is also acceptable for flat windows and doors.

Glazing U-Factor

Based on the interior-surface area of the entire assembly, including glazing, sash, curbing, and other framing elements. Center-of-glass U-factors cannot be used.

Grade

The finished ground level adjoining a building at all exterior walls.

Gross Floor Area

The sum of the floor areas of the spaces within the building including basements, mezzanine and intermediate-floored tiers, and penthouses with headroom height of 7.5 ft or greater. It is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings, but it excludes covered walkways, open roofed-over areas, porches and similar spaces, pipe trenches, exterior terraces or steps, chimneys, roof overhangs, and similar features.

Gross Wall Area

The gross wall area includes the opaque area of above-grade walls, the opaque area of any individual wall of a conditioned basement less than 50% below grade (including the below-grade portions), all windows and doors (including windows and doors of conditioned basements), and the peripheral edges of floors.

Gross Window Area

Includes the rough-opening area of the window, not just the transparent-glass area.

Harmonics

Voltages and currents at frequencies other than 60 Hz (or 50 Hz where applicable) that cause heating and other detrimental effects in the power system.

Heat Capacity

The amount of heat necessary to raise the temperature of a given mass 1 degree F. Numerically, the sum of the products of the mass per unit area of each individual material in the roof, wall, or floor surface multiplied by its individual specific heat.

Heat Pump

One or more factory-made assemblies which include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions.

Heat Trace

A heating system where the externally applied heat source follows (traces) the object to be heated, e.g., water piping.

Heat Traps

Devices or piping arrangements that effectively restrict the natural tendency of hot water to rise in vertical pipes during standby periods. Examples are the U-shaped arrangement of elbows or a 360-degree loop of tubing.

Heated Slab

Slab-on-grade construction in which the heating elements or hot air distribution system is in contact with or placed within the slab or the subgrade.

Heated Space

Space within a building that is provided with a positive heat supply (see "Positive Heat Supply"). Finished living space within a basement with registers or heating devices designed to supply heat to a basement space shall automatically define that space as heated space.

Heating Degree Days (HDD)

A unit, based upon temperature difference and time, used in estimating fuel consumption and specifying nominal heating load of a building in winter. For any one day, when the mean temperature is less than 65 degrees F (18 degrees C), there exists as many degree days as there are Fahrenheit degrees difference in temperature between the mean temperature for the day and 65 degrees F (18 degrees C).

Heating Degree Day Base 65F (HDD65)

For any one day, when the mean temperature is less than 65 degrees F, there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and 65 degrees F. Annual heating degree days (HDDS) are the sum of the degree days over a calendar year.

Heating Seasonal Performance Factor (HSPF)

The total heating output of a heat pump during its normal annual usage period for heating, in Btu, divided by the total electric energy input during the same period, in watt hours, as determined by DOE 10 CFR Part 430, Subpart B, Test Procedures, and based on Region 4. Heat pump heating is expressed in terms of HSPF. New equipment ranges from about 6.8 to 10.0 HSPF. Higher HSPF ratings indicate more efficient equipment.

HID

High-intensity discharge.

High-Intensity Discharge Lamp (HID lamp)

An electric discharge lamp in that light is produced when an electric arc is discharged through a vaporized metal such as mercury or sodium. Some HID lamps may also have a phosphor coating that contributes to the light produced or enhances the light color.

High-Rise Residential Building

Hotels, motels, apartments, condominiums, dormitories, and other residential-type facilities that provide complete housekeeping or transient living quarters and are over three stories in height above grade. Hotels, motels, and other buildings with itinerant occupancies are covered by the "commercial" code regardless of height.

Historic

A building or space that has been specifically designated as historically significant by the adopting authority, is listed in "The National Register of Historic Places," or has been determined to be eligible for listing by the U.S. Secretary of the Interior.

Hot Water Supply Boiler

A boiler used to heat water for purposes other than space heating.

HUD

The U.S. Department of Housing and Urban Development.

Humidistat

A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

HVAC

Heating, ventilating, and air conditioning.

HVAC System

The equipment, distribution network, and terminals that provide either collectively or individually the processes of heating, ventilating, or air conditioning to a building.

HVAC Zone

A space or group of spaces within a building with heating and cooling requirements that are sufficiently similar so that desired conditions (e.g., temperature) can be maintained throughout using a single sensor (e.g., thermostat or temperature sensor).

IMC

International Mechanical Code.

Incandescent Lamp

A lamp in which light is produced by a filament heated to incandescence by an electric current.

Indirectly Conditioned Space

An enclosed space within a building that is not a heated or cooled space, whose area-weighted heat transfer coefficient to heated or cooled spaces exceeds that to the outdoors or to unconditioned spaces; or through which air from heated or cooled spaces is transferred at a rate exceeding three air changes per hour. (Also see Heated Space, Cooled Space, and Unconditioned Space.)

Infiltration

The uncontrolled inward air leakage through cracks and interstices in any building element and around windows and doors of a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

Installed Interior Lighting Power

The power in watts of all permanently installed general, task, and furniture lighting systems and luminaires.

Insulated Sheathing

An insulating board having a minimum thermal resistance of R-2 of the core material.

Insulation R-Values

R-values are used to rate insulation and are a measurement of the insulation's resistance to heat flow. The higher the R-value, the better the insulation.

K

Kelvin.

kg

Kilogram.

Kilovolt-Ampere (KVA)

Where the term "kilovolt-ampere" (KVA) is used in this standard, it is the product of the line current (amperes) times the nominal system voltage (kilovolts) times 1.732 for three-phase currents. For single-phase applications, KVA is the product of the line current (amperes) times the nominal system voltage (kilovolts).

Kilowatt (KW)

The basic unit of electric power, equal to 1000 W.

kWh

Kilowatt-hour.

Model Energy Code (MEC)

The Model Energy Code. The MEC was first published in 1983, with subsequent full editions published in 1986, 1989, 1992, 1993, and 1995. The MEC has become the IECC, first published in 1998.

NAECA

The National Appliance Energy Conservation Act of 1987, 42 USC 6291 et seq., as amended, Public Law 100-12.

NAGDM

National Association of Garage Door Manufacturers.

NCSBCS

The National Conference of States on Building Codes and Standards.

Net Wall Area

The net wall area includes the opaque wall area of all above-grade walls enclosing conditioned spaces, the opaque area of conditioned basement walls less than 50% below grade (including the below-grade portions), and peripheral edges of floors. The net wall area does not include windows, doors, or other such openings, as they are treated separately.

NFPA

National Fire Protection Association.

Non-Standard Part Load Value (NPLV)

A single-number, part-load efficiency figure of merit calculated and referenced to conditions other than IPLV conditions, for units that are not designed to operate at ARI Standard Rating Conditions.

Non-Recirculating System

A domestic or service hot water distribution system that is not a recirculating system.

Non-Renewable Energy

Energy derived from a fossil fuel source.

North-Oriented

Facing within 45 degrees of true north (northern hemisphere).

NPLV

Non-standard part load value.

NWWDA

National Wood Window and Door Association.

Occupancy Type

The type of activity occurring within a building.

Occupant Sensing Device

A device that detects the presence or absence of people within an area and causes any combination of lighting, equipment, or appliances to be adjusted accordingly.

Occupant Sensor

A device that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

Opaque

All areas in the building envelope, except fenestration and building service openings such as vents and grilles.

Opaque Areas

Opaque areas referenced in this guide include all areas of the building envelope except openings for windows, skylights, doors, and building service systems. For example, although solid wood and metal doors are opaque, they should not be included as part of the opaque wall area (also referred to as the net wall area).

Operational Performance Requirements

A written document that details the functional requirements of a project and the expectations of how it will be used and operated. This includes project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

Optimum Start Controls

Controls that are designed to automatically adjust the start time of an HVAC system each day with the intention of bringing the space to desired occupied temperature levels immediately before scheduled occupancy.

Orientation

The direction an envelope element faces, i.e., the direction of a vector perpendicular to and pointing away from the surface outside of the element.

Outdoor Air

Air taken from the outdoors and, therefore, not previously circulated through the system.

Overcurrent

Any current in excess of the rated current of equipment or the ampacity of a conductor. It may result from overload, short circuit, or ground fault.

Overhead Glazing Area

The area whose horizontal dimension, in each direction, is equal to the overhead glazing dimension plus either the floor to ceiling height or the dimension to the nearest 66" or higher opaque partition, or one-half the distance to the adjacent overhead or vertical glazing.

Performance Approach

A performance approach (also known as a systems performance approach) compares a proposed design with a baseline or reference design and demonstrates that the proposed design is at least as efficient as the baseline in terms of annual energy use. This approach allows the greatest flexibility but may require considerably more effort. A performance approach is often necessary to obtain credit for special features such as a passive solar design, photovoltaic cells, thermal energy storage, fuel cells, and other nontraditional building components. This approach requires an annual energy use value. There are several commercially available software tools that perform this analysis.

Perm Rating

The amount of water vapor that passes through an area in a certain period of time.

Permanantly Wired Luminaries

Light fixtures physically attached to a surface (e.g. ceiling or wall) using a permanent mounting system and wired directly to a power source. Examples include fluorescent fixtures located in a ceiling grid and wall sconces.

Permanently Installed

Equipment that is fixed in place and is not portable or movable.

Photo Cell

A light-sensing device used to control luminaires and dimmers in response to detected light levels.

Plenum

An enclosure that is part of the air-handling system and is distinguished by having a very low air velocity. A plenum often is formed in part or in total by portions of the building.

Pool

Any structure, basin, or tank containing an artificial body of water for swimming, diving, or recreational bathing. The term includes, but is not limited to, swimming pool, whirl-pool, spa, and hot tub.

Positive Cooling Supply

Mechanical cooling deliberately supplied to a space, such as through a supply register. Also, mechanical cooling indirectly supplied to a space through uninsulated surfaces of space-cooling components, such as evaporator coil cases and cooling distribution systems that continually maintain air temperatures within the space of 85 degrees F (29 degrees C) or lower during normal operation. To be considered exempt from inclusion in this definition, such surfaces must comply with the insulation requirements of this code.

Positive Heat Supply

Heat deliberately supplied to a space by design, such as a supply register, radiator, or heating element. Also, heat indirectly supplied to a space through uninsulated surfaces of service water heaters and space-heating components, such as furnaces, boilers, and heating and cooling distribution systems that continually maintain air temperature within the space of 50 degrees F (10 degrees C) or higher during normal operation. To be considered exempt from inclusion in this definition, such surfaces must comply with the insulation requirements of this code.

Power Factor

The ratio of total real power in watts to the apparent power (root-mean-square volt amperes).

Prescriptive Approach

A prescriptive approach lists the minimum R-value or maximum U-factor requirements for each building component such as windows, walls, and roofs. For lighting systems in commercial buildings, a prescriptive approach would simply list the allowable watts per square foot for various building types. For mechanical systems and equipment, a prescriptive approach would list the minimum required equipment efficiencies.

Primary Air System

The central, air-moving, heating, and cooling equipment that serves multiple zones through mixing boxes, VAV boxes, or reheat coils.

Process Energy

Energy consumed in support of a manufacturing, industrial, or commercial process other than conditioning spaces and maintaining comfort and amenities for the occupants of a building.

Process Load

The load on a building resulting from the consumption or release of process energy.

Projection Factor (PF)

The exterior horizontal shading projection depth divided by the sum of the height of the fenestration and the distance from the top of the fenestration to the bottom of the external shading projection in units consistent with the projection depth.

Proposed Design

A computer representation of the actual proposed building design or portion thereof used as the basis for calculating the design energy cost.

psi (g)

Pounds per square inch gauge.

Pump System Energy Demand (Pump System Power)

The sum of the nominal power demand (nameplate horsepower) of motors of all pumps that are required to operate at design conditions to supply fluid from the heating or cooling source to all heat transfer devices (e.g., coils, heat exchanger) and return it to the source.

R-Value

A measure (h ft2 °F/Btu) of thermal resistance, or how well a material or series of materials resists the flow of heat. The R-value is the reciprocal of the U-factor.

Radiant Heating System

A heating system that transfers heat to objects and surfaces within the heated space primarily (greater than 50%) by infrared radiation.

Raised Truss

Raised truss refers to any roof/ceiling construction that allows the insulation to achieve its full thickness over the plate line of exterior walls. Several constructions allow for this, including elevating the heel (sometimes referred to as an energy truss, raised-heel truss, or Arkansas truss), use of cantilevered or oversized trusses, lowering the ceiling joists, or framing with a raised rafter plate.

Rated Lamp Wattage

The power consumption of a lamp as published in manufacturers' literature.

Readily Accessible

Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or resort to portable ladders, chairs, etc. In public facilities, accessibility may be limited to certified personnel through locking covers or by placing equipment in locked rooms.

RECD

The Rural Economic and Community Development, formerly the Farmer's Home Administration.

Recirculating System

A domestic or service hot water distribution system that includes a closed circulation circuit designed to maintain usage temperatures in hot water pipes near terminal devices (e.g., lavatory faucets, shower heads) in order to reduce the time required to obtain hot water when the terminal device valve is opened. The motive force for circulation is either natural (due to water density variations with temperature) or mechanical (recirculation pump).

Recooling

Lowering the temperature of air that has been previously heated by a mechanical heating system.

Record Drawings

Drawings that record the conditions of the project as constructed. These include any refinements of the construction or bid documents.

Reflectance

The ratio of the light reflected by a surface to the light incident upon it.

Reflector Lamp

A class of incandescent lamps that have an internal reflector to direct the light. Reflector lamps are typically characterized by reflector shapes such as R (reflector), ER (elipsodial reflector), PAR (parabolic aluminized reflector), MR (multi-faceted reflector), and others.

Reheating

Raising the temperature of air that has been previously cooled either by mechanical refrigeration or an economizer system.

Reset

Automatic adjustment of the controller set point to a higher or lower value.

Residential

Spaces in buildings used primarily for living and sleeping. Residential spaces include, but are not limited to, dwelling units, hotel/motel guest rooms, dormitories, nursing homes, patient rooms in hospitals, lodging houses, fraternity/sorority houses, hotels, prisons, and fire stations.

Residential Building, Group R-2

Residential occupancies containing more than two dwelling units where the occupants are primarily permanent in nature such as apartment houses, boarding houses (not transient), convents, monasteries, rectories, fraternities and sororities, dormitories and rooming houses. For the purpose of this code, reference to Group R-2 occupancies shall refer to buildings that are three stories or less in height above grade.

Residential Building, Group R-4

Residential occupancies shall include buildings arranged for occupancies as Residential Care/Assisted Living Facilities including more than five but not more than 16 occupants, excluding staff. For the purpose of this code, reference to Group R-4 occupancies shall refer to buildings which are three stories or less in height above grade.

Roof

The upper portion of the building envelope, including opaque areas and fenestration, that is horizontal or tilted at an angle of less than 60 degrees from horizontal.

Roof Assembly

A roof assembly shall be considered to be all roof/ceiling components of the building envelope through which heat flows, thus creating a building transmission heat loss or gain, where such assembly is exposed to outdoor air and encloses conditioned space. The gross area of a roof assembly consists of the total interior surface of all roof/ceiling components, including opaque surfaces, dormer and bay window roofs, treyed ceilings, overhead portions of an interior stairway to

an unconditioned attic, doors and hatches, glazing, and skylights exposed to conditioned space that are horizontal or sloped at an angle less than 60° from the horizontal.

Roofing With Insulation Entirely Above Deck

A roof with all insulation (1) installed above (outside of) the roof structure and (2) continuous (i.e., uninterrupted by framing members).

Room Air Conditioner

An encased assembly designed as a unit to be mounted in a window or through a wall, or as a console. It is meant to provide direct delivery of conditioned air to an enclosed space, room, or zone. It includes a prime source of refrigeration for cooling and dehumidification and a means for circulating and cleaning air. It may also include a means for ventilating and heating.

Room Cavity Ratio

A factor that characterizes room configuration as a ratio between the walls and veiling and is based upon room dimensions.

rpm

Revolutions per minute.

SBCCI

The Southern Building Code Congress International, Inc.

Screw Lamp Holders

A lamp base that requires a screw-in-type light such as an incandescent or tungsten-halogen bulb.

Seasonal Coefficient of Performance (cooling)

The total cooling output of an air conditioner during its normal annual usage period for cooling divided by the total electric energy input during the same period in consistent units (analogous to the HSPF but for IP or other consistent units).

Seasonal Coefficient of Performance (heating)

The total heating output of a heat pump during its normal annual usage period for heating divided by the total electric energy input during the same period in consistent units (analogous to the HSPF but for IP or other consistent units.)

Seasonal Energy Efficiency Ratio (SEER)

The total cooling output of an air conditioner during its normal annual usage period for cooling, in Btu/h (W), divided by the total electric energy input during the same period, in watt-hours, as determined by DOE 10 CFR Part 430, Subpart B, Test Procedures. New equipment ranges from about 10 to 16 SEER. Higher SEER ratings indicate more efficient equipment.

Semiheated Space

An enclosed space within a building that is heated by a heating system whose output capacity is greater than or equal to 3.4 Btu/Ft2 of floor area but is not a conditioned space.

Service Agency

An agency capable of providing calibration, testing, or manufacture of equipment, instrumentation, metering, or control apparatus, such as a contractor, laboratory or manufacturer.

Service Equipment

The necessary equipment, usually consisting of a circuit breaker or switch and fuses and accessories, located near the point of entrance of supply conductors to a building or other structure (or an otherwise defined area) and intended to constitute the main control and means of cutoff of the supply. Service equipment may consist of circuit breakers or fused switches provided to disconnect all undergrounded conductors in a building or other structure from the service-entrance conductors.

Service Water Heating

Heating water for domestic or commercial purposes other than space heating and process requirements.

Set Point

Point at which the desired temperature (degrees Fahrenheit) of the heated or cooled space is set.

Setback

Reduction of heating (by reducing the set point) or cooling (by increasing the set point) during hours when a building is unoccupied or during periods when lesser demand is acceptable.

Shading Coefficient (SC)

The ratio of solar heat gain through fenestration, with or without integral shading devices, to that occurring through unshaded 1/8-in.-thick double-strength glass.

Simulation Program

A computer program that is capable of simulating the energy performance of building systems.

Single Family

A detached residential building, irrespective of height, including duplexes.

Single Zone Units HVAC System

Unitary HVAC systems that serve a single zone. Single zone systems can provide either heating or cooling, but they provide supply air at the same volume and temperature to the entire zone which they serve.

Single-Rafter Roof

A subcategory of attic roofs where the roof above and the ceiling below are both attached to the same wood rafter and where insulation is located in the space between these wood rafters.

Single-Zone System

An HVAC system serving a single HVAC zone.

Site-Recovered Energy

Waste energy recovered at the building site that is used to offset consumption of purchased fuel or electrical energy supplies.

Site-Solar Energy

Thermal, chemical, or electrical energy derived from direct conversion of incident solar radiation at the building site and used to offset consumption of purchased fuel or electrical energy supplies. For the purposes of applying this standard, site-solar energy shall not include passive heat gain through fenestration systems.

Skylight

A fenestration surface having a slope of less than 60 degrees from the horizontal plane. Other fenestration, even if mounted on the roof of a building, is considered vertical fenestration.

Thermal Bridge

A component, or assembly of components, in a building envelope through which heat is transferred at a substantially higher rate than through the surrounding envelope area.

Thermal Conductance

Time rate of heat flow through a body (frequently per unit area) from one of its bounding surfaces to the other for a unit temperature difference between the two surfaces, under steady conditions (Btu/h x ft² x °F) [W/(m² x K)].

Thermal Resistance (R)

The reciprocal of the time rate of heat flow through a unit area induced by a unit temperature difference between two defined surfaces of material or construction under steady-state conditions.

Thermal Transmittance

The coefficient of heat transmission (air to air). It is the time rate of heat flow per unit area and unit temperature difference between the warm-side and cold-side air films (Btu/h x ft² x °F) [W/(m² x K)]. The U-factor applies to combinations of different materials used in series along the heat flowpath, single materials that comprise a building section, cavity airspaces and surface air films on both sides of a building element.

Thermostat

An automatic control device responsive to temperature.

Thermostat Set Back

Usually done at night to reduce the amount of conditioning provided at night by allowing the interior temperature to drift naturally to a marginal temperature during the night and then to recondition it to normal conditions in the morning.

Tinted

(As applied to fenestration) bronze, green, blue, or gray coloring that is integral with the glazing material. Tinting does not include surface applied films such as reflective coatings, applied either in the field or during the manufacturing process.

Trade-Off Approach

A trade-off approach involves trading enhanced energy efficiency in one component against decreased energy efficiency in another component. These trade-offs typically occur within major building systems (e.g. envelope, mechanical) or in commercial lighting.

Transformer

A piece of electrical equipment used to convert electric power from one voltage to another voltage.

Transverse Seam

All duct seams other than the longitudinal seam (which runs parallel to the direction of air flow).

U-Factor

A measure (Btu/h ft2 °F) of how well a material or series of materials conducts heat. U-factors for window and door assemblies are the reciprocal of the assembly R-value. The smaller the number, the less the heat flow.

UA

U-factor X area; REScheck performs a simple UA calculation for each building assembly to determine the overall UA of your building. The UA that would result from a building conforming to the code requirements is compared against the UA for your building. If the total heat loss (represented as a UA) through the envelope of your building does not exceed the total heat loss from the same building conforming to the code, then the software declares that you pass. A high-efficiency equipment trade-off can also be performed.

UL

Underwriters Laboratories Inc.

UL 181A/B

A test procedure for tapes and mastics used to seal ductwork.

Unconditioned Space

An enclosed space within a building that is not a conditioned space.

Unenclosed Space

A space that is not an enclosed space.

Unit Energy Costs

Costs for units of energy or power purchased at the building site. These costs may include energy costs as well as costs for power demand as determined by the adopting authority.

Unitary Cooling Equipment

One or more factory-made assemblies that normally include an evaporator or cooling coil and a compressor and condenser combination. Units that perform a heating function are also included.

Unitary Heat Pump

One or more factory-made assemblies that include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions. When heat pump equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

Unitary Heating and Cooling

One or more factory-made assemblies that include an evaporator or cooling coil, a compressor and condenser combination, and that shall be permitted to include a heating function as well. When heating and cooling equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

Unitary Packaged

Each package is a standalone system which provides all of the heating and cooling requirements for the area of the building that it serves.

UV

Ultraviolet.

Vapor Retarder

A component that retards water vapor diffusion but does not totally prevent its transmission. Vapor retarder material is usually a thin sheet or coating. However, a construction of several materials, some perhaps of substantial thickness, could also constitute a vapor retarder system.

Variable Air Volume (VAV)

HVAC system that controls the dry-bulb temperature within a space by varying the volumetric flow of heated or cooled supply air to the space.

Variable Frequency Drive

Changes the speed of the motor by changing the voltage and frequency of the electricity supplied to the motor based upon system requirements.

Vent Damper

A device intended for installation in the venting system of an individual, automatically operated, fossil fuel-fired appliance in the outlet or downstream of the appliance draft control device, which is designed to automatically open the venting system when the appliance is in operation and to automatically close off the venting system when the appliance is in a standby or shutdown condition.

Ventilated Mechanically

The process of supplying or removing air by mechanical means to or from any space. Such air may or may not have been conditioned.

Ventilated Naturally

The process of supplying or removing air by natural means to or from any space.

Ventilation

The process of supplying or removing air by natural or mechanical means to or from any space. Such air shall be permitted to be conditioned or unconditioned.

Ventilation Air

That portion of supply air that comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space. See ASHRAE 62 and definition of "Outdoor Air."

Vertical Fenestration

All fenestration other than skylights.

Visible Light Transmittance (VLT)

The fraction of solar radiation in the visible light spectrum that passes through the fenestration.

W

Watt.

Wall

Opaque portion of the building envelope.

Warm-Up

Increase in space temperature to occupied set point after a period of shutdown or setback.

Water Economizer

A system by which the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

Water Heater

Vessel in which water is heated and is withdrawn for use external to the system.

Water Heating

The process or system used to heat service water.

Water Temperature Reset

Temperature shall be reset by at least 25% of the design supply-to-return water temperature difference.

WH

Watt-hour.

Window

The terms "fenestration", "window", and "glazing" are often used interchangeably. However, window actually describes a system of several components. Window is the term given to an entire assembly comprised of the sash, glazing, and frame.

Window Projection Factor

A measure of the portion of glazing that is shaded by an eave or overhang.

Window-Wall Ratio

The window-wall ratio is the percentage that results from dividing the total glazed area of the building by the total wall area.

Source: US Department of Energy