Glossary

Terms You May Encounter As You Learn More About Building and Green Building

ACH	*Air changes per hour*: air outside a building is constantly infiltrating through cracks in a building shell and exchanging with inside air. ACH is the measure of the rate at which this occurs. For example, an ACH or 0.5 means that all the air in the building will change out in two hours.
Active system	Traditional heating, cooling and ventilating systems which use mechanical means to artificially condition (cool, heat, ventilate) the air supply in buildings, and draw power for these mechanical processes from electricity or gas.
Adaptable buildings	Buildings that can be easily remarketed, retrofitted, or reconfigured to better meet the changing needs of occupants, maintenance crews, and the larger community.
AFUE	*Annual fuel utilization efficiency*: ratio of annual output energy to annual input energy. Measure of efficiency of gas furnaces and boilers.
AFV	*Alternative fuel vehicle*: vehicle powered by a fuel other than gasoline.
Agricultural by-products	Products developed in agriculture that are not the primary goal of the agricultural activity. Some of these are being used as building materials.
Air infiltration	Uncontrolled inward air leakage through cracks in a building envelope. May also refer to air leaking outward (also called air exfiltration).
Air retarder/air barrier	A material installed around a building frame to prevent or reduce the infiltration of air into the interior. Installed as an energy-efficiency measure to keep out air, which may be too hot, cold or moist for comfort. Not to be confused with a vapor retarder/vapor barrier.
Albedo	Ratio of reflected light to the total amount of light falling on a surface. In hot climates, it is desirable to use roofing materials with a high albedo.
Appraisal value	An estimate of the value of property substantiated by various analyses, usually by comparison with similar properties.
Attic venting system	Venting devices installed in an attic structure which allow fresh outside air to enter the attic and exhaust out of it, so the attic will be cooler and drier. The most effective attic venting system combines a continuous soffit vent with a continuous ridge vent. This system allows the most even flow of air over the underside of the roof, and the best position for the exhaust vent at the highest point of the attic where the attic air is hottest.
Autoclaved cellular concrete	Mix of lime, sand, cement and water are mixed, and then put into molds, where an aluminum powder is added, which causes the mass to expand. It is then put into a steam-curing chamber (autoclaver), which gives it great strength. The resulting material has many benefits (non-combustible, easily worked, R-value of 1.25 per inch, etc.)
Backdrafting	The occurrence of combustion gases from a gas appliance entering the living space instead of being drawn up the vent pipe and exiting a building. This may happen as a result of depressurization (for example when the furnace or exhaust fans are turned on).
Backflow preventer	An anti-siphoning device on a water pipe to prevent water/liquid (which might be contaminated) from backing up into the water system. For example, the end of a garden hose lying in a flower bed could become contaminated by pesticide and back into the fresh water supply, if no backflow preventer were installed. Frequently required by building codes.
Balance point	The outdoor temperature at which a building's heat loss to the environment is equal to internal heat gains from people, lights, and equipment. Surface load dominated buildings such as single family detached residences will have balance points in the 55-65 degree Fahrenheit range. Internally load dominated structures, like office buildings, may have balance points so low that the climate never overcomes their internal heat gain.
Ballast	A device used to provide the starting voltage or to stabilize the current in a

	circuit (as of a fluorescent lamp). May be magnetic or electronic.
Biodiversity	The tendency in ecosystems, when undisturbed, to have a great variety of species forming a complex web of interactions. Human population pressure and resource consumption tend to reduce biodiversity to dangerously low levels; diverse communities are less subject to catastrophic disruption.
Biological wastewater management	Purifying wastewater in a natural or emulated wetland environment. Such systems are powered mainly by sunlight and achieve purification through the combined action of living food chains, many of which are microscopic.

Biomass	Plants and plant materials, trees, crop residues, wood and bark residues, and animal manure. (From the Greek, bio meaning life and maza, meaning lump or mass).
Biomass energy	The energy released from biomass when it is eaten, burned, or otherwise used as or converted into fuel.
Blackwater	Water from toilets, kitchen sink, or other dirty sources (e.g. washing machines used for diapers), which may be contaminated with microorganisms or harmful bacteria.
Borate-treated wood	Treatment of wood with borates to make it resistant to termites and moisture. Borate is a mineral product derived from borax and is benign compared with most other wood treatments.
Brownfields	Abandoned, idled, or under-used industrial and commercial facilities/sites where expansion or redevelopment is complicated by real or perceived environmental contamination.
Btu	*British thermal unit*: a measure of heat energy. Approximately the heat required to raise the temperature of a pound of water one degree. About equal to the energy released by the lighting of one match.
Building codes	Municipal ordinances that regulate the construction and occupancy of buildings for health and safety reasons.
Building ecology	Physical environment and systems found inside the building. Key issues include air quality, acoustics, and electromagnetic fields.
Building envelope	Building elements (e.g., walls, roofs, floors, windows, etc.) that enclose conditioned spaces and through which energy may be transferred to and from the exterior.
Built environment	All human-built structures (as opposed to the natural environment).
Caliche	A type of soil containing calcium carbonate that makes a very hard brick/block without firing and is a common roadbed material.
Capitalization rate (cap rate)	The rate, expressed as a percentage, at which a future income flow is converted into a present value figure.
Carbon dioxide (CO_2)	A heavy, colorless gas that does not support combustion. Made of one carbon atom and two oxygen atoms, it is formed especially in animal respiration and in the decay or combustion of animal and vegetable matter. It is absorbed from the air by plants in photosynthesis, and is an atmospheric greenhouse gas.
Carbon monoxide(CO)	A colorless, odorless, very toxic gas made up of carbon and oxygen that burns to carbon dioxide with a blue flame and is formed as a product of the incomplete combustion of carbon.
Carrying capacity	The amount of demand or usage for a particular resource that can be sustained without depletion or degradation of dependent life forms.
Cellulose	The fibrous part of plants used in making paper and textiles, which may be made into building products, such as insulation.
Cementitious	Having the properties of cement. Cement is the primary binding agent in concrete.
Certified sustainably-managed forest	Forest harvesting practices that have been certified as sustainable by a qualified entity. The underlying guideline is preservation of a diverse forest that exhibits the same ecological characteristics as a healthy natural forest.
Change order	A form used by an architect or contractor to specify changes from the approved original plan.
Charrette	An intensive design process which involves the collaboration of all project stakeholders at the beginning of a project to develop a comprehensive plan or design. Although it may only take place over a few short days, it establishes groundwork for communication and a team-oriented approach to be carried throughout the building process.
Chlorofluorocarbons (CFCs)	Any of a group of compounds that contain carbon, chlorine, fluorine, and sometimes hydrogen and have been used as refrigerants, cleaning solvents, aerosol propellants, and in the manufacture of plastic foams. CFCs have been linked to the destruction of the ozone layer and their use is being

	phased out because they destroy the planet's stratospheric ozone protection layer.
Cistern	A tank to hold a supply of fresh water, typically rainwater. May be above or below ground.

Co-housing	Housing that combines the privacy of single-family dwelling units with extensive common facilities, such as kitchens, dining rooms, children's playrooms, and laundry facilities, thus enhancing a sense of community. Residents often come together to identify a site and raise pre-development funds, making the development process much different than the usual development of communities.
Color rendering index of light (CRI)	Color objects will appear when illuminated by a given electric light. On a scale from 1 to 100, the higher a number, the more an object will look the color it actually is when illuminated by an electric light.
Color temperature of light	Color appearance of a light. So called "warm" looking lights are actually cooler than "cool" looking lights. An incandescent light has a color temperature of about 2500; a cool white fluorescent light has a color temperature of about 4000.
Combustion gases	The gases, such as carbon monoxide, that result from the process of burning. In a building, these are produced by gas appliances, such as furnaces and water heaters. Proper venting must be assured.
Commissioning	The process of ensuring, verifying, and documenting that new equipment and systems are installed and able to operate according to the design intent.
Community	(Biological definition) An association of organisms of different species living together in a defined habitat with some degree of mutual interdependence.
Compact fluorescent lighting	A fluorescent lamp/bulb that is compacted to fit into an Edison light socket.
Comparable property (comps)	Another property to which a subject property can be compared to reach an estimate of market value. Typically as much like the subject property as possible in age, quality, location, etc.
Composting	A waste management option involving the controlled biological decomposition of organic materials into a relatively stable humus-like product that can be handled, stored, and applied to the land without adversely affecting the environment.
Composting toilet	A toilet which uses little or no water in which the waste composts to a material which can be safely used as a soil amendment.
Condensation	Deposit of water vapor from air on a cold surface whose temperature is below the dew point. For example a cold window glass exposed to warm humid air.
Condensation resistance factor (CRF)	Indication of a window's ability to resist condensation. The higher the CRF, the less likely condensation is to occur.
Conduction	Flow of heat through solid materials which are touching each other.
Conductor	A substance or body capable of transmitting electricity, heat, or sound.
Constructed wetland	Any of a variety of designed systems that are modeled after natural wetlands, use aquatic plants, and can be used to treat wastewater or runoff.
Construction loan	A loan usually made by a commercial bank to a builder or prospective homeowner for short-term use in constructing improvements on real estate (new construction or remodeling). The term is usually six months to two years. (A mortgage is typically used for long-term financing.)
Convection	Transfer of heat by means of a moving stream of air or water.
Cooling/heating load	A building's demand for heat/cool to offset a deficit/overage of the opposite.
Covenants	Promises written into deeds and other instruments agreeing to performance or nonperformance of certain acts, or requiring or preventing certain uses of the property.
Cross ventilation	Passive building strategy to cool a building using outdoor breezes. Requires proper placement and sizing of doors, operable windows and walls to promote air movement through the building.
Culvert	A sewer or drain running under a road or embankment.
Daylighting	The use of controlled natural lighting methods indoors through skylights, windows, and reflected light.
Debt service	Periodic repayments of a loan, with a portion of the payment applied to interest and the balance applied to repayment (amortization) of principal.

Degree days	The difference between the average daily temperature and 65 degrees Fahrenheit, used as a baseline. This measure is used to estimate building energy needs. It is also a quick way to compare the severity and character of a climate. A heating degree day is counted for each degree *below* 65 degrees reached by the average daily outside temperatures. For example, if, on a given day, the daily average temperature outdoors is 30 degrees, then there are 35 degrees below the 65 degrees. Thus, there are 35 heating degree days for that day. Areas with more than 5500 HDDs per year are characterized by long cold winters. Areas with less than 2000 HDDs per year are characterized by very mild winters. Reverse this process (degrees *above* 65 degrees) to calculate Cooling Degree Days. Areas with more than 1500 Cooling Degree Days (CDDs) are characterized by long hot summers and substantial cooling requirements. Areas with less than 500 CDDs per year are characterized by mild summers and little need for mechanical cooling.
Design conditions	The exterior and interior environmental parameters specified for air conditioning (heating, cooling, ventilation) and electrical design for a building.
Design temperatures	Temperatures used for modeling energy calculations. They are established for winter and summer for specific cities, representing the calculated low and high extremes.
Dessicant	A drying agent, such as silica gel, which can be used to reduce latent cooling loads.
Dewpoint	The temperature at which water vapor in air will condense at a given state of humidity and pressure.
Dirunal flux	The difference between daytime and nighttime temperatures. A diurnal flux of 25 degrees Fahrenheit or above indicates an arid climate suitable for mass building construction.
Drip irrigation	Above-ground, low-pressure watering system with flexible tubing that releases small, steady amounts of water through emitters placed near individual plants.
Dry bulb temperature	The temperature of air indicated by an ordinary thermometer.
Dust spot test	Test of filter efficiency. When making filter efficiency comparisons, for an apples-to-apples comparison, look for this test result.
Earth sheltering (also earth berming)	Building below ground level. Soil temperature varies less than air temperature [deeper soil = more constant temperature]; an earth-sheltered structure provides an interior climate which is generally closer to comfort level than a conventional interior space. Savings on heating and cooling bills are often in the range of 40-60%.
Eave	The portion of a roof that extends beyond the wall. It serves to protect the wall below from the elements.
Ecology	In biology, it is the study of the relationship between living organisms and their environment. In sociology, it is the study of the relationship between the distribution of human groups with reference to material resources and the consequent social and cultural patterns.
Ecosystem	A complex set of natural interconnected elements on which a habitat's survival depends directly or indirectly.
Eco-tourism	Partnerships between the tourism industry and conservation efforts to preserve natural and cultural resources in resort destinations.
Edible landscaping	Landscaping containing vegetation which is cultivated for its ability to be eaten and digested by humans, for example, fruit trees or grape arbors.
EER	*Energy efficiency ratio*: ratio of net cooling capacity of an air conditioner in Btu per hour to total rate of electric input in watts under designated operating conditions.
Efficacy of a light bulb/lamp	Measure of lumens of light per watt
Efficiency	The ratio of the amount of useful energy output to the energy input for a given device.
Electricity	A form of energy generated by friction, induction, or chemical change that is

	caused by the presence and motion of elementary charged particles of which matter consists.
Electromagnetic radiation	A series of electromagnetic waves.
Electromagnetic spectrum	The entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light.
Electronic ballast	Type of ballast for a fluorescent light which increases efficiency and reduces flicker and noise

Embodied energy	All the energy required to grow, harvest, extract, manufacture, refine, process, package, transport, install and dispose of a particular product or building material.
Emissivity	Ability of a material to transfer far-infrared radiation across an air space. Materials such as aluminum foil have poor ability to do this (they have a low emissivity rating) and are therefore useful, when properly spaced next to an air space in controlling heat in a hot climate. For example, a roof radiant barrier placed below roof decking over the attic space keeps the attic cooler.
End-use/Least-cost	A decision-making tool that keeps the planning team focused on the end users' needs. It is a key component of green design and development because it identifies how to achieve the *greatest* benefits at the *least* cost in financial, social, and environmental terms.
Energy	The capacity for doing work. Different types of energy may be transformed from one form to another. English units express energy in Btu's or kilowatt-hours (kWh).
Energy conservation	Efficiency of energy use, production, transmission, or distribution that yields a decrease in energy consumption while providing the same, or higher, levels of service.
Energy or water efficiency	Using less energy or water to perform the same tasks. A device is energy-efficient if it provides comparable or better quality of service while using less energy than a conventional technology. Building weatherization or high-efficiency showerheads are efficiency technologies.
Energy recovery ventilator (ERV)	An energy recovery ventilator (ERV) is an air to air heat exchanger or preconditioner, designed to reduce the energy required to heat or cool required outdoor air in mechanical ventilation systems by as much as 80%. These products exchange temperature and moisture properties from one airstream to another. The result is capturing the cooling or heating energy from the exhaust air before it leaves the building.
Engineered wood	Reconstituted wood products that result in strength appropriate for a given use and consistent quality with less material.
Equity	That portion of an ownership interest in real property (or other securities) that is owned outright, rather than financed by debt.
Evaporative cooling	Passive building strategy employing the evaporation of water directly into hot, dry air streams to produce cooling; limited to arid climates.
Expanded polystyrene	A rigid insulation material (also called bead board) made by heating pentane-saturated polystyrene pellets. (Pentane is used instead of the CFC's or HCFC's used to make extruded polystyrene. CFC's and HCFC's cause damage to the ozone layer.) Frequently has a high recycled content. Comes in various densities for different purposes.
Fenestration	Architectural term for windows and their placement.
Flow	The volume of a substance passing a point per unit time (e.g., meters per second, gallons per hour, etc.)
Flow form features	Water features of a building that are not only viewed as artistic decorations, but also maintain a pleasant level of humidity and acoustics as part of the building ecology.
Fluorescent lamp	A lamp (light bulb) in which light is produced by passing an electric arc between tungsten cathodes in a tube filled with a low pressure mercury vapor and other gases. The arc excites the mercury vapor, which generates radiant energy, primarily in the ultraviolet range of the electromagnetic spectrum. This causes the phosphor coating on the inside of the tube to "fluoresce", converting the ultraviolet into visible light.
Fly ash	Ash residue from high-temperature combustion processes. Electric power plants using western coal produce a non-toxic fly ash which can substitute for a portion of portland cement in concrete, to produce a strong, durable concrete.
Formaldehyde	A colorless, pungent-smelling material used as an adhering component of glues in many wood products. It may cause respiratory problems, chemical

	sensitivity, and other health problems.
Fossil fuels	Nonrenewable, naturally-occurring fuels from organic material deposited in the earth. The altered remains of once-living organisms that are burned to release energy. Examples are coal, oil, and natural gas. It takes millions of years to form fossil fuels.

Geographical Information System (GIS)	Detailed information on the soils, hydrology, land use patterns, and plant and animal habitats of sites, plotted on maps or entered in databases and employed to evaluate appropriate location of buildings and infrastructure, and to plan landscaping and other land use considerations.
Glazing	Transparent or translucent coverings which allow light to enter rooms and solar collectors while providing weather protection. Window glass and clear plastic films are examples of glazing.
Global warming	A long-term, gradual increase in the average temperature in climate systems throughout the world as a result of the greenhouse effect.
Graywater	Water that has been used for showering, clothes washing, and faucet uses. Kitchen sink and toilet water is excluded. This water can be reused in subsurface irrigation for yards. (Often spelled greywater)
Green development	A development approach that goes beyond conventional development practice, by integrating the following elements: Environmental responsiveness—Benefiting the surrounding environment; Resource efficiency—Using resources in the construction, development, and operations of buildings and/or communities in ways that are not wasteful; and Sensitivity to existing culture and community—Fostering community in design, construction, and operations. Bringing these elements together through the green development approach provides numerous environmental and economic benefits by capitalizing on the interconnections.
Green wash	To falsely claim a product is environmentally sound. Also known as faux green.
Greenfields	Undeveloped land.
Greenhouse gas	Any of several dozen heat-trapping (radiatively active) trace gases in the earth's atmosphere which absorb infrared radiation. The two major greenhouse gases are water vapor and carbon dioxide; lesser greenhouse gases include methane, ozone, CFCs, and nitrogen oxides.
Habitat	The environment in which an organism or biological population usually lives or grows.
HCFC's	Hydrogen chlorofluorocarbon. Considered to be a contributor to ozone layer destruction. $1/20^{th}$ as potent as CFC's.
Heat island effect	The rise in ambient temperature that occurs over large paved areas. Strategic placement of trees can reduce this effect and reduce energy consumption for cooling by 15-30%.
Heat pump	A mechanical device used for heating and cooling which operates by pumping heat from a cooler to a warmer location. Heat pumps can draw heat from a number of sources, e.g., air water or earth and are classified as either air-source or water source units.
Heat recovery ventilator (or Air -to- Air Heat Exchangers)	Exhaust fans that warm the incoming air with the heat from the outgoing air, recovering about 50-70% of the energy. In hot climates the function is reversed so that the cooler inside air passes by the incoming hot air and reduces its temperature.
Highest and best use	The conventional definition is the property use that, at a given time, is deemed likely to produce the greatest net return in the foreseeable future, whether or not such use is the current use of the property. Green development defines it as not just in terms of maximum return on investment, but also as that use which best reflects long-term social, cultural, and financial values held by a community.
High-mass construction	Passive building strategy of constructing buildings of massive, heat-retaining materials (such as masonry or adobe) to moderate diurnal temperature swings, especially in arid climates. (See thermal storage capacity)
Horizontal axis clothes washer	A washing machine designed to clean without an agitator. It uses much less water than vertical-axis models, reduces wear and tear on clothes, and result in drier clothes.
Human comfort zone	A band of dry bulb temperatures from 67.5 degrees Fahrenheit to about 78 degrees Fahrenheit and 20% to 80% relative humidity. Within that zone on

	the Psychrometric Chart, all weather conditions which occur are said to be conducive to thermal comfort, assuming occupants are in full shade, lightly clothed and only moderately active. All climate data that are plotted at lower dry bulb temperatures (to the left of the comfort zone) are indicative of time when solar radiation (passive heating) could be utilized to restore comfort. All hours above 67.5 F require shading. (See Psychrometric Chart)
Humidistat	Device for measuring relative humidity.

HVAC	Heating, ventilation and air conditioning (cooling) system
Hydrogen	A nonmetallic element that is the simplest, lightest and most abundant of the elements; it is normally a colorless, odorless, flammable gas
Impervious cover	A ground cover that does not allow water to pass through it to the soil below. Many jurisdictions have restrictions on the amount of impervious cover allowed on a building site, in order to reduce stormwater runoff and resulting non-point source pollution.
Incandescent bulb	An incandescent bulb is the most common and least energy-efficient lamp. Electricity runs through a tungsten filament that glows and produces a soft, warm light. Because so much of the energy used is lost as heat, these are highly inefficient sources of light. Halogen lamps are a special, more energy-efficient type of incandescent lamp containing halogen gas to produce a brighter, whiter light than incandescents.
Indigenous	Existing, growing, or produced naturally in a region
Indoor air quality (IAQ)	The cleanliness or health effects of air in a building is affected by the amount of compounds released into the space by various materials, carbon dioxide levels, and microbial contaminants. IAQ is heavily influenced by both choice of building materials (and cleaning procedures) and ventilation rates.
Infill	Developing on empty lots of land within an urban area rather than on new undeveloped land outside the city. Infill development helps prevent urban sprawl and can help with economic revitalization.
Infrared radiation	Electromagnetic radiation whose wavelengths lie in the range from 0.75 micrometers to 1000 micrometers.
Infrastructure	Services and facilities provided by a municipality or privately provided, including roads, highways, water, sewage, emergency services, parks and recreation, and so on.
Insolation	Amount of solar energy reaching a surface per unit of time.
Insulation	A material (e.g., fiberglass, rock wool, cellulose, straw) which effectively slows down the movement of heat. Typically installed around a living space (e.g., in the walls and attic) to improve comfort and reduce heating and cooling bills. Material having a relatively high resistance to heat flow and used primarily to retard the flow of heat. Measured by R-value. The higher the R-value, the more insulating the material.
Integrated design	A holistic process that considers the many disparate parts of a building project, and examines the interaction between design, construction, and operations, to optimize the energy and environmental performance of the project. The strength of this process is that all relevant issues are considered simultaneously in order to "solve for pattern" or solve many problems with one solution. The goal of integrated design is developments that have the potential to heal damaged environments and become net producers of energy, healthy food, clean water and air, and healthy human and biological communities.
Internal rate of return (IRR)	The true annual rate of earnings on an investment. Equates the value of cash returns with cash invested, taking compound interest factors into account.
Joist	Parallel horizontal structural framing members. Typically floor joists and ceiling joists.
Joule	The international unit of energy or work in the meter-kilogram-second (MKS) system. One joule is equal to one watt per second or 0.737 foot-pounds. Named after James Joule. It takes one million joules of energy to make a pot of coffee.
Kilowatt (kW)	A unit of power equal to 1,000 watts. It is usually used as a measure of electrical power. On a hot summer afternoon a home with central air conditioning and other equipment in use might have a demand of 4 kW each hour.
Kilowatt-hour (kWh)	A measure of energy equal to the amount of power multiplied by the amount of time the power is used. It is most often used to describe amounts of electrical energy. A 100-watt light bulb burning for 10 hours uses one

	kilowatt-hour of power.
Land stewardship	The act of managing the land and its resources in a sustainable or restorative manner.
Latent heat	The heat required to change the phase (e.g. a liquid to a gas) of a material without altering its temperature

Latent load	Cooling load resulting from thermal energy released when moisture in the air goes from a vapor to a liquid state. In hot humid climates, cooling equipment must have sufficient capacity to handle this load if occupants are to be comfortable.
Lease	A contract that gives the tenant the right of possession for a period of time in return for paying rent to the landlord.
Leichtlehm	Straw and clay mixture, moistened and pressed between forms, which hardens into a strong material. Typically used for making walls. An old and durable technique. (German for light loam)
Life cycle assessment	A process to evaluate all costs of a product or process through its entire existence, including extracting and processing of raw materials, manufacturing, transportation, distribution, use, maintenance, recycling, reuse, and disposal.
Life-cycle	The consecutive, interlinked stages of a product, beginning with raw materials acquisition and manufacture and continuing with its fabrication, manufacture, construction and use, and concluding with a variety of recovery, recycling, or waste management options.
Light	Visually perceived radiant energy (a small part of the electromagnetic spectrum).
Light construction	Construction of a building using materials which have low densities (like wood or aerated concrete). The lower densities of these materials reduce their capacity to store heat.
Light shelf	A daylighting strategy that allows natural light to bounce off a shelf located in a window and onto the ceiling to bring light deep into a space.
Light-to-solar-gain ratio (LSG)	A measure of the ability of a glazing to provide light without excessive solar heat gain. It is the ratio between the visible transmittance of a glazing and its solar heat gain coefficient.
Linoleum	A durable, natural flooring material (may be used for other purposes, such as countertops) made primarily of cork.
Locally-sourced materials	Materials obtained from a defined radius around a project site, helping to support the local economy and reducing transportation costs and energy.
Louvers	A series of baffles used to shield a light source from view at certain angles, or to absorb unwanted light, or to allow selective ventilation.
Low-emissivity windows	Glazing that has special coatings to permit most of the sun's light radiation to enter the building, but prevents heat radiation from passing through.
Lumens	Amount of light given off by a light source.
Mass transit	Conveyance of persons or goods from one place to another on a local public transportation system such as light rail, bus, or subway.
Methane (CH_4)	An odorless, colorless gas, nearly insoluble in water, which burns with a pale, faintly luminous flame to produce water and carbon dioxide (or carbon monoxide if oxygen is deficient).
Microclimate	The small scale climate of a building site, affected by site geography, site topography, vegetation, and proximity to bodies of water, etc., which may very slightly from the prevalent regional climatic conditions.
Mixed-use development	A development in one or several buildings that combines several revenue-producing uses that are integrated into a comprehensive plan—such as a project with a elements of housing, retail, and office space.
Mortgage	A written contract that uses real estate as security for the payment of a specified debt.
National Fenestration Rating Council	Council which rates window models for a variety of factors (light transmittance, energy efficiency, etc.) Now an apples-to-apples comparison system available.
Native vegetation	A plant whose presence and survival in a specific region is not due to human intervention or cultivation.
Neotraditional planning	Based on nineteenth-century American town prototypes, this type of planning minimizes automobile use and encourages a sense of community with a town center and open public areas.

Net operating income (NOI)	Income from real estate property after operating expense has been deducted, but before deducting income taxes and financing expenses (interest and principal payments). The formula is: NOI = gross income - operating expenses.

New Urbanism	A city planning movement that focuses on revitalizing the inner city and reforming the American suburb within an integrated regional structure. New Urbanists strive for a built environment that must be diverse in use and population, must be scaled for pedestrian use without entirely eliminating automobile access, and must have a well defined public realm supported by vernacular architecture.
Nighttime ventilation	Passive building strategy of flushing building structures with cool, nighttime air to minimize the next day's cooling load: works best in conjunction with massive building envelopes.
Nitrogen oxides (NO_X)	Oxides of nitrogen that are a chief component of air pollution. Mainly produced by the burning of fossil fuels.
Non-point source pollution	Pollution, typically of water, that results from many difficult-to-pinpoint and control sources, rather than one specific source, such as pollution from a factory.
Nonrenewable fuels	Fuels that cannot be easily made or "renewed." We can use up, or exhaust, nonrenewable fuels. Oil, natural gas, and coal are nonrenewable fuels.
Non-renewable resources	Natural resources that are consumed faster than can be produced. Thus they are limited resources that could lead to eventual depletion.
Off-gas/out-gas	The emitting of fumes into the air. Most new paints, carpeting, and many other building materials typically offgas chemical compounds which are unpleasant to breathe and may be hazardous to occupant health.
Operating costs	Costs directly related to the operation, maintenance, repair, and management of a property and the utilities that service it. Includes insurance, property taxes, utilities, maintenance, and management expenses.
Organic matter	Materials of animal or vegetable origin.
Orientation	The relation of a building and its associated fenestration and interior surfaces to compass direction and, therefore, to the location of the sun. It is usually given in terms of angular degrees away from south, i.e., a wall facing due southeast has an orientation of 45 degrees east of south.
Ozone (O_3)	A molecule made of three oxygen atoms instead of the usual two. Ozone is a poisonous gas and an irritant at the earth's surface, capable of damaging lungs and eyes. But the ozone layer in the stratosphere shields life on earth from deadly ultraviolet radiation from space.
Passive building design	Building configurations which take advantage of a natural, renewable resource (like sunlight, cooling breezes, etc.) Passive design strategies typically do not involve any moving part or mechanical processes.
Passive cooling	Using passive building strategies to relieve the cooling load of a building by capitalizing on such things as predictable summer breezes or by shading windows from direct summer sunlight.
Passive solar systems	Systems that collect, move, and store heat using natural heat-transfer mechanisms such as conduction and air convection currents.
Passive solar heating	Using the sun's energy (in the form of heat) to diminish a building's heating load, usually through the use of large window areas which permit light penetration upon some massive material to utilize the material's thermal storage capacity.
Payback period	The time estimated for a capital investment to pay for itself, calculated by relating the cost of the investment to the profit it will earn or savings it will incur.
Pedestrian pocket	A simple cluster of housing, retail space, and offices within a quarter-mile radius of a transit system. Smaller scale than new towns or Planned Unit Developments.
Pedestrian scale	An urban development pattern where walking is a safe, convenient, and interesting travel mode.
Permaculture	A unique approach to the practice of sustainable farming, ranching, gardening and living, by designing constructed ecosystems that serve the needs of human populations without degrading the natural environment. Permaculture sites integrate plants, animals, landscapes, structures, and

	humans into symbiotic systems while requiring a minimum of materials, energy, and labor to maintain.
Permanent loan	A long-term loan on real estate, such as a mortgage, from a financial institution. Subject to specific conditions, such as construction of improvements.
Permeable	Open to passage of fluids/gases. Important to know permeability of building materials in exterior walls if moisture problems are to be avoided.

Photosynthesis	The utilization of light energy to create chemical bonds; the synthesis of organic compounds from carbon dioxide and water. (From the Greek photos, meaning light + syn, meaning together + tithenai, meaning to place).
Photovoltaics (PVs)	Solid-state cells (typically made from silicon) that directly convert sunlight into electricity.
Pleated-media filter	Inexpensive, but highly effective type of HVAC filter due to its great surface area. Able to give substantial protection to both equipment and indoor air quality.
Power	The rate at which energy is consumed or produced. It is expressed in watts (W). A 1-watt source supplies energy at the rate of 1 joule per second. (A 100-watt lamp consumes energy at the rate of 100 joules per second; the human body involved in normal activity is rated at about 100W, a significant proportion being used to drive the brain). The sun radiates energy at the rate of about 70 million watts per square meter of its surface; at the equator the Earth receives a mean annual solar energy flux of around 1,400 watts per square meter.
Pressure-treated wood	Wood that is chemically preserved to prevent moisture decay. The chemicals typically used are health hazards for workers. Such wood should not be burned because it produces toxic fumes, and must be treated as a hazardous waste when disposed of.
Psychrometric chart	A graphical representation of the thermodynamic properties of moist air. Used to ascertain the potential effectiveness of passive strategies to maximize human comfort.
Radiant barrier	A material (typically an aluminum foil) that is good at blocking the transfer of radiant heat across a space because it has a low *emissivity*. In a hot climate it is often installed in attics under the roof decking to keep the attic cooler.
Radiant energy	Energy in the form of electromagnetic waves that travels outward in all directions from its source.
Radiation	Transfer of heat by means of the straight-line passage of electromagnetic waves through space (including vacuums) from a warmer object to a cooler one. Sunlight is a form of radiation.
Radon gas	A radioactive, colorless, odorless gas that occurs naturally in soil in many areas. When trapped in buildings, concentrations build up, and can cause health hazards.
Rafter	Structural roof member that holds up roof decking and roofing.
Raised-heel truss	Roof truss constructed so the top member (rafter) is raised above the top of the wall instead of resting on it. Constructed this way to allow space for both attic insulation and an air path from the soffit vent into the attic.
Rammed earth	A wall-building technique, by which a certain mixture of earth, water, and usually a small amount of cement, is very forcibly tamped inside formwork. The resulting wall has high mass, so it works well in hot climates. It often needs no exterior or interior covering, thus saving materials.
Recycled material	Material that would otherwise be destined for disposal but is diverted or separated from the waste stream, reintroduced as material feed-stock, and processed into marketed end-products.
Refrigerant	A volatile substance that can be used as a working (cooling) fluid in a cooling system.
Relative humidity	The percentage of water vapor in the air in relation to the amount of water vapor the air could hold at that given temperature before condensing to liquid form.
Renewable energy	Energy produced from regenerative or virtually inexhaustible resources such as biomass, solar radiation, the wind, water, or heat from the Earth's interior.
Renewable resources	Resources that are created or produced at least as fast as they are consumed, so that nothing is depleted. If properly managed, renewable energy resources (e.g., solar, hydro, wind power, biomass, and geothermal) should last as long as the sun shines, rivers flow, wind blows, and plants grow.

Renovation	The process of upgrading an existing building. Usually there is an attempt to keep the same general appearance of the building with new materials or to return the building to its original appearance.
Resistance	The ability of all conductors of electricity to resist the flow of current, turning some of it into heat. Resistance depends on the cross section of the conductor (the smaller the cross section, the greater the resistance) and its temperature (the hotter the cross section, the greater the resistance).

Restoration	The process of bringing back a structure or landscape to its original state.
Retrofit	The replacement, upgrade, or improvement of a piece of equipment or structure in an existing building or facility.
Revitalize	To give new life or vigor to, for example, to revitalize inner-city neighborhoods.
Ridge	The peak of a pitched/sloped roof.
Run-off	Water from rainfall or irrigation that flows off of land, instead of soaking in. It effectively becomes a lost resource, and contributes to non-point source pollution.
R-value	A unit of thermal resistance used for comparing insulating values of different materials; the higher the R-value of a material, the greater it's insulating properties.
Sand barrier termite control	Use of sand of a specific type around and at penetrations of a building foundation as a means to prevent entry by termites. Termites cannot pass through this type of sand because their tunnels cave in.
Sealant	An adhesive agent used to close or secure something in order to prevent seepage of moisture or air.
SEER	Seasonal energy efficiency ratio: the total cooling output of an air conditioner during its normal annual usage period for cooling, in Btu/h, divided by the total electric energy input during the same period, in watt-hours. (in other words, the measure of the energy efficiency of the air conditioner). The higher this number the better.
Sensible heat	Heat that raises the temperature of a material without changing its phase.
Sensible load	Heating or cooling load required to meet air temperature requirement for comfort.
Shading coefficient (SC)	The ratio of solar heat gain through a given window glazing or screen material to that through 1/8 inch clear double strength glass. Expressed as a number between 0 and 1. This term is being replaced by solar heat gain coefficient (SHGC), a more descriptive term. The lower a window's or screen's SC, the less solar heat it transmits, and the greater it's shading ability.
Sick building syndrome (SBS)	This sickness is characterized by the symptoms that people have in an unhealthy building— dizziness, headaches, irritated eyes, nausea, throat irritation and coughing— these reactions typically cease when the person leaves the building
Site assessment	The thorough environmental analysis conducted as a stage in planning to assess a variety of measures from soils, topography, hydrology, environmental amenities such as wetlands, wind direction, solar orientation, animal and plant habitat, connections to community, etc. Geographical Information Systems (GIS) can facilitate this task.
Site development costs	All costs needed to prepare the land for building construction, such as the demolition of existing structures, site preparation, off-site improvements, and on-site improvements.
Sludge	The sediment extracted from wastewater.
Soffit	The enclosed underside of an eave. (Some eaves are not enclosed and have exposed rafter tails.)
Solar access	Access to the sun's rays by, for instance, restricting the location of shade trees or laying out the building so as to maximize the usefulness of solar energy.
Solar collector	Device which uses the sun's energy to perform some kind of mechanical advantage which would normally be supplied by a non-renewable energy source. Photovoltaic panels (PV's) which convert the sun's energy directly into electricity, and solar hot water panels, which heat pre-heat water before sending it into a hot water heater are two examples.
Solar energy	Energy received from the sun in the form of electromagnetic radiation in the wavelength region from 0.3 to 2.7 microns. This includes all visible light as well as some ultraviolet and infrared radiation.

Solar heat gain coefficient	The fraction of solar radiation admitted through a window or screen, both directly transmitted and absorbed, and subsequently released into the living space. See shading coefficient.
Solar radiation	Radiant energy received from the sun, from both direct exposure and diffuse or reflected sunlight.
Source reduction	Elimination of waste at the beginning of a process. Sometimes called "precycling".

Spec house	A single-family dwelling constructed in anticipation of finding a buyer.
Specifications (specs)	Detailed instructions provided in conjunction with plans and blueprints for construction. Includes information necessary to build a building which cannot be included easily in drawings. Specifications may stipulate the type of materials to be used, special construction techniques, dimensions, and colors.
Spectrally-selective glazing	Coated or tinted glazing with optical properties that are transparent to some wavelengths of energy and reflective to others.
Sprawl	The spread of residential areas, shopping centers, and small industries outside of city boundaries.
Stakeholder	Those people who are or will be affected by a real estate development, either financially (i.e., investors and lenders) or physically (i.e., occupants and users, local community, local government, and other institutions).
Stretch ratio	In mortgage calculations, the percentage that lenders will "stretch" a mortgage (i.e., from 28% of the homebuyer's salary to 30%) for homes that meet energy-efficiency ratings or other standards, realizing that other expenses such as operating or transportation costs will be lower.
Structural insulated panels (SIPS)	A type of building system combining exterior sheathing, structural support, and insulation, and interior sheathing into one modular factory-assembled unit, thus reducing the number of vertical joints, interior voids, and assembly time.
Stud	Vertical wall framing members. Typically made of wood or metal.
Sulphur dioxide	A colorless, irritating gas that is a primary cause of acid rain. It is a by-product of coal combustion.
Superwindows	Double or triple-glazed window *sandwiches* which contain a center sheet of coated mylar "low-emissivity" film and are filled with argon or krypton gas. This construction and the coating on the film allows short-wave radiation (visible light) to pass through, but reflects long-wavelength radiation (infrared or heat) so heat cannot pass through. R-values of 4.5 or more are achieved.
Sustainability	Meeting the needs of the present without compromising the ability of future generations to meet their own needs (as defined by the Brundtland Commission, 1987).
Sustainably-sourced materials	Materials that are acquired in an environmentally sound manner emphasizing efficient and appropriate use of natural resources.
Task lighting	Lighting to provide illumination for a specific activity in a specific place.
Thermal break	An element of low conductance placed between elements of higher conductance to reduce the flow of heat. For example, a thermal break material, such as plastic, may be placed between the inner and outer parts of an aluminum window frame to make the window more energy efficient.
Thermal bridging	An element in a building envelope which has high conductivity (is a poor insulator) and compromises the insulating value of the envelope. (For example, a metal stud without exterior insulation)
Thermal chimney	A section of a building where solar heat or thermal currents are controlled and utilized to stimulate an updraft and exhaust hot air. This draws in fresh air through open windows or vents and is a passive cooling technique.
Thermal conductance	Ability of a material to allow heat to pass through it. Aluminum has high thermal conductance, insulation has low thermal conductance.
Thermal mass	Materials that have a high capacity for absorbing heat, and change temperature slowly. These materials are used to absorb and retain solar energy during the daytime for release at night or during cloudy periods. They include water, rocks, masonry, and earth.
Thermal storage capacity	The capacity for a building material to store heat internally from the sun, generally for later use or release.
Tipping fees	Fees charged for dumping large quantities of trash into a land fill.
Topography	The physical features, including the configuration of a surface, of a place or region.
Traditional Neighborhood	A basic unit of New Urbanism, which includes the following characteristics:

Development (TND)	a center that includes a public space and commercial enterprise; an identifiable edge, ideally a five-minute walk from the center; a mix of activities and variety of housing types; an interconnected network of streets and blocks usually laid out in a modified grid pattern; high priority to public space with prominently located civic buildings and open space that includes squares, plazas, and parks.

Transit-oriented development	A mixed-use community within an average 2,000-foot walking distance of a transit stop and core commercial area that mixes residential, retail, office, open space, and public uses in a way that makes it convenient for residents and employees to travel by transit, foot, bike, etc.
Truth window (or wall)	An exposed section of a wall or window that reveals the layered components within it.
U-value/U-factor	Measure of the rate of non-solar heat loss or gain through a material. The reciprocal of R-value. The lower the U-value, the greater the material's resistance to heat flow and better its insulating value (the opposite of R-value).
Ultra violet radiation	Electromagnetic radiation, usually from the sun, that consists of wavelengths in the range of 4 to 400 nanometers; shorter than the violet end of the visible spectrum. UV radiation is a health hazard that can lead to skin cancer or cataracts.
Urban growth boundary	A boundary which identifies urban and urbanizable lands needed during a specified planning period to be planned and serviced to support urban development densities, and which separates these lands from rural lands.
Vapor	The gaseous phase of a substance which exists as a liquid or solid under normal conditions.
Vapor retarder/vapor barrier	A material which prevents or drastically reduces the passage of water in vapor form. Building materials are rated by permeance—their ability to let water vapor pass through them. Whether or not it is desirable to install a vapor retarder material on an exterior wall and where to place depends on the climate where a building is located. In cold climates, vapor retarders are typically installed on the inside of the wall frame. In hot humid climates, they are installed on the outside, or preferably omitted entirely. In hot dry climates they are not needed.
Variance	A special permission granted to vary a physical structure or use a property in a way normally prohibited by existing zoning.
Vernacular	In architecture, vernacular buildings are seen as the opposite of whatever is academic, or high style. The traditional architecture of a region. Often times, traditional architecture is a result of response to the regional climate and land conditions.
Visual Preference Surveys™	Photographic images of various planning and design elements, accompanied by questionnaires and other analysis techniques. First developed by Anton Nelesson.
Volatile organic compound (VOC)	A class of chemical compounds that can cause nausea, tremors, headaches, and, some doctors believe, longer-lasting harm. VOCs can be emitted by oil-based paints, solvent-based finishes, and other products on/in construction materials.
Warm-edge technology	Use of low-conductance spacers to reduce heat transfer near the edge of insulated glazing.
Watt (W)	A unit of power, power being the rate at which energy is used to do work. The unit rate at which work is done in an electrical circuit. One watt equals one joule of work per second. Also equal to one ampere (amp) under a pressure of one volt. Equal to 1/746 horsepower. Named after the Scottish inventor James Watt.
Wavelength	The distance between two similar points of a given wave. Wavelengths of light are measured in nanometers (1 nm = 1 billionth of a meter).
Wetland	Land that is transitional between aquatic and terrestrial ecosystems and is covered with water for at least part of the year. These lands are important as buffer zones to help control flooding and also provide an ecosystem for many diverse species.
Whole-house fan	A fan typically centrally located in the ceiling of a house that draws fresh outside air into the living space, flushes hot air up to the attic and exhausts it to the outside. Windows must be open and adequate venting area must be present in the attic. Inexpensive way to cool a house when outside air is

	cooler than inside air, and not excessively humid. Must be well sealed and insulated during cold weather.
Whole-Systems Thinking	A process through which the interconnections of systems are actively considered, and solutions are sought that address multiple problems at the same time.

Wingwall	Outside walls attached perpendicularly to exterior walls properly placed near windows to direct air into the windows for ventilation purposes. A negative pressure zone is created by the wingwall which stimulates air movement.
Work	The application of a force through a distance. Energy is stored work. Power is the rate at which work is done, or the rate of flow of energy. The joule is exactly the amount of work done in exerting the basic metric unit of force (1 newton [N]) over the basic metric unit of distance (1 meter).
Xeriscaping	Creative landscaping design for conserving water that uses drought-resistant or drought-tolerant plants. (trademarked name)
Zoning	A legal mechanism for local governments to prevent conflicting land use and promote orderly development by regulating the use of privately owned land through enforcement.