

APPENDIX TWO

GLOSSARY OF BUILDING AND CONSTRUCTION TERMS AND ACRONYMS

The Internet offers a number of websites that provide building term glossaries and definitions. The National Contractors Referrals and Licensing Bureau's website is among the most complete with over 12,000 terms. It can be found at: <http://contractorsglossary.com/>. Another good source is Leonard Toenjes, *Building Trades Dictionary*, 3rd edition (Homewood, IL: American Technical Publishers, 1998). There is also a good online glossary of energy-related terms provided by the United States Department of Energy at http://www.eere.energy.gov/consumer/information_resources/index.cfm/mytopic=60001.

Acoustical tile — Sound-absorbing tile made of cork, wood, or composite fibers.

Air duct — Metal piping that carries conditioned air from the heating, ventilating, and air-conditioning system (HVAC) to building spaces and returns air to the HVAC system.

ANSI — American National Standards Institute.

ASHRAE — American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Architect — An individual trained and licensed to design, advise upon, and oversee the building of new or renovated facilities.

As-built drawings — The final version of the construction drawings that reflects any changes from bid documents. These plans are important reference points since they reflect the final version of what was constructed and are needed for future repairs or renovations.

Backfill — Clean dirt or gravel placed in the void next to the building wall once the foundation has been poured.

Balancing — The process of testing the HVAC system to ensure that appropriate temperature, humidity, and airflow level reaches all parts of a new or renovated building.

Bearing wall — A wall supporting its own weight plus the weight of any building parts located above the wall. (*See* non-bearing wall.)

Bedrock — A below-ground solid rock layer that will support a building foundation.

Bid addendum — A notice or memorandum sent by the client to potential bidders indicating an official change to the original building plans.

Blueprints — Common term for construction drawings. Prior to modern copying techniques, construction drawings were duplicated on blue paper with white lines.

BOCA — Building Officials and Code Administrators International.

Brief — *See* program.

British Thermal Unit (BTU) — A measure of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

Buffer wall construction — Double wall construction providing an air space between the walls to improve building insulation and create a tighter building envelope.

Building code — Community or state regulations and ordinances designed to protect public safety by regulating building construction and following national and international standards.

Building envelope — The building exterior made up of the walls, roof, windows, doors, floors, and foundation.

Built-up roof — Roofing designed for flat or minor pitched roofs composed of 3 to 5 layers of asphalt using bitumen to adhere and seal the layers and sometimes finished with a top coating of gravel.

Cantilever — Portions of a facility that extend beyond the building wall supported by wood or metal beams.

Casing — Metal or wood framing that surrounds a door or window.

Certificate of occupancy — A document issued by the municipality that is needed before the owner can occupy a new or remodeled building. This is normally issued following the successful completion of all official inspections and building reviews.

CFM (cubic feet per minute) — A rating that expresses the volume of air that can pass through an opening in one minute.

Change order — A contract outlining a construction change from the initial building plans indicating what additional costs the client will pay the architect and contractor to make the requested design and construction modifications.

Chase — An enclosed vertical or horizontal space for ductwork, plumbing, or electrical wiring.

Chiller — Equipment producing chilled water for circulation through the HVAC system.

Circuit breaker — A safety device that interrupts electrical current when the electricity flow exceeds the system design.

Cold air return — Ductwork that circulates room temperature air back to the HVAC system for heating or cooling.

Competitive bidding — A process by which the building owner solicits bids from a number of contractors and selects the winning bidder on the basis of set criteria.

Compressor — A mechanical device that compresses gas to liquid.

Conceptual design — The initial phase of building design that provides plans and ideas prepared by the architect. This is based on a building program prepared by the client. When the client and architect reach consensus on a single design, the schematic design phase begins.

Condensate — Moisture collected in an evaporator coil.

Condensation — Moisture or drops of water formed on the inside walls of a building caused by a difference in temperature between the inside and outside walls of the building.

Conduit — Pipe or tube surrounding electrical cable or wires.

Construction budget — The funding level established by the client for building construction costs including change orders and contingencies.

Construction documents — Final building plans and specifications created for the bidding process representing the facility design that the contractor will construct.

Copingstone — Concrete or stone cap or cover at the top of a brick or masonry wall.

Cost plus fee contract — A contract in which the building owner agrees to pay contractor material, labor, and subcontractor costs plus a fee that is fixed or a percentage of the total.

Crown — The elevated center of a road or sidewalk designed to channel water to the edge.

Curing time — The amount of time that concrete or floor finishes need to dry or harden.

Damper — A valve for regulating air movement in air ducts.

Declaration of substantial performance — Statement made by the contractor to the owner that the building is complete based on terms agreed to in the contract and that it is ready for occupancy. If the owner accepts the building completion, construction funds held back by the owner are released to the contractor as final payment.

Defect liability period — The period of time that the contractor agrees to repair any defects found in the building after the owner takes occupancy. This is often one year.

Desiccant — A drying agent used in environmental systems to collect and hold moisture.

Design/build — A system where a single company takes responsibility for designing and constructing a building for a set fee rather than the owner hiring an architect to design the building and then selecting a contractor based on competitive bidding to construct the building.

Design-development phase — A period in the building planning process when schematic drawings are expanded to include plumbing, heating, electrical, and telecommunications details.

Design-development drawings — This is the second phase of drawings following the schematic drawings. The final phase results in construction documents that become the details used for obtaining a building bid.

Design team — Members of the group selected to carry out the building planning and design including representatives of the architectural firm, engineering specialists, owner representatives, and consultants.

Design temperature — An established temperature that an HVAC system is designed to maintain under extreme conditions.

Dew point — The point at which a temperature reaches 100% relative humidity and moisture begins forming in a space or on a surface.

Diffuser (light) — A glass, plastic, or metal lens designed to distribute light from an electric fixture.

Diffuser (air) — A wall- or ceiling-mounted device using adjustable slats to circulate air within a room.

Direct digital control (DDC) — An electronic management system that controls the various elements of an HVAC system using sensors designed to maintain constant temperature and humidity.

Downspout — A pipe carrying water from the roof and gutters to the ground or an underground drainage system.

Drift — Gradual changes in building temperature or humidity, usually the result of seasonal changes.

Dual duct system — An HVAC system designed with both heated and cooled air ducts so that air can be drawn and mixed to achieve the correct temperature.

Dry bulb temperature — The temperature measured on an ordinary thermometer.

Efflorescence — A whitish, silvery substance found on exterior masonry surfaces caused by moisture and causing discoloring salts to migrate to the surface.

Electrical panel — A box or cabinet for circuit breakers or other electrical switches.

Engineer — An individual with specialized training in one or more aspects of engineering and who maintains a professional engineer's license.

EPA — Environmental Protection Agency.

Evaporator — Part of an air-conditioning or chiller unit that cools water or air by transferring heat to the circulating refrigerant.

Exfiltration — The slow loss of controlled air out of the building.

Facilities programming — The process of creating the written requirements needed for a new building or facility based on architect and owner involvement.

Fan-coil unit — A magnetic coil used to start and stop the fan.

Feasibility study — A report based on research and analysis to evaluate economic, technical, and functional aspects of a proposed facility.

Feet-per-minute — A measurement of the velocity of air movement within an HVAC system.

Fire-resistant design — A facility planned and designed from materials that are highly fire resistant, that maintains structural stability during a fire, and that contains walls that serve as barriers preventing the spread of a fire.

Fire rating — A measurement for construction materials listing the number of hours that a specific item protects building contents from burning or wall collapse in a fire.

Flashing — *See* roof flashing.

Fluctuation — Significant changes in temperature or relative humidity brought about by air infiltration from unconditioned spaces, HVAC cycling, or the effect of thermal heat spikes.

Foot-candle — The level of illumination provided by one lumen when evenly spread over one square foot of area. One foot-candle equals 10.76 lux.

Foundation — The lower level of a building wall partly or mostly located below ground level and constructed of concrete, stone, or masonry.

General contractor — An individual or company licensed by the state to carry out building and construction. The general contractor contracts with the project owner to carry out all aspects of construction and usually employs subcontractors for specialized work such as plumbing, heating, and electrical work.

Gross area — A building's total square footage including space occupied by walls and mechanical spaces that cannot be used for client activities.

Halon™ — A gas used for fire suppression that has been phased out because of its negative environment impact.

Heat pump — A device that removes heat from cold air for heat during winter and that removes cool air from hot air for cooling in summer.

HID — High intensity discharge lighting. Types of lights include mercury vapor, metal halide, or sodium.

Holdback — A designated amount of money held back by an owner until the contractor successfully completes the building according to specifications in the written contract.

Humidistat — An HVAC control device designed to maintain humidity at a set level.

HVAC — An abbreviation for heating, ventilation, and air conditioning.

Hygrometer — An instrument used for measuring relative humidity that consists of wet and dry bulb thermometers.

Hygrothermograph — A device gathering data about building temperature and relative humidity over time.

IES — Illuminating Engineering Society.

Infiltration — Airflow or seepage into a building through cracks or open space around windows or doors.

Joist — Horizontal beams running parallel to the floor and attached to walls that support a floor or that are an attachment for the ceiling.

Latent heat — Heat released or absorbed from condensation or evaporation in an HVAC system.

Life-cycle costing — Methodology used to calculate equipment costs over the time of ownership.

Lumen — A light measure of the amount of light falling on one square foot of space.

Lux — A metric measurement of illumination. One lux equals .0929 foot-candle.

Macro-environment — Large open spaces in facilities such as storage areas or exhibit spaces.

Masonry — Walls constructed of stone, brick, or similar materials.

Micro-environment — An environment within an environment such as the box within a storage area or the interior of an exhibit space. Because of the enclosed space, micro-environments are less likely to have wide swings in temperature or humidity.

Microwatts per lumen — A measurement of the amount of UV radiation emitted from a light source.

Moisture barrier — *See* vapor barrier.

Mortar — Substance consisting of sand, water, and lime or cement used to join bricks or other masonry.

Multizone system — An HVAC system designed to distribute air to specific spaces or rooms designated as zones.

Net area — The amount of a building's usable square footage that excludes halls, stairways, or walls.

NFPA — National Fire Protection Association.

NIOSH — National Institute of Occupational Safety and Health.

Nonbearing wall — A wall that supports only its own weight and encloses a specific space. Nonbearing walls can usually be moved in remodeling without affecting the intermittent floors, the roof, or other critical building structures.

Off-gassing — The emission of harmful pollutants from formaldehyde acetic acid, or other chemicals in newly installed paint, fabric, or carpet.

OSHA — Occupational Safety and Health Administration.

Outside air — Fresh air drawn into an HVAC system from outdoors.

Parapet — Small vertical walls designed to protect roof edges.

Performance bond — A bond obtained by the general contractor guaranteeing that the building will meet design specifications and be

completed in the time outlined in the contract. Failure of the contractor to complete the building requires the bonding company to provide sufficient funding to complete the structure.

Permit — A town or city document that must be submitted and approved before the general contractor can carry out specific tasks or activities such as building, grading, demolition, plumbing, and electrical construction.

Pitch — The angle of a sloping roof.

Plan view — A building plan providing an overhead view of the structure.

Plenum — A sealed chamber at the inlet or outlet of the air handler connected to the air ducts.

PPM — Parts per million.

Primer — The first coat of paint or other sealant applied to a surface in preparation for one or more final coats of paint.

Program — A detailed description of all the spaces, functions, and specifications to be included in the building providing the architect with the necessary information to create schematic drawings.

PSI — Pounds per square inch.

Punch list — A building inspection near the end of construction by the architect, contractor, and owner to gather data about defective or incomplete work that must be corrected by the contractor before the building is accepted by the owner.

R Factor — A measurement used to indicate an insulator's ability to prevent heat loss; the higher the R number, the greater the effective insulating value.

Refrigerant — The fluid in an air-conditioning system that changes from liquid to vapor to lower the temperature of the air passing over coils holding the refrigerant.

Relative humidity — The amount of water vapor in the air at a specific temperature expressed as a percentage of the temperature at 100% liquid saturation. Example: 65°F at 50% relative humidity.

Retaining wall — A brick or masonry wall designed to hold back or support earth or dirt.

Retrofit — The process of modifying an existing building or its equipment.

Return air — Air returning from conditioned spaces to the heating or air-conditioning unit.

Riser — The vertical portion of a stair step.

Roof flashing — Sheet metal or other material used to seal openings where the roof and vertical walls or other roof penetrations are joined to prevent water leaks from rain, ice, or snow.

Sash — Portion of a window that holds the glass panels and slides vertically.

Schematic design — An architect's initial layout of building spaces that provides their size and physical relationship to one another.

Sensible heat — The heat released or absorbed when a substance undergoes a change in temperature.

Set point — An HVAC system's set temperature or relative humidity. Increases or decreases in either setting cause the system to return the temperature or humidity to the set point.

Shop drawings — Detailed drawings of items provided by subcontractors. Examples include cabinetry, stairways, or other items built off site by the subcontractor.

Slab — A poured concrete floor or floor/ceiling in a multistory building.

Stipulated lump sum contract — A construction contract in which the owner and the builder have agreed to a single lump sum amount to cover all construction costs.

Stud — Vertical wood or metal stringer designed to create a wall or partition and to which dry wall or other material is attached.

Substantial completion — Written acceptance by the owner that the building is completed to the point that the structure is usable and capable of being occupied. There still may be items on the building punch list that require contractor response before holdback funds are released.

Sump — A basement pit that is used to collect groundwater and which uses a sump pump to transfer water to a storm drain.

Supply air — Heated or cooled air being directed through ducts from the HVAC system to areas or zones to cool or heat the space.

Therm — Heat quantity equaling 100,000 BTUs.

Transmission — Heat loss through a barrier from the warm to the cold side of a surface.

Ultraviolet light — Invisible short wavelength light measured from 200–400 nanometers that cause paper deterioration. Normal glass filters radiation shorter than 330 nanometers and additional filters are required for UV light in the 330–400 nanometer spectrum.

Valve — Device designed to control the flow of water or other fluids.

Vapor barrier — A waterproof membrane such as plastic or foil used to seal building foundations and exterior walls from water or moisture penetration.

Vent pipe — Pipe that releases gas buildup from plumbing systems.

Weephole — A hole in a wall that allows moisture to escape to prevent water pressure from building up behind the wall.

Wet-bulb temperature — The temperature of a thermometer with a wet covering with air blowing over the bulb.

Working drawings — Final drawings used for the building bid process and by the contractor to build the structure.