

Glossary

Acoustics – The study of sound, and its transfer, reflection and absorption.

ASTM C-739 - Standard Specifications for Cellulosic Fiber (wood base) Loose-Fill Thermal Insulation

ASTM C-1149 - Standard Specification for Self-Supported Spray-Applied Cellulosic Thermal/Acoustical Insulation. Covers 10 material attributes (density, thermal resistance, surface burning characteristics, adhesive/cohesive strength, smoldering combustion, fungi resistance, corrosion, moisture vapor absorption, odor and flame resistance permanency.)

Air Changes Per Hour (ACH) - An expression of ventilation rates - the number of times in an hour that a home's entire air volume is exchanged with outside air.

Air Barrier - A layer of material resistant to air flow usually in the form of polyolefin (i.e. Typar, Tyvek, and other house wraps). A material that is applied in conjunction with a building component (such as a wall, ceiling or sill plate) to prevent the movement of air through that component.

Air Barrier System - The assembly of components used in building construction to create a plane of air tightness throughout the building envelope and to control air leakage.

Backer Board - A rigid, non-vapor barrier-forming material such as drywall, treated cardboard, plywood, etc. that is used to cover the open side of an existing wall and forms a cavity that may be filled with loose-fill insulation. Must have sufficient strength to withstand the pressure developed when filling the cavity.

Baffles - Device used to achieve a 1" ventilation space between insulation and roof sheathing. Helps assure airflow from eave-vents in attics and cathedral ceilings.

Band Joist - Vertical member forming the perimeter of a floor system in which floor joists tie in.

Blocking - A material used to retain the insulation in place in open areas.

Blower Door - Diagnostic equipment consisting of a fan, removable panel and gauges, used to measure and locate air leaks.

Blower Door Test - A test used to determine the "tightness" (energy leakage) of your home.

Blowing Agent - A gas or a substance capable of producing a gas used in making foamed materials.

Borates – Borates are naturally-occurring minerals containing boron, the fifth element on the Periodic Table. Trace amounts exist in rock, soil and water.

Boric Acid - A non-toxic chemical additive that is used as a fire retardant in cellulose insulation.

Bottom Plate - Lowest horizontal member of a wall that rests on rough floor, to which studding is nailed.

BTU British Thermal Unit - The amount of energy that is required to raise 1 lb. of water up 1° F. Fuel values, heat loss and heat gain are measured in BTU's.

BTUH - A rate of energy transfer - can be expressed as BTU's/hour

Building Envelope - The external elements walls, floor, ceiling, roof, windows and doors of a building that encloses conditioned space; the building shell.

Can-ULC S703-09 - This Standard specifies requirements for treated wood-based cellulose fibre intended for use as thermal insulation (Cellulose Fibre Insulation, CFI) in new and existing buildings within the temperature range of -60 °C to 90 °C.

C-Value (Thermal Conductance) - A measure of a material's ability to allow heat to pass through it. The same as U-Value, but without air film resistances.

Capillary Action, Capillarity - The movement of liquid within a material against gravity as a result of surface tension.

Carcinogen - A substance that is believed to cause cancer.

Cavity - Empty space between studs/joists in which insulation is placed.

CCMC - The Canadian Construction Materials Centre (CCMC) is a part of the National Research Council of Canada. It offers the construction industry a national evaluation service for materials, products, systems and services in all types of construction.

Celumulch - Celumulch is a hydroseeding mulch designed to be used in roadside seeding and general landscape seeding applications. It is produced from recycled paper and paperboard stock which is dyed green. The unique benefits of using Celumulch are that it protects seeded areas against evaporation, erosion and foraging birds and animals.

Cellulose Insulation - Insulation made from recycled newspaper, making it a natural, environmentally friendly alternative to other insulation products.

CIMA – The Cellulose Insulation Manufacturers Association is the trade association for the cellulose segment of the thermal/acoustical insulation industry.

CIMAC - The Cellulose Insulation Manufacturers Association of Canada is the trade association for the cellulose segment of the thermal/acoustical insulation industry

Circulation - A moving around or through something back to the starting point; circular or circuitous motion.

Class 1/A Fire Rating - Weathershield cellulose has been determined to have this rating, which means that it has a flame spread of 25 or lower as determined by ASTM Standard E-84.

Conduction - Transmission of energy (heat /sound) through a material or from one material to another by direct contact. Materials with low rates of conductive heat transfer make good insulation.

Convection - Transmission of energy (heat /sound) from one place to another by movement of a fluid such as air or water.

Corrosion - The process of wearing away gradually, usually by chemical action.

Critical Radiant Heat Flux - A test used to simulate conditions in a hot attic, designed to test the surface burning characteristics of insulation.

Crawlspace Vent - Opening permitting passage of air through the unexcavated area under a first floor.

Density - Determined by the weight expressed in pounds of a cubic foot of a material.

Dew Point - The temperature at which a vapor begins to condense out of the air.

Diffusion - The movement of water vapor from regions of high relative humidity (RH) toward regions of lower RH driven by a higher to lower temperature differential.

Eave / Soffit Vents - Vent openings under eaves of a house. Also, vents located in the soffit that allow passage of air through the attic.

EcoLogo - EcoLogo™ is North America's largest, most respected environmental standard and certification mark.

Emission - The manner by which substances are discharged through the air.

Enclosed Ceiling Cavities - A ceiling area that is covered on both top and bottom.

Energy Star - ENERGY STAR is the international symbol of premium energy efficiency. Products that display the ENERGY STAR symbol have been tested according to prescribed procedures and have been found to meet or exceed higher energy efficiency levels without compromising performance.

Exfiltration - Uncontrolled leakage of conditioned air from inside the home to the outside.

Fill Tube - Tube that enables a cavity to be filled through a single entry hole.

Fire Block – Extra pieces of wood in framing that are used to ensure that fire cannot spread between open cavities around the home.

Fire Stop - is a fire protection system made of various components used to seal openings and joints in fire-resistance rated wall and/or floor assemblies.

Fire-Resistance Rating - typically means the duration for which a passive fire protection system can withstand a standard fire resistance test. This can be quantified simply as a measure of time

Flame Retardant - A substance, which is added to a polymer formulation to reduce or retard the tendency to burn.

Flame Spread - Standard test for determining relative combustibility. The flame spread of a tested material is rated relative to red oak (flame spread = 100).

Flammability - Relative ability of a material to support combustion as expressed by its flash point.

Fluffing – Overblowing insulation so it appears thick enough but is at too low a density to achieve its target performance. This is a problem with loose-fill blown in fiberglass because it is so light.

Foil-Faced Vapor Barrier - Created by coating a foil-backed paper with a thin layer of asphalt adhesive. The coated side of the foil-backed paper is then applied to the unfaced insulation material. The asphalt adhesive bonds the foil-backed paper and the insulation together.

Furring Strips - Flat pieces of lumber used to build an irregular framing to an even surface, either the leveling of a part of a wall or ceiling.

Gable End Walls - Triangular end of an exterior wall above the eaves.

Gable Vents - Louver mounted in the top point of a gable, allowing passage of air through the attic.

Greenest of Green – The Cellulose Insulation Manufacturers Association (CIMA) is actively promoting the environmental benefits of cellulose insulation through their Greenest of the Green campaign.

Greenwashing – Greenwashing is a form of spin in which green PR or green marketing is deceptively used to promote the perception that an organization's aims and policies are environmentally friendly. Whether it is to increase profits or gain political support, greenwashing may be used to manipulate popular opinion to support otherwise questionable aims.

Heat loss - Heat that is lost from a building through air leakage, conduction and radiation. To maintain a steady interior temperature, heat losses must be offset by a combination of heat gains and heat contributed by a heating system.

Heating Degree Day - A unit to measure "coldness". The number of heating degree days in any given day is the average temperature for that day, subtracted from 65° F. The number of heating degree days per year is used to estimate yearly heat loss in BTU's.

Heat Recovery Ventilation System - A mechanical ventilation system that recovers energy from exhausted indoor air and transfers it to incoming air. This system usually incorporates an air-to-air heat exchanger which transfers the heat from exhaust air to the incoming air or vice versa.

Humidistat - A humidity sensitive control device that signals the ventilation system to operate if the humidity goes above a preset limit.

Hydrophobic - Having no affinity for water; not compatible with water. "Water fearing".

IIC (Impact Insulation Class) - A single number indicating the effectiveness of a floor/ceiling construction in resisting passage of structure-borne or impact sound.

Infiltration - Uncontrolled leakage of air into a building through cracks around doors, windows, electrical outlets and at structural joints.

Insulated Ceiling (I.C.) - Marking on recessed lighting fixture indicating it is designed for direct insulation contact.

Insulation - Materials with low thermal conductivity characteristics that are used to slow the transfer of heat.

Insulation Density - One factor determining R-Value; higher density equates to better insulating properties.

Isocyanate (MDI) - An essential component (A) of spray foam chemistry.

Joist - Parallel beam set from wall to wall supporting boards of a floor or ceiling.

Kilowatt-hour (kWh) - Standard unit for measuring electrical energy consumption-kilowatts X hours.

Knee Walls - Walls of varying length used to provide additional support to roof rafters with a wide span.

Leakage - Loss of heat/cooling in a structure due to poor insulation.

Life Cycle Assessment - A life-cycle assessment (LCA) is a technique to assess environmental impacts associated with all the stages of a product's life from-cradle-to-grave (i.e., from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling)

Material Safety Data Sheet (MSDS) - A standard formatted information sheet, prepared by a material manufacturer, describing the potential hazards, physical properties, and procedures for safe use of a material.

Metal Flue - Metal chamber through with hot air, gas, steam or smoke may pass.

Non-Combustible Construction - Buildings in which walls, partitions, structural elements, floors, ceilings, roofs and exits are made of noncombustible materials and which require higher fire resistance ratings than combustible construction.

NRC – Noise Reduction Coefficient

Organic - Compounds containing carbon.

Overspray - Airborne spray loss of polyurethane foam that leads to undesirable depositions of spray foam insulation on nearby surfaces.

Perm - A unit of water vapor transmission defined as 1 grain of water vapor per square foot per hour per inch of mercury pressure difference (1 inch mercury = 0.49 psi). Metric unit of measure is ng/m² s Pa. 1 perm = 55 ng/m² s Pa

Permeability - The time rate of water vapor transmission through unit area of a material of unit thickness induced by unit vapor pressure difference between two specific surfaces, under specified temperature and humidity conditions.

pH - A measure of acidity/alkalinity of aqueous mixtures. A measure of pH 7 is neutral, lower is more acidic, higher is more alkaline.

ProCell Blue – ProCell is Blue an all-borate Type 2 thermal and acoustical cellulose fibre insulation manufactured from elected recycled paper and paperboard stock

ProCell Gold – ProCell Gold is a revolutionary type 2 thermal and acoustical spray-applied insulation that is ideal for both commercial and residential structures. ProCell Gold's excellent coverage, perfect fit and greater density applies quickly and easily and creates no seams or voids, minimizes air leakage and infiltration, and provides uniform coverage with a density over twice that of fiberglass batts.

ProCell Green – ProCell Green is a contractor grade type 1 cellulose insulation for ease of installation in attics, walls, ceilings and floors.

PSI - Pounds per square inch.

P-value – Performance value

Radiation - Transfer of energy (heat/sound) from one object to another through an intermediate space. Only the object receiving the radiation, not the space is heated. The heat is in the form of low frequency, infrared, invisible, light energy, transferring from a "warm" object to a "cold" object. It is known as the "black body effect".

Relative Humidity - The ratio expressed as a percentage of the amount of moisture air actually contains to the maximum amount it could contain at that temperature.

Resilient Channels - Metal channels used to inhibit sound transmission from wood studs through drywall.

R (R-value) - A unit of measurement of resistance to heat flow in hr. ft² ° F/BTU.in. (imperial)

RSI - A unit of measurement of resistance to heat flow in m² ° C/W per 25 mm. (metric) R = 0.176 RSI

Resin - Component B in spray foam chemistry. This component is mixed with the A component on-site to make spray foam insulation.

Retrofit - The modification of an existing building or facility to include new systems or components.

Ridge Vents - Vents mounted along the entire ridgeline of the roof, allowing the passage of air through the attic or cathedral ceiling.

Roof Vents - Louvers or small domes mounted near the ridge of the roof, allowing passage of air through the attic.

STC (Sound Transmission Class) - is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations

Settling - To become compact by sinking.

Smoldering Combustion - A test to assess the fire resistance within the insulation layer.

Spray-Applied Cellulose - An installation method in which water is added to cellulose insulation to make it stick when blown into wall cavities. Also known as Type 2 cellulose Insulation.

Stabilized - Stabilized cellulose is used most often in attic/roof insulation. It is applied with a very small amount of water to activate an adhesive.

Standard Testing - Laboratory test methodology for determining relative properties of materials at specific conditions.

Stud - Upright post in the framework of a wall to support an approved interior material such as gypsum wallboard.

Subfloor - Structural material spanning the floor joists. Acts as a working platform during construction and a base for the finished flooring.

Thermal Barrier - A material applied over spray foam Insulation designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire.

Thermal Bridge - A thermally conductive material which penetrates or bypasses an insulation system; such as a metal fastener or stud.

Thermal Resistance (R) - An index of a material's resistance to heat flow. See R and RSI.

Thermal Shock - A building materials reaction to rapid changes in temperature.

Thermography - A building energy diagnostic technique using an infrared camera for locating areas of temperature differential in a building.

Thermo-Cell Industries Limited – Thermo-Cell Industries Limited is a leading Canadian manufacturer of thermal and acoustical insulation, specialty fibres and hydroseeding mulch. Thermo-Cell's products are actively marketed under the Weathershield, Pro-Cell and Celumulch trademarks.

Thermostat - Temperature sensitive control device that signals a heating or cooling system to operate if the temperature in the building reaches a preset limit.

Top Plate - Horizontal member nailed to the top of the studding of a wall.

Toxicity - A substance that is considered to contain a toxin or poison.

Type 1 Insulation – is dry cellulose insulation intended for pneumatic application into open areas with slopes up to 4.5:12, or injection application into closed cavities, such as walls, floors and cathedral ceilings. Type 1 insulations may also be manually applied.

Type 2 Insulation – is intended for spray application with water or liquid adhesive into open areas regardless of slope (e. attics), exposed surfaces (eg. Walls or ceilings) and/or into any open cavity (wall, floor or ceiling) that may be closed later. This type of product may also contain internal binders to increase the adhesive/cohesive capabilities of the sprayed fibres in order to reduce settlement and /or ensure it remains in place.

U-Value - Overall thermal conductance. U value is equal to the inverse of the sum of the R-values in a system ($U = 1 / R \text{ total}$).

Unfaced Insulation - Insulation with no attached vapor barrier.

Vapor Retarder/Barrier - A layer of moisture resistant material usually which controls moisture diffusion (defined as less than 1 perm) to prevent moisture build up in the walls.

Ventilation - Ventilating (the V in HVAC) is the process of "changing" or replacing air in any space to provide high indoor air quality (i.e. to control temperature, replenish oxygen, or remove moisture, odors, smoke, heat, dust, airborne bacteria, and carbon dioxide).

Viscosity - The thickness or resistance to flow of a liquid. Viscosity generally decreases as temperature increases; application temperatures of spray foam components are specified in part, to control viscosity at the spray gun.

Volatile Organic Compounds (VOC) - Any compound containing carbon and hydrogen or containing carbon and hydrogen in combination with other elements.

Weathershield cellulose insulation - Weathershield is a loose-fill blown-in type 1 cellulose insulation for installation in attics, walls, ceilings and floors.

Windwashing - The phenomenon of air movement driven by wind pressures wind passing through or behind the thermal insulation within enclosures, causing significant loss of heat flow control and potentially causing condensation. Typically occurs at exposed building edges, such as at the outside corners and roof eaves because of the large pressure gradients at these locations.

Acronyms

ANSI - American National Standards Institute
ASHRAE - American Society for Heating Refrigeration and Air Conditioning Engineers
ASTM - American Society for Testing and Materials
CCMC - Canadian Construction Materials Centre
CIMA – Cellulose Insulation Manufacturers Association
CIMAC –Cellulose Insulation Manufacturers of Canada
CISEP - Cellulose Industry Standards Enforcement Program
CSA - Canadian Standards Association
DOE - U.S. Department of Energy
EPA – US Environmental Protection Association
IBC - International Building Code
ICC - International Code Council
NAHB – US National Association of Home Builders
NAHBRC – US NAHB Research Center
NBC - National Building Code
NIBS – US National Institute of Building Sciences
NIST – US National Institute of Standards and Technology
NRC - National Research Council
ORNL - Oak Ridge National Laboratories
ULC - Underwriter's Laboratories Canada