

**Air Barrier**

Meets ASTM E283 standards. A layer of material resistant to air flow usually in the form of polyolefin (i.e. Typar, Tyvek, and other housewraps). A material which 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 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 infiltration**

Uncontrolled inward air leakage through cracks in a building envelope. May also refer to air leaking outward (also called air exfiltration).

**Blower Door**

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

**Blowing Agent**

A blowing agent is any substance, which alone or in combination with other substances is capable of producing a cellular structure in a plastic

**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.

**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.

**Durability**

Selecting products that are long lasting and require little maintenance.

**Embodied Energy**

Considering how much energy was required to extract, process, package, transport, install, and recycle or dispose of materials that make up your home. Up to 70 percent of the total energy invested in a building's construction is embodied in the materials themselves.

**Emissions**

The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

**Energy Efficient**

Products and systems that use less energy to perform as well or better than standard products. While some have higher up-front costs, energy-efficient products cost less to operate over their lifetime.

**Energy Smart**

Meeting your energy needs cost effectively and with the least impact on the environment.

**Energy Star**

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping to save money and protect the environment through energy efficient products and practices. In Canada ENERGY STAR is a voluntary arrangement between Natural Resources Canada's Office of Energy Efficiency and organizations that build,

manufacture, sell or promote products or new homes that meet the ENERGY STAR levels of energy performance.

### **Envelope (Building Envelope)**

The skin of a building—including the windows, doors, walls, foundation, basement slab, ceilings, roof, and insulation—that separates the interior of a building from the outdoor environment.

### **Environmental Impact**

Avoiding materials that pollute the environmental quality inside a home and damage the outdoor environment and atmosphere.

### **Greenhouse Gases (GHG)**

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O<sub>3</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). (Source: EPA).

### **HCFC (Hydrochlorofluorocarbons)**

Compounds containing carbon, hydrogen, chlorine and fluorine. They have shorter atmospheric lifetimes than CFC's and deliver less reactive chlorine to the stratosphere where the "ozone layer" is found.

### **HFC's**

HFC's (hydrofluorocarbons) are man-made fluorinated gases that have a high GWP, leading numerous countries and Fortune 500 companies to support their phase-out. The insulating foam sector is expected to become one of the largest HFC growth areas and is predicted to become the second largest source of HFC emissions

### **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.

### **Indoor Air Quality (IAQ)**

Assessment of the indoor air to determine levels of mold, bacteria, viruses, and chemicals produced by off-gassing of products used in the building or carried into the building by the HVAC system.

### **Infiltration**

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

### **Insulation**

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

### **LEED**

LEED<sup>®</sup> or Leadership in Energy and Environmental Design is a building environmental certification program developed and operated by the U.S. Green Building Council. LEED<sup>®</sup> Canada for New Construction and Major Renovations version 1.0 is an adaptation of the U.S. LEED Green Building Rating System (LEED<sup>®</sup>), tailored specifically for Canadian climates, construction practices and regulations.

### **National Green Building Standard (NGBS)**

The NAHB (National Association of Homebuilders) National Green Building Standard is a voluntary accreditation program based on the three-year-old NAHB Model Green Home

Building Guidelines. The NGBS provides credible, cost-effective green building certification standards, so a homebuyer's money can go to green features vs. green program fees.

### **Off-gassing**

Releasing of gas into the air from products treated with chemicals during their manufacture.

### **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.

### **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.

### **R (as in R-Value)**

A unit of measurement of resistance to heat flow in hr. ft<sup>2</sup> ° F/BTU.in (used in R-Values).

### **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.

### **Renewability**

Choosing natural materials that are rapidly renewable, such as fast-growing trees and agricultural products.

### **Renewable**

A renewable product can be grown or naturally replenished or cleansed at a rate that exceeds human depletion of the resource

### **Rightsizing (as in Heating, Cooling and Air Conditioning)**

Properly sizing HVAC equipment to meet the specific needs of a home. Factors such as amount and type of insulation/air barrier, air-tightness, type and size of the windows and floor area all impact the size of equipment that will perform best. When it comes to heating and cooling equipment, bigger doesn't always mean better. Larger capacity systems are intended to meet the needs of a larger heating or cooling load. However, if the unit is too large for a home, it will experience less comfort and increased costs. Oversized equipment will operate in short run times or cycles, not allowing the unit to reach efficient operation. In addition, oversized equipment will not run long enough to remove humidity from the air. (*Source: Energy Star: A Guide to Energy-Efficient Heating and Cooling*).

### **Sustainability**

Meeting the needs of the present without depleting resources or harming natural cycles for future generations.

### **Sustainable Development**

Taking into account the surroundings of the development – the social, economic and environmental impact the development has on the community. All three are of equal importance.

### **Thermal Barrier**

A material applied over Icynene<sup>®</sup> Insulation designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire.

### **Thermal Resistance (R)**

An index of a material's resistance to heat flow.

### **Vapor Diffusion 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.

### **Water Vapor**

The most abundant greenhouse gas, it is the water present in the atmosphere in gaseous form. Water vapor is an important part of the natural greenhouse effect. While humans are not significantly increasing its concentration, it contributes to the enhanced greenhouse effect because the warming influence of greenhouse gases leads to a positive water vapor feedback (Source: EPA).

### **Acronyms**

**DOE** - U.S. Department of Energy

**EPA** - Environmental Protection Agency

**EEBA** - Energy and Environmental  
Building Association

**EERE** - Energy Efficiency and Renewable Energy Clearing House (DOE program)

**IAQA** - Indoor Air Quality Association

**LEED** - Leadership in Energy &  
Environmental Design

**NAHB** - National Association of Home Builders

**NGBS** - National Green Building Standard

**UBC** - Uniform Building Code

**USGBC** - United States Green Building Council