

MAISONS

PARAGON

HOMES

GREEN SIMPLIFIED

**TERMS AND TIPS FOR ENVIRONMENTALLY
RESPONSIBLE BUILDING**



**TODAY'S HOMEBUILDERS ARE
INCREASINGLY BEING CHALLENGED
TO BUILD GREEN. FROM "CERTIFIED
WOOD" TO "INDOOR AIR QUALITY,"
GREEN CONCEPTS CAN BE CONFUSING
– AND SOMETIMES OVERWHELMING.**

**AT WEYEHAEUSER, WE BELIEVE
A FUNDAMENTAL AWARENESS OF KEY
GREEN BUILDING TERMS WILL HELP
PROVIDE A SOLID FOUNDATION FOR
FUTURE SUCCESS IN THIS INDUSTRY.**

To assist you with understanding green concepts, we have arranged the following green building terms in the sequence of construction:

- 1 Choose the right green building approach for you.**
- 2 Understand a few basic terms.**
- 3 Select reputable and environmentally conscious vendors.**
- 4 Design the home to increase points earned under green building rating programs.**

Understanding green building requires knowing where these terms apply in the building process.

SUSTAIN WITH QUALITY



CHOOSE THE RIGHT GREEN BUILDING APPROACH FOR YOU

Builders can seek green home ratings from numerous programs in North America, hosted by federal and local governments, homebuilding industry associations and others. Below are some of the major programs you may encounter, along with approaches you can take to operate in green ways.

NAHB NATIONAL GREEN BUILDING PROGRAM™

Developed by the National Association of Home Builders (NAHB), the National Green Building Program is designed for mainstream builders. It is the first recognized consensus-based green building standard developed through processes approved by the American National Standards Institute (ANSI). Available ratings are Bronze, Silver, Gold or Emerald, depending on the extent of green materials and practices used.

GREEN GLOBES™

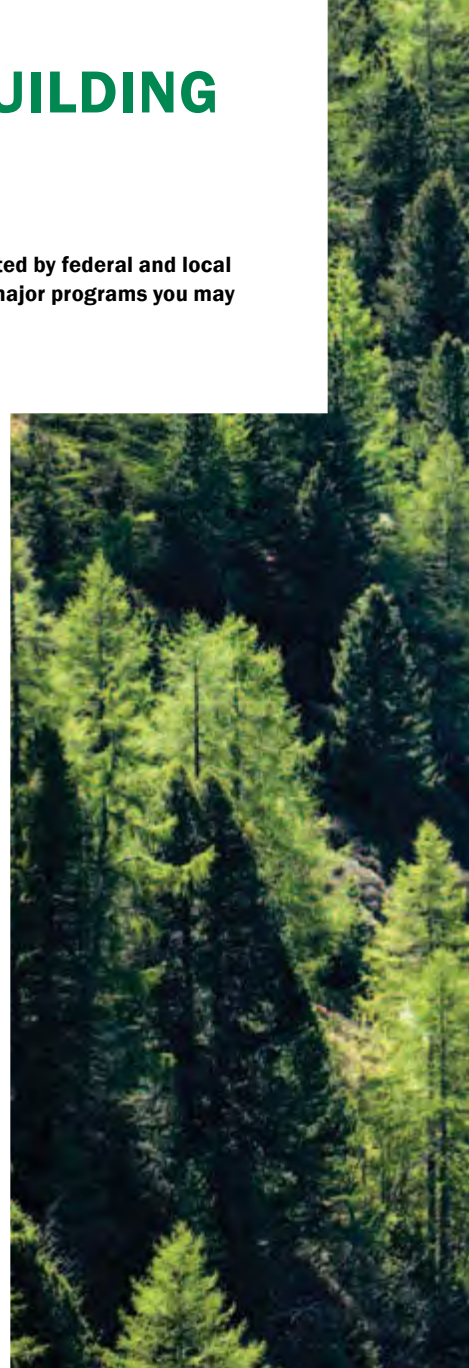
Designed for use on building projects of any size in the U.S. and Canada. The Green Building Initiative™ operates the U.S. system. Participants can complete an online questionnaire and receive an automatically generated report that rates the building and includes recommendations. The program provides ratings from one to four Green Globes, based on the level of performance achieved.

LEED®

Leadership in Energy and Environmental Design (LEED) is a suite of green building rating systems developed by the non-profit U.S. Green Building Council (USGBC). Depending on the materials and practices used, builders can earn one of four certification levels: Certified, Silver, Gold or Platinum.

INTERNATIONAL GREEN CONSTRUCTION CODE (IgCC)

The IgCC, developed by the International Code Council, is a comprehensive sustainability code aimed at helping state and local governments provide direction and oversight of green design and construction. It is coordinated with existing ICC family of codes, and acts as an overlay to existing code, including the International Energy Conservation Code and the National Green Building Standard. Jurisdictions must adopt the code in order to mandate its use.



A high-angle, aerial view of a dense forest covering a hillside. The trees are tall, thin evergreens, likely spruce or fir, with vibrant green needles. The forest is thick, with many trees visible from above. The lighting suggests a sunny day, with some areas of the forest appearing brighter than others. The overall impression is one of a healthy, mature forest.

ASSESS YOUR CARBON FOOTPRINT

UNDERSTAND A FEW BASIC TERMS

Building green is not only the right thing to do, it's good business. When it comes to the environment, actions you take can benefit your neighborhood directly, as well as help improve the planet overall. Green building is full of acronyms and technical terms. Understanding some of the most commonly used language is key to developing an approach to green building that will work for you and your business.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The U.S. Environmental Protection Agency (EPA) defines EMS as “a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency.” This includes specific goals for conserving resources, improving energy efficiency, and establishing reliable processes to address. The best-known, third-party audited EMS is ISO 14001, defined by the International Organization for Standardization.

GREEN HOME

While there is no commonly accepted definition, a green home is one that minimizes impacts on the human and natural environment. This can include actions to boost energy efficiency, reduce construction waste, improve indoor air quality, and use water more wisely, among other considerations.

ENERGY EFFICIENCY

Green building rating programs typically include energy efficiency as a primary category for earning points. Potential actions include proper HVAC equipment sizing, improved insulation, and installing Energy Star-rated appliances and lighting.

BUILDING ENVELOPE

A home's outer shell, including the foundation, structural framing, siding, insulation, water-resistive barrier, windows and doors. Paying close attention to the materials that provide a boundary between the occupied space and the outdoors, and how they are installed, is critical for the home's long-term durability.

SUSTAINABLE BUILDING

Often used interchangeably with “green building,” sustainable means meeting the needs of the present while reducing negative impacts to future generations. Sustainable building addresses environmental, economic and social goals.

CARBON FOOTPRINT

The total carbon dioxide (CO₂) associated with a product or service. This includes all CO₂ emissions from manufacturing, transportation, heating and cooling, as well as emissions resulting from products and services purchased from others. Products, such as wood, that store carbon during their useful life, can deduct the long-term carbon storage from the total carbon footprint.

EMBODIED ENERGY

The total lifetime energy required for a given building material. This takes into account energy for raw material extraction or harvesting, manufacturing, transportation, installation, maintenance and disposal.

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

An Environmental Product Declaration (EPD), is a document that provides environmental data from a life cycle assessment (LCA) in a common, verified format. While an LCA evaluates all environmental impacts from a product or service throughout its life, or cradle-to-grave, an EPD can assess either cradle-to-grave or cradle-to-gate. (Note that only cradle-to-grave EPDs should be compared within a product category.) For green building, the goal is to reduce a home's total lifetime impact on people and nature.



GROW THE AWARENESS

SELECT REPUTABLE AND ENVIRONMENTALLY CONSCIOUS VENDORS

Where a material comes from can be as important as the material itself. When choosing vendors, consider their environmental practices. And for products, check if third-party certifications are available. Certification provides assurance that materials meet appropriate environmental standards.

WEYERHAEUSER

Weyerhaeuser can supply everything you need for residential framing through a network of dealers and distribution centers. We support green building goals by offering:

- Products, software and services that optimize the structural frame to reduce waste
- Renewable, bio-based and resource-efficient engineered wood products and specialty lumber certified to sustainable forestry standards
- Support to dealers for material sizing, detailed framing plans, and pre-cut framing packages that can potentially earn points for builders under major green building rating systems

CERTIFIED WOOD

Lumber, plywood and engineered wood products obtained from responsibly managed forests. Such forests are grown and harvested in ways that protect water quality and wildlife habitat, and are promptly replanted. Certified wood is labeled by independent, third-party organizations, including the Sustainable

Forestry Initiative® (SFI®), the Canadian Standards Association Sustainable Forest Management standard (CSA), and the Forest Stewardship Council (FSC).

CHAIN OF CUSTODY

Accounting systems tracking the certified wood flowing into a mill, and the amount of certified product delivered to customers. The most common “chain of custody” labels mean that these are in proportion (e.g., a sawmill that gets 40% of its logs from a certified forest can identify 40% of its lumber as 100% certified). This means that the lumber bearing the label represents wood originating from a certified forest.

FOREST CERTIFICATION

The U.S. Forest Service defines this as “a non-regulatory alternative that offers a stamp of approval for forest management practices considered to be environmentally appropriate, socially beneficial, and economically viable.” In North America, the certification programs are the SFI, the CSA, the FSC, and the American Tree Farm System®.

SFI®

Sustainable Forestry Initiative. An independent, non-profit organization that certifies forests and forest products, including wood construction materials. Developed specifically for the U.S. and Canada, it's the largest certification program in the two countries.

CSA

The Canadian Standards Association Sustainable Forest Management standard. This standard addresses Canada's unique cultural and land-ownership issues as part of an overall approach to sustainable forestry.

FSC

Forest Stewardship Council. An international sustainable forestry standard with regional variations, including 13 in North America. The FSC standard was originally developed for tropical areas lacking effective governance, and is now used in countries around the world.

ATFS

American Tree Farm System. A sustainable forestry program designed for smaller, family-owned forests. It's important among certification programs since two-thirds of the commercial forestland in the U.S. is owned by millions of families.



DESIGN THE HOME TO INCREASE GREEN BUILDING RATING POINTS

Green building rating programs typically award points for a range of building measures, some of which include material selection, framing practices, and factors affecting the indoor environment.

MATERIAL SELECTION

These points reward builders for selecting vendors with sustainable manufacturing practices, as well as resource-efficient and innovative product designs.

BIO-BASED MATERIALS

Products derived from animals and plants, such as bamboo and wood. Bio-based materials are important for green construction because they may have lower overall environmental impacts than synthetic materials and potentially come from renewable resources.

RECYCLED CONTENT

The amount of recycled materials contained in a product. This includes pre-consumer materials recovered or separated from the waste stream and re-used in a product. “Post-consumer” recycled materials are those returned for reprocessing after use (such as aluminum cans). Both types of recycling enhance efficient use of natural resources and reduce waste.

REGIONAL MATERIALS

Building products obtained from sources near a home construction site. Under the NAHB, Green Globes™ and International Green Construction Code (IGCC) rating systems, products from sources less than 500 miles away are considered regional. Under the LEED® rating system, products from sources less than 100 miles away are considered regional.

RENEWABLE RESOURCES

A natural resource that can be replenished, such as plants, and energy or renewable sources like wind or solar. An important related concept is sustainable supply: ensuring that consumption doesn't exceed replacement. For example, trees from sustainably managed forests are a renewable resource because landowners replant to ensure supplies don't dwindle.

RESOURCE EFFICIENT MATERIALS

Products that conserve natural resources and reduce pollution, waste and maintenance. It's using only what you need, as well as incorporating products that make good use of raw materials. The NAHB, Green Globes™, and LEED® rating systems all include options where builders can earn green building points in this category. Engineered wood products are designed for their structural application in a resource efficient manner.

RECLAIMED WOOD

Similar to recycling bottles, this involves reusing existing wood. Reclaimed wood can be obtained from buildings slated for demolition, abandoned structures such as railroad trestles, or sinker logs salvaged from river bottoms. It is most often used for decorative, rather than structural applications.



A close-up photograph of a pine branch with long, thin, green needles. The branch is in sharp focus on the left side of the frame, while the background is a soft, out-of-focus green, suggesting a dense forest. The lighting is natural, highlighting the texture of the needles.

RETHINK RENEWABLE

GREEN BUILDING (continued)

RECYCLED WOOD CONSTRUCTION WASTE

While historically not recycled in substantial quantities, options are growing for reusing wood products. When a home is demolished, framing materials can potentially be salvaged and used again, depending on their structural characteristics. Recovered wood can also be used to manufacture other products. Untreated wood can be converted into mulch or used as fuel to help reduce our use of natural resources.

FRAMING PRACTICES AND CONSTRUCTION WASTE REDUCTION

A primary way to reduce the environmental impacts from new homes and remodels is to use just the right amount of materials you need. This includes advanced framing practices, detailed framing plans with cut lists, and pre-manufactured panelized framing components.

ADVANCED FRAMING

Building practices intended to ensure the right amounts of materials are used—neither overbuilding, nor under building. This can include spacing studs 24" on-center, planning more efficient material combinations throughout the structural

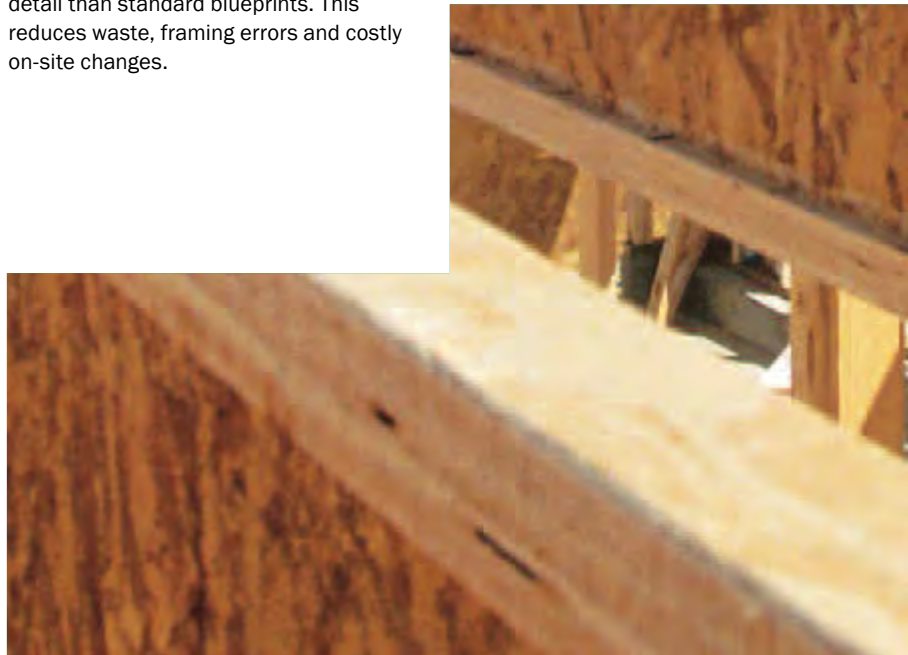
frame, and optimizing spaces between framing members for improved insulation and shorter utility runs. Pre-cut and labeled material kits or pre-built panelized components can help meet these goals.

DETAILED FRAMING PLAN WITH CUT LIST

Builders can earn points under the NAHB, Green Globes,™ and LEED® programs by working with their dealers to create a detailed cut list and material order that corresponds directly to the framing plans. For example, design software can create detailed drawings showing specific locations, spacing and sizes for all floor, wall and roof members—typically in more detail than standard blueprints. This reduces waste, framing errors and costly on-site changes.

FRAMING EFFICIENCIES

According to the U.S. Green Building Council, conventional framing techniques can use up to 15–20 percent more material than is structurally needed when using prescriptive conventional framing techniques. Builders can take several steps to reduce materials used, while still enabling a solid structure. Examples include pre-cut framing packages, open-web floor trusses, structural insulated panels (SIPs), and spacing members greater than 16" on-center.





TJI Joist

TJI® Joist

GREEN BUILDING (continued)

ZERO WASTE

A goal to eliminate all material or energy waste related to products or services. It's a philosophy that seeks to stop the belief that waste is inevitable. Builders can work toward zero waste by coordinating with dealers and product manufacturers to better plan material cuts and amounts needed.

INNOVATION CREDITS

While green building rating systems seek to identify appropriate building actions, the programs typically allow for new and creative practices that benefit the human and natural environment. The NAHB, Green Globes,[™] and LEED[®] rating systems include options for earning innovation points. Builders must demonstrate how their proposed actions support green building goals.

INDOOR ENVIRONMENT

A number of green building factors address the health of a home's interior. Below are two key concepts.

INDOOR AIR QUALITY

As home enclosures have become tighter, indoor air health has become a growing concern for homeowners. Trapped fumes from construction materials can potentially impact human health. Green building rating programs usually call for improving indoor air quality by using low-emitting materials, products with low volatile organic compound (VOC) content, and air exchange, including venting.

VOLATILE ORGANIC COMPOUNDS (VOCs)

Potentially harmful carbon-based substances that evaporate easily into the atmosphere. They are often found in paints, caulks and adhesives, and they are typically identified by strong fumes. Materials with low-VOC content can reduce environmental damage, as well as exposure risks to construction crews and home occupants. Builders can earn points for using low-VOC materials under the NAHB, Green Globes,[™] and LEED[®] rating systems.





EMBRACE EFFICIENCIES



WE HAVE A LONG-STANDING COMMITMENT TO THE ENVIRONMENT

From creating the nation's first tree farm in 1941 to planting more than 50 million seedlings every year, we understand what it means to be green. And, we've pioneered products and practices that help builders solve green construction challenges:

- Weyerhaeuser software helps you use less framing material and reduce construction wood waste, while saving time and money.
- Weyerhaeuser lumber and OSB, and Trus Joist® TJI® joists, Microllam® LVL, TimberStrand® LSL and Parallam® PSL efficiently use natural resources. On average, we use 95% of each log to produce wood products and energy. That means less waste to the landfill and more carbon storage on site.

Weyerhaeuser is dedicated to building support with our customers using quality products and solutions. Contact us—we're here to help you with your next green building project.

www.woodbywy.com/GreenBuilding



woodbywy.com | 888.453.8358

OTHER GREEN RESOURCES



nahbgreen.org | greenhomeguide.org | builtgreencanada.ca
greenbuildercollege.com | greenglobes.com | sfiprogram.org
fscus.org | pathnet.org | apawood.org | iccessafe.org