CHOICES

Among building materials, only one can be considered truly green: wood

Every building product we use today comes from natural resources. Many of these resources are being depleted at an accelerating rate. The rising cost of energy – mostly from non-sustainable sources – is also increasing the environmental costs of extracting and producing many of these materials.

The world is becoming more conscious of how human actions can impact the health of this planet. Today, societies around the globe are asking important questions about the environmental costs and benefits of all the things that are part of everyday life.

For building materials, too often comparisons of the "green" benefits of certain products are incomplete and do not reflect the responsible choice for the environment. Before making any product selections, we should have all the information how each material ultimately affects the world we wish to perpetuate.

Once all the facts are reviewed, there is only one clear environmental choice in building materials: wood.

WHY WOOD?

We build with a variety of materials, from traditional products such as steel, wood, concrete and masonry to more modern alternatives such as plastics and composites. Assessing the environmental impact of each of these materials requires a look at the full life of the product, from its extraction to manufacturing through its use in service to disposal. At every step, each of these products can impact our environment.

Out of all of these materials, wood emerges as the most environmentally responsible choices available today. Wood's natural attributes make it uniquely suited to both the performance and environmental demands for modern building materials.

Wood is the only naturally renewable building material produced today and its existence alone generates many good things for the environment. Wood comes from trees, which absorb carbon dioxide and releases oxygen.

For example, a young forest produces 1.1 tons of oxygen and absorbs 1.47 tons of carbon dioxide for every ton of wood fiber, which stores the carbon. A typical 2,400 square foot wood-frame house represents 28.5 tons of stored carbon dioxide, or the rough equivalent of seven years' of emissions from a small automobile.

As a natural material, wood is safe to handle and use, is biodegradable and can be recycled easily. Wood is converted into thousands of products, from lumber, panels and paper to shoe polish, liquid soaps and cologne.

Western Lumber

The original green building product

In building, wood has a high ratio of strength to weight and boasts a long history of durability and performance in construction. It features superior insulating properties against heat, sound and electricity. Wood resists oxidation, acids and other corrosive agents and easily accepts preservatives, fire retardants and a variety of finishes.

There are a host of wood species available to meet any construction or aesthetic need. In the West alone, there are nearly 20 commercial available species produced and sold by mills today.

These Western species are cut into a variety of products, from framing lumber for building structures to common boards for shelving, paneling and material handling to factory grade that are further sawn into wood components for doors, windows and other products.

Forest harvesting and renewability

There is a popular misconception that America's forests are disappearing and that we are running out of trees. The facts, however, show just the opposite.

Forest growth in the U.S. has exceeded harvest continually since the 1940s. According to the Forest Service, the U.S. forest inventory has actually increased by 39 percent since 1952.

The U.S. is the leader in reforesting, planting some 2 billion new trees a year. The forest products industry is responsible for 41 percent of all replanted forest acreage. Thanks to these efforts, there are 10 million more acres of forestland in the U.S. today that there were 15 years ago.

The forest products industry does more than just plant and harvest trees. As foresters, wood products companies follow rigorous standards and forest practices to protect the trees, soil, air, water and wildlife.

Sustainability and certification

Forests play an important role in the environment, a fact long recognized by wood products producers. As users seek to know more about the sustainability of the building materials they use, more information is being developed to help make buying decisions.

Forest certification is one way to demonstrate the sustainability of wood products. Much of the Western lumber made today is covered by certified sustainable standards that are audited by independent third parties and recognized worldwide.

The Sustainable Forestry Initiative (SFI) program is the largest certifier of lumber and wood products in the U.S., covering an estimated 150 million acres of timberland in North America. SFI is a comprehensive system of principles, objectives and performance measures developed by professional foresters, conservationists and scientists, among others that combines the perpetual growing and harvesting of trees with the long-term protection of wildlife, plants, soil and water quality.

SUSTAINABLE FORESTRY INITIATIVE

FSC ©

Another certification program used in the U.S. is the Forest Stewardship Council, or FSC. FSC certification utilizes a "chain-of-custody" process, which traces the product from the forest floor to the sales floor.

Wood products that meet the standards set by the certifying organization are typically marked on the product itself, the paper wrap used in shipping or in documentation that accompanies the product.

Green building

Forest certification is only one way of documenting the sustainability and environmental benefits of wood products. A growing number of communities are also considering so-called "green" building stan-

dards that provide incentives or recognition for using materials or following practices that are safe for the environment.

Comparing the environmental impacts and benefits of different materials can be difficult, given the wide variety of way these products are extracted, produced and used.

Scientists, government officials and others are turning to life-cycle assessment, or LCA, to provide a "cradle to grave" picture of the environmental qualities of building materials.

Recent LCA studies show wood is superior in its environmental performance to concrete and steel. The Consortium for Research on Renewable Industrial Materials (CORRIM) analyzed houses constructed of three different materials and identified numerous advantages for wood-frame construction.

The CORRIM analysis indicates wood-frame houses consume less energy during their 75-year lifetimes than comparable concrete and steel structures. Wood also outperformed steel in terms of global warming potential, air and water emissions, and solid waste and surpassed concrete in all but water emissions.

New tools are being developed to assess materials in a structure using LCA science. The Athena Institute in Canada offers the Impact Estimator for Buildings, a software tool that evaluates whole buildings and assemblies based on internationally recognized LCA methodology. Using the Estimator, architects, engineers and others can easily compare the environmental implications of industrial, institutional, commercial and residential designs–both for new buildings and major renovations.

As more green building standards emerge, science-based analysis such as LCA offers the most impartial and comprehensive way of determining the environmental impacts of materials. And, as current LCA research shows, wood is clearly the most "green" building material used today.

Responsible choice

It all comes back to choices. If we are to join the growing number of responsible people who advocate the sustainable and wise use of our natural resources, we must measure our choices between one building material and another. We must look at all aspects of each material, from extracting to manufacturing to final use, and consider the variety of impacts such actions can have on our planet.

By nearly any measure, wood offers the best choice among building materials for most uses. It is strong, light, durable and safe to handle. It uses less energy over its lifetime, generates little pollution and is biodegradable for disposal. It is naturally renewable and there are ways to assure that the wood we use is being produced sustainably and responsibly.

We have the ability to take anything we want from this earth. But we also have the responsibility to take it wisely and give back what we can.

We all have choices. In building materials, there is only one clear choice: wood.

For more information online:
Sustainable Forestry Initiative (SFI)
www.sfiprogram.org

Forest Stewardship Council (FSC)
www.fsc.org/en/

Consortium for Research on Renewable Industrial Materials
www.corrim.org

Athena Institute
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