SOFTWOOD LUMBER
A SUSTAINABLE BUILDING MATERIAL

WHY BUILD WITH MASS TIMBER?

WOOD MYTH:
ISN’T IT DIFFICULT TO BUILD WITH MASS TIMBER?

MASS TIMBER PANELS CAN BE CUT AND JOINED WITH FAMILIAR TOOLS. PRE-FABRICATION REDUCES TIME, WASTE, AND ON-SITE LABOR.

ENGINEERED WOOD PRODUCTS LIKE MASS TIMBER ARE MADE FROM SMALLER, SUSTAINABLY SOURCED TREES. THE MANUFACTURING PROCESS USES NEARLY THE ENTIRE LOG.

WHY LIVE IN MODERN WOOD BUILDINGS?

WOOD ENVIRONMENTS MAKE PEOPLE HAPPY

Some studies have shown that exposure to nature and natural materials can have positive effects on our sense of well-being. This has led to an increase in the use of natural materials like wood in biophilic design. In an age where the average American spends 90% of their life indoors, bringing natural materials into interior environments can benefit our lives.

WOOD IS AN IDEAL BUILDING MATERIAL

WOOD STRUCTURE

Wood is the strongest and most stable in the direction of the grain.

Wood is weaker and more prone to expansion and shrinkage across the grain.

The tree trunk’s long tubular cells—similar to drinking straws—give wood its strength and stability.

MAKING CROSS-LAMINATED TIMBER (CLT) PANELS

High-quality wood is used for the top and bottom layers of each panel, while the core layers are made of lower-quality wood.

Manufacturers use small, low-quality logs that would otherwise go to waste.

Layers are glued together with each layer’s grain laid perpendicular to the previous ones to provide maximum strength and stability.

BUILDING WITH CLT

Panels are prefabricated in a factory, minimizing waste and speeding up construction time.

Computer-controlled machinery in the factory trims the panels to exact dimensions and cuts openings for windows, doors, and other installations.

WOOD IS STRONG

WIRE RESISTANCE

Timber does not ignite until it reaches more than 380°F. When it does, timber develops a protective char layer. Large timber beams have high fire resistance because the interior of timber remains much cooler.

Heavy timber has a particular advantage in a fire because it chars on the outside while retaining strength. This charring effect increases safety and means mass timber is predictable when exposed to fire.

WIRE-RESISTANT TIMBER BEAM: CHARRING DIAGRAM

WIRE MYTH:
WON’T WOOD BUILDINGS BURN DOWN?

WOOD BUILDINGS ARE DESIGNED TO MEET THE SAME LEVELS OF FIRE PERFORMANCE AS BUILDINGS MADE FROM ALTERNATIVE MATERIALS.

WOOD VS. STEEL: COMPARATIVE FIRE PERFORMANCE

A standard fire exposure test showed that a wood beam (“yellow”) maintained its endurance throughout the 30-minute test while an exposed steel beam (16 WF 40) lost nearly all its strength and stiffness.

WIRE’S CELLULAR STRUCTURE CONTAINS AIR, WHICH LIMITS ITS ABILITY TO CONDUCT HEAT. THE PRESSURE MANUFACTURING OF CLT AND OTHER ENGINEERED TIMBERS LIMITS AIR LEAKAGE. THE RESULT: A COMFORTABLE INTERIOR THAT REQUIRE LESS ENERGY TO MAINTAIN.

WIRE’S NATURAL PROPERTIES CAN ENHANCE A BUILDING’S ACoustics. IT’S A GOOD CHOICE FOR CONCERT HALLS AND PERFORMANCE HALLS, OFFICE AND MUSEUMS, AND LECTURE THEATERS.

BUILT FROM LOCALLY SOURCED LUMBER, WOOD BUILDINGS IN THE U.S. USUALLY COSTS LESS TO MAINTAIN THAN STEEL OR CONCRETE ONES.

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SOFTWOOD LUMBER
A SUSTAINABLE BUILDING MATERIAL

Naturally renewable, locally abundant, and easy to work with, wood once played a major role in the rapid growth of cities in the U.S. But after devastating fires in Chicago and Boston in the 1800s, new building codes limited timber construction, resulting in the concrete and steel cities we see today.

Innovations in wood products are changing the game. New mass timber structural panels are not only fire resistant but allow for buildings that are cost effective to erect and energy efficient to maintain. Mass timber buildings can be built with unprecedented height, span, and seismic stability. Building codes are finally changing to permit this extraordinary material.

WHY HARVEST WOOD?

WOOD PROVIDES BENEFITS THROUGHOUT ITS LIFE

Forests absorb CO₂ from the atmosphere through photosynthesis.

Wood residue is a byproduct of milling and a smart way to consume a local, sustainable fuel.

Wood products can be reused or recycled to create new products.

Wood buildings are energy efficient.

Mass timber makes it possible to build taller and larger, durable buildings that are constructed quickly and efficiently.

W O O D S T O R E S C A R B O N

Trees need CO₂ to grow. They have the unique ability to absorb CO₂ from the atmosphere and store it long-term in their fiber. To combat climate change effectively, trees should be harvested at maturity when carbon content is at its peak.

ON AVERAGE, NORTH AMERICAN WOOD PRODUCERS USE 98% OF EVERY TREE BROUGHT TO A MILL FOR PROCESSING.

A BENEFICIAL CYCLE

1. Young trees absorb carbon rapidly
2. Mature trees absorb carbon slowly
3. Decaying trees and trees release carbon
4. Carbon is reallocated into new trees

HARVESTING TREES LOCKS CO₂ INTO THE TIMBER

WHAT HAPPENS TO WOOD?

TIMBER
Raw Ingredients: Tree

STEEL
Raw Ingredients: Iron Ore, Coal, Carbon, Manganese, Chrome, Nickel, Tungsten

CONCRETE
Raw Ingredients: Sand, Limestone, Gypsum, Water, Silicon, Phosphorus, Sulphur

ENERGY INTENSITY

Wood buildings can dramatically reduce carbon emissions in the construction industry. Wood products require less total energy, and in particular less fossil energy to make, than other materials including metals, concrete, or bricks.

ENERGY USED TO PRODUCE 1 TON OF MATERIAL

TOTAL ENERGY USED (MJ/kg)

WOOD

CONCRETE

STEEL

6X MORE THAN WOOD

35 NEW PROJECTS

Through the American Wood Council, supported 13 NEW JURISDICTIONS to advance their adoption of the 2011 IBC allowing for taller mass timber buildings.

VIRTUAL AND IN-PERSON HOURS OF EDUCATION to architects, engineers, developers, and code officials.

By facilitating wood use, helped to avoid 4.9 MILLION METRIC TONS of carbon dioxide emissions, which amounts to taking 1,046,600 CARS OFF THE ROAD for a year.

108,000

626 SALES QUALIFIED LEADS (SQLs) that were sent to WoodWorks for project support or further nurturing.

2012-2021 SLB CUMULATIVE IMPACT

9.8+ BILLION BOARD FEET of new demand has resulted from SLB investments since 2012.

Incremental 79 BOARD FEET generated for every $1 INVESTED SINCE 2012.

The SLB has generated $4.9 BILLION of revenue since 2012.

Average return of $39.82 : $1 invested since 2012.

ACCELERATING INVESTMENT AND GROWING DEMAND

Generated 1.8 BILLION BOARD FEET of incremental demand

775,000 LUMBER HARVESTING AND MANUFACTURING JOBS and 660 mills in 42 states

Through Think Wood’s led nurturing program, generated

W O O D W O R K S D I R E C T L Y C O N V E R T E D 352 LIGHT-FRAME AND 86 MASS TIMBER BUILDINGS, and influenced a total of 1,700 PROJECTS to choose wood for their design, performance, and sustainability needs.

W O O D M Y T H:
SHOULDN’T WE LEAVE THE FORESTS ALONE?

CAREFUL HARVESTING LEADS TO HEALTHIER FORESTS, FEWER FOREST FIRES, FEWER INVASIVE SPECIES, AND LESS CARBON DIOXIDE IN THE AIR.


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