



Prolam[®]

Engineered Laminated Timber

THE BENEFITS OF BUILDING WITH WOOD.

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There are many benefits of using wood in the building industry.

As published on the well known Vox news website earlier this year, architects, builders, and sustainability advocates are all talking about a new building material they say could substantially reduce greenhouse gas (GHG) emissions in the building sector, slash the waste, pollution, and costs associated with construction, and create a more physically, psychologically, and aesthetically healthy built environment. This material is known as wood !

The new way of using wood has put the material back in the spotlight. The hype is focused on structural timber or, as it's more popularly known, "mass timber" (short for "massive timber"). In a nutshell, it involves joining pieces of soft wood — generally conifers like pine, spruce, or fir, but also sometimes deciduous species such as birch, ash, and beech — together to form larger pieces.

Mass timber is a generic term that encompasses products of various sizes and functions, like glue-laminated (such as Prowood) beams. Here are some of the many reasons why you should build with wood as well as the benefits of using responsibly sourced wood according to articles written all around the world. All agree on these points :

Wood Is Renewable

Responsibly sourced wood is the only renewable building material available; it is naturally grown and removes CO2 from the atmosphere.

Unlike concrete or metals, wood is a building material that can be grown and regrown through natural processes and also through replanting and forestry management programs. Select harvesting and other practices allow growth to continue while larger trees are harvested.

Certified forests and plantations will regrow to provide a wide range of other benefits such as further carbon storage, oxygen generation and forest habitat. Additionally, after decades or even centuries of use, wood buildings can be easily adapted or deconstructed and reused, which means they can continue to store carbon indefinitely.





Wood Is Biodegradable

One of the biggest challenges of many building materials, including concrete, metal, and plastics, is that when they are discarded, they take a very long time to decompose. When exposed to natural climate conditions, wood will break down much quicker and actually replenish the soil in the process.

Wood enhances Energy Efficiency, it is a natural insulator

Wood has a high insulation rating as a result of its natural cellular structure (air pockets). This means that homes and buildings require less energy to maintain heating and cooling. In solid form, wood also has significant thermal mass properties, retaining heat from the day and releasing it at night.

Wood also acts as a humidity regulator, absorbing moisture when humid and releases moisture when the air is dry.

Thermal performance : Wood is 400 times better as a thermal insulator than steel and 14 times better than concrete or masonry and 1770 times better than aluminium.

Wood is durable

Wood is a durable material for both homes and commercial buildings. If wood is properly taken care of it can last over 100 years. Modern wood preservatives enhance natural durability. Certain species of wood are naturally strong and can withstand almost anything.

Wood performs well in fire

Large, solid, compressed masses of wood are actually quite difficult to ignite. In the case of fire, the outer layer of mass timber will tend to char in a predictable way that effectively self-extinguishes and shields the interior, allowing it to retain structural integrity for several hours in even intense fire.

Electrical and heat resistance – Wood has a natural resistance to electrical conduction when dried to standard moisture content (MC) levels, usually between 7%-12% for most wood species. Its strength and dimensions are also not significantly affected by heat, providing stability to the finished building and safety implications for certain fire situations.





Environment : Building with wood helps preserve the planet.

When compared to building materials like steel or concrete, the life cycle of wood has a lower overall impact on the environment than its counterparts and as a result, also costs significantly less to produce. Wastewater production and environmental impact are also significantly lower in wood manufacturing processes, particularly when compared to steel.

As we become more concerned about our environment and the world we live in, we realise that building with wood is one way to help preserve this planet.

Wood stores carbon and reduces carbon emissions

In order to produce 1kg of timber, a tree consumes 1.47kg of CO₂ and returns just over a kilo of oxygen into the atmosphere. When trees are harvested and used to make wood products, the carbon remains stored in the wood for the life of the product. About 50 per cent of the dry weight of wood is carbon.

It is far more preferable to have the carbon stored in trees and in wood products on the surface of the earth than in the atmosphere, where it contributes to climate change. Using wood to build long-lasting, efficient and durable homes and other buildings will help reduce the amount of carbon dioxide in the atmosphere. It is a bonus unique to wood.

The production and processing of wood uses much less energy – called embodied energy – than most other building materials, giving wood products a significantly lower carbon footprint. Wood can be used to substitute for materials that require larger amounts of fossil fuels to be produced.

As a rule of thumb, if you convert one cubic metre of a solid material, such as concrete or brick, for a cubic metre of timber, you will eliminate approximately one tonne (1000kg) of carbon dioxide from being emitted into the atmosphere.





Wood is often cheaper, it is fast and flexible.

Comparative studies of the economics of different wall framing systems indicate that, in terms of direct building expenses, timber frames are consistently the most cost-effective solution. Wood also allows buildings to be constructed faster, with lower labor costs and less waste.

Timber provides for flexibility of design, and allows modifications and tweaks to layout during the construction process. Factory pre-fabricated and pre-cut steel frames do not.

Many builders are familiar with using wood, and usually prefer it. Builders report frame construction times of two to two and a half times longer for steel frames. Wood is also a lower cost raw material than steel.

Wood performs remarkably in earthquakes

The performance of mass timber in earthquakes has been tested and has proven remarkably good. Research and building code development have proven that timber components, assemblies and entire structures are capable of meeting or exceeding the most demanding earthquake and seismic design requirements.

Wood products and systems give designers and engineers a readily available and robust selection of code-approved building materials that can help commercial and residential buildings and other infrastructure better withstand seismic events. Here are some of the advantages :

- Wood's ability to withstand high loads for short periods of time and retain its elasticity and ultimate strength is an asset in seismic zones.
- The ability to yield and displace without fracturing under an earthquake's abrupt lateral stresses is an attribute of wood-frame construction, which features several nailed connections that allow it to respond to seismic events without critical failure.
- The numerous fasteners and connectors used in wood-frame construction offer multiple, often redundant, load paths for seismic forces, reducing the chance the structure will collapse if some connections fail.

Wood has high Tensile strength

For being a relatively lightweight building material, wood outperforms even steel when it comes to breaking length (or self-support length). Simply put, it can support its own weight better, which allows for larger spaces and fewer necessary supports in some building designs.





Wood has great acoustic properties

Sound absorption – Wood's acoustic properties make it ideal for minimizing echo in living or office spaces. Wood absorbs sound, rather than reflecting or amplifying it, and can help significantly reduce noise levels for additional comfort.

Wood doesn't rust

All building materials used for the structure of houses in New Zealand are required to have a minimum service life of 50 years to comply with the building code. Wood, used appropriately in accordance with building standards, will usually far exceed this.

Wood is naturally beautiful and aesthetic & good for wellbeing

With the wide variety of species available, wood presents an incredible range of aesthetic options. Research has identified the positive associations that wood induces in people, where an overwhelming amount of people agreed that wood is 'visually appealing' and 'has a natural look and feel' and is not 'cold and commercial'.

Research has identified that the increased use of wood has measurable physiological and psychological health benefits. We now know that workers are less stressed and more productive, students learn better, patients heal faster, and people are generally happier and calmer in spaces that contain natural elements like wood.

