

THE WOOD STOREY

Business Plan

Spurti Nimbali, Founder

COMPANY SUMMARY

The Wood Storey is a mass timber production and construction company established in 2020. It is a Private Limited Company, incorporated in Greenville, South California, USA. The mission of The Wood Storey Company is to manufacture high-quality, cost-effective and sustainable mass timber products for off-site construction of buildings. By combining craft design and advanced manufacturing techniques, The Wood Storey Company aims to build customizable and sustainable buildings.

EXECUTIVE SUMMARY

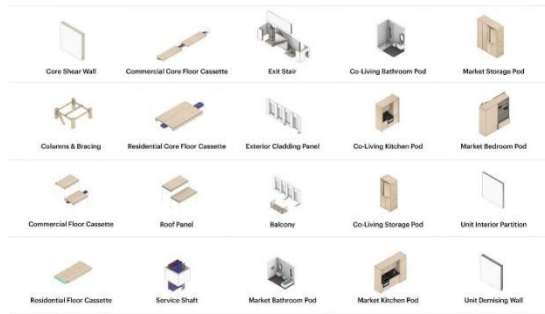
PRODUCTS AND SERVICES

1. The Wood Storey Company engineers mass timber products such as laminated veneer lumber (LVL), cross laminated timber and glulam, all of which are used as construction material. These products are thick, compressed layers of wood, which can be used for creating strong and structural load-bearing components. These products serve as sustainable and green substitutes for the conventional environmentally-taxing building material.



SOURCE: phys.org

2. All these products are designed into a kit of parts, which can be used to create innumerable customizable architectural designs. There are four basic elements that form the kit. The first is the component that forms the exterior of the building, the facade panels, such as doors and windows. The next part is the floor cassettes, which is used to encompass the floor of one storey. The third element is the columns and beams, that provide the building with structure, helping hold it up. And the last element of the kit is the interior walls.



Source: Sidewalk Labs

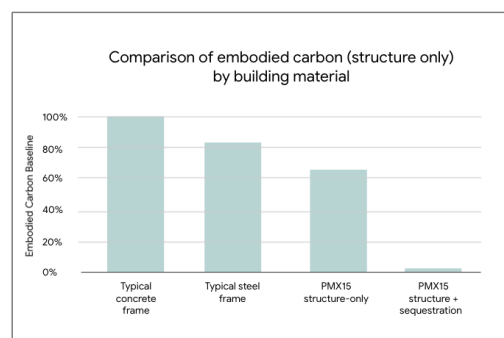
- The Wood Storey Company constructs mass timber buildings which are built by assembling off site-factory produced components from the kit along with other fit-outs. The process resembles the building of a LEGO house, wherein the final structure is created by putting together the pre-constructed components.



SOURCE: Wikipedia Commons

PRODUCT/SERVICE USP AND ADVANTAGES

- More than 30% of all the carbon emissions come from the manufacturing industry, out of which cement and steel alone account for 10%. The manufacturing of 1 tonne of cement releases 1 tonne of carbon dioxide. We have a high dependency on cement and steel to construct buildings, pave our roads and establish various infrastructures.

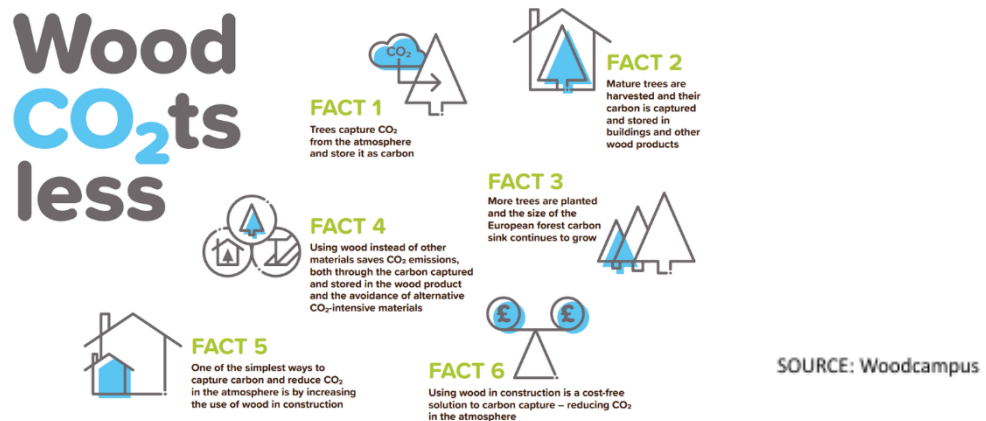


PMX-15 is a hypothetical mass timber building

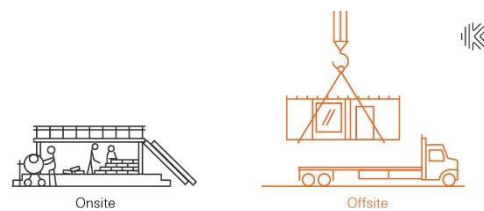
SOURCE: Aspect

Recognising climate change and the need for low carbon solutions, Wood Storey Company has come up with a low-carbon, environment friendly and overall sustainable solution, the use of ‘mass timber’ as an alternative to cement and steel. Mass timber would help transform a major contributor towards carbon emissions into a carbon sink, as mass timber acts as a decarbonising agent. This is because wood absorbs CO₂ rather than emitting it, just as trees do while growing. A typical steel and

concrete building has an emissions profile of 2,000 metric tons of CO₂, with mass timber we would actually be sequestering 2,000 tons of CO₂ (Andrew Ruff, of Connecticut-based Gray Organschi Architecture).



- 2) Also by using The Wood Storey Company’s kit, the building can be constructed by assembling the various components together, a process that would require relatively less work force. Also as all the components of the mass timber buildings are factory-made, there is only on-site labour requirement.

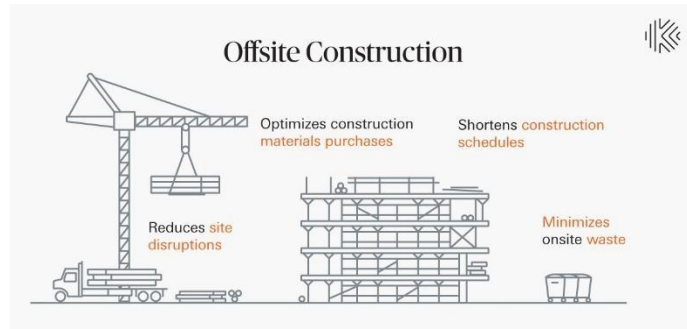


Labor Productivity Increases By 30% On Offsite Projects

SOURCE: McGraw Hill

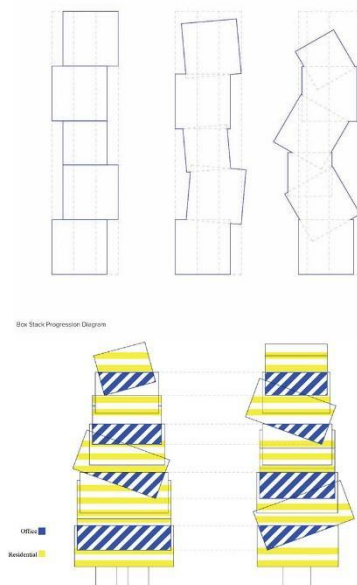
- 3) This method of construction would also help reduce waste. This is because the machines in The Wood Storey Company’s factory are equipped with cutting-edge technology that can fabricate the mass timber products such as the laminated veneer lumber (LVL), cross laminated timber and glulam as desired. This will cut down production and construction wastes drastically as there would be no cut-outs of doors or windows to throw away as the building would be assembled in the end.
- 4) As mass timber products are much lighter in weight than cement or steel, transportation trucks can be packed to full capacity, without damaging the company assets. This would help decrease transportation costs. Moreover, as these components are much lighter than the conventional construction material, there wouldn’t be a requirement for a very strong and resource-intensive foundation. Also, the light-weight of mass timber allows its construction on urban land such as brownfields, which are unsuitable for heavy construction material, such as cement.
- 5) As only the assembling needs to be done on-site, the components can be shipped to the construction site on a just-in-time basis. This would minimise the on-site disruption and avoid a massive inventory and labour force on site. This way construction projects can be undertaken in cramped, idiosyncratic urban spaces. *According to the softwood lumber industry, “Mass timber*

buildings are roughly 25% faster to construct than concrete buildings and require 90% less construction traffic.” SOURCE: Vox.com



SOURCE: Modular.org

- 6) As the manufacturing of mass timber products is cheaper than cement or steel, the mass timber buildings will be an economically preferable option. Moreover, the decreased waste, labour, and transportation costs would make the project even more economical. Also, the construction of mass timber buildings is much quieter than the construction of cement buildings.
- 7) As the components of the mass timber buildings are very precisely fabricated and cut, they perfectly fit into one another thereby forming an air-tight building. Such a structure would reduce the energy required to heat and cool the building.
- 8) Mass timber buildings are one of the earthquake resistant structures. They are able to withstand seismic activity much better by 20 to 30 percent due to their elasticity than cement buildings which crack and demolish.



SOURCE: gsd.harvard.edu

Simulation of stacked boxes to understand the tectonics of mass timber

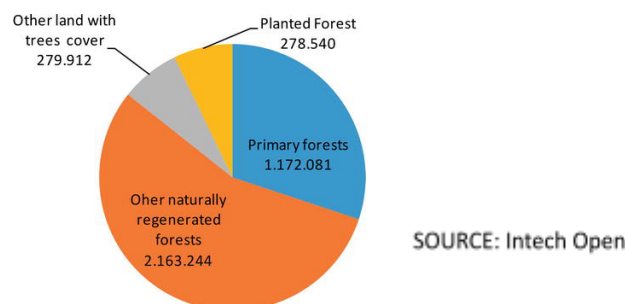
- 9) Convention has it that “wood is highly inflammable’. However, compressed wood such as mass timber is nearly extremely difficult to ignite. This is because in case of fire, the outermost layer of the mass timber gets charred that in turn shields the interior. This is contrary to steel, a commonly used material in the construction of buildings, which on reaching a certain temperature, starts acting in a highly unpredictable manner, almost tearing down the entire building.
- 10) The look and texture of wood has a high aesthetic value. A wooden interior has a beautiful tone, a subtle pine smell and rich acoustics. Moreover, the concept of need-based, off-site production provides innumerable design options, for all purposes.

SUSTAINABILITY OF THE PROJECT

The forestry management part, makes the sustainability of the project stand questionable. The mass timber products are made by glueing together stacks of lumber. Hence, in order to produce mass timber products, logging of trees is inevitable. However, abiding by the sustainability mission of The Wood Storey Company, research proves that the actual answer to sustainable forest management lies in the question, *which trees are you cutting down, and how are you cutting them down?*

In the current times, there seems to be only 2 ways around the problem of greenhouse gas emission and climate change. One is to preserve forests which would help store CO₂ and the other approach would be to use wood to make products that would substitute materials responsible for greenhouse gas emission. The demand for the construction of infrastructure has and will grow exponentially in lieu of the forthcoming years. Hence, the first solution of preserving and maintaining the present forest cover yet increasing the amount of products responsible for carbon emissions, would not be able to combat climate change.

Coming to the second option, according to the FAOSTAT estimate, the world is harvesting forests and wood at an average of 0.9 m³/ha. The growth rate of many of the forests in the world is much higher than this rate. Moreover, research has discovered that only 17% of the world’s forest area is covered by planted forests but these planted forests grow 41% of the amount of wood globally harvested. Hence, it is highly likely that the world can sustainably harvest much more than the current rates, as long as the harvesting rate is less than the growth rate.



Moreover, forest restoration programs around the world are aimed at selective removal and thinning of the crowded forests. Such programs produce large amounts of small-diameter logs which have very low market value and use. The mass timber product production is sustainable as it has the ability to put these small-diameter trees to use, which usually end up being used as firewood, thereby contributing even more to greenhouse gas emission levels. Moreover, the removal and use of these thinner logs of timber helps

improve forest health, and decrease forest mortality rates. Also, these thin trees act as fuel for wildfires. These forest-fires are a major cause as well as effect of climate change.

Overall, the use of mass timber helps in sustainable forest management, forest restoration, reduce the risk of wildfires, improve forest health, combat climate change all while creating high-quality and sustainable products and buildings.

*Also, in order to protect the wood used in the mass-timber buildings from damage induced by excessive water, waterproof adhesives such as Polyurethane adhesives (PUR) or phenol resorcinol formaldehyde (PRF) adhesives are used in the production of cross-laminated timber, glulam etc.

MARKETING AND ANALYSIS

INDUSTRY

The Wood Storey Company would be a part of the Manufacturing as well as the Construction industry. It would be manufacturing building material and partnering with architects to construct buildings using the manufactured products.

TARGET AUDIENCE AND POTENTIAL INVESTORS

The prime target audience for The Wood Storey Company's services and products are:

- 1) Prime construction and building companies willing to switch to sustainable construction material
- 2) Young millennials interested in unique, modern, aesthetic and sustainable houses
- 3) People/companies:
 - (a) Willing to establish infrastructure in cramped urban spaces
 - (b) demanding quick and hassle-free construction
 - (c) interested in undertaking a low-budget project
 - (d) wishing to establish infrastructure on land unsuited for conventional building material
 - (e) willing to establish buildings in high-seismic zones
- 4) Governments wishing to undertake restoration and thinning of forests (a very budget intensive process)
- 5) Tech giants and Climate change organisations interested in funding and providing stipends to sustainable and zero emission ideas, products and services. An example of this is Breakthrough Energy, an initiative by Microsoft.

MARKET SEGMENTATION

1) DEMOGRAPHICS

The products and services provided by The Wood Storey appeal to all ages, genders and economic sections of the society. This is because the design and layout of the infrastructure is highly customisable and can attract people of all age groups and genders. Moreover, the product and services provided by The Wood Storey company can be produced or carried out on any specified scale and relatively economical than its market competitors.

2) GEOGRAPHICS

The mass timber products are manufactured at the Wood Storey factories which are established in 5 states in the USA, 3 in the UK, 1 in Japan, 1 in India and 2 in Australia. The mass timber buildings can be constructed in any country (transportation charges apply) regardless of the relief, topography and climate as the construction material used by the company is highly versatile and adaptive. Additionally, the mass

timber buildings being constructed by the company perform well in high-seismic regions, regions with extreme temperatures and land unsuitable for heavy construction material.

3) PHYSIOGRAPHIC

The products and services of The Wood Storey company appeal to people who are interested in:

- a) sustainability of products
- b) aesthetical and beautifulness of products
- c) fast, well-structured and economical services

Our products and services suit people who are environmentalist and are in search of creative, innovative, minimalist yet ravishing and futuristic products.

MARKETING AND SALES

The market for engineered wood products is on the rise, almost expected to reach \$9 trillion by 2060. Hence, current market research and analysis show a spurt in sales.

In order to attain even high marketing and sales numbers, the company would advertise its mass-timber kit as the complete set of components required to build a structure that is stronger, lighter, more sustainable than any of the conventional buildings, and customisable to an extent that architects and structural designers could earlier only dream of.

The company would appeal to the conscience of people by largely advertising the sustainability of the product/service, how immensely beneficial it would be to the environment and the great extent to which it would add to attaining the global goal of zero emissions. Moreover, the waste reduction aspect of the process would also be used to make the sustainability of the project convincing to the investors/ funders/ contractors.

Moreover, the question regarding the forest management would be addressed via the marketing strategy of the company by laying emphasis on the benefit of the product/service on forest management, forest health, thinning and restoration process.

Also the other advantages of the product/service such as the speed, economic feasibility, modern yet aesthetic design, strength, versatility, temperature control, lightness and preciseness would be stressed upon by the company's marketing strategy.

The product/service shall be advertised "as humans last chance at sustainable building".

FUTURE OF THE COMPANY

Over the next 20-30 years, according to research the number of buildings in both urban and rural settings is going to quadruple. With our ever increasing population, the demand for newer and better infrastructure is only going up. Moreover, over the next few decades, the world hopes to address the global issue of carbon emissions and achieve its goal of zero emissions. In lieu of all the above stated facts, there should be an increasing or at least constant need for sustainable infrastructure and construction material.

In terms of the raw material required for manufacturing i.e trees, if the company succeeds to keep its harvesting rates below the natural growth rate and follow the virtuous cycle of harvesting---growing---harvesting, there should be no dire of raw materials. Also, as the raw material of the product/service of the company is a renewable resource, there is no threat of exhaustion.

Moreover, as the kit of components and the structural designs creatable are highly customisable, the company's products and designs would be able to keep up with the changing trends, topography and climate.

In terms of the future aspiration of the company, The Wood Storey hopes to extend its market segments into other constructional projects such as bridges. Also, in the long run, The Wood Storey company wishes to completely shift the construction material from cement and steel to mass timber.