

GreenFirst Forest Products

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Re-Imagining Lumber

Climate change is defined as the long-term change in average weather patterns. Scientists measure this phenomenon through temperature changes. Earth's temperature has been increasing. The average surface temperature has risen over 2° Fahrenheit since the late 19th century—with most of this increase occurring over the past 40 years.¹ Ocean temperatures have increased as well. The primary culprit for the rise in temperature is increased heat trapping greenhouse gases or carbon dioxide (CO₂) in Earth's atmosphere. Increased CO₂ is driven by natural and human driven processes.

The National Aeronautics and Space Administration (NASA) believes that the probability that humans are driving climate change is greater than 95%.² CO₂ produced specifically by fossil fuels can be measured. Since the mid-20th century fossil fuel use has increased dramatically in tandem with the biggest increase in the world's population in human history. By 2050 the human population is expected to reach 9.7 billion people from ~7.7 billion today.³ An increasing population requires increasing amounts of residential and commercial buildings and infrastructure—all of which point to increasing amounts of CO₂.

Nations have responded to climate change through policy initiatives. The most notable of which is the Paris Agreement signed in 2016, which set a global goal to reach net zero emissions in the second half of this century. Net zero emissions refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere. The Paris Agreement was ratified by 195 countries in 2019. Several countries have set a goal of net zero emissions by 2050 including the United Kingdom, South Korea and Canada.

Reaching net zero emissions will require significant changes in how people interact with the environment. Each major source of CO₂ emissions will need to be evaluated and mitigation solutions will have to be deployed.

A major area of CO₂ emissions are buildings and building construction, which together account for an estimated 39% of the world's CO₂ emissions.⁴ Of the 39% approximately 28% comes from energy used in existing buildings. The remaining 11% comes from building materials and the construction process. Population increases and accompanying infrastructure needs point to building construction as a significant CO₂ source in the future.

There is a solution to help mitigate CO₂ emissions in the building process—wood. Wood is grown naturally and is the only major building material that stores carbon, both as it grows and after it is used in a building. Steel and concrete, on the other hand, require significant amounts of fossil fuel-based energy to produce and do not store carbon. Wood also weighs less than steel, requiring less energy and ultimately less CO₂ to ship from one destination to another.

Building projects can benefit by using wood. Advances in cross laminated timber (CLT) or “mass timber” technologies can create materials with strength on par with that of steel. CLT refers to engineered wood products that are laminated from smaller boards and material. An increasing number of buildings are incorporating wood as their primary building material.

Wood has additional benefits. Historically wood construction is cheaper than steel and concrete. One- to four-story office buildings built using lumber can cost 20% to 30% less per square foot than non-wood counterparts.⁵ Wood construction tends to be faster. And wood can be used year-round versus building materials such as concrete, which can only be poured within a certain temperature range.

Our Team



Rick Doman

- Entire 46-year career in the lumber industry
- 1974–2004: Doman Industries (currently Western Forest Products)
- 2001–2004: President and CEO, Doman Industries
- Founder of Eacom Timber
 - 2008 purchased idled sawmill in Saskatchewan
 - 2010 purchased sawmill assets of Domtar Corporation
 - 2013 sold to Kelso & Company
- 2014–2020: forest products analytics & research for a major Canadian financial institution



Paul Rivett

- 2004–2020: Fairfax Financial Holdings (FFH: TSE), President from 2013–2020
- Instrumental in numerous corporate acquisitions, investments and turnarounds
- Experience in acquisitions and financing of forest products including Tembec and Eacom Timber
- Previous board member of forest product sector firms Resolute Forest Products and Abitibi Bowater

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Increasingly, architects and engineers are using Life Cycle Assessments (LCAs) to measure the environmental impact of material choices. LCA studies show that “wood buildings require less energy, from resource extraction, through manufacturing, distribution, use and end-life-disposal, and are responsible for less greenhouse gas emissions, air pollution and water pollution than buildings made from other materials.”⁶ LCA is defined under the International Organization for Standardization (ISO) 14040 and 14044 and is a scientifically based method for evaluating the lifetime environmental impact of products and materials—including buildings.

LCA can count as credit under the LEED system. LEED stands for Leadership in Engineering and Environmental Design. The LEED system is the most widely used green building rating system in the world. In addition, LEED has a program called the Alternative Compliance Path (ACP), where builders and architects can use certified wood and paper products to earn LEED points and qualify for a green building rating. Wood must be from legal and responsible sources and a portion of the wood must be certified by one of a host of organizations including the Sustainable Forest Initiative (SFI) and The Forest Stewardship Council (FSC).

By-products of the lumber production process can be used to help mitigate carbon emissions. Biomass is a by-product of sawmills. Biomass can be used for bioenergy to generate electrical and thermal heat which can be used to support the lumber production process. On average, the U.S. and Canada forest industries generate from 60% to 65% of their energy needs from sources other than fossil fuels—biomass is commonly used by the forest industry as a clean source of energy.⁷

The threat of climate change has prompted a rethinking of how humans interact with the planet. Policy response, while still relatively early, appears to be headed in the direction of curbing greenhouse gas emissions. A goal of net zero emissions in the second half of this century has been established and many countries have committed to meet this goal. Anticipated population growth means increased building and infrastructure needs. Finding a way to curb emissions related to building materials and the construction process is one step toward reaching these goals. Wood as a building material has seen engineering advances that make it equivalent to steel and concrete in most building scenarios. And from a CO₂ standpoint, wood is a superior choice as it is the only building material that stores carbon. In addition, by-products of wood can be used as clean sources of energy, further mitigating greenhouse gases in the atmosphere. When sustainable forestry is practiced, wood is truly a renewable resource. GreenFirst Forest Products supports sustainable forestry and intends to operate using wood from FSC certified sources. Sustainability is a key component of GreenFirst’s long-term success. 🌱

End Notes

1. Global Climate Change: Evidence. (n.d.). NASA. Retrieved December 9, 2020, from climate.nasa.gov/evidence
2. Global Climate Change: Evidence. (n.d.). NASA. Retrieved December 9, 2020, from climate.nasa.gov/evidence
3. Population. (n.d.). United Nations. Retrieved December 9, 2020, from un.org/en/sections/issues-depth/population
4. New report: the building and construction sector can reach net zero carbon emissions by 2050. (2019, September 23). World Green Buildings Council. worldgbc.org/news-media/WorldGBC-embodied-carbon-report-published#_ftn1
5. McLain, R. (2018). Getting Down to Business: The Cost / Value Proposition of Timber Offices. WoodWorks. woodworks.org/wp-content/uploads/presentation_slides-MCLAIN-PART-1-The-Cost-Value-Proposition-of-Timber-Offices-AIA-2018.pdf
6. Wood and Carbon Footprint. (n.d.). American Wood Council. Retrieved December 9, 2020, from awc.org/pdf/greenbuilding/Wood_Products_And_Carbon.pdf
7. Tackle Climate Change—Use Wood. (2017). Forest Products Association of Canada. fpac.ca/wp-content/uploads/Tackle_Climate_Change_ENG-Web.pdf

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