

Sustainable wood for a sustainable future

Andrea Stocchero

Sustainability Architect and Portfolio Leader, 'Trees for High Value Wood Products' at Scion.

Andrea.Stocchero@scionresearch.com

The New Zealand housing sector is in the quest of finding solutions to quickly deliver higher quality, more affordable, healthier and low carbon emission homes. Those challenges align with New Zealand's efforts to achieve the United Nations Sustainable Development Goals, including Climate Change mitigation, fighting resources depletion, and delivering intergenerational wellbeing.

There is the opportunity to address many of those challenges simultaneously when maximizing the use of sustainably sourced locally grown and manufactured wood products to build our future homes and communities. What if we could hit many birds with one 'stone'?

Wood is a performing material which is already manufactured in New Zealand into a variety of high-quality construction products, including structural elements, exterior and interior finishes, and it could also be manufactured into insulation products. Through quality design & construction it is possible to build resilient homes that are healthy and safe to live in, that are aesthetically appealing and provide life time affordability, that minimize impacts on climate and the natural environment while improving people's quality of life and well-being.

Wood is a renewable material that can be sustainably grown, harvested and replanted, instead of being irreversibly extracted from land. New Zealand's sustainably managed planted forests are ongoingly regenerating this resource.

Trees and forests are known to be one of the natural solutions to mitigate climate change thanks to their capacity to sequester carbon dioxide from the atmosphere and storing it in the forest biomass. Using sustainable wood in construction allows to extend the carbon storage from the forest to the buildings. And while buildings are erected and lived replanted trees will continue the carbon sequestration process in the forests. Building with sustainably sourced wood can be a 'carbon pump', carbon capture and storage system contributing to fight climate change. In addition to this, wood products have typically lower manufacturing, transport and construction greenhouse gasses emissions compared to alternative materials. This is an effective approach to maintaining our development capacity while reducing the impact on climate.

However, sustainably managed productive forests are more than renewable source of biomaterials. They contribute to cleaner waters and air, they are ecosystems supporting biodiversity on land and they provide social and economic benefits to local communities.

Wood is a material provided by nature and crafted by people. Using wood in construction support an integrated value chain that spans from forestry, wood products manufacturing, building design and construction, waste management, energy production, logistics and transportation, including research & development and support services. This provides employment opportunities for all genders, ages and levels of qualifications, in both rural and industrialized areas.

New Zealand innovations in wood modification and wood product manufacturing are leading towards higher performance engineered wood products (EWPs) and modified wood products that can replace for non-renewable materials that can be used in combination with wood only when necessary. Prefabrication and digital manufacturing with wood offer speed of construction, waste minimisation, construction precision and quality control. The availability of EWPs and innovative wood-based construction technologies has resulted in the development of increasingly taller and bigger timber buildings, which healthier, safer, more sustainable and pleasant to live in.

In conclusion, building with sustainable, locally grown wood can help address multiple dimensions of our housing challenge, including climate change mitigation, while contributing to intergenerational wellbeing in Aotearoa New Zealand. This is thanks to:

New Zealand's sustainably managed planted forests provide on-going carbon sequestration and ecosystem services while regenerating raw materials for current and future generations.

New Zealand manufactured wood products that can substitute for carbon-intensive and non-renewable materials and store carbon for long-term.

New Zealand has an established forest and wood products sector and is home to world leading timber innovation and design.