

Benefits of Wool in Construction

Construction Procurement Guidelines

October 2019

Sustainability benefits of using wool in construction

This is a summary of some of the benefits of using wool in construction, provided by the Ministry for Primary Industries, incorporating industry feedback.

- Wool as a building and/or furnishing material can meet several sustainability criteria.
- Compared to the synthetic or petroleum-based textiles used in construction, wool is a natural product that is less toxic, and fire retardant. Wool is an available resource that is biodegradable and easy to dispose of.
- The natural qualities that wool has allow it to dampen sound and absorb pollutants. As wool grows, it absorbs carbon dioxide from the atmosphere¹.
- Woollen carpets regulate humidity, are hypoallergenic (unlikely to cause an allergic reaction) and perform better than synthetics in smell and staining tests. Woollen carpets regulate humidity by absorbing moisture when the air is moist and releasing it when the air is dry, creating a more comfortable built environment, that is warmer in winter and cooler in summer.
- Wool is a very effective insulator, suitable for thermal and acoustic building insulation². Wool has evolved to keep sheep comfortable, often in extreme conditions. Sheep wool insulation is safe, eco-friendly and energy efficient³. New Zealand's Energy Efficiency Conservation Authority supports wool products that meet their efficiency criteria and enable warmer homes.
- Wool is ideal for structures made from wooden frames, as the wool has a natural synergy with timber. The fibres in the material draw out moisture, which conditions the wood and protects the building's materials⁴.
- There are opportunities in new technological applications of wool, such as the New Uses for Wool Partnership Programme, which is a collaboration between MBIE and Wool Industry Research Ltd. The research looks at effective ways to deconstruct the fibre and reconstitute it in a range of useful forms⁵.
- Wool is a readily available resource, and there is an abundance of wool available in New Zealand. New Zealand produces 140 million kg (greasy) of wool each year⁶. Choosing New Zealand-manufactured wool products reduces imports and supports regional economic development.

¹ <https://arch5541.wordpress.com/2012/11/25/wool-in-architecture/>

² 2015, 'Sheep wool for sustainable architecture' Daniela Bosia, Lorenzo Savio, Francesca Thiebat, Alessia Patrucco, Stefano Fantucci, Gabriele Piccablotto, Donatella Marino <https://www.sciencedirect.com/science/article/pii/S1876610215023826>

³ <https://www.sheepwoolinsulation.com/where-to-use/who-is-sheepwool-for/#professional>

⁴ <https://www.koruarchitects.co.uk/natural-insulation-benefits-sheeps-wool/>

⁵ <https://www.mbie.govt.nz/science-and-technology/science-and-innovation/funding-information-and-opportunities/investment-funds/partnerships/successful-2018-proposals/success-stories/>

⁶ Ministry for Primary Industries Economic Intelligence Unit