

Busting myths about timber construction

According to Dr Brand Wessels, chairperson of the Department of Forest and Wood Science at the University of Stellenbosch, the most common myths that circulate among the general public and even the professional trade about timber as a building material include: that using trees to manufacture products is not environmentally responsible; that wood structures are not as structurally safe and durable as steel and/or brick and mortar structures; and that wood structures are an obvious fire hazard.



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Plantations, not natural forests

The notion that using trees to manufacture products is environmentally irresponsible is related to perceptions around deforestation of natural forests. “There is a distinct difference between harvesting timber from sustainable and well-managed plantations and the deforestation and degradation of natural forests that should be protected. In South Africa, we use timber grown in responsibly managed plantations, which are like working factories with the sole purpose of growing timber in a controlled environment for the market. Managed by reputable bodies like the Forest Stewardship Council (FSC), these plantations are operated in line with the highest standards for ensuring sustainability,” says Dr Wessels.

Did you know? Recent studies show that [tree planting and forest restoration are the most cost-effective strategies](#) with the greatest potential of combatting global climate change.

Dr Phillip Crafford et al. recently published their findings on the role that timber can play in reducing the environmental footprint of the built environment. The study, titled ["The potential of South African timber products to reduce the environmental impact of buildings"](#), compares several roof truss systems of varying materials using a simplified life cycle assessment (LCA) approach. The study concludes that the timber roof truss systems showed a lower environmental impact across the board and “demonstrates the potential advantage of using local timber products to reduce the environmental impact of the truss and building industry in South Africa”.

Strength and durability

Contrary to the misconception that timber structures are not structurally safe and durable, timber has a higher strength-to-

weight ratio than either steel or brick and mortar. “This misconception may be linked to perceptions around low-cost, poorly built informal housing of wood,” says Dr Wessels, adding, “To the contrary, in some applications, such as for housing in earthquake-prone areas, wood is preferred above other materials. There are structures that are 1,200 years old in Japan (an earthquake-prone country), which attest to the material’s durability and strength. As with any other material, a well-designed and built wood structure will last a lifetime; conversely, a poorly designed and built structure – of any material – will not endure.”

According to Amanda Obbes, general manager of the Institute for Timber Construction South Africa (ITC-SA), timber frame construction is a standard construction methodology under the National Building Regulations (NBR), which [provide the necessary building codes](#) for the manufacture and construction of safe, legal and durable structures that are built to standard.

Timber under fire conditions

According to the ITC-SA, structural timber for roofing is both commonplace and performs well under fire conditions. As with every aspect of building, timber roof trusses must be manufactured and erected in line with the National Building Regulations and SANS 10400, which provide for fire safety. Building regulations, set in place by bodies such as the South African Bureau of Standards (SABS) after extensive research and consultation with industry experts, consider all aspects of a given building material’s composition and properties to ensure that it meets the same safety and performance standard as any other building material in the same application.

Dr Wessels notes that the misconception of wood being a fire hazard is a complex issue with roots in the informal housing market and our use of wood as fuel for fires. Used in small dimensions, not built to code and surrounded by and containing other potential fire hazards, such as is the case with many informal houses, this type of structure should of course be considered a hazard to human life and unfit for habitation. “But formal housing structures and even multi-storey wood structures can perform as well as any other material would under fire conditions,” says Dr Wessels. In some cases, such as wood beams with large dimensions, wood will even outperform competing materials, like steel, due to its slow charring rate in fires.

Setting the record straight a matter of urgency

Rising carbon emissions, our newly ‘upgraded’ climate emergency, environmentally savvy consumers and governments looking to make better-informed decisions about the environment form part of a collective global call for materials and methodologies that will respond with agility to an environmentally conscious future.

According to Werner Slabbert, director of Eco Log Homes, “Local government is facing unprecedented pressure to make important climate change-related decisions. According to a [recent report by the World Meteorological Organisation](#), the past four years were the warmest on record and extreme weather impacted lives and sustainable development on every continent. Formulating ways to develop cities and communities in an environmentally responsible way that also integrates adaptation for climate change is now of the highest importance,” he says.

“Timber frame construction, with the research to back it, responds exceptionally well to these pain points in our environmental and political climate,” says Dr Wessels. “Leveraging the environmental benefits of wood, including carbon sequestration, oxygen production, lower transportation emissions, faster construction time and a much-reduced HVAC burden, is becoming increasingly crucial in the light of accelerated climate change, making it imperative to lay to rest these common misconceptions about timber construction,” he adds.

Knowledge is power

Consumers today have more information available to them than ever before, but with it comes an ever-increasing need to engage with it responsibly and critically. Likewise, industry has a duty to share information in a responsible and ethical manner, not only to protect their reputation, but to safeguard the consumer.

“Unfortunately, consumers are often on the receiving end of dubious information from organisations with commercial interests in products, and it is becoming more important that independent bodies, like universities, standards organisations and research organisations verify claims, especially those pertaining to the environment,” Dr Wessels notes.

“Methodologies such as life cycle assessments have developed to a point where very comprehensive comparisons can be made between materials, products and processes to verify their environmental impact. Consumers need to be wary of claims made by anyone with commercial interest in products unless these claims can be supported by independent evaluations; it is the consumer’s right to request this evidence, especially when they are using this information to inform big investments, like new builds, retrofits and renovations,” he adds.

“While common misconceptions about timber construction play a role in preventing both the consumer and the trade from harnessing its manifold benefits in the construction arena, there are positive signs that the general public and the trade are showing increasing confidence in the material,” says Obbes, concluding, “Members of the general public and the trade are encouraged to call on the ITC-SA, a non-gain organisation (NGO) and South Africa Qualifications Authority (SAQA) accredited professional body for the engineered timber construction sector, for information, advice and support in their quest for a better built environment,” she concludes.

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