

By Colin Barkus, Principal Writer

Waste wood woes

Far too much timber building waste ends up in landfill. BRANZ and its industry partners are tackling this complex problem on several fronts.

The statistics are stark – and well documented. Construction and demolition waste makes up 40–50% of all waste going to landfill in Aotearoa New Zealand, and around 20% of that is timber.

‘Many in the sector acknowledge the problem and urgently want to do something about it,’ says Dr Casimir MacGregor, who leads BRANZ’s sustainability and zero-carbon research programmes.

‘But while options for reusing or recycling waste timber exist, they’re not well known and the perception is that it’s easier, cheaper and faster just to dump it.’

Why does it matter?

All construction waste comes at an environmental, financial and social cost.

Dumped timber can exact a particularly high environmental price. Much of it is treated with chromated copper arsenate (CCA) – a chemical preparation that preserves the timber but can be harmful to human and environmental health if the timber is burned or the CCA leaches out.

‘Almost all waste timber gets tossed in the skip because most builders know that CCA-treated timber can’t be recycled or burned – and it can be difficult to



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determine on site what’s CCA-treated and what’s not,’ Casimir says.

Furthermore, construction waste causes significant greenhouse gas (GHG) emissions. It’s estimated that landfills are responsible for 4% of Aotearoa’s total GHG emissions, and timber’s contribution to that figure is still being assessed. Recent research led by Massey University highlighted how carbon emissions from timber vary significantly depending on when in its life cycle it is removed from

use and placed in landfill. There’s still much more to learn.

In direct financial terms, there’s the cost of transporting waste to landfills and operating and maintaining those landfills as well as the cost of manufacturing and buying new products when existing materials might be suitable for reuse.

Social costs include noise, dust and traffic pollution as waste is transported as well as the possible detrimental health effects of hazardous or nuisance waste.

Is there an answer?

'There are steps you can take to manage waste timber – not all of which involve additional costs. In some cases, where timber can be reused, cost savings will occur,' says Casimir.

Sort it first

Sorting waste timber on site is an essential first step. The range of treated and untreated timber products typically used on our building sites includes framing, cladding, interior fittings and linings, engineered timber products (for example, MDF, fibreboard and particleboard), joinery, panels, pallets and packaging.

'Finding the space on a crowded building site to separate timber types can be challenging, but often small, inexpensive containers will work well,' Casimir says. 'It can also be tricky to keep track of what goes into each pile or container, so BRANZ has developed signs that builders can use to label different waste piles or containers on site.'

The signs are free to download and – reflecting the diverse nationalities working in our building industry – bilingual. Language options currently available are English and Māori, English and Samoan, English and Tongan, English and Tagalog, English and traditional Chinese and English and simplified Chinese. In addition, a template allows builders to create their own signs based on the specific needs of a project. Use the QR code below to view and download the signs and template.

'Another challenge is that it can often be difficult to determine by eye whether waste timber is treated or untreated – particularly if the timber has weathered,' Casimir adds.

'BRANZ recognises this and has recently researched technologies that might help.' (See sidebar: What lies within?)

What can be reused?

After sorting, knowing what to do with different types of timber waste is key:

- Untreated timber – keep any lengths greater than 600 mm for reuse. Collect all types of untreated timber without finishing (paint and varnish) that are not good enough to reuse, then burn, mulch or recycle them.
- Treated timber – reuse lengths greater than 600 mm (or 450 mm if this is the spacing between studs in the structural framing of your project).
- Engineered timber products, trellis and other timber products – reuse or recycle panels larger than 0.5 m².
- Treated or untreated heavy timbers and posts – reuse.

Inevitably, some timber building waste won't be suitable for recycling or reuse.

A growing number of facilities around the country now accept, sort and recycle building waste. BRANZ has developed an interactive resource recovery map (part of its REBRI waste management toolkit) to help builders find their nearest facility and identify which materials they can drop off.

More research needed

Casimir says that more research is needed to acquire knowledge and develop strategies to address the timber building waste problem. BRANZ has funding available for a new research scholarship in this field – interested candidates should contact casimir.macgregor@branz.co.nz ◀

FOR MORE

View and download bilingual waste sorting signs ▶



What lies within?

A recent research project looked at the suitability and effectiveness of various techniques and technologies for identifying treated and untreated timber.

The simplest technology of all – the eye – is convenient when timber is new or has been exposed to the elements for only a short time. Colours, markings or tags on the surface of timber can be used to differentiate CCA-treated samples from untreated samples or samples treated with other preservatives.

When these instant visual cues aren't available, chemical solutions can be applied that indicate the presence of specific metallic components by displaying different colours on the surface of the timber. Efforts are now being made to improve their efficiency and accuracy, particularly on timber that is highly weathered, treated with low levels of preservative or recovered in large quantities from complex or unknown sources.

Techniques using X-ray fluorescence spectrometry, laser-induced breakdown spectroscopy or near-infrared spectroscopy can identify the type and quantity of various elements present in timber – even at very low concentrations. These techniques are showing promise overseas for fast, cost-effective in-line sorting of timber waste. However, significant improvements in their accuracy and a thorough analysis of their commercial feasibility are required before they are likely to be seen at timber waste disposal and recycling facilities here.