

By Dael Climo, BRANZ Build Deputy Editor

Global piece

We take a look at what's happening internationally, from high-rise timber buildings to design and materials innovations.



THE CONTINUING development of engineered timber products such as cross laminated timber (CLT) is seeing increased interest in the possibilities for multi-level timber buildings.

Timber going high-rise

In 2013, the world's tallest timber building opened, the 10-storey Forte apartment building in Melbourne. Other projects are under way in Canada and Scandinavia.

Now, the US Department of Agriculture (USDA) has flagged a \$US1 million competition to design and build high-rise timber demonstration projects and plans to train architects, engineers and builders in the use of advanced timber products.

New rating tools

The scope and number of building rating tools continues to rise. In Australia, the Green Building Council of Australia has asked industry for feedback on its new Green Star - Design & As Built tool that will assess

most buildings' uses, apart from single-unit dwellings, due for release late this year.

In the US, the longstanding Leadership in Energy and Environmental Design (LEED) rating tool is facing new competition with the launch of Green Globes, touted as a simpler, less expensive alternative. Green Globes has been accepted by the US General Services Administration as a green building certification system - along with LEED and the Living Building Challenge - meaning it can be used for Federal projects.

Robotic assistant

In the cool stuff category, Australia's *Architecture and Design* site reports that South Korean architectural designer Han Seok Nam is developing a robotic machine that will allow architects to print digital CAD plans straight onto the ground.

The machine, called Archibot, will have sensors that detect where objects such as doors and walls need to be built and will print construction documents in a 1-1 scale straight onto a site. Errors made when people interpret information from construction documents could be significantly reduced with mistakes easily detectable in the life-sized printout. Archibot has been patented.

Concrete advances

Architecture and Design also reports that civil engineers at the University of Wisconsin-Milwaukee are developing a water-repellent

concrete mix that, it is claimed, will last for over 50 years with little or no maintenance.

Called superhydrophobic engineered cementitious concrete (SECC), the new material consists of superhydrophobic additives based on siloxane, a compound that forms the backbone of silicones, mixed with superfine powders. The result is a microscopic spiky surface that prevents the normally porous concrete from absorbing water and creating cracks.

Another advance in concrete technology comes with the addition of optical fibre to the material to generate translucent concrete. The see-through result is challenging the perception of concrete's opaque mass. Translucent concrete also achieves ultra-high strengths without the need for coarse aggregates.

Thermal-friendly foam

A research project under way at Germany's Fraunhofer Institute is working on an advance in thermal insulation, developing insulation foam made from wood particles that could replace petrochemical plastics.

Grinding wood very finely until the tiny wood particles produced become a slimy mass creates the foam. Gas is then added to this suspension to expand it into a frothy foam that is subsequently hardened.

Researchers are now working out what wood would make the best foam and ways to mass produce the product. ◀