

The background of the cutting edge technology that increases the productivity in the construction industry, while maintaining a sustainable future

Manufacturing bricks involves firing clay in kilns, a highly energy inefficient process that also releases many kinds of air pollutants, such as sulphur dioxide and particulate matter, to the atmosphere. However, bricks are still used in the construction industry due to their high compressive strength, fire-resistant and sound insulating properties. A new eco-friendly process of building walls with superior qualities has been developed by the National University of Singapore (NUS), and is being employed for use in Singapore's construction industry. The NUS technology to produce this product has been exclusively licensed to GreenCast Pte Ltd, which is marketing it as the GC ecoWall/Block. The GC ecoWall/Block was showcased at BEX Asia 2012.

The NUS technology for the GC ecoWall/Block involves an optimal extrusion technique for creating hollow core walls, which are cost-effective, lightweight and high-strength. These can be used for non-load bearing walls. One of the raw materials for these hollow core walls is recycled concrete from old buildings, which is crushed, filtered, mixed and squeezed to form new panels. The extrusion technique produces hollow core wall panels, with a homogeneously, well-compacted cross section. The technology was first developed in 2005 by a research team from the NUS Department of Civil Engineering, led by the late Professor Wee Tiong Huan. The team received an R&D grant from the Building and Construction Authority (BCA) of Singapore to develop this technology, which was patented by NUS in 2006.

GreenCast has supplied the GC ecoWall/Block to about 30 sites around Singapore, including residential, commercial and industrial building projects. As the GC ecoWall/Block is a pre-cast wall, it is lighter, easier and more efficient to install. From an environmental point of view, GreenCast has supplied/installed some 100,000 pieces of GC ecoWall/Block panels over the last year, which has replaced the need for 6 million bricks (saving energy and reducing air pollution) and saved some 8,000 man-days. In addition, the ecoWall/Block panels have recycled over 8,000 tons of concrete waste. With GC ecoWall/Block system, builders will enjoy better productivity, better buildability and better constructability, says GreenCast.

"We have been very pleased to be one of the pioneering users of the GC ecoWall, which we used in projects such as the Goodwood Residence and Sophia Residence. This played a key role in our winning the BCA's Green Mark Platinum Award, which is Singapore's top eco-building award," said Mrs Trina Loh, Group Managing Director, GuocoLand Singapore Pte Ltd.

"One of the most commonly found problems for hollow core panels are joint cracks. However, by leveraging upon this NUS technology, we are pleased to have solved this problem. GreenCast is a socially responsible corporation, and we want to play our part in reducing pollution and promote environmental sustainability in Singapore, which is why the GC ecoWall/Block solution is ideal. We have been getting positive feedback from developers, contractors, engineers and even the construction workers installing the walls", said Hong Boon Yoon, Chairman of Greencast Pte Ltd.

"NUS is encouraged to see the commercialization of this technology, which started its life within a laboratory setting, and is now applied to improve building processes, reduce construction costs and save the environment. The NUS Department of Civil Engineering has been researching on ways to improve the technology, and we are already in talks with GreenCast on upgrades to the ecoWall," said Ms Irene Cheong, Director, NUS Industry Liaison Office.

To learn more about Greencast's patented Compac™ Green Wall Technology, visit www.greencast.com.sg