

Tall timber for London

On a recent holiday to the UK, Andrew Dunn from the Timber Development Association was able to see the world's tallest timber building under construction.

Just north of the centre of London is the world's tallest modern timber residential building.

At nine storeys, it is the result of forward-thinking architect Andrew Waugh of Waugh Thistleton Architects and stands to set a new benchmark for timber construction.

Named Stadhaus, the 29-apartment building is constructed from cross-laminated solid timber. Each panel is made up of five layers of timber, making a material that could be compared to precast concrete in strength. In fact the concept in Australia is referred to as 'tilt-up timber' or 'precast timber panels'.

The solid timber panels are used as load-bearing walls and floors as well as stair and lift cores. Doors and window openings are cut into the panels during manufacturing and the panels arrive on site in lengths up to 9m.

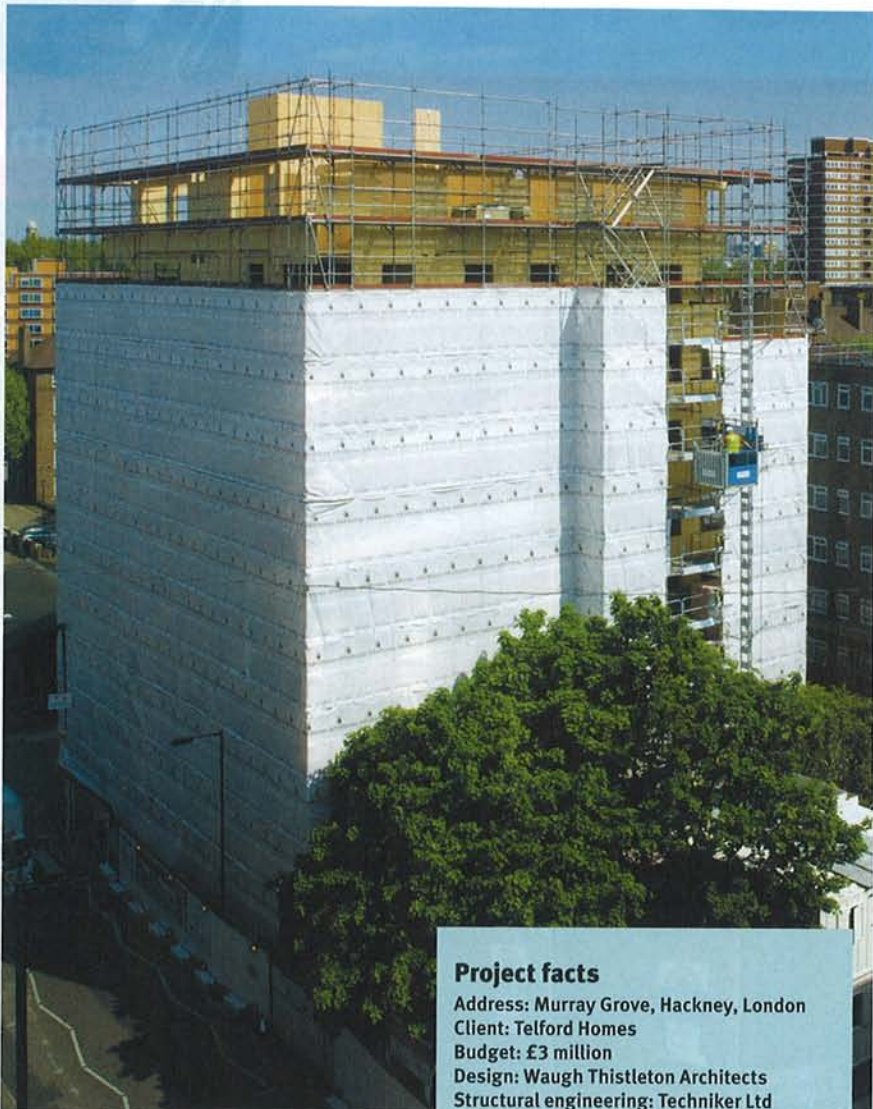
During a site visit one architect inspecting the project described the concept as "like concrete but better".

The client, Telford Homes, has included 10 'affordable' units on the lower floors. These units have their own access, adding to acceptance of the idea by clients buying the other units.

But why timber?

City of London planning regulations require a 10% reduction in carbon through onsite renewable energy generation.

To meet this requirement, Andrew consulted structural engineers at Techniker, who investigated the carbon to be stored in the wooden structure as well as the carbon implications of



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constructing the building in concrete.

The concept of carbon stored in wood is an extension of the photosynthesis process, which many of us learned about in school.

Plants and trees take in CO₂ and let out oxygen and water. What is not

Project facts

Address: Murray Grove, Hackney, London
Client: Telford Homes
Budget: £3 million
Design: Waugh Thistleton Architects
Structural engineering: Techniker Ltd
Consulting Structural Engineers
Supplier and builder: KLH UK
Wood products: Austrian spruce

generally understood is what happens to the carbon during this process. The carbon stays in the wood or plant fibre and continues to be locked in as long as the wood is intact, even when it is harvested.

Waugh Thistleton Architects

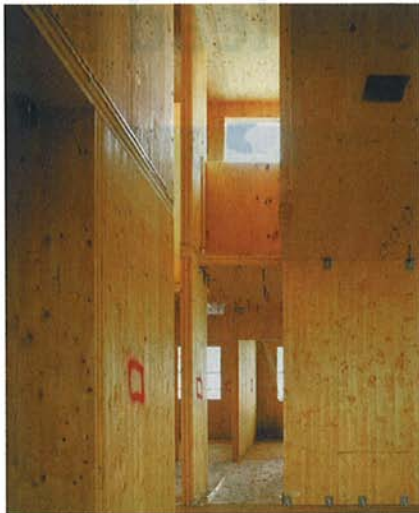
estimate the wooden structure of the building will store more than 180 tonnes of carbon. Moreover, by not using concrete, a further 125 tonnes of carbon is saved from entering the atmosphere.

The saving in carbon emissions in a building of this size is expected to be equivalent to 21 years of use.

“The construction of the building is breaking new ground,” Andrew says.

“The panels arrive on site and are immediately put into position using a mobile crane. The upper eight-storey timber structure will be built within nine weeks, dramatically reducing construction time on the site.

“The construction crew was another matter – there were only five people on site and they worked only three days a week. Each week another floor was added.”



The nine-storey building is constructed from cross-laminated solid timber. Each panel is made up of five layers of timber, making a material that could be compared to precast concrete.

As an added benefit, plumbers and electricians installing pipe supports and cable trays suspended under the floor did not have to worry about concrete dust or the time it took to install a fixing.

Using cordless drills, the job was done in a very short time. And because the panels have passage ways, cables and services were fed through easily.

Other savings in time and holding costs were achieved, as there was no need to build a basement to house plant for the renewable energy component.

“The overall cost was much the same as for a steel or concrete building,” Andrew says. “The client focused on the overall cost of the project, not individual elements.”

As a testament to the success of this approach, all the apartments were sold in 90 minutes. ■