mass timber

The latest thing to capture the imagination of architects isn't quite as familiar as it may first appear – this rendition of engineered wood *is* wood but not as you know it

FEATURE Keith Flanagan

Unknown Works used a kit of prefabricated structural panels in spruce CLT (cross-laminated timber) to craft this project

PHOTOGRAPHS (INSET) RORY GARDINER

You may not be surprised by the latest material sweeping through contemporary homes, because it's strikingly similar to one used in many of our oldest homes: wood.

Not just any wood, of course. Over the past several decades, an enhanced breed called mass timber – a broad term for engineered wood – has risen as the latest 'it' material for boldfaced sustainable architecture, ranging from office buildings to residential towers.

What makes mass timber unique? 'These products are all composed of different ways of bonding singular strips of wood together to create greater strength and resiliency than any natural log could ever achieve,' says Aaron Schiller, founder of New York's Schiller Projects, who recently completed a timber home across the pond. Fabricated into custom-sized panels and beams, timber is glued, nailed, or even dowelled together (the most popular variety is called CLT, short for cross-laminated timber). The resulting product is strong competition for conventional structural materials – with less environmental impact to boot.

Without question, sustainability is the overarching appeal. Mass timber is renewable, and importantly, produces less impact than concrete and steel during production. It also naturally sequesters and offsets carbon, and enables more energy-efficient homes thanks to thermal insulation qualities. And, since mass timber homes are often prefabricated, it reduces waste and lengthy construction schedules.

Where can you see it in action? Mass timber's green street credit has made the material a crowd-pleaser for new builds, and there's an ongoing race for timber skyscrapers achieving the 'tallest' superlative (like Waugh Thistleton Architects' new Black & White Building in Shoreditch, the tallest mass timber office tower in London).

The material is becoming a more viable option for homeowners, too — now that architects are more familiar with the detailing and construction process, mass timber is drifting into more modest architecture. In other words? All-timber, single-family homes are within reach. ➤

Spruce House and Studio by ao-ft

The extension of CLT House by Unknown Works was completed in just four days using spruce cross-laminated panels

Schiller Projects' Mass Timber House is the first single-family residence in New York to be built using these methods

'This knowledge has provided valuable know-how and confidence in the material and allowed [architects] to transfer it to smaller scale projects,' explains Zach Fluker, co-founder of London-based architecture practice ao-ft, who used mass timber in a recent design. 'This in turn has created more demand and resulted in smaller scale suppliers and installers.'

The latest example just planted roots in New York, where a renovated carriage house is a marvel of natural material. Using glue-laminated timber panels, it was prefabricated off site and required about 20-35% less building time compared to conventional concrete and steel. The process proved seamless, and the structure was up in just seven days.

Beyond its structural prowess, mass timber has also gained favour in the UK's robust industry of home extensions – suppliers like London's ConstruktCLT have seen an uptick, noting that timber additions are some of their most popular projects of late. 'With people choosing to improve their properties rather than move home they are choosing to be more adventurous and discerning when designing these new spaces,' says Jim Johnstone, director of ConstruktCLT. 'All of this and the speed with which we can deliver on site makes mass timber very appealing.'

Jim recently worked with studio Unknown Works on an extension for an east London project named CLT House that's true to form, its structure built with spruce cross-laminated panels. Left bare inside, but rendered in cheery yellow plaster on the exterior, it was assembled in four days flat – a small triumph with a speedy timeline.

All in all, mass timber tends to tick all of the boxes. Sustainable, efficient, and certainly attractive, sometimes the best materials are the ones we've had all along, and it seems that forward-thinking architects are starting to shout it from the rooftops. Did somebody yell... timber?

QUICK FACTS

We spoke with Jim Johnstone, director at London's ConstruktCLT, to get a breakdown of need-to-know facts...

How much does it cost? Prices vary greatly; approximately £50K per lorry with up to 50m3 of CLT (an average home extension is between one and two lorries).
Treatment requirements? None for regular maintenance; there may be requirements for fire retardants if the CLT is to remain exposed.
How durable is it? Very long lasting with quality installation and weatherproofing.
Does it swell over time? Incredibly stable; it does not swell like regular timber elements.
What kind of wood is it? The type of wood varies; ConstruktCLT sources Sitka spruce and Larch mass timber from Eastern Europe, Austria and Germany.
Any lead times? Four to six weeks for design (depending upon the final design and the focus of the client and their architect), plus six weeks for fabrication.

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