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Andrew Waugh Pioneers a Whole New Way to Build

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Andrew Waugh is a founding director of Waugh Thistleton Architects and one of the leading advocates of the use of engineered timber and offsite construction. From cinemas to synagogues, Waugh's award-winning designs are championing the cause of low-carbon construction. His use of new technologies and innovative methods of construction have seen the design of several award-winning projects including the pioneering Stadhaus for which he won the RIBA President's Medal for Research in 2010. Stadhaus was the first tall urban housing project to be constructed entirely from pre- fabricated solid timber.

Offsite Construction

Waugh is one of the leading proponents of the offsite manufacturing process. He supports cross-laminated timber (CLT) and offsite construction. After the CLT is made, it is machined in the factory with 5-axis CNC machines. This transforms the CLT into functional building components by cutting door and window openings and fabricating and finishing every aspect of the panel. Aside from the precision that is achievable in factory conditions, it means that all that is required on the job is assembly—turning ***construction*** sites into ***assembly*** sites. Waugh claims offsite manufacturing means buildings can be put up 50% faster than concrete structures.

"Building homes offsite speeds up delivery and reduces the impact of construction on the local area. Homes constructed out of engineered timber, using cutting-edge technology, are of a higher quality than those built using standard construction techniques, are better for the environment, as timber is a renewable resource and stores carbon, and are quieter and more energy efficient," says Waugh. "Prefabrication turns each construction site from a uniquely made commodity to a practised process. Each building will be made from a series of customized components, giving us the buildings we deserve rather than the ones we put up with!"

Sustainability

Wood is able to sequester carbon which helps to reduce the carbon footprint of the building and is a far more sustainable building material than concrete or steel. "Working with timber has obvious environmental benefits: it's replenishable, it's made of carbon and has a very low embodied energy," says Waugh. "…there is no other comparable technology that is made from a replenishable material. Trees soak up carbon dioxide from our atmosphere and release oxygen – the buildings we build are made from carbon. So timber not only has very low embodied energy, but also stores carbon. It also requires less energy to heat and cool [than a concrete building]."

Waugh claims that a hundred years of concrete has made his profession lazy. He wants architects to reimagine building materials, to experiment with materials as much as they experiment with design. "But what's happened is that the architect is no longer the master builder and for many years hasn't been involved in construction. So much so, that architects very rarely refer to themselves as being in the construction industry. They usually refer to themselves as being in the design industry," says Waugh. "It's a complete disambiguation from what, in essence, an architect should be doing. And also, in my view, what has happened is that architects have really refused to confront the issue of climate change. All they've done is put a solar panel on the roof, chucked in a bit more insulation and followed checklists (e.g. LEED)."

Waugh is excited about the prospect of timber products and offsite construction revolutionizing the building industry. "We will be building completely in timber by the end of the century," he says. "From an architectural standpoint, the really exciting thing is to see what kind of architecture this new material brings."

Tags: Andrew Waugh, CLT, construction disruptors, offsite building, offsite construction, sustainable building, timber construction, Waugh Thistleton Architects

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