

TALKING TIMBER



CONSIDER TIMBER TO TACKLE CARBON EMISSIONS

Tabitha Binding explains why we need to be embracing natural carbon capture mechanisms to help tackle climate change



The construction industry is responsible for producing 40% of anthropogenic greenhouse gas emissions (those caused by human activity). Globally we are now experiencing more fires, floods, heat waves, drought, and famine and need to do more to make the industry more sustainable.

Carbon capture and storage (CCS) is the process of capturing and storing CO₂ before it is released into the atmosphere.

Fossil fuel companies purport to be developing and carrying out CCS processes with man-made technology, but there are natural CCS mechanisms, like trees, which already absorb CO₂ while they grow and then sequester the carbon. The sequestered carbon can then be locked into long-life assets such as buildings, increasing the mass of biogenic CCS on the planet. Therefore, growing trees for use as CCS is good, planting more woodlands is good, and building more timber buildings is good – isn't it?

We need land to live and work on, to grow food, for nature and for forestry. But the amount of land that can be set aside for growing trees is limited by societal and planetary boundaries. Therefore, the amount of timber that can be produced is limited and the amount of newbuild or retrofit of existing buildings that can incorporate timber or timber products is also limited.

The Intergovernmental Panel on Climate Change encourages construction to shift from high-carbon fossil-fuel materials to low-carbon, renewable, sustainable materials such as timber. For timber in construction to be truly sustainable it must last longer in its useful life than it took to grow – that way we are adding to the amount of biogenic carbon on the planet. Capturing more CO₂ in newly planted trees, while storing the sequestered carbon in the harvested wood products is true CCS in practice.

To maximise the impact of this natural CCS mechanism we need to go further. We must reduce the embodied carbon within timber products and the timber supply chain, using timber where appropriate and only using as much timber in each building as is needed, while designing to an operational energy standard and sharing our learning. If you are designing and certifying to a Passivhaus Standard, while meeting RIBA 2030 and the LETI carbon targets, you are heading in the right direction.

Larch Corner Passivhaus is a great example. Believed to be the most airtight house in the UK, Larch Corner used CLT and wood fibre insulation in the walls and roof to achieve excellent building fabric U-values, and yet CLT swapped for I-joists would have reduced the timber content!

Timber Development UK (TDUK) is working with UK timber associations and industry on a route map and decarbonisation strategy for timber and timber products, due out later this year.

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If we are to implement real change and become truly sustainable, then professionals, industry and academia must become collaborative and interdisciplinary. We must all become collectively more climate literate and learn to design for a warmer, wetter, low-carbon future. TDUK's University Design Challenge has made a start by bringing disciplines together in challenges that deliver constraints via real clients and real projects, along with embodied carbon and operational energy targets.

Leading experts have also delivered webinars and workshops to engage, inform and educate as part of the University Design Challenge. This knowledge is bite size, time-stamped and available to view for free on YouTube at <https://bit.ly/39A55Nk>

So, is building with timber the answer to carbon capture and storage? It can definitely help, provided we build less and build better, addressing the building fabric first and operational energy use, while replacing high-carbon materials with low-carbon, sustainable and renewable alternatives that last in use much, much longer than they take to grow. Every building must be future ready, maintainable and de-constructible so that each part can be reused, repurposed, or remanufactured when the time comes.

Timber and timber products lend themselves perfectly to this function if designed and used wisely. ■

Below:
Larch Corner, with client Mick Wooley
PHOTO MARK SIDDALL



Wood Technology

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