Capitalise on zero carbon

June 2009

Last June the UK government issued its Strategy for Sustainable Construction. An aspirational document that called for all new buildings to be zero carbon by 2019. Homes, schools and colleges get special treatment and are requested to make the grade by 2016. The report also suggested that a 50% reduction in construction site waste should be achieved by 2012.

So how many times was timber mentioned in the document? Only once – but actually it went on to confirm that from April this year all timber used on the government estate shall be from legal and sustainable sources. Another victory for timber was that concrete or steel was not mentioned in the document at all.

Definition

What does zero carbon mean? The government has asked the same question. In March 2009 it finished a three-month consultation on the definition of zero carbon. Clause 1.15 dismayed many people: "This consultation does not set out to address the issue of 'embodied energy' expended in the construction of the home, the manufacture and transportation of the materials used and the demolition and recycling of materials."

A missed opportunity when you consider that, in many buildings built to modern low energy standards, the embodied carbon can be equivalent to 20 years of operational carbon emissions. This is perhaps a double blow for timber construction, which could benefit hugely from its sustainable credentials if embodied carbon were drawn in to the zero carbon debate.

Carbon studies

Studies carried out by the Edinburgh Centre for Carbon Management indicate that an 'enhanced timber house' can reduce the typical family home embodied carbon by some 75%. Some studies have even argued that timber-intensive buildings can actually be carbon negative in respect of their embodied carbon.

This latter statistic relies on the inclusion of the carbon sequestered during the growth of the tree being factored in to the calculation. The jury is still out on this one. My view – you can't just rely on the re-planting argument, you should really think about the building's end of life and hope that the timber is reused, re-cycled or burnt and that energy is produced.

So, is there any hope on the horizon? The joint author of the government's June 2008 report was the Strategic Forum for Construction and its published aims go a bit further than government targets: "By 2012, a 15% reduction in carbon emissions from construction processes and associated transport compared to 2008 levels." And, "…25% of products used in construction projects to be from schemes recognised for responsible sourcing".

The concrete and steel industries are already starting to muster the army of data that says their respective materials are sustainable and responsibly sourced. The concrete industry can also

pull in the big guns with the thermal mass story and, if the fighting gets really dirty, deforestation, fire, acoustics and durability!

Timber's battle plan

So what is the battle plan of the timber industry? It doesn't have the big arsenals of the concrete and steel industry, but what it does have is surprise! Over the past five years the UK has seen timber move from small to large scale, going head to head with concrete and steel.

At Ramboll we have completed two 1,000m³ multi-storey timber frames and we are now on site with mega timber structures – two schemes, each with 3,500m³ of structural timber. Of course, we should not forget Stadthaus in London, at nine storeys the world's tallest timber-framed building – all this in the UK, a country with a relatively small forestry industry and where we still don't teach our budding engineers or architects about timber engineering at a meaningful level at university.

What needs to be done? First, a co-ordinated and educated response to the zero carbon debate is required. The timber industry should pull its resources together and fund research and publication of data that blows concrete and steel out of the water. Second, let's show what can be achieved with timber; beautifully illustrated stories behind the large and small projects splashed across the internet and press. And finally, let's get to our future engineers and architects early, build their schools out of timber and then make sure that when they reach college or university that they can see the wood for the trees.