

? 5. Influence the brief

How can we create an engineering industry while building nothing?

James Norman, Tim Ibell and Oliver Broadbent examine the challenges engineers will face in persuading clients to repurpose existing buildings in place of building new ones.

IN LAST MONTH'S ISSUE¹, we asked a very important question: do we need more buildings? Or can we find a way and means of supporting our economy and infrastructure while building nothing? The latter position is supported by the World Green Building Council, which last year released a report² highlighting the fact that, to save the most carbon, we need to do just that – build nothing (**Figure 1**).

But building nothing raises two obvious challenges.

Understanding nothing

The first challenge is that we need to differentiate between 'doing nothing' and 'building nothing'. Doing nothing suggests that we remain exactly as we are, and that disused buildings remain disused. That businesses don't grow and evolve. This is not a healthy or realistic picture.

Building nothing is different. Building nothing means taking what we have and repurposing it for something else. Reimagining its possibilities. Seeing future potential. It requires leaps of imagination, creativity and ingenuity.

But more than that, it creates a big engineering challenge. To take an existing building and to change its use without changing the structure requires us to do some serious analysis. It requires us to have a deep understanding of both engineering principles and the thinking of the designer who designed it years before. It is part detective work, part hard mathematics, part complex risk analysis. And it requires the very best engineering minds.

The issue, of course, is that this will result in the best engineers returning to clients to tell them that they don't need to do anything. Which is great for an experienced client who understands how difficult that is to achieve – but might leave some clients wondering if they have been swindled.

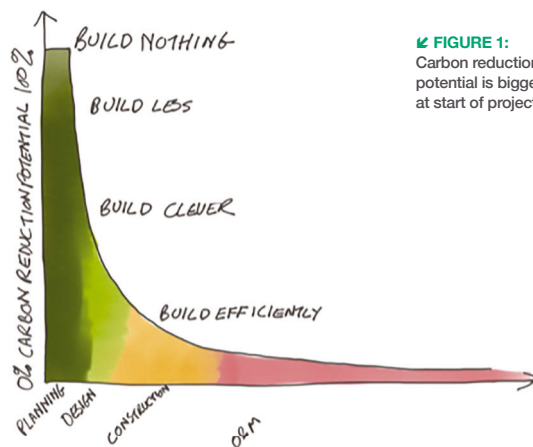


FIGURE 1: Carbon reduction potential is biggest at start of project

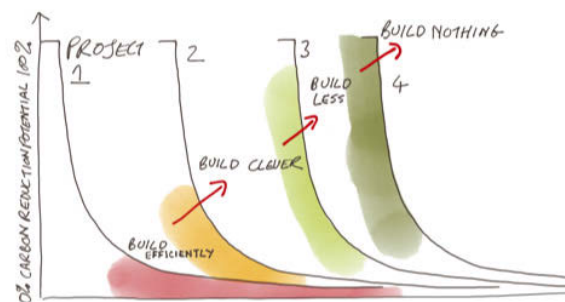


FIGURE 2: Target building better on your next project. Aim to 'build nothing' by Project 4

Valuing nothing

This leads us to the second challenge. To take our existing body of structural engineers and create an industry where they get paid fairly to prove to clients that they can reuse and reimagine their building with the smallest amount of structural intervention.

How do we persuade clients that the less they need to do to the building, the more an engineer should be paid? How do we ensure that the solutions with the lowest carbon footprint are the ones which the client pursues? And how do we ensure clients are asking engineers (and paying

them accordingly) to design these low-carbon solutions?

This change comes through our relationships with our clients – we need to demonstrate the value that good engineering brings. We need to persuade clients to involve us earlier and hence consider the brief and solutions before the design is fixed, the decision to demolish is made, and the layout is such that the carbon footprint will inevitably be high.

Where such a relationship doesn't already exist, we might need to shortcut this in a time of emergency. Is it possible to start by offering levels of service and explaining the risk and opportunity that this offers? You can pay me X and I will add a large amount of new steel into your existing structure, or you can pay me Y and I will be able to reduce this. But still, that requires trust and a relationship on the part of the client.

So, how do we transition towards a build-less and build-nothing industry while maintaining the current level of structural engineering activity? We would love to know your thoughts.

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REFERENCES

- 1 Ibell T., Norman J. and Broadbent O. (2020) 'Nothing is better than something', *The Structural Engineer*, 98 (6), p. 12
- 2 World Green Building Council (2019) *Bringing embodied carbon upfront: Coordinated action for the building and construction sector to tackle embodied carbon* [Online] Available at: www.worldgbc.org/news-media/bringing-embodied-carbon-upfront (Accessed: June 2020)