



Monday, September 7

Off-site Manufacturing Improves Construction Efficiencies

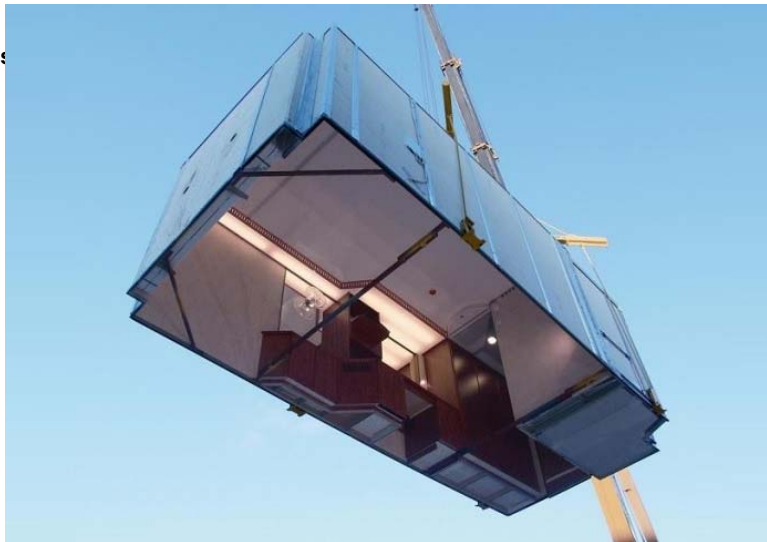
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The use of off-site manufactured products in construction could probably have the single biggest impact on construction efficiency improvement of any method in this country provided it was widely implemented.



Contributor:
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Two reports into the efficiencies of the Australian **construction** industry have identified and detailed the need for the industry to better embrace the concept. Still, widespread uptake remains limited and unless more priority is dedicated to the practice, that situation doesn't seem set to change. That might seem pessimistic; to the contrary, it represents an amazing opportunity.

Other countries have done a much better job of recognising the benefits of taking

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work off site, and they've been doing it for years. Admittedly, that may have been out of necessity, most commonly because poor weather has forced work off construction sites and into factories.

Nevertheless, those countries have realised so many more benefits as a result of the practice, over and above those which have solved their logistical challenges. Australia's fine weather has meant this country hasn't had to go down that path. But as a result, this country has also largely missed out on all of those benefits.

Recognising the increasing challenges of a global economy, in 2004, the Construction 2020 plan recommended that by 2020, a majority of construction products should be manufactured off site and brought to the site for assembly. Off-site manufacture was one of the eight visions for a healthy construction industry.

The report, produced by the Cooperative Research Centre for Construction Innovation, recommended other initiatives as well, including environmentally sustainable construction, meeting client needs, improved business environments and labour forces, better information and communication technologies, virtual prototyping and better manufacturing processes. These are certainly all commendable suggestions.

The organisation's belief in off-site manufacture was so strong that in 2007 it published a subsequent report, *Off-site manu-*

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facture in Australia: Current state and future directions. Seven construction projects that utilised off-site manufactured products were investigated. Put simply, the uptake of more use of off-site manufactured products in construction was recommended if we want to see dramatic improvements in construction efficiency.

The benefits of using off-site manufactured products in construction extend way beyond logistical improvements that result from weather constraints. Certainly, when the manufacture of a majority of a structure's elements happen in a factory away from the work site, ground works can happen at the same time, which has obvious time/cost savings.

But it's the other benefits which can realise the biggest efficiency improvements; benefits like better quality control – which is much more achievable in a factory environment – and better quality outcomes.

Improved site processes can also be realised. Taking work off site and into factories achieves improved safety outcomes and enables better health and safety control. Level, secure work surfaces are much more achievable in a confined purpose-built factory than on site as construction is happening, and with work being done off site in a factory, construction sites are less cluttered and inherently safer.

The additional activity and clutter of deliveries of products for construction on site is

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no longer an issue, storage of products waiting to be constructed on site become minimal and waste is minimal. Taking things off site also means more efficient and environmentally friendly manufacturing techniques such as higher tech processes and better recycling of **waste**, all of which are limited on site.

In these modern times, and as we fast approach 2020, building a wall – or a floor, or any other building element for that matter – actually on a construction site, should be largely a thing of the past. And even more so if we have any hope at all of achieving Construction 2020's vision regarding the process.

The smart construction companies are getting with the picture and realising the numerous benefits of moving as much work off site, as possible. Companies like Laing O'Rourke are leading the way, recognising the smarts of doing so and reaping the rewards. The company's ethos here in Australia follows that of its UK business, taking more tasks off-site to reduce the waste and health and safety risks on site. The goal is to learn from their achievements in the UK with the Leadenhall Building project, where 85 per cent of products came from off site, and follow suit here.

Let's hope the rest of the industry can comprehend the vast benefits of using more off-site manufactured products and take this industry on a journey of leaps and bounds into its exciting future!

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Tobin in Sydney says:

April 15, 2015

Why modular construction isn't being more widely employed in Australia is altogether beyond me – especially given the surge in apartment developments that major cities are seeing.



John says:

April 28, 2015

I agree Tobin.

With the advantages so clear, it's a wonder.



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