PERSPECTIVES

Modular Construction: A no-brainer that we're overcomplicating?

December 2024

This year has marked a significant turning point in the modular construction narrative. Across the region, we've witnessed groundbreaking advances, such as the Sindalah project in the Red Sea and the delivery of over 500 hotel rooms in just four months in Dubai, a feat unimaginable with traditional construction methods.

It's clear that modular construction is poised to revolutionise how we approach building projects. Its benefits – speed, quality and sustainability – are already well documented and recognised in the community. But while its advantages are self-evident, numerous challenges persist that are hindering its adoption: education, systemic alignment, cultural shifts and the role of governments. Let's delve in to each of these topics.

Education: the starting point

Education remains the cornerstone of modular adoption. Despite growing recognition of the technique's advantages, there are still many stakeholders that struggle to grasp how it differs from traditional construction in practice. The modular approach requires early commitment, upfront investment and a manufacturing-driven workflow; all these concepts conflict with conventional practices based on progress at the site.

What's more, there is a significant gap in how different stakeholders (e.g. developers, financiers and end customers) each understand modular processes. Misaligned expectations often result in hesitancy, particularly when it comes to financial and operational adjustments. Early customer engagement can help to bridge the gap, but a broader, more tailored educational strategy is needed. Indeed, education must be stakeholder-specific, addressing the unique concerns of developers, contractors and end users, while making the case for modular construction's long-term value.

Education is not just a supporting pillar but the foundation for modular construction's success, bridging gaps in understanding and aligning stakeholders towards its potential.

Speed and scalability: a game-changer

The modular approach has an unparalleled ability to deliver speed and scale to construction. In high-pressure projects forming part of national strategies – like the UAE Vision 2030 – modular construction has already proved its worth and with fantastic KPIs to boot. Take, for example, the delivery of over 500 hotel rooms in just four months; this feat would be impossible with traditional construction.

This remarkable efficiency arises from the concurrent nature of modular workflows, where off-site manufacturing runs in parallel with site preparation. Such capabilities make modular construction an essential tool to meet ambitious timelines, especially for large-scale hospitality, housing or infrastructure projects.

The cultural and operational shift

Adopting modular construction isn't just about changing tools and processes, it's about transforming mindsets and workflows. Traditional construction follows a waterfall approach, where sequential stages are completed one after the other. Modular construction, by contrast, operates in parallel workflows, where design, manufacturing and site installation occur concurrently.

However, unlike the seamless one-piece flow achieved in advanced manufacturing frameworks like Industry 4.0 or 5.0, modular construction faces unique challenges. Variability in designs, late decision-making, and interdependencies between trades often disrupt the ideal of continuous and delay-free production. These disruptions highlight the need for a more flexible approach that adapts manufacturing principles to the realities of construction.

Rather than reinventing the wheel, modular construction should focus on applying proven manufacturing practices, like process standardisation, lean principles and digital integration, while remaining agile enough to accommodate the dynamic nature of building projects. Success lies not in replicating manufacturing systems precisely but in tailoring them to take the greatest benefit.

Frameworks that support modular construction

One area where significant progress has been made is the role of government in facilitating modular construction. For example, the Dubai Municipality has implemented robust regulatory frameworks to make modular adoption more straightforward. Projects like G+6 and G+12 were a huge success, and the Emirate is now in the process of approving G+20 to demonstrate how clear guidelines can provide a foundation for scaling modular solutions.

These frameworks show that governments can lead the way in creating an ecosystem that reduces friction for modular adoption. By establishing clear regulations and championing modular construction's benefits, the Dubai Municipality serves as a model for other regions.

One key takeaway from this year is how seriously the Municipality is embracing its role in establishing frameworks and supporting companies to adopt what they refer to as "modern methods of construction." But let's be honest, these methods aren't just modern; they are the reality of construction today and tomorrow if the upcoming pipeline is to be delivered.

Contracts: adapting to modular construction's unique needs

Traditional waterfall contracts are designed for linear progression, with payments tied to on-site milestones. Modular construction, however, shifts much of the work to a factory, requiring significant upfront investment in manufacturing before modules even reach the building site.

The shift in construction methods must be reflected by a shift in contractual structures. Effective modular contracts should:

- define ownership of modules during manufacturing to clarify responsibilities and risks;
- establish payment terms tied to factory production milestones, not just on-site progress;
- clearly outline roles for transportation, installation and integration into the site.

Without these changes, modular projects risk financial uncertainty, penalising their adoption and stalling the industry's momentum.

However, the shift to modular-specific contracts is an ongoing battle, tied closely to the need for education. Many stakeholders still view modular construction through the lens of traditional practices, hesitating to adapt contracts that reflect the realities of this innovative approach. Bridging this gap requires targeted education, not only to clarify the practicalities of modular workflows but also to reshape how developers, financiers and contractors understand and approach their roles in such projects.

Addressing this misalignment is critical; without it, even the best manufacturing practices risk being undermined by outdated financial and operational frameworks.

Incentives and financial support

How can we boost the adoption of modular construction? Government incentives come to mind. Subsidies, tax breaks and financial guarantees can mitigate the higher upfront costs associated with the technique, encouraging developers to take the plunge.

Governments have a pivotal role in reducing perceived risks and fostering innovation. By providing financial safety nets, policymakers can accelerate modular adoption, particularly in markets where the initial investment poses a significant barrier.

Although the UAE Government has yet to make a formal announcement on this topic, the growing momentum from industry players is likely to prompt a swift response in the coming years.

An open question

So here's a question for you: if modular construction is so evidently advantageous, why haven't we seen broader adoption?

Is the issue with how we approach education, failing to tailor it to the specific concerns of diverse stakeholders? Or is it more a matter of systemic inertia, cultural resistance or a lack of cohesive industry standards? Maybe it's a combination of some or all of them.

What is clear is that modular construction is more than a building method; it's a transformation of mindset, systems and collaboration. If we strive to make it the norm rather than the exception, we should ask ourselves this: **are we addressing the real barriers to modular adoption, or are we just scratching the surface?**

Contact

Zulema Sanchis
Director
zulema.sanchis@accuracy.com
+971 503 499 250

Accuracy partners and professionals are available to discuss your needs and design an appropriate solution with the relevant experts.