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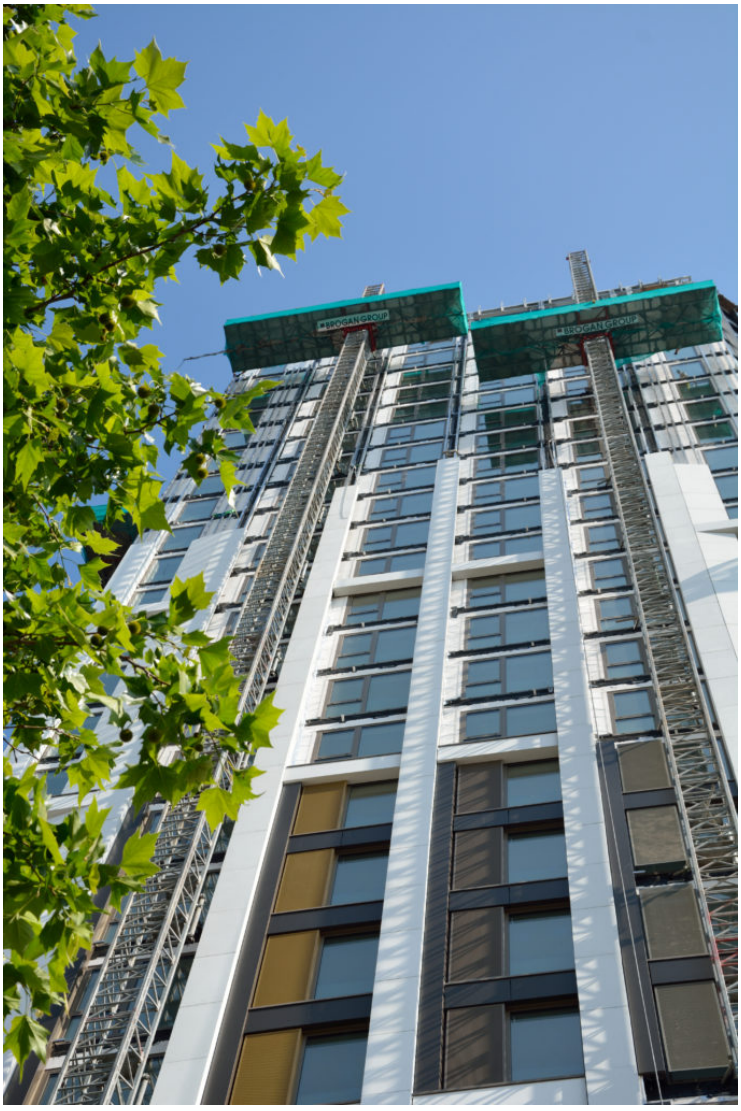
# Apex Tower: modern prefab construction techniques delivering housing London needs



Wembley is known for football and for the stadium's iconic arch, but there's something else distinctive about this neighbourhood of London: it is home to a growing cluster of buildings built using modular pre-fabrication techniques. This technology, also known as 'volumetric', could help speed construction of the

29-storey purpose-built student accommodation block being built by contractors **Tide Construction** and **Vision Modular Systems**. The visit was organised by Nick Barker of **Gravis Capital**, which owns the building, and Kieran White of Vision Modular.

## *'Scaled-up Lego bricks'*

Since late April, when the final floor was put in place, Apex Tower has been the tallest modular tower in Europe at over 90 meters high. It will open in September as a 580-bed student residence run by private operator Scape.

Remarkably, it will have taken only 12 months from planning permission to completion—and the construction process proper will last less than 9 months. The process starts in an 18,000 $ft^2$ factory in Bedford, where 40 steel-framed 'boxes' are assembled each week. Each module has a concrete floor and contains a single student room or group kitchen. The boxes leave the factory fully finished including electrical outlets, bathrooms (in this case in the form of self-contained pods), decoration and even built-in furniture and mattresses. The watertight boxes are stored outside the factory before being transported by lorry to the building site. Despite the practical challenges, this transport process is reportedly hassle-free throughout most of London.

The units are assembled around a concrete core that houses the lifts and emergency exits. The assembly process is very quick–up to 60 boxes can be added per week 'like Lego bricks', rising by as much as three metres per day. The job requires relatively few workers but they must be highly skilled as the tolerances are so fine: only 1.5 cm separates the units in the final building. The steel walls of the boxes are load-bearing, and with appropriate modifications the technique could be used to build towers up to 40 storeys tall[1].

## *Changing the building industry*

The factory, which employs 150 people, offers more stable conditions for skilled workers. Instead of the itinerant work pattern common in construction, where tradespeople move to a new site every 6 months, the model offers employees a


certainty and predictability that many (though not necessarily all) prefer. The on-site assembly process requires far fewer workers than traditional construction, which is an advantage given the current skills shortages in the sector.

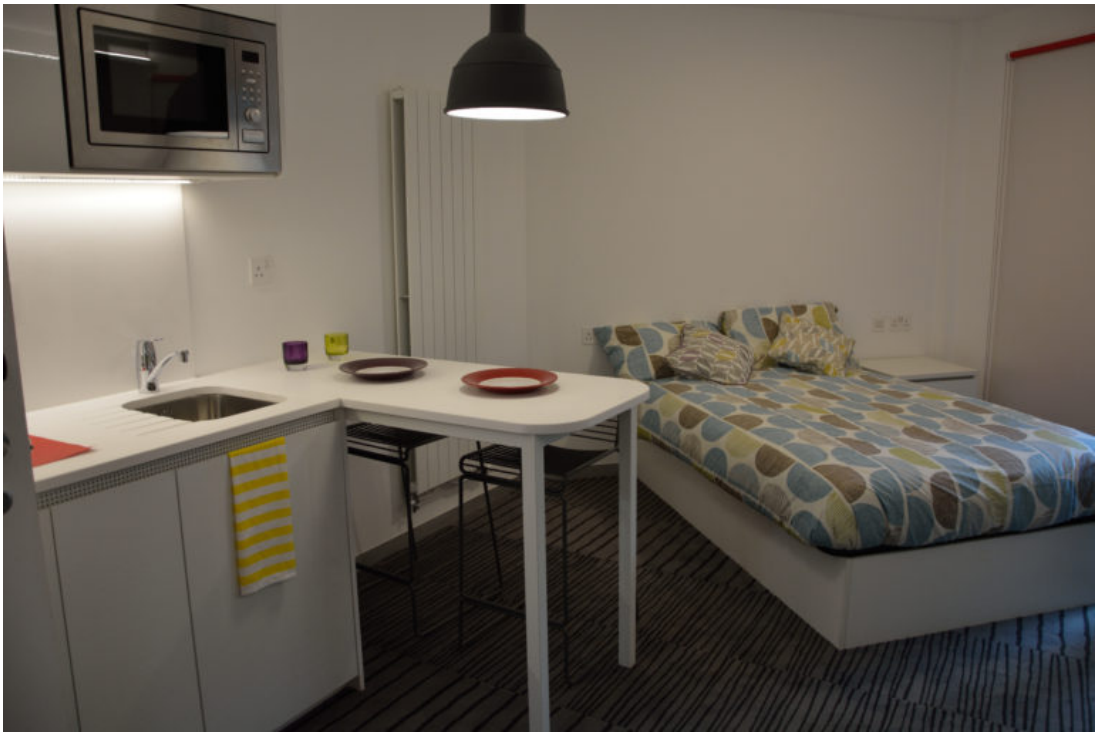
But the main advantage of volumetric construction is certainty about time. The method is not necessarily cheaper than traditional techniques, but is both faster (and therefore less disruptive to neighbours) and more predictable: the process is much less subject to the vagaries of the weather, and the fact that all features and finishes must be designed in from the outset means there is less danger of costly last-minute modifications. (On the other hand, some developers and clients want the flexibility to make design changes during the construction process, and modular is probably not for them.)

A common misconception is that volumetric buildings are drearily uniform stacks of concrete blocks. In fact, different combinations of box size and shape, arrangement and surface finish can produce a huge range of different designs, many of which could easily be mistaken for standard construction. Having said that, they do have a repetitive quality that would not suit all developments. Those who want to judge for themselves should walk down Olympic Way, which runs from Wembley Park Station to the stadium itself, where there are several modular buildings.

The fact that these buildings are not easily identifiable may be good for the urban fabric but makes it harder to combat the out-of-date preconception that 'pre-fab'

been a paradigm shift, and the finance and insurance sectors now generally accept that these buildings are of equal quality to those of traditional construction.

## *The future of housing?*



The modular market is booming: big names such as Berkeley Homes and Legal and General are investing in factories for volumetric housing. However for the industry to expand, demand needs to stay high: to run at an efficient level the factories depend on a steady pipeline of orders.

While Apex Tower is a testament to the innovation going on in the construction industry, this technique has (up to now at least) mainly been used for student housing, hotels and purpose-built private rented sector 'Build to Rent' schemes. But there is no reason why it could not be used to produce mainstream for-sale homes, particularly at the higher densities now common in residential schemes in the capital. Its advantages of speed and certainty mean it could be an important part of the solution to London's housing shortage.

For more information on this site visit or if you have a site that you think illustrates the complexities and opportunities for accelerating residential development in London, please contact **Fanny Blanc**, **f.blanc@lse.ac.uk**.

the project here: **PLACE making: a modular approach to London's housing shortage**. For our report on alternative housing development in London, the findings and key action points, click **here**. For other outputs regarding the Alternative Housing research strand, click **here**.

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