

THE NEW WAVE

The trends behind the next generation of high rise

For as long as mankind has been able to build, engineers have been tasked with finding new ways to support structures that reach further into the skies. But now, the decision to build tall has, in many cases, shifted from prestige to design necessity.

The United Nations' predicts that the proportion of people living in cities is set to soar from 55% to 68% worldwide by the year 2050. On top of that, a number of demographic and social trends are combining to cause household sizes to shrink, meaning the type of spaces they need to live in is changing too:

The Shard, London, UK
Architect: Renzo Piano





MILLENNIAL FAMILIES ARE SETTLING DOWN LATER²

- Millennials are **3x less likely** to have ever been married compared to people in their 70s and 80s when they were a similar age.
- **57% of millennials** have never been married.



FERTILITY RATES ARE DECLINING^{3,4}

- Women globally had an average of 4.7 children in 1950. By 2017, that had fallen to **2.4 children**.
- The UN predicts that the global fertility rate will fall to **2.2 for 2045-2050**, and 2 for 2095-2100.



LIFE EXPECTANCIES ARE INCREASING⁵

- Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from **12% to 22%**.
- By 2050 there will be 2bn people aged 60 and above.



SINGLE PERSON HOUSEHOLDS ARE INCREASING⁶

- Single person households will see **faster growth** than any other globally in the period from 2016-2030.
- Around **120m** new single person homes to be added over the period.

The Shard, London, UK. Architect: Renzo Piano



LAND CONSTRAINTS AND ECONOMICS

THE AIR ECONOMY

The lack of available development space is driving another trend in tall buildings: the rise of the slender and super-slender skyscrapers. These have emerged worldwide as a way to maximise the land available.

Of course, the rise of impossibly skinny buildings like the world's most slender – the 350m tall, 18m wide 111, West 57th Street in New York – are only possible thanks to advances in design and construction technology and radical solutions.

“Over the past decade, advances in materials and engineering have made building ‘supertalls’ possible, specifically those with smaller footprints,”⁷ says Jonathan Miller, Chief Executive of New York real estate consultancy Miller Samuel.

Economics are invariably also playing a major role in driving the new wave of high rise.

One example of this is in China. The country built an astonishing 88 buildings of 200m or higher in 2018, more than any country has ever completed in a single year.⁸ To put that into context, the US – in second place – built just 13.

And many of China's skyscrapers are being developed in (by the country's standards) smaller cities, with the aim of using them to attract investment and turn these locations into bigger centres of economic activity.⁹

In more economically developed cities around the world, new skyscrapers must often compete against each other to win tenants and businesses. That creates pressure on architects to table ambitious designs that make statements on the skyline to attract tenants. And that, in turn, means pressure on engineers to find ways of making ever-more outlandish visions a reality.



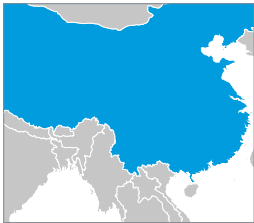
One57, New York City, US
Architect: Christian de Portzamparc

FUTURE SKYSCRAPERS

THE QUEST FOR MORE

The forces of economics, demographic shifts and social change mean one thing for engineers: a new wave of high-rise buildings, taller, more ambitious and more challenging than all those that came before. Currently there are 92 supertall (300m+) and two 'mega-tall' (600m+) buildings under construction around the world. The last 15 years has seen the 10 tallest buildings in the world open for business. It seems inevitable that the next 15 will be defined by engineers' ability to push the limits of possibility even further still.

THE PEAK OF POSSIBILITY: SKYSCRAPERS OF THE FUTURE



GOLDIN FINANCE 117¹⁰

China (completion 2020)

This 597m (1959ft) tall tower sits on a 65m square footprint of soft ground in Tianjin yet can withstand earthquakes and high winds.



JEDDAH TOWER¹¹

Saudi Arabia (completion 2021)

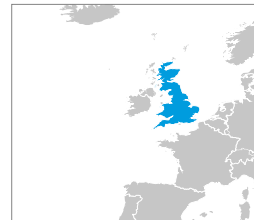
The first kilometre-tall tower, this hotel and apartment building uses a jump-form system to cast its concrete structure.



W 350

Japan (proposal - completion 2041)

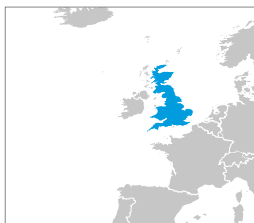
This proposed 70-storey hybrid timber skyscraper in Tokyo would use a 'braced tube structure' with columns and beams made from steel and timber,



THE TULIP¹²

UK (completion 2025)

Rather than a restaurant or penthouse suite, this 305m tall visitor attraction in London will have a classroom at the top.



OAKWOOD TIMBER TOWER¹³

UK (research proposal)

This 300m timber-framed structure in London would dwarf The Tree in Norway, which is currently the tallest timber building in the world at 49m tall.

[Learn how architects created a stunning 'vertical city' with the iconic London landmark The Shard.](#)

[FIND OUT MORE](#)

EXTERNAL SOURCES

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