Lofty edifices are not just modern monuments to human achievement. We have always built big, as ANDY TOWLER reports.

Towering ambition

FROM THE TOWER of Babel to the Burj Dubai, mankind has always had an obsession with tall buildings. And this thirst shows no sign of abating: the 450m Petronas Towers in Kuala Lumpur were the world’s highest four years ago – now they are eighth in the list.

It is not only the scale of tall buildings that has changed over time, though; the reasons for their construction have also varied throughout history.

To begin with, tall buildings usually had religious connotations, such as the 145m, 5,000-year-old Pyramid of Giza (to allow Pharaoh’s passage to the afterlife), through to huge Greek temples and famous cathedrals like those at Lincoln (160m) and Notre Dame (151m).

Then there have been structures such as the Eiffel Tower, Statue of Liberty, and Washington Monument that commemorate moments of time or great figures of the past.

Urbanisation and the growth of cities meant that tall buildings suddenly became a necessity, to house ever-expanding populations. The figures tell a story. In 1950, there were 86 cities with populations over one million; there are now 400. In 1960, the world’s population was 3.2 billion; that is now the world’s urban population. In response to its increasing urbanisation, China has recently announced plans for a mind-boggling 50,000 new skyscrapers over the next 20 years.

Demonstrate wealth

There is another impulse behind the construction of huge towers: money. Alastair Collins, a partner at Davis Langdon, whose portfolio includes buildings such as the 610m Russia Tower in Moscow and 300m Shard in London, says: “Building tall towers is rooted in the world’s history. Through the ages they have been built to demonstrate wealth. San Gimignano’s 14th-century towers were built by the wealthiest families as a display of their financial status, making it the Manhattan of Europe in its day.

“Sheer shortage of developable land – in Hong Kong and Singapore, for example – has also driven buildings skyward as has, in some cases, corporate ego.”

This phenomenon is most famously displayed in the US through iconic skyscrapers such as the Empire State Building, Chrysler Building and Sears Tower. However, these are now being dwarfed by the emergence of new economic powers equally keen to flex their muscles.

“Many emerging economies, such as China, India, South Korea, and the UAE, are using tall buildings to signpost themselves to the world and as an indication of their wish to be taken seriously as world markets,” says Collins.

Direct battle

The Middle East and China – neither place particularly short of land – are in a direct battle to build taller and taller buildings. Asia can boast the 509m Taipei 101 in Taiwan, the 492m World Financial Centre in Shanghai and the 415m 2 International Financial Centre in Hong Kong. In the Middle East the Burj Dubai – already 660m –
is expected to be in excess of 800m when finished and is only the first in a number of planned supertowers in the region. Plans are at an advanced stage for the Burj Mubarak al-Kabir in Kuwait, a 1,001m tower at the centerpiece of a huge new development called the City of Silk, and the proposed Mile High Tower in Jeddah, Saudi Arabia, already has funding set aside for construction to begin.

Now, though, there are signs that this unhealthy obsession with building tall for the sake of it may be wearing a bit thin with some developers.

The German architect Ole Scheeren, the creative mind behind another Davis Langdon project—the remarkable CCTV building in Beijing—recently criticised iconic buildings' "vulgar desire to impose flashy new form". While hardly a shrinking violet—the CCTV building is 234m tall and the second largest office block in the world after the Pentagon—it is the 'Escher-like' form of the office that grabs the attention.

"We could have gone the easy route and built much taller like the others that bid for the job. But that's just not interesting is it?" said Scheeren in a recent interview with The Times.

**Iconic design**

Refreshing, it appears that most new skyscrapers embrace iconic design and serve a purpose, adding something to the fabric of the skyline and situation they sit in.

For example, developers are now trying to outdo each other not just in height but in creating the
most environmentally friendly towers possible. Again, two projects leading the way are situated in the Middle East and China.

The Pearl River Tower is currently under construction in the Tianhe district of Guangzhou in China. It is set for completion in 2010, will be 310m tall and will be home to the China National Tobacco Corporation. According to architects Skidmore, Owings & Merrill (SOM), the 71-storey, 2.3 million sq ft tower is expected to be the world’s most energy-efficient super tall office tower upon completion, and “a milestone along the way to energy independence.” While the tower will form the centre piece of the business district, its green features will reduce its dependency on the city’s infrastructure.

Among its super zero-energy design features are cutting edge techniques to utilise the sun and wind. Pearl River’s sculpted body directs wind to a pair of openings at its mechanical floors, which in turn push turbines to generate energy for the building’s heating, ventilation and air conditioning systems. Energy consumption is reduced by maximising natural daylight, reducing solar gain in air conditioned spaces, retaining rainwater for grey-water usage, and by utilising solar gain for the building’s hot water supply. The office tower is chilled by a combination of displacement ventilation, radiant panel cooling and chilled beams and incorporates optimised air and water delivery systems and optimised building management systems. Solar collectors integrated into the façades also transform the sun’s energy to usable AC current.

Eco-friendly

Engineering and design consultancy Atkins is involved with a number of eco-friendly towers in the Middle East, including the 400m Lighthouse Tower in Dubai. The ultra green, 66-storey office tower, set for completion in 2010, will feature three horizontal-axis wind turbines of 29m diameter each, fully integrated into the top 120m of the tower. The design aspires to be a low-carbon commercial building, which will aim to reduce its total energy consumption by up to 65 per cent and water consumption by up to 35 per cent compared to the current Dubai standard.

Further up the Gulf, in Bahrain, Atkins designed a similar wind powered tower in the shape of the groundbreaking 240m Bahrain World Trade Centre, the first skyscraper ever to integrate wind turbines into its design when it was completed in April this year. The three 29m-diameter turbine blades in the iconic landmark are forecast to provide the equivalent of 11-15 per cent of the power for the two towers.

“Having all three turbines spinning simultaneously represents a historic achievement for this landmark project,” says Simha LytheRao, senior project manager for Atkins in Bahrain.

“The use of established technologies, including type-tested turbines, ensured that the additional cost incurred by incorporating turbines into the project was reduced to around 5.5 per cent of the overall project value, making it not only an environmentally responsible but also a financially viable venture.”

Financial viability

Financial viability — alongside a distinct lack of space — is one of the reasons cities such as London are now turning to towers to solve space problems. Davis Langdon are involved in a number of the high profile projects in London, a city which having resisted building high for so long has now started to look up.

“High land values in the City tend to drive the need to maximise floor space by going tall,” says Alastair Collins. “Docklands, in close proximity to
the City, offers alternative sites for tall
developments. Other inner London areas are
likely to see more sporadic development of tall
buildings, with peri-urban hubs, such as Croydon,
offering options.

Among the London projects Davis Langdon is
involved with are the Renzo Piano designed
Shard at London Bridge, and the 288m Pinnacle
and the 224m Leadenhall building, both in the
City. However, Collins points out that momentum
for a new London skyline may have been
temporarily put on hold by the market situation.

*Given that reasonable access to project
finance and perception of future market demand
are key to assessing and taking development risk,
it is likely that we will see a slowdown in new starts
of tall buildings in London,* he says.

Another global financial centre that suffers from
a lack of space is Hong Kong, currently awaiting
the 2010 completion date of the 118-floor,
490m International Commerce Centre (ICC).
Under construction in West Kowloon by
developers Sun Hung Kai Properties, the ICC will
be the third tallest building in the world upon
completion and has already attracted major
tenants, such as Deutsche Bank, Credit Suisse
and Morgan Stanley.

King Wai Lo, General manager of Sun Hung Kai
Real Estate Agency says the building will offer
these tenants a "centre away from a centre" and is
a necessity given Hong Kong’s restrictions.

*Hong Kong's traditional business district in
Central is essentially full, and few, if any, major
new office buildings are planned for the near
future,* he says. *With demand for office space in
Hong Kong steadily increasing, it was inevitable
that prospective tenants would be looking for an
alternative. The Kowloon Station site was a site
with almost unlimited potential. The superior
transport connections and the developer's
confidence in Hong Kong's future led to the
decision to make the most of this opportunity.*

Buildings of the ICC's nature offer endless
opportunities for mixed-use and encapsulate a
new style of living for residents, which may
become increasingly common place as cities
shoot up rather than out. *The ICC encapsulates
the paradigm of modern living,* says Lo. *It has 2.5
million square feet of grade-A offices, the million-
square-foot shopping mall, luxury residences and
serviced suites.*

Even though the reasons for building tall towers
have changed over the years, the enthusiasm for
them remains undiminished. As Alastair Collins
says: *Throughout history, we have built towers
that were as tall as the technology of the day
permitted. As such — and accepting prevailing
economic conditions — there is no evidence to
suggest that this established pattern of behaviour
will not continue into the future.*

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