



STANDING TALL

High rises and tall structures are ruling urban landscapes even as they make the case for urban growth, sustainability, and enhancing economic and cultural vitality in cities.

Bindu Gopal Rao

Aaradhya Aavan in Tardeo by CY Corp defines the city skyline standing tall at almost 307 mts.

It is projected that by 2030, 5 billion people will live in urban areas throughout the world (United Nations, 2001). Whereas 30 per cent of the world population lived in urban areas in 1950, the proportion of urban dwellers climbed to 47 per cent in 2000 and is expected to rise to 60 per cent by 2030. And this is exactly where high rises come to the forefront.

THE SPECIFICS

High-rise buildings generally refer to structures that are around 75 feet or more, with local building codes and organisations like the International Building Code (IBC) setting that benchmark. These buildings, commonly seen in cities, range from residential to commercial and can be anything from 10 to 40 stories tall. "Tall buildings are a broader category that includes skyscrapers and iconic structures that significantly impact a city's skyline. According to the Council on Tall Buildings and Urban Habitat (CTBUH), any building over 150 meters (around 492 feet) qualifies as a tall building, with even taller structures classified as 'supertall'. So, while all tall buildings are technically high-rises, not all high-rises are tall buildings. The distinction really depends on their height and architectural significance," explains Sandeep Shikre, Founder + CEO, Sandeep Shikre Associates.



High rises like Lodha Venezia contribute to iconic city skylines and when designed sensibly they can surely be sustainable in their use of energy and carbon footprint.



Emphasizing a connection to nature, high-rises are incorporating natural materials, abundant greenery, and open spaces, with an increased focus on occupant well-being as seen in this clubhouse at Crescent Bay by Sandeep Shikre Associates.

URBAN ARCHITECTURE

Going tall is the only option for cities, especially those like Mumbai where land is sparse and which is surrounded by water on two sides. High-rises and tall structures play a crucial role in addressing the challenges posed by urbanisation, particularly in densely populated cities. “As land becomes scarce and expensive, vertical development offers a solution to accommodate more people in limited spaces. These structures optimise land use, provide residential, commercial, and mixed-use spaces, and reduce urban sprawl, contributing to more efficient city planning. Moreover, with the new Transit Oriented Development (TOD) policy now underway, new high-rises will be integrated into transportation hubs, fostering sustainable, walkable urban areas,” says Milind Changani, Architect, CY Corp.

MATERIAL MIX

New materials are helping push the boundaries of high-rise construction including advanced concrete mixtures, such as high-performance concrete (HPC) and ultra-high-performance concrete (UHPC), which allow for slimmer yet stronger structural components. Steel composites, including high-strength steel and cross-laminated timber (CLT), are also being used for sustainable



25 South Prabhadevi is a complex soaring beyond the city skyline; on one of the largest acreage next to the Arabian Sea, are bespoke sea front apartments.

and efficient construction. Lightweight composite materials, like carbon fibre-reinforced polymers, are becoming increasingly common for structural reinforcement and facade cladding, offering superior strength without the weight of traditional materials. “HPC and UHPC have emerged as game-changers in high-rise construction. These materials provide superior mechanical performance compared to traditional concrete, enabling more efficient load-bearing structures that reduce material consumption and allow for bolder architectural designs. This enhanced durability and strength allows buildings to be constructed with thinner sections, reducing the overall weight of the structure. This reduction in structural mass also means lower foundation loads, lower steel consumption, and quicker construction times. UHPC takes these benefits even further. With compressive strengths exceeding 150 MPa (megapascals), it is significantly stronger than conventional concrete, making it ideal for high-stress components in tall buildings such as floor plates, beams, and even slender columns that can support longer spans. The exceptional strength-to-weight ratio reduces the need for excessive steel reinforcements, further minimising material costs, reducing embodied carbon, and speeding up



Sandeep Shikre, Founder + CEO, Sandeep Shikre Associates



CASE STUDY
KOHINOOR SQUARE
SANDEEP SHIKRE ASSOCIATES

Kohinoor Square, located in the heart of Dadar, Mumbai, is India's tallest commercial mixed-use building, a title conferred CTBUH. This iconic development is spread over five acres and combines commercial offices, residential spaces, retail outlets, hospitality, and recreational facilities, setting a new benchmark for high-density urbanism. As the tallest of its kind, Kohinoor Square not only dominates the Mumbai skyline but also addresses critical urban challenges like space optimisation and sustainable development. This landmark project integrates state-of-the-art technologies such as the Otis Compass Management System for efficient vertical transportation and the Peri Automatic Climbing System, which reduces construction timelines significantly.

construction,” opines Jay Shah, Founder, Kaizen a1.

UHPC also contributes to the long-term durability of buildings, enhancing their lifespan and reducing maintenance costs. Architects and developers are increasingly exploring innovative cladding materials that improve both the aesthetic and energy efficiency of buildings. For instance, new modular façade systems made from lightweight, durable materials like advanced glass composites and metal alloys not only create striking designs but also improve insulation and reduce energy consumption while reducing construction times and increasing on-site worker safety.

CONTEMPORARY CUES

Recent trends in high-rise architecture focus on sustainability, technology integration, and innovative design solutions that address urban

challenges. High-rise buildings are increasingly being designed with energy-efficient systems, renewable energy sources (like solar panels or wind turbines), and features like green roofs, vertical gardens, and rainwater harvesting. Carbon-neutral and net-zero skyscrapers are becoming a goal for many projects. Karl Wadia from Architect Hafeez Contractor, says, “Integration of smart technologies to manage energy use optimise building performance and enhance the comfort and safety of occupants. This includes automated HVAC systems, intelligent lighting, and IoT-based monitoring for maintenance. Prefabricated components are being used in high-rise construction to reduce waste, improve quality control, and shorten construction times. This trend is becoming popular for residential towers and mixed-use developments. Many high-rise projects now combine residential, commercial, and

recreational spaces in a single tower, promoting urban density and minimising travel needs within a single development.” Emphasising a connection to nature, high-rises are incorporating natural materials, abundant greenery, and open spaces, with an increased focus on occupant well-being.

GOING GREEN

Recent trends in high-rise architecture are being increasingly driven by sustainability, functionality, and adaptability to changing urban environments. “One significant trend is the emphasis on sustainability and green design. Architects are using eco-friendly materials such as Cross-Laminated Timber (CLT) and recycled steel, often aiming for certifications like LEED and IGBC or GRIHA. Many buildings now integrate renewable energy sources like solar panels and wind turbines, which help reduce their carbon footprint. Vertical

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gardens and green roofs are also becoming popular, enhancing air quality in urban areas,” says Sandeep. Awareness of climate change drives an emphasis on designing climate resilient high-rises to withstand extreme weather conditions. Features like elevated podiums and flood-resistant materials are being incorporated to ensure buildings remain resilient against storms and flooding.

TECH-INTEGRATED SKYSCRAPERS

Another key trend is the integration of smart technologies. Many high-rise buildings now employ AI-driven systems to optimise energy use, building performance, and even predictive maintenance. “By incorporating sensor-based systems, these skyscrapers can adjust environmental conditions in real-time, ensuring greater operational efficiency and lower long-term costs. These innovations reflect a shift towards material choices that push the boundaries of design and performance, allowing for more creativity, without sacrificing performance, giving architects the flexibility to introduce cutting-edge designs into the urban landscape,” says Jay.



Rustomjee Crown, designed by Architect Hafeez Contractor, is a masterpiece that showcases the perfect fusion of design, functionality, and innovation.



Island City Centre (ICC) is a visionary addition to Mumbai's iconic architecture, driven by a desire to create something unique by SSA Architects



Karl Wadia, Design Principal, Architect Hafeez Contractor

CASE STUDY

LOKHANDWALA MINERVA ARCHITECT HAFEEZ CONTRACTOR

The tallest building in India, the Lokhandwala Minerva that stands at 300.6m, is a unique and inspiring piece of architecture arranged on an impossibly narrow and linear site that overlooks the majestic Mumbai Race Course and the Arabian Sea beyond. The design demanded the consumption of a very high Gross Floor Area to make the project commercially viable. Given the spectacular views to the West and the pressure of area consumption, it became evident very early in the design evolution that a super high rise would be the eventual outcome. The uniqueness of the architectural design also extends to the complexity wherein the project had to undergo a major redesign 50 per cent into construction catering to a new set of changing local bye laws which came into effect during the life cycle of the project.





CASE STUDY
ARADHYA AVAAN
CY CORP

Aradhya Avaan at Tardeo, developed by Shreepati Group and MICL Group, comprises two towers with a state-of-the-art parking system. The project includes four basement parking levels and a multilevel podium with ramp parking reaching up to 20.3 meters, topped by a robotic parking solution extending up to 24 meters, for a total parking structure height of 44.3 meters. Above the parking levels, the towers rise 61 floors, with a total height of 278 meters. Amenities include clubhouses on the 12th and 34th floors, with the 34th floor featuring a club with a swimming pool, marking it as the highest clubhouse with a pool in the area. The project has received all necessary approvals, and construction work is in full swing.



Milind Changani, Partner, CY Corp

ADAPTIVE REUSE

In rapidly urbanising cities like Mumbai, tall buildings are essential, but thoughtful planning is needed to balance preservation with the need for modern, functional structures that meet urban growth and sustainability goals. “There is a shift toward adaptive reuse of older buildings, transforming them into high-rises without the need for complete demolition. This trend reduces environmental impact and aligns with the drive for sustainability. Rather than expanding outward, we can breathe new life into aging structures, enhancing their value, and improving their viability. With modular construction and smart technologies, high-rises are transforming into tech-driven, innovative structures that not only reduce costs but push architectural boundaries,” says Milind.

LONDON CTBUH

The CTBUH 2024 “New or Renew” conference delved into the challenges and opportunities surrounding tall buildings, focusing on whether to build new structures or renew existing ones. The event featured insightful panel discussions and site visits to iconic tall buildings like the Shard and Gherkin, bringing together architects, engineers, and sustainability experts to explore these crucial topics. “The trend toward mixed-use development is becoming integral in tall buildings, where structures combine residential, commercial, and recreational spaces to maximise the utility



Piramal Mahalaxmi by Architect Hafeez Contractor is spread across four acres of premium real estate in the heart of Mumbai.



Jay Shah, Founder, Kaizen a1 & Director, Access Architects

CASE STUDY
RUPA RENAISSANCE + MARRIOTT
EXECUTIVE APARTMENTS

ACCESS ARCHITECTS

Rupa Renaissance + Marriott Executive Apartments in Navi Mumbai designed by Access Architects, is optimised by Kaizen AI. The project leveraged composite steel for faster construction times through prefabrication of structural elements to be assembled on-site and lighten the structural load. The building is 145m tall and has approximately 2 million square feet of area. Thanks to intelligent planning and AI-powered optimisation, the construction timeline was successfully reduced to only 19 months.



High-rise buildings like Lodha Venezia are increasingly seen as cultural symbols, with architects pushing boundaries in design, creating unique and sculptural forms to make buildings stand out as landmarks.



Rustomjee Crown by Architect Hafeez Contractor is located in the quiet, upscale southern neighbourhood of Mumbai, Prabhadevi which is one of the most coveted residential locations for the city's elite

of limited urban areas while fostering community and economic activity. Projects like London's Battersea Power Station exemplify this approach, demonstrating how historic buildings can be preserved and repurposed for modern use without sacrificing their architectural integrity," says Sandeep. Milind adds, "The conference also explored how technology is reshaping high-rise construction, from automation in building processes to smart building systems. The need for resilient designs in the face of climate change was another major point of discussion. London's own high-rises were used as case studies for how cities can integrate tall structures while maintaining architectural heritage and cultural identity."

The London CTBUH conference highlighted the growing importance of sustainable high-rise architecture. "One key takeaway was the push for zero-carbon buildings, particularly in dense urban environments. As architects and developers aim to reduce the carbon footprint of tall buildings, there's an increasing emphasis on material innovation and lifecycle design to ensure that structures are sustainable from construction through to demolition. The concept of "New or Renew," which was a key theme of the conference, emphasised that adapting existing buildings for new uses may often be more sustainable than demolishing and constructing new ones," says Jay. This perspective encourages developers to rethink their approach to urban density and sustainability. "The ability to adaptively use existing buildings; and bring them to speed with modern technology as well as making them sustainable and adding development areas to them in a sensible and creative manner will help the building industry reduce its carbon footprint. The conference focussed on this and the possibilities that lay within this vast subject," adds Karl. [A&P](#)