Reframing the Narrative of the Concrete Skyscraper

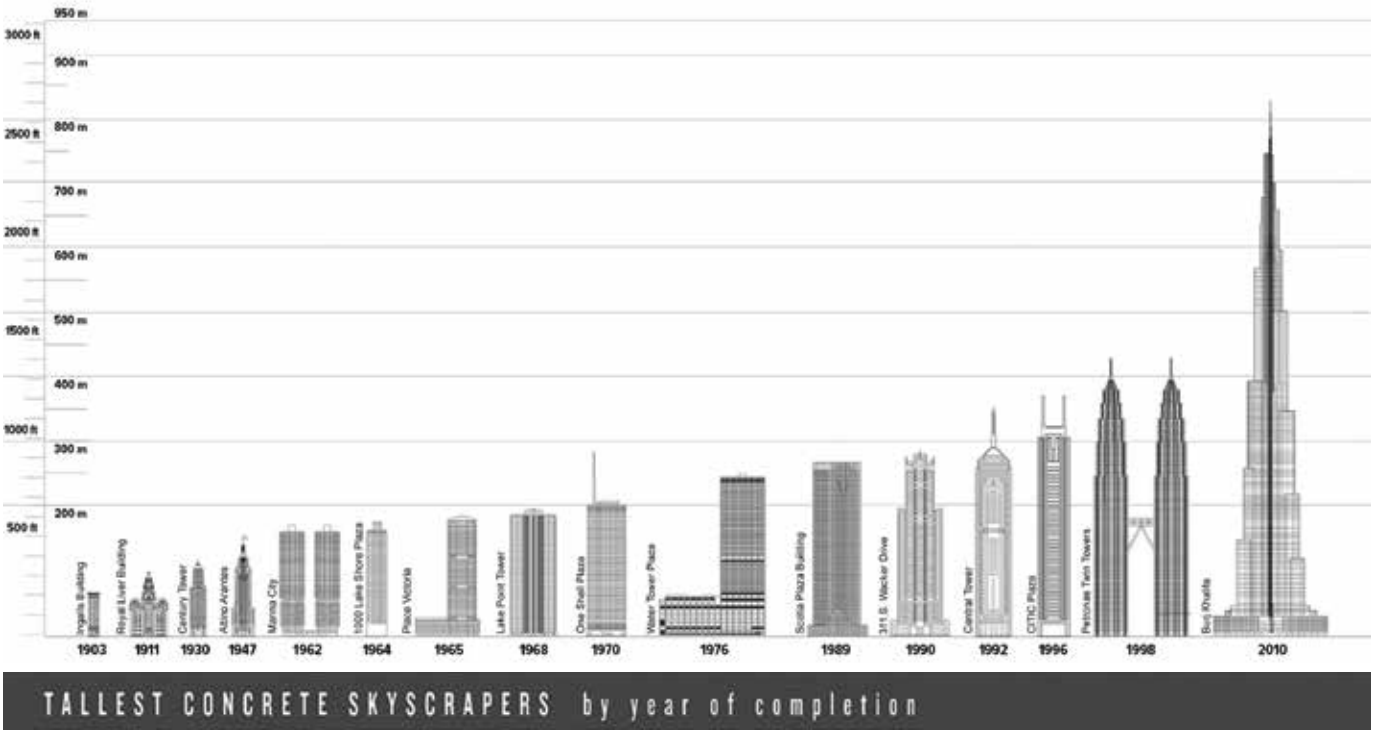
A deep dive into the curation of The Modern Concrete Skyscraper exhibition

by Rachel T. Schick and Sidra Dahhan

In the August 2025 issue of *Concrete International*, the article "The Modern Concrete Skyscraper at The Skyscraper Museum" featured a new exhibition in New York, NY, USA, retelling the history of the high-rise through the lens of reinforced concrete. We had the opportunity to tour this exhibition and meet with lead curator Carol Willis, Founder and Director of The Skyscraper Museum and Professor of Urban Studies at Columbia University's Graduate School of Architecture, Planning and Preservation in New York, NY. As an architectural historian, Willis has always been interested in the biography of buildings, "not just from the point of view of the architect or the engineer, but the way they operate in the city, their economics." That approach informed how the research behind the exhibit was displayed.

The exhibition begins with a 30 ft (9.1 m) long graphic mural timeline organized into eight panels that present significant chapters in the evolution of concrete skyscrapers. The wall mirroring the timeline examines concrete construction in the first half of the twentieth century before opening into the main gallery, which centers on the second half of the twentieth century to the present day and features case studies through structural models and multimedia.

We were guided through the exhibition's curation, gaining insight into key advancements in the history of the modern concrete skyscraper.



The Skyscraper Museum created a "World's Tallest" graphic of all the buildings that, in succession, took the title of the tallest building constructed of reinforced concrete

Inspiration for The Modern Concrete Skyscraper

The Modern Concrete Skyscraper exhibition is the product of years of research, beginning when Willis recognized gaps in the material history of skyscrapers. "The history of the skyscraper has always been consonant with the story of steel," said Willis. "In the last 15 or more years of talking with architects and engineers about their designs for tall buildings, it became very clear to me that steel was not the whole story."

The ubiquity of concrete as a material in skyscrapers became apparent to Willis over time, particularly after The Skyscraper Museum worked with Skidmore, Owings & Merrill LLP (SOM) to create an exhibit on the Burj Khalifa, Dubai, UAE, in 2007. Through conversations with the project's Architect, Adrian Smith, and Structural Engineer, William Baker, the Burj Khalifa's unique structure materialized as a story of concrete rather than steel. Over years of completing exhibitions and collaborating with industry professionals, Willis further noted how concrete has emerged as the dominant material for tall buildings designed today, particularly supertalls.

"We need a history of the skyscraper that has a through line that starts with the tallest buildings in the world today and the dominant material for tall buildings in the world today, concrete, and finds a lineage, a narrative that comes through to that point," Willis said. "There was no story of concrete while steel was a dominant material."

While scholarship on the history of concrete has been explored, the exhibition centers on the period surrounding the invention of reinforced concrete, which occurred concurrently with steel's emergence as a major structural material. Through the exhibition, Willis and guest curator Thomas Leslie, Professor of Architecture at the University of Illinois Urbana-Champaign, Urbana, IL, USA, sought to fill in the missing decades in the history, contributing fresh scholarship to help shape a clear narrative of concrete to themselves and others.

"I said to my colleague, Tom Leslie, that we should make a history of concrete that leads to the present day, not excluding steel from the picture, not arguing for the priority of concrete, but filling in these kinds of blanks in the decades, especially from the 1910s until the 1960s when concrete 'comes out.'"

A centerpiece of the exhibition is a diagram of the world's tallest concrete structures lined up by year of completion. "Nobody had lined the buildings up in a graphic of just concrete buildings," Willis said.

Prior to opening the exhibition, The Skyscraper Museum hosted an online lecture series connected to the exhibition theme to keep conversations active amid the COVID-19 pandemic.

"You could not do lectures all together along with the exhibition, so we did the talks in advance of the exhibition, and had what proved to be a really great opportunity, like a flipped classroom where you have the readings and the discussion come first, and then the lecture comes after that," said Willis. "The lectures then really informed the way that we could filter the material so that we would have key buildings [featured in the exhibition]."

Engineers, architects, and educators, including Leslie and Baker, spoke on key experiments in concrete construction and how the material's structural properties have been implemented through projects such as Marina City in Chicago, IL; Pirelli Tower in Milan, Italy; One Shell Plaza (now 910 Louisiana) in Houston, TX, USA; and Place Victoria, Montréal, QC, Canada.

Emerging Themes of the Exhibition

When creating The Modern Concrete Skyscraper, the curators had objectives they wanted reflected through the exhibition. Willis and Leslie wanted to challenge the traditional steel-centric narrative of skyscraper evolution and clarify the role of concrete in shaping modern urban

Model of the Burj Khalifa, Dubai, UAE. A key technological advancement that enabled construction of some of the world's tallest skyscrapers, including the Burj Khalifa, is the buttressed core system

Model of the Petronas Towers in Kuala Lumpur, Malaysia. The availability of concrete and its adaptable properties were key to international adoption

environments. As the exhibition came to life, further themes emerged from research.

Advancements in concrete technology

One notable exhibition theme is how technological advancements in concrete skyscraper construction have paved the way for contemporary supertalls and global landmarks.

According to the exhibit website, "One of the key innovations in skyscraper design in the 1960s was the concept of the tube, in which the structure is concentrated in the exterior wall or perimeter columns, turning the building, in effect, into a giant hollow column that can resist gravity and wind loads." Moving forward to the 1990s and 2000s, slender construction, wind tunnel testing, and digital analysis also produced astonishing increases in height, leading to the building of supertalls that define how we look at skyscrapers today.

Strategies for the use of concrete have also greatly advanced skyscraper construction. Willis spoke on the buttressed core system, developed by Baker in the early 2000s, that was used for the Burj Khalifa, as well as the Jeddah Tower, engineered by Thornton Tomasetti. "This buttressed core, a slender core [with] wings that push back on it, is the key thing that allows you to go to 800 m [2625 ft] or 1000 m [3281 ft]."

This buttressed core system, and the Burj Khalifa's design as a building of all walls, helped inspire this exhibition back in 2007. Willis said that "the definition of a skyscraper as steel skeleton construction, which you can find all over the internet, is an extraordinarily inaccurate description of the skyscraper [today]…in the very tallest buildings in the world, the structural system is a bearing-wall system without, or with very few, columns." These points helped inspire the curators to take a deeper look at the narrative of skyscraper construction, what a skyscraper really is, how technology has advanced it throughout the years, and how it has changed in the United States and globally.

Globalization of concrete skyscrapers

Another evident theme throughout the story of the exhibition was the globalization of concrete skyscraper construction. The availability of concrete and its adaptable properties were key to international adoption. According to Willis, "globalization from the 1990s was a phenomenon, not just with architecture…the Middle East, China, and Southeast Asia were emerging and growing very fast and wanted to demonstrate their success and their kind of modernity for transacting business and becoming world capitals. So, modern buildings were a way to climb onto a world stage and to have status and get attention, but it was a much broader-based economic push of growth and urbanization." This push for innovation and urbanization allowed for leaps in building height, creative uses of concrete, and the expansion of supertall projects.

The exhibition's timeline of the tallest concrete skyscrapers

The exhibition begins with a 30 ft long timeline organized in eight panels that present significant chapters or periods in the evolution of the concrete skyscraper

One wall focuses on the use of concrete during the first half of the twentieth century

The main gallery focuses on the second half of the twentieth century to the present day. The buildings featured are "case studies" that represent both the importance of key designers and the impact of new technologies in materials

highlights a shift in the 1990s from the tallest buildings being in the United States to Asia and the Middle East.

Reception and Impact

Response to the exhibition has been positive. With an audience ranging from the interested general public to scholars and experts in the industry, The Modern Concrete Skyscraper offers insights for those wanting to learn about the history of architecture on both a surface and a deeper level. The goal was "to give people who are genuinely interested in the material a comprehensible explanation, and for scholars to be able to draw together real experts in the field and talk at a high level of conversation about some of these ideas," and Willis felt that was achieved through this exhibition. The new material and comprehensive timeline presented have been appreciated by visitors and reviewers alike.

For Willis and Leslie, curating this exhibition has been an opportunity to open new lines of inquiry and collaborate with engineers, contractors, and building materials manufacturers. They were able to investigate how various solutions have emerged and why certain practices have been adopted throughout architectural history. There is continuing study of how the built environment takes shape, and the curators hope that this exhibit will encourage further research on the topic and pave the way for future studies of economic, environmental, and code-based influences on skyscraper design.

Looking at the history presented in this exhibition, future implications for sustainability and innovation can be seen. There is an ongoing dialogue between aesthetics, economics, and environmental impact. As concrete has risen to become a primary material for the urban landscape, architects and engineers have had to work to balance aesthetics and design with functionality and material costs. Now more than ever, resiliency, carbon costs, and climate change are being factored in as well.

Willis stated that she has found that architects and engineers have always been interested in minimizing the materials used, which can be an environmentally efficient solution. In the 1960s, figures like architect Fazlur Rahman Khan and firms like SOM were "keen on marrying architecture and engineering as a solution that did find a way to use the materials most efficiently for a structural system, and that uses the fewest resources in order to get to the functional aesthetic end that they were looking for." However, Willis also emphasized that people are always looking to distinguish their building from the next, and in the future, new strategies and technologies need to be embraced to prevent society from suffering the "consequences of profligate ways."

Looking to the Future

The Skyscraper Museum is fundamentally interested in centering urban density through its exhibitions, exploring how urban buildings can be a more efficient way to live compared to the spread-out, automobile-oriented living sprawl the United States has edged toward over the last century.

Their next project veers from the materials focus of their last two exhibitions. Instead, it centers on New York City's Grand Central Terminal and rail yards. The exhibition, titled "The Invention of Park Avenue," explores Park Avenue's evolution from a rail yard to a high-end residential area to a corporate corridor. Still, concrete will play a role in the conception of future projects.

"Concrete is this kind of undercurrent, a leitmotif that goes through contemporary construction," said Willis. "We'll certainly continue to look at new buildings and new ideas that are emerging."

For more information on The Skyscraper Museum and The Modern Concrete Skyscraper exhibition, visit **https://skyscraper.org**.

Thanks to Carol Willis and Daniel Borrero for hosting us for a tour and interview at The Skyscraper Museum.

Selected for reader interest by the editors.

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