Case Study: 633 Folsom Street, San Francisco

Biophilic Design In Vertical Schools
Tall Buildings and City Development
Optimizing Observation Deck Design
Timber High-Rises in Scandinavia
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“ If you care about industrial decarbonization, you have to care about the building industry.”

Simonen, page 54
Global News

Visit the daily-updated online resource for all the latest news on tall buildings, urban development, and sustainable construction from around the world at: CTBUH.org/global-news

Americas

A grain terminal is being transformed into a hotel and residential building in Collingwood, Canada, a city on the Georgian Bay about 150 kilometers north of Toronto. Originally constructed in 1929, it was used to store grain for 64 years until it ceased operation in 1993. Collingwood Grain Terminals will have windows installed into the concrete exterior to add natural light, and massive repairs will occur on the roofing and structure. It is planned that the tubular silos will serve as hotel rooms, and the grain storage bin will become a public area with a terrace and restaurant.

In Toronto, another new proposal to an infill development on an existing tower-in-the-park site could add another seven towers. Spanning 5 & 15 Tangreen Court, the new group of high-rises will reach between 25 and 55 stories in height and deliver a total of 3,325 units. A pair of 18-story towers currently stands on the lot, containing a total of 214 units. Eligible residents will be offered a place in one of the new buildings.

Progress has been made on the façade installation at One High Line, a residential development at 500 West 18th Street in New York City. Adjacent to the High Line, it comprises one 36- and one 26-story building, which will yield 900,000 square feet (83,612 square meters) of space with 236 units, plus hotel and retail space and a public plaza. Across the bay in Bayonne, New Jersey, construction has been approved for the first phase of NY Vue, a residential tower vying to become the city’s tallest. The 26-story high-rise sits on a site adjacent to the Hudson River waterfront, and will add 281 rental apartments. A new public plaza will be added at the base of the podium.

Construction will be paused on the Amazon HQ2 campus in Arlington, Virginia outside Washington, DC. Not all phases are impacted equally: the first phase of construction, Metropolitan Park, is almost opened in 2023. The Park has two 22-story office towers and is expected to include more than 50,000 square feet (4,645 square meters) of retail space and a large 700-person meeting room, accommodating 14,000 additional workers. However, the second phase, PenPlace, is paused, which includes the distinctive 352-foot (107.4-meter) The Helix building, as well as three other 22-story office buildings.

A 976-room hotel, Signia by Hilton Atlanta, has topped off at 453 feet (138.1 meters) in Atlanta, built by Georgia World Congress Center Authority (GWCCA) along with Hilton and Skanska. The hotel will offer 100,000 square feet (9,290 square meters) of meeting and event space, and is boasting the largest hotel ballroom in Georgia. Built on the repurposed foundation of the demolished Georgia Dome, it will connect to the Georgia World Congress Center when it opens in January 2024. The hotel is anticipated to support 1,000 new jobs once operational.

In the Midwest, a construction company was selected to build Phase IID of Westhaven Park on Chicago’s near west side. The 12-story development includes 96 mixed-income apartment units with ground-floor retail space, 66 of which will be designated as affordable, and is expected to be completed by September 2024.

Past plans are re-emerging, and proposals are being altered in the active state of Texas. For over a decade, the proposed Ashby High-Rise on Bissonnet Street in Houston has been opposed by the residents of the Boulevard Oaks neighborhood. However, plans for the tower have now been approved and are set to move forward. Now called The Langley, plans to break ground are imminent. Originally proposed as a 21-story...
Building Re-Use as Re-Envisioning: New Life for an Outdated Edifice

Abstract

The renovation of 633 Folsom Street in San Francisco demonstrates the great potential in creatively re-imagining mid-century office buildings. In lieu of assuming eventual demolition and replacement, the conservation of these structures offers significant savings in the embodied carbon footprint of our cities. 633 Folsom engages the evolution of its neighborhood through a dramatic façade for managing natural daylight and a re-engagement with the pedestrian realm, while building upon the existing chassis of the last century’s investment.

The distinctive façade solution of 633 Folsom is based on rigorous study of the geometry of solar exposure, and responding to that exposure through a deployment of shading devices shaped from Fiber-Reinforced Polymer (FRP). The use of this material enabled unique form, accommodated wind and resonance investigations, and was validated through custom study of fire performance. The result is a workplace with much-enhanced daylight experience compared to prior to the renovation.

Keywords: Adaptive Reuse, Carbon Footprint, Daylighting, Glare Control

A New Precedent for a Forgotten Cohort of Office Buildings

The reinvention of 633 Folsom Street, San Francisco (see Figure 1) is a precedent for the future of our downtowns, charting a path to lower carbon through re-use, while investing in the human experience of working in a high-rise urban core. This precedent is critical to our cities because of the ubiquity of similar buildings from the middle of the last century. These buildings are of an era when an office building was valued as an imposing edifice, not a participant in the urban experience or the health of the community. As our values have changed, there has grown a tendency to look past these buildings; their eventual replacement is tacitly assumed. The new life breathed into 633 Folsom by the development team put together by The Swig Company guides us away from that simplistic narrative.

Our existing building stock is a prior generation’s investment in the future. We now see that investment as not only financial; there is an equally relevant sunk cost in the embodied carbon of this construction. Carbon footprints accumulate direct and indirect emissions of carbon, which a study of the implications of building demolition reveals. Using 633 Folsom Street as an example, the demolition would consider the abandonment of the previous century’s carbon investment, the carbon embodied in bringing a new structure to the site, and several weeks of diesel trucks moving through the urban core to remove seven stories of concrete. The opportunity to be found in conserving existing construction is apparent.

The commercial office building at 633 Folsom is distinct from its cohort of mid-century developments because of the commitment of its owner. The Swig Company developed the building in the 1960s and has owned the property continuously since that time. This experience provided the owner with a unique perspective on the decreasing relevance of the property to the workplace experience.
sought by this generation’s tenants. Leadership approached Gensler with an awareness that the building suffered from a multi-faceted isolation: while the occupants experienced isolation from daylight and views due to the heavy tinting of technologically outdated glazing (see Figure 2), the pedestrian vibrancy of the city was isolated from the building by the imposing barrier of the engagement at the sidewalk level. A new vision was needed for the next life of the building.

This new vision for 633 Folsom developed into three distinct areas of focus: conserving the existing concrete structural chassis, providing a new façade tuned for daylight and energy performance, and re-engaging the pedestrian experience.

Catching Up to the Neighborhood

While our values for workplace experience and urban engagement have evolved since the 1960s, San Francisco’s downtown neighborhood surrounding had evolved as well. Height had increased substantially, as the high-rise core advanced south with taller towers for work and residences. The owner and the architect both understood that
Evolution of the World’s Tallest Buildings

As a companion to CTBUH's *The World’s 118 Tallest Buildings*, and in recognition of the 2023 completion of Merdeka 118, the world’s second-tallest building, in Kuala Lumpur, this study focuses on the past, present, and future of the world’s tallest buildings. Of the 100 tallest buildings in the world, 60 have been completed since 2010, and most of those have been in Asia and the Middle East. The world’s tallest are more than just their titles—collectively, they tell a story about where the world is developing, how evolving economies are influencing building function, and how the density and height of rising cities will influence the tall building industry at large.

To see a preview of *The World’s 118 Tallest Buildings* and purchase a copy, see [ctbuh.org/118-tallest](http://ctbuh.org/118-tallest).

For the interactive version of this data study, see [skyscrapercenter.com/118-tallest](http://skyscrapercenter.com/118-tallest).

*This study includes topped-out buildings due to complete by the end of 2023.*

Tallest Buildings Completed Each Decade, Since 1900

NOTE: Buildings in light grey are not currently amongst the 100 Tallest.

### 1900s
- **Metropolitan Life Tower**
  - New York City
  - Height: 213.4 m

### 1910s
- **Woolworth Building**
  - New York City
  - Height: 241.4 m

### 1920s
- **Terminal Tower**
  - Cleveland
  - Height: 215.8 m

### 1930s
- **Empire State Building**
  - New York City
  - Height: 381 m

### 1940s
- **Altino Arantes**
  - São Paulo
  - Height: 161 m

### 1950s
- **MV Lomonosov State University**
  - Moscow
  - Height: 239 m

### 1960s
- **875 North Michigan Avenue**
  - Chicago
  - Height: 343.7 m

### 1970s
- **Willis Tower**
  - Chicago
  - Height: 442.1 m

### 1980s
- **The Franklin - North Tower**
  - Chicago
  - Height: 306.9 m

### 1990s
- **Petronas Towers**
  - Kuala Lumpur
  - Height: 451.9 m

### 2000s
- **Burj Khalifa**
  - Dubai
  - Height: 828 m

### 2010s
- **Merdeka 118**
  - Kuala Lumpur
  - Height: 678.9 m

### 2020s
- **TAIPEI 101**
  - Taipei
  - Height: 501 m

41 of the 100 tallest buildings feature observation floors, more than double the number as recently as 1995. The average height of these observatories is 388.3 meters.

Merdeka 118, at 678.9 meters, surpasses the 634-meter Tokyo Sky Tree, making it both the world’s second tallest building and structure.
The Emerging Profile of Today’s 100 Tallest

Since 1990, the world’s tallest buildings have become increasingly geographically, materially, and functionally diverse as the globalization of commerce, and in turn, vertical urbanism, has accelerated. New entrants into the 100 Tallest most are likely to be mixed-use, outside of North America, and constructed of composite materials.

By Region

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By Function

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The 100 Tallest Tenures

Since the beginning of the 20th century, the Empire State Building, New York City, has held the title of “World’s Tallest Building” for the longest period, reigning from its completion in 1931 until being eclipsed by One World Trade Center, also in New York, in 1972. Shortly after, Chicago’s Willis (then-Sears) Tower took the lead and held the title until 1998, when the Petronas Twin Towers, Kuala Lumpur, completed, moving the distinction out of North America for the first time in a century. Shown at right, 10 buildings have earned the “World’s Tallest Building” title since 1901, beginning with Philadelphia City Hall (Philadelphia, 167 meters, 1901) and culminating with the current titleholder, Burj Khalifa (Dubai, 828 meters, 2010).

Who’s on First?

Asia and the Middle East have claimed the World’s Tallest and Second Tallest titles since 1998, with Shanghai World Financial Center (Shanghai, 492 meters, 2008), TAIPEI 101 (508 meters, Taipei, 2004), Makkah Royal Clock Tower (Mecca, 601 meters, 2011), Shanghai Tower (Shanghai, 632 meters, 2015), and now Merdeka 118 (Kuala Lumpur, 678.9 meters, 2023) having held the World’s Second Tallest title since the Petronas Twin Towers were surpassed by TAIPEI 101 in 2004.

100 Years After the Empire State Building

As the height of the tallest buildings continues to climb, the Empire State Building—which, at 381 meters, held the top spot for 41 years—could be eliminated from the 100 Tallest list by its centennial anniversary in 2031.

25 of the world’s tallest buildings have been completed since the beginning of the COVID-19 pandemic.

Complementing the trend towards mixed-use programming, 47 of the 100 tallest buildings are a part of complexes of 2+ buildings, a figure that has doubled since 2004.
About the Council

The Council on Tall Buildings and Urban Habitat (CTBUH) is the world's leading non-profit organization for all those interested in the future of cities. It explores how increased urban density and vertical growth can support more sustainable and healthy cities, especially in the face of mass urbanization and the increasing effects of climate change worldwide.

Founded in the USA in 1969, the CTBUH member network embraces more than a million professionals working in all building industry sectors in almost all countries of the world. With offices in Chicago, Shanghai, and Venice, the Council runs hundreds of multidisciplinary programs across the world each year, through its regional chapters and expert committees, its annual conferences and global awards program, through funded research projects and academic collaborations, and via its extensive online resources and physical outputs. The Council is perhaps best-known to the public as the arbiter of tall building height and the global authority that bestows titles such as “The World’s Tallest Building.” Operating on a global scale, CTBUH serves as a platform for both cutting-edge information-share and business networking for all companies and professionals focused on the inception, design, construction, and operation of cities, and the buildings they comprise.

CTBUH Headquarters
104 South Michigan Avenue, Suite 620
Chicago, IL 60603, USA
Phone: +1 312 283 5599
Email: info@ctbuh.org
CTBUH.org

CTBUH Asia Headquarters
College of Architecture and Urban Planning (CAUP)
Tongji University
1239 Si Ping Road, Yangpu District
Shanghai 200092, China
Phone: +86 21 65982972
Email: china@ctbuh.org

CTBUH Research Office
Iuav University of Venice
Dorsoduro 2006
30123 Venice, Italy
Phone: +39 041 257 1276
Email: research@ctbuh.org

CTBUH Academic Office
S. R. Crown Hall
Illinois Institute of Technology
3360 South State Street
Chicago, IL 60616
Phone: +1 312 283 5646
Email: academic@ctbuh.org