World Surpasses 2,000 Buildings of 200 Meters or Greater Height

Abstract

This report shows that 147 buildings of 200 meters' height or greater were completed in 2022, a 25 percent increase from 2021, when 118 such buildings were completed. Disruptions to the supply chain, labor force, demand, and other factors have continued to delay the completion of in-progress skyscrapers. Nevertheless, more tall buildings are commencing work than ever before, and 2023 is set to be a blockbuster year for the industry.

(Note: The study sets a minimum threshold of 200 meters' height because of the completeness of data available on buildings of that height. Unless otherwise noted, all data within reported in this study is accurate as of 15 March 2023.)

Keywords: Construction, COVID-19, Development, Height, Hotel, Megatall, Mixed-Use, Office, Residential, Supertall

Introduction

As the world rounds out its third full year since the outbreak of the coronavirus pandemic, construction trends have begun to revert to their prepandemic norms. Projects that encountered erratic changes in timelines over the last few years have finally been seen through to completion. Although 2022 was not a strong year for supertall buildings—those 300 meters and taller—completions of 200-meter-plus buildings rose back to 147, from a recent low of 118 in 2021 (see Figure 1). Despite the ongoing challenges presented by supply chain disruptions and shortages of labor and materials, 2022 still saw the fourth-highest number of 200-meter-plus completions ever, surpassed only by the activity in the period 2017 to 2019. Additionally, 2022 was the first year since 2013 without a 400-meter-plus completion, and only the second year since 2007. With that said, 2022 did represent a major milestone for overall tall building construction, with the world surpassing 2,000 buildings of 200 meters or greater height for the first time, ending the year with 2,070 total complete buildings.

The tallest building to complete in 2022 was CITYMARK CENTRE, Shenzhen, 388 meters (see Figure 2). This is the first time that a Shenzhen building has held the title since Ping An Finance Center, which was the tallest to complete in 2017, at 599 meters. Shenzhen is the world's most prolific skyscraper-building city, raising 130 buildings of 200 meters or greater in height since its first, Shun Hing Square, completed in 1996.

Key Worldwide Market Snapshots

While the number of completions has begun to rise back to pre-2020 levels, significant timeline impediments to some projects have pushed the most notable intended 2022 completions into 2023. Merdeka 118, Kuala Lumpur, 679 meters, and Wuhan Greenland Center, Wuhan, 476 meters, have both seen delays in the final stretches of construction, but are currently architecturally topped-out, and represent at least two buildings of 400 meters or greater height expected to complete in 2023.

Although the average height of 200-meter-plus buildings has remained steady over time, floating between a low of 236.5 meters (2022) and high of 257.1 meters (2019), the construction period of these buildings has increased. Since 2010, the average completion time for a 200-meter-plus building has increased by 18 months, from 4.3 to 5.8 years. The precise causes for this have not been definitively identified, but even prior to the pandemic and the subsequent supply chain disruptions, overall completion timelines were slowly extending.

Despite these challenges, the most productive skyscraper-building countries continued to pad their portfolios in 2022. Of the 147 completed, 86 buildings, or 59 percent, were completed in China alone. In the United States, seven completions were added to its collection, bringing the total number of 200-meter-plus buildings in the country to 235. Three of the four 200-meter-plus buildings in Brazil were completed in 2022 alone.

Even as construction schedules recover from the pandemic, the average height of new tall buildings is following a pattern of slow regression towards 300 meters since reaching a peak of 377 meters in 2019. Given the strict capping of tall projects in China—the locus of modern skyscraper construction—and the lack of any new projects over 500 meters begun in the last year, the focus of tall buildings in the foreseeable future will likely be in the 200- to 400-meter range.

National Scale

Twenty-five different countries completed 200-meter-plus buildings in 2022 (see Figure 3), including three countries that have built their first such buildings: Kazakhstan, Switzerland, and the Netherlands. With 86 completions, China once again led the world in skyscraper construction, a distinction it has had every year since 1995, when only one 200-meter-plus building completed, the Osaka World Trade Center (256 meters) in Japan.

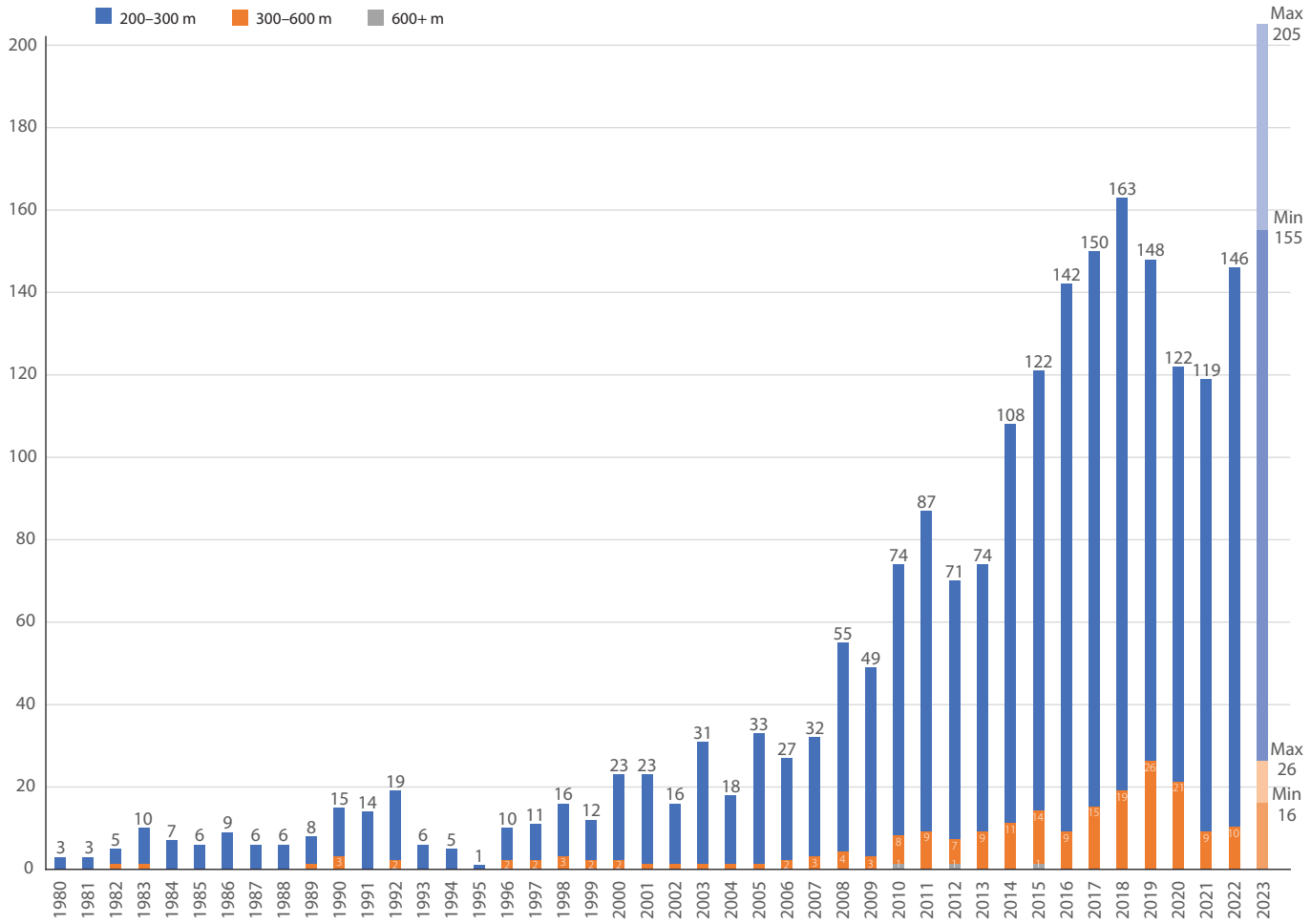

Figure 1. Number of 200-meter-plus buildings completed in each year from 1980 to 2022, with a 2023 projection.

City Scale

Fifty-eight cities completed 200-meter-plus buildings in 2022, and 29 of those completed two or more (see Figure 4). For the top city title, three cities tied with 10 completions each: Shenzhen, Guangzhou, and Hong Kong. Some 14 percent of the world's 200-meter-plus buildings, or 283 of the 2,070 buildings, are in these three cities alone.

Records

Two major milestones in 200-meter-plus buildings were reached in 2022. Firstly, the world has surpassed 2,000 total such buildings, ending the year with 2,070 total. Secondly, China surpassed 1,000 total, ending the year with 1,033 all-time completions, just two buildings shy of half the world's inventory of 200-meter-plus buildings.

Figure 2: The tallest completion in 2022 was CITYMARK CENTRE, Shenzhen, at 388 meters. © Shenzhen City Holdings Co., Ltd.

Regionally, many individual records were also set, with projects like Kazakhstan's Abu Dhabi Plaza, Astana, 311 meters, putting Central Asia on the supertall map. In North Korea, Pyongyang completed its tallest building, Songhwa Street Main Tower, at approximately 273 meters. Balneário Camboriú, Brazil, a small coastal city with under 150,000 residents, now boasts seven of Brazil's 10 tallest buildings, breaking its own record in 2022 with One Tower, 290 meters (see Figure 5).

Europe is not generally known for having gravity-defying, record-breaking tall buildings, but 2022 was a year of major advancement for many European cities. Warsaw, Poland, completed the Varso Tower (see Figure 6), 310 meters, breaking the record for the tallest building in the European Union and becoming its first supertall. Varso Tower is also the tallest structure to be built in Poland since the Palace of Culture and Science (231 meters) was completed in 1955.

Elsewhere in Europe: Rotterdam, Netherlands; Turin, Italy; Puteaux, France; and Basel, Switzerland all completed their first 200-meter buildings in 2022: the De Zalmhaven I building (215 meters), Regione Piemonte Headquarters (205 meters), HEKLA (220 meters), and Roche Turm Bau 2 (205 meters), respectively.

Geographic Diversity

The geography of skyscraper construction continued to diversify in 2022, with a record 26 unique countries completing a building 200 meters or taller, beating 2017, which saw 23 unique countries complete 200-meter-plus buildings (see Figure 7). Some 58 unique cities also completed a building 200 meters or greater, again being

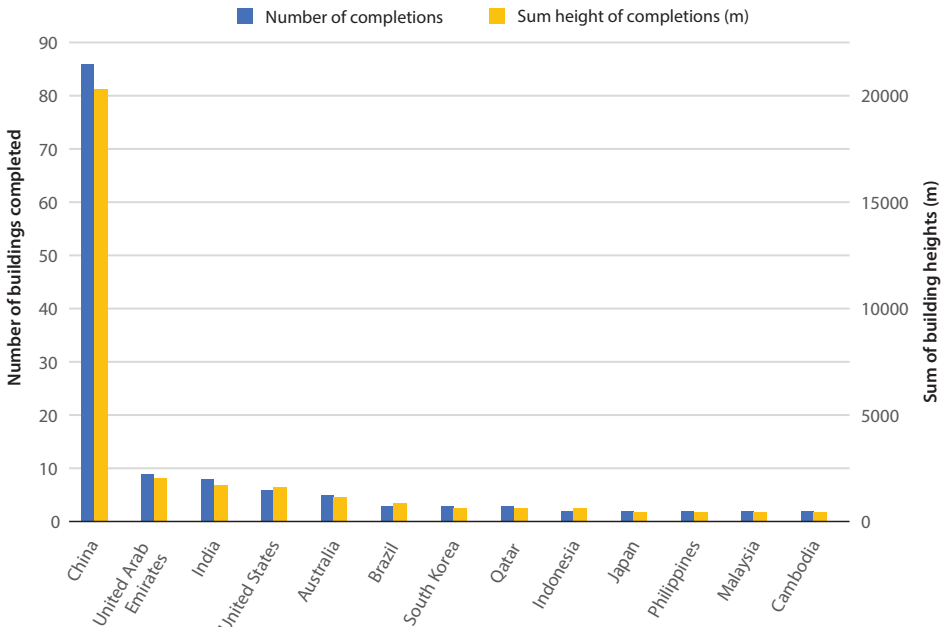

Figure 3. Buildings of 200 m or greater height completed in 2022, grouped by country and ordered by number of completions, followed by the sum of building heights for that country. Note that only countries with at least two completions in 2022 are included in this chart. One 200m+ completion was also recorded in 2022 in these countries: Bahrain, Canada, France, Israel, Italy, Kazakhstan, Mexico, Netherlands, North Korea, Poland, Sri Lanka, and Switzerland.

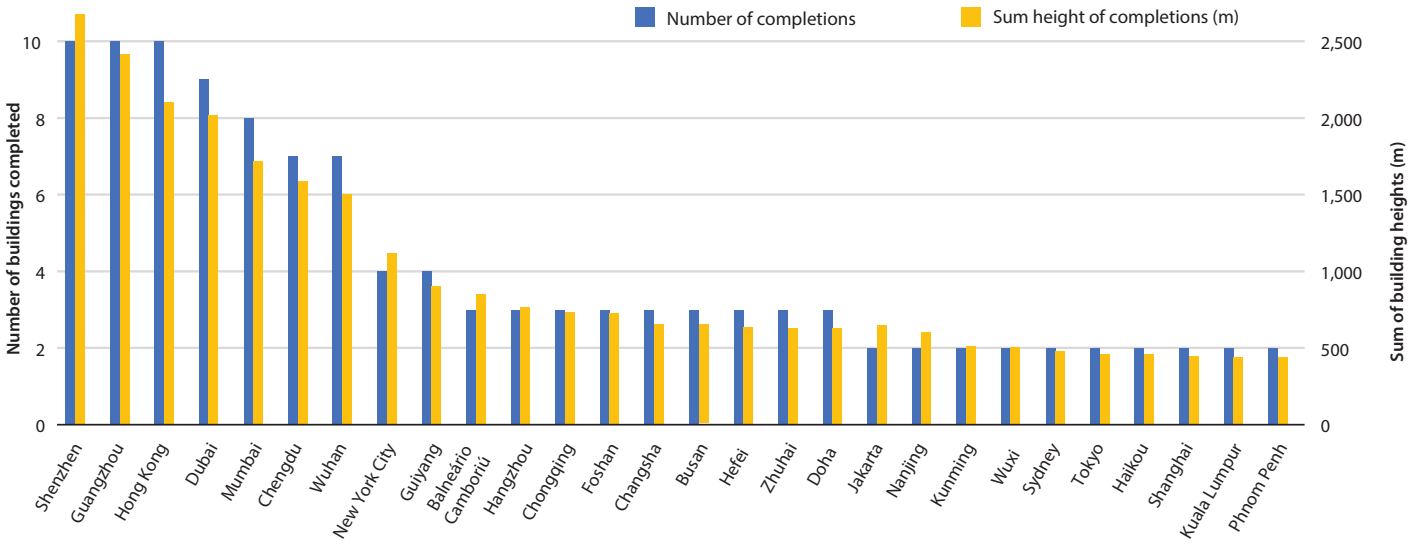

Figure 4. Buildings 200 meters or greater completed in 2022, grouped by city and ordered by number of completions, followed by sum of building heights for each city. Note that only cities with at least two completions in 2022 are included in this chart. One 200m+ completion was also recorded in 2022 in these cities: Astana, Basel, Beijing, Bnei Brak, Chicago, Colombo, Dalian, Dongguan, Gold Coast, Jinan, Lanzhou, Makati, Manama, Manila, Melbourne, Mexico City, Nanning, Parramatta, Puteaux, Pyongyang, Rotterdam, Sunny Isles Beach, Taipei, Toronto, Turin, Warsaw, Xi'an, Xiamen, and Zhanjiang.

exceeded only by 2017, when 68 cities completed 200-meter-plus buildings.

Asia (excluding the Middle East) continued its dominance over new tall building completions, contributing 110 buildings of the 147 overall, for a more than 75 percent share; this figure is significantly up from the 87 building completions in 2021, representing 73 percent of the total in that year (see Figure 8).

Coming back into the fold for the first time since 2019 was South America, with three completions in Balneário Camboriú, Brazil. In 2022, there were no completions of 200 meters or greater in Central America or Africa, which both featured one 200-meter-plus completion in 2021.

Figure 5. The tallest building in Brazil, One Tower (290 meters), completed in 2022. This title, as well as the title of Tallest All-Residential Building in Latin America, was verified by CTBUH and recognized on a signboard, located outside the building. © Tansri Muliani

Figure 6. In 2022, Varso Tower, Warsaw, became the tallest building in Poland and the tallest building in the European Union, at 310 meters. © Aaron Hargreaves/ Foster & Partners

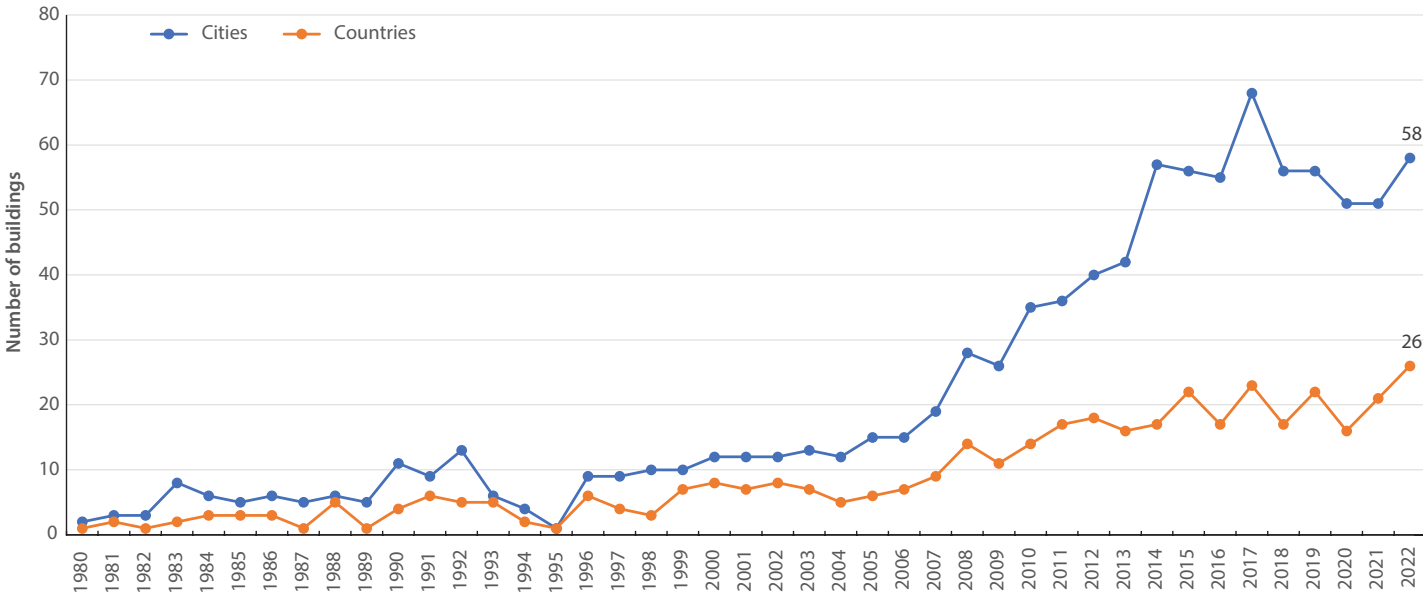

Figure 7. Number of cities and countries completing a 200-meter-plus building, 1980-2022.

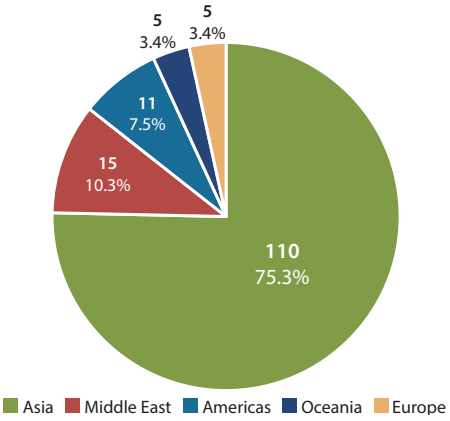

Figure 8. Buildings 200 meters or taller completed in 2022, by region.

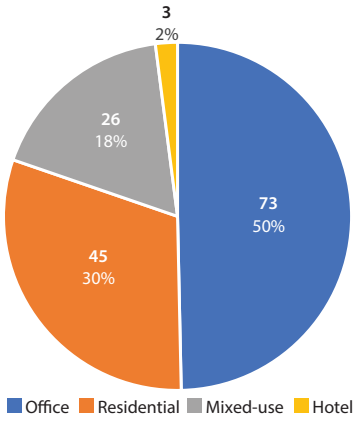

Figure 9. Tallest 20 buildings completed in 2022, by function.

The 20 Tallest Buildings Completed in 2022

Of the tallest 20 buildings to complete in 2022, just 10 were supertalls, and at seven percent, the ratio of 2022's supertall completions to total 200-meter-plus completions was the second-lowest since 2009, with only 2016 being lower. Notably amongst the tallest projects are Varso Tower, Warsaw, Poland (310 meters), and Abu Dhabi Plaza, Astana, Kazakhstan (311 meters), both the first supertalls in their respective countries, and the first buildings from each country to appear alongside the Tallest 20 Buildings of any year since 1955, the last time

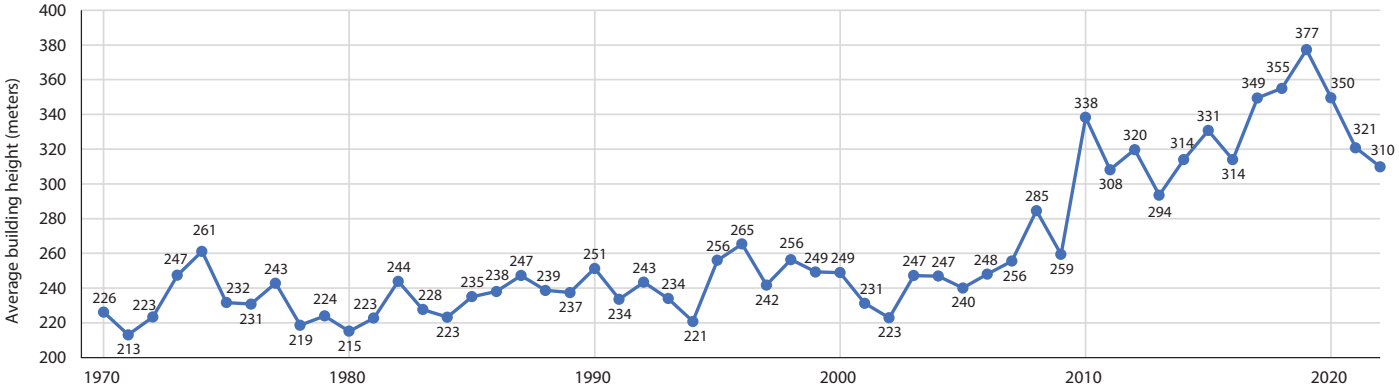

Figure 10. The average height of the 20 tallest buildings completed, by year.

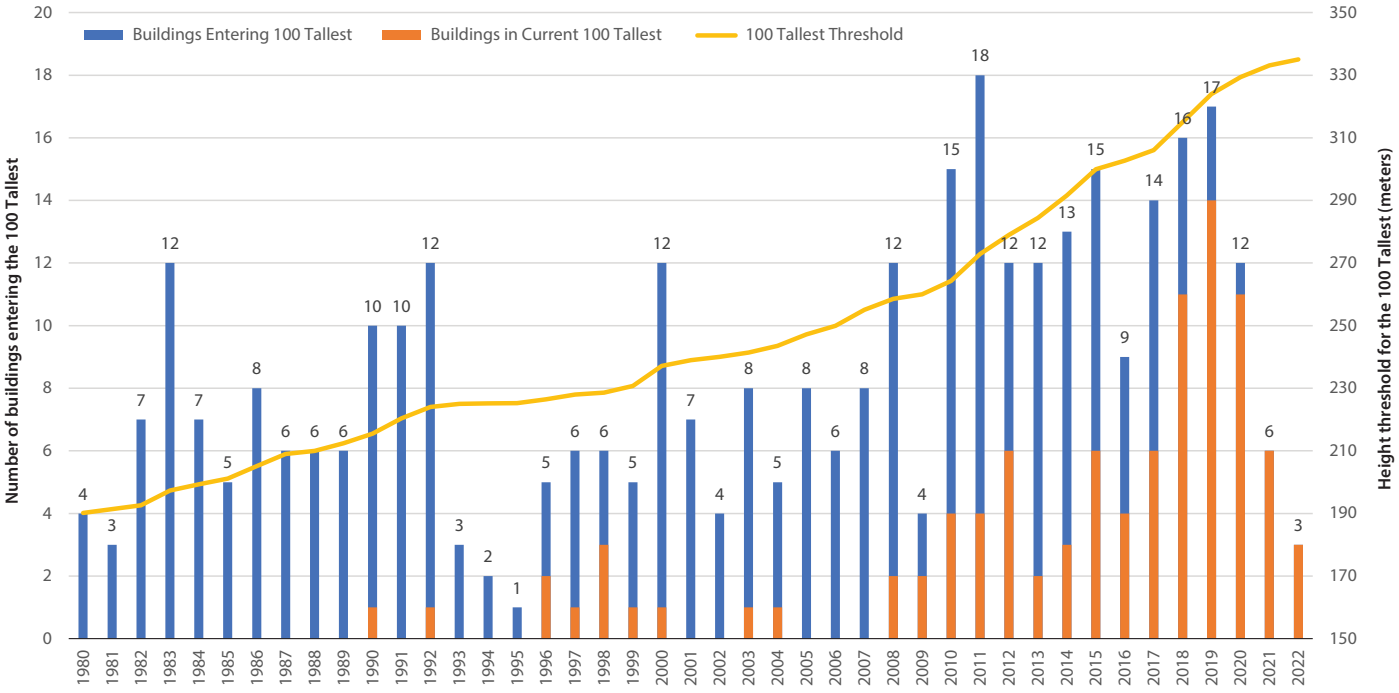

Figure 11. Number of buildings entering the World's 100 Tallest list, by year, with the minimum height threshold to enter the 100 Tallest indicated.

Poland completed its tallest building.

Seven buildings, or 35 percent of the 20 tallest, were mixed-use projects, compared to just 18 percent of all 200-meter-plus completions. The functional breakdown of all-office buildings was almost even compared to that of the 20 tallest, with 45 percent of the Tallest 20 and 50 percent of the entire cohort being solely office buildings. Although recent reports indicate that the demand for office space is decreasing, with an increase in remote workers, the share of all-office buildings has actually increased from 2018's prepandemic figures of 35 and 38 percent, for the share of offices in the tallest-20 and total 200-meter-plus completion lists, respectively. Just 20 percent of the 20 tallest buildings in 2022 were residential, compared with 31 percent of all 200-meter-plus buildings (see Figure 9).

It was also a "short" year for tall completions in 2022, with the average height of the 20 tallest being 310 meters, the third consecutive year that this figure has declined, and the lowest the average height has been since 2013 (see Figure 10). Nonetheless, total completion numbers are up, and this may be further evidence that tall buildings of the coming decade will increasingly be in the 200- to 400-meter range.

Impact on the World's 100 Tallest

Despite the growth in skyscraper construction overall, only three buildings broke into the list of the world's 100 tallest buildings in 2022 (see Figure 11). The threshold for inclusion in that group has now reached 335 meters, a figure that has increased 18 percent from 284 meters in 2012, and 39 percent from 241 meters in 2002. As the world continues to amass more supertall buildings, of which it now has 210, the feat of building amongst the world's tallest will become increasingly challenging. Nevertheless, CTBUH examined the trends of the 100 Tallestbuildings leading into 2022, and how the most recent additions affected the list's composition.

> "Of the buildings currently under construction or topped-out, 33 are supertalls; if just 27 of those complete in 2023, it would smash the 2019 record of 26 supertall completions, marking a true return to normalcy for skyscraper construction."

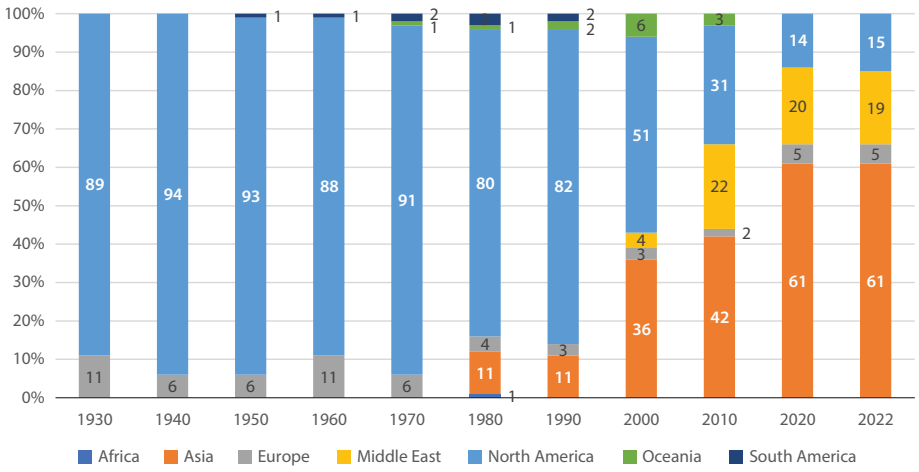

Figure 12. The World's 100 Tallest Buildings at the end of each listed year, categorized by region.

Region

Geographically, the breakdown of the 100 Tallest remains unchanged from 2021 and has shifted only slightly from 2020, with North America reclaiming one spot from the Middle East. Currently, only 20 of the tallest 100 are outside of the Middle East and Asia, and 52 of the buildings are in China alone (see Figure 12). The United States and United Arab Emirates remain in a dead heat, with the UAE having 16 to the USA's 15 buildings, a position that the UAE has held onto since 2012. With one of South Korea's buildings within the 100 Tallest list being surpassed in height in 2022, Malaysia now has ascended to the fifth spot and, with Merdeka 118 completing soon, could possibly ascend to the fourth place in 2023, displacing Russia.

In terms of new entrants, Indonesia is back on the map with Autograph Tower, Jakarta, 383 meters (see Figure 13). Previously, Indonesia had only one building, Wisma 46, 262 meters, in the 100 Tallest list from 1996 to 2010. Such is the quick pace of tall building construction that, currently, Wisma 46 is now the world's 450th-tallest building, just 13 years after it fell out of the World's 100 Tallest Buildings list.

Function

After four decades of declining amongst the world's 100 Tallest list, all-office buildings have made a slight rebound, now comprising 36 of the 100 Tallest (see Figure 14). All three buildings entering the 100 Tallest in 2022 have an office component, with two of those being mixed-use (CITYMARK CENTRE, Autograph Tower) and

Figure 13. The Autograph Tower, Jakarta, at 383 meters, is now the tallest building in Indonesia. © Tansri Muliani

Figure 15. Glory · Xi'an International Finance Center, Xi'an, entered the list of the World's 100 Tallest Buildings in 2022 at 350 meters. © Beijing Institute of Architectural Design

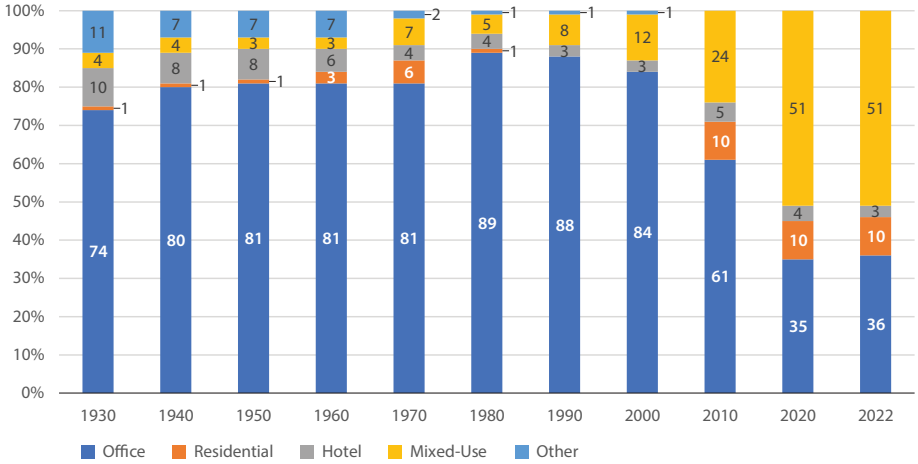

Figure 14. The World's 100 Tallest Buildings at the end of each listed year, categorized by function.

one being office-only (Glory · Xi'an International Finance Center, see Figure 15).

Material

The abundance of structural systems that use multiple materials within the primary structural system continues to dominate the World's 100 Tallest Buildings, with composite and mixed structures making up 68 percent of the list (see Figure 16). All-concrete structures are still a common solution, making up 27 percent of the 100 Tallest, but all-steel structures have been in decline. As recently as 1960, all-steel structures supported 93 of the World's100 Tallest Buildings, but now, only seven all-steel structures are in the 100 Tallest, with 30 Hudson Yards (2019 completion) being the only all-steel structure to enter the 100 Tallest in the last 25 years.

Height

In 2021, the world counted 200 supertall buildings, and the 100 Tallest Buildings crossed the 400-meter threshold. With just three buildings entering the 100 Tallest list in 2022, all of which were under 400 meters, the average height has only marginally increased (see Figure 17). Joining 2021, this was the second consecutive year in which the average height of the tallest 20 completions fell below the threshold for the World's 100 Tallest (refer back to Figure 10).

Conclusions

Amidst unprecedented changes to projects' schedules, designs, and functions, the global trend of tall building construction has returned to its fast-paced prepandemic state. With 147 completions of 200 meters and higher in 2022, the growth seen leading into 2020 has resumed, and has teed up 2023 as a record-breaking year, led by the world's fourth megatall and dozens of other projects that were almost completely finished at the end of 2022.

Barring another unexpected blow to the global economy, 2023 is poised to be a record-setting year for skyscraper construction. A significant portion of the tallest projects slated for 2022 have been pushed into 2023 and are all but certain to complete this year. Countries like China and the United States, the two most high-volume countries for skyscrapers, will more fully recover; both saw more dramatic reductions from pre-pandemic years in 2022, but are in a position to catch up to those years in 2023.

Given the increase in average total construction times for the 200-meter-plus dataset to 5.8 years, the typical completion in 2023 will have commenced construction between early 2017 and early 2018, meaning there may have been substantial interruptions due to strict measures

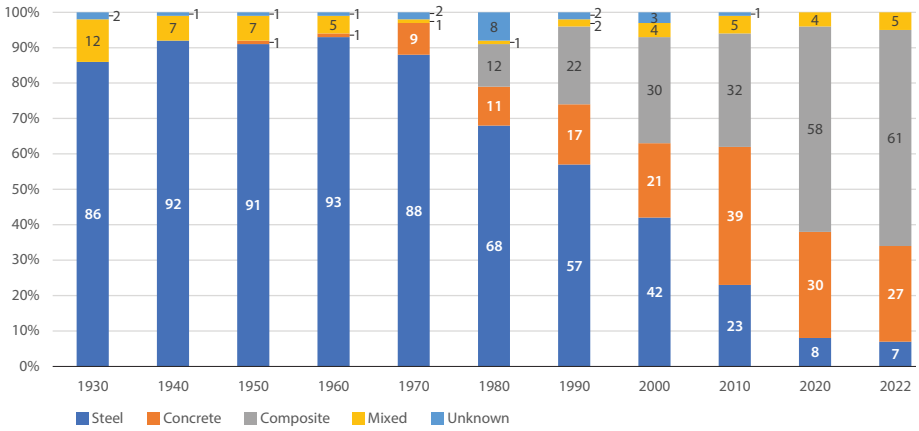

Figure 16. The world's tallest 100 buildings at the end of each listed year, categorized by structural material.

> "Since 2010, the average completion time for a 200-meter-plus building has increased by 18 months, from 4.3 to 5.8 years."

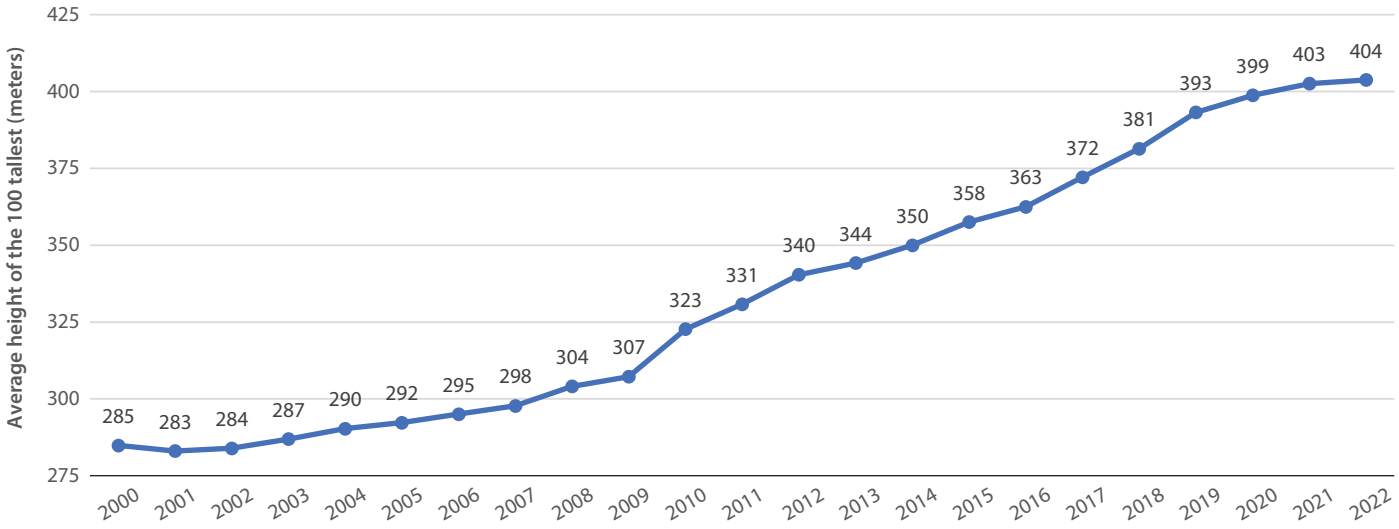

Figure 17. The average height of the 100 tallest buildings globally, by year, 2000-2022.

implemented in the early pandemic days. Temporary stalls and slowdowns have not been uncommon, especially in the final stages of project delivery, and many of these projects have advanced far enough that they will likely finish in 2023.

Of the buildings currently under construction or topped-out, 33 are supertalls; if just 27 of these buildings were to complete in 2023, it would smash the record of 26 supertall completions in 2019, marking a true return to normalcy for skyscraper construction. The 2023 list will most likely be led by the completion of Merdeka 118. Kuala Lumpur, which, at 679 meters, will officially be the second-tallest building in the world and only the fourth megatall (600-meter-plus) completion in history.

In light of the massive number of skyscrapers on deck, CTBUH predicts at least 155 buildings of 200 meters and higher to complete in 2023, with as many as 205 completing next year. Of these, we expect between 16 and 26 to be supertalls. Any final figure within this range will be record-breaking on multiple fronts, as it is likely to be the most prolific year for skyscraper completions ever. With construction in China keeping apace, it is also likely that China will be home to over half of the world's 200-meter-plus buildings, a distinction not held by any country since 1999, when the United States had completed 124 of the world's 236 skyscrapers of that height. ■

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