



# Best Tall Buildings

*A Global Overview of 2015 Skyscrapers*

CTBUH Awards



images  
Publishing

Antony Wood & Steven Henry



**images**  
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## About the CTBUH

The Council on Tall Buildings and Urban Habitat (CTBUH) is the world's leading resource for professionals focused on the inception, design, construction, and operation of tall buildings and future cities. A not-for-profit organization, founded in 1969 and based at Chicago's Illinois Institute of Technology, CTBUH has an Asia Headquarters office at Tongji University, Shanghai, and a Research Office at Iuav University, Venice, Italy. CTBUH facilitates the exchange of the latest knowledge available on tall buildings through publications, research, events, working groups, web resources, and its extensive network of international representatives. The CTBUH also developed the international standards for measuring tall building height and is recognized as the arbiter for bestowing such designations as "The World's Tallest Building."

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# Winner

## Best Tall Building Americas

# One World Trade Center

New York City, United States of America



**Completion Date:** November 2014  
**Height:** 541 m (1,776 ft)  
**Stories:** 94  
**Area:** 325,279 sq m (3,501,274 sq ft)  
**Primary Function:** Office  
**Owner:** 1 World Trade Center LLC  
**Developers:** Port Authority of New York and New Jersey; The Durst Organization  
**Architect:** Skidmore, Owings & Merrill LLP (design)  
**Structural Engineers:** WSP Group (design); Schlaich Bergermann und Partner (design); Leslie E. Robertson Associates (peer review)  
**MEP Engineer:** Jaros, Baum & Bolles (design)  
**Project Manager:** STV  
**Main Contractor:** Tishman Construction  
**Other Consultants:** AECOM (cost); Arnold & Porter LLP (environmental); Benson Industries (façade); Brandston Partnership, Inc. (lighting); Cerami Associates (acoustics); Claude Engle (lighting); Code Consultants, Inc. (code); Ducibella Venter & Santore (security); Jaros, Baum & Bolles (vertical transportation); Lerch Bates (façade maintenance); Mathews Nielsen Landscape Architects (landscape); Mueser Rutledge Consulting Engineers (geotechnical); Pentagram (way finding); Permasteelisa Group (façade); Peter Walker Landscape Architects (landscape); Philip Habib & Associates (civil, traffic); RWDI (wind); The Hettema Group (observatory); Viridian Energy & Environmental, LLC (sustainability)

*“The tower succeeds in realizing both its functional and symbolic purposes, employing a formal play in simple prismatic geometry that builds upon New York’s long skyscraper tradition.”*

Mun Summ Wong, Jury Chair, WOHA Architects

Rising from the northwest corner of the 6.5-hectares World Trade Center site, One World Trade Center recaptures the New York skyline, reasserts downtown Manhattan’s pre-eminence as a business center, and establishes a new civic icon for the United States. It is a memorable architectural landmark for the city and the nation, and will connect seamlessly to its surroundings with entrances on all four elevations and linkages to an extensive underground transportation network. Extending the long tradition of American ingenuity in high-rise construction, the design solution is an innovative mix of architecture, structure, urban design, safety, and sustainability.

The tower’s spire reaches the symbolic height of 1,776 feet (541 meters), a nod to the year that the United States declared independence, and is topped with a large revolving beacon. The height of the parapet is similarly symbolic, matching the exact height of the original One World Trade Center. Sited north of the National September 11 Memorial, the tower rises from a cubic





# Winner

## Best Tall Building Asia & Australasia

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# CapitaGreen

## Singapore



**Completion Date:** December 2014

**Height:** 242 m (794 ft)

**Stories:** 40

**Area:** 79,383 sq m (854,471 sq ft)

**Primary Function:** Office

**Owners/Developers:** CapitaLand Commercial Trust; CapitaLand Limited; Mitsubishi Estate Asia

**Architects:** Takenaka Corporation (design); Toyo Ito & Associates, Architects (design); RSP Architects Planners & Engineers (Pte) Ltd (architect of record)

**Structural Engineers:** Sasaki Associates (concept); Takenaka Corporation (design); RSP Architects Planners & Engineers (Pte) Ltd (engineer of record)

**MEP Engineers:** Takenaka Corporation (design); Squire Mech Pte Ltd (engineer of record)

**Project Manager:** CapitaLand Commercial Project Management Pte Ltd

**Main Contractor:** Takenaka Corporation

**Other Consultants:** Arup (environmental, façade, vertical transportation); Langdon & Seah Singapore Pte Ltd (quantity surveyor); Lighting Planners Associates (lighting); Mitsubishi Jisho Sekkei Inc (interiors); Sitetectorix Pte Ltd (landscape); Square Peg Design (way finding)

*“CapitaGreen shows a viable way forward for the high-rise vegetated façade – within the double skin. ‘Contained’ in this way, it could offer shade and potential agricultural output, as well as environmental and psychological benefits.”*

Antony Wood, Juror, CTBUH

CapitaGreen is a high-rise office tower located within Singapore’s central business district and in close proximity to the extended downtown Marina Bay. Lush greenery and expansive spaces are the distinctive features of the design, with the intention of reconnecting people to nature. The tower endeavors to reintroduce the greenery that was present on the site before it was redeveloped. It is an unconventional and welcome addition to Singapore’s central business district.

The building rises like a plant growing towards the sky. Vegetation covers 55 percent of the perimeter of its façade, giving the building its iconic appearance. Its double-skin façade features an outer layer of frameless glass and an inner envelope of double-glazed floor-to-ceiling glass that reduces solar heat gain by up to 26 percent. The skin also incorporates a maintenance ledge for easy access to the plantings. Placing the vegetated



## Winner Best Tall Building Europe

# Bosco Verticale

Milan, Italy



**Completion Date:** October 2014

**Height:** Tower E: 116 m (380 ft); Tower D: 85 m (279 ft)

**Stories:** Tower E: 27; Tower D: 19

**Area:** Tower E: 18,717 sq m (201,468 sq ft); Tower D: 11,793 sq m (126,939 sq ft)

**Primary Function:** Residential

**Owner:** Fondo Porta Nuova Isola

**Developer:** Hines Italia srl

**Architect:** Boeri Studio (design)

**Structural Engineer:** Arup (design)

**MEP Engineer:** Deerns (design)

**Main Contractors:** Colombo Costruzioni S.p.A.; ZH Construction Company S.p.A.

**Other Consultants:** Deerns (LEED, vertical transportation); Studio Emanuela Borio (landscape); Studio Laura Gatti (landscape)

*“These buildings take vertical greenery to a new level. The views from the interior apartments resemble ground-floor vistas due to the degree of greenery that is affixed to the building.”*

James Parakh, Juror, Toronto Planning Department

Bosco Verticale, literally “Vertical Forest” in Italian, consists of two residential towers located in the Porta Nuova district in Milan, northeast of the historic city center. The two towers are of different heights, but are characterized by the presence of vegetation distributed throughout deep cantilevered terraces that wrap in a segmented pattern around each building. The façades of the towers are oriented precisely in the four cardinal directions. The floor plans vary slightly between the towers, with a floor-plate surface area of 500 square meters in Tower D, and 660 square meters in Tower E. The sizes of the apartments also vary; with two or three apartments per floor in Tower D, and two to four apartments per floor in Tower E.

The project aims to increase biodiversity and help establish an urban ecosystem, in which different kinds of vegetation create a vertical environment that can be populated by small animals such as birds and insects, becoming both a magnet for, and a symbol of, the natural re-colonization of the city by vegetation and

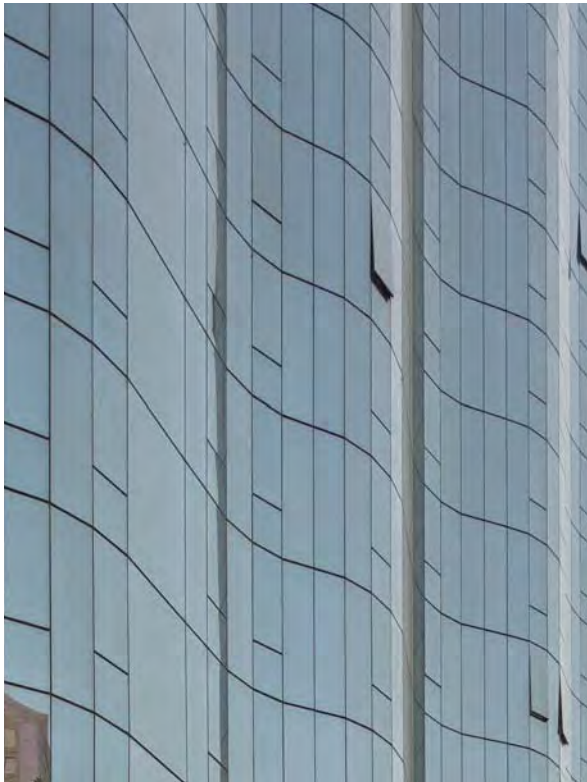


## Winner

## Best Tall Building Middle East & Africa

# Burj Mohammed Bin Rashid

Abu Dhabi, United Arab Emirates



**Completion Date:** December 2014

**Height:** 381 m (1,251 ft)

**Stories:** 88

**Primary Function:** Residential

**Developer:** Aldar Properties

**Architect:** Foster + Partners (design)

**Structural Engineer:** Halvorson and Partners (design)

**MEP Engineer:** ChapmanBDSP (design)

**Project Manager:** Atkins

**Main Contractor:** Arabian Construction Company

**Other Consultants:** Arup (façade); Lerch Bates (vertical transportation); V3 Companies (civil)

*“The tower brings a commitment to sustainability directly into the heart of Abu Dhabi by raising the bar for energy and resource savings from design through building operation.”*

Abrar Sheriff, Juror, Turner Construction

Burj Mohammed Bin Rashid is located in the heart of Abu Dhabi at the site of the old Central Market, a traditional crossroads and meeting point in the city. The tower’s central location provides residents with easy access to major points of interest, including the nearby Mall at the World Trade Center and the Corniche, a waterfront promenade that runs along the coast. As part of the larger World Trade Center Abu Dhabi complex, Burj Mohammed Bin Rashid is the tallest element of a 700,000-square-meter mixed-use development, which also includes a 58-story office building and a planned 53-story hotel. The site also includes a traditional souk, up to seven levels of retail in the podium, a green roof above the market, and a bridge system linking these areas together.

The tower, which was the second-tallest building in the world to be completed during 2014, is intended to fit within its desert backdrop. A smooth, sleek, and reflective façade has been designed to require minimal amounts of maintenance in a dusty environment. The



## Winner

# Lynn S. Beedle Lifetime Achievement Award

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## Minoru Mori

Mori Building



Opposite: The Roppongi Hills complex, including Mori Tower, Tokyo, 2003, (238 m / 781 ft), the centerpiece of the Roppongi Hills development

Above: Minoru Mori

*“The legacy of Minoru Mori lives on today in his projects that exemplify the tall building in the urban habitat – creating or revitalizing the urban fabric and providing a rich and diverse experience.”*

Timothy Johnson, CTBUH Trustee, NBBJ

The late Minoru Mori is considered to have been one of Japan’s most powerful and influential building developers. As a developer, he was best known for transforming Tokyo’s skyline with towering buildings. The man himself was a fascinating combination of artist, visionary builder, and savvy businessman.

Minoru Mori got his start in the family real estate business. Minoru’s father, Taikichiro Mori, started the successful real estate business, helping to rebuild Tokyo in the years following World War II, when Japan and its capital city were devastated by the war. After graduating from the University of Tokyo in 1959, Minoru Mori co-founded the Mori Building Co. as a Director, alongside his father.

Mori Building Co. was an office-building leasing and development company through much of the 1960s. As demand for office space increased in the 1960s, fueled by a period of rapid economic growth, Mori Building Co.’s leasing activities expanded and





they began to concentrate less on individual site development; they shifted their focus during this time to larger area developments involving multiple neighborhoods and roads, thus assuming the role of urban developers. Taikichiro Mori was the world's richest man in 1991 and 1992, according to Forbes. He passed away in 1993.

Minoru Mori then became President and Chief Executive Officer of the company in 1993, and then in 2011 became Chairman and CEO. Throughout his career, Mori witnessed a tremendous amount of change in Japan, a nation that had rapidly advanced technologically, and experienced a remarkable economic boom in the 1980s. Mori deftly guided his company to adapt along with the nation, helping it to become a major force in the city's real estate market.

Mori had a vision for his city and his country that was larger than any one building development. He visited many other cities around the world in his quest for inspiration to redevelop Tokyo. One thing that impressed him greatly in other cities was the presence of high culture, and the value placed on private life and free time, which he found was in contrast with Japanese urban lifestyles. He saw suburban sprawl in Tokyo, a result of the Japanese aspiration to own single-family homes, and city planning left over from the industrial era when business zones were kept separate from residential zones. Mori wanted to revolutionize the way people lived and worked in the Japanese capital, to improve the quality of life for its citizens. He wanted his projects to increase residents' leisure time and quality of life, and argued that this would boost Japan's national competitiveness.

His vision was to integrate living, working, and playing spaces into one urban center that would make professionals more efficient, by allowing them to drastically cut back on time spent commuting; he believed this would draw people together and strengthen social and community

## Trustee Statement

The dedication of the late Minoru Mori to his work has forever changed the skyline of Tokyo, and helped evolve the importance, and prominence, of building tall as a key component of a successful city. Mori's approach took an inherently humanist approach to all his work. His monumental vision of the "vertical garden city" – an urban way of life combining commerce, culture, and the environment – is one that will be carried on by Mori Building and those he undoubtedly inspired throughout his life.



**Opposite top:** Aerial view of Ark Hills, Tokyo, 1986 (153 m / 502 ft)

**Opposite bottom:** Members of the community enjoy the public space at the base of the Roppongi Hills complex

**Above:** Minoru Mori in a gallery space at the Mori Art Museum, located on the 53rd floor of Mori Tower

bonding. Mori Building Co. completed the pioneering city compound known as Ark Hills in 1986. It was the first Japanese large-scale privately built redevelopment, and consisted of offices, houses, hotels, and concert halls. The project is replete with green spaces to soften the hard edge of city dwelling; community members can now even take gardening classes on the Ark Hills' lush green rooftop.

Mori truly realized his dream with the Mori Building's keystone project, the Roppongi Hills development in Tokyo, which opened in 2003. This innovative \$4 billion complex effectively revamped a low-income neighborhood into one of the city's most coveted business centers. The centerpiece is the 54-story Mori Tower, which is the culmination of Mori's stated vision to build an integrated development where high-rise, inner-urban communities allow people to live, work, play, and shop in close proximity, to eliminate commuting time.

The brilliance of the Mori Tower and Roppongi Hills is how they successfully utilize vertical space, building up into the sky as well as below ground, to create enormous amounts of space in one of the most densely populated cities on the planet. The Roppongi Hills mega-complex incorporates offices, apartments, shops, restaurants, cafés, movie theaters, a hotel, a major TV studio, an outdoor event space, and several parks. The 53rd floor of the tower houses the Mori Art Museum, which shows their own curated contemporary art exhibitions. A fact that is not widely known is that – prior to becoming a real estate developer – Mori was actually an author, which led him to be a lifetime supporter of the arts.

Mori is also laudable for his attention to the seismic risks involved in building in one of the world's most earthquake-prone countries, and his pioneering thinking paved the way forward for tall building design in seismic areas. Roppongi Hills, Mori Tower has carefully laid-out emergency plans, and was thought to be one of the safest places to be when an earthquake with a magnitude of nine hit Tokyo on March 11, 2011.

The tower employs many sophisticated anti-seismic systems such as “sticky walls” and fluid-filled shock absorbers that slosh thick oil in the opposite direction of any swaying, called “semi-active oil dampers.” Ark Hills, Sengokuyama Mori Tower, completed in Tokyo in 2012, also employs significant seismic-safety design innovations, which were collectively recognized as a Finalist in CTBUH's 2012 Innovation Award category.

Although Mori is most famous for his contributions to Tokyo architecture, he also built the 101-story Shanghai World Financial Center completed in 2008, the same year that Beijing hosted the Olympics. Mori applied many of the lessons he learnt from developing the Ark Hills and Roppongi Hills projects in developing this international finance center, which was China's tallest building, and the second-tallest building in the world, at the time of its completion.

Mori acknowledged the influence of Le Corbusier in his developments, and was a lifelong collector of Le Corbusier's artwork. However, Mori believed he surpassed the Swiss architect's urban designs, particularly in the Roppongi Hills project. Much like Le Corbusier's aspirations for modern design to improve life in crowded cities, Mori rightly described his developments as “vertical garden cities” that offered housing, office, and retail spaces, complemented by parks. Minoru Mori is recognized for his contribution to evolving Tokyo's skyline, and advancing the concept of building tall as a fundamental element of the thriving urban environment.

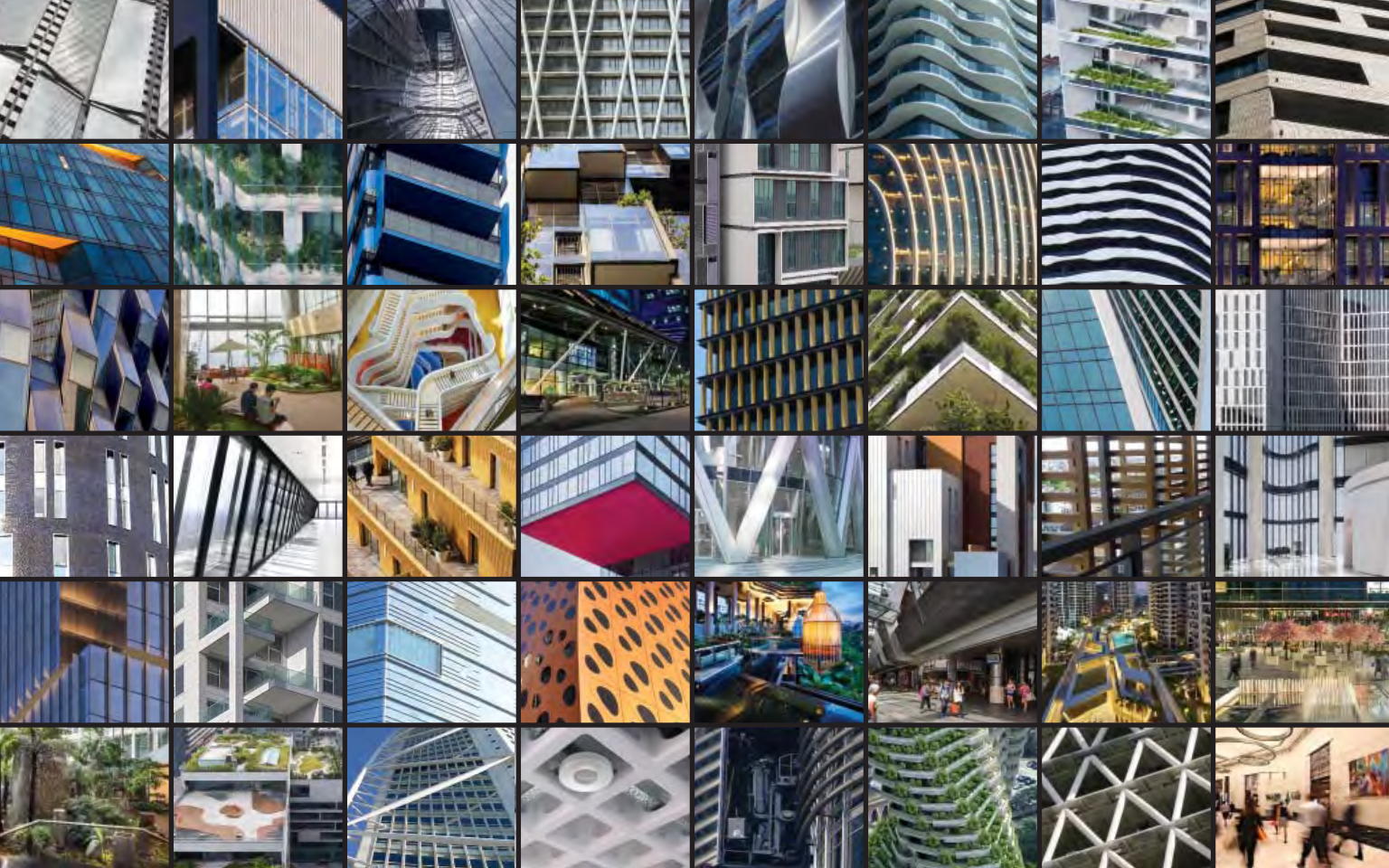
**Opposite left:** Ark Hills, Sengokuyama Mori Tower, Tokyo, 2012 (207 m / 678 ft)

**Opposite right:** Shanghai World Financial Center, Shanghai, 2008 (492 m / 1,614 ft)

*“There are but a handful of people one encounters in a lifetime who have the ability to shape the world according to their vision. Minoru Mori was such a person. His determination was matched by an intellectual curiosity and a genuine belief in making the world a better place. He understood better than most the role of society in place-making. He saw architecture as a stage where the theatre of life would play out.”*

David Malott, CTBUH Chairman, Kohn Pedersen Fox





The Council on Tall Buildings and Urban Habitat (CTBUH) is the world's foremost authority on tall buildings. *Best Tall Buildings* chronicles the annual awards process, in which the CTBUH recognizes outstanding tall buildings and design innovations that advance the potential of integrated sustainability, economic productivity, and social prosperity in cities across the world.

More than an awards book, this volume serves as a global overview of tall building construction and activity in a given year, providing in-depth descriptions of the buildings' designs and significance, accompanied by stunning images, detailed drawings, and plans. This book provides fascinating and inspiring reading for all those interested in the planning, design, and construction of tall buildings.

CTBUH bestows 11 awards annually, four of which are given to buildings according to geographical regions: Americas, Asia & Australasia, Europe, and Middle East & Africa. The title of overall Best Tall Building Worldwide is then presented to one of the four regional winners at the annual CTBUH Awards Symposium and Ceremony. Additionally, the Urban Habitat Award recognizes significant contributions to the urban realm, in connection with tall buildings. The 10 Year Award recognizes proven value and performance – across one or more of a wide range of criteria – after a building has been completed and in operation for a decade. The Innovation Award recognizes a specific area of recent innovation in the tall building industry that has been incorporated into the design of, or significantly tested in, the construction, operation, or refurbishment of a tall building project. The Performance Award recognizes a building with proven value and performance over a minimum of three years. The CTBUH also gives two annual Lifetime Achievement awards to individuals who have made significant contributions to the design or technical advancement of tall buildings.

