Best Tall Buildings

A Global Overview of 2013 Skyscrapers

Council on Tall Buildings and Urban Habitat

ROUTLEDGE

Antony Wood, Steven Henry & Daniel Safarik

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The CTBUH would like to thank all the organizations who submitted their projects for consideration in the 2013 awards program.

We would also like to thank our 2013 Awards Jury for volunteering their time and efforts in deliberating this year's winners.

About the CTBUH

The Council on Tall Buildings and Urban Habitat is the world's leading resource for professionals focused on the design, construction, and operation of tall buildings and future cities. A not-for-profit organization based at the Illinois Institute of Technology, Chicago, the group facilitates the exchange of the latest knowledge available on tall buildings around the world through events, publications, research, working groups, web resources, and its extensive network of international representatives. Its free database on tall buildings, The Skyscraper Center, is updated daily with detailed information, images, data, and news. 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."

Contents

Foreword 6
Introduction 8
CTBUH Best Tall Building Awards Criteria 25

Best Tall Building Americas

Winner:

The Bow, *Calgary* 28

Finalists:

Devon Energy Center, *Oklahoma City* 34
Tree House Residence Hall, *Boston* 38

Nominees:

1214 Fifth Avenue, *New York* 42
Ann & Robert H. Lurie Children's Hospital, *Chicago* 44
LOVFT, *Santa Catarina* 46
Mercedes House, *New York* 48
Trump International Hotel & Tower, *Toronto* 50
Coast at Lakeshore East, *Chicago* 52
Helicon, *San Pedro Garza Garcia* 52
Pacifica Honolulu, *Honolulu* 53
Reforma 342, *Mexico City* 53
Rush University Medical Center Hospital, *Chicago* 54
Torre Begonias, *Lima* 54
Torre Paseo Colón 1, *San José* 55

Best Tall Building Asia & Australasia

Winner:

CCTV Headquarters, *Beijing* 58

Finalists:

C&D International Tower, *Xiamen* 64
PARKROYAL on Pickering, *Singapore* 68
Pearl River Tower, *Guangzhou* 72
Sliced Porosity Block, *Chengdu* 76

Nominees:

Brookfield Place, *Perth* 80
Hangzhou Civic Center, *Hangzhou* 82
Hysan Place, *Hong Kong* 84
International Finance Centre, *Seoul* 86
I Tower, *Incheon* 88
Japan Post Tower, *Tokyo* 90
NBF Osaki Building, *Tokyo* 92
Shenzhen Stock Exchange, *Shenzhen* 94
Shibuya Hikarie, *Tokyo* 96
Soul, *Gold Coast* 98
The Ellipse 360, *New Taipei City* 100
Zhengzhou Greenland Plaza, *Zhengzhou* 102
Alamanda Office Tower, *Jakarta* 104
ARK Hills Sengokuyama Mori Tower, *Tokyo* 104
City Tower Kobe Sannomiya, *Kobe* 105
Dolphin Plaza, *Hanoi* 105
Huarun Tower, *Chengdu* 106
Net Metropolis, *Manila* 106
Pyne, *Bangkok* 107
Reflection Jomtien Beach, *Pattaya* 107
Shenzhen Kerry Plaza Phase II, *Shenzhen* 108
Yixing Dongjiu, *Yixing* 108
Yokohama Mitsui Building, *Yokohama* 109

Best Tall Building Europe

Winner:

The Shard, *London* 112

Finalists:

ADAC Headquarters, *Munich* 118
New Babylon, *The Hague* 122
Tour Total, *Berlin* 126

Nominees:
Mercury City, *Moscow* 130
Unicredit Tower, *Milan* 132
No. 1 Great Marlborough Street, *Manchester* 134
Torre Unipol, *Bologna* 134
Varyap Meridian Block A, *Istanbul* 135

Best Tall Building Middle East & Africa

Winner:
Sowwah Square, *Abu Dhabi* 138

Finalists:
6 Remez Tower, *Tel Aviv* 144
Gate Towers, *Abu Dhabi* 148

Nominees:
JW Marriott Marquis, *Dubai* 152
Diplomat Commercial Office Tower, *Manama* 154
Faire Tower, *Ramat-Gan* 154
Frishman 46, *Tel Aviv* 155

10 Year & Innovation Awards

10 Year Award Winner:
30 St Mary Axe, *London* 158

Innovation Award Winners:
BSB Prefabricated Construction Method 164
KONE UltraRope 168

Innovation Award Finalists:
Megatruss Seismic Isolation Structure 172
Precast Concrete Façade 176
Rocker Façade Support System 180

Lifetime Achievement Awards

Lynn S. Beedle Award, *Henry N. Cobb* 186
Fazlur R. Khan Medal, *Clyde N. Baker, Jr.* 192
CTBUH 2013 Fellows 198

Awards & CTBUH Information

CTBUH 2013 Awards Jury 199
Review of Last Year's CTBUH 2012 Awards 200
Overview of All Past Winners 206
CTBUH Height Criteria 208
100 Tallest Buildings in the World 211

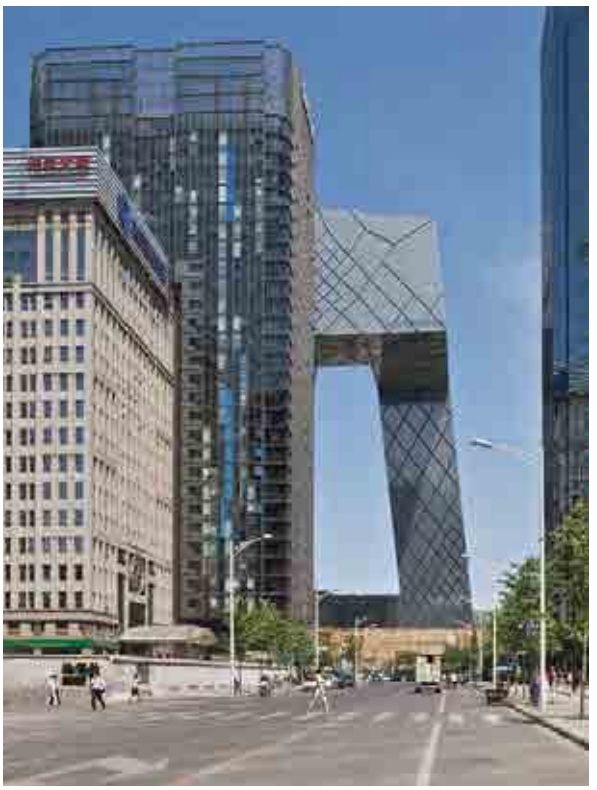
Index

Index of Buildings 216
Index of Companies 217
Image Credits 220
CTBUH Organizational Structure & Members 222

Winner
Best Tall Building Asia & Australasia

CCTV Headquarters

Beijing, China



Completion Date: May 2012
Height: 234 m (768 ft)
Stories: 54
Area: 316,000 sq m (3,401,396 sq ft)
Use: Office
Owner: China Central Television
Developer: General Office of CCTV New Site Construction & Development Program
Architect: OMA (design); ECADI (architect of record)
Structural Engineer: Arup
MEP Engineer: Arup
Main Contractor: China State Construction Engineering Corporation
Other Consultants: DHV Building and Industry (acoustics); Front, Inc. (façade); Inside/Outside (landscape); Lerch Bates (vertical transportation); Lighting Planners Associates Pte Ltd. (lighting)

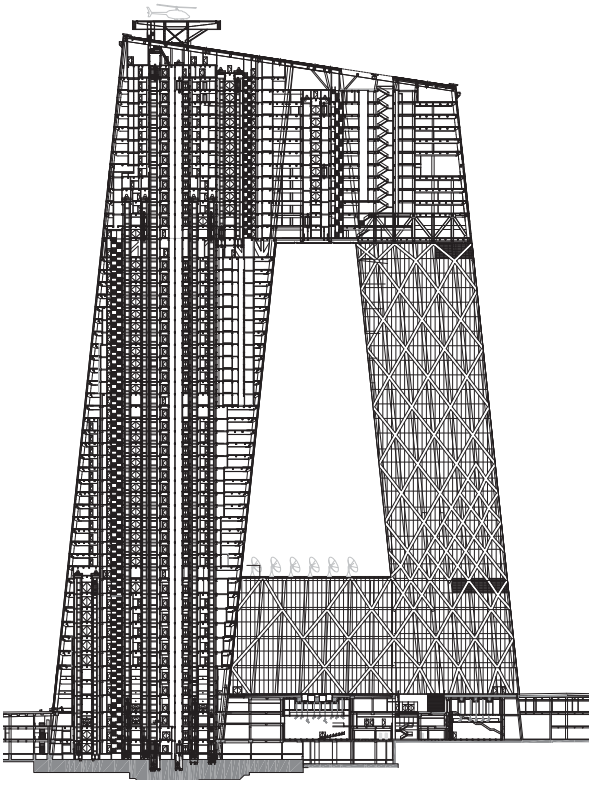
"The building's complicated building structure, outstanding construction, and unique building function have made it an instant landmark, not only for China, but for the world."

Nengjun Luo, Juror, CITIC Heye Investment

The CCTV Headquarters is an unusual take on the skyscraper typology. Instead of competing in the race for ultimate height and style through a traditional two-dimensional tower soaring skyward, CCTV's loop poses a truly three-dimensional experience, culminating in a 75-meter cantilever.

The building's form facilitates the combination of the entire process of TV making in a loop of interconnected activities. Two towers rise from a common production studio platform, the Plinth. Each tower has a different character: Tower 1 serves as editing area and offices, and Tower 2 is dedicated to news broadcasting. They are joined by a cantilevering bridge for administration, the Overhang.

The main lobby, in Tower 1, is an atrium stretching three floors underground, and three floors up. It has a direct connection with Beijing's subway network, and is the arrival and departure hub for the 10,000 workers inside CCTV Headquarters. Connected to the lobby, 13



production studios (the largest is 2,000 square meters) perform the main function of the building: TV making.

The building also facilitates an unprecedented degree of public access to the production of China's media: a Public Loop takes visitors on a dedicated path through the building, revealing everyday studio work as well as the history of CCTV, and culminating at the edge of the cantilever, with spectacular views towards the CBD, the Forbidden City, and the rest of Beijing. A Media Park forms a landscape of public entertainment, outdoor filming areas, and production studios as an extension of the central green axis of the CBD.

The innovative structure of CCTV is the result of long-term collaboration between European and Chinese architects and engineers to achieve new possibilities for the high-rise. Early on, the team determined that the only way to deliver the desired architectural form was to engage the entire façade structure, creating in essence an

Previous Spread

Left: Aerial view

Right: View of tower in context

Current Spread

Opposite Top: Time lapse of tower construction

Opposite Bottom Left: Interior view

Opposite Bottom Right: Typical section

Right: Looking down from a portal window in the observation deck

external continuous tube system. The tube, which resists all of the lateral forces on the building and also carries much of the gravity force, is ideally suited to deal with the nature and intensity of permanent and temporary loading on the building.

The engineering forces at work are thus rendered visible on the façade: a web of triangulated steel tubes – diagrids – which, instead of forming a regular pattern of diamonds, become dense in areas of greater stress and looser and more open in areas requiring less support. The façade itself becomes a visual manifestation of the building's structure.

The structural system is a versatile, efficient structure that bridges in bending and torsion between the Towers to create the continuous form of the Overhang section, providing enough strength and stiffness in the Towers to carry loads to the ground. The structural system stiffens the podium and tower bases to favorably distribute loads to the foundation. It enables performance to be

"The CCTV building is the type of building that may not happen again. It is an incredible achievement in terms of structural engineering and iconography; in some ways it is the Eiffel Tower of our time."

Jeanne Gang, Jury Chair, Studio Gang Architects

optimized, through adjustment of the bracing pattern, to satisfy contrasting demands of stiffness and flexibility.

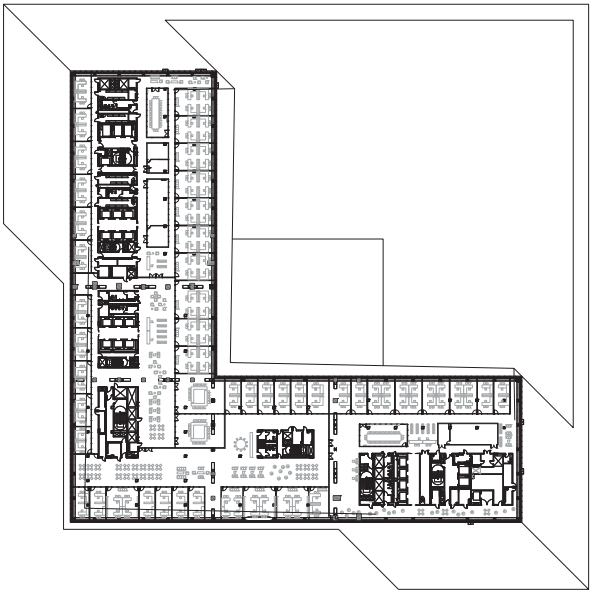
The structural system also provides maximum flexibility for the bespoke planning of the interiors, since bracing is not needed within the floor plates. This allows large studio spaces to be laid out within the towers. It has enabled the Overhang section to be constructed without the need for temporary propping, since the braced skin provided stability as the steelwork was cantilevered out from the towers. This type of structure has a high degree of inherent robustness and redundancy, due to the potential for adopting alternative load paths in the unlikely event a key element is removed.

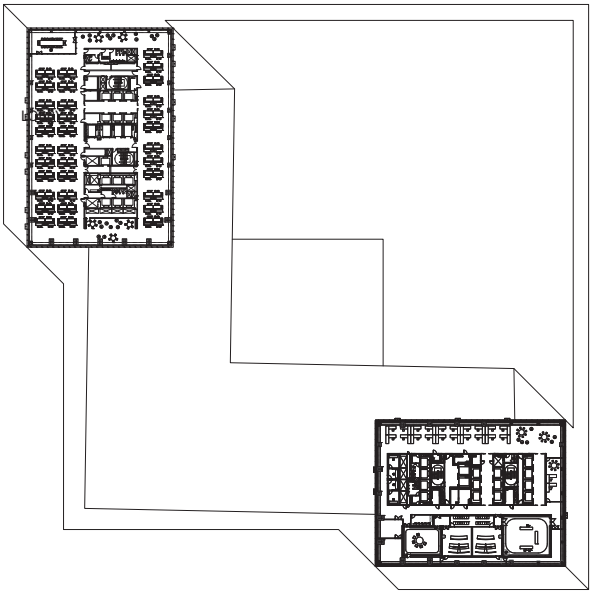
The self-supporting hybrid façade structure features high-performance glass panels with a sun shading of 70 percent open ceramic frit, creating the soft silver-grey color that gives the building a surprisingly subtle presence in the Beijing skyline.

Opposite: View looking up at the cantilever

Right: Street view in context

Below: Floor plans – level 41 (top) and level 15 (bottom)





Jury Statement

Conflating expectations of what a skyscraper is, and can or should do, the CCTV Headquarters has now become embedded in the thought process of the making of tall buildings. It singlehandedly paved the way from the height-obsessed, set-back skyscraper of the past to the sculptural and spatial skyscraper of the present, at the scale of the urban skyline.

Its stunning form, which appears both powerful and conflicted, as if pulled in several directions, symbolizes the multiple functions of the program and the dynamic positioning of its nation on the world stage. The unique architectural design contrasts significantly with historical building styles in Beijing, yet it could never be classified as a homogenizing force.

As a piece of structural engineering, CCTV is also an object lesson for those who wish to push the boundaries and sweep aside the received notions of skyscraper design. The building's design violates conventions while validating and rewarding intensive and focused collaboration and study.

Winner
Best Tall Building Americas

The Bow

Calgary, Canada

Completion Date: 2012
Height: 237 m (779 ft)
Stories: 57
Area: 199,781 sq m (2,150,420 sq ft)
Use: Office
Owner: H + R Reit
Developer: Matthews Southwest
Architect: Foster + Partners (design); Zeidler Partnership Architects (architect of record)
Structural Engineer: Yolles
MEP Engineer: Cosentini Associates
Main Contractor: Ledcor Construction
Other Consultants: Altus Group (cost); Brook Van Dalen (façade); Carson McCulloch (landscape); Cerami Associates (acoustics); Claude Engle Lighting Design (lighting); Gensler (interiors); Kellam Berg (civil); KJA (vertical transportation); Leber Rubes (fire); RWDI (wind); Transsolar (energy concept)

"The Bow's passive approach to solar control and ventilation are implicit in its form, supported by an interesting structural system that is legible on the building's exterior."

Jeanne Gang, Jury Chair, Studio Gang Architects

The Bow is the first phase of a mixed-use master plan for the regeneration of two entire city blocks on the east side of Centre Street, a major axis through downtown Calgary. Providing a headquarters for a major energy company, its form was shaped by both environmental and organizational analysis. The tower faces south, curving toward the sun to take advantage of daylight and heat, while the resulting bow-shaped plan that gives the tower its name maximizes the perimeter for cellular offices with views of the Rocky Mountains.

The aerodynamic crescent shape significantly reduces exterior wind resistance, downdrafts, and urban wind tunnels to create a comfortable public plaza at the tower's base. Thus, the arc-shaped form helps to define this large civic space; the south-facing plaza will create a popular public space for use all year round.

At 237 meters, The Bow is the tallest tower in Calgary, but it is equally significant in terms of the lateral connections it establishes with the surrounding buildings

Previous Spread

Left: View of tower from southwest

Right: Interior view of the sky garden at level 54

Current Spread

Right: Section – the full-height atria connects the lobby and three sky gardens (highlighted in blue)

Opposite Top: View of tower in context

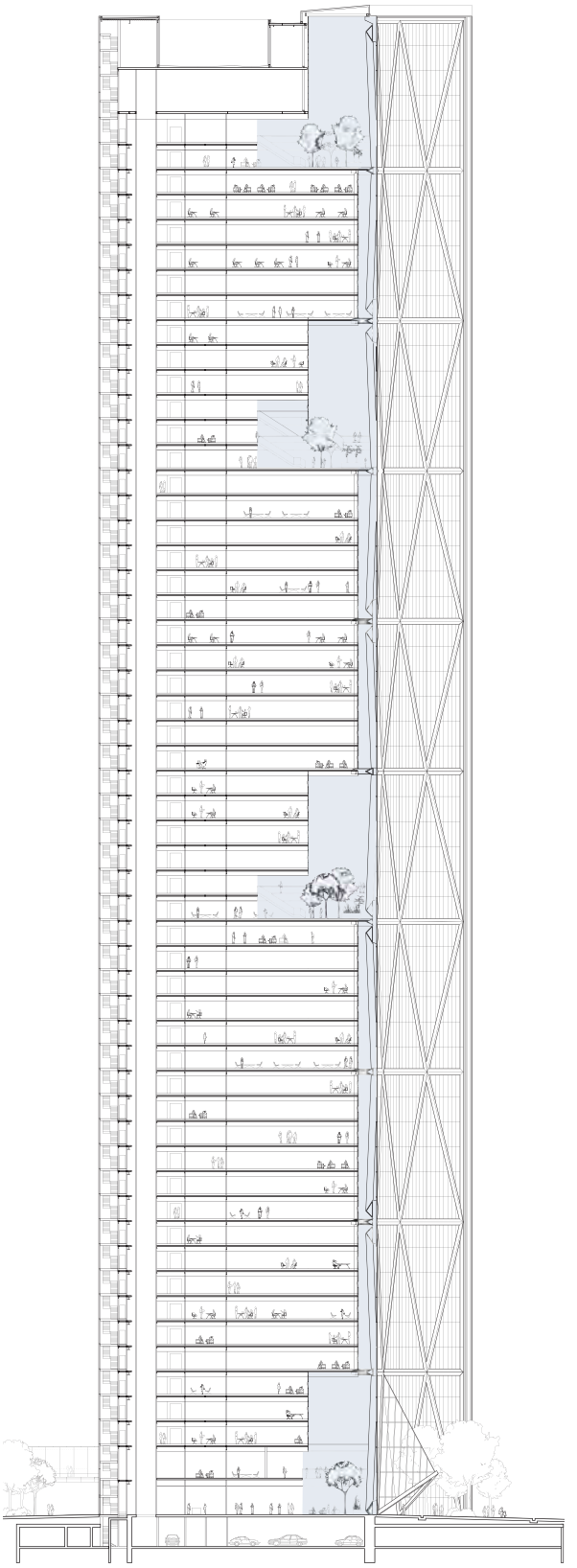
Opposite Bottom: Floor plan – sky garden at level 24

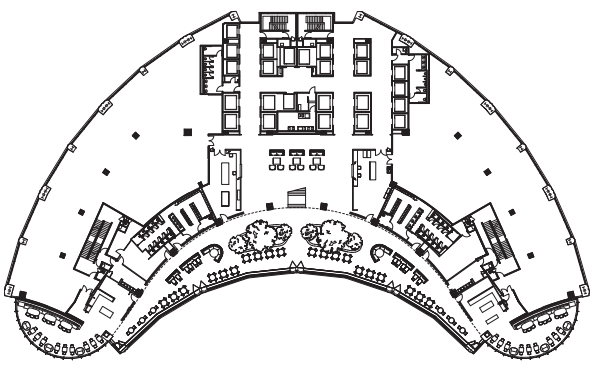
at its lower levels. Calgary is crisscrossed by a system of enclosed walkways which offers a retreat from the city's harsh winters. The tower is fused to these routes at three points. For example, the second floor is open to the public and integrates shops and cafés. Forming the only public connection over Centre Street, the scheme completes a vital link in the downtown pedestrian network.

Inside, the shape generates a floor plan that maximizes views and natural light, while providing a flexible, open workspace for its occupants. Where the building curves inwards, the glazed façade is pulled forward to create a series of atria that run the full height of the tower. Three sky gardens, which project into the atria at levels 24, 42, and 54, promote collaboration and bring a social dimension to the office spaces.

The gardens feature mature trees, seating, meeting rooms, and local lift cores – at each lobby, passengers travel to local groups of elevators, which serve all the floors within each "garden-level" building zone. This combination of elevator strategy and the incorporation of high-level green spaces encourages interaction and reasserts the social hubs that rise vertically through the building. At level 54, the building features a large 200-seat auditorium.

The atria provide an opportunity for several sustainable strategies that help reduce energy consumption. These spaces act as climatic buffer zones, insulating the building and helping to reduce energy consumption





by approximately 30 percent. Excess heat from the office floors is channeled into the atria, while at the same time the sun's energy (given the atria's orientation) is harnessed. The atrium spaces act as a buffer zone between offices adjacent to the atrium and the exterior atrium glass wall, dramatically reducing energy consumption and the need for heating/cooling by exhausting heat upwards in summer and trapping heat in winter. Offices adjacent to the atrium have the ability to open windows into the atrium during the mild seasons.

Jury Statement

The Bow is both stunning as a form and functions well from an environmental and urban standpoint, especially in the context of a harsh northern climate. It serves as a rare example of an iconic design resulting from the most practical, yet creative, response to site constraints. The resolution of wind loading, light access, thermal comfort, and public space objectives has resulted in a solution that embodies synthesis but bears no hint of compromise.

A city known for dramatic weather changes is now graced with an elegant, glass-sheathed, year-round building that provides ample opportunities for occupants and the public to interface amid greenery and gracious views. The conventional design response to these conditions might have been to seal off the interior and adopt a "bunker-in-the-sky" mentality. But at The Bow, every design move does double or triple duty – the atrium, for example, is a living lung that also increases social serendipity – proving that a well-designed building can be efficient, beautiful, and generous all at once.

Left: Ground floor lobby

Opposite: View of tower from northeast

The orientation of the tower plays a critical role in the reduction of energy consumption. As the atrium façade of the towers faces south-southwest, the tower consumes 11 percent less energy for heating and cooling over the course of a year compared to towers with an atrium façade facing north. Even though the façade is oriented in the direction where the cooling requirement is highest, the solar energy received during the winter season compensates and actually reduces the overall annual energy requirement.

From a structural standpoint, this is the first time that a triangular diagrid has been applied to a curved skyscraper in North America. The structural system provides superior structural efficiency, while the diagonal and vertical steel frame reduces the overall weight of the steel, and thus the number and size of interior columns, while helping to break down the scale of the building visually.

"The overall design is largely successful due to its south-facing curve and centrally located communal spaces – both inside and outside the building – which minimize environmental impact, while maximizing community."

Karen Weigert, Juror, Chicago Chief Sustainability Officer


TELUS
DELTA
COW VALLEY

Winner
Lynn S. Beedle Lifetime Achievement Award

Henry N. Cobb

Pei Cobb Freed & Partners

Opposite: Hancock Place, Boston, 1976 (241 m / 790 ft)

Above: Henry N. Cobb

"Henry Cobb has demonstrated phenomenal leadership throughout his career, particularly on Boston's Hancock Place, which was a hugely important moment for the tall building industry."

Timothy Johnson, CTBUH Chairman, NBBJ

The defining characteristic of Henry N. ("Harry") Cobb's career has been his passionate reconsideration of the tall office building as a presence in the city, which Cobb calls "Skyscraper as Citizen." From One Place Ville-Marie in Montreal (completed in 1962) to the Palazzo Lombardia in Milan (completed in 2011), Cobb's numerous office towers consistently exhibit his ongoing preoccupation with the question of how tall buildings can shape rather than merely preempt the space of the city.

In keeping with his belief that architecture is above all an art of place making, he has envisioned the office tower not as an autonomous object, but rather as a contingent presence responsive to the uniqueness of its specific place in the city.

"For me, the way a tall building meets the ground has always been at least as important as the way it meets the sky," Cobb has said.

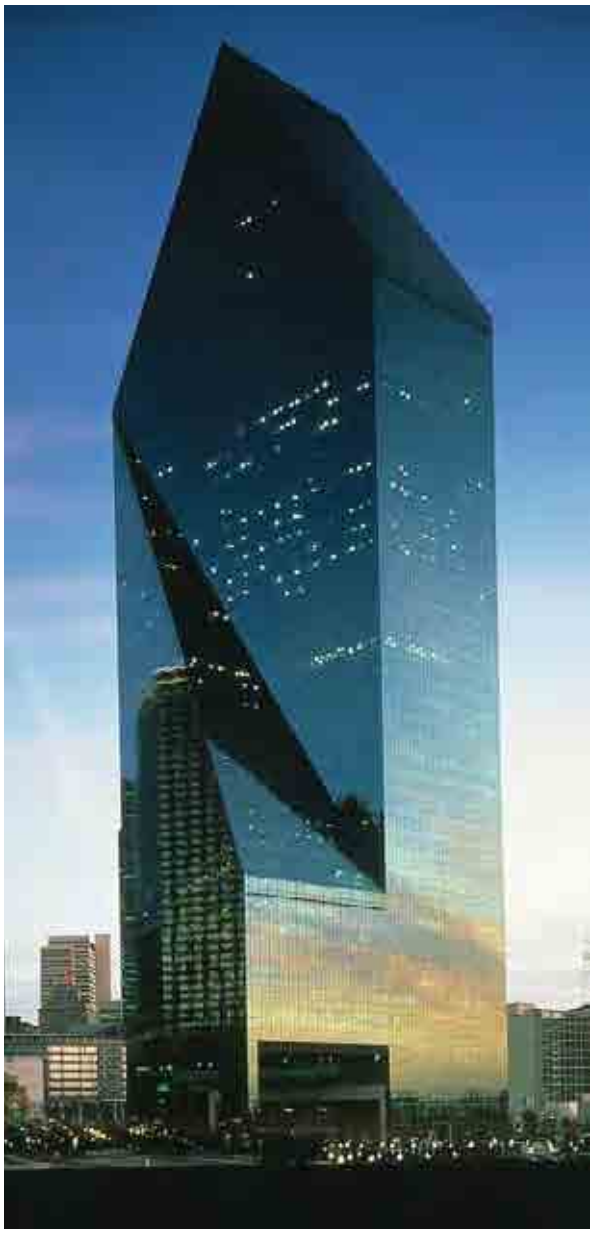
Left: Place Ville-Marie, Montreal, 1962 (188 m / 617 ft). One of Cobb's early high-rise projects, it was distinctive for the positive contribution made to the urban ground plane.

Opposite: Fountain Place, Dallas, 1986 (219 m / 720 ft). A water garden at the base of the tower ties this prismatic form to the urban environment.

Born and raised in Boston, he was educated at Phillips Exeter Academy, Harvard College, and Harvard Graduate School of Design, from which he received his Master of Architecture degree in 1949. After a brief stint working for Hugh Stubbins in Boston, he moved to New York to join I. M. Pei in his fledgling practice under the auspices of the legendary developer William Zeckendorf, Sr. In 1955, together with their colleague Eason H. Leonard, Pei and Cobb founded I. M. Pei & Associates, now Pei Cobb Freed & Partners.

The 1962 One Place Ville-Marie in Montreal (formerly the Royal Bank of Canada Building) – an example of Henry's early high-rise work – displays many of the characteristics of other International Style buildings of the early 1960s, but it is distinctive in the way that it knits together urban life in the air, at the surface, and underground. Nearly half of its area is below grade, forming the nexus of Montreal's underground walkway system, protecting citizens from the harsh winters while plugging the vibrancy of center city life into the building's interior, with what architectural historian Mark Pimlott calls "episodes of civic gravity and monumentality."

Hancock Place in Boston cemented Cobb's reputation as a sophisticated architect, though the problematic project could just as easily have undone the career of a less ethical designer. The headquarters of the John Hancock Mutual Life Insurance Company employed an unusual rhomboid shape, covered entirely in reflective glass, so as to fit into an awkward site and



Trustee Statement

Henry Cobb's career is remarkable because of his ethical and forward-thinking approach to the design of tall buildings and their place in the urban fabric. Transforming the efficiencies of International Style into contextually responsive projects that nevertheless define the skyline of the cities in which they were built, Cobb not only raised the standards of design for tall buildings, but of the building profession in general. His professional composure and deep knowledge have set the template for future tall designers.

reduce impact on neighboring historic structures, most notably Trinity Church. During an arduous eight-year construction period from 1968 to 1976, the building endured a series of mishaps, the most notorious of which was the failure of insulating glass units, which necessitated the removal and replacement of all 10,334 panels in the curtain wall. In an act of candor almost unimaginable in today's liability-tinged building environment, Cobb personally informed the Boston Building Commissioner of his finding that the insulating glass panels were defective, and that he had directed that they be removed.

"Harry showed phenomenal leadership on that project," said William Baker, CTBUH Trustee and structural engineering partner at SOM. William LeMessurier, a structural engineer who worked on the Hancock Tower project with Cobb, told Architecture magazine in 1988, "Harry Cobb's performance was not only responsible, it was inspiring. . . .Whenever I have had some problems in my own professional life that made me have to stand up and be responsible for my client's interest, I said I will have to behave like Harry."

Cobb has continued to design projects that exemplify technological advancements and best contemporary practices through the decades, but always found ways to connect smoothly sculptural, shining icons to the daily life of cities at the ground plane. Fountain Place in Dallas not only achieves a distinctive prismatic identity on the skyline; it also has a water garden flowing through its base. Tour EDF at La Défense,

Opposite Left: Tour EDF, La Défense, Paris, 2001 (148 m / 486 ft). A large disk-shaped canopy marks the entrance to this tower.

Opposite Right: Torre Espacio, Madrid, 2008 (224 m / 735 ft). The tower's seemingly twisting form comes down to create a protected plaza.

Right: Palazzo Lombardia, Milan, 2011 (161 m / 529 ft). Recipient of the CTBUH 2012 Best Tall Building Europe award, the slender tower houses government offices, and the low-rise "strand" buildings weave across the site to create pockets of public space and an enclosed public plaza.

Paris, splits its prow-like profile to draw the eye to a generous canopy over the pedestrian entrance. Torre Espacio in Madrid appears to twist through an organically nonlinear turn to shelter its surrounding plaza. Palazzo Lombardia in Milan represents an important investment in the civic realm, by providing not only a sleek, light-filled, narrow tower for the local government offices, but also a linear public park and glass-enclosed central plaza, tying together an auditorium, exhibition space, and restaurants.

Beyond designing tall buildings, Cobb has coupled his professional activity with teaching. He has lectured widely and has held visiting appointments at a number of universities. From 1980 to 1985, he served as Studio Professor and Chairman of the Department of Architecture at the Harvard Graduate School of Design, where he continues to teach occasionally as a visiting lecturer. In 1992, he was Architect in Residence at the American Academy in Rome.

Cobb is a Fellow of the American Institute of Architects, a Member (currently President) of the American Academy of Arts and Letters, a Fellow of the American Academy of Arts and Sciences, and an Academician of the National Academy of Design. Awards recognizing his achievements as both architect and educator include the Arnold W. Brunner Memorial Prize in Architecture and the Topaz Medallion for Excellence in Architectural Education. He has received honorary doctorates from Bowdoin College and the Swiss Federal Institute of Technology.

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

One winner is chosen from each of four 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. The CTBUH 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 10 Year Award recognizes proven value and performance (across one or more of a wide range of criteria) after a building has been complete and in operation for at least a decade. Additionally, the CTBUH awards two annual Lifetime Achievement awards to individuals who have made a significant contribution to the design or technical advancement of tall buildings.

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 description of the buildings' design and significance and accompanied by stunning images, detailed drawings and plans. The book also features the official current list of the "100 Tallest Buildings in the World" as the CTBUH is the internationally recognized official arbiter of tall building height. This book provides fascinating and inspiring reading for all those interested in the planning, design, and construction of tall buildings.

an **informa** business

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