

Best Tall Buildings 2012



CTBUH International Award Winning Projects



Edited by
Antony Wood

Council on Tall Buildings and Urban Habitat
ROUTLEDGE

ILLINOIS INSTITUTE OF TECHNOLOGY

NEW YORK AND LONDON

Editor: Antony Wood
Coordinating Editor & Design: Steven Henry
Layout: Jessica Butler

First published 2013 by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Simultaneously published in the USA and Canada by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informal business

Published in conjunction with the Council of Tall Buildings and Urban Habitat (CTBUH) and the Illinois Institute of Technology

Printed and bound in the USA by Sheridan Books, Inc.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
A catalog record has been requested for this book

ISBN13 978-0-415-6400-2
ISSN 1948-1012

Council on Tall Buildings and Urban Habitat
S.R. Crown Hall
Illinois Institute of Technology
3360 South State Street
Chicago, IL 60616
Phone: +1 (312) 567-3487
Fax: +1 (312) 567-3820
Email: info@ctbuh.org
http://www.ctbuh.org

Acknowledgments:

The CTBUH would like to thank all the organizations who submitted their projects for consideration in the 2012 awards program.

We would also like to thank our 2012 Awards Committee for volunteering their time and efforts in deliberating this year's winners.

Contents

Foreword, *Richard Cook* 6
Introduction 8
Best Tall Building Awards Criteria 20

Best Tall Building Americas

Winner:
Absolute World Towers, *Mississauga* 24

Finalists:
BG Group Place, *Houston* 30
Jameson House, *Vancouver* 34

Nominees:
Atlantic Wharf, *Boston* 38
Eighth Avenue Place East Tower, *Calgary* 39
F&F Tower, *Panama City* 40
Hotel Georgia, *Vancouver* 42
JW Marriott Indianapolis, *Indianapolis* 43
Roosevelt Tower, *Chicago* 44
Three Harbour Green, *Vancouver* 46
West Pender Place, *Vancouver* 48
Omni Dallas Hotel, *Dallas* 49
Revel Hotel, *Atlantic City* 49
Tower 111, *New York City* 49

Best Tall Building Asia & Australasia

Winner:
1 Bligh Street, *Sydney* 52

Finalists:
KK100, *Shenzhen* 58
Reflections at Keppel Bay, *Singapore* 62
Solaris, *Singapore* 66

Nominees:
Bank Apartments, *Melbourne* 70
Bucheon Kumho Richencia, *Bucheon* 71
D-Cube City, *Seoul* 72
Doosan Haeundae Zenith, *Busan* 74
Eastern Harbor International, *Shanghai* 76
Forfar, *Hong Kong* 77
Grand Hyatt Chengdu, *Chengdu* 78
Helios Residences, *Singapore* 80
Hilton Surfers Paradise, *Gold Coast* 82
Housing Tower One, *Hyderabad* 83
KPWKM, *Putrajaya* 84
Leatop Plaza, *Guangzhou* 86
Ivy Thonglor, *Bangkok* 88
Menara Carigali, *Kuala Lumpur* 89
Menara Felda, *Kuala Lumpur* 90
Minyoun Plaza, *Chengdu* 91
One One One Eagle Street, *Brisbane* 92
One Raffles Place Tower 2, *Singapore* 94
Qingdao Agora, *Qingdao* 96
Soleil, *Brisbane* 97
Tempo Scan Tower, *Jakarta* 98
Terminal 21, *Bangkok* 99
Tianjin Global Financial Center, *Tianjin* 100
The Pakubuwono View, *Jakarta* 102
Vogue, *Melbourne* 103
Zen, *Melbourne* 104
Zhejiang Fortune Finance Center, *Hangzhou* 105
109 Clarendon, *Melbourne* 106
Hotel Muse, *Bangkok* 106
Kalpataru Aura, *Mumbai* 106
Novotel Bangkok Fenix Ploenchit, *Bangkok* 107
Residence 8 @ Senopati, *Jakarta* 107
Sovereign Plaza, *Jakarta* 107

Best Tall Building Europe

Winner:
Palazzo Lombardia, *Milan* 110

Finalists:
Complesso Garibaldi Tower 2, *Milan* 116
Victoria Tower, *Stockholm* 120

Nominees:
Europarco Tower, *Rome* 124
Nida Tower, *Istanbul* 125
Merville – Casa nel Parco, *Venice* 126
MG Tower, *Ghent* 128
Siloetten, *Løgten* 130
Tower 185, *Frankfurt* 131
White Rose, *Nijmegen* 132

Best Tall Building Middle East & Africa

Winner:
Doha Tower, *Doha* 136

Finalist:
Al Bahar Towers, *Abu Dhabi* 142
Al Hamra Firdous Tower, *Kuwait City* 146
Villaggio II, *Accra* 150

Nominees:
23 Marina, *Dubai* 154
Atidim 8 Tower, *Tel Aviv* 155
African Union Headquarters, *Addis Ababa* 156
Al Faisal Tower, *Doha* 158
Electra Tower, *Tel Aviv* 160
Elite Residence, *Dubai* 162
Nation Towers, *Abu Dhabi* 163
Navigation Tower, *Doha* 164
Palm Towers, *Doha* 166
Princess Tower, *Dubai* 168
Silverene, *Dubai* 169

Innovation Award

Innovation Award Criteria 170

Winner:
Al Bahar Towers, *Abu Dhabi* 172

Finalists:
Ark Hills Sengokuyama Mori Tower, *Tokyo* 178
Kajima Corporation Buildings, *Tokyo* 182

Lifetime Achievement Awards

Lifetime Achievement Awards Criteria 186
Lynn S. Beedle Award, *Helmut Jahn* 188
Fazlur R. Khan Medal, *Charles H. Thornton & Richard L. Tomasetti* 194
CTBUH 2012 Fellows 200

Awards & CTBUH Information

Awards Committee 2012 201
Review of CTBUH 2011 Awards 202
Review of Past Years' Winners 208

CTBUH Height Criteria 210
100 Tallest Buildings in the World 213

Index of Buildings 217
Index of Companies 218
Image Credits 221
CTBUH Organizational Structure & Members 223

Absolute World Towers

Mississauga, Canada

Mississauga, a suburb of Toronto, is like many fringe towns in that it is growing in relation to its neighboring metropolitan area, though it does not have any architectural precedents for this growth. At around 734,000 residents, the city is in demand of residential property. To win the first international design competition held in the Toronto area in over 40 years, the architect put forth a radical design for a curving and biologically-inspired design. When the tower project was proposed to the public, initially with only one tower, the scheme was so popular that the units sold out just days after the release of the building plans. After this response, the owner decided to buy an adjacent plot and build a second tower to meet the demand.

While the typology of the skyscraper, typically a glass box, is usually associated with a large city, many suburban areas are now experiencing expansion which requires the implementation of high-rise buildings. As a bold step in this initial direction, the Absolute World Towers are the tallest additions to Mississauga's predominantly low-rise urban fabric; they are two of only six towers over 100 meters in the area, standing out as an organic and recognizable gesture along the skyline.

Challenging the typical rectilinear approach to tall building design and responding to the lack of high-rise context, the design of the Absolute World Towers presents a highly organic and humanized design that aims to connect to both the city and its inhabitants. The curvilinear forms contrast with the generic rectangular buildings in the city, providing a welcome relief from harsh lines. Fondly dubbed the Marilyn Monroe towers by local residents, the towers parallel the fluidity and natural lines found in life.

In creating a flowing vocabulary for the building exterior, the design also accomplishes a unique experience for the interior as well; each residential unit is provided with a unique layout and views of Toronto or Mississauga from its balcony. The rotation of floor plates that creates the building forms results in a dynamic façade which differs from every viewpoint. As a testament to the unique experience of these towers, property values in buildings around them have increased and demand for views of the towers is high.

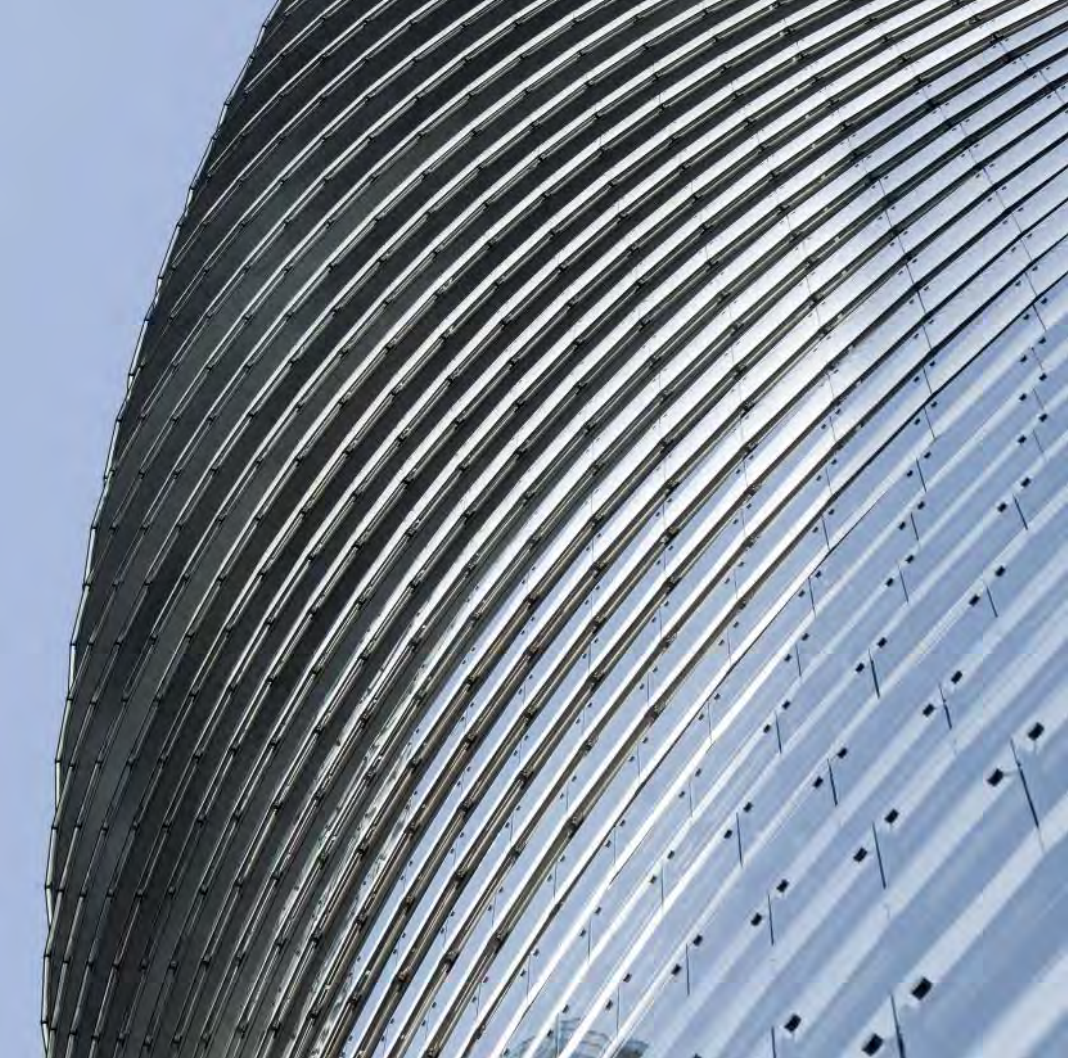
Though the original project brief only planned for one tower, the interaction of the two towers greatly increases the experience of the buildings. Instead of simply replicating the same building twice, the two towers, one six stories taller than the other, have different angular rotations. While the shorter of the two employs a more gradual revolution producing a subtler

Completion Date: August 2012
Height: Tower 1: 176 m (576 ft); Tower 2: 158 m (518 ft)
Stories: Tower 1: 56; Tower 2: 50
Area: 85,000 sq m (914,930 sq ft)
Primary Use: Residential
Owner/Developer: Fernbrook and Cityzen
Design Architect: MAD Architects
Associate Architect: Burka Architects
Structural Engineer: Sigmund Soudack
MEP Engineer: Stantec
Main Contractor: Fernbrook
Other Consultants: Coffey Geotechnics; Mike Niven Interior Design; Nak Landscape Design

Opposite: View looking up

"The Absolute Towers stretch the limits of paired sculptural form to create a marker on the skyline for a regional center."

Richard Cook, Awards Chair,
Cook+Fox Architects



Left: Façade view looking up
Opposite Top: Overall view in context from northwest
Opposite Bottom: View from northwest

"There have been several curvaceous towers completed in recent years – some using balconies or the façade to achieve the variations. With Absolute we see the entire building twisting to achieve the organic form."

David Scott, Juror, Laing O'Rourke

effect, the taller tower has a more drastic rotation at its middle. The negative space created by these forms is unlike any other.

To support the uniquely shaped towers, the structural system was considered in several ways to determine the best solution. The advancing and receding floor plates would require staggering of columns or transfer beams in a traditional structural system. A simple concept ended up being the best: a series of concrete load-bearing walls that cross through the plan of the buildings provide ample vertical and lateral support, while responding to the singular geometry of the form.

At the forefront of a movement among tall building designers to rely on biomimicry, the buildings are

Jury Statement

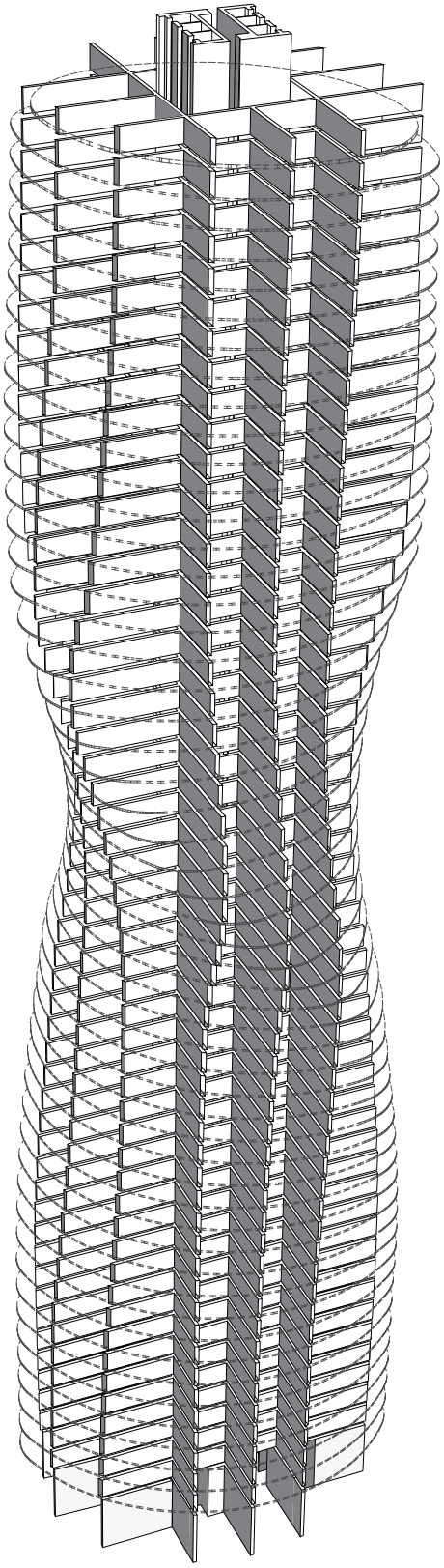
Absolute Towers is a striking example of a private/ public approach to development in a city that was perhaps unaware of the extent an architectural design could impart conversation, energy, and vitality into the community. The towers definitively stand out on the skyline of Mississauga, bringing distinction to the little known, but fast growing, suburb of Toronto.

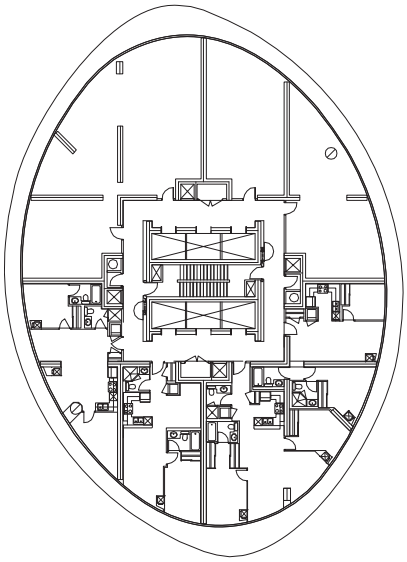
These towers have a sense of motion that brings a smile to the face. The torsional form of the towers evokes a natural, human feel to the buildings, and it is perhaps not surprising that the buildings have picked up the local nickname, Marilyn Monroe, with the curvaceous, sexy form an obvious association. Their effortless connection to the surrounding natural landscape creates a sense of unity while also putting forth an icon. To see such a dramatic form achieved with a simple, rational structural solution is refreshing.

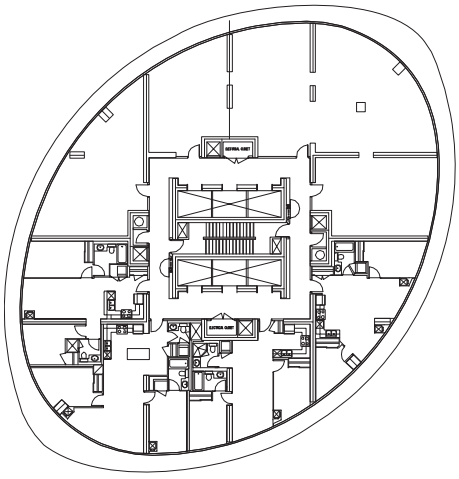
spearheading organic form and a connection to nature. While other building designs have created complex curvilinear geometries, the Absolute Towers accomplish it with a straightforward concept and structural solution. In light of the commercial and critical success of the flowing towers, upcoming building projects may take inspiration from this simple and grounded approach to accomplish their goals.

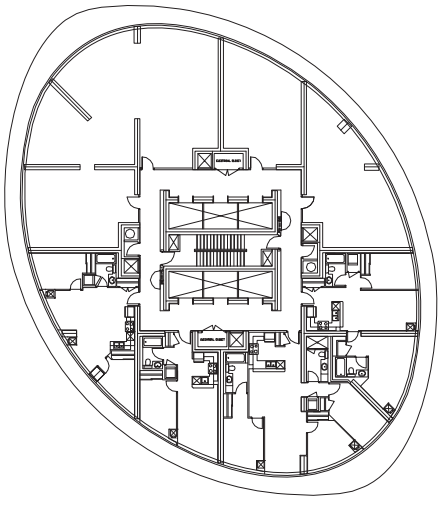
As Mississauga continues to grow, future projects can rely on the precedent set by the towers in both their concept and execution. Eventually, the buildings will become part of a more dense urban setting, but will still have a unique effect on their surroundings.

Left: Overall view from north
Opposite Left: Structural diagram
Opposite Right: Floor plans









Doha Tower

Doha, Qatar

Located on a prominent coastline thoroughfare in the Qatari capital, Al Corniche Street, Doha Tower adds a prominent yet subtle addition to the Doha cityscape. Located near the Ministries and Government Departments as well as the future Al Bidda metro station, the location on the waterfront is ideal. The cylindrical form of the tower was decided upon for its efficiency in floor-to-window area and relative distances between offices and elevators. Additionally, the core of the building has been shifted off-center to allow more flexible floor area for the office spaces.

Overlooking the Gulf, the 45 meter diameter tower provides 41 floors of offices, a restaurant with panoramic views on the 42nd floor, and a private residence at the penthouse. The tower is topped by a full-span dome and a spire, and clad entirely in an intricately patterned stainless steel screen.

The cladding system is a reference to the traditional Islamic "mashrabiya," or artistic screen used for shading or room dividing. The design for the system involved using a single geometric motif at several scales, overlaid at different densities along the façade. The overlays occur in response to the solar conditions: 25% opacity was placed on the north elevation, 40% on the south, and 60% on the east and west. From afar, the screen appears as a uniform density, but the intricacy of the layering and scaling of the screens becomes apparent at a closer viewpoint, lending the building multiple textural experiences.

Behind the shading layer is a typical curtainwall system that is accessed for maintenance from walkways in the cavity between the two layers. User-operable solar shades are also available behind the glazed curtainwall. The overall façade system is estimated to reduce cooling loads by 20%. At night, an integrated lighting system enhances the delicate screen with programmable light shows.

The base of the tower has a 25 meter wide pergola to provide a shaded entry, as well as a lushly planted garden. A gentle grade slopes down to the lobby entrance, emphasizing the tower's connection to the earth supporting it. Landscaping covers 40% of the site, adding to the pedestrian experience. Below grade, three levels of parking accommodate a total of 870 cars solely for the office tenants.

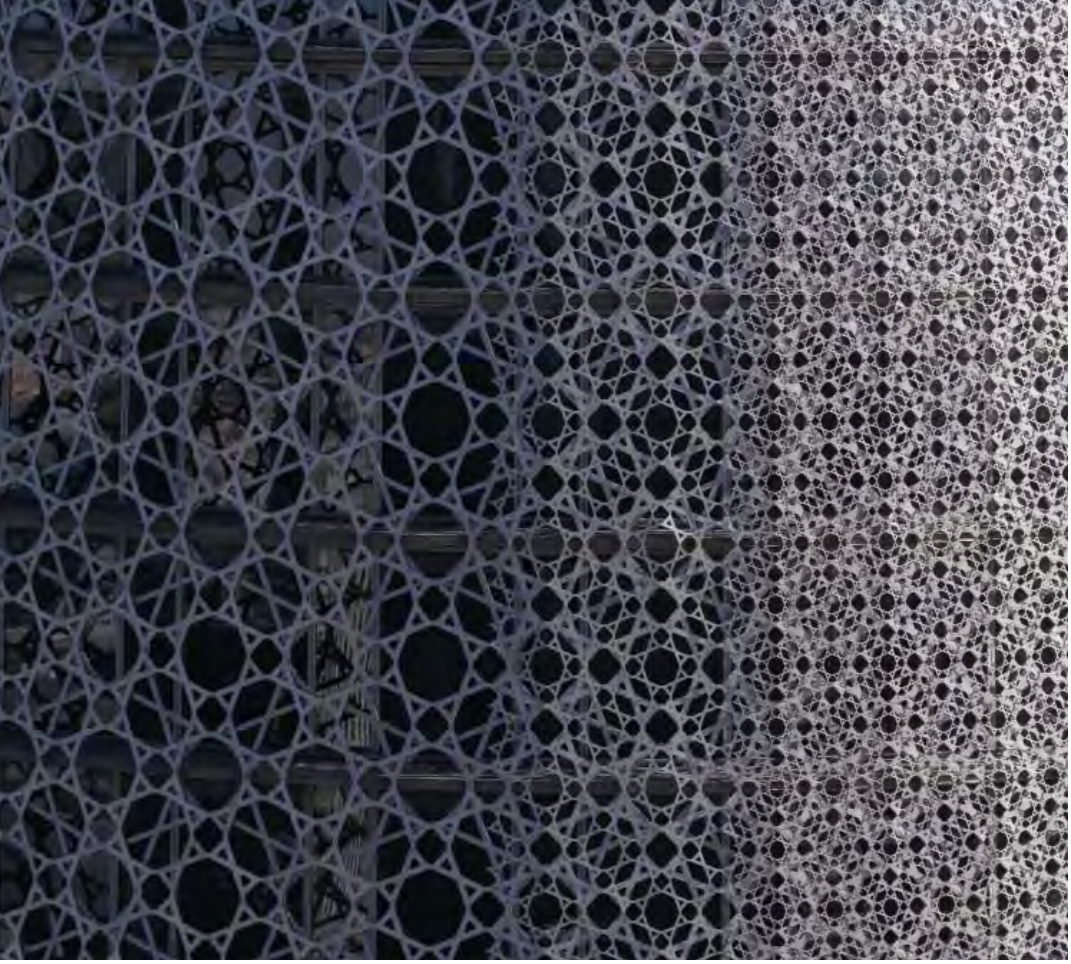
A large interior atrium houses eight glass lifts; the atrium reaches a height of 112 meters, up to level 27 which offers a transfer lobby between low- and high-zones. The transparent lifts offer views of the surrounding city. The structure of the tower is a

Completion Date: March 2012
Height: 238 m (781 ft)
Stories: 46
Area: 110,000 sq m (1,184,030 sq ft)
Primary Use: Office
Other Use: Residence, Restaurant
Owner: H.E. Sheikh Saoud Bin Mohamed Bin Ali Al-Thani
Developer: HBS
Design Architect: Ateliers Jean Nouvel
Structural Engineer: Terrell International
MEP Engineer: Terrell International
Main Contractor: China State Construction Engineering Co., Ltd.
Other Consultants: ABB; AEB; AIK; Avel; BSC S.A.; CEG; Dar Al Handassa; Europtima; Gleeds; GT; Hardy; HBS; Mole; MTC; Pluriconsult; Socotec Int.

Opposite: Overall view from west

"Clearly the sunshade element addresses the intense local sun, while at the same time rooting the building in its Islamic culture and allowing spectacular patterns of light and shadow to fall in the interior."

Richard Cook, Awards Chair, Cook+Fox Architects



Left: Façade shading screen detail
Opposite Top: Office floor interior
Opposite Bottom Left: Night view from north with LED lights
Opposite Bottom Right: Interior view of dome space

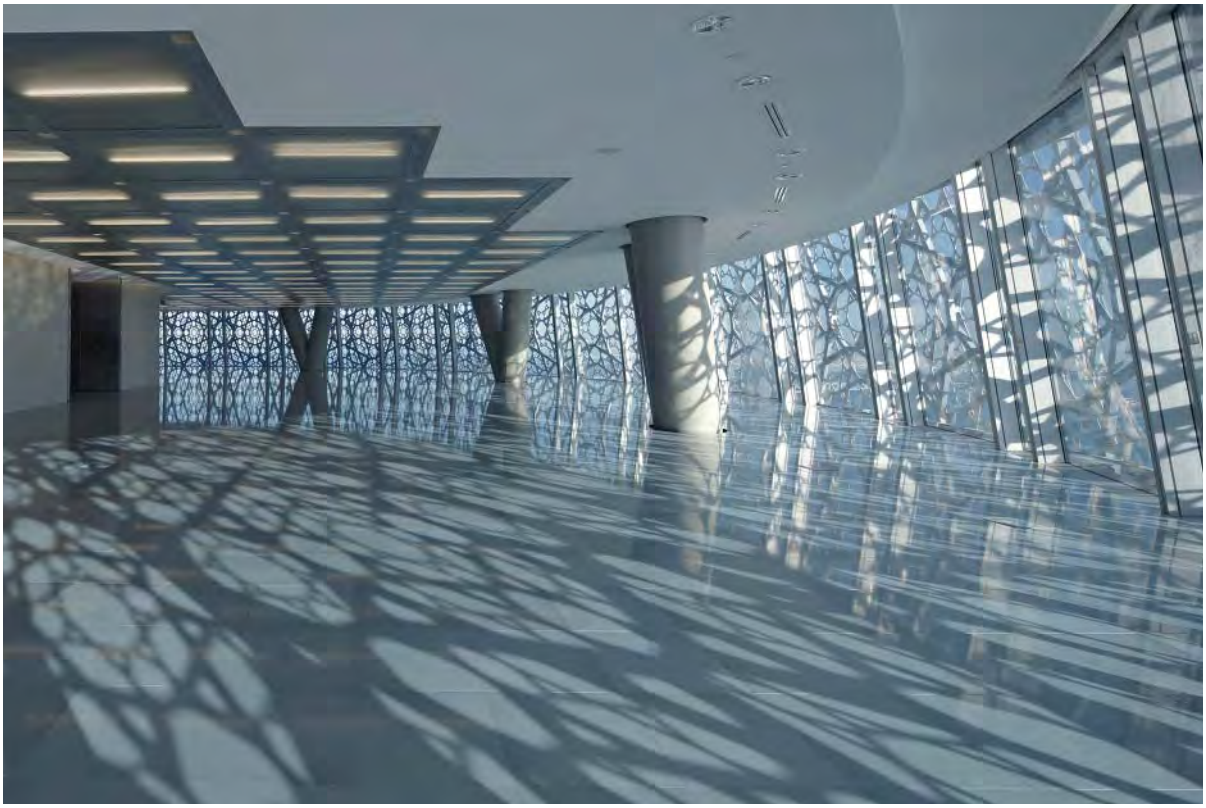
"Riding the line between Western and Arabic building technologies and expressions, the resulting experience for users is both modern and place-based."

Vishaan Chakrabarti, Juror, SHoP Architects

non-traditional concrete diagrid with canted columns forming an "X" shaped framing system. This system creates a unique effect in the office spaces in conjunction with the façade screen. In contrast to more typical office towers, the spatial quality of the interior is one of ever-changing patterns of light and texture, breaking the standard of monotony.

The office floors are flexible and allow a variety of configurations. In addition, the latest technology has been provided for office tenants, including fiber optic telephone cables and satellite TV. Though the efficiency of the plan was the highest priority, the overall form of the building gives each floor a unique size and a slightly different effect.

In an unexpected twist from most office towers, a grand private residence is located within the dome of the tower at 182 meters above ground level. The luxury residence has its own private entrance into the building and elevator service, along with private access to the adjacent restaurant below. The breathtaking effect of the culmination of the dome structure and screen creates a truly singular space. Included in the residence



Jury Statement

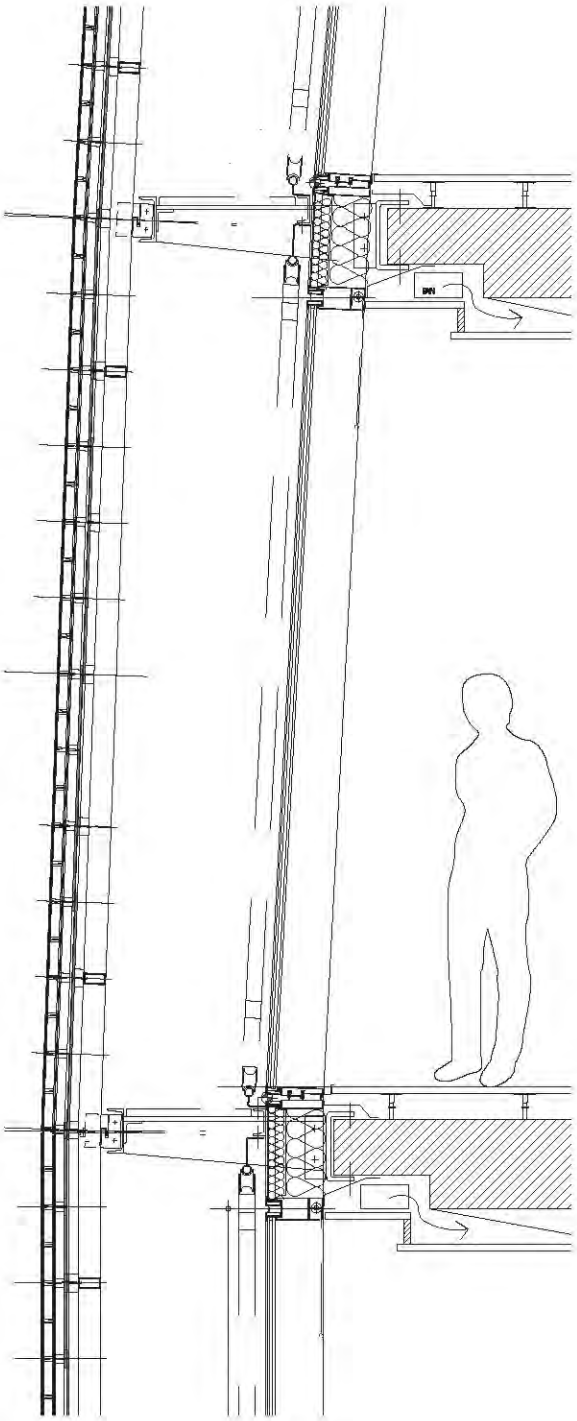
Doha Tower stands out for its deft and subtle sensitivity to culture, context and climate. The design hints at post-modernism, but avoids this pitfall through the interpretive re-use of indigenous elements such as the mashrabiya, which varies in its density across the façade in response to solar orientation. The strength of the proposal is in its unapologetic connection to culture and place, and stands as a successful precedent of cultural iconography.

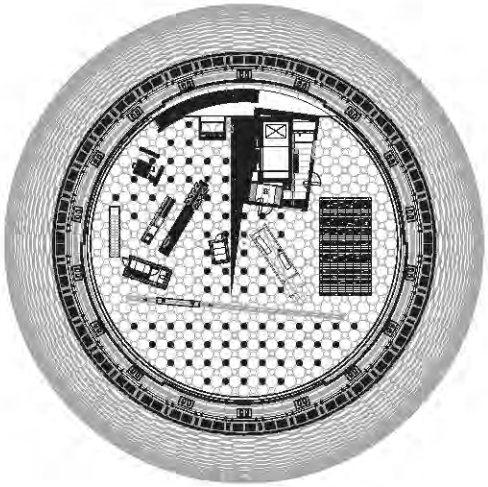
In addition, the celebration of the dome and lightning rod at the top of the building has created one of the most spectacular penthouse spaces in the history of high-rise construction. The tower is a continuation of the architect's lifelong interest in both cultural interpretation and technology, and is laudatory for the pursuit of local meaning in the face of globalization.

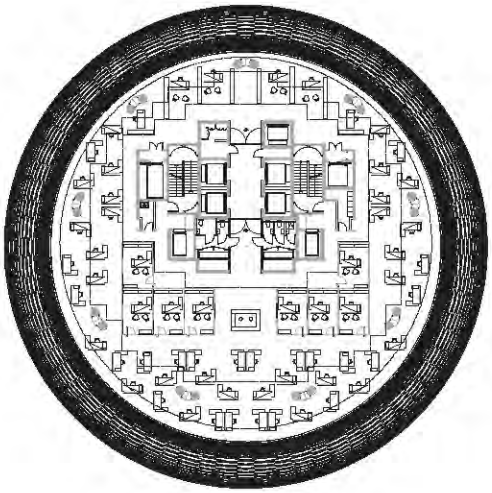
are a sauna and pool along with typical residential amenities. Offering 360° views of the surrounding city, the residence is truly like no other.

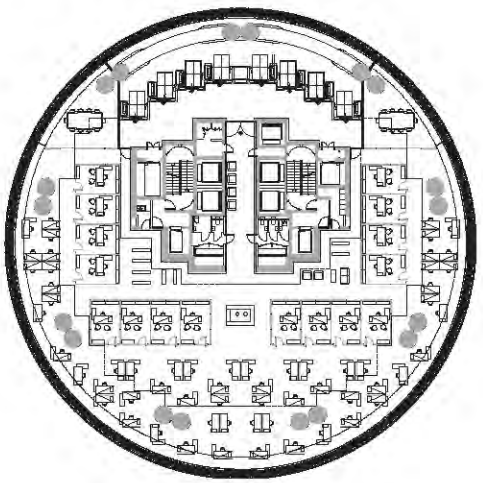
Building upon previous projects, the design team utilized knowledge gained in other contexts to bring the building full-circle. The tower makes a distinct and direct connection to the local culture and practice through the use of the façade screen while responding to the climate appropriately. The design provides a flexible, efficient and interesting work place for office occupants and considers the needs of the owner. Lastly, the building makes an iconic statement and stands as a trademark of the Doha skyline in both daytime and nighttime though its textural façade and integrated architectural lighting.

Left: Overall view from west
Opposite Left: Detailed section through façade
Opposite Right: Floor plans (top to bottom): 44th floor private residence, typical high level office, typical low level office









Helmut Jahn

Murphy/Jahn

Through the history of his decades-long career, Jahn has become well-known for his trademark term, "Archineering," emphasizing the critical relationship of the architect and engineer and the importance of collaboration of the design team as a whole. Aside from pioneering his own avant-garde standards for architecture, he has set a new bar within the field of cohesion between architecture, engineering, and the integration of all the elements comprised between them to create truly unique solutions to architectural problems.

Born in Germany, Helmut Jahn's four-decade-long career has spanned continents and a variety of projects. After receiving his initial schooling in Germany, Jahn moved to America to pursue his graduate studies at the Illinois Institute of Technology where he worked with both Myron Goldsmith and Fazlur Kahn. Once his degree at IIT was completed, he began work at C.F. Murphy Associates as an Assistant to Gene Summers. He quickly moved up the ladder of leadership at the prolific firm and became partner of the newly named, Murphy/Jahn, in 1979.

Jahn's first project, the Xerox Center in Chicago, was well-received at the time of its completion in 1980 and stands as a telling contribution to the city skyline; even today it fits in amongst both its historic and modern neighbors. Since then, Jahn's projects have benefited from his philosophy of innovation, execution, and sustainability. Known amongst his peers for his ability to collaborate, dedication to detail, emphasis on innovation and consideration for ecological impact, Jahn has contributed many buildings which aim to meet his stringent goals.

Projects in the '80s and '90s were indicative of the development of Jahn's design philosophy, moving towards buildings which increase occupant comfort and take advantage of modern technologies. Buildings like the Messe Turm in Frankfurt and the Liberty Towers in Philadelphia were exemplary of his aims to set new architectural standards while responding to context and the technological developments of the time. The Messe Turm stood as the tallest building in Europe from its completion in 1991 until 1997, while the Liberty Towers were the tallest buildings in Philadelphia from 1990–2008. While height is not the main goal of a project, Jahn has responded to tall building projects with the same continuum

Opposite: Liberty Towers, Philadelphia (1990)

"Helmut Jahn is known for his ability to apply the latest in engineering and materials to his building designs with architectural flair and panache. His projects grace many locales around the world."

Peter Irwin, CTBUH Trustee, RWDI

Left: The Xerox Center, Chicago (1980)
Right: Messe Turm, Frankfurt (1991)

of expertise and understanding as any of his others, maintaining core principles.

Before "green" was popular, Jahn worked with engineer Werner Sobek and building physics expert Matthias Schuler to design Bonn's Post Tower which is widely regarded as one of the earliest sustainable tall buildings. The tower not only employs various passive and environmental strategies to reduce the building's overall consumption, its design was driven by user comfort. Based on the concept of human skin, the technologically advanced design relied on the collaboration of the diverse design team to ensure its success.

The Highlight Towers in Munich along with Hegau Tower in Singen, Germany were further adaptations and iterations of the implementation of sustainable elements within a refined architectural style. Though the focus of their goals was not to achieve a certain aesthetic, they clearly define a simple yet modern form while accomplishing the stringent intentions set forth with ecological sensitivity and user comfort. This period solidified Jahn's methodology and approach, and has since become his signature.

Jahn's forging of the path of sustainability for high-rise buildings is visible in nearly all his projects since this time. The Veer Towers in Las Vegas were designed around creating an iconic building while providing a response to the local climate. In forming the canted towers with significant horizontal louvers on the exterior of the façade, unique buildings are created while the design responds to the harsh Nevada sunlight without the use of dark, reflective glazing. In addition, color fritted class adds to the iconic quality

Left: Post Tower, Germany (2002)
Top Right: Highlight Towers, Munich (2004)
Bottom Right: Hegau Tower, Singen, Germany (2008)

of the towers while providing additional solar mitigation. The building has a strong identity and stands out within its unusual context, but still maintains its response to Jahn's all-encompassing goals.

The recently finished Leatop Plaza (see pages 86–87) has built upon years of experience with other designs to create an elegant solution for a responsive and sensitive office tower. As the tallest completed building in Murphy/Jahn's repertoire, the tower stands as a testament to the firm's ability to apply the knowledge gained over decades of completed and successful projects to taller and even more innovative buildings. Employing an intricate, high-performance façade in conjunction with a simple yet appropriate form creates a new derivation of the typical skyscraper typology and makes a subtle but significant contribution to the Guangzhou skyline.

Left: Veer Towers, Las Vegas (2010)
Opposite Left: Leatop Plaza, Guangzhou (2011)
Opposite Right: Nanjing Tower, Nanjing (proposed – 2015)

The work of Murphy/Jahn is moving ever forward, while remaining faithful to the axioms that Jahn originally set out to follow decades ago. Many proposed projects in the Middle East, Asia and the US are pushing the envelope within the tall building typology in the context of the firm's goals. The legacy of Murphy/Jahn as a firm that has remained relevant over decades of service is one of innovation in the face of global change.

Aside from Jahn's professional work, he has consistently over the years contributed to the education of future architects, teaching studios and advising theses. From Yale to his alma mater, IIT, he has impacted the experience of many students in their process of becoming an architect.

In recognition of the distinctive buildings that have been designed by Murphy/Jahn over the years and Jahn's contribution to the architectural field, he has been the recipient of dozens of awards and has been named a Fellow of the American Institute of Architects. The CTBUH Lynn S. Beedle Award now adds to the repertoire.

Jury Statement

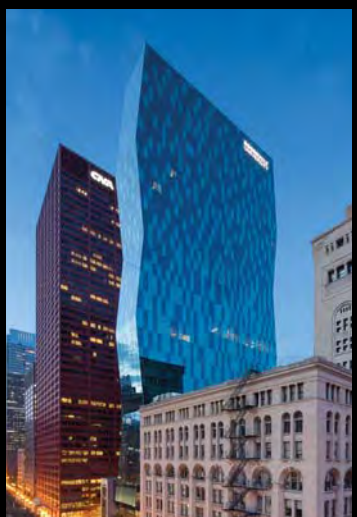
Helmut Jahn, who has been a quiet leader in the field of architecture for more than 30 years, has made elegant, finely detailed and sustainable buildings his trademark. Though his firm has been known to put out iconic landmarks, he can just as easily turn out a strictly-budgeted, visually pleasing and ecologically sensitive project. On top of this, his buildings are truly designed for the user's experience. Combining ecology, economy and aesthetics along with innovation and site responsiveness has led to a career heavily punctuated with success.

Based in Chicago, Jahn's firm carries on the local tradition of meshing construction and art to create well-crafted and beautiful designs. While not necessarily associated with "starchitect" status, Jahn is seen as a keen innovator of contemporary architecture.

The Council on Tall Buildings and Urban Habitat (CTBUH) is the world's foremost authority on tall buildings. This book is the culmination of the annual awards process in which the CTBUH recognizes outstanding tall buildings from the past year. One winner is chosen from each of four geographical regions (Americas, Asia & Australasia, Europe, and Middle East & Africa) and a further award presents the title of overall Best Tall Building "Worldwide" to one of the four regional winners. This year the Council also added a new award, the CTBUH Innovation Award, recognizing a specific area of recent innovation in a tall building project. 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.

The book provides an overview of the winning, finalist and nominee projects (and careers of the Lifetime Achievement winners). Winning and finalist projects are fully profiled with stunning images, as well as detailed drawings and plans, which accompany an in-depth account of the buildings' architectural design, structural design, and any innovations in fields such as program or sustainability. 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.

Highlighting the best tall buildings from 2012, *Best Tall Buildings* seeks to represent those projects with innovative design and which strive to advance the profile of the tall building as an integrated sustainable element in cities across the world. Fascinating and inspiring reading for all those interested in the planning, design, and construction of tall buildings.



an **informa** business

ISBN 978-0-415-64002-2

9 780415 640022

Routledge
Taylor & Francis Group
www.routledge.com