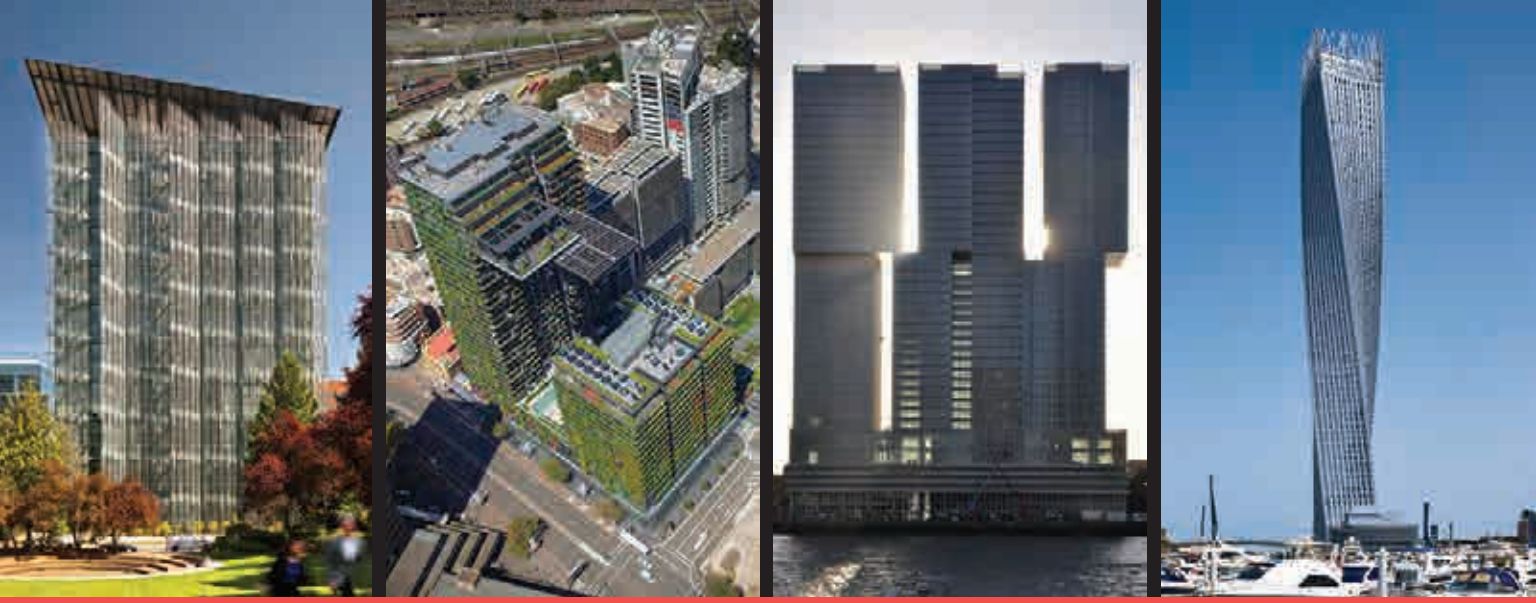

Best Tall Buildings

A Global Overview of 2014 Skyscrapers

CTBUH Awards

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 2014 awards program.

We would also like to thank our 2014 Awards Jury for volunteering their time and efforts in deliberating this year's winners and finalists.

About the CTBUH

The Council on Tall Buildings and Urban Habitat 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 based at the Illinois Institute of Technology, Chicago, with an Asian office at Tongji University, Shanghai, 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

Best Tall Building Middle East & Africa

Winner:

Nominees:

Urban Habitat Award

Winner:

Finalist:

Nominee:

10 Year Award

Winner:

Finalists:

Innovation Award

Winner:

Finalist:

Nominees:

Performance Award

Winner:

Finalist:

Nominee:

Lifetime Achievement Awards

Awards & CTBUH Information

Index

Winner
Best Tall Building Asia & Australasia

One Central Park

Sydney, Australia

Completion Date: January 2014
Height: 116 m (381 ft)
Stories: 34
Area: 67,626 sq m (727,920 sq ft)
Use: Residential
Owner/Developer: Frasers Property Australia; Sekisui House Australia
Architect: Ateliers Jean Nouvel (design); PTW Architects (architect of record)
Structural Engineer: Robert Bird Group
MEP Engineer: Arup
Main Contractor: Watpac Construction
Other Consultants: AECOM / Davis Langdon (cost); AIK (heliostat lighting); Arup (environmental); Aspect Oculus (landscape); Device Logic (heliostat programming); Jean-Claude HARDY (landscape); Jeppe Aagaard Andersen (landscape); Kennovations (heliostat design); Patrick Blanc (green walls); Surface Design Pty Ltd (façade); Transsolar (Energy); Turf Design (landscape)

"The ubiquitous use of organic shading is designed to improve energy performance and will bring delight to the occupants and its neighbors."

David Scott, Technical Jury Chair, Laing O'Rourke

One Central Park (OCP) is an innovative and environmentally ambitious landmark project within the redevelopment of the Carlton & United Brewery site near Central Station in Sydney. The overall planning intent is to adhere to the highest standards of sustainable residential design under the Australian Green Star rating system and support the vision of an environmentally responsible future for the city.

In order to make the two towers of OCP visibly greener than is normally perceivable in Green Star developments, the design takes a broader approach to carbon-conscious design. With the help of two unusual technologies – hydroponics and heliostats – plants are grown all around the building to provide organic shading, and direct sunlight is harvested all year long for heating and lighting. The shading saves cooling energy, while the redirected sunlight is an all-year light source for the building precinct and adjoining park. Beyond the bravado of their technical deployment and performance, the plants and reflected daylight are also just natural

Previous Spread

Left: Overall view of tower from northwest

Right: Planters along façade create a natural texture

Current Spread

Left: Detail view of the vertical green wall "ribbons" alongside the horizontal planters

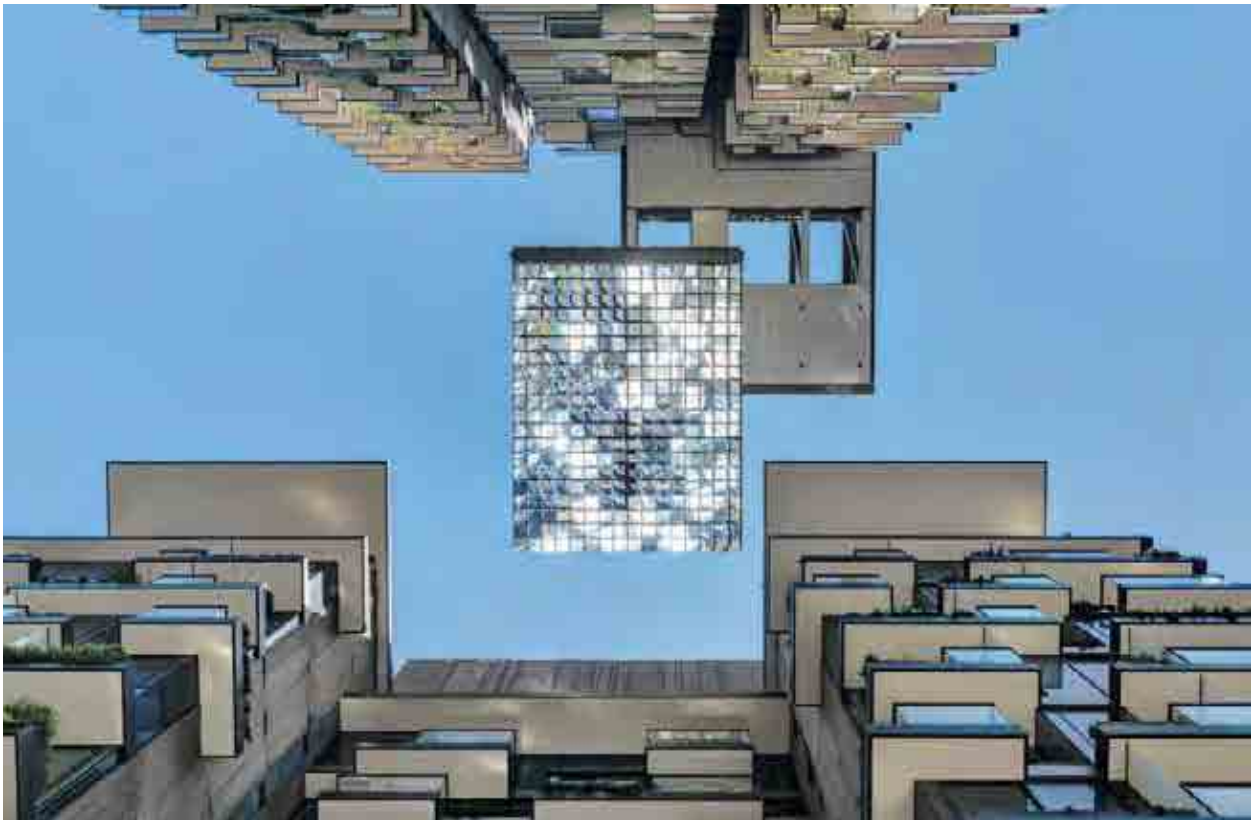
Right: Aerial view of building

Opposite Top: View looking up at the heliostat reflectors hanging from the cantilevered sky garden

resources, made available in an unusual way for the enjoyment of Sydney's residents.

Of particular note is the inclusion of a park at the tower's base. The first design challenge was to give the new park a real presence at an urban scale. Because OCP is a high-rise, it is possible to bring the park up into the sky along its façades and make it visible in the city at a distance. On the south side, the park rises in a sequence of planted plateaus scattered like puzzle pieces in randomized patterns across the façades, so that each apartment has not only a balcony, but also its own piece of the park. At the individual scale, this creates pleasant private gardens. At a collective scale, it's a green urban sculpture.

On the north, east and west sides, the green takes more continuous veil-like appearances with green walls, continuous planter bands and climbing vegetation. The plants deliver a message of sustainability, and because their shade reduces energy consumption for



cooling and their leaves sequester carbon dioxide, they also effectively make the building more sustainable. The plants also reflect less heat back into the city than traditional fixed shading. The plants are irrigated with recycled grey and black water, and their growth can be custom-tailored to the needs of each façade area. In total, more than 5 kilometers of planters function like permanent shading shelves and reduce thermal impact in the apartments by up to 30 percent.

A design challenge arises from the tall massing along the north side of the site. In order to remediate overshadowing of the park, the volume is broken up into a lower and a taller tower. On the roof of the lower tower, 42 heliostats (sunlight tracking mirrors) redirect sunlight up to 320 reflectors on a cantilever off the taller tower, which then beam the light down into areas that would otherwise be in permanent shade. The system adapts hourly and seasonally to the need for brightness and warmth, redirecting sunlight to a heat absorbing pool of water atop the atrium glass in summer, which

Jury Statement

One Central Park is a breathtakingly beautiful building that captured the imagination of the jury. The living façades in One Central Park provide fantastic visual, tactile, aromatic, and auditory experiences for the occupants of the apartments and deliver significant urban heat island reductions and other benefits to the local neighborhood. This is also a tall building that welcomes the sun and treats it as an asset to be managed. In addition to shading itself and increasing its own value, the neighborhood is further enhanced by the project's 42 heliostats that reflect sunlight onto the shaded streets. It is perhaps this generosity toward the urban realm that will endure as the project's greatest sustainable achievement.

One Central Park is a truly green building that convincingly shows that tall buildings can be environmentally sound. This is a massive commitment to organic cladding and is commended. It is now hoped that in the coming years the project will be able to demonstrate its intended energy performance, by submitting for the CTBUH Performance Award.

Winner
Best Tall Building Americas

Edith Green-Wendell Wyatt Federal Building

Portland, United States of America

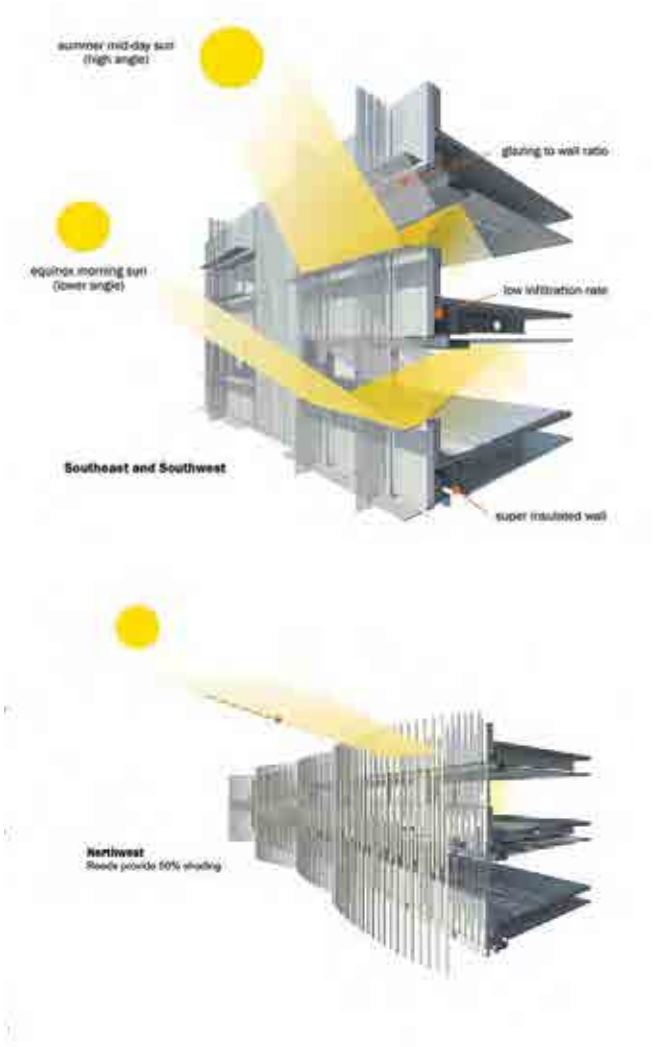
Completion Date: Original: 1974; Renovation: May 2013
Height: 110 m (361 ft)
Stories: 18
Area: 48,774 sq m (524,999 sq ft)
Use: Office
Owner: General Services Administration
Architect: Cutler Anderson Architects (design); SERA Architects (architect of record)
Structural Engineer: KPFF Consulting Engineers
MEP Engineer: Interface; PAE Consulting Engineers; Stantec
Main Contractor: Howard S. Wright Construction
Other Consultants: Acoustic Design Studio (acoustics); Charles M. Salter Associates (acoustics); PLACE (landscape)

"A significant transformation both from a performance and urban perspective, this renovated federal building demonstrates how buildings need not be destroyed to gain new life."

Jeanne Gang, Jury Chair, Studio Gang Architects

The Edith Green-Wendell Wyatt (EGWW) Federal Building is an existing 18-story, 48,774 square-meter office tower, completed in 1974. The building no longer met the functional or the energy and conservation requirements of the contemporary US government, so a major renovation project was undertaken. A mechanical upgrade, seismic retrofit, and full interior rehabilitation was paired with a full replacement of the building envelope with a distinctive shading façade, affording better energy performance and a new lease on life.

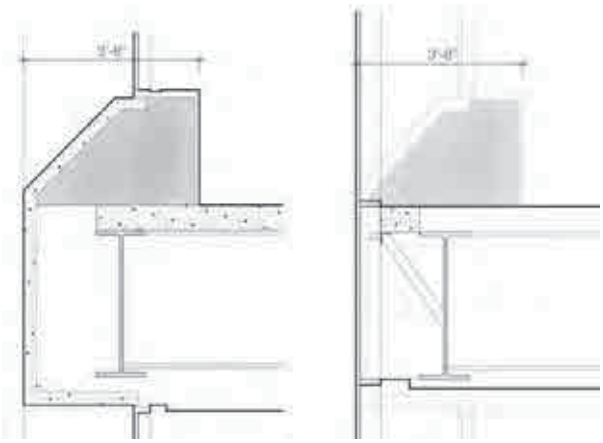
While investigating the brief, the architects discovered that the existing concrete skin of the structure used up 600 millimeters of floor area for every 300 lineal millimeters of exterior wall. By applying a new skin to the existing slab edges and making other changes related to HVAC systems, the design added 9,449 square meters of new rentable office space, which amortized the added cost of the envelope. About 650 square meters of that space was freed up by switching to water cooling, which reduced the building's thermal load to the point



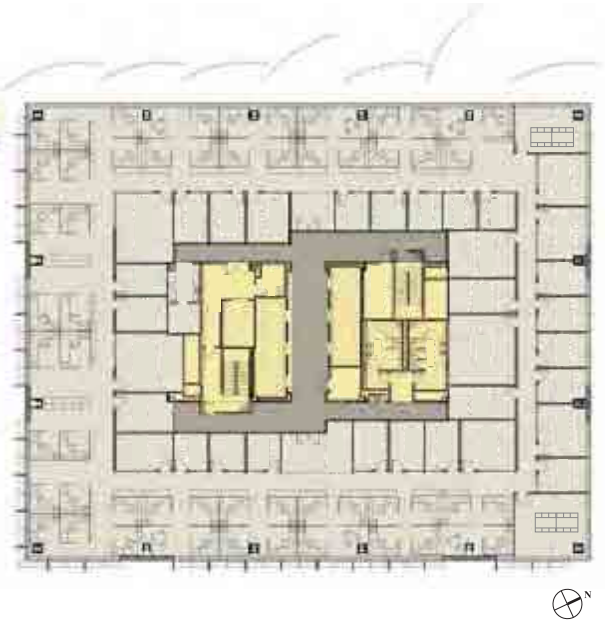
that the large fans for the previous forced-air cooling system could be removed. Additionally, removing the concrete façade panels simplified the seismic retrofit of the building due to the reduction of weight; the new façade system could be attached to the structural frame with a series of relatively short steel beams.

Because of the importance daylighting plays in human health and comfort, the project optimized solar penetration in the perimeter zone by deploying a low-powered ambient lighting in concert with focused task lamps. This resulted in a 50–60 percent reduction in energy consumption for lighting, while providing occupants with a valuable connection to the outdoors. The depth and spacing of the shading devices were varied to arrive at the performance metrics the designers used, and to derive the building's aesthetic expression.

In order to respond to the unique solar exposure of the site, each face of the building was designed to both



Original **New**



shade direct solar gain and reflect light into the interior spaces to enhance daylighting. The result was a building that presents a different face to each solar circumstance. The reed-like shades affixed to the northwest façade of the building are tuned to reduce solar gain, and a 3,962 square-meter roof canopy supports a 180 kW photovoltaic array, while also collecting rainwater.

Greater than 65 percent water savings will be achieved through a dual strategy of incorporating water-conserving plumbing fixtures together with the rainwater system. The water conservation strategy started with an analysis of how the existing building used water. Eighty-seven percent of the building's water usage is for domestic uses, with 13 percent used for irrigation of surrounding vegetation. Because of this large interior use, the strategy focused on reusing rainwater for non-potable flush fixture uses first. Landscape water use is reduced by over 50 percent as well, through use of drought-resistant landscaping and incorporation of subsurface irrigation.

A 624,593-liter tank, created by repurposing an old rifle range, allows rainwater to be stored and used for toilet flushing, irrigation, and mechanical cooling tower makeup water. The tank also supports another project goal: mitigating the negative effects of urban runoff. Ultimately, the EGWW building is expected to save over 7.5 million liters of water annually – enough water to fill 22 swimming pools. The building is also designed to achieve a 60 percent reduction in energy use compared

Previous Spread

Left: Overall view of the tower and northwest façade

Right: Original view of building before renovation

Current Spread

Opposite Left: View of the southwest façade shading system

Opposite Right: Drawings showing the sun-shading features of the façade (top and middle) and how the additional square footage was achieved (bottom)

Top Left: Typical floor plan

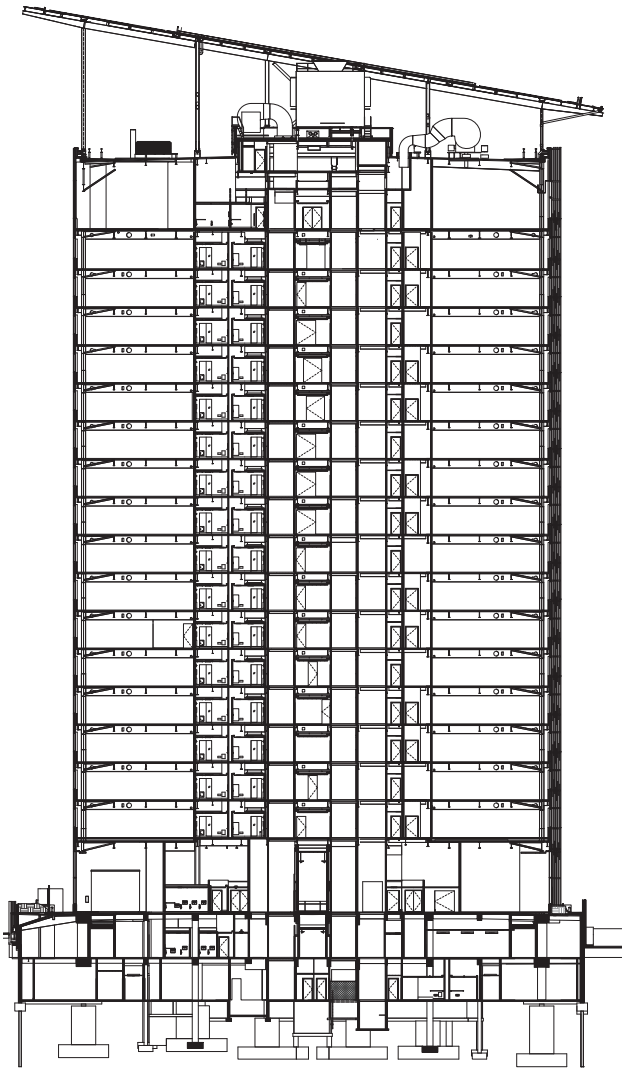
Top Right: View of building and façade shading system from north

Left: Typical section

Opposite Top: Looking up at façade shading structure from base of tower

Opposite Top Left: Main entrance

Opposite Bottom Left: View of lobby



to the existing building, and a reduction of Energy Use Intensity (EUI) by 45 percent. A large portion of those savings will come from having eliminated forced-air fans.

In the original refurbishment design for the building, a green wall system was to be utilized to shade the west façade. Planters were planned vertically across the façade every two floors to create bands of greenery across the entire height of the building. However, it was later determined too costly to implement, and the planters were replaced with the reed-like fixed aluminum shading devices that now characterize the northwest façade. The "green wall" was thus limited to only the first two floors of the building, where it is able to grow out of a planter bed at ground level and use the first levels of the reed shading devices as a trellis to grow upward.

"Even though the green wall was not realized as originally intended, it is remarkable that this building with its 'futuristic' aesthetic had a former life – as an uninspired concrete box. The Edith Green-Wendell Wyatt Federal Building points the way forward on what really can be achieved with the refurbishment of existing buildings."

Antony Wood, Juror, CTBUH

Jury Statement

The renovation of the Edith Green-Wendell Wyatt Federal Building is more than an improvement in energy performance. It is a public restatement of the contract between a government, its people, and the natural environment. Edith Green-Wendell Wyatt is a retrofit of a building that was designed at the time of the Arabian Oil Embargo and in the shadow of Watergate, and all of the attendant paranoia and utilitarianism of civic architecture at the time.

It now emerges at a time when energy is again the focus, but it underscores just how much the attitude toward energy, as well as cities, the environment, and workplace design have changed, even as requirements for physical and information security have increased. Given that the Edith Green-Wendell Wyatt building communicates openness, urban vitality, and sustainability, yet still meets stringent operational requirements, it is all the more remarkable that the original met none of these criteria. The fact that it still seems like an "outlier" when we think of "government building in America" tells us how much work we still have to do, especially with our existing building stock.

Winner
Lynn S. Beedle Lifetime Achievement Award

Douglas Durst

The Durst Organization

Opposite: Bank of America Tower, New York City, 2009 (366 m / 1,200 ft), CTBUH Best Tall Building Americas Award Winner (2010) and the first LEED Platinum Skyscraper

Above: Douglas Durst

"As the developer of the Conde Nast and Bank of America Towers, Douglas Durst has delivered on the promise of the sustainable tall building. While others only spoke, he took action."

David Malott, CTBUH Trustee, Kohn Pedersen Fox

One of the best ways to understand Douglas Durst's importance to the tall building industry, and the real estate field in general, is to look at his stewardship and advancement of a family company that has been investing in New York over 100 years of dramatic change. Douglas Durst is the chairman and a member of the third generation to lead the Durst Organization, which was founded in 1915 and is one of New York's oldest and most respected privately held owner-builder-managers of commercial and residential real estate. Its portfolio now comprises more than 13 million square meters of Class "A" Manhattan office space, as well as over 1,500 residential units. Today, The Durst Organization has two mixed-use residential rental buildings in development, with 1,200 units in the pipeline.

The Durst Organization began building on Third Avenue in the 1950s, and by the 1960s had helped establish the East Side as a commercial business district. In the late 1960s the company turned its attention to

Left: 4 Times Square, New York City, 1999 (247 m / 809 ft); widely regarded as the first green skyscraper in the US

Opposite Top: The Helena, New York City, 2005 (122 m / 401 ft); an example of a large-scale LEED Gold residential rental building developed by Durst

Opposite Bottom: West 57th Street, New York City, 2015 (expected) (142 m / 467 ft); The Durst Organization's latest residential tower under construction next door to The Helena

Sixth Avenue, transforming it into Manhattan's premier corporate thoroughfare. Douglas Durst joined The Durst Organization in 1968, learning the business from his father, Seymour, and two uncles, Roy and David.

Rather than remain content to protect the family legacy, Durst struck out in several bold new directions. Far ahead of the current sustainability consciousness, in the 1980s, Durst installed energy-efficient light bulbs and variable-frequency fan drives in the company's existing portfolio of buildings.

In the mid-1990s, Times Square still had a seedy reputation. But Durst began developing 4 Times Square, lending the famous crossroads some overdue architectural sophistication. It was the first multi-tenanted project of its size to adopt standards for energy efficiency, sustainable materials, and indoor environmental quality, as well as for responsible construction, operations, and maintenance practices. It was also the first large-scale office tower built in New York after the real estate market collapse of the late 1980s. Housing Condé Nast publishing group and its famous Frank Gehry-designed cafeteria, the building contributed to Times Square's revival in the 2000s.

Since the completion of 4 Times Square, The Durst Organization has built two large-scale LEED Gold residential rental buildings – The Helena and The Epic. The 2005 Helena was the first voluntarily sustainable high-rise residential building to be constructed in New York City.

Trustee Statement

Douglas Durst has managed to be both ahead of his time as the leader of a development and management firm and incredibly loyal to his family legacy and his native city. Durst had faith in the wisdom of both small items like energy-saving light bulbs and the efficacy of major interventions, like new office development in then-moribund Times Square, before anyone else did. He understood that high-performing tenants would also want a high-performing building. Others capitalized on these insights later, but Durst usually saw it first.

Currently under construction directly next to The Helena is the West 57th Street project. Designed by BIG-Bjarke Ingels Group, the building is a hybrid between the European perimeter block and a traditional Manhattan high-rise. Scheduled to open in 2015, Durst's latest residential tower is designed to allow the courtyard to have open views toward the Hudson River, bringing low western sun deep into the space.

Just a block away from 4 Times Square, in 2009, Durst added to his company's already impressive record along Sixth Avenue by creating a truly 21st-century building, The Bank of America Tower at One Bryant Park, recognized as the CTBUH 2010 Best Tall Building Americas. It was also the first high-rise office tower to be certified LEED Platinum by the US Green Building Council. One Bryant Park was designed to set a new standard in high-performance buildings, emphasizing the importance of occupant connections to nature and addressing the local environment. The site sits atop nearly a dozen subway lines and is within walking distance of three of the largest intermodal transportation hubs in North America.

At the height of confusion and malaise around the fate of the World Trade Center site in 2010, the Durst Organization under Douglas Durst assumed ownership, management, leasing, and operations responsibility for One World Trade Center, the tallest building in North America and a symbol of resilience after the 9/11 attacks. When Durst purchased the building, it had only

one tenant committed, which planned to occupy less than 10 percent of its 288,000 square meters.

"Despite these risks, we believe that New York and Lower Manhattan is a great bet, and the benefits of new and sustainable construction provide a critical edge," Durst said. As of this writing, the building is more than 56 percent leased.

Insight into the motivation for taking these risks can be found in some memorable statements Durst has made about his investing philosophy over the years.

"My experience is almost completely New York-centric," Durst said. "My grandfather and father were in real estate and my father had a strict policy of not buying anything that wasn't within walking distance of his house. I had the good fortune that he lived in Midtown Manhattan. Real Estate is always local. I am very lucky to work in one of the most dynamic and challenging real estate cities. My dad said, 'to build in New York, you need an architect, an engineer and two psychiatrists.' Today, you need two architects, two engineers and six psychiatrists. The risk, competition and regulation are intense, but so is the reward."

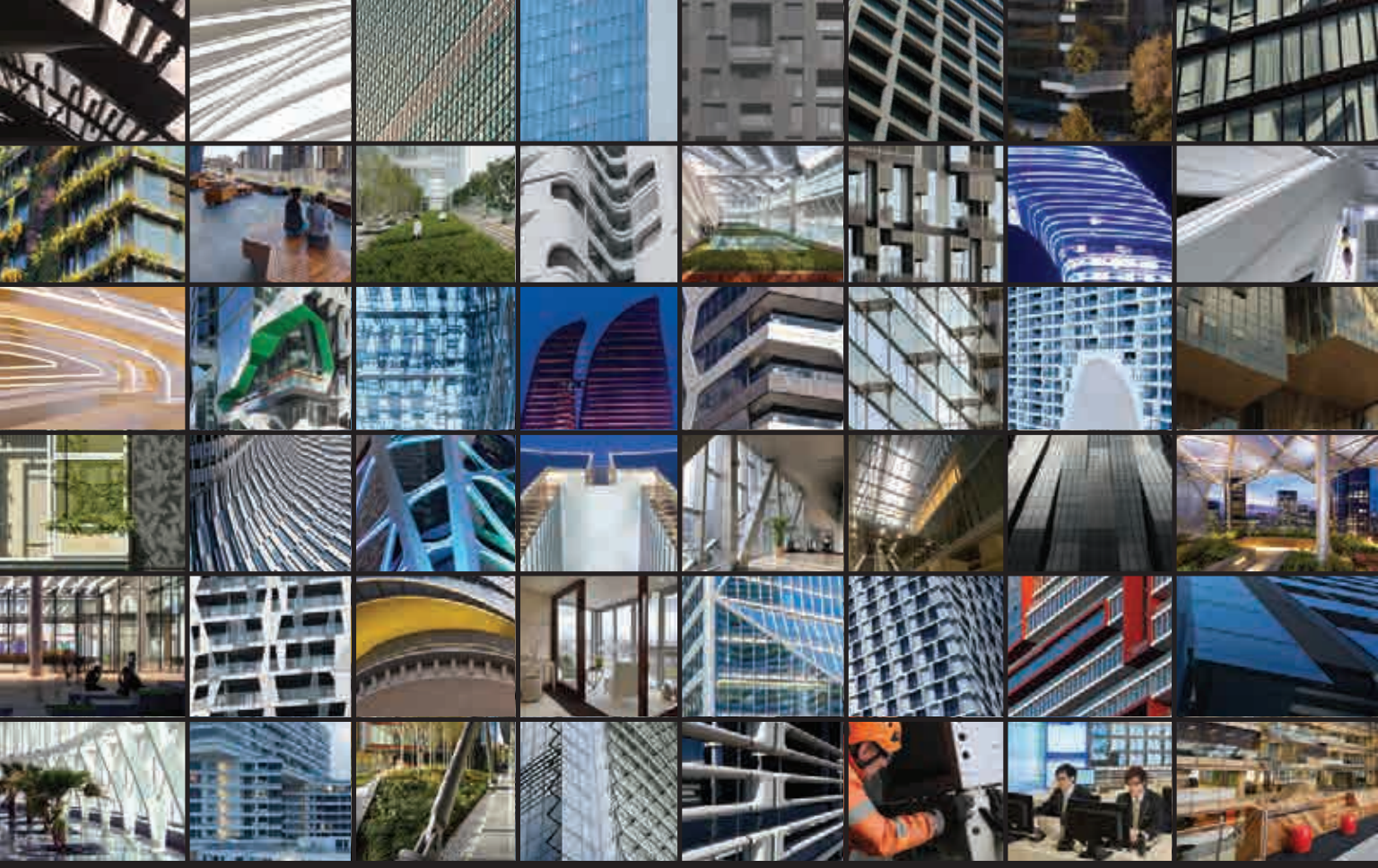
"Wherever you invest, it is important to remember that real estate is a service industry, not a commodity," Durst also said. "We plan for our children and grandchildren, not for the next earnings report. We build more efficient buildings, not only because they use less energy, are less expensive to operate, and provide a more productive work environment, but because we are focused on providing not just an economic future for our children, but a healthy one as well."

Opposite: Rendered view of One World Trade Center, New York, 2014 (541 m / 1,776 ft)

Douglas was born in New York City in 1944 and graduated from the Fieldston School and the University of California Berkeley. Durst is a director of the Real Estate Board of New York, The New School, The Trust for Public Land, and Project for Public Spaces. Durst has been involved with the theatrical arts for many years and is a member of the board of directors of The Roundabout Theater and Primary Stages. Along with other family members, he is a trustee of The Old York Foundation, established by his father, which is committed to helping people through education to understand the history and issues facing New York City. In addition, Durst has been an environmental activist for many years and created one of the largest organic farms in New York State.

"There are few developers in the world who consistently push beyond the status quo in high risk cities to innovate and raise the bar in tall buildings. The Durst Organization led by Douglas Durst is an exception. Douglas has conceived and delivered buildings we can all learn from and encourages the industry to strive for achieving higher quality, sustainability, and performance."

Timothy Johnson, CTBUH Chairman, NBBJ



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. 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 complete and in operation for at least a decade. 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 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 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.

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