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The projects profiled in this book are those submitted to the Council on Tall Buildings and Urban Habitat's 2023 Global Awards program. See page 306 to learn more about this program.
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Shaping the landscape of the bustling Central Business District (CBD) of Singapore, CapitaSpring is designed as a vertical oasis. The building’s exterior façade showcases a dynamic interplay of orthogonal lines and lush greenery, allowing the enlarged landscape area to become a green breathing space for the neighboring tenants and passersby in the high-density area.

An emphasis on ground floor design for shade and rain protection creates a human-friendly microclimate with seating pockets and activity zones for a vibrant public realm. Artwork is provided in the public spaces enhancing the user experience and sensorial richness. The iconic hawker center, originally located on street level, now features 56 stalls across the second and third floors—solidifying its status as the beating heart of the city’s culinary experience, and the role it plays in maintaining local culture and community.

At multiple elevations, the vertical elements comprising the building’s exterior façade are pulled apart to allow glimpses into the green oases blooming from the base, core, and rooftop skygarden (housing over 38,000 plants). A dynamic interplay of orthogonal lines and lush greenery presents itself in the contrasting textures of steel and glass, interweaved with tropical vegetation. On the lower floors are 299 serviced residences with a wide range of amenities, including a pool, jogging track, gym, kitchen, and residents’ lounge. The top floors offer premium office spaces with panoramic views of the Singapore River and Marina Bay. Building features for a tech-enabled workplace are integrated seamlessly into the building.

At the core of the building are four connected levels of organic softscape dubbed the “Green Oasis”—a 30-meter-tall, open-air garden designated for work, relaxation, exercise, and events. Open to the public, the enlarged landscaped area is lushly vegetated and generously shaded, providing a vibrant public realm for both tenants and visitors. The skygarden on the roof is the highest observation deck in the city and has a farm-to-table garden that supplies herbs to the building’s restaurants.

The integration of rainwater harvesting systems ensures efficient irrigation of the landscape, reducing reliance on potable water. Energy efficient equipment, lighting sensors to conserve energy, and window sensors to cut off chilled water when windows are opened are also incorporated.

At the ground level, a 600-meter cycling path around the building perimeter forms part of the Central Area cycling network connecting to Singapore’s larger cycling network. Bicycle parking lots, comprehensive end-of-trip facilities, and two bicycle repair and pump stations are provided. Infrastructure is built for electric vehicles that includes four electric vehicle (EV) parking lots, two of which are equipped with direct 50 kilowatt fast charging stations. These amenities support the government’s goals for a car-lite society and the sustainable transport vision in the Singapore Green Plan 2030.
Over the last two decades as the Zuidas area developed into the main international business center of Amsterdam, there was a reduced focus on residential interests. That is changing with the mixed-use development of the Valley, transforming the area into a more livable and complete urban quarter. This building form is arranged by three rugged towers and takes its name from the green valley in which it is nestled.

The location of the complex sits on the border between residential and commercial functions, forming a connection between green sports fields on the east and the dense urban setting of the business center on its west. By placing residential volumes on top of a multifunctional plinth and pushing them to the very edge of the envelope, the resulting massing reads as one single entity. The unique appearance of the building makes Valley a striking landmark in an otherwise conventional and rather monotonous business district.

In mirroring the corporate surroundings by way of a reflecting glass exterior façade, the design acknowledges its corporate heritage and visually connects to its immediate neighbors. In contrast, the inner façade is carved out of this reflective block, creating a series of stepping, stone terraces with large planters that cover the building in vegetation. These oppositional façade treatments provide the visual transition from business center to a livable residential neighborhood.

The residential levels have large windows that open to fresh air and sliding doors to the outdoor spaces with full glass railings protecting against wind and sound, providing unencumbered panoramic views.

The lower levels of the development are publicly accessible and reached by staircases that wind upwards directly from the street level to the 5th floor. Inside the building is the Grotto, a large interior hall providing access to shops, offices, and exhibitions. Natural daylight filters in by two large skylights above.

Committed to the urgency of addressing climate change, the design integrates several approaches to social and environmental responsibility. The latest generation of smart technologies are integrated in the office areas, including IP-based Building Automation Systems and various sensors linked to monitoring actual use. This provides accurate occupation data used to adapt lighting, cleaning, energy, and installation maintenance. Additionally, the gardens bring not only a needed greening to Amsterdam’s Zuidas business district, they help reduce heat islands, ensure water retention, and increase biodiversity in the area. The extensive planting also helps reduce noise and provide air filtration. The commercial spaces earned a BREEAM-NL Excellent certification and the residential section scores an average of eight for the six benchmarks on the GPR Building scale. Additionally, the Valley has an Energy Performance Coefficient (EPC) of -0.30.

By significantly raising the bar for this prime location with a variety of characteristics, the project has become a striking example of the city’s ambition and will function as a promise of sustainability for future developments.
The design of this mixed-use building complex is highly responsive to the physical, cultural, and environmental context of Dubai. Situated on the outer ring of Palm Jumeirah, the building’s curvature takes advantage of its location on this man-made archipelago, granting the building two distinct waterfront perspectives: an uninterrupted vista of the Persian Gulf on one side and views of Palm Jumeirah’s sheltered lagoon and the Dubai skyline on the other.

Atlantis the Royal functions as a dining, shopping, and entertainment destination for the entire district. The tower is half hotel and half residential, while the podium integrates all functions of a dynamic neighborhood with expansive public areas that have shops and places to eat, providing a walkable destination for visitors and residents. The stepped blocks and gently curving form separate the residential and hotel program while still fostering a sense of community through shared views. The design allows for the indoor-outdoor spaces created between the shifting blocks. These gaps become naturally ventilated and shaded outdoor courts, all to ensure that a significant portion of the hotel rooms and residences have outdoor spaces, private pools, and shaded gardens.

Drawing inspiration from Mozarabic architecture, the design incorporates a combination of breeze, shade, and water. The sky-courts and sky-terraces respond to the environment by leveraging littoral winds for enhanced thermal comfort and are shaded by the blocks above, further cooled by the presence of water. A central skybridge, spanning 90 meters in length, connects the two halves of the complex and serves as a grand gateway. It also adds to the building’s iconic silhouette. The skybridge offers pools, lounges, cabanas, and other amenities, creating a lush oasis for visitors. Other design gestures include breezeways that frame conference spaces and resort amenities, and an expansive open lobby at the heart of the complex.

Several strategies mitigate the development’s energy use and moderate its microclimate. Sunshades and deep terraces provide shade during the hottest months, reducing interior climate control loads. The building’s shape and screen-like form direct breezes over the water and local vegetation, moderating the microclimate of the outdoor spaces. Water features throughout the resort utilize recycled water, contributing to sustainability efforts. These techniques help keep the outdoor spaces comfortable all year round. In addition, a district approach leveraging the existing infrastructure found at Palm Jumeirah, and other high-efficiency energy and mechanical choices help minimize the building’s impact.
Completion Date: October 2022
Height: 178 m (584 ft)
Stories: 46
Area: 408,365 m² (4,395,604 sq ft)
Primary Functions: Hotel/Residential
Owner: Investment Corporation of Dubai
Developers: Investment Corporation of Dubai; Kerzner International
Architects: Kohn Pedersen Fox Associates (design); DEC Dynamic Design Studio (architect of record); IBI Group Architects (architect of record)
Structural Engineers: Arup; WSP
MEP Engineer: WSP (design)
Project Manager: Turner International LLC
Main Contractors: BESIX; Ssangyong Engineering & Construction
Other CTBUH Member Consultants: WSP (civil, façade, LEED, sustainability, vertical transportation); RWDI (wind)
Other CTBUH Member Suppliers: Siderise (fire stopping); Doka GmbH (formwork); ArcelorMittal (steel)
Quay Quarter Tower uniquely repositions an existing underused building, provides world-class office space, and activates a livelier public realm for the people of Sydney. The design was influenced by its surrounding context, project constraints, as well as a focus on sustainability and well-being. At street level, the podium contains retail and improves visual and physical permeability, activating the public domain. Taking advantage of the Sydney climate, the internal market hall extends to external terraces, and the podium rooftop park and café provide a new destination and much-needed greenery. The podium’s sandstone façade and indentations in the massing pay homage to the adjacent heritage buildings, harmonizing the tower and the street-level experience.

The project embraced upcycling the existing 1976 AMP Center, retaining a significant portion of its beams, columns, and slabs, as well as over 95 percent of its existing core. This approach resulted in substantial embodied carbon savings of over 12,000 metric tons in concrete alone. The repositioned tower consists of five stacked volumes, each arranged around an atrium facing the iconic Sydney Harbor to the north. These atria serve as informal social spaces, activating the workspace and promoting interaction among occupants to create a vertical village. Natural daylight permeates the 2,000-square-meter floor plates improving the energy efficiency and well-being of the interior.

The stepped and shifting northern façade of the building reflects its context as it ascends. The lower blocks of the tower face Young Street, an active precinct, while also providing views of the Sydney Harbor Bridge. As the blocks rise, the façade gradually shifts towards the east, offering wider harbor views that include the Botanical Gardens and the Sydney Opera House. This design approach ensures that the building does not cast additional shadows over the adjacent Royal Botanic Gardens or the public museum space to the south.

Going far beyond just adapting the existing structure, the design adds approximately 45,000 square meters of new construction, doubling the floor area and creating a new world-class high-rise office from an outdated, underperforming building. The building also exceeds the operational carbon performance of many newly constructed buildings, achieving a 6-Star Green Star rating and is on track to attain a NABERS 5.5 Energy Office rating. The workspaces have achieved IWBI WELL Gold certification. The self-shading façade reduces solar radiation, minimizing mechanical loads on the building and maximizing views of Sydney Harbor. And finally, the tower provides much-needed greenspace in the dense urban quarter. In addition to the atria, the building also boasts an acre of outside space. A public garden on the podium rooftop and a three-tiered rooftop space provides workers with access to outside space throughout the tower.

The building is also designed for flexible future uses. An innovative removable floor system in the atria means that occupants can opt to remove floor sections or add them back. This flexibility can cater to a range of occupiers and adapt to changing needs as businesses grow or as work practices evolve.
Vital to the support of a thriving dense city, are the spaces in between that make up the urban habitat. Skyscrapers cannot thrive without the life surrounding it, as has been found by many reports by urban planners and journalists in the last few years. Various layers of providing public space, encouraging pedestrian activity, and community events and forums are demonstrated and integral in these projects. Equally important in this drive for a human-centric design, is also an integrated approach towards nature and sustainability. This includes more than providing plantings, and can be the reuse of structures or building on previous industrial sites, that are getting each project closer to carbon and sustainability goals, locally and globally.

Asian Games 2022 Masterplan, Hangzhou, China

Situated in a densely built skyscraper neighborhood of Hangzhou, the Asian Games 2022 Masterplan is conceptualized as an eco park containing seven buildings. The masterplanning has added immense value to the city’s public life by creating an environmentally impactful, vibrant, and safe atmosphere. It was originally designed to host the Asian Games 2022 and have a second life after.

The overall built space includes two hybrid stadiums, a Village Valley Mall, an exhibition center, a fitness center, and two underground parking garages linked to the mall by a delivery access route. Apart from the two stadiums, all structures are partially underground and covered by a green forest. The site features a diverse landscape of hills, wetlands, natural reserves, hiking trails, playgrounds, and an artificial river. The masterplan positions two tall buildings (Field Hockey Stadium and Table Tennis Hybrid Stadium)—each of which will be adapted as concert halls—in either half of the mile-long eco park, which is bisected by an existing road and river. These are linked by the Village Valley Mall—a green pedestrian spine lined with shops, restaurants, cafes, kiosks and outdoor gathering spaces—that dips under the road and river, and features green roofs.

Several pedestrian bridges and river crossings integrate the park’s access with the surrounding infrastructure. Additionally, employing a Zero-Earth landscape strategy transformed this
originally flat site into an undulating landscape, by reusing all the excavated earth from site to create hills that rise 20 meters above grade level. The eco-park recycles and filters the stormwater collected through porous pavements and is abundantly vegetated with local plants and trees to help restore the local biome, enhancing the site’s hydrology and promotes biodiversity. The project has achieved GBEL 3 Star, the highest level of sustainability recognition in China and equivalent to LEED Platinum. Through parametric design and BIM optimization adopted for both landscape and buildings, overall material quantities used, project costs and the construction time was all reduced. This also benefited in reducing the carbon footprint of the construction phase itself.

The eco park recycles and filters the stormwater collected through porous pavements and is abundantly vegetated with local plants and trees to help restore the local biome, enhancing the site’s hydrology and promotes biodiversity.

Figure 1: Birds-eye view of the master plan containing the seven buildings and landscaping.

Figure 2: Zero-Earth landscape strategy transformed this originally flat site into an undulating landscape, by reusing all the excavated earth from site to create hills.

Figure 3: Integrated within layers of walkways and landscape is the Village Valley Mall.
Equity, Diversity, and Inclusion

In order to advance vertical urbanism and improve urban environments, it is now recognized that more efforts are needed to address what that means for all people. As an industry, it has become even more imperative to hold ourselves accountable and encourage environments that are safer, healthier, and more accessible for everyone. This section looks at the specific area of Equity, Diversity, and Inclusion (EDI) in the tall building industry, in both practice and policy, as well as in specific projects with achievements in the area of EDI. The examples here range from providing housing to those in need, safe spaces for everyone, and work practices that promote diversity and inclusion and guide the potential practices for EDI initiatives.

Covenant House New York, New York City, United States

How do you create a home for the homeless? The new Covenant House New York provides a safe and accepting place for youth who find themselves on the streets. It offers them a chance to breathe and potentially change their lives. For decades, Covenant House New York (CHNY) operated from a three-building campus in the shadow of the Port Authority Bus Terminal, and the quality of the space was lacking.

CHNY moved several programs into the neighborhoods where youth could reconnect to their communities and refocused the 10th Avenue site as a crisis shelter for 120 vulnerable youth. With the Hudson Yards development transforming the far west side of Manhattan, the land value of the CHNY campus increased. In 2013 the development rights for the site were reviewed and a new home was envisioned. After realizing that the rising value of land added a complexity in expanding to keep all services under one roof, CHNY moved several programs into the neighborhoods where youth could reconnect to their communities and refocused the 10th Avenue site as a crisis shelter for 120 vulnerable youth. With this more compact building approach, a real estate strategy was realized with the Gotham Organization. The site was re-apportioned, and Gotham constructed a fully funded purpose-built building while purchasing the 10th Avenue portion of the site for a mixed income residential development.

Located within the new and evolving community of Hudson Yards, the 12-story CHNY building is hand crafted and...
humanly scaled, featuring warm, natural materials. It sits in contrast with the glass towers rising around the site. Solidity and transparency are balanced to provide connections to the city for public spaces, and protection from the city for more private functions. The design of the building stems from the culture, operations, and goals of the organization, its residents, and the services provided.

The building contains services and administration in the lower five floors with residential rooms on the upper six floors. The main lobby welcomes all users into the building, providing a singular identity and a central security point. A Welcome Center, a Wellness Center and the CovCafé are all located on the first floor. At the top of a stairway dubbed the Stoop, Pride Hall reveals itself and extends out to a large, landscaped terrace. Other amenities offered are an art room, gymnasium, music room, and access to legal, physical, and mental health services along with educational and spiritual support.

This kind of for-profit/not-for-profit co-development is a success story that can be applied to many situations where there are other organizations who have under-developed sites. They may have the land, but they do not have the financial resources to improve and or maintain their facilities. Bringing new residents to 10th Avenue and providing shelter and services to homeless New York City youth is a win-win for CHNY, Gotham Organization and the city.

Mary’s Place Family Shelter, Seattle, United States

Homelessness was, and remains, a front and center issue in the city of Seattle. In 2016, Amazon was in the process of developing additional high-rise buildings for their Downtown Seattle Headquarters. Several of the properties that were slated for development were occupied by unused motels. In recognition of this, Amazon partnered with Mary’s Place, a local independent organization which shelters and assists families experiencing homelessness in order to utilize these spaces in helping people find their way out of homelessness. Placing a shelter facility within an office building was not a building type that had been attempted previously in Seattle and once feasibility was confirmed, Amazon made the gift to Mary’s Place of 80,000 square feet across eight floors within their new urban corporate headquarters building.

The design creates a shelter providing safe, dignified, and joyous temporary housing and services. This project proves that strategic partnerships can incorporate social equity within urban development. In addition to gifting the space, Amazon provided an Owner’s Rep, design support, the construction build-out, kitchen, wayfinding and graphics, and security consultants. Some of the trickier design challenges were accommodating two different communities with very different functions living side by side in one building. The fire alarm system, the acoustical separation, the vertical transportation, providing for a commercial kitchen, and building security were systems designed and developed to benefit both functions within the high-rise.

Completed in March 2020, the layout of the spaces allowed for operation during the pandemic and the project remains operational, serving the surrounding Seattle community.

Figure 1: The Covenant House New York is a safe haven for youth who are homeless and offers multiple services to support changing their lives.
Figure 2: CovCafé on the first floor of the CHNY where youth can gather.
Figure 3: Roof terrace at the CHNY offers a safe outdoor space.
To best serve the inhabitants of the increasingly dense global urban environment, city-shapers must approach the city through an interdisciplinary lens, integrating the tall building into the urban fabric by considering its role as essential urban infrastructure. As cities face a host of challenges, climatic, socio-economic, and otherwise, the projects depicted here provide potential solutions in support of livable, sustainable, and healthy urban communities.

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