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A growing number of tall buildings recognized by the CTBUH, through its international awards programs and research, are noteworthy not so much because of their sheer height or engineering feats, but because of their contribution to the urban habitat. In 2014, this was further acknowledged by the formation of the Urban Habitat/Urban Design Committee and the inauguration of an Urban Habitat Award. This paper examines some of the projects that best exemplify the standards of integration and custodianship of their surroundings, highlighting both their common threads and pronounced differences.

Introduction

Tall buildings have historically come under justifiable criticism that they stand aloof from their environments, as objects to be admired from a distance. Often, the ground condition is an afterthought. High walls; windswept, underused plazas; confusing entrances scaled for autos or placed above or below grade in a sealed-off condition; light pollution; wind downdrafts: all of these are symptomatic of pursuing only the most spectacular aspects of these buildings. Even if the impoverished ground condition can be ignored, the business-as-usual tall building design is problematic from an urban standpoint. Many tall buildings are airtight environments from top to bottom, and typically bear no relation to the cultural or climatic conditions in which they stand. This leads to homogeneity among towers from city to city and misses opportunities to exploit the special conditions of the location, particularly at height.

To identify and communicate the tall building designs that defy this trend, incorporating and enhancing their surroundings instead of rejecting them, the Council on Tall Buildings and Urban Habitat inaugurated the Urban Habitat Award and the Urban Habitat/Urban Design (UH/UD) Committee. The mission statements of these two programs help to focus an examination of the outstanding trends and principles at play in projects that foretell a positive future for a rapidly urbanizing planet, which by necessity will incorporate more tall buildings.

The Urban Habitat Award “acknowledges that the impact of a tall building is far wider than the building itself. Projects should demonstrate a positive contribution to the surrounding environment, add to the social sustainability of both their immediate and wider settings, and represent design influenced by context, both environmentally and culturally,” (Wood & Henry 2015). The UH/UD Committee “focuses on the role of tall buildings within a city and how those tall buildings affect the quality of life for those that live or work within or near them”.

Through this lens, it is possible to evaluate the merits of individual projects constructed to date and identify trends that repeat across them, thus generating an improved understanding of “urban habitat” in the context of tall buildings.

Transportation Integration

The common refrain that skyscrapers are “built equations,” meant to maximize the value of a

“But the efficiency of a skyscraper will be greatly compromised, particularly from a total energy-consumption and a social sustainability standpoint, if it is not well-engaged with a variety of transport options that connect it to the wider region.”



Figure 3. Pinnacle @ Duxton, Singapore, has two sky decks at two levels, with distinct usage areas at multiple intersections between its towers. © ARC Studios

passes through different neighborhoods. This mix of uses within the structure, combined with its internal and external connectivity, is an important contributor toward its success, and the success of tall buildings in the urban habitat generally. The combination of thoughtful urban design with efficient use of existing infrastructure has created a potential model of urban habitat at height for cities with similar conditions.

Shared Space at Height

It may seem obvious to state that the defining feature of a tall building is its height, but it is nevertheless surprising to consider that a typology that is now more than 130 years old has not further explored the unique potential of “streets in the sky.” From Sant’ Elia to *Metropolis*, practically since the birth of skyscrapers, people have been fantasizing about horizontal spaces that exploit the specific attributes of elevation (Wood 2003, Robinson 2014), but few have been built, and even fewer are actually “public.” Several projects are illustrative of the potential, even if it has yet to be fully realized.

Pinnacle @ Duxton, Singapore

Winner, CTBUH Best Tall Building, Asia & Australasia Award, 2010

This multi-tower public housing project in Singapore is one of the best-known examples of horizontal space at height in tall buildings. Continuous sky gardens on the 26th and 50th



Figure 4. Marina Bay Sands, Singapore, takes full advantage of its connecting sky deck, including a spectacular infinity pool. © Timothy Hursley

floors connect what would have been seven separate communities and provide residents a range of recreation and community services without necessitating a trip to the ground (see Figure 3). Collectively these gardens form nearly one hectare of new land, painting an optimistically contrary vision of what tall social housing can be. Yet there is as much value in observing what doesn’t work about the project as what does.

Hadi, Heath & Oldfield (2014) explored the project thoroughly after it had collected many accolades, and discovered that while the fundamental functions of the skydecks were retained, policy and design issues have dampened their overall effectiveness.

At the Pinnacle, the uppermost skypark was intended to be fully public, while the intermediate deck was to be for use of residents only. Some of the restrictions inherent to controlling public access to the upper deck are also applied to the lower deck as well. Restrictive access and use policies, such as a revolving security turnstile and extensive house rules, make it difficult to use as a communal space for residents, and especially to admit invited guests. Some of the small social spaces on the 26th floor skypark did not perform well due to being poorly defined in terms of intended use (Hadi et al. 2014). This was nevertheless a strong project conceptually, and served as an early pioneer of the prototype. The flaws described are not fundamental to the architecture and most could be remedied without great difficulty. This is an example of the fact that quality

administration and policy execution are as critical to success as design.

Marina Bay Sands, Singapore

Finalist, CTBUH Best Tall Building Asia & Australasia Award, 2010

With its 150-meter infinity pool and curving, cantilevered form, the three-hectare SkyPark atop the Marina Bay Sands Hotel in Singapore is one of the most spectacular horizontal public spaces at height yet constructed (see Figure 4). Like many of its ground-level peers, the SkyPark is a privately owned public space (Bentley 2015), which means less-than-unfettered access for all members of the public. Rules of decorum are enforced by private security personnel, and not all facilities are open at all hours. Still, this may be the most significant example of full-access shared space at height, taking full advantage of the city’s balmy climate to support lush planting and a peripheral jogging path (Safdie 2011).

Abeno Harukas again deserves mention in this category. It may well be the best example of truly public space at height. Three volumes with different floor areas are shifted and stacked, drawing sunlight and wind to the center void between offices, creating three-dimensional, cascading gardens. Further gardens placed on rooftop setbacks reconcile the vertical urban landscape with an adjacent park, while the semi-public gardens at the top of each volume are visible through the glass façade, forming a psychological connection to the ecology of the city. The diverse urban

activities generated by the confluence of various functions inside transmit to the exterior through the transparent curtain wall (Harada 2015).

There is still much work to be done on this front. Recent efforts, such as the enclosed sky garden at the top of 20 Fenchurch Street in London, have been derided for their long booking queues, design flaws that limit views, and routine appropriation by paid, private events. The requirements that facilitate public space at height – a building’s owner must admit the public into the threshold of otherwise private property, yet must also protect its investment – are still largely seen as oppositional. The creativity that has been realized architecturally has yet to manifest in the realm of property management.

Engagement with the Ground Plane At a Human Scale

The vast majority of skyscrapers are constructed without much consideration of their effect on the ground plane. This disposition is beginning to change, as urban living enjoys a revival and center cities are seen not just as commercial centers but as places to live, work, and play around the clock. This real-estate imperative has led to buildings that are more thoughtfully engaged with their surroundings at the ground plane, and, at their best, become part of the street wall and the urban fabric, rather than objects that must be circumnavigated. Several examples can be cited.

NEO Bankside, London

Finalist, CTBUH Urban Habitat Award 2014

NEO Bankside, a residential project along the southern bank of the Thames, consists of four hexagonal pavilions that have been arranged to provide residents views and daylight, but it’s arguable that the walking public benefits just as much (see Figure 5). The orientation of the buildings encourages threading through the site, an experience that is augmented by retail storefronts and

landscaped groves flanking two clearly marked public routes from the riverside gardens at the Tate Modern museum and through to the next street. The landscaping goes beyond static sculpture, incorporating an herb garden, beehives, and bat and sparrow boxes. Standing on an awkwardly shaped site between a large new museum building and a two-story historic Almshouse, the NEO Bankside development offers mediation of scale, stepping up the height of its constituent buildings from small to large toward the center of the site. It also provides intriguing wedges of green, multi-faceted view corridors, and the opportunity to inspect up close the tie rods forming the exoskeleton of the buildings, thus affording a rewarding skyscraper experience to non-tenants and tenants alike, at the ground level (Wood et al. 2014).

Tour Carpe Diem, La Défense, Paris

Finalist, CTBUH Urban Habitat Award, 2015

The challenge of overcoming gigantism doubles when the brief is to do so in the context of a skyscraper district on a raised plinth, threaded by highways and lying outside the traditional boundaries of a low-slung city such as Paris. The La Défense district is a reflection of the 1960s paradigm of urban planning, which attempted to protect pedestrians by physically grade-separating them from traffic, while still engineering the landscape to maximize ease of use by autos. It is, in many senses of the word, a “defensive” piece of city planning. Surrounded by plazas



Figure 5. NEO Bankside, London, stitches neighborhood and riverfront together with space between “public” and “landscaped” path through its grounds. © Rogers Stirk Harbour + Partners

rendered in stark concrete and arbitrary level changes, skyscrapers remained detached from the urban milieu and created barren spaces devoid of life.

But a recent project, the Tour Carpe Diem, defies this paradigm while still finding an appropriate situation in the context of La Défense. Even as its faceted façade and height sets it apart from stodgier neighbors in the district, most importantly it incorporates design gestures that support pedestrians in this conflicted area, which was originally conceived as an extension of the famed Champs d’Elysee. A monumental stair descends from the building’s winter garden and lobby to a public plaza on the Boulevard Circulaire, creating a new second entrance to the site in the process (see Figure 6). The double-height lobby at the plaza level communicates invitation and transparency,



Figure 6. Tour Carpe Diem, La Défense, Paris, exploits a level change to grand effect, connecting street, upper level plaza and indoor winter garden in one gesture. © Peter Aaron Esto



Figure 7. The Interlace, Singapore – interlocking blocks create a rich landscape. © CapitaLand Singapore

while the stair, whose treads continue through floor-to-ceiling glass on the building's interior, provides an enticement to ascend to the plaza where none existed before (Wood & Henry 2015).

Cultural, Environmental, and Social Intergration

Perhaps the most difficult-to-define third “pillar” of urban habitat revolves around the cultural, environmental, and social context in which a building is designed and constructed. Fundamentally, the question to ask is, “Does the building seem like it belongs here?” Is it “of this place,” or could it be anywhere? Does it capitalize on prevailing climatic conditions as well as social traditions? Is it compatible with its surroundings in both the built and natural environment? There may yet be no tall building project that satisfies all of these conditions, but there are a few examples that point the way.

The Interlace, Singapore

Winner, CTBUH Urban Habitat Award, 2014

While the reflexive response to stringent requirements for green space, access to light, and high-density development is clusters of tall towers in relative isolation, at the Interlace, an unusual arrangement of 31 apartment blocks subverts the default model while surpassing the standards. The blocks are arranged in hexagonal stacks, which hover on top of each other to form open, permeable courtyards that interconnect with one another and the surrounding landscape and city (see Figure 7). This “interlacing” of space turns a rudimentary archetype into a piece of landscape, where the views of residents are highly varied, whether across a void from a residential balcony or in the

multitude of choices of paths offered to the pedestrian, and core access is daylit and efficient, avoiding long corridors.

The orientation of the blocks channels breezes across water features to cool residences, provides adequate self-shading to allow for socializing and recreating outdoors, and admits appropriate daylight to each apartment. The project, though recently built, appears a part of the tropical landscape, due to its low profile and many additional surfaces available for outdoor planting, resulting in more greenery on the built project than was on the unbuilt site. The Interlace incorporates the complexities of life on a crowded tropical island with a diverse population and a high level of social regulation, and creates something that is more than the sum of its parts – all while using repeatable models that allowed the project to be constructed at affordable-housing rates (Wood et al 2014).

PARKROYAL on Pickering, Singapore

Winner, CTBUH Urban Habitat Award, 2015

As a “hotel in a garden,” PARKROYAL on Pickering emulates the intersection of balmy climate, international flair, and warm-spirited whimsy for which Singapore is known. While in many projects and cities an above-ground parking garage is a “street killer,” here it supports a series of outcroppings that support lush, landscaped terraces and birdcage-shaped cabanas, while the ground plane appears porous, vegetated, and dappled with light, as if through a canopy of trees, creating an air of mystery while recalling colonnaded colonial buildings from an earlier era. From this skirt of green rise concrete columns that resemble tree trunks. Contoured concrete channels support landscaping that resembles terra-formed rice paddies (see Figure 8), enclosing deceptively International-style,

disciplined black rectilinear towers that look fully in place on Singapore’s corporation-friendly skyline. Some 15,000 square meters of plantings festoon the complex, covering 215% of the site area (Wood & Henry 2015). The mass of greenery is self-supported by roof-collected rainwater, while a photovoltaic array powers the grow lamps and landscape feature lighting. That a single building can so well embody the place in which it is located; that it can seem to be both cool and corporate; lush, even decadent, yet responsible and responsive, testifies to the potential of tall buildings to support urban habitat when tall building design inventiveness is equally matched by thoughtful, well-enforced urban design standards.

Jing An Kerry Centre, Shanghai

Finalist, CTBUH Urban Habitat Award, 2015

Although it is a place that has both flourished in colonial times and emerged as a world commercial center in the contemporary age, it is nevertheless rare that large-scale developments in Shanghai (or in many rapidly developing cities) take these factors into account. Jing An Kerry Centre provides an interesting alternate narrative.

Jing An Kerry Centre incorporates the surrounding street grid and varies the scale of its structures, placing functions into distinct areas across several blocks and lining them with ground-floor retail and transparent lobbies, creating inviting public spaces in between. Glassy towers redolent of the 1950s International Style terminate some distance from the street, drawing pedestrians past lower-scale buildings around the periphery, much as Shanghai courtyards beckon through gated openings in the early-20th-century lane house districts.

What at first seem to be the most incongruous buildings on the site actually round out the complete story, and provide the most strident illustration of China’s transformation into a global market center in just a few decades. The residence of Mao Zedong, now a museum and contemporary art gallery, is set amidst the patterned granite pavers and



Figure 8. PARKROYAL on Pickering, Singapore dramatically brings the lush greenery of its surroundings into the sky with terraces, water features, and overhangs. © PatrickBingham-Hall



Figure 9. Jing An Kerry Centre, Shanghai, neatly intersects global capitalism, international style, and Chinese history, by incorporating the former residence of Mao Zedong into its grounds. © Thomas Jaehndel

200-meter curtain walls. The ancestral home of the father of Chinese Communism is now completely encased in one of the country's most lavish real-estate developments. Next door, a pitched-roof bamboo-and-wood structure by Japanese architect Shigeru Ban contains a high-end Italian restaurant (see Figure 9). The combination of seemingly dissonant scales and tropes actually functions quite well as a microcosm of the cosmopolitan city that surrounds it (Von Klemperer 2015, Safarik 2014).

Conclusion

The torpid, lush climate, and warm communal *zeitgeist* of Singapore have collided positively with an assertive policy of designing for environmental preservation, affordable accommodation and social harmony. This unique set of circumstances has fostered the genesis of some of the most inventive tall building projects in the world. The last two winners of the CTBUH Urban Habitat Award, and several finalists, as well as several projects featured as CTBUH Journal case studies over the years, have been constructed in the South Asian island city-state, and provide an instructive example of how seemingly restrictive conditions can unleash design freedom that

nevertheless represents the spirit of a place, as much as it does the authorial abandon of architects and planners.

Singapore is certainly not the only place in the world that contains good examples of skyscrapers that are supportive of the overall urban habitat, but it does have a disproportionate number of them – no doubt strong regulations and a warm climate improve its odds. Not every place will be able to reproduce the special conditions of Singapore, nor should it. But every city with sufficient density to support tall buildings has within its grasp the means to enhance the urban habitat by providing public space at height and on the ground, by integrating itself with multiple modes of transport, and by doing so in a way that truly reflects the local built and social culture, as well as the environment. The projects referenced here are only a few examples of the existing vanguard's highlights and pitfalls; this is at most a beginning of an evolution in the relationship between skyscrapers and their cities. ■

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