

# THE SKYCOURT AND SKYGARDEN: TOWARDS A VERTICAL URBAN THEORY

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**Abstract :** Population increase, advances in technology, and the continued trend towards inner city migration through economic progress has transformed the traditional city of spaces into the modern, high rise city of objects. This has necessitated alternative spatial and technological solutions to replenish those environments that were once so intrinsic to our day-to-day interactions and communal activities. This paper considers the skycourt and skygarden in terms of their social, economic, environmental and spatial benefits that they provide to the urban habitat. The paper argues that they have the potential to be ‘alternative’ social spaces that can form part of a broader multi-level open space infrastructure that seeks to replenish the loss of open space within the urban habitat. It starts to illustrate how semi-public spaces can be incorporated into high-rise structures, and be suitably placed into a hierarchy of open spaces that supports the primary figurative spaces on the ground or, in their absence, create them in the sky. It also advocates for a new hybrid that harness the social characteristics of the public domain, but placed within buildings as an alternative social space for the 21st century. The paper aims to educate the reader of the socio-spatial functions and the broad socio-economic, environmental, and psychological benefits of sky courts and sky gardens as an additional component within the architectural and urban vocabulary of the city. Beyond social and transitional space, psycho-physiological wellbeing, economic generation, biodiversity enhancement, and environmental filtration, the paper argues that the skycourt and skygarden can potentially be a forum surrendered for cultural good, and therefore become public beacons and cultural foci for the 21 century city.

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## 1 The skycourt and skygarden: an historical overview

There have been notable historical precedents that suggest the skycourt and skygarden are not phenomenon only known in our lifetime, but can be found in the urban habitats of antiquity and the immediate past. We can trace the skygarden back to ancient civilisation’s quest to integrate greenery into cities at height. The *Hanging Gardens of Babylon*, built by Nebuchadnezzar II for his wife Amyitis, were documented by the Greek historian Diodorus Siculus in the 6th century BC as being a series of planted terraces that were supported on stone arches 23 metres above ground. The Syrian King reputedly built the hanging gardens in an effort to please his homesick wife of Persia, who longed for her homeland. Trees were embedded into tiered stone terraces, with permanently green foliage made possible by a mechanical irrigation system from the Euphrates River.

*Al-Fustat*, an Egyptian city known for its shaded streets, gardens and markets that today forms part of Old Cairo, similarly incorporated skygardens. Modern archaeologists have recovered relics that came from as far as Spain, China, and Vietnam, providing evidence of the city’s importance as a trade hub as well as being a production centre of Islamic art and ceramics. It was reputedly one of the wealthiest cities in the World and had an estimated population of 200,000 people (Mason, 1995). The Persian poet and philosopher Nasir Khusraw described the city as having a number of 14 storey high-rise

residential buildings that were surmounted by recreational roof top gardens that were customised by its inhabitants and irrigated by ox-drawn water wheels (Barghusen and Moulder, 2001; Behrens-Abouseif, 1992).

In Italy, hill towns such as Urbino and San Gimignano manipulated the natural topographic levels of its location to create urban settlements that were protected given its elevated position (figure 01). During the Renaissance, steeply terraced gardens and green roofs were common in the city of Genoa. Raised piazzas, interconnected by steps to traverse the changes in level permitted surveillance of the land beneath but also environments for public events to take place (Peck et al, 1999). At the private scale, the *Villa Giulia*, built between 1550 – 1555 by the architects Ammanati and Vignola for Pope Julius III, manipulated the natural topographic and man-made levels in order to allow the Pope and his entourage to enjoy views of the surrounding landscape from its raised terraces and three-tiered covered loggias (Watkin, 2005).

By the 19th century, the ability to glean panoramic views was no longer the realm of the privileged few. The democratisation of view from ever increasing heights, made possible by the invention of the elevator, further challenged any exclusive preconceptions of elevated levels by providing opportunities for society to survey the city as a means of recreation and delight. The *Eiffel tower* of the Paris exposition of 1886 stood as a testimony to human ingenuity and technological advancement in an industrial age. It provided a platform from which people could marvel the Paris skyline for an entrance fee, and remains the most visited paid monument in the World. It's ability to provide a panorama as a sellable commodity and thus a means of income generation has since become a template for many an observation gallery in tall buildings within cities around the World.

By the 20th century, the influence of Le Corbusier and his manifesto of celebrating the rooftop as a further means of supplementing those open recreational spaces on the ground further spawned examples of planted and unplanted sky rise social spaces within an increasingly object driven modern city. Architects such as Ken Yeang went further to adopt the sky court as an interstitial open space within buildings for its environmental as well as socio-economic benefits, and has become an increasingly important part of a new architectural vocabulary within high-density urban environments (Pomeroy, 2012) (figure 02). Norman Foster's *Commerzbank* in Frankfurt was conceived as three 'petals' of triangular office floor plates, grouped around a central 'stem' formed by a full height atrium (figure 03). Sealed sky courts, four storeys high, provide a social dimension for the office employees to use as places of meeting, events, lunches or remote working.

The sky court and sky garden continue to be part of the urban habitat today, and exist for the very same reasons that they did in antiquity. They are places of recreation for the individual or group, can afford a memorable view and vantage point, and can offer environmental as well as socio-physiological benefit. Yet despite such historical precedents and the important role that they play, little has been done to define the sky court and sky garden in terms of their spatial, social, economic, environmental, technological or cultural contribution, or the increasingly diverse role that they play within the urban habitat. The following sections will seek to define their multi-faceted nature.



**Figure 01** *San Gimignano*, Siena: a lush and steeply terraced hill town in Italy with public spaces at multiple levels

**Figure 02** *Unité d'habitation*, Marseilles: recreational space on the roof to supplement open space on the ground

**Figure 03** *Commerzbank*, Frankfurt: an exemplary environmentally responsive building that incorporates skycourts to form a vertical working village

## 2 The skycourt and skygarden: spatial morphology and perceived density

In urban terms, ‘density’ often carries the negative spatial and social connotation of the close proximity of buildings in one constrained location, or of cramped living conditions where there is a heightened proximity between individuals. According to the academic Vicky Cheng, perceived density refers to ‘the interaction between the individual and the space, and between individuals in the space’, which requires the concepts of spatial density (‘the perception of density with respect to the relationship among spatial elements’) and social density (‘the interaction between people’) to distinguish between the two different aspects of the former (Cheng, 2010). She points out that these definitions demonstrate how perceived densities straddle different disciplines under different contexts and how urban density is intrinsically associated with the shaping and densification of urban morphology.

Societies aversion to urban density given pre-conceived notions that such environments lack space for interaction, or are homogenous environments that lack character, therefore requires careful consideration – particularly as there are a myriad of case studies of high-density environments that embody such attributes but are celebrated urban settings for its inhabitants and visitors alike (OECD, 2012). Hong Kong and Paris demonstrate this, and also how high-density urban habitats need not relate to just high-rise. An investigation into the spatial morphology of Hong Kong and Paris demonstrates that the iconic high-rise developments of the former may be perceived to be higher-density than the lower-rise developments of the latter, and yet the reality is that Hausmann’s 6-7 storey districts are in fact denser than a Hong Kong neighbourhood of 20 storeys. When comparing the 2 cities in terms of floor area ratio (FAR), Paris has an FAR of 5.75, whilst Hong Kong’s is 4.32, demonstrating that higher densities can be achieved by alternative building forms to the high-rise typology, which can similarly reduce perceived densities (OECD, 2012) .

It perhaps comes as little surprise that the skycourt has become an increasingly important element within the architectural vocabulary of the worlds’ tallest buildings and the densest environments as a means of reducing perceived densities. A skycourt can be initially defined in terms of their spatial morphology and how they can reduce the perceived densities of a tall building, or high-density development, by breaking the mass and potential monotony of repetitive floorplates by the juxtaposition of solid and void (Pomeroy, 2005; 2007). They have the ability to evoke the human scale and proportion of the traditional street by presenting themselves within high-density urban habitats and tall buildings as interstitial open or enclosed spaces that balance the figurative (semi-public) void within the solid of the (private) object.

As the word ‘court’ suggests, a sense of enclosure can be created by the void space being bordered by other buildings

within the immediate urban context, or formed by its own internal facades. Skycourts are often located to the perimeter of buildings and are commonly 3 stories or more to allow the benefit of greater light and ventilation to penetrate deeper into the structure – thus enhancing the internal environment. Such proportions also permit, depending on orientation and climatic factors, the incorporation and growth of trees or extensive landscaping to further enhance their aesthetic, socio-physiological and environmental properties of these social spaces.

A rooftop garden has been defined as a landscaped environment built on the roof of a building that is strong enough to support the load, and is ideally suited to reinforced concrete and steel structures (Osmundson, 1999). A skygarden, on the other hand, tends to refer to an open or enclosed landscaped open space that can be dispersed through the higher levels of the urban habitat or tall building, and has become a generic term that occasionally substitutes the terms skycourt and rooftop garden. As the name suggests, emphasis is often placed on the aesthetic qualities of the garden setting and its appeal to occupants. Just as one normally finds a proportion of open space to built-up area in ground scraping mixed-use developments, skycourts and skygardens start to vertically balance open space to built-up area ratios within the tall building (Pomeroy, 2010).

Stephen Holl's *Linked Hybrid*, in Beijing, explores the de-densification of urban centres by the incorporation of skycourts, skygardens and skybridges and acknowledges Beijing's change of urban morphology (figure 04). The Linked Hybrid conceptually seeks to reconcile the city of objects with a city of spaces by interlinking 8 towers via a 20th storey ring of skybridges that include sports facilities, education, bookshops, cafes, exhibition space, healthcare, postal and management services. The typically repetitive nature of the high-density residential development in the region is discarded in favour for a diversity of apartment configurations and sizes that are further spatially deconstructed by the presence of the skycourts that help reduce the perceived densities.



**Figure 04** (left to right): *The Linked Hybrid*, Beijing: skycourts, skygardens and skybridges seek to reduce perceived densities

## 2.1 The skycourt and skygarden as a social space

The academic Ulrich Struver's notion of critical spatial identities acknowledges relationships between groups as opposed to boundaries (Struver and Best 2002). Groups may have different spatial interpretations of a given space which sets up power struggles, requiring one power to be dominant (appropriating the space in such a way that would be perceived as conventional); the others subservient (often perceived as unconventional). For instance, what may be used as a transitional space between buildings (as governed by an institution and perceived as the conventional) may also be used as a skateboarding area appropriated by a subculture (as appropriated by society and perceived as the unconventional). Such an interdependence of dominant and subservient powers creates a formative tension that can be used as an instrument of power; the enforcing of such, whether by a private corporate body, council, individual, group or association being the device to control, maintain or manage.

The skycourt and skygarden can act as social spaces in the sky that help replenish the loss of open space potentially surrendered through urban densification. Like its public space counterpart, these skyrise spaces can permit communal group's

to form and disband, and in so doing potentially present the contestation of its space amongst social groups as to its function that meet regularly. For instance, students may gather within such spaces outside of school hours to share notes before disbanding; office workers may meet with fellow workers from different departments for coffee or lunch breaks, before returning to their respective departments within a working day; residents may populate these spaces during the weekend and / or in evenings to meet with neighbours and friends before retiring to their home, and tourist groups may gather to observe a panoramic view but will similarly disband upon closing time. It's continual use by a dominant individual; group or association can imprint an element of informal territoriality on a place that may implicitly restrict the use of the space by others.

Unlike its open space counterpart on the ground, which tends to be governed by public interests and permit a spontaneity and freedom movement, speech and action, the skycourt and skygarden are often semi – public and are governed by private interests. This in turn imparts particular social restrictions that are more formal. Despite bearing public domain characteristics that allow the user a particular freedom of movement or the ability to appropriate the space as a place of recreation, amenity and social interaction, they're nevertheless managed spaces that are physically constrained by the very structure that retains them and are controlled by the institution, company, association or group that governs the tall building (Pomeroy, 2012). This inevitably leads to limitations on the patterns of speech and action of the individual, group and association appropriating the space give the dominant (private) parties control of the space. The resultant social spaces are often highly classified environments that often have explicit rules of exclusion that may be time-based (i.e the operating hours of the corporation and the levying of an entrance fee) or implicit rules of inclusion that are social activity based (i.e to be part of a studying community; an office community; a residential community or a tourist community).

The *Pinnacle*, in Singapore, demonstrates such an approach in its ability to use 12 sky gardens to interconnect its seven, 50 storey high-density social housing blocks comprising of 1848 family units (figure 05). The intermediary gardens at the 26th floor serve the residents only, whilst the 50th floor roof top garden is accessible to the public in addition to residents. The 26th storey intermediary gardens have explicit rules of governance as to who can enter and who cannot – they are ultimately privatised spaces for the sole use of its residents and are thus encoded with explicit rules of exclusion, despite being deemed public by State. It's 50th storey sky garden, again deemed public, also has explicit rules of governance but are encoded with implicit rules of exclusion with the proposed levying of an entrance fee to gain access to it as an observation deck. Those who can afford to pay for a view will enjoy a panoramic skyline; those who will not or cannot will be excluded by their own choice or economic circumstance (Pomeroy, 2012).



**Figure 05** (left to right) *The Pinnacle*, Singapore: explicit rules of governance that negate particular freedoms of speech, motion and action , an example of how skycourts can act as new social spaces for residents to enjoy

## 2.2 The skycourt as a transitional space

When inner cities become denser and pedestrian movement increases, the two dimensional plane of the city reaches its elastic limit. It forces the city to move to a second stage of development whereby it can take no more growth without

incorporating auxiliary systems and layers, such as transit, parking and subways, to facilitate choice and freedom of movement (Siksna, 1998). This inevitably thrusts itself into the third dimension in order to cater for increased density and movement. A city like Hong Kong, with its myriad of skyways, bridge links and multi layered movement systems above and below ground cannot reach such a threshold of movement needed to expand into the third dimension unless it has the prerequisite urban density of its centre to sustain an increase in population. Without such infrastructure, the compact city would run the risk of accessibility suffocation due to its own success (Gabay and Aravot, 2003).

Similarly, the tall building typology cannot reach its threshold needed to expand skywards into the third dimension unless it has the prerequisite sky courts and auxiliary systems (i.e the deployment of underground trains, parking structures, sky bridges and other technical facilities) to sustain an increase in occupancy or pedestrian flow. Without such infrastructure, the compact city of objects would similarly run the risk of accessibility suffocation. The need for improved circulatory methods to facilitate an ease of pedestrian movement at height, is as pertinent in the tall building typology as it is to the urban environment at grade, and reinforces the importance of ensuring an equality of movement for civil society in the sky as well as on the ground.

The skycourt can act as a transitional space in its ability to be a circulatory interchange in super-tall buildings, whereby lift car capacities, waiting times and floor plate efficiencies, necessitate the stacking of local lift cores to enhance the economic viability of the development. Just as civil society is provided with both choice of route and mode of transport on the ground (the ability to walk, cycle, drive, or take public transport through a variety of axes), the occupant or visitor is faced with a multiplicity of circulation routes and modes in the sky, making the skycourt not only a destination place of recreation and planned meeting, but also a transitional space of movement and chance meeting (Pomeroy, 2008). Consequently, the incorporation of skycourts can facilitate the occupants' onward transition from one part of the tall building to another, by linking the disparate vertical circulation modes, and even to other buildings and their skycourts (Wood, 2003). The skycourt acts as a pseudo-vertical arcade by its ability to link primary, secondary and tertiary modes of vertical circulation.

The incorporation of retail compounds the analogy further – the skycourt being the (vertical) arcade; the lifts, escalators, staircases, ramps and other (vertical) circulation means being the hierarchical orders of boulevards, streets and passageways. It begins to ameliorate the risks of visual disconnection and separation from the activity of the street at ground level, as the horizontal and vertical means of circulation within a complex of tall buildings serves to create *new eyes on the street in the sky* which can serve to aid security through the recognition of who is a stranger and who is not. Furthermore, it presents an opportunity to escape from one tall building into another via skybridge. Post the September 11 terrorists attacks, there has been a radical re-evaluation of mass evacuation procedures from tall buildings – thus ameliorating the need for phased evacuation which can not only compromise life safety but may be economically unviable due to the increase in escape stairs required and the consequent reduction in net-to-gross floor efficiencies (Wood, 2003).

The *Shard* London Bridge demonstrates how skycourts can be incorporated at mid-level as a transitional space (figure 06). The 72 storey tower is the tallest mixed use structure in Europe - standing a little over 310 metres tall. The first 26 floors above the public piazza houses modern high – specification office space with winter gardens. A five star hotel with 200 rooms from the 37th to the 51st floors, and residential apartments from the 52nd to the 63<sup>rd</sup>, completes the programme. Separating the working from the living spaces is a three-storey skycourt that acts not only as the community space that gels the disparate functions together, but also a means of transition between them – an interchange point amongst different social functions that starts to imprint a 24-hour city quality. Such a space is designed to provide memorable views of London for its 800,000 visitors per year, and contains retail, bars, restaurants, leisure, and performance and exhibition activities as well as

social spaces for the tower's inhabitants and the broader community. It effectively becomes a new square in the sky – a place of orientation, chance or planned meeting and onward journey to one's destination.



**Figure 06** (left to right) *The Shard*, London: its mid-level skydeck acts as a transitional space as well as a destination space

### 2.3 The skydeck and skygarden as an environmental filter

Natural light and ventilation are essential for the survival of living organisms. Builders of traditional buildings understood the importance of harvesting natural light and ventilation before Man's technological ingenuity led to inventions that ameliorated the need to rely on proximity to perimeter windows. As noted by the academic Rayner Banham in *The Architecture of the Well-Tempered Environment*, the architect by the turn of the 19th century had ceded such environmental considerations to the consulting engineer (Banham, 1984). Today however, both academics and professionals alike have returned to the basics of passive design, in order to enhance internal comfort levels and reduce consumption in buildings. We see such considerations of filtering the benefits of natural light and ventilation through open spaces such as arcades and atria, though arguably this requires heightened glass performance and / or shading devices to counteract the potential heat gain through direct solar exposure.

The incorporation of greenery to skydecks and skygardens can counteract such issues given the ability of plants to reduce external climatic factors. Greenery to the horizontal and vertical surfaces of skydecks and skygardens can help reduce urban heat island effect, the absorption of heat in the building fabric, and its subsequent re-radiation by harnessing the biological properties of plants – such as photosynthesis, respiration, transpiration and evaporation. Planted surfaces can help cool the environment by between 3.6-11.3 degrees centigrade, with wall surfaces being reduced by as much as 12 degrees centigrade (Alexandri and Jones, 2008; Wong et al, 2009a). When trees are positioned at the perimeter of skydecks, they can act as a shading device, with light tree canopies intercepting between 60% and 80% of sunlight and dense canopies intercepting as much as 98% (Johnston and Newton, 2004). They can also help act as a wind-break and thus reduce loading to structural frames whilst also helping to act as an acoustic buffer to urban noise.

Planted skydecks and skygardens can also improve air quality and help reduce respiratory illnesses by acting as a 'sponge' to noxious pollutants and carbon dioxide in the atmosphere, with climbing plants showing a particular susceptibility to absorbing and filtering dust particles. Urban settings with trees may reduce dust particles to 1000-3000 dust particles per litre whilst an environment with no trees may contain 10,000-12,000 dust particles per litre (Johnston and Newton, 2004). They also have the added ecological benefit of retaining storm water, thus helping reduce run-off into drains and the occurrence of flash floods during extreme rain periods. Studies in Berlin showed that green roofs absorb 75% of precipitation that falls upon them, reducing immediate rainwater discharge by 25% of normal levels whilst helping remove impurities. The filtration properties of plants can remove over 95% of cadmium, copper and lead from rainwater and 16% from zinc, whilst Nitrogen levels can also be reduced (Johnston and Newton, 2004).

Yeang's *Singapore National Library* aptly demonstrates the incorporation of planted skycourts for such environmental benefits (figure 07). The library has over 8,000 square metres (or 10 per cent of the total gross floor area) of designated green space that acts as an environmental filter to the low angled east and west orientated sun – thus helping reduce solar heat gain and providing an effective shading device. There are two main areas situated on the fifth and tenth floors. These contain 12 metre high trees that increase bio-diversity, help retain water on site, and can also help regulate the ecosystem by acting as a respiratory system and filter of noxious pollutants. The provision of the skycourts, its greenery and bio-climatic design considerations also helps enhance the indoor thermal performance and its energy efficiency. When compared with a typical Singaporean commercial building's energy consumption of 230kWh / sqm / annum, the library has been able to reduce its consumption by 78 kWh / sqm / annum to give an energy consumption of 152 kWh / sqm / annum – making it one of the most energy efficient buildings in Singapore (NLB, 2008).



**Figure 07** (left to right): *National Library*, Singapore: the skycourt as an exemplary environmental filter

#### 2.4 The skycourt and skygarden: their economic benefits

In a time of increasing global environmental and social consciousness, the need to challenge the preconceived ideas of the 20<sup>th</sup> century tall building has led to a paradigm shift in tall building design that re-evaluates structure, envelope and the functional programme of uses, in order to minimise consumption and preserve the natural and built environment for future generations. Such a shift has economic benefits, and celebrates the skycourt and skygarden as increasingly important components within the architectural vocabulary of the sustainable tall building typology that can help reduce energy loads within buildings as well being an income generating source that can draw people to it as a destination not normally associated with the development.

The environmental properties of greenery incorporated into skycourts and skygardens can reap benefits in terms of reduced energy consumption and therefore running costs. Roof top gardens and their greenery have been shown to reduce ambient temperatures given plants ability to absorb solar radiation. Studies have demonstrated that the exposed area of a black roof can reach 80 degrees centigrade, whilst an equivalent area beneath grass reaches only 27 degrees centigrade (Gotze, 1988; Kaiser, 1981). Gravel roofs have been shown to have temperatures of 30 degrees centigrade in comparison to 26 degrees centigrade for a green roof (Kaiser, 1981). The insulation properties of green roofs can reduce room temperatures beneath the structure by as much as 10%, thus helping to reduce artificial cooling and therefore running costs. When we also consider the shading properties of vertical planting within skycourts, Envelope Thermal Transfer Values (ETTV) can be reduced by 40 percent in comparison to a conventional building with no greenery (Chiang and Tan, 2009).

Yet the skycourt and skygarden can also extend beyond their energy reducing benefits to embrace direct income generation through its space provision. With continued urbanisation, the need to utilise available space becomes paramount.

The ability to ‘future-proof’ developments by incorporating skycourts and skygardens provide opportunities to extend into the voids of skycourts, and into the airspace above skygardens in order to increase buildable area and therefore locally increase density. Such an approach optimises existing structures and can potentially increase sellable and lettable areas of development whilst negating the need to demolish existing buildings and to rebuild – a process that can be potentially detrimental to the natural and built environment as well as existing communities (Pomeroy 2011).

Their social function of providing a source of amenity can similarly offer economic benefits if incorporated midpoint within the building, as they can be a useful source of convenience, recreation and amenity that can negate the need to travel ground-wards for the grocery run, gymnasium visit or relaxation in open space. The critical mass of social and recreational activities, freed from the conventional setting of the ground plane, can enhance the footfall of the buildings occupants at height, thus providing opportunities for passing trade and income generation (Pomeroy 2012). Just as research has shown how public space on the ground enhances property values, so too can sky rise social spaces command a premium.

Given rooftop skygarden’s elevated position at the pinnacle of tall buildings, they can also function as observation decks, bars and restaurants that can be income generating. The *Empire State building* famously weathered the storm of financial crisis in the great depression through its 86th floor observation deck that drew tourist receipts of 2 million dollars in the first year of opening – as much money as was taken in rent that year (Tauranac, 1997). At the turn of the 21<sup>st</sup> century, there has been an unprecedented number of tall buildings of over 200m that has allowed Man to satiate his appetite for cityscape view in the form of observation decks that can be found in the World’s tallest buildings. Rooftop skygardens therefore provide an opportunity to observe memorable skylines and panoramic views and the ability for people to pause and orientate themselves within both building and urban context. In doing so, they can potentially become a source of income by levying an entrance fee.

The *Marina Bay Sands*, Singapore is a contemporary success story of the income generating attributes of skycourts and skygardens (figure 08). The 1.2 hectare park is the World’s largest public cantilever and hosts a variety of amenities, including the longest elevated swimming pool of 146m amongst a lush tropical landscape setting. The skygarden is open daily from 9:30am to 10pm and can cater for up to 3900 people at any one time. It has become an income generator through the levying of an entrance fee of between 10-20 SGD dollars per person to gain panoramic views of Singapore’s skyline from its observation deck, generating an income of 54,600-78,000 SGD per day (4). It also includes a number of roof top bars, restaurants, and shops that have become a popular alternative environment for locals and tourists alike to socially interact during the course of the day and night.



**Figure 08** *Marina Bay Sands*, Singapore: the 1.2 ha skygarden is the world’s largest public cantilever

### 3 Towards a Vertical Urban Theory

#### 3.1 The skycourt and skygarden: evolutionary observations

Today, technology further reduces the need for co-presence in space, as society can glean the very same commodities of transference virtually via the internet. This effectively renders public, and even semi-public space increasingly obsolete in their roles of being able to bring people together in exchange. Our sense of being social in public therefore becomes deliberate and planned, as opposed to being the result of daily casual social interaction that is spontaneous and unplanned. We pass through an increasing number of privatized transitional social spaces that permit movement in order to visit the retail mall, the cinema, the café, or the museum that are the privatized destinations that society plans to meet in.

The skycourt and skygarden has become another social space within the architectural vocabulary of the urban habitat, and currently remains predominantly managed by the corporation or landowner that controls them. They are differentiated by the fundamental truth that they can never be truly public unless they become ceded to state ownership and permit the individual, group or association the freedoms of speech, action and movement that one normally finds in the public domain of the street and the square. The skycourts and skygardens that we have seen similarly demonstrate this. These semi-public realms are, as the academic and architect John Worthington describes new social spaces, 'seismic creations' – created in an instant, highly classified to their correlating building function, socially controlled by the dominant (private) power, and spatially constrained by the structure that retains them. To this end, they have not necessarily promoted a social spontaneity, and their immediate creation is arguably the antithesis to the public realm that incrementally evolves with time and is the result of a continuous contestation of its space by its users, which, in itself, creates interest through the unplanned and unpredictable. Despite the reasons why they are currently not public spaces, we have started to see their evolution given changing social, spatial, environmental, cultural, economic and technological needs that permit the nurturing of public domain characteristics. This may bode well for society's co-presence and may enhance urban life quality as well as the natural and built environment.

We can see in the earlier completed examples that the skycourt and skygarden were little more than private terraces, very occasionally planted, and often accessed from the occupied internal areas of the building that retained them. They were often imprinted with the function and control of the dominant power that occupied the habitable space within. Their privatized nature often reduced chances for spontaneity; and the occupants within generally imprinted an implicit control on the skycourt's social use through their observation of such spaces by others. Their control therefore permitted only the occasional use by the worker or resident, which was often dependent on the familiarity of others within its proximity. Their use was predominantly one of the occasional lunchtime visit, or coffee break, and did not necessarily sustain regular patterns of use or heightened social interaction amongst groups (figure 09).

However, examples completed more recently showed the promise of more 'public' orientated environments, and their greater usage as an environment for transition as well as social interaction. Unlike their mono-functional predecessors that were less integrated with circulatory patterns, newer skycourts and skygardens formed both internal and external spaces that became more integrated into the cores of tall buildings – spatially linking vertical methods of circulation and facilitating transition; and socially linking occupants through the heightened probability of chance meetings and opportunities for spontaneity. As tall buildings continued to soar higher and embrace an increasingly mixed-use programme, the skycourt adapted to cater for a greater multiplicity of function. The skycourt, as an interstitial space within the mixed-use tall building, started to become a 'spatial gel' that glued together the disparate series of land use components within the tall building as well as beyond via the skybridge. This fostered greater usage and a sense of community amongst people from different backgrounds, groups and associations from different parts of the development and city. With society's heightened environmental awareness,

the incorporation of greenery within skycourts and skygardens also became more prevalent in the acknowledgement of its environmental, ecological, and socio-physiological benefits.

In line with such social, spatial and environmental development, the examples under construction have been the product of an era when alternative social spaces have started to be placed into a hierarchy of urban spaces in terms of scale, use, and classification that support existing public spaces, and arguably start to blur boundaries between what is public, semi-public and private. What were once slender viewing balconies have become skycourts and terraces for individuals, families and groups to enjoy as individual private spaces with a greater multiplicity of function. Larger, more neutral skycourts positioned in prominent and easily accessible parts of the buildings have started to serve as broader circulatory interchanges that allow the casual interaction on an almost vertical neighbourhood level. When coupled with skybridges, they have become nodes of activity that further heighten social interaction by the presence of both income generating and recreational opportunities. In some countries such as Singapore, the progressive development of skycourts and skygardens has been enabled through economically incentivised legislation in the interests of promoting the cultural identity of a 'greener' city. Such legislative power, with the promise of enhanced permissible developable area and therefore enhanced return on investment, has allowed such skyrise social spaces become an increasingly popular addition to the urban architectural vocabulary of the urban habitat.

Banham's comment that 'no architect who considers himself worthy of his craft can bear to stand by and see his design destroyed, especially grand designs in the scale of the city' (Banham, 1976), is having to be re-evaluated given a rapid urbanization to cater for 70 per cent of the global population living in cities by 2050. The re-birth of the megastructure, an all encompassing framework that can house the functional parts of the city, not only explores porosity by the erosion of the building fabric to create social space, but also the counterbalancing of objects to create the very same. Arguably, this can be viewed as the space left over following form creation and may be conceived spatially as a 'vertical modernism' (figure 10). This is where counter-poised, object-driven blocks are left freely to float in undifferentiated sky space, and places the skycourt and skygarden as secondary to the blocks, and thus challenges the idea of containing social space as seen in previous examples.

The works on the drawing board embrace and develop both the concept of the point block tower and the interlinked series of tall buildings as megastructures. This could be in part attributed to population increase, the migration to city centres and the consequent urbanization, which necessitates an increase in density, scale, and multiplicity of uses within developments. This consequently requires a greater ratio of sky rise social spaces to built-up area. These environments – loftier to permit light and ventilation to percolate deeper inside the floor plates, greener and appropriately orientated to maximize climatic responsiveness, more integrated with circulatory patterns within the tall building and the city to permit an ease of movement, and activated by communal as well as economic uses to encourage greater social interaction within the development, may well prove to bear more public domain characteristics than its predecessors.

The future city is almost Utopian in nature, and arguably once again follows Banham's observations of how the perceived future often has elements of reality that can be found within the existing habitat (Banham, 1976). The visions appear to be unfettered by the realities of today and may be mistaken for being influenced by the celluloid machinations of directors such as Fritz Lang, Ridley Scott, or Luc Besson; or the vertical edifices on paper by architects such as Yona Friedman, Archigram or Super Studio (figure 11). Some of the case studies have demonstrated how the theoretical solutions of student's are heavily influenced by the issues that beset the city of tomorrow and are underpinned by more radical technologies and ideas that seek to address densification, space replenishment, social re-engagement, climate change, fossil fuel depletion, food and water distribution. The future city therefore must be utopian and challenging to safeguard against complacency and to continue the line of development of how visions can become a reality.



**Figure 09** *Menara Mesiniaga*, Kuala Lumpur: the skycourt as an extension of the internal office function that is used for the occasional informal meeting

**Figure 10** *Interlace*, Singapore: a megastructure that can be viewed as a vertical modernism with the skygardens floating in undifferentiated skyspace

**Figure 11** Work from students of the Nottingham University MARCH in Sustainable Tall Buildings

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