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# Beyond the Podium: Urban Spaces for Tall Buildings in a Subtropical City

Caroline Stalker, Director, *Architectus*

*The tower and podium form is a widely accepted typology for urban intensification across the globe. However in the subtropics it may not be the ideal device for creating a sustainable urbanism, where architectural principles of porosity to light, air and breezes, and integration of landscape experience are favoured. Brisbane City Council predicts that in the next 20 years floor space demands will translate into 50 new tall buildings in a very compact city centre. Through a re-thinking of the podium form, these 50 new buildings could have a transformative impact on the urban spaces of our city. Learning from the very practical adaptations to climate and locale of the vernacular architecture, the paper proposes a series of typologies for urban spaces at the base of tall buildings that are well-adapted to our subtropical city, signaling*

*a more ecologically oriented approach to creating 21st century cities.*

Many of the world's fastest growing cities are located in subtropical climatic zones in India, Vietnam, Africa, Latin America, Thailand, and Southern China. As pressure to urbanize rapidly within condensed geographic areas is driving the creation of very dense urban forms, intense pressure can be placed on natural systems and energy sources. Brisbane shares a subtropical climate with many Asian cities, which are characterized by profuse vegetation growth and mild temperatures for many months of the year. These subtropical preconditions are ideal for the creation of buildings and places designed for low energy use and integration with

landscape to create green and resilient cities at high densities.

As Richard Hassel from WOHA has pointed out, in many cities across the globe we are still building 20th century cities for 21st century circumstances, in terms of designing buildings that are not attuned to the ecological and green energy demands of intense urbanization. The podium and tower form remain the dominant planning model certainly in Australia and other western cities. At the same time there has been significant research and vanguard practice worldwide articulating high-rise for an "ecological age" developing new forms of a sustainable vertical urbanism, as was clearly expressed in the proceedings of CTBUH's 2014 Conference "Towards Sustainable Vertical Urbanism."



Opposite: Aerial view of Brisbane's City Centre.

Source: Google Maps

Bottom: Map of 50 hypothetical new tower sites over 20 years illustrate impact on urban form of Brisbane's City Centre.

Source: Architectus

Brisbane, for a city of its size, is experiencing something of a high-rise boom, with 50 new high-rises projected to be built in its very compact city center over the next 20 years. To demonstrate the potentially transformative impacts of these 50 towers, 50 hypothetical sites have been mapped, demonstrating that in 20 years our city center could be radically different as a consequence. There is immense opportunity inherent in this 20-year project to recast Brisbane as a city who maximizes her natural climatic advantages; the city accomplishes this by making a porous green urban mesh of rooms, people-places, and spaces offering landscaped respite, ecological connection and interaction, fully embracing our lovely subtropical setting while creating a more sustainable urbanism.

### “... Like Living in a Reorganized Rainforest”

Located at 27.5°S, Brisbane's subtropical climate brings more than just comfortable temperatures; it is a green, open city which visitors experience as pleasantly informal. At its inception 10 years ago the Center for Subtropical Design undertook a broad community survey about environmental values in our region; the findings of this survey highlighted “openness and a relationship to landscape” as the two key environmental values most prized by Brisbane-ites, articulating what could be called the “subtropical experience.” Brisbane's inner-city suburbs are populated by a very practical climate-adaptive vernacular called the “Queenslander,” whose essential qualities were captured most poetically by David Malouf in his book *12 Edmonstone Street*:

*Airy, open, often with no doors between the rooms, they are on such easy terms with breezes, with the thick foliage they break into at window level, with the lives of possums and flying foxes, that living in them, barefoot for the most part, is like living in a reorganized forest. (p. 10)*



These “Queenslanders” open themselves to the pleasant climate offering maximum opportunity for natural light and air; the building envelope is a permeable interface with the climate, allowing fine-tuning of views, sunlight, shade and breezes. The attributes of this subtropical vernacular and a desire to reform the city center with qualities of “subtropicality” has recently informed Brisbane City Council thinking about tall buildings in our city.

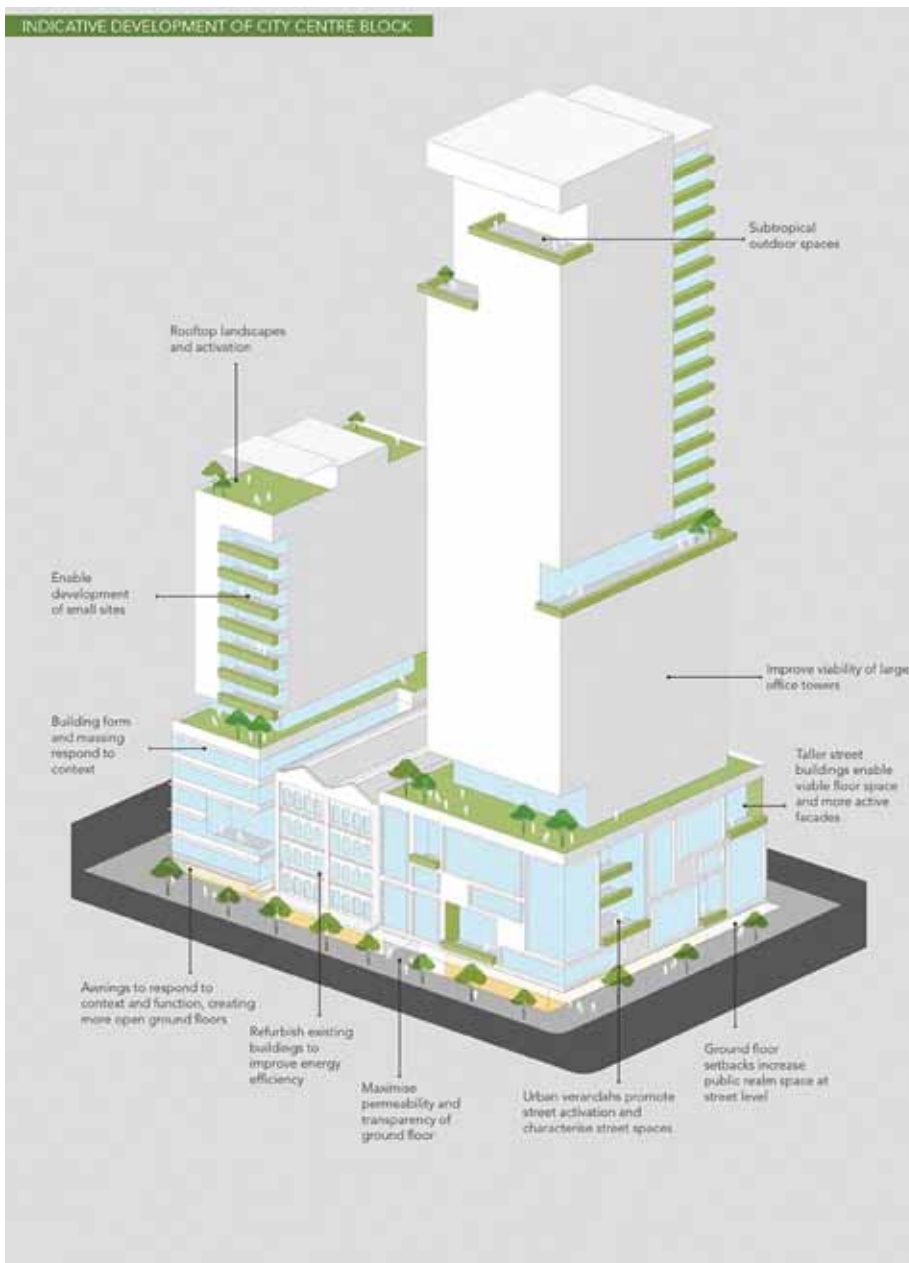
### Buildings That Breathe and “Leafy Outdoor Lifestyle”

Brisbane City Council's City Center Master Plan 2014 foreshadows our high-rise transformation over the next 20 years, highlighting the need for a “well-designed

subtropical city.” Brisbane City Council's Built Form Strategy in the City Center Master Plan seeks to embed the idea of a subtropical experience in our tall buildings; the keystone of this strategy is the concept of “Buildings That Breathe,” described evocatively in the plan:

*We are a city of urban verandahs, where the landscape itself is a building material. Open and inviting, the walls of our buildings fold away to blur the line between indoors and out. Our buildings respond to the climate, capturing cooling breezes and natural light, while providing abundant shade and protection. (Brisbane City Council, p. 48)*

In addition, the plan describes the aspirations for public space to create a “Leafy Outdoor Lifestyle” where:



Left & Opposite: Excerpt from Brisbane City Council's City Centre Master Plan 2014 showing "indicative development of city centre block." Source: Brisbane City Council

as the dominant city tower form, where the podium lines the street edge, the glazing line on the street, all the activities of the public realm crammed into the 21 meters between the buildings. We do have within the city center some generous public spaces of respite in our Botanical Gardens, the river's edge, and Post Office square. These areas are heavily used, but the public experience of the heart of the city center is largely defined by the podium aligning the grid, with the public realm as the leftover space in between. The enclosure of the podiums at perimeter also means that these deep plan spaces may use a great deal of energy for lighting and air-conditioning.

Our streets and buildings in the city center can become urban heat islands in the summer, with the center of the city being the hottest part of our metropolitan region. In summer Brisbane-ites seek shade and breezes. In fact, if you visit our town in summer you will see people standing the shade of light poles waiting for the lights to change to cross the street. In the winter, Brisbane-ites seek warming sun, and the gorgeousness of our blue winter skies. Our city does not provide for these needs in a generous way; in the summer the small green refuges of the city are popular, and in the winter the few sunny spaces attract daytime use.

Our inner-city suburbs have retained an adapted urban ecology that runs through our valleys, steep slopes, backyards, and our parks with large spreading figs, our gardens with colorful planting and deep green shade. In building the next generation of

*Our relaxed, open-air lifestyle and subtropical climate define us. Whatever the time of year, we need little excuse to linger outdoors. Streets shaded by overhanging foliage and outdoor spaces that catch the cool river breezes are our preferred domain (Brisbane City Council, p.37)*

Applying these concepts to tall buildings in Brisbane is a work in progress; the *Design Guide* is being prepared, and exemplar projects are on the drawing board. The podium is articulated to create an "urban verandah" zone with recesses for gardens and shaded edges; however, the fundamental form is still a podium aligning the street edge.

### The Problem with Podiums

Podiums have been important devices for city planners to achieve continuously active

streets at ground level, and as a way of controlling street scale. These two attributes have meant that they are well established urban forms. In Brisbane, however, podiums aligned to property boundaries constrain the delivery of other important urban attributes.

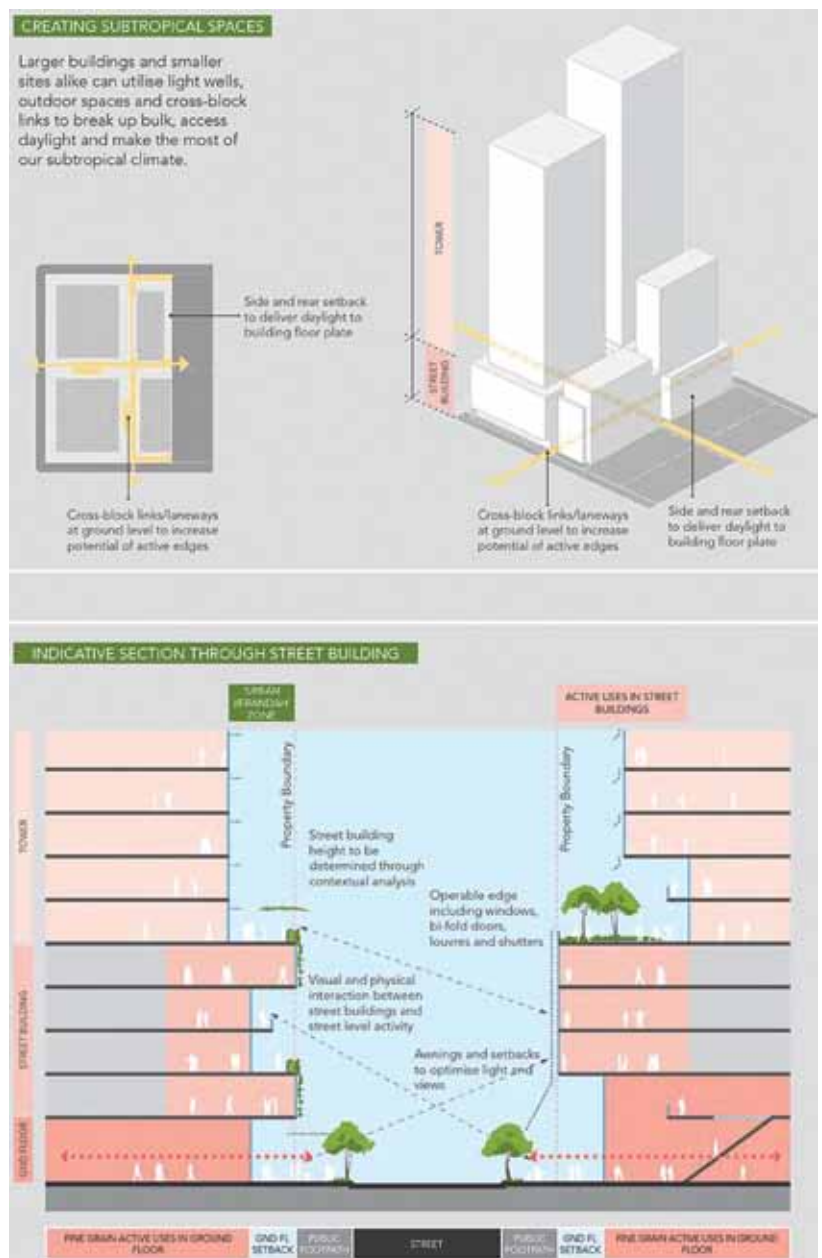
Brisbane's city center streets are not wide, with road reserves of 21 meters. Our founding designers never thought we would grow to be such a large city! This 21-meter zone is jam-packed with services, buses, cars, pedestrians, awnings, driveways, and signage, limiting options for generous planting and water-sensitive urban design. Brisbane experienced a property boom in the 1980s and 1990s where large areas of the city center were redeveloped. During this period the podium and tower emerged

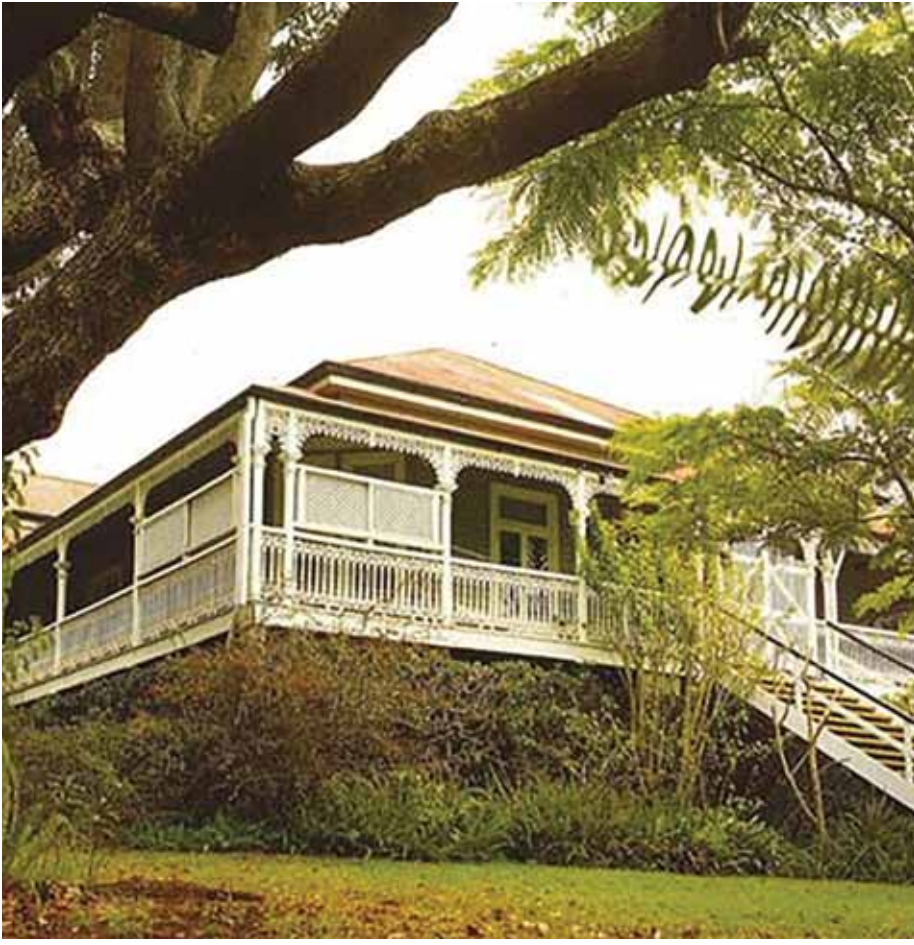
*“The tower and podium form is a widely accepted typology for urban intensification across the globe. However, when considering the subtropics, it may not be the ideal device for creating sustainable urbanism, where the architectural principles of porosity to light, air, and the integration of landscape are favored.”*

high-rise buildings this urban ecology could be re-established as part of the experience and ecological functioning of the city center through integration of habitat. At present within the public realm our narrow streets and podiums leave little room for significant tree canopy, deep planting zones or even understory planting.

Our rainfall compared to tropical climates is spread relatively evenly throughout the year, making water-sensitive urban design – filtering, retention, and reuse of urban water – a highly practical strategy for making green spaces in urban environments. There is an opportunity to think differently about how we can increase the amount of porous ground surfaces, reducing water going into an already overtaxed storm water system. Lining podiums up along the street edge limits the space for dealing with urban water meaning water sensitive urban design opportunities are also limited.

As we rebuild the city, there is the opportunity in Brisbane’s city center—with its constrained streets and paucity of urban green—to open up the ground plane of the city to accommodate water and greenery beyond what is shown in the articulated podium diagram of the Brisbane City Council City Center Master Plan. At the same time, we need to think creatively and practically about parking, servicing, structure, street edges, and activation to avoid the creation of unresponsive “blocks” of air-conditioned volume and engineered spaces; we need different typologies for urban spaces around tower buildings.

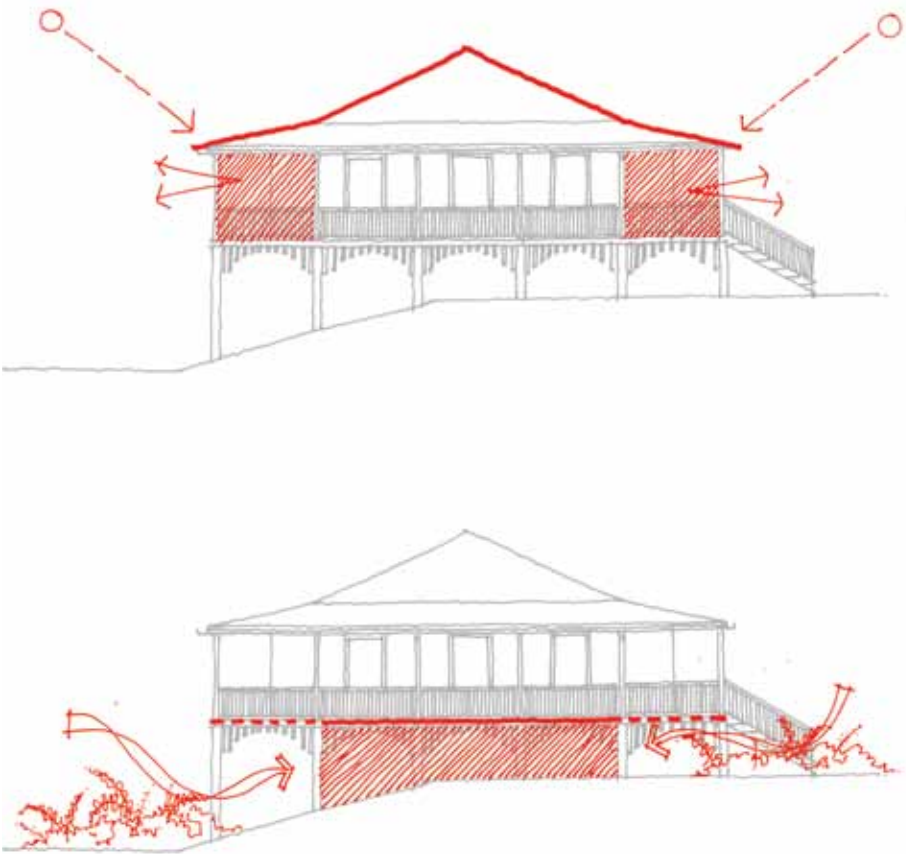




Left: Townsville house embodying typical features of a "Queenslander." Source: Weldon Publishers

Bottom: Climatic adaptations of the "Queenslander." Source: Architectus

Opposite: Conceptual diagram of a stepped garden terrace incorporated into podium. Source: Architectus



Embracing a subtropical vision for the urban realm of our city needs a more radical rethinking of the podium form, creating different urban space typologies that respond to the practicalities of tall building construction and the spatial constraints of our streets, as well as the ecological possibilities of our climate and locale.

**Learning from the Local**

In considering different podiums solutions, we might learn from the effective adaptive practicalities of our vernacular architecture. The "Queenslander" architecture typically creates an elevated platform for living, which is sheltered by deep verandahs on all sides. Stairs rise to a screened threshold space, the front verandah creating a cool semi-public space with a view to the street. The verandah, when ideally oriented, can catch the winter sun and the cooling summer breezes. The undercroft, often surrounded by vegetation or screens is, on a very hot day, the coolest place to be; it is a cool pool of air where the heat is kept out by surrounding layers of insulation. The undercroft is often not graded but in hilly suburbs allows water to flow across the block and into garden vegetation. In David Malouf's 12 Edmonstone



Street, the front verandah in the traditional Queenslander was a place of sociability, and the undercroft was a place of cool mystery. In heat waves the insulated and protected nature of the undercroft makes it a place of last refuge from intense heat.

Both the front verandah and undercroft have climatic and spatial properties that can inform how tall buildings meet the ground. Cool open urban spaces can be created under towers; podium terraces can be created as green verandahs to the city; filtered edges can be made that create inside/outside rooms; and pools of vegetation can be created to store cool air and create retreat spaces. Our research-by-design work undertaken in recent years has led us to focus on the following four adapted typologies, described below.

### Stepped Garden Terrace

Podiums can be reworked to create stepped gardens and terraces that can act as urban verandahs overlooking the spaces of the city.

Preparing a design for a park-front site in Brisbane's north offered the opportunity to create a green stepped podium terrace as

an urban verandah. The brief provided for approximately 500 apartments in two towers, with mixed-use function at lower levels. The site looks east over a park on the Brisbane River. In this location basement parking was not practical and, at the same time, the planning authority was eager to avoid having the lower stories of the development dominated by parking frontages. By reappropriating the podium parking volume – essentially stacking it higher – we were able to create a deep podium terrace at Level 1, providing a green edge to the lower four stories of the project and activated podium frontages at ground level.

This carving out and reappropriating of podium parking created the opportunity to “fold the park” over the building, making a garden terrace activated with retail, community and commercial activities, creating a continuous plane of activated space. The stepped gardens create terraces that capture views of the river, winter sun in the morning, summer afternoon shade and cooling river breezes. The landscaped terraces add significantly to urban greening, allow some deep planting zones around their edges and can accommodate water-

sensitive urban design, as well as creating enjoyable people-friendly spaces that step gently from street level.

The entries to apartments and commercial buildings lead in from the upper-level terrace. They are naturally ventilated, and defined by semi-open screens and gardens, rather than glazing.

### Urban Undercroft

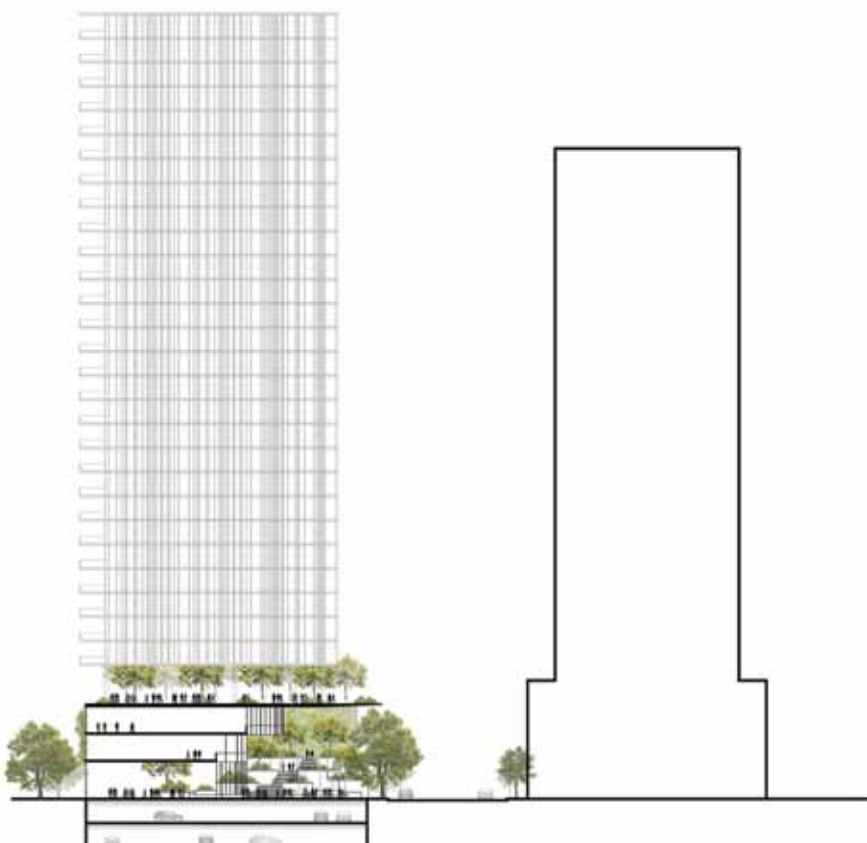
Open undercroft spaces in tall buildings can provide ideal subtropical retreat spaces, offering deep shade, allowing breezes to flow through, deep planting zones around the edge, and space for water gardens. Clearly this typology requires putting parking lots and servicing underground, or the elevation of parking above street level and a compact core. The commercial/residential entry spaces at street level can be naturally ventilated, defined by screens and level changes rather than enclosed air-conditioned spaces. Undercroft spaces can be activated with retail pods, providing activated subtropical gardens in the city. Importantly, these spaces can offer a cool reprieve on hot days, and incorporate elevated sundecks good for cooler days.



Left: Conceptual diagram of an open undercroft.  
Source: Architectus

Bottom: Conceptual diagram of a subtropical loggia.  
Source: Architectus

Opposite: Stepped garden terraces built into podium, with a residential tower above, activated with retail space.  
Source: Architectus



### Subtropical Loggia

The urban loggia is a well-known Mediterranean climatic adaptation, providing dignified shelter from hot sun and winter rains in that climate. Profound improvements to the ground plane experience of the city could be made with deep shaded occupied edges along the street edge; subtropical loggias, calibrated to accommodate trees, screening, water gardens and microclimatic adjustments that enable city dwellers to find places of shelter or places in the sun. In its conception this type is not too different from the “urban verandah” proposed in the Brisbane City Council City Center Master Plan diagram, but takes the idea a little further to create an outdoor room as entry and arrival space to the building, and place for multiple levels of retail and recreation activity – a populated people place.





*“Podiums have been important devices for city planners to achieve continuously active streets at ground level, and as a way of controlling street scale. These two attributes have meant that they are well-established urban forms.”*

A project in the west of the city has offered the opportunity to explore this idea a little more fully, with parking located underground the podium is mixed-use with a hotel above. The mix of hotel function spaces, shops, and terraces provides an opportunity for a deep and high subtropical loggia facing to the east, offering views out, a place to enjoy the morning sun, and a place to shelter from an arterial road to the north. The depth of the space permits some deep planting zones, as well as storm water filtration through gardens, and general urban greening.

#### **Urban Mesh - Laneways and Courtyards**

Green, cool, shady laneways combined with courtyards that catch winter sun can also be woven into the body of the podium as a mesh of subtropical spaces. A mixed use

project in the south eastern corner of the city provided the opportunity to create a porous ‘mesh’ of people spaces in both plan and section throughout the block – laneways, courtyards, podium gardens and sky gardens – providing a network of green, cool and open spaces throughout the entire site. These spaces work as a tartan grid of green, creating passages for air movement and “seams” of green that can enhance ecological function across the whole site. The laneways and courtyards can be activated with ground-level retail and building entries. Working over a larger block gives the opportunity to mass the site to climatic advantage; there are higher buildings on the southwest, and lower buildings on the northeast, so that sun can enter the ground-level courtyard, as well as the podium’s spaces.

#### **50 Buildings over 20 Years = Urban Transformation**

Imagine a subtropical city where the urban experience is shaped by green streets, lively garden terraces, pleasant urban verandahs, vibrant green undercrofts, subtropical loggias and green “cool pools” of air, all topped by green buildings that breathe. This would be a city to remember, to identify with, a subtropical city of the ecological age. Through a re-conceptualization of 50 towers’ podiums over 20 years, this could be the urban experience of Brisbane.

There are at least four different types of subtropical urban spaces that could be made at the base of towers: the Stepped Garden Terrace, the Urban Undercroft, the Subtropical Loggia and A Mesh of Laneways

and Courtyards. There are likely to be even more typologies in the future. All of these spaces could be used to create a city where more CO<sub>2</sub> is absorbed, more storm water is filtered through gardens, energy use at lower building levels is decreased, and an activated green subtropical city of cool summer retreats and warm winter verandahs is created.

These different typologies may be applied to different site situations, creating an overall network of urban spaces attuned to the needs of a subtropical city:

- The Stepped Garden Terrace could be an ideal solution for sites overlooking parks and the river's edge where underground parking is unworkable due to ground

conditions; it could also be an ideal type for northeastern corners within the city grid

- The Urban Undercroft could be suited to sites where permeability is highly desirable, for example along the river's edge and edges to our Botanic Gardens
- The Subtropical Loggia could be utilized to create spaces of shelter on south western edges of city blocks, screening from harsh western sun, providing cool places in the summer, or providing places to enjoy winter sun but filtering morning sun on north-easterly urban frontages
- An Urban Mesh of laneways and courtyards could be employed on

deeper, larger sites enhancing overall urban permeability whilst creating a fine grain of subtropical spaces

The overall impact of all of these spaces created at the base of tall buildings over time could, in concert with the creation of 'buildings that breathe', recast Brisbane as a subtropical city for the ecological age.

### Making the Subtropical High Density City

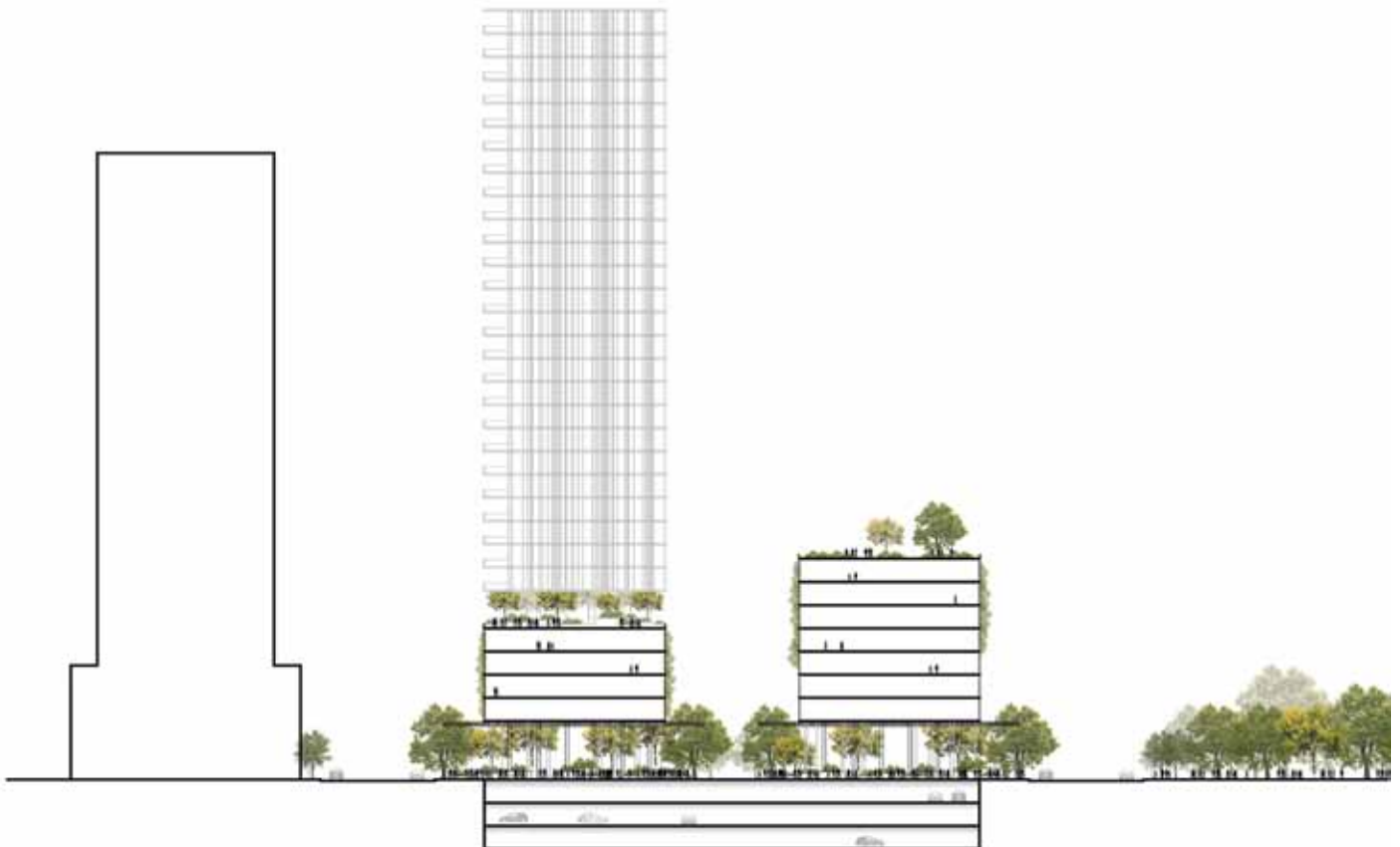
Moving towards such an aspiration requires strong vision and practical measures to achieve it. In Brisbane the vision is articulated in the City Center Master Plan; the practical delivery of this will be through a partnership approach with progressive developers who understand the commercial returns in



Opposite: An open undercroft activated with retail pods, level changes, and screens to define office/residential entries. Source: Architectus

Right: Subtropical loggia built into the edge of the podium, with gardens, retail, café terraces, and screens to filter summer sun. Source: Architectus

Bottom: Conceptual cross-section of an urban mesh of laneways and courtyards. Source: Architectus





Urban Mesh  
Laneways &  
Courtyards

Stepped  
Garden  
Terrace

Subtropical  
Loggia

Urban  
Undercroft

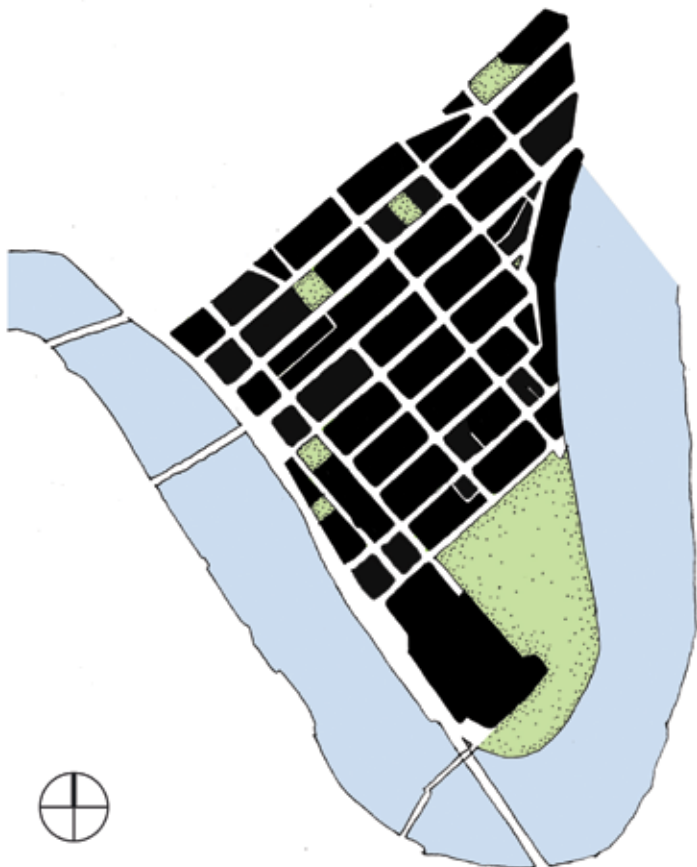
Left: Hypothetical proposition applying various podium typologies to different site situations within Brisbane's city centre. Source: Architectus

Bottom: Conceptual diagram showing Brisbane City Centre green space currently, and additional urban greening that could be achieved through the overall approach of opening up podiums in the city. Source: Architectus

making places people love to be; successful places attract people, which is great for rental value and retail patronage.

To be clear, the spaces envisaged in the bases of these buildings are not publicly owned or managed. They are the city's commercial spaces – the retail spaces, the dining terraces, the circulation spaces, and the foyers. All of these functions typically incorporated at the base of a tall building within the podium have commercial value, and they are open, rather than enclosed, inviting patronage into them.

Simple rules and incentives to help create broader "buy-in" could assist, for example Singapore provides height bonuses for sky gardens and sky terraces: similarly in



*“Imagine a subtropical city where the urban experience is shaped by green streets, lively garden terraces, pleasant urban verandahs, vibrant green undercrofts, subtropical loggias and green ‘cool pools’ of air, all topped by green buildings that breathe.”*

Brisbane city center floor area incentives could apply to sites where an open podium garden can be created, contributing to the openness and greenness of the city as a whole, compensating for our tight streets and the need for intensification. Singapore’s mandated percentage of site greening is also something that would be highly achievable here climatically speaking, and when linked to spaces of commercial return could be embraced by progressive developers.

Some flexibility in thinking may be in order here. The insistence that a street must be made by a line of glazing along the property boundary is an idea that has its foundations in understandable concerns for urban safety, activation, and street unity. In the ecological age, and in a subtropical city,

safety and activation can be provided in the way retail is integrated into gardens, in the way people move through spaces, in how they are lit and managed. It is more a matter of integrated landscape and urban design rather than a less flexible “one size fits all” approach. Planners can be more flexible, more open to other ways of achieving urban activation.

Urban and public spaces need to be a particular focus of “big ideas” about making a subtropical city – this is the part of tall buildings that most people experience – where the big urban impacts are felt. There are huge opportunities presented by the very benign climatic conditions of the subtropics to create new types and models to address our ecological challenges.

Globally, in recent years we have started to see built exemplars of porous green buildings in the tropics, and when reviewing the work of architects like Ken Yeang in Malaysia, and WOHA in Singapore, the possibility of ecologically oriented, climatically designed cities for the tropics that reach beyond the podium and tower form seems tangible and possible. The re-conceptualization of the podium form may signal new directions for subtropical cities.

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