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Context, Climate, Culture – Investigating Place in Tall Building Design



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Abstract

Should a tower in Moscow look like one in Dubai? Once one entered a city and marveled at the unique magic of its architecture – the pastel classicism of St. Petersburg; the cobbled cortile of Siena; the delicate mashrabiya of Cairo – and there was a memorable sense of 'place' to each city that reflected the evolution of its architecture over time. Unfortunately, the rapidly emerging 'global city' is in danger of overwhelming these distinctions, valuing height and density over character. With the resurgence of the skyscraper city, and the forces of globalization that underlie it, we believe it will be increasingly important for the design of tall buildings to create a unique sense of place and identity. This paper explores the influences of context, climate and culture on the design of tall buildings and urban environments.

Keywords: Context; Culture; Design Process; Environmental Response; Urban Design

The advent of what we call the tall building, skyscraper or high-rise tower has been relatively recent in the history of architecture, with buildings reaching over about 10 stories only in the last 125 years or so. Driven by the convergence of technologies such as the elevator, electric lighting, air conditioning, and structural steel with the growth of free-market capitalism at the beginning of the 20th Century, the most evocative visions of the skyscraper materialized through the imaginations of a number of celebrated architects – Le Corbusier, Mies Van Der Rohe, Walter Gropius, etc. – as primarily abstract, modern expressions of technology for a modern age (see Figure 1). Despite a variety of more 'transitional' design approaches (Empire State Building, Chrysler Building, Rockefeller Center, etc.) which incorporated historical or stylistic character into the tall building, the conventional paradigm that emerged into the latter decades of the 20th century was clearly one that valued increasing height, modular repetition and broad abstraction.



Figure 1. Seagram Building (Source: Ezra Stoller)

This paradigm, as evidenced by its mid-century evolution not just in larger American metropolises like New York and Chicago but also in other major cities around the world, became a symbol of progress and innovation. Such towers, usually commercial office buildings, sometimes not very many stories but often appearing quite tall in the context of a more traditional low-rise fabric, were not simply real estate development strategies but economic and cultural expressions of participation in the growing global economy beyond the borders of each country. The design language often aspired to convey not the nature of that specific location, but the rational, abstract, 'international style' of the skyscraper. With differing levels of sophistication, this embrace of the modern skyscraper's symbolic qualities flourished around the world, with modern towers appearing in many major world capitals from Paris to Milan to Melbourne.

An unfortunate consequence of this pattern of growth is a global cityscape that has become homogenized and generic, with a proliferation of gridded stone, metal and glass 'boxes' establishing an ascending skyline

leading the eye towards the tallest tower. In the case of the speculative office tower, demands for leasing flexibility and ease of tenant layout drive the need for relatively continuous glass, most recently extending down to the floor level, with the repetition of this optimized configuration throughout the body of the tower. Design response then becomes a matter of articulating the base / lobby level and the top / crown of the building, often missing a middle scale, with the tower often treated with the same exterior wall on all sides to unify its expression (see Figure 2). While this is obviously an over-simplification of the urban condition, and there are numerous examples of towers that improve on this pattern, the underlying paradigm remains highly influential – a mutually supportive convergence of demanding real estate development parameters and visionary modernist iconography.

The most recent manifestation of this growth pattern is the rapidly emerging 'global city' of the 21st century, in which traditional boundaries are transcended and cross-cultural approaches are embraced. While there are social and political merits to this trend, the challenge for architects is how to respond with design: should a building in Dubai look like one in Moscow? How can good design reflect a unique sense of place while meeting the demands of a global economy? How can this be done without resorting to the superficial motifs of the post-modern period? Is it possible, to paraphrase the slogan of the environmental movement, to 'think globally and design locally'? The premise of this paper is that the answers to these questions come from a deeper understanding of three essential considerations: context, climate and culture.

Context

When we think of examples of memorable traditional 'vertical' architecture – the spires of French gothic cathedrals, the stone towers of San Gimignano; wooden Japanese pagodas – each of these evolved over centuries in response to specific needs and contexts, optimizing the use of land, local materials and technologies to gradually develop into an architecture that seems



Figure 2. Houston, Texas (Source: AJ Franklin)

rooted in its 'place' and expressive of a distinctive sensibility. The beauty we see in these structures is found in their authenticity – the sense that they belong where they are and establish a unique identity not just for themselves but for the places they represent. This sensibility, often driven by necessity (i.e. the ability to transport materials) became the basis for a pattern of building that when dense enough eventually evolved into an urban fabric. In contrast, the relative speed with which the tall office building developed and its presumed universality as a building type circumvented this gradual evolution, and the resultant lack of distinctive character and authenticity is evident in many of the modern cityscapes around the world.

How can this condition be addressed? The first consideration for the creation of a sense of place in tall buildings should be to assess the impact of physical context at a range of scales. The most immediate and obvious influences – the shape of a site, access to it, the relevant zoning regulations, the relationship to the surrounding fabric, the views both to and from the building – each of these can inform the design of a tower, but often it seems that the invention they might inspire is limited by the latent power of the conventional paradigm. For example, clearly each side of a tall building faces different conditions, yet often each side is treated in the same or very similar manner (see Figure 3). This lack of variation, scale and hierarchy creates an equivocation in design, and for the city dweller, a confusion of orientation much like being in a room in which all the surfaces are treated identically. Here the architect has a tremendous opportunity to assert a site-specific design intention for a building so that it is integrated

with its urban context and reflects the specific conditions of its location.

One of the unique aspects of the relationship of the tall building to urban context is the inherently greater third dimension, especially if it narrows as it rises due to factors such as zoning or structural design. Often the contextual influences cited above are seen to diminish with height, and the top or 'crown' is envisioned as an idealized form uncompromised by context or external forces. While the top may indeed be an opportunity



Figure 3. Republic Plaza, Denver CO (Source: David Shankbone)



Figure 4. Seoul Cityscape (Source: Washington Post)

for a more pure expression, it can also be an opportunity to make connections at an urban 'skyline' scale – creating a dialogue among towers a various heights (as if a 'Nolli' plan were drawn at various heights above street level) suggests new possibilities to make contextual relationships among tall buildings in our increasingly dense global urban context.

There is also a broader urban and regional sense of context that should be considered, in which the image of a city is expressed in a set of shared architectural responses, whether it be in terms of form, material or detail. For example, the typical orientation of residential buildings to the south in Seoul has created a pattern of linear slab buildings that is instantly recognizable, and distinct from, for example, the dense forest of narrow residential towers of Hong Kong (see Figure 4). While this fabric can be somewhat relentless, it is reflective of a specific place, and recent efforts to challenge it have resulted in a more homogenized character that is hard to distinguish from other Asian cities.

Climate

One of the key drivers of the archetypical tall building is technology, and with it the ability to provide a controlled and uniform interior environment for its users. While this must have been a highly appealing when it first appeared to an urban population that had suffered through extremes of hot and cold, it led to a paradigm that asserted its independence from the natural ecosystem around it, in contrast to the centuries of earlier architecture that had evolved in response to the unique qualities of sun, wind, precipitation and humidity found in a

particular region. This 'hermetically sealed' envelope, which could be reduced to a thin, single-glazed, uninsulated curtainwall, dovetailed with real estate demands for highly efficient, relatively deep leasable space surrounding a tight central core – the pure expression of the 'efficient' modern office building. This model has evolved in recent decades to become much more energy efficient – with the integration of insulated glass, reflective and low emissivity coatings, high R-value insulation and high-performing mechanical systems, an all-glass building can achieve a LEED Gold certification with limited additional sustainable technologies.

So why is this a concern? First, because just meeting LEED parameters will not address the magnitude of the energy problem created by buildings. More significantly, because simply relying on technological advancements to meet performance metrics can nonetheless perpetuate a generic, conventional paradigm, and we as architects may miss the opportunity to address the unique environmental characteristics of a place and to create meaningful, distinctive identity for both the buildings we design and the cities they define. The great cities around the globe, ranging in character from Cairo to St Petersburg, Beijing to Siena, evolved in part to respond to a unique climate that determined their characteristic building types and urban fabric. While the modern tall building does not need to (and should not) adopt the traditional forms or systems that generated these types, it can respond to the specific climatic aspects with innovative architectural strategies and modern technology.

An obvious example of this is the proliferation of glass towers in a place like

Dubai that do little to recognize the extreme sun, heat, humidity, and dust found there except, perhaps, with tinted glazing to reduce glare. Driving along Sheik Zayed Road and seeing the parade of 'iconic' tower forms, each one striving for attention but lacking, for the most part, any architectonic response to climate, is a disheartening instance of such a missed architectural opportunity to create a meaningful sense of place. On the positive side is the work of Ken Yeang in Southeast Asia, whose buildings don't simply respond to climate but create their own ecosystems that mediate heat and humidity while integrating landscape to improve the environment of the building's inhabitants (see Figure 5). Yeang's towers create a distinctive language that is truly expressive of place – they both belong in the tropical climate and establish a building type that helps give you a sense of where you are in the world.

The design for a mixed-use residential tower by Perkins + Will near the Media City complex in Dubai attempts to address such local issues of context and climate. The essential urban character of Dubai – desert to one side, water to the other - is expressed in a language that responds to both: a folded metal screen wall, evocative of the landscape of nearby dunes, provides solar shading on the inland side of the residential tower while a horizontally striated series of balconies face the Gulf, punctuated by a pattern of blue glass fins that suggest the sparkle of the waves (see Figure 6). The solution integrates design expression with climatic response: the folded screen, mounted on the outer face of the continuous balcony line to the south, limits heat load on the inner glass line, while the facade to the north, facing the water, omits the screen and optimizes the view since less protection is required there. While unbuilt, the clarity of contextual expression coincides, in this example, with environmental response to help define what could be a precedent for future urban development in the area.

Culture

The most challenging aspect of defining a sense of place lies in the delicate task of expressing culture through design. Making architecture in the 'home' cities where we practice, where we know the culture best, allows us to address, and potentially challenge, the principles of belief, behavior, and aesthetics that define our way of life. Clearly each of us brings our own, subjective interpretation to this process, and the richness of architecture comes from the variety of expression that results from our personal sense of values.



Figure 5. EDITT Tower (Source: Llewelyn Davies Yeang)



Figure 6. Dubai Tower (Source: Perkins + Will)

Yet in the context of the emerging 'global city', with an increasing mixture of cultures, are there consistent urban principles and core values that should be reflected in design? At a broad level, regulations such as the New York City Zoning Resolution, with its focus on defining street walls, daylight reaching the street and the provision of public spaces through private development, impose a set of shared values on architecture. Other cities, such as London, rely on a less rigid but more highly negotiated process to determine the 'fit' of a tall building within its cultural context, and some, such as Taipei, have few legislated rules governing the design of a tall building.

Ultimately the identity of a building is determined by the architect (and the client) and the decisions they make about its character. This is especially sensitive when designing in another country, where the impulse to either ignore or superficially reflect the culture can be strong. There are numerous examples of tall buildings in Asia where the conventional paradigm is decorated in motifs that suggest some aspect of the historical architecture of a region stretched to unprecedented height or making an awkward top to an otherwise undistinguished tower. This 'post-modern' approach relies on architectural quotations that borrow meaning from another time rather than creating it

for our own, often reflecting motifs, such as sloping roofs, that are no longer appropriate to contemporary design of tall buildings.

A deeper investigation of culture and history is needed to move beyond conventional solutions and reach a more authentic architecture expressed in modern terms. This might involve investigation of original

patterns of settlement, urban morphology and cultural history to identify the underlying influences that define a specific sense of place and meaning. An interesting comparison of approaches can be seen in the Pudong development in Shanghai, where three recent 'supertall' towers designed by SOM, KPF and Gensler are juxtaposed (see Figure 7). The SOM tower, with its abstracted 'pagoda'



Figure 7. Aerial view of Pudong district of Shanghai (Source: ChinaFotoPress)

form, while elegantly defined, references a traditional archetype to convey a more post-modern message. The Gensler tower, while innovative, adopts a twisted configuration that has little apparent relationship to Chinese culture, and in its reliance on dramatic but fashionable form potentially diminishes a connection to place. The KPF tower, while highly abstract, was originally derived from a narrative about the tower connecting a square plan with a circular opening at the top, corresponding in Chinese culture to earth and heaven. While the eventual design was changed at the top, the seminal impulse to root the design in a culturally specific allegory was a more effective strategy to create a sense of place in a tall building.

At a different scale, a Perkins + Will design proposed for a corporate headquarters used the original definition of 'Riyadh', meaning 'Place of Gardens' as an inspiration for a tower that incorporates a series of stepped, spiraling exterior gardens within a gridded skin calibrated to optimize shading and climate control (see Figure 8). This approach, integrating climatic and cultural strategies, defines a unique yet appropriate expression for a tower in the Gulf region.

Place

With the resurgence of the 'skyscraper city', the challenge for architects and planners to design meaningful, authentic, livable buildings and cities is becoming an increasingly complex task. As we have described, tall buildings, as a relatively new building type, cannot follow traditional, lower-scale patterns and precedents, yet should ideally express a distinctive character that reflects specific environmental, contextual and cultural surroundings, creating a memorable identity not just for each building but for the city itself.

Part of this challenge is in understanding what makes something truly memorable - while we respond emotionally to the compelling character of the historic centers of Prague or Beijing, it is important to move beyond sentimental impressions to get to a new idea of what constitutes contemporary identity. Ideally we can use analysis and observation to get to a sense of the essential qualities of a place, but express them with modern technologies so that they appear new again. The problem with the conventional paradigm is that it led to the homogenization of urban landscapes, and the forces of commercial



Figure 8. Al-Birr Headquarters tower (Source: Perkins + Will)

globalization threaten to expand this uniformity – the real challenge must be to communicate specificity of place while working within an expanding system that doesn't necessarily value it.

Sometimes the forces of globalization do coalesce into constructive organisms that generate more successful environments – cities like Barcelona have evolved as vibrant, inventive and sustainable places that value their past while featuring a variety of innovative tall buildings that look to the future. Vancouver, while not known for iconic tall buildings, has developed a distinctive, sustainable urban character defined by primarily transparent glass residential towers that optimize daylight in the relatively cloudy climate. With its dense, unified center surrounded by water, it clearly offers a unique modern personality unlike other cities in North America (see Figure 9). At the other end of the scale,

cities such as New York and London have added a wide variety of iconic tall buildings that explore new forms and celebrate technology without really addressing the idea of place. While responsive to certain urban conditions, the Shard and the Gherkin share a formal, abstract language not related specifically to London, and the Freedom Tower, its height and security measures aside, could be imagined in almost any major city in the world.

Perhaps the desired sense of identity can be achieved through a redefinition of the nature of 'place'. We believe the solution lies in the understanding of context, climate and culture, but also, and more productively, in the interaction among these influences and the changing demands of each over time: contextual response has always been challenging due to the dynamic nature of rapidly growing cities and urban fabric that must be not just addressed but anticipated;

climate is clearly undergoing changes that demand both responsiveness and resiliency, and culture is constantly becoming more connected and interwoven through internet and social media technology. In this sense, cities should be seen not as static assemblies of buildings and infrastructure, but as interdependent, dynamic ecosystems that are constantly reinventing themselves in response to changing parameters. Ideally, the interaction among these parameters can help re-define the nature of 'place' in a global society and potentially inspire a new paradigm for the design of tall buildings and urban identity. Ultimately, the concept of ecosystems, whether they are natural, economic or urban, offers a richer metaphor to describe the nature of global interchange, and a more sustainable paradigm for the development of the skyscraper city as an authentic architecture of place.



Figure 9. Vancouver, BC (Source: Jose Fuste Raga)