Touching the ground:
The urbanity of the tall building in the Gulf Region

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ABSTRACT: Tall buildings, by definition, are vertical objects. Historically, architects are more concerned about the tops of towers and less about their bases. Understandably, this is to make a statement through which more attention to the building can be drawn. However, the building base—the podium—is the place that is important to ground the building within its context. This neglected part of tall buildings is responsible for not only welcoming people to this gigantic structure, but also mediating the scale of the tower with the surrounding buildings and creating a good public realm for the city. This paper aims to address the issue of urban integration between tall buildings and the urban fabric. To achieve this goal, a desk study and field work were undertaken. The former involved a literature and professional documents review, whereas the latter involved interviewing 23 experts from the Gulf Region (including architects, planners, and academics) and observing six tall buildings in the Gulf Region's main cities, including Riyadh and Dubai. This study draws some lessons from comparing tall buildings in the Gulf Region with those in Canadian cities, including Toronto and Calgary. This paper concludes with proposing some design recommendations to improve urban integration, enhance the quality of ground spaces in tall buildings, and refine our experience with the podium.

KEYWORDS: urban integration, public realm, tall buildings, vibrant places, tower podium

INTRODUCTION

The tall building, as a building typology, has been considered by many scholars as harsh and unfriendly, lacking the proper human scale, and destroying any kind of urban realm. Tall buildings play a huge role in the "living" fabric of the city. The real issue today is not about how tall buildings shape the skyline, but rather how tall buildings meet the ground and integrate with the urban realm. Tall buildings have increased dramatically around the world from the beginning of the 21st century. For a long time, planners and academics considered the tall building as an urban enemy of the city fabric and livability (Alexander 1977; Gehl 1987; Jacobs 1961). Christopher Alexander (1977) also points out that the ultimate height for a building that satisfies our psychological and environmental needs is four floors. He believes that buildings that go beyond that limit create an unpleasant and chaotic environment for both the inhabitants and the city. Having said that, many cities around the world try to enhance the relation between tall buildings and the city fabric. The detailed attention that focuses on the relation between the base and the tall building, the effects of the microclimate on the surrounding areas, and the contribution to the public realm are among the factors that help to better integrate the tall building with the urban fabric. But this typology evolved over time, and the tall building changed from an insulated building that was freestanding in the middle of the dark park (e.g., Pruitt-Igoe) to the vertical cities (Yeang 2002) that have many amenities that make life for the inhabitants inside the tower easier and happier. The urgent need is to apply good urban design principles for tall buildings, and to have these buildings integrate within the urban realm, which would add to the city's diversity and vitality.

1.0 METHODOLOGY

To achieve the objectives of the study the following methods were used. First, a desk study and field work were undertaken, including study of the history of urban development of the Gulf cities and the tall buildings that emerged in those cities. The desk study involved a literature and professional documents review. The field work included interviews with the main stakeholders for the tall building industry; 24 interviews with architects and planners, officials and policy makers, and academics were conducted. Third, six tall buildings in Dubai and Riyadh were used as case studies for observing and testing urban integration. This study draws some lessons from comparing tall buildings in the Gulf Region with those in Canadian cities including Toronto and Calgary.

2.0 URBAN INTEGRATION OF THE TALL BUILDING

The tall building has a huge burden on the site (context) and could work as a positive or negative contribution for the urban fabric. Many examples exist in the world of the great integration of the tall building with the urban environment and the way that the tall building meets the ground. The way the tall building embraces the street is a vital factor in the way the public realm is shaped. The tall building should be in harmony with the other components of the city's fabric, and should complement them, not dominate them. Historically, we can trace the role of the tall building in the urban fabric on both positivity and negativity to the beginning of the 20th century. We can cite two examples of the effect of the tall building on the urban public realm. The first example, which is one of negativity, is the Equitable Building (New York) in 1916, designed as a huge bulky building that negatively dominates the fabric around it. The negative aspects include overshadowing, blocking natural light, and creating narrow sidewalks. These negative effects were the main reasons for the new building law in New York (1916) that required tall buildings to be set back in order to let the natural light penetrate to the street and surrounding area (Short 2012; Chappell 1990). However, the set-back that dominated the subsequent tall buildings will not solve all the problems, as Alexander et al. (1977) state that "building setbacks from the street, originally invented to protect the public welfare by giving every building light and air, have actually helped to greatly destroy the street as social space." (Cited from Ewing and Clemente 2013). These set-back spaces need to be carefully designed to welcome the street and the passersby, and the proportion of width to height should be addressed in a way that will create vivid places. In contrast to the Equitable Building, the Rockefeller Center that comprises 14 buildings and the GE building by Raymond Hood are centerpieces. The Rockefeller Centre adds elegance to the urban fabric by offering a public plaza and walkable area, and works as a social and gathering area for the people. The prominent architecture critic Ada Louise Huxtable (2008) described it as such:

> If you look at Rockefeller Center in detail, it's a very elegant plan: higher and lower levels that lead you from one to the other, streets cut through to keep the human scale. You always feel you're going around a corner, not around a wind-swept plaza, into some other area that has an inviting activity.

This kind of urban realm, in the way in which the tall building must integrate with the urban fabric, leading to more vivid spaces, has been the major issue with tall buildings in the Gulf cities. The case studies in this paper will show us some obstacles that affect this kind of integration.

3.0 CASE STUDIES: THE GULF REGION CONTEXT

3.1. Riyadh

Riyadh is the capital of Saudi Arabia. It evolved from a traditional settlement in the central area of the Arabian Peninsula to one of the largest modern metropolises in the world (the city expanded from 9 km^2 in 1917 to 1,798 km^2 now). The urban development of the city occurred in different historical phases, but the city gained its most important role when King Abdul-Aziz established it as the capital of the new Kingdom in 1932. The city had the same character as the old Arab cities in that it was constructed from local materials and built in a way that was sensitive to the harsh desert climate. These urban elements include narrow alleys that are shaded by the adjacent buildings and work as passive ventilation corridors for the city. The buildings were low-rise modest buildings built usually from mud material. The urban development of the city can be summarized in four main phases: 1) the pre-oil phase, which was the traditional settlement that covered the area inside the walled city between 1824 until 1950; 2) the modern planning phase that dates back to the early 1970s when the Greek planner Constantinos Apostolou Doxiadis was hired to conceive the first master plan for the city that was based on a modern grid iron planning system; 3) the second phase of the master plan that aimed to revise the Doxiadis plan and was designed by SIT International; and 4) the last phase which began in the late 1980s and continues to the present and mainly focuses on the work of the Arriyadh Development Authority (ADA) that controls the planning and management of the growth of the city.

The city has been considered low-rise; it has resisted the vertical urbanism surge that happened in other Arab cities such as Dubai. However, two examples stand out as exceptions to the horizontal development of the city. The first tall building was AlFaislaih Tower by Norman Foster completed in 2000. Then came the Kingdome Tower in 2001. The building height limit in the city was kept at 30 floors until the new law in 2008 that changed the face of the city and created a signature skyline for the city.

3.1.1. AlFaisliah Tower

AlFaisliah Tower, designed by Norman Foster, was an iconic addition to the city skyline. The minaret was the main inspiration behind the building and the building was considered climatically sensitive in that the architect neglected the fully glazed box and instead designed the tower with less transparent facades that were covered with louvers. The site was organized to create pleasant places. The complex components (The Hotel, The

Mall, the Tower) were distributed on the site in such a way as to frame the whole site. However, the green area that occupied the main area on the west side of the tower is rarely used because the vast area is out of scale, the difficult permeability of the site, and the landscape design (Fig. 1). On the east side of the building—the Mall entrance—the area is dominated by the vehicular area for drop-off and features some seating but is improperly designed. On the north and south sides, the sidewalks are a reasonable walkable area, the width of the street is reasonable, and the trees enclose the sidewalks. The placement of the tower in the middle of the site helps to promote imageability of the tower and respects the scale of surrounding buildings, and the urban organization of the site to create in-between spaces that encourage the urban realm, but unfortunately with no proper landscape design.

Figure 1: The main plaza of AlFaisliah Tower. Source: (Alotaibi 2017)

3.1.2. Olaya Towers

The Olaya Towers are twin towers that rise 203.4m and 166.3m for towers A and B, respectively. The towers were designed by BDPL Gulf Architects and are located in the commercial spine of Riyadh. The location of the towers in the Olaya, on one of the city's walkable streets (Al-tahlia street), inspired the architect to elegantly design the site in a way that contributes to the city's fabric. This was achieved through the exceptional design of the site, which features a triangular plaza that is sandwiched by the tower podium and two outdoor retail shops. The provision of the outdoor retail shops keeps the area usable and alive even after the work day is over. The parking was placed on the four-floor basement and vehicle movement has been designed to not cross with the pedestrian area. The size of the plaza and the way the retail shops frame the entrance that faces the intersection adds greatly to the city's public realm. The continuity and permeability of the site is another great contribution; the sidewalks that surround the site work in coherence with the urban fabric of the area. However, the plaza lacks proper public seating, a green area, water space, and a playing area; these would enhance and increase the use of the place.

Figure 2: The plaza of the Olaya Towers. Source: (Alotaibi 2017)

3.1.3. Rafal Tower

Rafal Tower, the 70-storey, 308m building, is the second tallest building in Riyadh behind the Capital Authority Tower in KAFD. It is located on King Fahad Road north of Riyadh city. The fully glazed facade with the elliptical shape of the tower makes it an elegant contribution to the city skyline. Urban-wise, the tower complex consists of the Tower, which includes the hotel, residential apartments and offices, and the base, which consists of retail shops. The base of the building was designed to reflect the sense of the place through imitating the vernacular language of the traditional architecture of the city—Najdi architecture—which has triangular

openings and uses local materials such as Riyadh limestone. The buildings occupy the whole site with lack of public spaces and plazas. The only public space that promotes urban quality is the plaza in front of the hotel entrance, which is a roundabout for vehicle drop-off and features water spaces. The continuity between the site and surrounding areas is achieved through proper sidewalks. The site is elevated above street level and pedestrians access the site through a ramp that evokes a sense of revelation that makes the experience more energic and exciting.

3.2. Dubai

Dubai's model has attracted many cities in the region to follow, imitate and, to some extent, compete with it, (for example, in the case of Doha). The city in less than 20 years has surpassed Beirut, which was the finance and business capital of the region in the 1970s and 1980s.[i] Thus, the effect of Dubai on the cities of the region and beyond led the urbanist Elsheshtawy (2009) to coin the term 'Dubaization.' The city emerged beside the creek with a population of approximately 800 (Elsheshtawy 2009). The built environment of Dubai at the time did not have a distinct status and was identified by a small land area containing small mud huts (Elsheshtawy 2009). The city was like the other Gulf villages at that time; they shared the same characteristics of the Arabian Peninsula urbanism, including traditional elements such as narrow alleys, local materials, and privacy and climate preferences such as windcatchers and courtyards. The city gained its significant role in the region as a commercial pivot in 1870 when Britain declared Dubai as the new port for its Empire's merchants in the Trucial States (i.e., the group of Sheikdoms they were under British control from 1820 until 1971; Ramos and Rowe 2013). The influence of oil on the city's urban shape was substantial, as for other Gulf cities. In 1960, the ruler of Dubai, Shiekh Rashed Ibn Maktoum, invited the British architect John Harris to develop the first master plan for the growing city. The aims of this plan were the provision of roads and infrastructure for the city, general land use zoning for residential, industrial, and commercial uses, and the control of the future growth of the city (Ramos 2010). In 1971, following the discovery of oil in 1966, Harris executed the second phase of the master plan, extending his vision for the new Dubai by establishing a ring road system and two bridges across Dubai Creek, and connecting the outer housing area with the inner city (Ramos and Rowe 2013; Elsheshtawy 2004).

3.2.1. The Index Tower

The Index Tower is a 328m (1076ft), 80-storey mixed-use building located in the Dubai International Financial Centre (DIFC). In contrast to the norm of tall buildings located in the Sheikh Zayed area, where the long side of the building faces the road to maximize its visual appearance from the road, this tower stands striking with its short side to the road and positioned in the best climatic orientation. The tower touches the ground gently, with the ground floor, except the core services and the entrances have been elevated to create a shaded atrium (Wood 2011). This atrium features a public gathering area and large pools (Fig. 3) that help create a sensual experience and pleasant micro-climate for the inhabitants. However, the whole site of the building is designed to satisfy vehicular movement and is hard to access by pedestrians; the only access is through stairs that are placed on the main road and there is no signage for pedestrians except for the atrium. Also, the continuity with context is diminished through the huge walls that prevent permeability through the whole fabric. This discontinuity with the context is the shortcoming of the urban configuration of this tower. Conversely, the building enhances the public realm by creating the shaded atrium that lifts the building gently and evokes a sense of vividness.

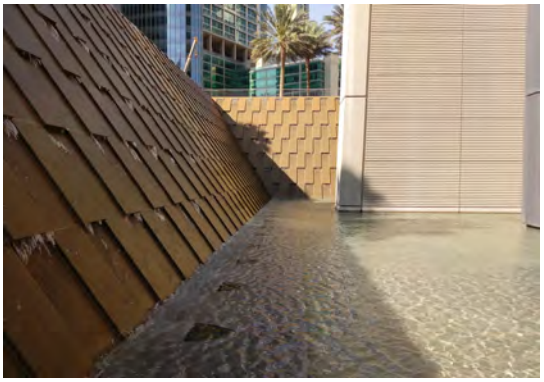

Figure 3: The large pools that engulf the main atrium of the Index Tower. Source: (Alotaibi 2017)

3.2.2. Al Mas Tower

Al Mas Tower, soaring at 360m with 68 storeys, is the tallest building in the Jumeirah Lake development in Dubai. It is located in the middle of the development as a centerpiece for the whole development and is

engulfed by two man-made lakes and surrounded by abundant green spaces and plazas. The tower is based on a huge podium, which is inspired by “Al Mas,” the Arabic meaning for diamond shape. The urban configuration of the project is thoughtfully addressed through the good podium design that creates a transition place between the vertical and the horizontal. The podium is elevated from the street by approximately three meters, giving the project a kind of monumentality. On the other side this difference in height between the street and the project creates an impossible scale for passersby; they must access the site through ramps and stairs. The positive aspect about this elevation from the street level is “monumental tectonics and the desire for revelation”; this kind of spatial configuration, according to renowned Canadian architect Arthur Erikson, is a fundamental aspect for architecture to evoke and enhance the experience of place (Sabatino 2016). This experience will be achieved by pedestrians when they access the site through these intriguing routes that reveal the tower’s sensuality. On the east side of the tower, the building podium features some terraces and cafés that have a good view of the public space that is engulfed by East Al Mas Lake.

3.2.3. The Khalifa Tower

The Khalifa tower is an icon for the region, era, and the people in the Gulf. Rising to 828m and comprising 163 floors, it is the tallest structure in the world and a true mirror for the human aspiration and achievement in technological advancement and symbolical power. The design originated from the desert flowers and an Islamic pattern, inspiring the architect, Adrian Smith, to develop the Y-shape that consists of buttressed wing step-backs while rising. This morphology helps to achieve structural stability by reducing the impact of the wind forces on the building sides (Alotaibi and Sinclair 2015). The tower is the centerpiece for the new development of the Downtown Dubai. The access by walking to the tower base is restricted because there is no continuity with the context. The tower is an inclusive place for the residents of the apartment section or for hotel visitors. The integration is not addressed well and the tower works as a gated community that welcomes only a small segment of the society. This raises an important question: Is the tall building a type of building that is designed to satisfy only the wealthiest people of society? How can we change this idea to make tall buildings more open to all? This is not the norm in other parts of the world (e.g., tall buildings in Chicago) where tall buildings can enhance the urban realm of the city. However, the new downtown in general stands as a perfect example of urban integration, with an abundance of walkable areas, a lot of public spaces and a well-designed landscape. The tower, the mall, and the other surrounding buildings provide great access for the Dubai Fountain which is placed on one of the largest man-made lakes in the city. The Dubai Fountain is the focal point of the city and provides a place for memorable photos (AL-Kodmany 2017).

Figure 4: The main entrance area of the Khalifa Tower. Source: (Alotaibi 2017)

4.0 CANADA CONTEXT

4.1. The Bow Tower in Calgary

The Bow Tower is the tallest building in Calgary, rising to 237m. It was designed by Norman Foster and partners as a new skyline icon for the city. The tower’s form takes a curve shape that enhances the structural performance of the building and creates an enclosed plaza that improves the urban quality. The building features different climatic principles, such as being oriented in the optimal environmental direction, providing a sky garden on three levels of the tower, and not casting the tower’s shadow on the Bow River, as restricted

by city bylaws (Barnes and Hendricks 2013). The plaza, located on the south-east corner of the site, adds to the city's urban realm and is well-designed from the landscape point of view. The plaza features "Wonderland," a sculpture created by Spanish artist Jaume Plensa. The sculpture is a giant face made of white steel and is in visual harmony with the tower. This blend of architecturally elegant building and unique art work helps to create a pleasant, energetic public space. The plaza has different types of public seating and green areas. The building is not well connected on the ground but is through the elevated famous +15 walking system that links most of the downtown public buildings through +15 ft bridges.

4.2. ICE Tower in Toronto

The ICE Tower is a complex of mix-use development in the heart of Toronto. It consists of two residential towers and one office building. It was designed by Toronto-based architectural firm Architects Alliance. According to the design concept the shape of each tower reflects its function, the office tower designed as a modern, rational shape while the residential towers are a slender, sculptured shape that maximize the view for inhabitants to Lake Ontario. The most striking element of this complex design is the way the tall buildings meet the ground. The site is covered by a huge canopy that works as a seven-meter-high umbrella. This base integrates the site with its context very well by providing high permeability through the site, and a lot of public facilities that encourage people to stay in the site and not just walk through it.

5.0 THE INTERVIEW RESULTS

> However, when we take the Gulf cities for instance as encounter or another case, you will find that no we don't have this kind of integration. Usually tall buildings started to take over in certain district as isolated object. because of its image making they are been concentrated in one zone and yet transit, mobility and infrastructure to come. (Interviewee 5)

Urban integration is the missing element for tall buildings in the Gulf Region. The majority of tall buildings in the Gulf cities as we explored in the case studies lack the proper integration with the urban fabric: there is a poor relation between the tall building and the base; they are giant structures that look far from the human scale; and they are exclusive spaces that dominate huge lot in an important area without any aspect of a public realm. The lack of vivid places at the ground level and the inappropriate integration with the urban context are the main factors for people calling these places ghost areas, especially at night. Based on the interviews that we conducted with the main players for tall building design in the region, the main factors for poor integration between the tall buildings and the urban fabric can be summarized as: Lack of a designated area with proper infrastructure, human scale, the lack of social activities in the building base, the lack of climatically sensitive consideration for the podium, and the lack of specific tall building regulations (Fig. 5).

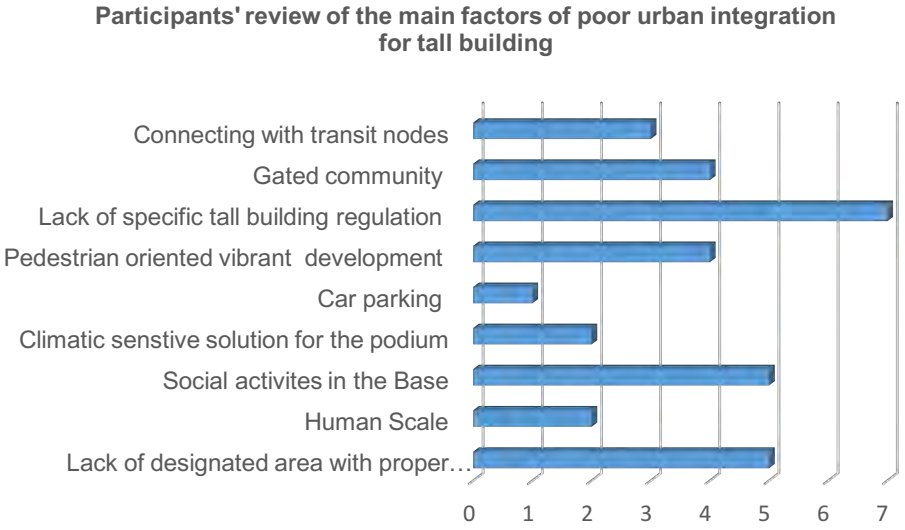

Figure 5: Participants' review of the main factors for poor urban integration. Source: (Alotaibi 2017)

6.0 THE DESIGN RECOMMENDATIONS FOR BETTER URBAN INTEGRATION OF THE TALL BUILDINGS IN GULF CITIES

Based on the gap that arises from the case studies and the interview results, these design recommendations work as a mechanism to achieve better integration between tall buildings and their urban context. It's worth emphasizing here that these design recommendations are not covering all the issues that related to the urbanity of tall building but the one that emerged from the observation of the author of the case studies and the results of the interviews with the experts. The following design recommendation could set the foundation for more design guidelines and expand on more details in future research.

6.1. Coherence

Tall buildings should meet the ground in a way that will contribute to the urban realm. This union should complement the existing urban fabric and encourage permeability and continuity of the context. This could be achieved through respecting the adjacent building, creating a base that acknowledges the human scale, and relating to the identity and character of the whole area (Ewing and Clemente 2013). However, the need for more complexity is one of the main aspects for tall buildings that aim to add more vitality and energic atmosphere for the whole area. Based on our observations in the Gulf cities, many of these elements for coherence are ignored or addressed poorly. The results are huge buildings that fragment the urban realm of the city and are usually enclosed, creating a kind of gated community. Solving the problem of lack of coherence in the area requires specific tall building regulations that address these issues and participation from the local community regarding the design proposal, such as in the Canadian context.

6.2. Connecting with transit nodes

Tall buildings that are well-integrated with the public transportation nodes are crucial for achieving the optimal urban integration. Tall buildings that do not address the increase in people and vehicles associated with the building will create chaos that will affect the city. The transit-oriented development is a model that satisfies the needs of the people and vehicles; it is applied in many cities in Asia (e.g. the ICC Tower in Hong Kong). Tall buildings with connectivity to the public transportation hub add value to the city from several perspectives; it has been shown that the more people relying on public transportation, the more sustainable the city is; also, the lives of people are improved in a way that enhances the interaction with the built environment. The ICC Tower project stands as a clear example for the integration with the transit system; the building stands above Kowloon Station, where 30,000 workers are served directly by public transportation (Malott 2010). Advanced transit systems were recently embraced by two Gulf cities: The Metro in Dubai in 2009, and the Riyadh Metro scheduled to open in late 2018. These systems will help to create more integration between the tall buildings and the urban fabric and reduce the negative aspects of this building typology on the city.

6.3. People-oriented cities and walkability

Walkability is not related to the height of the building, whether the building is tall or a low-rise, but rather to how the designer treated what the urbanists call "soft-edge." Alexander (1977) draws on the importance of this aspect of the building and he asserts that "if the edge fails, then the space never becomes lively" (as cited in Gehl 2011 p. 88). Many cities around the world have great integration between the tall buildings and the urban fabric, including JBR in Dubai. Its master plan focuses on the tall buildings, and the way the bases on these tall buildings touch the ground creating an elegant and inviting environment for people, great safe spaces for walking, and different facilities available across the area that invite people to walk, talk, and enjoy the urban space. Designs like these are needed to encourage more districts in Dubai to integrate tall buildings with the urban fabric in a way that gives the people the spaces that encourage them to integrate with the urban realm. Still, some areas need more revision of their planning, such as the cluster of tall buildings in Sheikh Zayed Road in Dubai and in other Gulf cities.

7. CONCLUSION:

As conclusion this paper raised questions rather than providing answers, and shed light on the most important issues of the urbanity of tall building in the Gulf cities. Further emphasis is required to investigate in this area in particular the direct ramifications of the tall building on the context, such as microclimate effects, continuity with the context, and the role of this buildings in enhancing the public realm of the city in general.

The issue of urban integration for the tall building plays a vital way in that these buildings fit within the context, enhance the public realm, and create human spaces. The examples from a Canadian context, show us that integration can be achieved between the street life and tall buildings in different ways; by opening the site for more social gathering spaces, encouraging continuity with the surrounding areas, and incorporating art work. Cities like Calgary and Toronto are clear examples of this phenomenon. The tall buildings in their architecture are not a direct cause of the poor livability of the cities; often these tall buildings, if placed in harmony with the urban context, can frame and create livable urban spaces. The interview results show us the main factors that affect the better integration between the tall buildings and the cities in the Gulf. The experts emphasized that

the lack of specific building regulations is the main reason for this poor integration. A second major factor is locating an area that is designed for low-rise buildings that lacks the proper infrastructure for tall buildings. To summarize, the design recommendations could help this kind of integration, and could be evolved into specific design guidelines that will lead to locate the tall buildings in harmony with the urban fabric.

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ENDNOTES

[i] Beirut in early 1970 was the capital for high-rise buildings in the region which accounted for around 22% of all the buildings in the city (Costello 1977).