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Livability of High-Rise Districts – Case Study of West Bay in Doha

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Doha, the capital of the state of Qatar, is a small Gulf city that grew as a port settlement on pearling and fishing activities. Since the mid-seventies, Doha has begun the process of accelerated growth based on the rising price of oil. The city witnessed a massive urban transformation in 2005 that continues to the present day. Doha is scheduled to host the FIFA World Cup 2022. Consequently, a number of significant projects and infrastructure works are being undertaken and will continue until the event's launch. Designers and planners usually focus on design merits of tall buildings and the impact on the skyline and the city image, discarding the integration of the building with the ground level. In West Bay, tall buildings meet the ground level with security gates and parking spaces that weaken the buildings' approaches and diminish the vitality of the street. The distribution of land uses complicates the accessibility for people. Insufficient parking spaces and lack of transportation choices exacerbate the traffic congestion problem and reduce the number of visitors to the area. Additionally, West Bay has a non-utilized waterfront allocated for embassies that prevents the entire area from enjoying this interesting waterfront. The current situation in the study area is a result of rapid urbanization, globalization and a non-integrated urban planning process that pressured urban designers and planners to overlook the importance of livability of urban spaces. Livability can be defined as a group of factors that together contribute to enhancing the quality of life and the experience of urban spaces. When governments take into account livability factors in the legislative framework and planning process of the city, the impact on human well-being is significant. Cities from around the world that have integrated livability principles into their regulatory framework have succeeded in having 24-hour bustling high-rise district such as San Francisco, Vancouver, Beijing, and many more. This research investigates the livability of high-rise districts, focusing on the West Bay of Doha as a case study. The study explores the implementation of livability principles through both urban legislation and the urban planning process for high-rise districts in the existing literature. It analyzes a series of case studies from Europe, North America, Asia and the Gulf that are considered to be best practices of livability. The case studies cover all aspects of the research problem and propose best solutions and strategies for a more livable urban spaces. The results of the comparative analysis of case studies produces

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solutions that have been adapted to solve the problems of livability in West Bay. The site analysis is conducted using data collection tools to: 1. investigate the study area; 2. identify the absence or presence of livability indicators; 3. assess the problems caused by the tall buildings interface with street level; 4. identify the government's plans for developing the study area; 5. and explore people's general perceptions and knowledge of livability. A walk through, social media discussions, interviews, and focused groups were undertaken to formulate an in-depth investigation regarding both the problem and the proposed approach. The study develops and proposes an approach to solve the problem of livability in the West Bay high-rise district and future high-rise developments in Doha. This approach includes a legislative framework for high-rise districts that adopts livability principals within an integrated urban planning process using form-based codes and 3d visualizations which will eventually contribute to the human well-being and overall sustainability and welfare of Qatar. The research investigates the livability of high-rise districts, focusing on West Bay tall buildings as a case study. Tall buildings in West Bay meet the street level with security gates and parking lots that affect both the accessibility and the approach to the buildings. Insufficient parking spaces along with the lack of public transportation choices frustrate people and exacerbate the traffic congestion in the study area. The lack of services and amenities within the residential towers accompanied with poor pedestrian circulation make it hard to perform everyday activities. The current situation has been formulated as a result of uncontrolled globalization and rapid urbanization that have required high-rise building typology as a prerequisite for further development of the country. The development of West Bay was focused on the design qualities of tall buildings, ignoring their integration at the street level which have resulted in having a public realm that does not support daily activities and needs of people. To solve the problem, the research suggests the need to have a framework of regulations that adopt livability principles within an integrated urban planning process and a shift from conventional codes to form-based codes. The following are different hypothesis derived from the research problem: Main problem: Livability of high-rise districts.

Hypothesis 1: The need for a regulatory framework that adopts livability principles.

Hypothesis 2: The need for an integrated urban planning process that adopts livability principles.

Hypothesis 3: The need for shifting from conventional codes to form-based codes Tall buildings in West Bay of Doha are designed to meet the ground level with security gates and parking lots that affect the livability of the area.

To investigate the problem and test the hypothesis, a literature review was conducted in four main subject areas:

1. Livability: generally exploring livability definitions and principles and tackling other specific issues such as: - Livability in high-rise districts, - Integration of livability principles with regulations. - Integrated UPP that fosters livability principals for high-rise developments.
2. Tall Buildings: investigating advantages and disadvantages of tall buildings, impact on surrounding urban space and how to overcome and mitigate the negative impact through regulations.
3. Integrated Urban Planning Process: exploring its definitions, components and benefits.
4. Form-Based Codes: identifying importance, difference from conventional codes and their effect on the quality of public realm.

The conducted literature review revealed the need to propose a legislative framework that fosters livability principles. This legislative framework requires two essential components; an integrated urban planning process and a contemporary version of urban design and planning codes. First, an integrated urban planning process that includes all possible stakeholders along with community engagement in a process of complex and collaborative communication. Second, a contemporary type of codes that is presented in both text, illustrations and utilizes the building form as a main organizing element. Form-based codes is an example that have proved its capability to visualize the resulting space before its establishment. On this basis, the research analyzed eight case studies of best practices from Europe, North America, Asia and the Gulf to cover different aspects of the problem.