

INVESTIGATING THE IMPACT OF BUILDING ORDINANCES AND ZONING CODES ON THE FUTURE OF MAJOR CITIES: SUPERTALL BUILDINGS; CHICAGO AND DUBAI

Abstract

Building ordinances and zoning codes are instruments that tangibly and intangibly shape cities, control urban morphology, demography, and visual identity, and determine the inhabitants' life quality, well-being, and comfort. Tall Building Ordinances (TBOs), in turn, control the vertical growth of cities and the development of tall buildings as distinctive actors in the built environment today. With the recent proliferation of developing supertall buildings in cities around the world, ordinances should offer flexibility, adaptability, and responsiveness to the dynamic nature of emerging needs and technological potentials. This dissertation examines the emergence and upsurge of supertall buildings as a new typology in major metropolises. It investigates the interaction between the zoning codes and the construction of supertall buildings. The research implements cross-section surveys and longitudinal studies as the primary methodology, documenting some of the completed and under-construction supertall buildings in two major cities: Chicago and Dubai, supported by structured interviews with architects, engineers, developers, and policymakers.

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Keywords

Building ordinances, zoning codes, supertall buildings, mega-structures, ultra-tall buildings, urban morphology

The survey study includes every completed supertall building until the year 2021 (i.e., buildings above 1,000 feet in height) in two cities: Chicago, the cradle of the “modern” high-rise, with 318 towers of 100-plus meters and eight supertall towers of 300-plus meters; and Dubai, the new experimental land of supertall construction with 298 towers of 100-plus meters and 28 towers of 300-plus meters height. The “longitudinal” advanced case studies are supplemented by additional information and knowledge about selected examples in Chicago and Dubai, derived from personal structured interviews conducted in both cities to support the findings. Additional survey cases from China and NYC were also investigated for their importance and uniqueness in supporting the research area. On the one hand, this research aims to bridge an existing gap between

building ordinances literature and supertall building design practices. On the other hand, there is a shortage in realizing supertall buildings as a distinct building typology entitled to its particular set of ordinances and zoning guidelines. The findings are intended to help architects, engineers, policymakers, and planning authorities ensure a sustainable socioeconomic future and mitigate any negative impact of supertall construction in major cities. This goal can be achieved by developing a set of recommendations, strategies, and universal criteria to implement a more flexible and responsive approach towards emerging human needs and technologies.