



Shibam and the Social Logic of Height

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Abstract

In architectural discourse, vertical urbanism is most commonly understood through the history of the modern skyscraper. The rise of steel-frame construction, elevators, and industrial infrastructure in the late nineteenth and early twentieth centuries transformed height into a marker of the modern city, particularly in places like Manhattan and Chicago. Land values increased. Commercial activity intensified. Cities increasingly expanded upward, producing dense urban environments tied closely to capital, technology, and economic growth. The skyscraper subsequently emerged not only as a building type, but as a symbol of modernity itself.

Because of this association, dense vertical form is often interpreted through a narrow historical framework in which technological advancement is treated as the primary driver of urban height. Cities composed of towers or compact vertical density are therefore frequently measured against the logic of the industrial skyscraper, even when their underlying systems may differ significantly.

Introduction

Shibam is one such city composed of tightly packed mudbrick tower houses rising up to eleven stories. Organized within a compact walled city in Yemen's Hadramawt Valley, these structures produce an urban fabric defined by density, vertical stacking, and remarkably little horizontal expansion. The city is frequently referred to as the "Manhattan of the desert," a comparison that stems from the striking visual similarity between Shibam's skyline and that of the modern skyscraper city. At a distance, the city's tightly clustered towers appear unexpectedly contemporary in contrast to the surrounding desert landscape. The comparison, though visually compelling, often reduces Shibam to historical precursor to modern vertical urbanism. The city complicates dominant narratives which suggest industrialization is the primary driving force of vertical urban development. Though formally comparable to the modern skyscraper city, Shibam's verticality

emerged through an entirely different set of conditions tied to environmental risk, agricultural land preservation, kinship structures, and domestic organization.

Within a history of vertical urbanism, Shibam offers a compelling case for rethinking the origins of dense, vertical construction. This paper argues that the city's height and density emerge through the alignment of form, use, and social organization, where familial structures, environmental conditions, and land constraints primarily shape urban form and challenge the idea that verticality in the urban context is exclusively a product of industrial modernity. By shifting attention from formal resemblance to underlying spatial logic, Shibam can be understood as a fundamentally different model of vertical urbanism, one shaped by environmental adaptation and communal life rather than industrial infrastructure and commercial expansion.

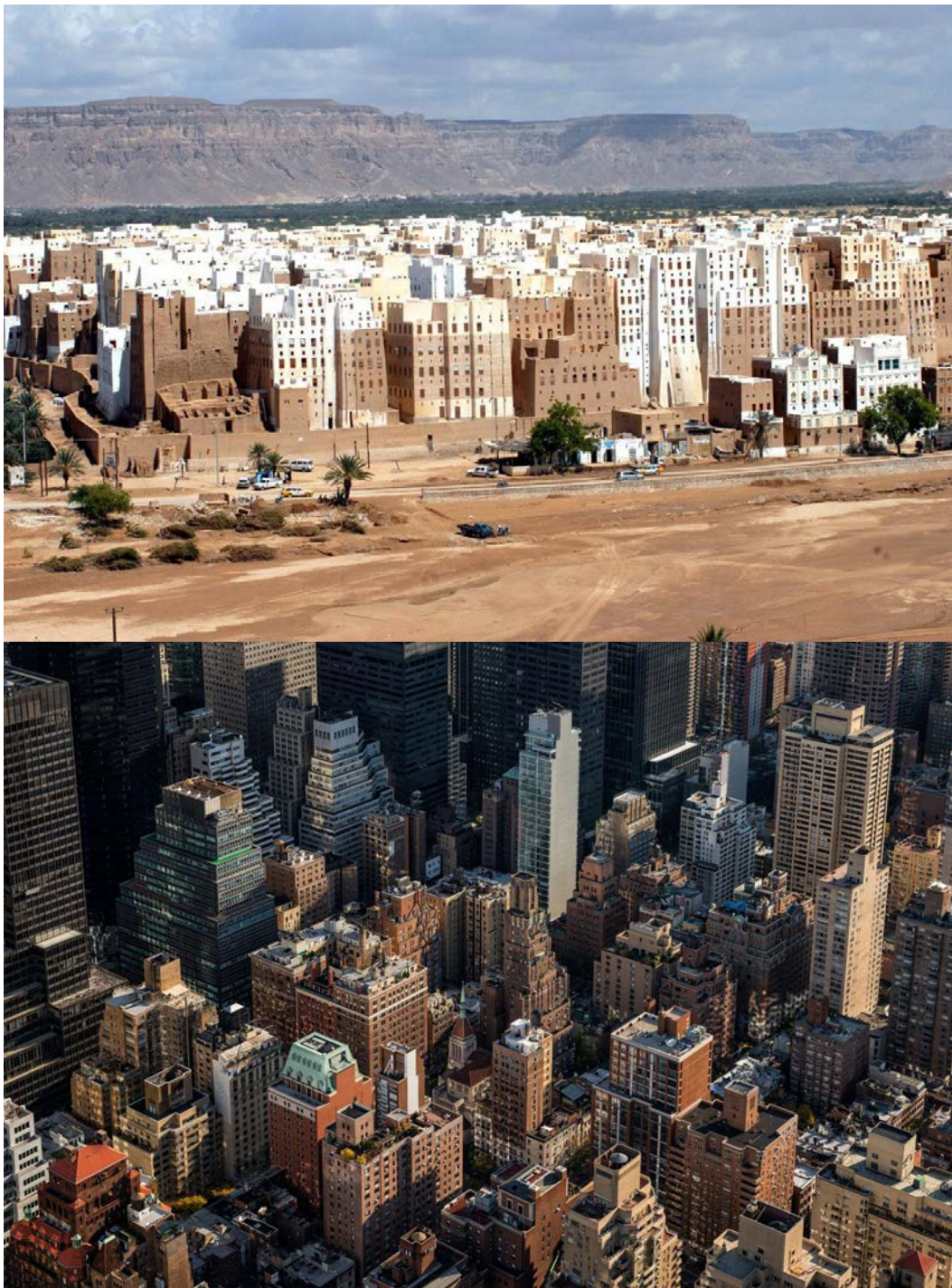


Figure 1. (Left) Aerial view of Shibam, showing the city's dense concentration of mudbrick tower houses within its compact walled footprint; (Right) Aerial view of New York City, showing the city's dense concentration of buildings
Source: (Left) "Aerial View of Shibam." UNESCO World Heritage Centre, United Nations Educational, Scientific and Cultural Organization, whc.unesco.org/en/list/192/. (Right) "Lower Manhattan Skyline Aerial." Unsplash, photograph by Denys Nevozhai, unsplash.com.



Figure 2. Aerial view of Shibam, showing the city's adjacency to farmland and desert.

Source: "Aerial View of Shibam and Surrounding Agricultural Landscape." UNESCO World Heritage Centre, whc.unesco.org/en/list/192/.

Environmental and Historical Context

In order to understand the density and urban form that defines Shibam today, it is important to understand the geographic context and factors that led to its development, as the environmental conditions of the Hadramawt Valley placed significant limits on where and how settlement of the city could occur.

Shibam is located in Yemen's Wadi Hadramawt valley system in the southeastern portion of the Arabian Peninsula. The city sits within a broad floodplain landscape characterized by arid climate, seasonal rainfall, and dramatic shifts in topography between the valley floor and the surrounding desert plateau. Though the region is dry for much of the year, seasonal storms periodically

produce intense flooding throughout the wadi system, creating conditions that are agriculturally productive yet environmentally unstable (Lewcock 18).

The region historically supported settlement through its access to water and cultivable land, particularly along the valley floor, where agriculture could be sustained despite the surrounding desert conditions (Lewcock 23). The valley's ability to support agriculture through seasonal water flow and irrigated cultivation also exposed settlements to periodic, intense flooding. Seasonal storms could produce sudden surges of water throughout the wadi system, threatening buildings constructed along lower portions of the valley floor (Lewcock 18). In response, Shibam developed on slight-



Figure 3. Aerial view of flooding in the Wadi Hadramawt that shows Shibam is built on slightly elevated ground.
Source: "Flooding in Wadi Hadramawt." Archnet Digital Library, archnet.org.

ly elevated ground that offered greater protection from floodwaters while still maintaining access to nearby agricultural land.

The concentration of fertile land within the valley also shaped the organization of the city.

As human presence increased, palm groves and irrigated farmland became concentrated around settlements like Shibam, creating a close relationship between urban habitation and agricultural production. This relationship introduced spatial limitations—arable land within the valley was finite and essential for survival, discouraging horizontal expansion into adjacent farmland.

Expanding the settlement outward would have reduced the amount of productive farmland available to the city, creating pressure to preserve agricultural space wherever possible. The compact form of Shibam therefore reflected more than solely defensive or spatial concerns, as density became closely tied to the management of land and resources within the valley's landscape.

These geographic conditions strongly influenced how settlement developed within the Hadramawt Valley over time. Access to water and cultivable land encouraged concentrated habitation along the valley floor, while flooding and limited arable land restricted outward expansion. As the population increased within these constraints, upward expansion offered a prac-

tical means of accommodating growth without extending the city's footprint into surrounding farmland. Building vertically allowed additional domestic space to be created while maintaining the close relationship between settlement and agriculture that sustained life within the valley. Environmental risk and land preservation are directly linked to the city's urban form, influencing both the density of the settlement and the height of its tower houses.

Though settlements existed in the Hadramawt region for centuries, the present form of Shibam largely developed around the sixteenth century following the destruction and relocation of earlier settlements within the valley (Lewcock 35). The city emerged as an important regional center within the Wadi Hadramawt trade network, benefiting from connections that linked

southern Arabia to East Africa and the Indian Ocean. Trade and agricultural production supported continued urban development within the valley, while the city's compact organization reflected the practical realities of settlement within a flood-prone landscape.

The defensive wall surrounding Shibam also played a significant role in shaping the city's form. Constructed from mudbrick and reinforced over time, the wall enclosed the settlement within a clearly defined perimeter along the floodplain. Like many fortified settlements in the region, the wall served defensive purposes during periods of tribal conflict and political instability, while also helping to organize and protect the city internally (Lewcock 40). Gates regulated movement into and out of the settlement, strengthening the distinction between

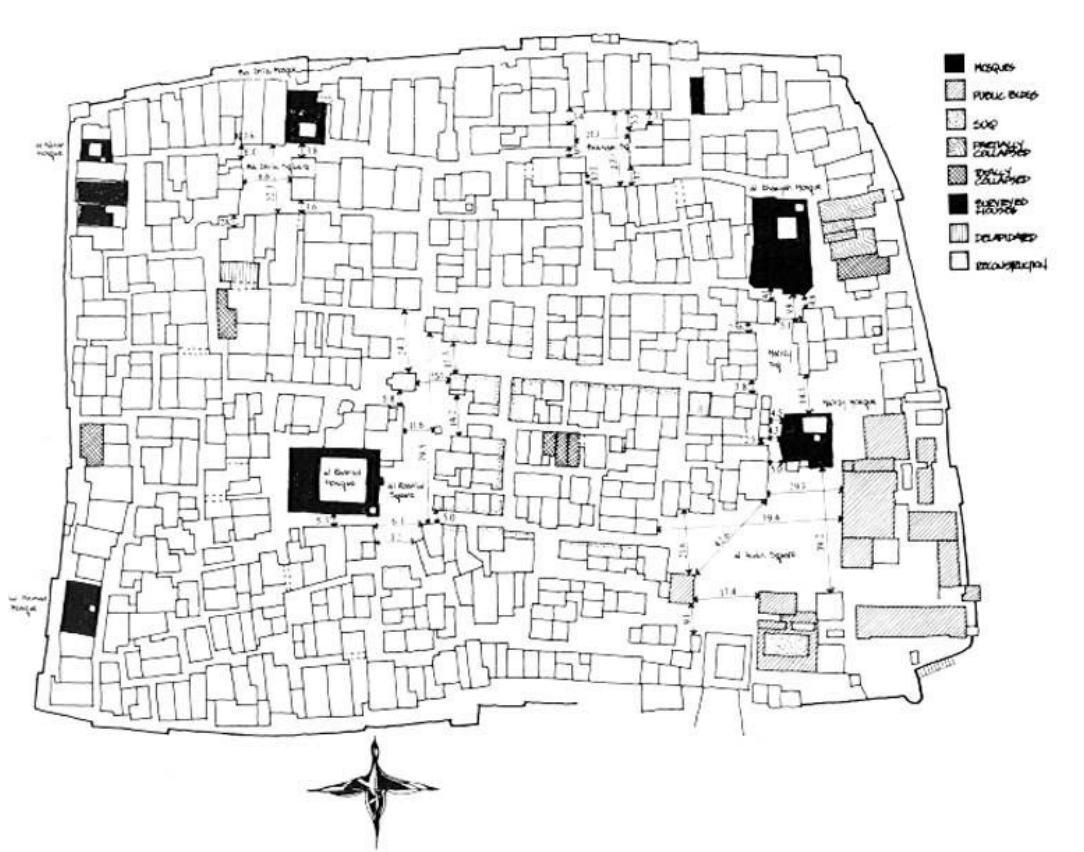


Figure 4. Map showing urban fabric and planning of Shibam.

Source: Lewcock, Ronald. *The Old Walled City of Shibam*. UNESCO, 1986.



Figure 5. Front view of a row of buildings in Shibam

Source: "Tower Houses in Shibam." UNESCO World Heritage Centre, whc.unesco.org/en/list/192/.

the dense urban interior and the surrounding agricultural landscape. Beyond protection from external threats, the wall established a fixed urban boundary that concentrated development inward (Lewcock 41). Limited space within the enclosure encouraged increasingly dense patterns of construction over time, reinforcing the city's vertical character. As families expanded and available land remained constrained, building upward became a practical means of accommodating population growth without extending into surrounding agricultural land.

The concentration of development within Shibam's walls gradually reinforced increasingly dense patterns of settlement throughout the city. As population growth continued within a geographically constrained landscape, vertical expansion continued to be one of the few practical means of accommodating additional

domestic space. The city's urban form therefore developed through the ongoing negotiation of defense, agriculture, flooding, and family life, all of which shaped how density was organized within the limited footprint of the settlement.

The vertical form of Shibam's tower houses depended heavily on the material systems available within the Hadramawt Valley. Buildings throughout the city were constructed primarily from sun-dried mudbrick reinforced with timber beams, materials that could be sourced locally and produced with relatively limited resources (Costa). The clay-rich soil of the valley floodplain provided an abundant source of earth for brickmaking, allowing construction materials to be produced directly within the surrounding landscape. This accessibility reduced dependence on imported resources and made mudbrick construction both prac-



Figure 6. View of a narrow street in Shibam

Source: "Street View in Shibam." Archnet Digital Library, archnet.org.

tical and repeatable across the dense urban fabric of the city. Thick earthen walls provided the structural mass necessary to support multiple stories while also responding effectively to the valley's climate. In a region characterized by intense daytime heat and cooler nighttime temperatures, the thermal mass of mudbrick helped regulate indoor temperatures by slowing the transfer of heat through the building envelope. Climate response also shaped the organization of streets and openings throughout the city.

Narrow passageways between towers reduced direct solar exposure at the street level, while upper floors benefited from increased airflow and ventilation. Small window openings and thick exterior walls minimized

heat gain during the hottest portions of the day, creating interior spaces that remained comparatively cool despite the surrounding desert environment. Environmental adaptation therefore operated across multiple scales, influencing both individual buildings and the organization of the urban fabric as a whole.

The construction and preservation of these buildings also required continual maintenance.

Mudbrick structures were vulnerable to erosion from rain and flooding, making regular replastering and repair necessary for the long-term survival of the city (Costa). The upkeep of the towers depended on inherited construction knowledge and ongoing communal labor, reinforcing the close relationship between archi-



Figure 7. View of children playing in front of tower houses in Shibam

Source: "Children Playing in Front of Tower Houses, Shibam." Getty Images, [gettyimages.com](https://www.gettyimages.com).

texture, environment, and social organization within the settlement.

Taken together, these environmental, historical, and material conditions shaped the dense vertical form that defines Shibam today. Flooding, limited arable land, defensive enclosure, and locally available construction materials all contributed to a compact mode of urban development that concentrated habitation upward within a constrained landscape. The resulting tower houses were spaces closely tied to patterns of domestic life and social organization. Understanding how these buildings function internally therefore becomes essential to understanding how density operated within the city as a whole.

The Tower House and Domestic Organization

The urban form of Shibam was shaped not only by environmental and geographic constraints, but also by the internal organization of domestic life within the tower house itself. In order to understand how verticality operated within the city, it is necessary to examine how space was organized inside these structures and how patterns of kinship, privacy, and communal living shaped their vertical arrangement.

The tower house served as the primary unit of habitation within Shibam, accommodating extended family groups within vertically organized domestic structures. Individual towers commonly housed multiple generations of the same family, concentrating everyday life within a compact architectural footprint, while main-

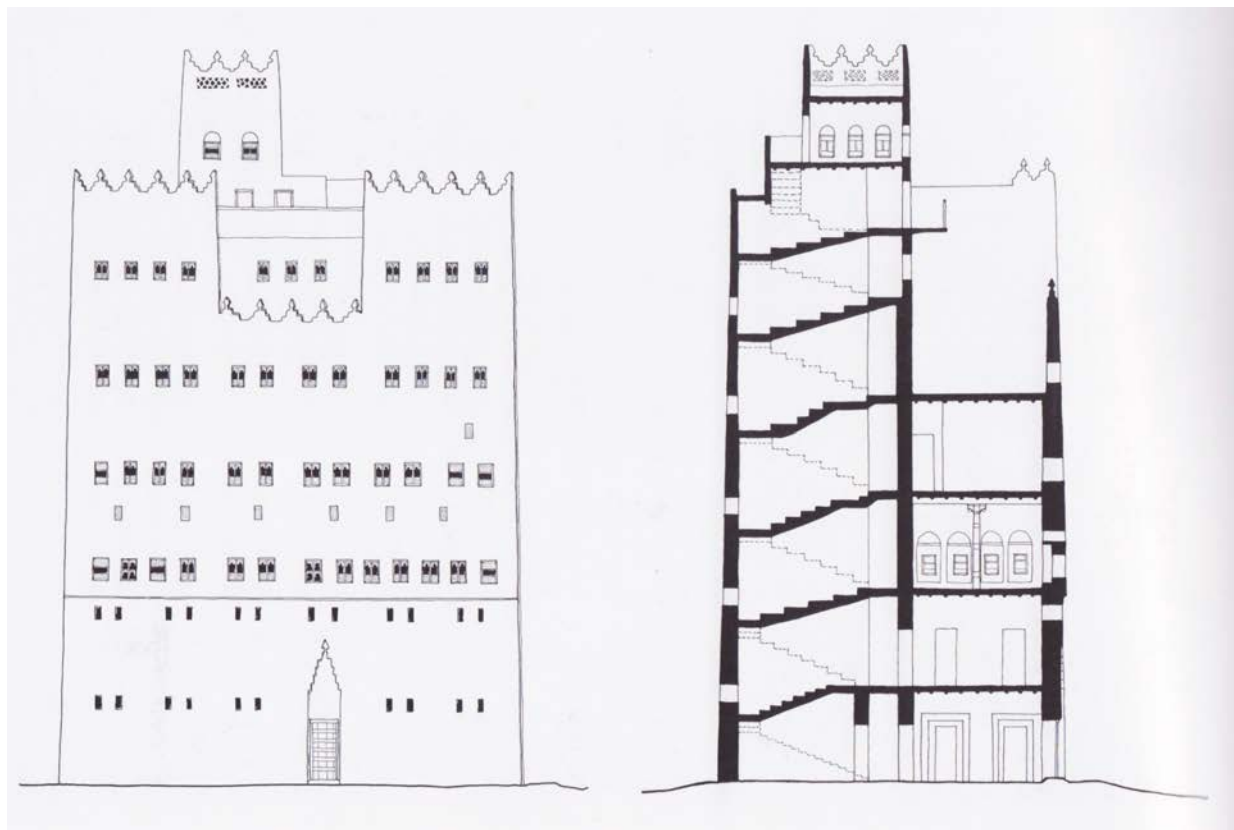


Figure 8. Elevation and section drawing of a Shibam tower house

Source: Lewcock, Ronald. *The Old Walled City of Shibam*. UNESCO, 1986.

taining close social proximity between relatives (Bianca 84). This arrangement allowed large family groups to remain together within the limited spatial boundaries of walls of the city, further reinforcing dense patterns of habitation across the city's urban fabric.

The organization of domestic space within the tower reflected the internal structure of family life. Different floors were associated with varying levels of privacy, use, and social activity, creating a vertical distribution of domestic functions throughout the building (Lewcock 67).

Lower levels of the building were typically dedicated to storage, livestock, water, and other service-related

uses, separating utilitarian activities from the primary living spaces above (Lewcock 69). These lower floors also benefited from thicker walls and limited openings, conditions that helped stabilize interior temperatures while supporting the structural load of the tower itself. Middle floors generally accommodated shared domestic activity, including cooking, eating, gathering, and everyday family interaction (Bianca 86). Positioned between the more public lower levels and the private upper floors, these spaces functioned as the social center of the household. Their location within the tower also provided greater environmental comfort through improved ventilation and reduced exposure to street-level heat and dust.



Figure 9. View of a resting and sleeping area within a Shibam tower house.

Source: "Interior Sleeping Space in a Shibam Tower House." Archnet Digital Library, archnet.org.

Upper floors were associated with increasing levels of privacy and were often reserved for sleeping quarters, family spaces, and activities connected to women within the household (Costa). Elevated positions within the tower allowed greater access to airflow, light, and views across the city and surrounding valley landscape. The uppermost rooms were therefore among the most environmentally desirable spaces within the building, linking privacy and domestic hierarchy to climatic advantage.

Architectural elements such as narrow stairways, controlled openings, and layered interior thresholds further regulated movement and visibility throughout the household (Lewcock 72). Access between floors could be gradually restricted as one moved upward through

the building, creating distinctions between communal, familial, and private space. The tower house thus operated as a carefully organized domestic environment in which architecture structured social relationships through elevation, circulation, and spatial separation. This vertical organization allowed the tower house to operate as both a dwelling and a framework for structuring relationships within the household. Patterns of kinship, hierarchy, and communal living became embedded directly within the arrangement of space, linking domestic organization to the broader density of the city itself. As families expanded over time, the tower house provided a flexible means of accommodating additional living space vertically without requiring outward expansion into the surrounding agricultural landscape.



Figure 10. Earthen wall construction and surface maintenance on a tower house in Shibam

Source: "Earthen Wall Maintenance in Shibam." UNESCO World Heritage Centre, whc.unesco.org/en/list/192/.

The continued survival of Shibam's tower houses depended not only on their initial construction, but on ongoing systems of maintenance and repair. Mudbrick structures required regular replastering and reinforcement in response to erosion caused by seasonal rain, flooding, and environmental exposure (Costa). Unlike steel or concrete construction, the durability of earthen architecture relied heavily on continuous human intervention, making maintenance essential to the city's long-term stability.

The upkeep of individual towers was closely tied to family structure and communal responsibility within the city. Knowledge surrounding mudbrick production, plastering techniques, and structural repair was passed through generations, allowing building practic-

es to remain closely connected to everyday domestic life. Repair work often occurred incrementally over time, embedding cycles of maintenance directly into the rhythms of habitation and collective life within the settlement. This continual upkeep reinforced the close relationship between architecture and social organization in Shibam. These systems of maintenance also contributed to the continuity of Shibam's urban density over time—the city's dense and vertical form can be understood as the repeated act of preservation carried out across generations of inhabitants. Architecture within Shibam therefore functioned as an ongoing social process as much as a physical environment, linking the survival of the built form to systems of communal labor, inherited knowledge, and long-term occupation within the city.



Figure 11. Aerial view of Shibam

Source: "Aerial View of Shibam." UNESCO World Heritage Centre, whc.unesco.org/en/list/192/.

Urban Form and Density

The organization of individual tower houses in Shibam cannot be separated from the larger urban fabric in which they operate.

Shibam's urban form is characterized by the close concentration of tower houses within a tightly bounded footprint. Buildings are positioned in close proximity to one another, producing a dense fabric of narrow streets, vertical surfaces, and minimal open space between structures (Lewcock 58). This compact organization allowed the city to accommodate a large population within a relatively limited area while preserving the surrounding agricultural land of the Hadramawt Valley.

The narrow streets running between towers also contributed to the environmental performance of the city. Closely spaced buildings reduced direct solar exposure at the street level, creating shaded circulation routes that helped moderate heat within the dense urban environment (Bianca 88). The height of the surrounding towers further reinforced these microclimatic conditions by limiting prolonged sunlight exposure throughout much of the day. Vertical density therefore represents a climatic strategy embedded within the organization of the city itself.

Circulation through Shibam followed the compact logic of the urban fabric. Streets and passageways compressed movement between towers while maintaining close visual and social proximity between households.



Figure 12. Views of narrow, shaded streets in Shibam

Source: "Narrow Streets in Shibam." Archnet Digital Library, archnet.org.

The resulting urban environment emphasized enclosure, continuity, and collective spatial organization over monumentality or large open public space. Density within the city was therefore experienced through the close relationship between architecture, climate, and everyday movement within the constrained landscape of the walled settlement.

The dense organization of Shibam evidently cannot be understood independently from the agricultural landscape that surrounds it. The city developed within a valley system where cultivable land remained limited and essential to survival, creating pressure to preserve productive farmland wherever possible. Concentrating habitation within a compact urban footprint allowed agricultural space to remain active beyond the walls of the settlement, reinforcing a close relationship between urban density and environmental resource management (Lewcock 42).

These relationships complicate conventional understandings of urban density as primarily driven by in-

dustrial infrastructure or commercial expansion. In Shibam, compact vertical form developed through environmental adaptation, agricultural preservation, and multigenerational domestic organization, producing a model of urban density closely tied to the ecological and social conditions of the Hadramawt Valley. Though Shibam's skyline is frequently compared to that of the modern skyscraper city, the systems that produced its density emerged through fundamentally different relationships between architecture, environment, land, and social organization.

Shibam and the Modern Skyscraper City

The dense vertical form of Shibam has frequently been interpreted through comparison to the modern skyscraper city, in particular New York City's borough of Manhattan. The concentration of multistory towers within a compact urban footprint produces a visual resemblance that has led to the city's widely repeated description as the "Manhattan of the desert." Yet this comparison also raises broader questions about how vertical urbanism is historically understood and how



Figure 13. (Left) View of the New York City Skyline; (Right) View of Shibam's buildings and skyline

Source: (Left) "New York Skyline." Unsplash, photograph by Lerone Pieters, unsplash.com. (Right) "Skyline of Shibam." UNESCO World Heritage Centre, whc.unesco.org/en/list/192/.

narratives of modernity shape interpretations of dense urban form.

Discussions of urban density often position the skyscraper as the defining model of vertical urbanism, linking height closely to industrialization, technological advancement, commercial expansion, and modern infrastructure. Within this framework, concentrated vertical development is frequently understood as the product of modern economic and technological systems. As discussed in *The Spatial Development and Urban Transformation of Colonial and Postcolonial Algiers*, urban development in the Arab world has often been interpreted through externally imposed models of modernization that overlook the internal environmen-

tal, social, and historical conditions shaping urban form. Shibam complicates these assumptions. Its verticality emerged through environmental adaptation, agricultural preservation, kinship structures, and domestic organization rooted in the specific conditions of the Hadramawt Valley.

The comparison between Shibam and Manhattan emerges most clearly at the level of the skyline. In both cities, a concentration of vertical structures produce dense urban silhouettes shaped by repetitive tower forms rising within constrained urban footprints. From a distance, Shibam's mudbrick towers appear strikingly contemporary, particularly in contrast to the surrounding desert landscape. The visual effect created by the



Figure 14. View of the Empire State building during construction

Source: "Empire State Building Under Construction." Library of Congress Prints and Photographs Division, loc.gov.

city's clustered verticality closely resembles the compressed skyline associated with Manhattan's high-rise districts.

This similarity, however, is primarily formal. Manhattan's vertical growth emerged through industrialization, steel-frame construction, elevator technology, land speculation, and the increasing concentration of commercial activity throughout the late nineteenth and early twentieth centuries (Koolhaas 17). Its skyline reflects systems of infrastructure and capital tied directly to the development of the modern industrial city. Shibam developed through a very different set of conditions—flooding, limited arable land, defensive enclosure, multigenerational domestic organization, and locally available building materials collectively shaped the city's compact vertical form over centuries of gradual adaptation within the Hadramawt Valley. Similar formal outcomes therefore mask fundamentally different relationships between architecture, land, technology, and social organization.

The vertical growth of Manhattan developed alongside the rapid industrial and economic transformation of New York during the late nineteenth and early twentieth centuries. Advances in steel-frame construction and elevator technology allowed buildings to rise far beyond the structural limitations of load-bearing masonry, reshaping both the scale and organization of the modern city (Koolhaas 17). As commercial activity intensified throughout lower Manhattan, vertical construction became increasingly tied to the economic value of land and the concentration of business activity within limited space.

This relationship between density and land value strongly influenced the form of the skyscraper. Expanding upward allowed developers to maximize rentable floor area within constrained parcels of land, reinforcing patterns of speculative growth throughout Manhattan's commercial districts. Height became closely associated with financial concentration, corporate visibility, and metropolitan expansion, thus linking the city's architectural skyline to broader systems of capital and in-

frastructure operating across the city (Wright 31). The resulting urban form reflected the economic pressures of the industrial metropolis as much as the possibilities created by new construction technologies.

Large-scale infrastructural systems also shaped how density functioned within Manhattan. Elevators transformed upper floors into accessible and economically viable space, while bridges, subways, electrical networks, and circulation systems supported increasingly concentrated forms of urban occupation. As Rem Koolhaas describes in *Delirious New York*, Manhattan developed through the compression of movement, commerce, and infrastructure into a dense metropolitan environment organized around congestion and continuous growth (Koolhaas 125). Verticality within the skyscraper city therefore depended on extensive technological systems operating simultaneously at the scale of the building and the scale of the metropolis. The organization of space within the skyscraper reflected these broader urban conditions.

Floors were typically arranged around commercial efficiency, circulation speed, and the continuous movement of large numbers of occupants through office, retail, and corporate environments. Bianca notes that modern urban development often separates architecture from the social and environmental conditions that historically shaped settlement patterns in earlier Middle Eastern cities (Bianca 32). Manhattan's skyscrapers emerged through a fundamentally different relationship between density, infrastructure, and economic exchange than the tower houses of Shibam, where vertical organization remained closely tied to domestic life, response to climate, and communal occupation.

The comparison between Shibam and Manhattan ultimately reveals that similar forms of urban density can emerge through very different historical and spatial conditions. Both cities developed concentrated vertical environments within constrained landscapes, yet the systems organizing that density differ significantly in their relationship to land, infrastructure, domestic life, and environmental adaptation. Manhattan's sky-

scrapers emerged through industrialization, speculative growth, commercial circulation, and technological infrastructure operating at a metropolitan scale. In Shibam, verticality developed gradually through environmental limitation, agricultural preservation, kinship structures, and the organization of multigenerational domestic life within the tower house.

These differences extend beyond construction methods or building technology alone. In Manhattan, the skyscraper functions primarily as a commercial and infrastructural form shaped by capital, circulation speed, and metropolitan expansion. Density depends on elevators, steel construction, electrical systems, and large-scale transportation networks capable of sustaining economic activity across the city. In Shibam, the tower house concentrates domestic life upward while maintaining strong relationships between habitation, environment, and collective social organization.

Understanding these distinctions upend linear narratives that position vertical urbanism primarily as the outcome of industrial modernity. As discussions surrounding colonial and postcolonial urban development in the Arab world have shown, architectural and urban histories are often interpreted through frameworks that privilege Western models of modernization while overlooking the internally developed spatial systems shaped by local environmental and social conditions. Shibam demonstrates that dense vertical urbanism can emerge through materially and historically distinct forms of organization without relying on the technological and economic systems associated with the modern skyscraper city.

The comparison to Manhattan therefore becomes most productive when understood as a comparison between different models of density rather than between earlier and later stages of the same urban trajectory. It is important not to read Shibam's tower houses as proto-skyscrapers anticipating the arrival of modern vertical urbanism, as they represent a distinct and alternative form of how dense urban organization may develop.

By challenging the assumption that verticality is an exclusive byproduct of industrial modernity, Shibam serves as a critical counterpoint to the technological and economic narratives of the modern skyscraper. The city's architectural character developed through a unique convergence of ecological adaptation, the preservation of finite arable land, and the spatial requirements of multigenerational kinship structures within the valley's flood-prone terrain. A comparative analysis with Manhattan demonstrates that remarkably similar formal silhouettes can emerge from divergent material and social origins, thereby demanding a broader historical framework for interpreting urban density and the evolution of vertical settlements.

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