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Beyond Ascent: Rethinking the Architectural and Urban Possibilities of Elevators for Skyscrapers and Vertical Cities

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Abstract Elevators are one of the essential technologies that made the emergence of the new building type, skyscrapers, possible in the late 19th century. While the primary role of elevators has been serving as the vertical transportation system for tall buildings, this paper reconsiders the possible performance of elevators far beyond that, positioning them as architectural agents as well as urban catalysts. Through a series of historical, phenomenological, and design-based case studies, the elevator is examined as spectacle, social condenser, spatial/architectural medium, and all of these in urban scale as an integrated network system connecting people, tall buildings and the city. The study explores how elevators shape embodied experience, mediate interaction, and redefine the boundaries of architecture as a performative and kinetic structure- ultimately becoming a whole mobile network of infrastructure. The design project, (Awkward) Elevator Rehearsal, synthesizes these themes at the architectural scale into a speculative hotel suite embedded within the atrium of the Beekman Hotel, where elevator cabs function as shifting rooms and transient stages. The conjoined mile-high tower design projects investigate the potential of elevators on an urban scale by interconnecting multiple clustered megatall/mile-high buildings seamlessly not only vertically but also horizontally. Furthermore, elevators as an integrated network system intertwining the vertical cities to addreess various architectural and urban design issues is studied. It is expected that these and further investigations will contribute to promoting more livable and sustainable architecture and cities.

Keywords skyscraper, tall building, core design, elevator, vertical transportation system, performative architecture, elevator architecture, elevator city, urban grid, urban design.

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1. Introduction

Once a fantasy and now a concrete reality, skyscrapers have become the protagonists of modern cities, making verticality an unavoidable condition of contemporary architecture. As we grow increasingly accustomed to the presence of tall, supertall and megatall buildings throughout the globe, this paper investigates one of the most fundamental technologies that has reshaped urban landscapes, ultimately transforming how we inhabit cities and interact with one another today. In the early days of skyscrapers, this new building type was called "elevator buildings," because the early tall buildings of unprecedented heights could not function without elevators. Francisco Mujica (1929) even aptly noted, "The entire history of skyscrapers contains an homage to the inventor of the elevator." Yet, while manufacturers of elevators continue to develop faster and more intelligent elevator systems, the spatial and architectural potential of elevators remains largely unexamined within architectural discourse.

The advent of the modern elevator can be traced to the Crystal Palace Exhibition in New York in 1854, where Elisha Otis unveiled his prototype featuring a safety brake. The invention itself carried a performative quality: Otis famously cut the rope in a dramatic demonstration, introducing what Rem Koolhaas (2014) later described as "urban theatricality: the anticlimax as denouement." This moment laid the groundwork for the contemporary elevator typology, which Koolhaas (2018) characterized as a "product of technological alchemy: a fusion of existing inventions (the rope, the spring, the coil) and a few new ones (the safety brake, electric motor, core, traction)."

The history of vertical transportation extends much further back, with early examples found in ancient Greek theater, where mechanized platforms enabled the descent of actors from above for supernatural scenography. By the 16th and 17th centuries, elevators had become luxury objects for the aristocracy, such as the French *chaise volante*, a simple counterweighted system for vertical mobility. The 18th and 19th centuries saw a more developed model emerge in the mining industry, incorporating key elements such as shafts, ropes, brakes, motors, and cabs—essential components of the modern elevator system. (Koolhaas, 2018)

Today, the elevator is primarily driven by concerns of speed and efficiency. In commercial tall buildings, where time is capital, vertical circulation is optimized to minimize travel time: "For buildings made for money-making, employees should spend their time working, not walking" (Hirschauer, 2005). Architecturally, this efficiency is reflected in the evolution of the building core. As vertical mobility demands have increased, the organization of circulation systems has became more sophisticated, leading to the standardization of elevator banks and centralized cores that integrate elevators with staircases, corridors, bathrooms, mechanical rooms, and shafts for HVAC, plumbing and electrical systems. Planometrically, the consolidation of these elements maximizes usable floor area. Structurally, the elevator core can be designed to provide a significant part of the building's lateral load-resisting system, often working in tandem with other structural components. Due to these many integrated performances in tall buildings, architects spend a significantly large amount of time on designing the elevator core.

Yet, the elevator has been an invisible component of architectural experience in many tall buildings. Koolhaas (2014) critiques this phenomenon "The endless variety and adventure promised by the combination of elevator + skyscraper is throttled by the dominance of the typical plan: the elevator is buried inside the core, servicing a series of repeated identical floors deliberately stripped of identity. The elevator ride becomes a disembodied, de-spectacularized, staccato experience: ascent is registered in the gut but no longer confirmed by the eye." The elevator, which could be designed as an integral part of a building's architectural experience more dynamically, has been reduced to a purely functional and isolated mechanism, detached both spatially and temporally from its architectural surroundings.

This paper aims to challenge this condition by examining case studies and design studies that rethink the elevator as more than a utilitarian device—positioning it instead as a crucial spatial and architectural element. Rather than a mere conduit for vertical circulation, the elevator has the potential to become a defining feature of architectural design, capable of redefining its role as a "significant element in the spatial structure of city narratives and thus in the poetics of modernism (Bernard, 2014)." Indeed, architectural scale studies on elevators are presented first and the studies are further expanded to urban scales to investigate design possibilities of elevators as an integrated network intertwining a city of tall buildings, promoting enhanced connections between people, buildings and the city.

2. Elevator Architecture

2.1. Elevator as Spectacle

John Portman's Hyatt Regency in Atlanta serves as a quintessential case study of rebellion against the ubiquitous, centralized building core. Here, the design introduces a kind of "reversed core," where elevator cabs are liberated from enclosed shafts and instead attached to the exterior of the structural core. The mechanical systems are discreetly concealed, allowing guests to experience the ornate glass elevators as they glide silently through the expansive atrium—like a kinetic piece of public sculpture. The drama of these elevators in motion—rising and falling against the backdrop of people moving through open corridors or lingering in the bustling lobby—creates an architectural choreography that echoes the sense of "big-city fiction" Bernard (2014) mentions, resonating with the lived experience of metropolitan spectacle. From the passenger's perspective, the act of elevating is intensified by visual connection, making transitions between levels both felt and oriented. This integration of glass elevators with tall atrium soon became a popular hotel lobby typology.

An interesting historical and conceptual parallel can be drawn between the Flavian Amphitheater in Pozzuoli (Fig. 1) and Juan Muñoz's installation *Double Bind* (Fig. 2). Both works use the floor plane as a permeable surface, punctured by small openings that elevators pass through. In the amphitheater, cages would emerge dramatically from beneath, bringing actors into view—an early theatrical use of vertical motion to create surprise and tension (Koolhaas, 2018). In *Double Bind*, two functioning elevators travel perpetually through the Tate Modern's Turbine Hall, intersecting a layered set of spatial scenarios. Around them, additional floor openings—some real, some trompe-l'œil—evoke elevator shafts, voids, and architectural uncertainty. Muñoz's installation transforms the act of vertical travel into an aesthetic and spatial event, enhanced by sculptural figures, theatrical lighting, and shifting shadows.

In these cases, the elevator becomes both performance and spectacle. A form of spatial drama arises—defined by movement, interruption, and anticipation. As the Tate



Figure 1. Elevator openings in the Flavian Amphitheater, Pozzuoli (Image from Wikipedia).



Figure 2. Moving elevators and the subterranean experience in Juan Muñoz's Double Bind installation at Tate Modern (Images from Juan Muñoz Estate).

(2001) describes, the elevator in Muñoz's work acts as "a form of threshold, between spectator and performer, past and future, subject and object." The performance, both functional and metaphorical, interrupts the architectural plane of horizontality, reinforcing a continuity of vertical space. By liberating the elevator from the abstraction of the hidden core, a rhythmic counterpoint is introduced to the otherwise static architectural order—a vertical spectacle set against horizontal stillness.

2.2. Elevator as (Anti) Social Space

Tall buildings emerged in the late 19th century as office towers. As the number of floors increased to more than about six, passenger elevators became very much necessary, and the employment of the mechanized vertical transportation system accelerated the height increase of tall office towers. The seven and a half story tall Equitable Building of 1870 in New York is recognized as the first multistory office building of that height with passenger elevators.[1)]

As can be seen in the floor plan (Fig. 3), the elevators of the Equitable Building seemed designed simply as its vertical transportation system with minimal other architectural and social performances. Since this building, many tall buildings have been built with passenger elevators with similar character and functional performance.

Hirschauer (2005) observes that the elevator is "characterized not only by an overwhelming mundanity but also by a specific boredom: Nothing interesting seems to happen in an elevator." Yet within this seeming neutrality lies a complex pattern of behavior and decision-making: where riders choose to stand, how they position their gaze, when and how they speak, and the sequence in which they exit. These micro-gestures reflect a constant calibration between what Hirschauer terms "social non-relations" and a "practice of strangeness." These actions are further shaped by the mechanical rhythm of the elevator itself: the bell, the pause before the doors open,

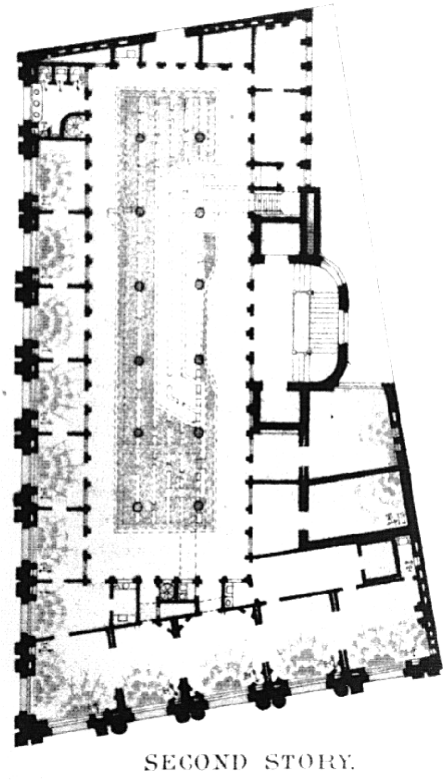


Figure 3. Equitable Building of 1870 in New York Floor Plan (Image from Landau and Condit, 1996)

[1)]The Equitable Building is therefore considered as the first skyscraper by some renowned historians like Winston Weisman (1970) and Carl Condit (1961, 1996), while there have been continued debates on this topic depending on the definition of the first skyscraper (Ali and Moon, 2022).

the brief interval of transition. Hirschauer describes this as "a technical conditioning of activities through the artifact," a sociotechnical script that requires constant adaptation of body, perception, and behavior. The elevator becomes "the paradigm of a heteromobile"—a space where "diverging mobility decisions of different people" collide with "the electronic program of a mobility machine." As a result, the elevator emerges as one of the most awkward and anti-social public environments.

At the same time, Bernard (2014) reflects that "the everyday frequency of its use and the incomparable speed with which it can reorder a group of people," combined with its "hermetic isolation," makes the elevator the perfect "laboratory for the ethology of urban life, where the structuring of space between two human guinea pigs and the rules of maintaining their distance from each other can be observed under ideal conditions" This highlights the elevator's social and cultural significance. These very qualities have also made elevators a popular narrative device in fiction and film, where spatial isolation and random encounters generate dramatic tension and unexpected plot twists.

Early modern elevators, however, also suggest another story in non-office buildings, such as multistory department stores. As illustrated in some historical images and observed by both Koolhaas and Hirschauer, early lift cages resembled social spaces such as train coaches or ship cabins—complete with upholstered seating, mirrors, windows, carpeting, and chandeliers. In Lord & Taylor's department store (Fig. 4), which also opened in 1870, the same year when the Equitable Building opened, for instance, elevators were treated as lounges, where shoppers would "sit, slouch, and gossip," as if "settling for a long journey (Koolhaas, 2018)." The ornate interiors evoke an uncanny parallel between domesticity and mobility—one now largely erased in contemporary elevator design.



Figure 4. Interior of the elevator at Lord & Taylor's department store (Image from Getty Images).

The first author's short performance and installation piece, *Elevator Dress Rehearsal* (Fig. 5), explores the elevator as a site of constrained sociability. The performance reimagines the elevator cab as a space for domestic life, programming it with rooms such as a TV lounge, dining room, and bedroom. Each setup is bisected by the elevator doors, and as the cab docks on each floor, the furniture adapts—rotating or unfolding to interact with the exterior context. At times, completing an activity (like watching a show just outside the elevator) requires negotiating with riders, navigating conflicting intentions in shared space. Through this tension, interaction emerges, and sociability is reintroduced into an otherwise isolating environment.

A similar reactivation of elevator space can be seen in the Chicago-based Channel *Elevator Music* (Fig. 6), which transforms the typical steel-clad cab into a makeshift DJ booth. In this humorous and spontaneous setting, the elevator becomes a rave—a space of shared intimacy, music, and interaction. Devoid of distractions, people are left with only one another. This unexpected juxtaposition of program within one of the most generic and overlooked spaces challenges us to reconsider the sociability of elevators as public spaces.

2.3. Elevator as (Moving) Rooms

While the elevator has enabled buildings to grow taller, it has also allowed for increasingly diverse programs to be vertically stacked. In today's mixed-use high-rise buildings, this stratification of function is often hidden behind a seemingly uniform façade. A key early example is the Downtown Athletic Club. As Koolhaas (2018) notes, "The lobotomized experience of the skyscraper—the appearance of stacked, uniform floors on the exterior masking unpredictability inside—is enabled by the elevator's unique qualities… [of] disgorging unprepared occupants into highly distinct, almost random worlds." It is precisely this disjunction in spatial experience that has relegated the elevator to a peripheral role. Yet a number of counterexamples demonstrate how the elevator can function not merely as a transitional device but as a room in its own right—an extension of the floor, set in motion.

Sperone Westwater Gallery by Foster + Partners (Fig. 7), a narrow volume wedged between brownstones in Lower Manhattan, innovatively incorporates a bright red elevator as both an animated façade and a mobile gallery. Spanning the full width of the building, the elevator shaft serves simultaneously as an atrium and an entrance. Visitors enter through the light-filled shaft, beneath the

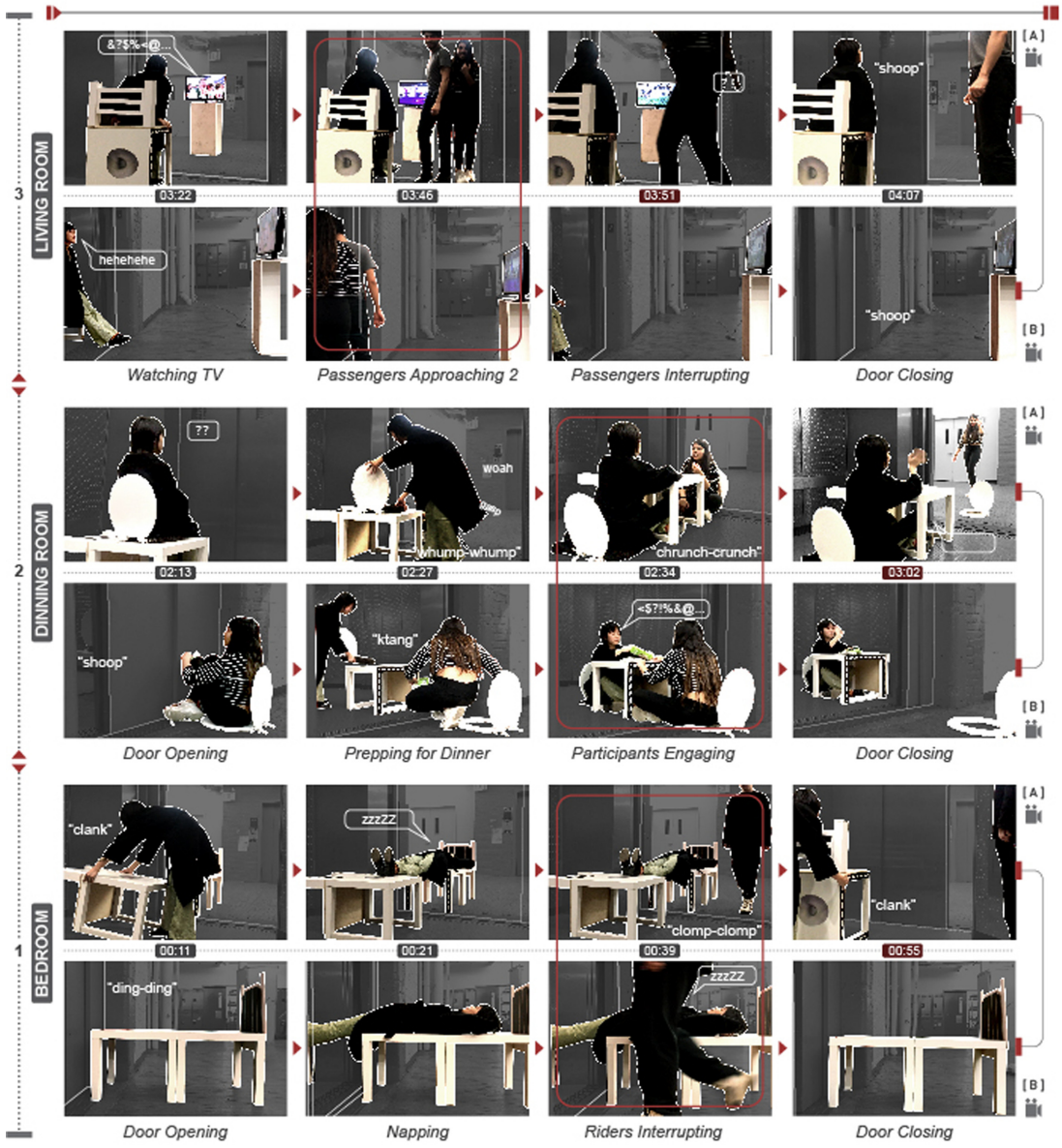


Figure 5. Double-tracked video stills from performance Elevator Dress Rehearsal (Image by Yiru Wu).



Figure 6. DJ set inside an elevator cab from Elevator Music. (Image from X).

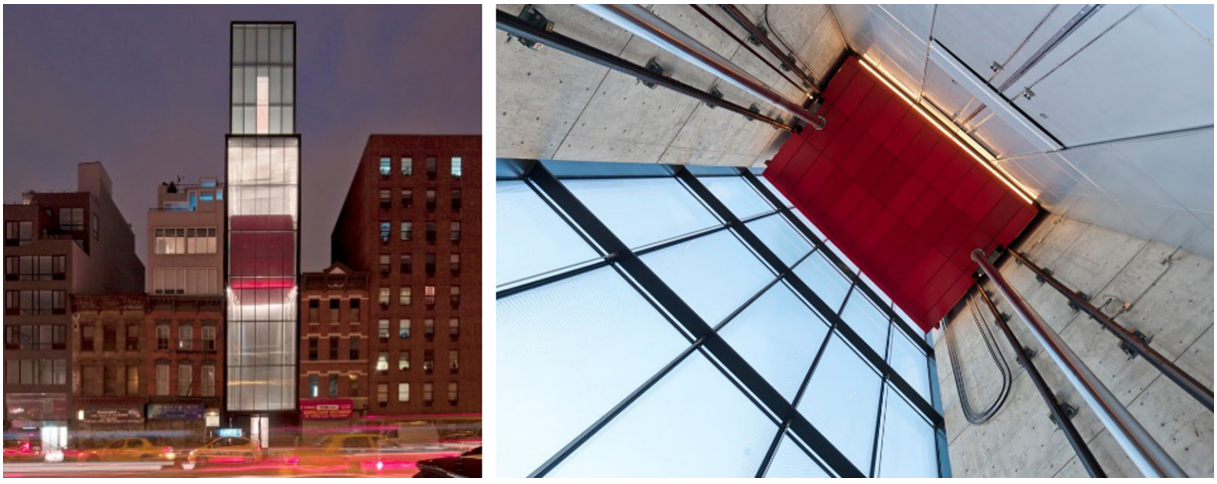


Figure 7. Elevator as gallery room, façade, atrium, and lobby in Sperone Westwater Gallery, New York City. (Images from ArchDaily).



Figure 8. Central elevator inside Maison à Bordeaux, France. (Images from Architecture History Organization).

cab itself, whose mechanical components are carefully exposed as part of the design. The height of the lobby shifts constantly depending on the elevator's position. More than a circulatory device, the inhabitable shaft acts as a buffer between the interior gallery and the street, mediating weather and acoustics. With the same materials and detailing as the rest of the gallery interior, the cab reads as a seamless extension of the exhibition space. Without the elevator buttons, one might not even realize they are inside a moving element. The elevator can dock on any floor, dynamically reconfiguring the building's spatial boundaries while leaving the exhibition program uninterrupted.

Another classic example is OMA's *Maison à Bordeaux* (Fig. 8), a private residence designed for a wheelchair-bound client. At its heart is a 3×3.5-meter elevator platform—supported by a piston and operated by remote control—is not hidden but centered, functioning as the literal and conceptual core of the home. The platform connects three levels of the house, and depending on its location, transforms into a personal office, part of the living room, or an extension of the kitchen. Surrounded by bookshelves and artworks rather than enclosed within a shaft, the elevator acts as an inhabitable station. OMA describes it: "The man had his own 'room', or rather 'station': the elevator platform. The movement of the elevator continuously changes the architecture of the house" (n.d.). As it travels, it leaves behind voids that create unexpected visual and spatial connections. The continuation of the red carpet from the second floor onto the elevator surface emphasizes its reading as completion of the floor surface rather than a transitional element. It is a poetic and playful approach to accessibility, suggesting a new form of domesticity infused with mobility, movement, and machinery.

The 2019 film *The Platform*, directed by Galder Gaztelu-Urrutia, pushes this concept to an extreme. Set in a dystopian vertical self-management center, the central platform acts as an abstract elevator—floating without visible mechanical components (Fig. 9). It serves as a dining table, power symbol, and source of tension, descending through a seemingly endless concrete shaft and pausing at each level as food is consumed. The platform's rhythm structures the inmates' lives, while its



Figure 9. Film Still from The Platform (2019) (Image from Netflix).

spatial abstraction reflects the film's core themes of inequality, hierarchy, and survival. Isolated on individual floors, inmates can only speculate about how many others occupy the facility based on the scraps left behind. The verticality of the architecture mirrors the narrative itself, challenging our typical horizontal understanding of spatial and social relations.

2.4. Elevator as (Kinetic) Architecture

Bringing together the spatial and architectural possibilities explored in the previous subsections, the first author's speculative project *The (Awkward) Elevator Rehearsal* reimagines the elevator as a piece of performative and theatrical architecture (Fig. 10). Set within the iconic atrium of the Beekman Hotel in Lower Manhattan—one of New York's earliest skyscrapers—the project envisions a hotel suite distributed across five elevator cabs. The central bedroom is raised by a hydraulic piston, while four auxiliary rooms move independently on separate cable-driven passenger elevators. The suite is not housed within a traditional shaft; instead, the atrium itself becomes the open shaft—a stage where movement, architecture, and spectacle intersect. While the structure and mechanics of the system remain speculative, the proposal incorporates a track system that secures all cable-driven cabs while preserving the openness of the atrium.

From the suite plan (Fig. 11), each surrounding cab contains a distinct program: an office, bathroom, changing room, and a standard passenger elevator that continues to serve the hotel's circulation. Cab 3 is the only entirely public space—an elevator bar with a dedicated service zone for bartenders—and serves as the primary entrance to the central bedroom. To experience the full extent of the suite, guests must summon each room individually, pressing a button to bring the desired room to their level.

All cabs are clad in mirrors, reflecting the architectural



Figure 10. Section drawing illustrating the atrium of the Beekman Hotel with the elevator suite (Image by Yiru Wu).

details and ambient light of the Beekman atrium, transforming the void into a kaleidoscopic space of movement and illusion. Occasional apertures allow guests and visitors to catch glimpses into the suite (Fig. 12). With the randomized activation of the passenger elevators, the suite continually reconfigures, generating specific moments of spatial overlap and social interaction. For

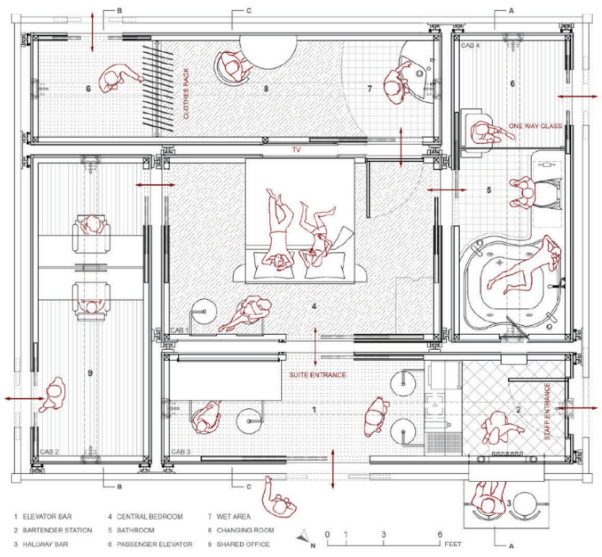


Figure 11. Suite plan showing the layout and program distribution (Image by Yiru Wu).



Figure 12. Interior renderings of the elevator suite (Image by Yiru Wu).

example, when Cab 1 and Cab 3 dock on the same floor, suite guests and elevator riders can share a bar counter and initiate impromptu conversations. The interior partitions between hotel rooms and passenger cabs are designed to be semi-porous—preserving a degree of privacy while still encouraging interaction.

In a bustling hotel like the Beekman, these elevators become transient "third spaces"—liminal zones for momentary social exchange. Here, hotel rooms become elevators, and elevators become rooms. This speculative project proposes a new kind of domesticity—one that is dynamic, responsive, and beyond the full control of its inhabitants. It invites a rethinking of privacy, encounter, and vertical living. As elevator technology continues to evolve, the project opens further possibilities for development—structurally, mechanically, and programmatically. Future iterations could incorporate advanced automation and sensor-based systems to choreograph movement and interactions, reinforcing the elevator as a fully architectural medium—a generator of space, sociality, and experiments.

3. Elevator City

3.1. Elevators Interconnecting Skyscrapers

Architectural and social design potentials of elevators beyond their conventional performances have been investigated within a building in the previous section. The study is expanded further to explore what elevators might enable across multiple building complexes and even within a city. Since the emergence of skyscrapers in the late 19th century, imagined future cities often contained many tall buildings interconnected together. The concept of interconnected towers by skybridges of transportation systems dates back to the King's Views of New York by Moses King in the early 20th century. *The King's Dream of New York* (Fig. 13) in this publication shows many New York skyscrapers connected by skybridges designed as the city's elevated vehicular transportation system. The *Metropolis of Tomorrow* of 1929 by Hugh Ferriss (Fig. 14) also illustrates skyscrapers connected by multi-level elevated vehicular roadways. Compared to the traditional low-rise buildings, as tall buildings can be developed in the scale of infrastructure, placing additional urban transportation grids at elevated levels connecting skyscrapers there was imagined as future cityscape.

While not as elevated or directly connected to tall buildings by the city's transportation system as shown in the *King's View of New York* or *Metropolis of Tomorrow*, today's tall buildings are indeed often placed at transit nodes in many cities, such as Hong Kong and Dubai. Yet, more prevalent real-world developments in interconnecting tall buildings have occurred at smaller scales—linking multiple towers to address key design limitations that arise when tall buildings are developed as isolated structures.

One of the most important driving forces of tall building development has been their economic benefits in dense urban land use. Economically driven designs have often resulted in independent solo towers with maximized rentable floor area achieved by vertically repeating identical or similar floor plans. This design trend has significantly limited opportunities for social interactions within tall buildings. In response, efforts have been made to overcome this design limitation by introducing



Figure 13. Kings Dream of New York, Moses King, 1908.

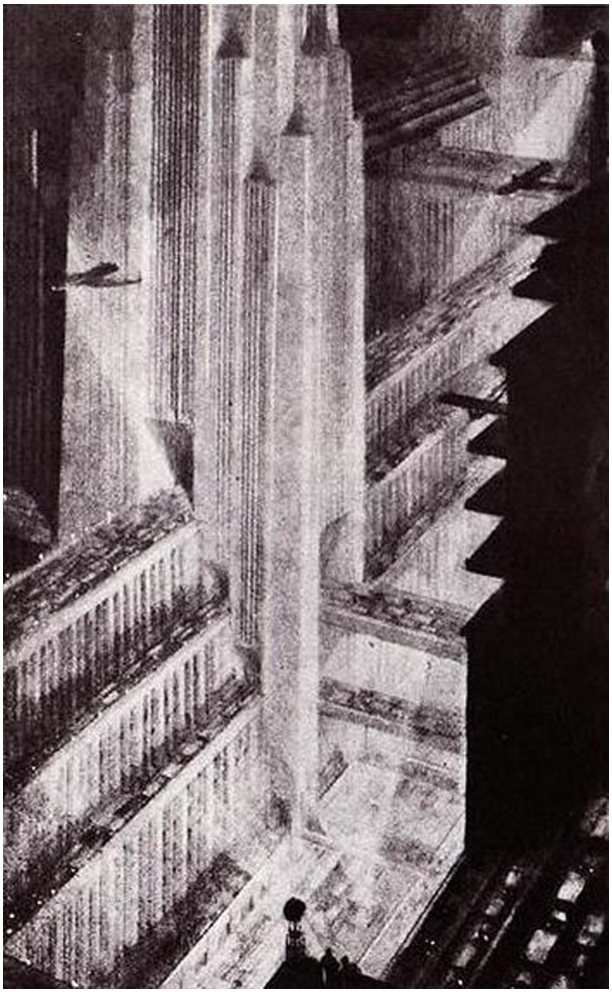


Figure 14. Metropolis of Tomorrow, Hugh Ferriss, 1929.

variously configured "skyspaces" that perform as communal spaces. When developed in solo towers, however, the scale and performance capacity of these skyspaces are inherently constrained. When multiple towers are interconnected via skybridges, however, the very act of connection naturally fosters greater social interaction. Furthermore, the potential to create larger, more integrated skyspaces—capable of supporting diverse communal activities—is significantly expanded. In such configurations, skybridges can be designed not only as circulation paths, but as shared spatial volumes, supported by multiple clustered towers. This design strategy not only improves opportunities for spatial and social integration but also enhances structural performance. When towers are appropriately coupled structurally, their combined depth enhances resistance to lateral forces such as wind. The integration of interconnected towers and skyspace complex offers a pathway toward more livable and sustainable vertical urban environments.

Early examples of real-world interconnected towers include the Wrigley Building of 1921 and its north addition of 1924 in Chicago, though the skybridge between them served only as basic pedestrian circulation. Since then, interconnected towers have been built sporadically around the world, culminating in the Petronas Towers of 1998 in Kuala Lumpur, the first interconnected supertall buildings. While earlier examples typically used skybridges primarily for circulation purposes, more recent projects have expanded their role to include significant programmed spaces. Notable examples include the Tencent Seafront Towers of 2017 in Shenzhen, Marina Bay Sands of 2010 in Singapore, and the Gate Shams Abu Dhabi of 2013 in Abu Dhabi, where skybridges accommodate communal, commercial, or recreational functions in addition to circulation.

These interconnected tower projects remain relatively small in scale, especially when compared to early speculative visions like *The King's Dream of New York* or *The Metropolis of Tomorrow.* As tower complexes grow larger and taller, approaching the scale of vertical cities within a city, the need for mechanical transportation between towers becomes increasingly necessary. Such systems could enhance circulation efficiency and support the integrated urban life as the early 20th-century visions



Figure 15. Sky Mile Tower by KPF. © KPF

imagined.

In KPF's *Sky Mile Tower* proposal for Tokyo Bay (Fig. 15), a mile-high tower complex is envisioned as a self-contained vertical city accommodating approximately 55,000 residents (Malott et al., 2015). The megastructure consists of clustered residential towers that frame central open spaces, interconnected at multiple levels by sky lobbies. These sky lobbies serve as both horizontal and vertical transportation hubs and house a range of public amenities, including shopping malls, restaurants, libraries, and clinics. Strategically positioned above and below the residential zones, the sky lobbies link the towers while fostering opportunities for social interaction within the complex. A key feature of the proposal is its elevator system: the MULTI system developed by Thyssenkrupp (Fig. 16), which enables both vertical and horizontal movement without the use of conventional ropes. The integration of this multidirectional elevator technology allows the tower to function as a dynamic and socially connected megastructure, reimagining high-rise living at the scale of urban infrastructure.

Another design project of interconnected towers with both vertically and horizontally operating elevator system is the *Superframed Conjoined Tower* proposal for Chicago

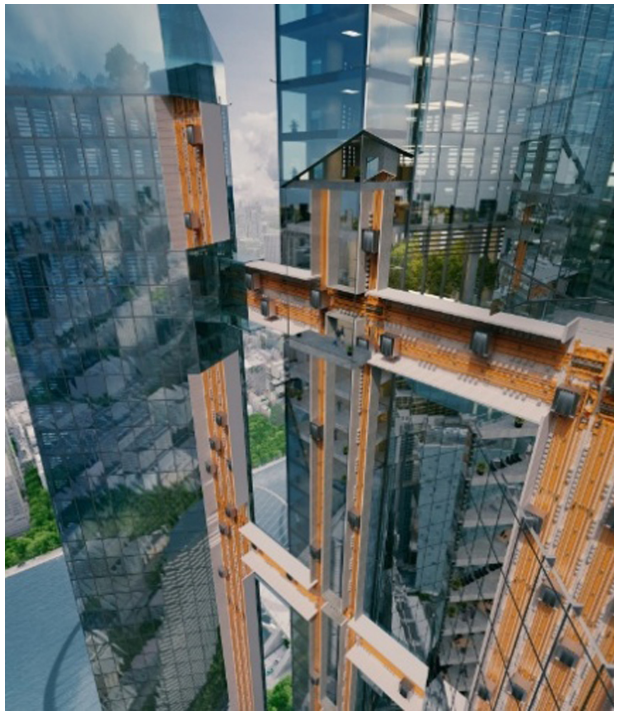


Figure 16. MULTI by Thyssenkrupp. © Thyssenkrupp

(Fig. 17). The concept of the superframed conjoined towers (Moon, 2021) is applied to a mile-high tower complex envisioned for a site along the Chicago lakefront. The design project guided by the second author was developed by Darcy, a graduate student at Yale School of Architecture. One-mile-long urban blocks containing various vibrant urban functions are considered first and tilted up by 90 degrees to create a mile-high vertical community by occupying only about 10% of the land compared to the corresponding horizontal development.

To realize the design concept of livable and sustainable vertical urbanism, various urban functions traditionally associated with the horizontal development are vertically rearranged systematically in terms of spatial organization, form, structure, vertical transportation, etc. One critical challenge of many conventional tall buildings is the monotony of repeated floor plates, which limits social interaction and spatial diversity. To address this, it is essential to incorporate well-integrated communal spaces throughout the height of a self-contained city-like mixed-use tower complex. In this proposal, the towers are primarily composed of offices, residentials and hotels, while the main public spaces, which spatially and structurally interconnect the towers at multiple heights, include convention centers, shopping malls, restaurants, sports facilities, libraries, clinics, etc. In order to serve this mile-high tower complex of an unprecedented extreme height, a new concept of *super sky lobbies* that are integrated with the main public spaces and lead further to local sky lobbies is introduced. The overall skyspace



Figure 17. Superframed Conjoined Tower proposal for Chicago. (Images from Moon and Darcy, 2020)

concept that promotes enhanced social interactions in this mile-high tower complex is not only limited to the main public spaces within the super sky lobby zones but also further integrated into the tower spaces in appropriately reduced scales. By embedding opportunities for social interaction and spatial variety throughout the vertical system, a more human-centered and socially connected high-rise environment is created. (Moon and Darcy, 2020).

Starting at approximately 400 meters in height, every other link structure of multiple stories is devoted to main public functions including super sky lobbies reached by looping rope-less express shuttle elevators. Beginning at the 200-meter level, alternating link structures accommodate local sky lobbies and secondary public programs. These primary and secondary skyspaces extend into the towers in progressively smaller scales, forming tertiary skyspaces that more intimately engage with building occupants. The organizational hierarchy of primary, secondary, and tertiary skyspaces is illustrated in section in the third image of Fig. 17.

3.2. Elevators Intertwining Vertical Cities

While elevators are typically designed and constructed as a vertical transportation system within individual tall buildings, this paper has explored their expanded potential to enhance both architectural and social performance. Furthermore, the scale of this design potential has been extended from the architectural to the urban. As imagined in early 20th-century visions of future cities, skyscrapers could be interconnected through elevated transportation grids. In real-world projects, multiple tall buildings have already been linked to address spatial and structural challenges. In the speculative proposals presented in this paper, megatall towers are interconnected by skybridges, with elevators traversing the building complex as part of a larger, dynamic system.

Such ideas point toward a plausible future in which tall buildings are no longer isolated structures, but part of an integrated vertical urban network. For instance, smaller scale loop type branches of metro systems could be integrated with elevator systems within megatall building complexes to serve both. The integrated transportation system can be constructed to promote enhanced social interaction between passengers in the system and elevator cars designed with various architectural and socially engaging concepts. While the passengers in Figure 4 appear to be “settling for a long journey,” the Lord and Tayor Department Store of 1870 was in fact only a five-story building. Therefore, regardless of its design intention, social interaction between the passengers during the elevator’s travel time must have been very limited even if the speed of the elevator was very slow at that time. However, this socially engaging elevator design concept would be a truly feasible reality in vertical cities with many supertall and mega tall buildings connected between them as well as with the city’s integrated transportation system as some passengers have to settle for a long journey indeed.

Fig. 18 and 19 show a design study conducted at the Yale School of Architecture by two graduate students, Malcolm Galang and Louis Koushouris, instructed by the second author. The proposed interconnected mile-high towers in Chicago feature multiple multi-level sky lobbies located at various heights throughout the complex. These sky lobbies accommodate a wide range of public programs and serve as stations for an integrated elevator

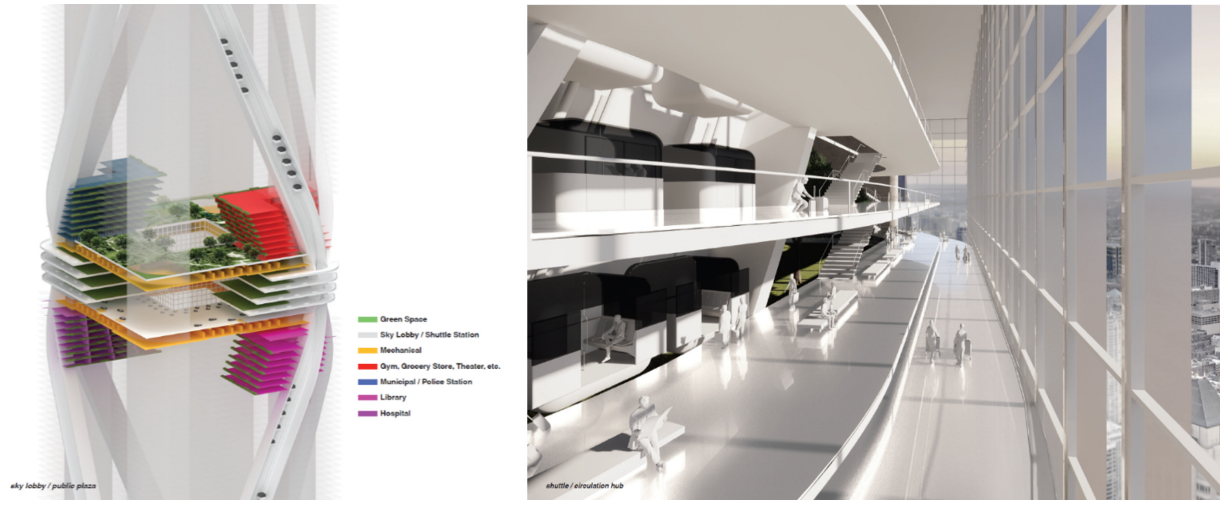


Figure 18. Typical sky lobby and station for the integrated transportation system within the sky lobby. (Images by Galang and Koushouris)

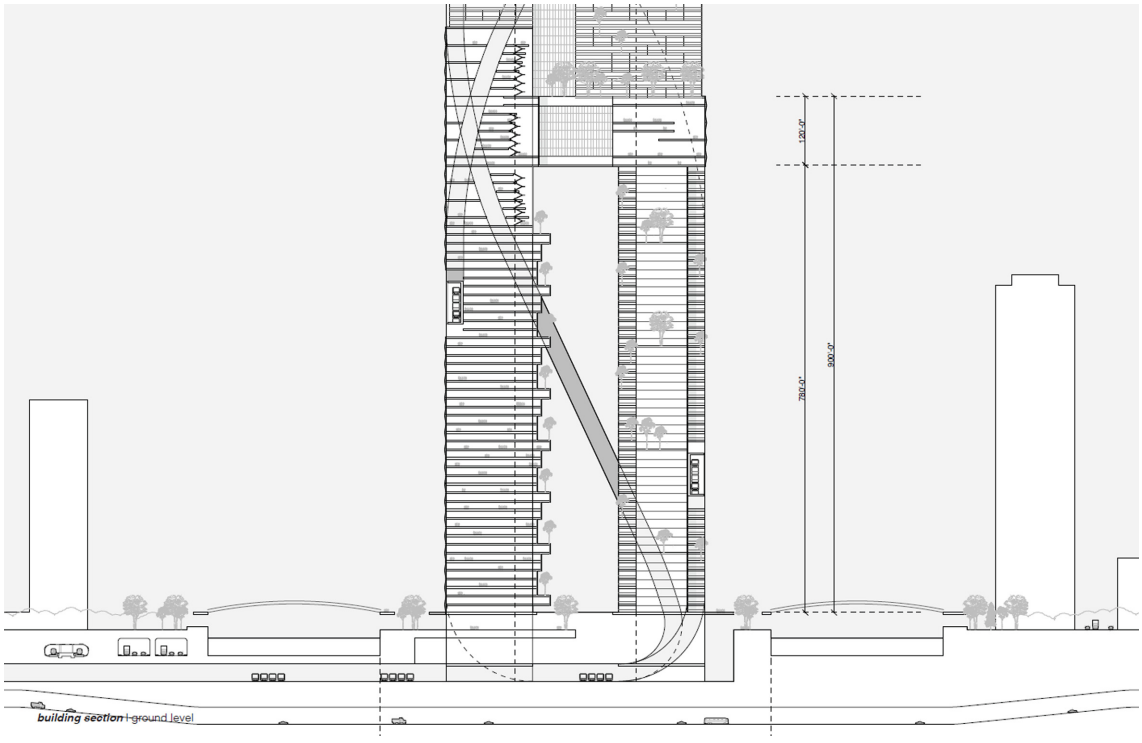


Figure 19. Section showing the integrated transportation system between the mile high tower complex and the metro system for the city. (Image by Galang and Koushouris)

system that connects both the building complex and smaller-scale loop branches of the metro network. In this design, the integrated elevator system is capable of traveling vertically, horizontally, and diagonally—enabled by rails that are seamlessly incorporated into the building's diagonal bracing structures. While this system primarily serves public functions, additional dedicated elevator systems are distributed throughout the complex to support the other programs of the building complex.

Another design study exploring the connection between elevators in tall buildings and urban subway systems was conducted by Chris Williamson of WestonWilliamson + Partners (Fig. 20). Inspired by the design possibilities enabled by the MULTI system (Cesarz, 2020), the study proposes extending elevator travel directly to subway station platforms, significantly enhancing transit accessibility. Depending on the design of the elevator cars and the system as a whole, such integration could also foster greater social interaction among passengers, transforming the elevator into a more public and connective urban space.

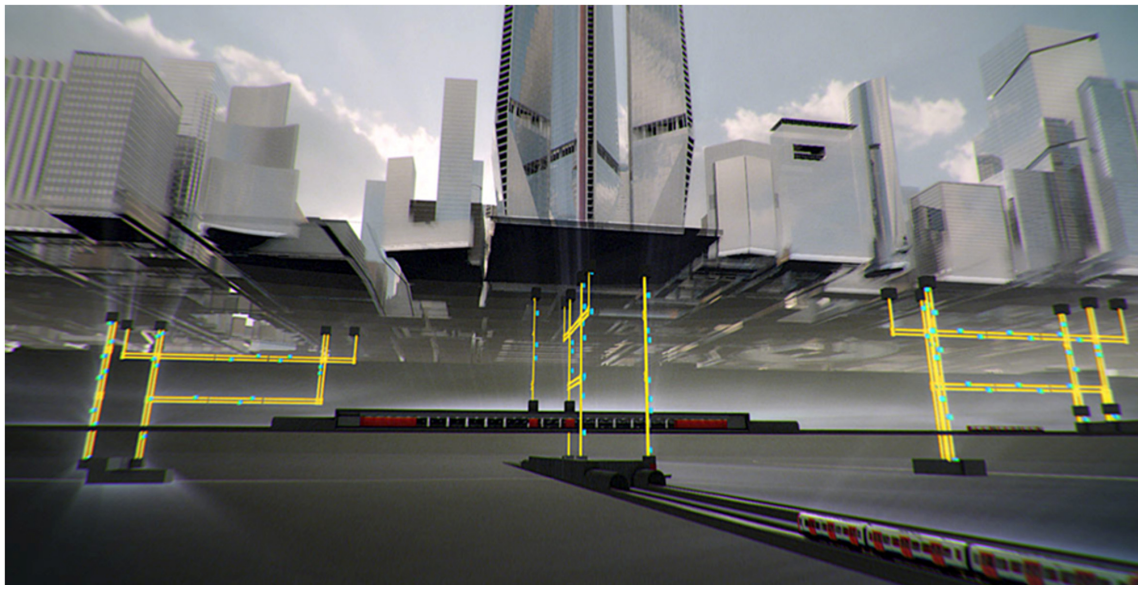


Figure 20. Elevator system connecting tall buildings and subway stations (Image from Cesarz, 2020)

4. Conclusion

Tall buildings, which began as 10-story office buildings in the late 19th century, have evolved into supertall and megatall structures. Elevators were one of the most essential technologies that contributed to the emergence of the new building type. While elevator technology, particularly in terms of speed and efficiency, has continued to advance, its architectural potential remains largely underexplored.

In reframing the elevator as part of a performative and kinetic architecture, this paper opens new possibilities for how we dwell, move, and encounter one another—vertically, across time, space, and scale. Elevators can become active participants in the production of space and narrative, shaping not only how we access buildings, but how we inhabit them.

As elevator technologies continue to evolve—becoming faster, lighter, multidirectional, and increasingly autonomous, their architectural potential should evolve in parallel. At a moment when skyscrapers are reaching unprecedented heights and formal complexity, the design potential of elevators should be investigated beyond their technologies. It has the potential to work together with structure, form, and tectonics to create a cohesive spatial experience—one that transcends mere efficiency. This paper has argued for the elevator not simply as a means of ascent, but as a site of architecture itself—one capable of generating dynamic, interactive, and socially charged space.

Furthermore, as tall buildings grow in scale and begin to operate more like vertical urban infrastructures, their internal organization increasingly incorporates a wide array of public programs. In this context, elevators are poised to serve as connective tissue—not only within buildings but between them, integrating with broader urban mobility networks, as presented in the later sections of this paper.

By presenting these historical, theoretical, and speculative studies, this paper aims to reposition the elevator as a site of architectural inquiry. It is hoped that future investigations will continue to explore the spatial, social, and infrastructural design potentials of elevators—advancing more livable, connected, and sustainable architectural and urban futures.

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