

#### Table of contents

5 Collective project abstract and propositions

7 About the site and type Hotel Pennsylvania

Pennsylvania Station Hotel building type Expert conversations

39 *About* The Hotel Hotel ownership

Operational diagram Hotel segments

Programmatic description

Site information Building information

51 About The Metropolitan Core and structure

Elevators Elevations

63 About One Hotel Sections

Accommodations Amenities Services

Systems Afterlife

99 Individual contribution Contribution abstract

Contribution propositions
Hotel segment drawing set

Precedent studies and references

Collective project abstract and propositions

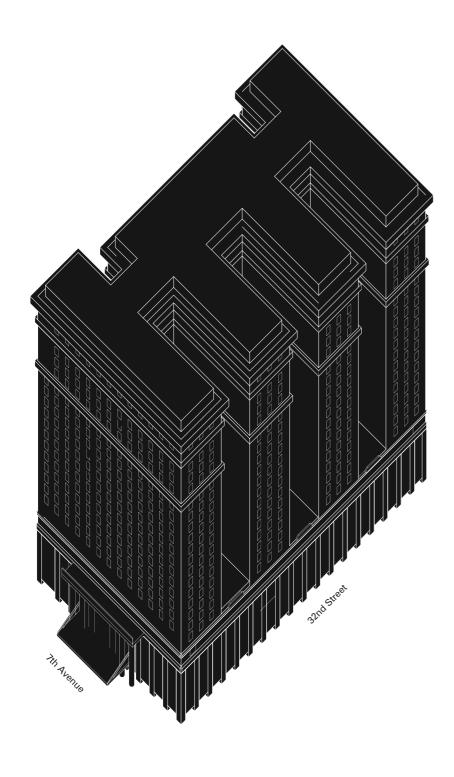
The Hotel is a collective project that studies the hotel, both as a building type and as a place of hospitality, through a collection of fourteen individual contributions inside one skyscraper. The project imagines hospitality as a realm of exchange that condenses the diversity of the city through an assortment of guests, staff, and the broader public.

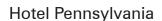
The hotel is a function of temporality and hospitality. The study questions the requirements for an architecture of hospitality to welcome, host, and entertain. As an architecture of temporality—an architecture that is dynamic and ever-changing, embodying a sense of transience and constant activity—the hotel allows for experimentation, while anticipating adaptation to meet the changing demands of its temporary residents. The hotel, as type, is understood beyond its curated front. It is, instead, a place of anonymity and exchange, of served and serving, a place characterized by short stays in a lasting structure.

The skyscraper, as a formal and monumental object, appears to contrast the hotel's temporality. In its autonomy, the skyscraper is a landmark in the skyline. Located in Midtown Manhattan—on the former site of Hotel Pennsylvania and adjacent to Penn Station—this project is a reflection on the metropolis of New York City.

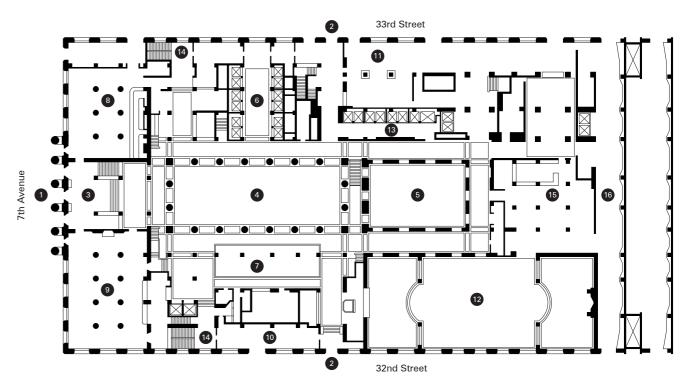
The Hotel consists of the design of the skyscraper as landmark—The Metropolitan—and the hotel as tenant—One Hotel.

- 1. *The Hotel* embraces the frenetic energy of New York City while opposing its outward expansion.
- 2. The Metropolitan will outlast One Hotel.
- 3. One Hotel accommodates fourteen types of guests, and its staff.
- 4. One Hotel shares accommodation, amenities, systems, and services with a 24/7 cycle.
- 5. *The Hotel* sets a standard for an architecture of hospitality.

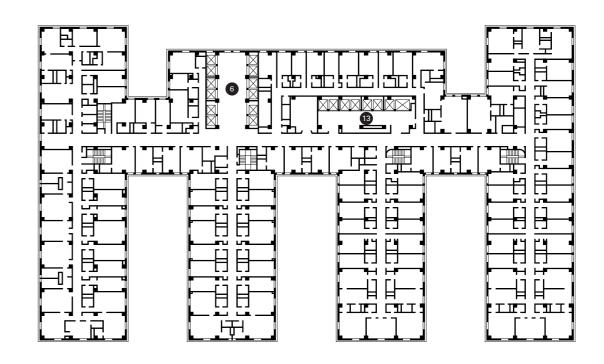




Hotel Pennsylvania was designed by the renowned firm of McKim, Mead & White. Consisting of 2,200 guest rooms over twenty-two floors, it was the largest hotel in the world at the time. Facing Seventh Avenue—and Pennsylvania Station—a portico greeted guests and led into the building through a sequence of spaces culminating in the hotel's lobby.



Ground Floor



Typical Accommodation Floor

1. Main entrance

2. Secondary entrances

3. Entrance vestibule

4. Lobby

5. Palm room 6. Guest elevators

7. Office 8. Soda room 14. Subway entrance

16. Service driveway

9

15. Pantry

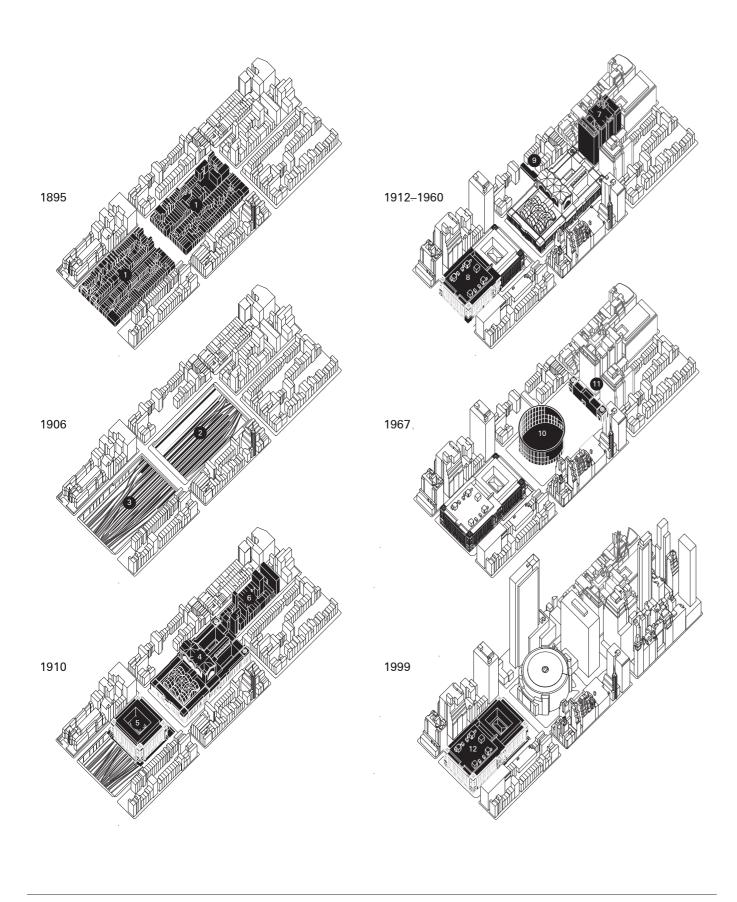
9. Mens' café

10. Shop

11. Drug store

12. Dining room

13. Service elevators



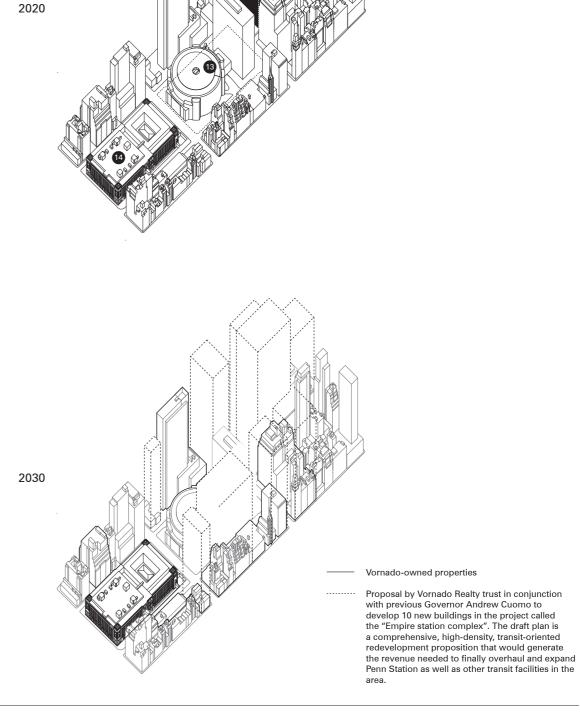
## Pennsylvania Station

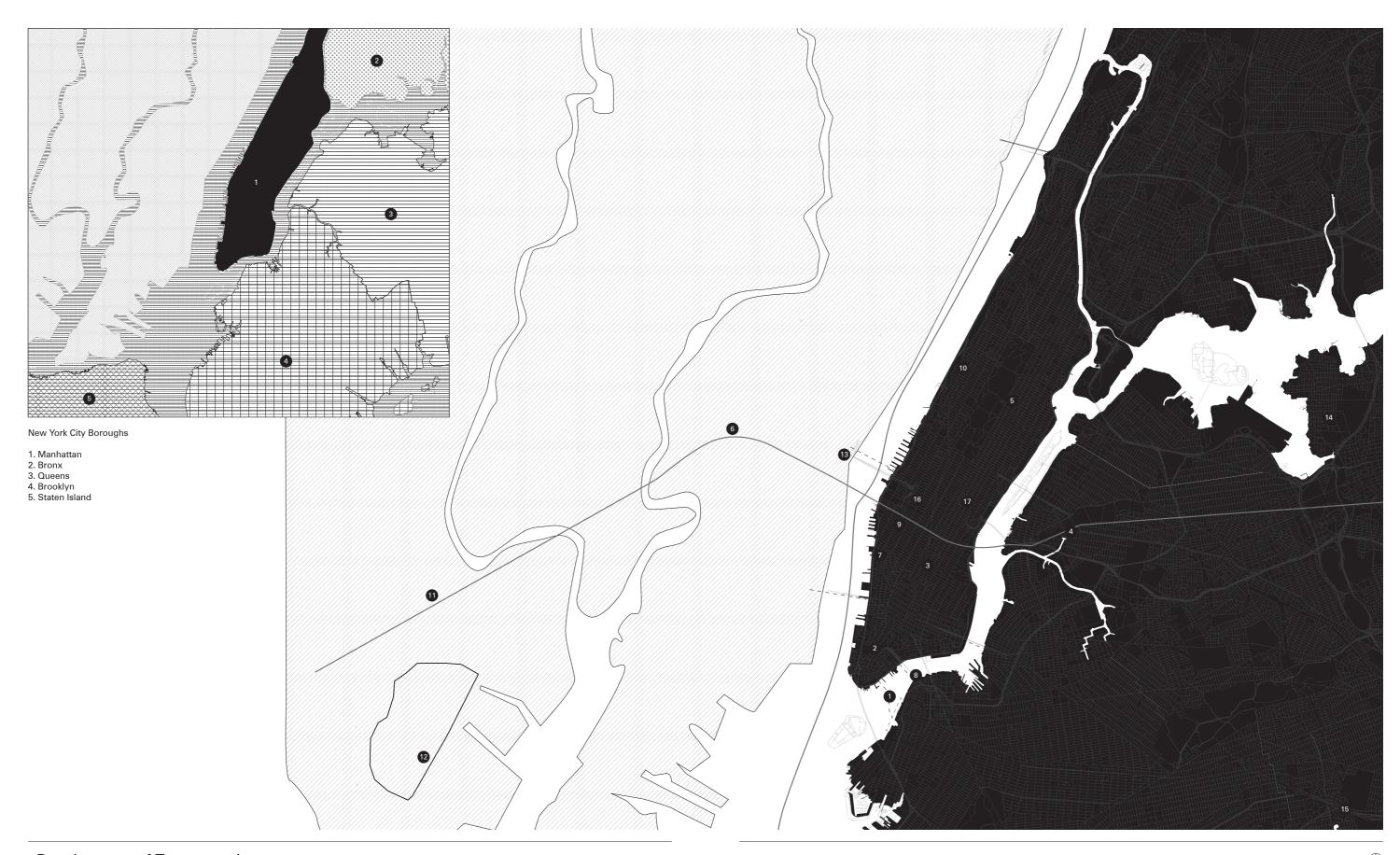
- 1. Pennsylvania Station stood on the former Tenderloin neighborhood, a lively district from 20th to 53rd Streets, Fifth to Seventh Avenues, evolving from the adjacent theater and hotel hub. 2. In 1901, the Pennsylvania Railroad unveiled a \$150 million plan to electrify and expand, connecting Pennsylvania and Long Island Railroads
- to Manhattan.
- 3. Pennsylvania Railroad tunnels span Manhattan
- and link Long Island Railroad at Hunter's Point. 4. Opened in 1910, the original Pennsylvania Station, with North River Tunnels, was a Beaux Arts masterpiece by McKim, Mead & White, spanning West 31st to West 33rd Streets.
- 5. During Penn Station's planning, the Pennsylvania Railroad proposed a nearby post office on 8th avenue for the United States Post Office
- 6. Six years after the opening of the station, PRR proposed a \$9 million, 1,000-room hotel on Seventh Avenue by McKim, Mead & White: Hotel Pennsylvania.
- 7. On January 25, 1919, the Hotel Pennsylvania was officially dedicated. With 2,200 rooms and baths, it claimed the title of the world's largest hotel. 8. The expansion of the Post Office Department was handled by McKim, Mead & White and
- occurred between 1932 and 1934. 9. In 1935, a new bus terminal opened, adding to the area's importance as the city's main transportation hub.
- 10. Madison Square Garden Corporation replaced Pennsylvania Station with a sports complex, citing benefits like tax revenues and construction boost. 11. The old structure was leveled but continued to operate underground as the Garden's skeleton rose

- 12. The expansion of Pennsylvania station into the Farley building begins, adding three underground levels along with the redesign of the first floor. 13. Today, Pennsylvania station functions below Madison square garden sports arena and Penn Plaza.
- 14. Moynihan Train Hall is an expansion of Pennsylvania Station, in the former post office

building, the James A. Farley Building. 15. Hotel Pennsylvania was demolished and in the now vacant plot, 15 Penn Plaza, also known as PENN15 and Vornado Tower, has been planned to be constructed by Vornado Realty Trust.

11



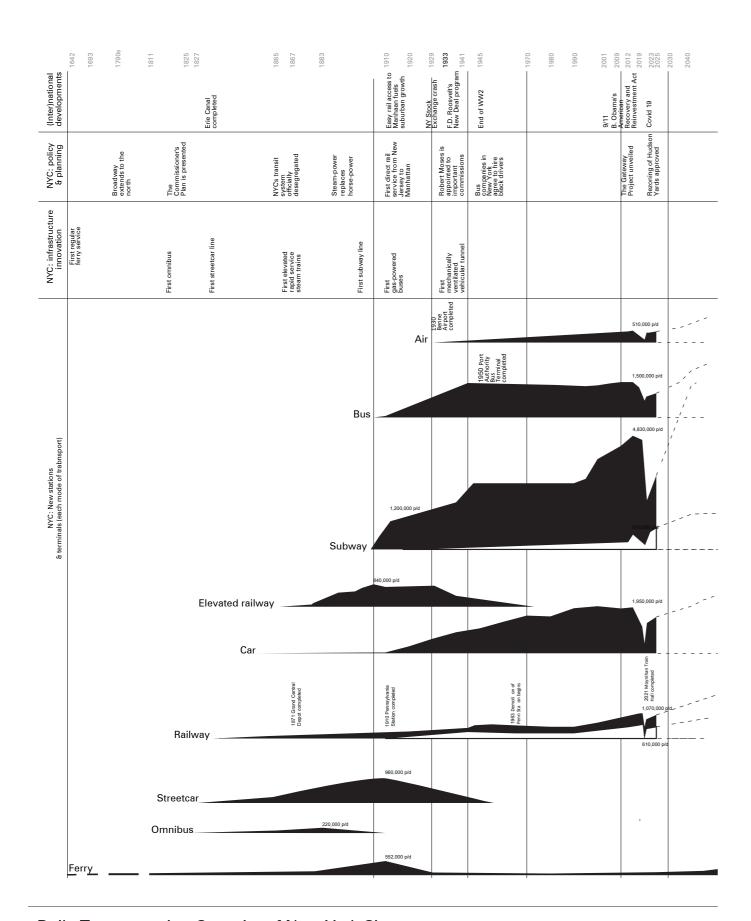


# **Development of Transportation**

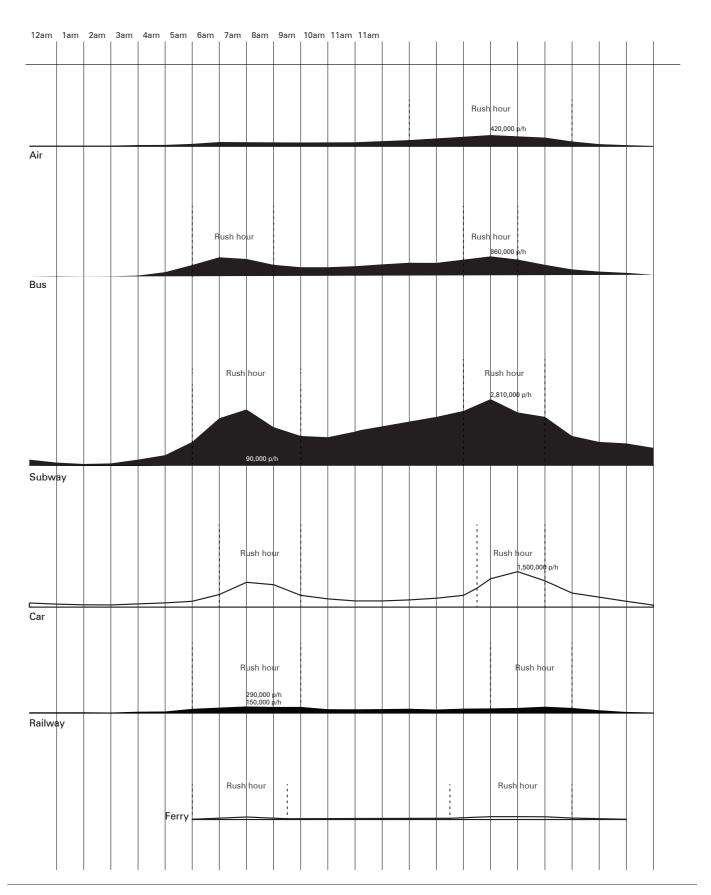
12

As the city expanded, the development of efficient modes of transport has allowed more people to cross greater distances more frequently across the densely knit island of Manhattan.

- 1. First regular ferry service starts in 1642
- 2. Broadway extends North in 1790s
- 3. First streetcar line opens in 1832
- 4. Railroad line to the East opens in 1850s
- 5. Railroad line to the North opens in 1850s
- 6. Railroad line to the West opens in 1850s
- 7. First elevated railroad opens in 1871
- 8. Brooklyn Bridge opens in 1883
- 9. Construction of Penn Station begins in 1903
- 10. First subway line opens in 1905
- 11. Hudson tunnels and Penn Station open in
- 1910 12. Newark Liberty Airport opens in 1928
- 13. Lincoln Tunnel opens in 1938
- 14. La Guardia Airfield opens in 1939 15. Idlewild International Airport -later renamed
- John F. Kennedy Airport- opens in 1948 16. Port Authority Bus Terminal opens in 1950
- 17. Grand Central Depot opens in 1971

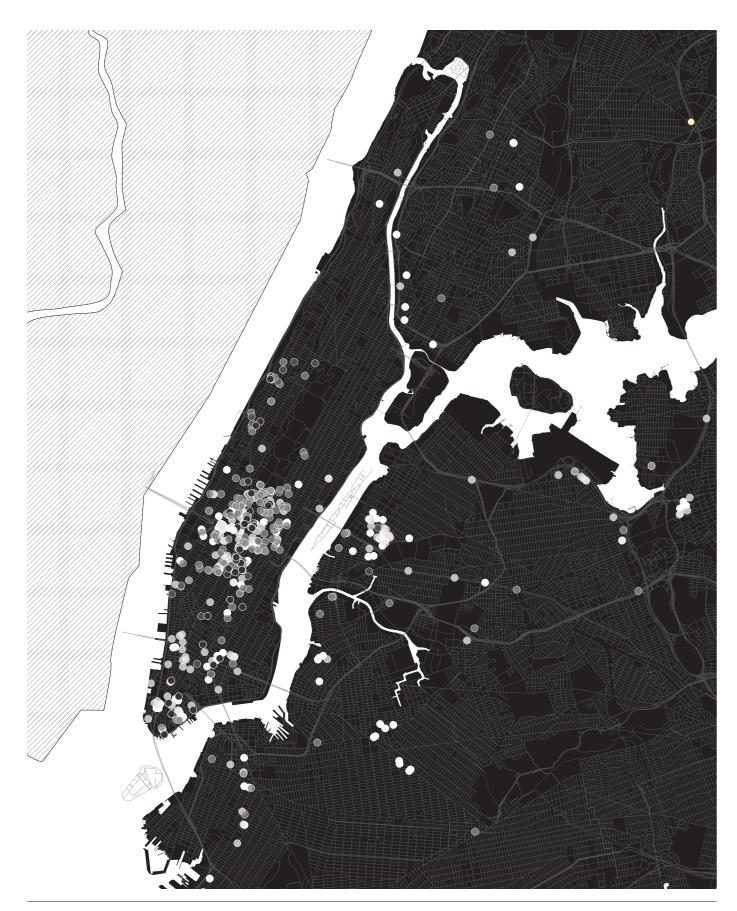


Daily Transportation Capacity of New York City



15

**Peak Operating Hours** 



Development of Accommodation and Lodging

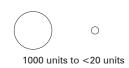
Historically, hotels were concentrated in Midtown Manhattan where most of the city's attractions were located.

Hotels by year of opening



Around 90% of public housing developments in New York City are situated within low-income neighborhoods, with about 21% found in areas undergoing gentrification.



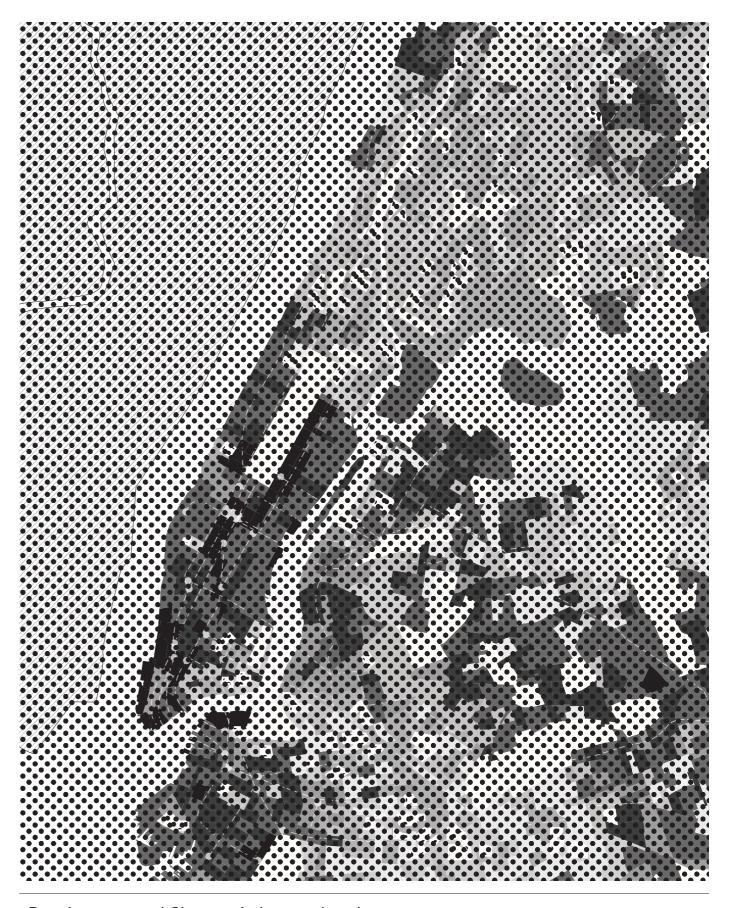




# **Development of Office Density**

The majority of office buildings are in Midtown and Downtown Manhattan, with some smaller clusters in Brooklyn and Queens. Today, there are almost 9 million square meters of vacant office spaces in the city.

Office buildings



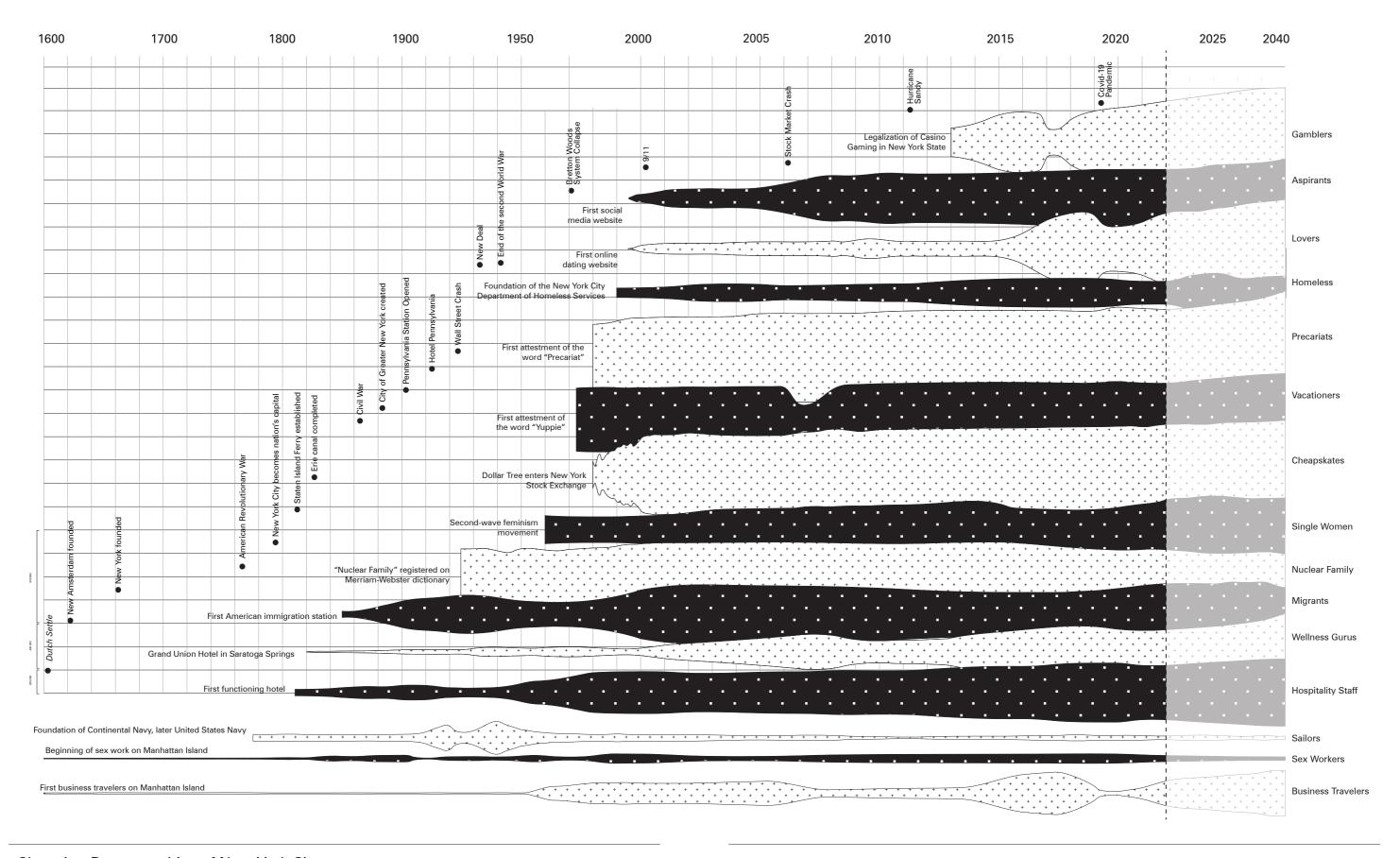
# **Development and Changes in Income Levels**

Manhattan is one of the most expensive places to live, with an average of \$15,000—or EUR 14,000—per square meter. In the 515 census tracts of New York City today, 23% are situated in neighborhoods undergoing gentrification, while an additional 30% are in areas considered at risk of gentrification.

Degree of gentrification based on area median income

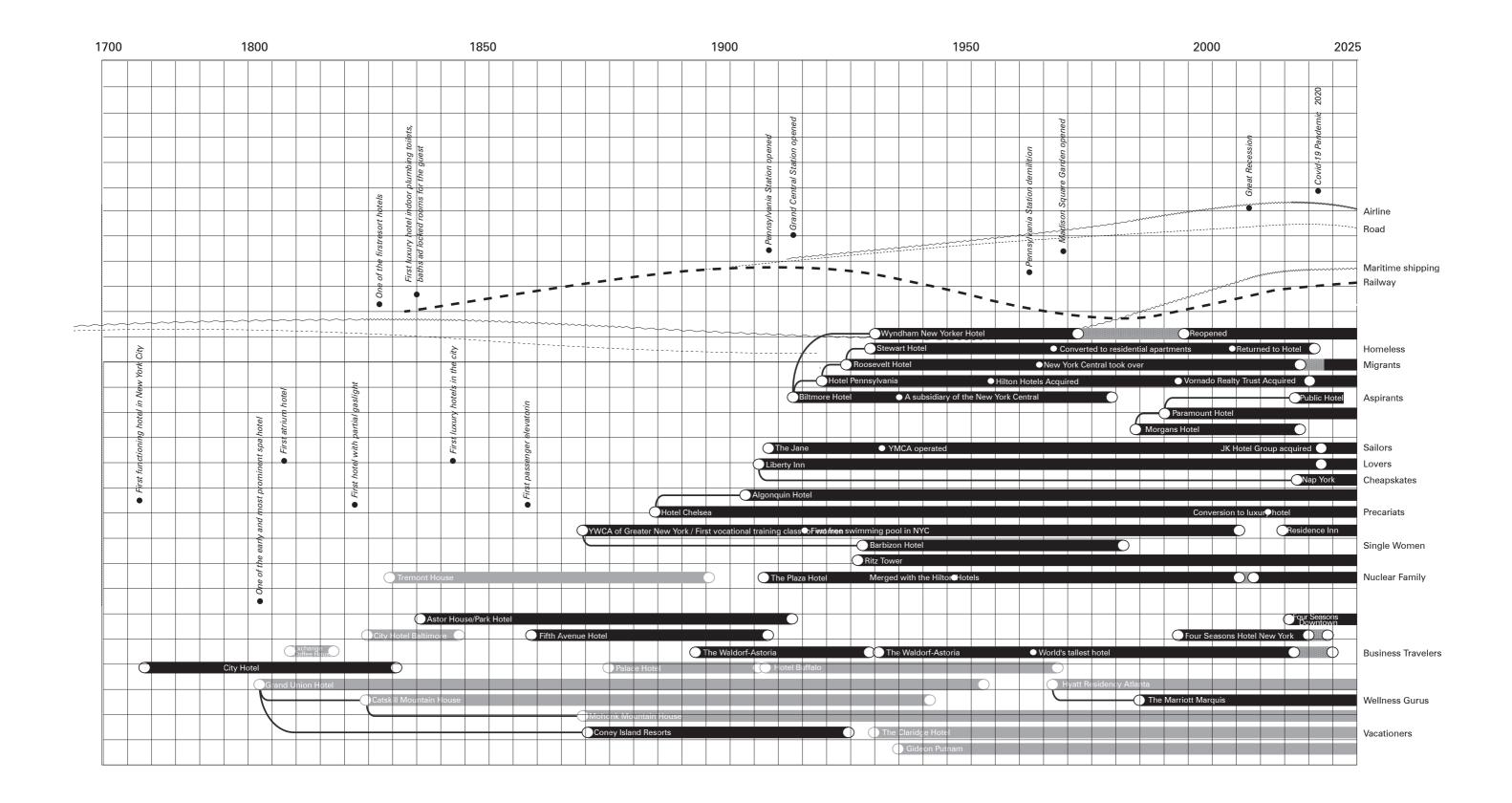
Current public housing stock

···· Metro lines



## Changing Demographics of New York City

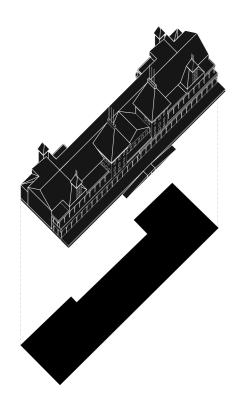
New York City has been the epicenter for immigration into the United States, especially from Europe, since the arrival of the Dutch in the seventeenth century. In recent times, various demographic groups have been introduced into the city's history, contributing to its diverse and dynamic tapestry. On top of this, as an economic and cultural center, New York hosts travelers for business and pleasure, welcoming many, along with their money.



### Hotel Development in New York City

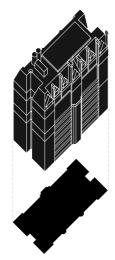
The beginning of the hotel as a building type dates to the late eighteenth century in the United States as a result of trade and commerce, and the development of new modes of transportation. In the first half of the twentieth century, hotels became the epitome of modernity—centers of mobility, temporality, and anonymity. With the increasing ease of traveling, hotel types expanded to meet the needs of new customers.

22





Brighton Beach Hotel opened in Coney Island in 1870, before it closed in 1924. The seaside resort was constructed near Manhattan, where it offered a place of residence and seclusion of 400 keys, while providing its guests with a highend amenity program.



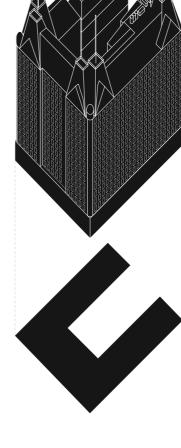
Hotel Chelsea 1884– Rooms: 250 Floors: 12 Case study for Precariats/Residential segment

The Hotel Chelsea opened in 1884. As one of the city's first private apartment cooperatives, it housed 250 keys before its renovation and reopening in 2022.



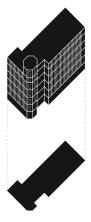
Liberty Inn 1906–2022 Rooms: 17 Floors: 3 Case study for Lovers/ Day segment

Built in 1906 by poultry wholesalers as the Strand Hotel, it was an old remnant of the Meatpacking District with a saloon on the ground floor that catered to sailors. It got its name in 1969, when it functioned as an afterhours sex club, shut down short after due to the AIDS scare. It continued to operate as an hourly hotel until 2022 when it was sold to Hyundai.



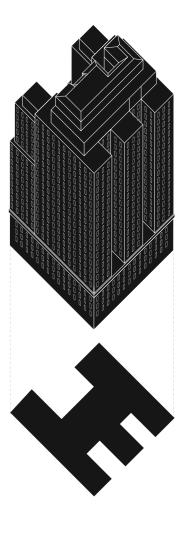
The Plaza 1907– Rooms: 463 Floors:18 Case study for Nuclear Family/Family segment

The luxurious hotel opened its doors in 1907 in Midtown Manhattan, next to Central Park. It continues to operate, offering a total of 463 keys, some of which are used as residences. Among the various room types, it offers a spacious family room. The hotel has often appeared in many movies, in which the main protagonist, a child, lived at The Plaza.



The Jane 1908– Rooms: 200 Floors: 6 Case study for Sailors/ Sailors' Boarding House segment

The Jane, a historic Sailors' Boarding House containing 200 rooms and cabins, opened in West Village in 1908 as the American Seaman's Friend Society Sailors' Home and Institute. It continues to offer accommodations to this day, now transformed into a boutique hotel with a maritime theme and vintage feel.

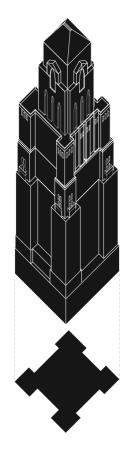


Roosevelt Hotel 1924– Rooms: 1025 Floors:19 Case study for Migrants/Migrant segment

The Roosevelt Hotel opened in Midtown Manhattan in 1924, with 1025 rooms. After its closure in 2020 due to the economic downturn of the covid pandemic, it reopened in 2023 as a shelter for asylum seekers.

#### Fourteen Case Studies

Hotels evolved to meet varying guest needs, resulting in a diversification of hotel types. Fourteen case studies from different time periods, all in New York City and each a different hotel type, are analized in their diverse spatial and functional characteristics, as well as in their relation to a specific guest.

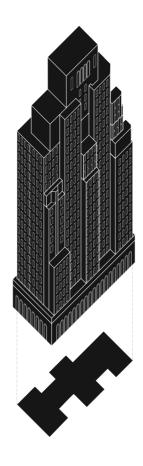




The Elk Hotel is a relic of Times Square's grungy past. It closed its doors in 2012, after almost a century of offering cheap short- and long-term accommodation to its guests.

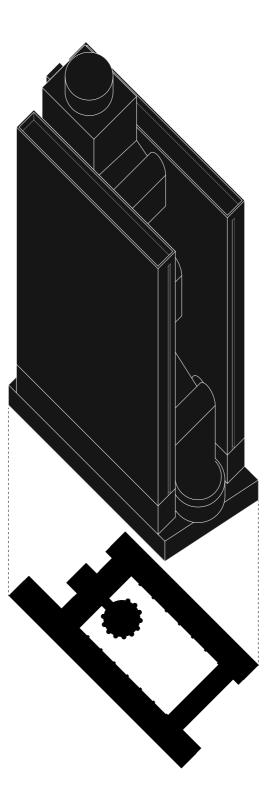


The Barbizon opened in Lenox Hill in 1927, housing 372 keys for women only. Before its renovation in 1981, it was a womenonly residential hotel, with a broad range of amenities to support women in all their needs.

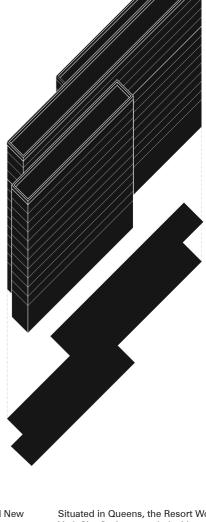


Stewart Hotel 1929– Rooms: 610 Floors: 28 Case study for Homeless/Homeless segment

The Stewart Hotel opened in Midtown in 1929. After several ownership changes, the hotel was converted in 2022 as a shelter for the homeless and/or asylum seekers with a total of 610 keys. Its primary focus is to provide care and compassion.



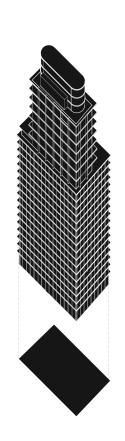
Marriott Marquis 1985– Rooms: 2023 Floors: 49 Case study for Business Travelers/Chain segment



Resorts World New York City 2012– Rooms: 400 Floors: 12 Case study for Gamblers/Casino segment Situated in Queens, the Resort World New York City Casino, coupled with an on-site Hyatt Regency hotel, operates as a racino. The distinction between a casino license and the current gaming infrastructure in the city lies in the authorization to offer table games such as poker or blackjack.

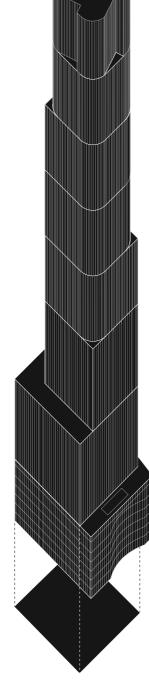
The Mariott Marquis, opened its doors on Broadway in 1985. With almost 2000 rooms, and over 100,000 m2 of convention spaces, it is

one of the biggest hotels in New York City.



Public Hotel 2017-Rooms: 367 Floors: 28 Case study for Aspirants/Boutique segment

The Public opened in Bowery in 2017 as part of lan Schragers' latest boutique hotel chain. Consisting of 367 keys, its aim is to make luxury accessible to all through comfortable accommodations and an extensive ray of private and public amenities.



Equinox Hotel 2019– Rooms: 212 Floors: 14 Case study for Wellness Gurus/Wellness Spa segment

The Equinox Hotel opened in Hudson Yards in 2019: a spa hotel launched by the Equinox fitness chain, comprising 212 keys and amenities focussed on fitness, relaxation, culture, and community. Office spaces and luxury housing are located at the bottom and top of the tower, respectively.

Nap York Central Park

Case study for Cheapskates/Capsule

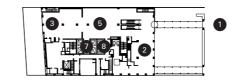
from the hustle of the city.

Nap York is a sleep station that offers sleeping

pods by the hour. It provides a tranquil environment for individuals seeking a brief rest

Rooms: 30 Floors: 3

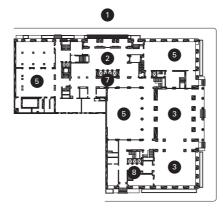
segment





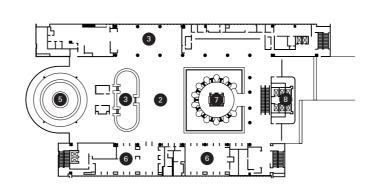
Public Hotel Rooms: 367

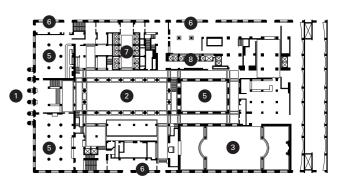
The Barbizon Rooms: 372



The Plaza Rooms: 463

Roosevelt Hotel Rooms: 1125





Marriott Marquis Rooms per floor: 2023 Hotel Pennsylvania Rooms per floor: 2200

#### **Entrance Floor**

As temporary accommodations, all hotels function according to the same fundamental principles: Guests are welcomed, guided to the entrance, and greeted at reception or check-in kiosk, receiving keys for access. After guests check in, they navigate to their accommodations and use a variety of amenities during their stay.



- 1. Street entrance
- 2. Lobby 3. Restaurant/Dining
- 4. Kitchen
- 5. Café/Bar/Lounge
- 6. Retail

7. Guest elevators 8. Service elevators

29





Liberty Inn Rooms per floor: 6

Hotel Chelsea Rooms per floor: 11



Equinox Hotel Rooms per floor: 18



Public Hotel Rooms per floor: 29



The Jane

4 m2

1.8 x 2.4 m

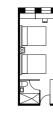
Elk Hotel 1.2 x 4 m 4.8 m2



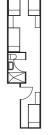
The Barbizon Public Hotel 2.8 x 3.6 m 3 x 6.5 m 10 m2 18 m2



Liberty Inn 3.4 x 6.5 m 22 m2



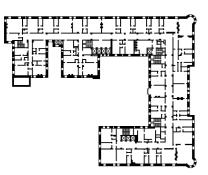
Stewart Hotel 3.2 x 7.5 m 24 m2



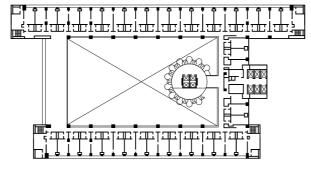
Nap York 2.7 x 11.5 m 27 m2



Roosevelt Hotel 4.2 x 9.6 m



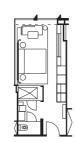
The Plaza Rooms per floor: 40



Marriott Marquis Rooms per floor: 50



Marriott Marquis 4.2 x 9.2 m 40 m2



tt Equinox Hotel is 4.2 x 10 m .2 m 42 m2



The Plaza 7.2 x 6.4 m 43 m2



Aria Rooms & Suits Las Vegas\* 5.2 x 9.6 m

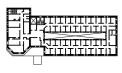


Four Seasons Orlando\* 4.5 x 12.5 m 55 m2

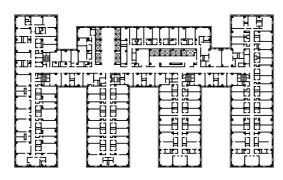


31

Chelsea Hotel 8.4 x 7.8 m 74 m2



The Jane Rooms per floor: 59



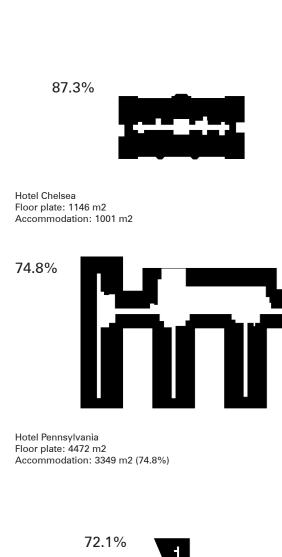
Hotel Pennsylvania Rooms per floor: 121



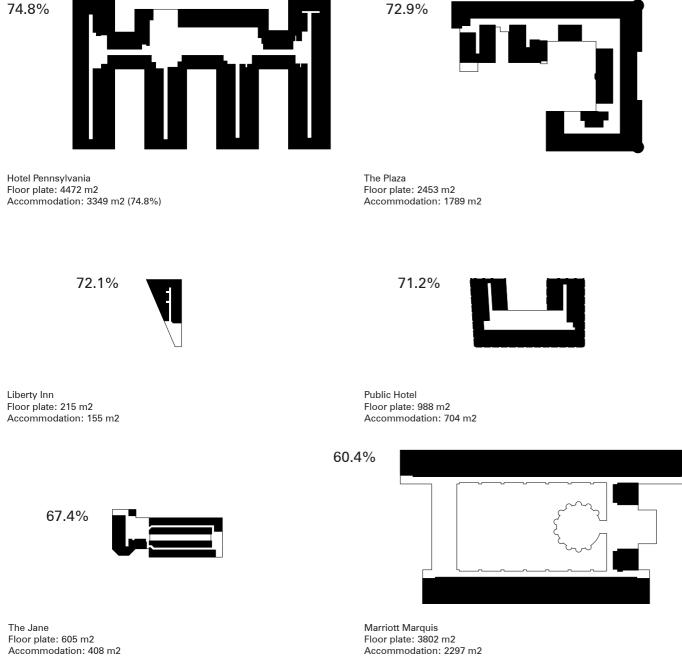


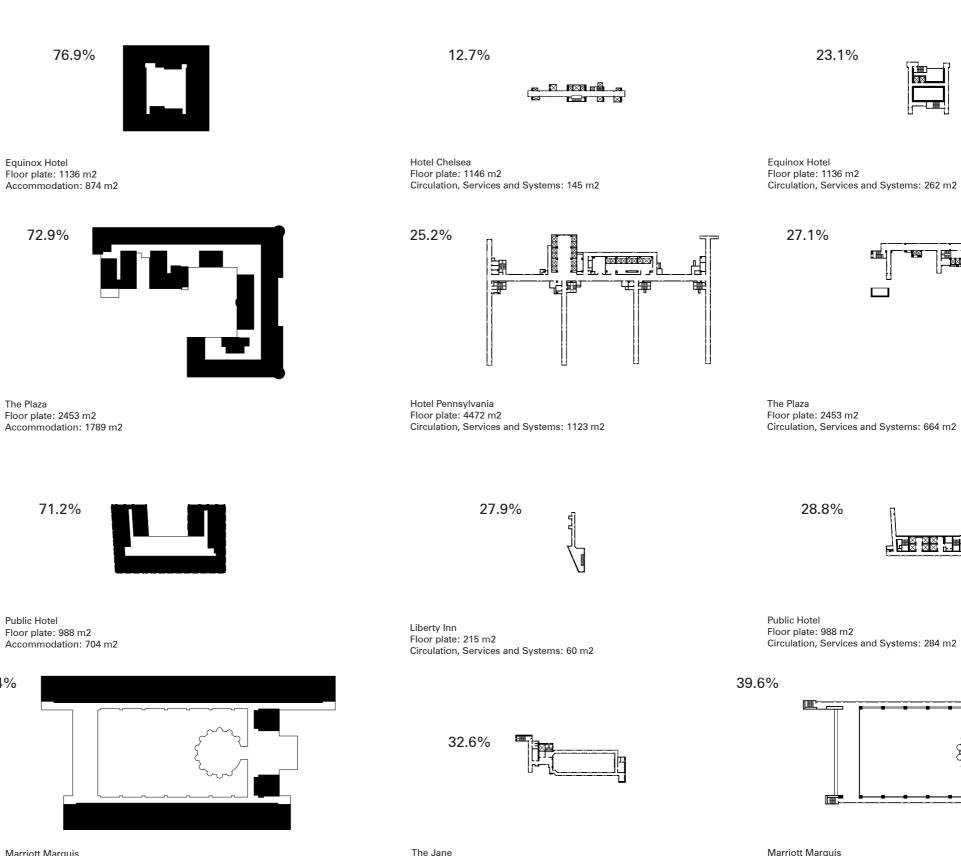
#### Fourteen Hotel Rooms

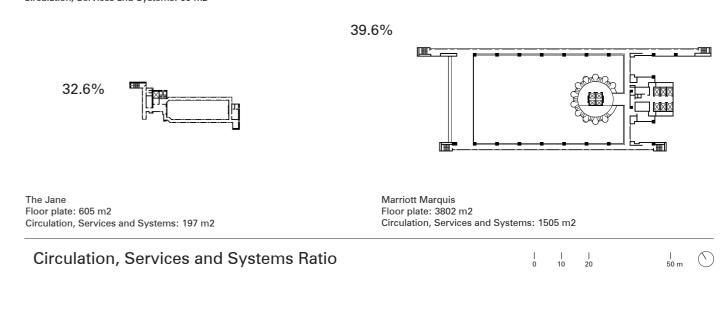
The characteristics of the hotel type and its targuet guest are reflected in the room's size, spatial configuration, furnishings and room amenities.



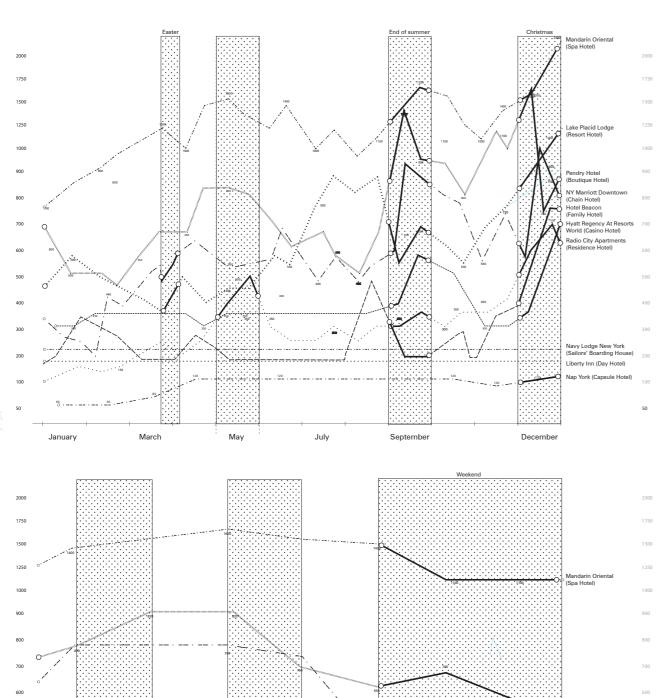
Accommodations Ratio

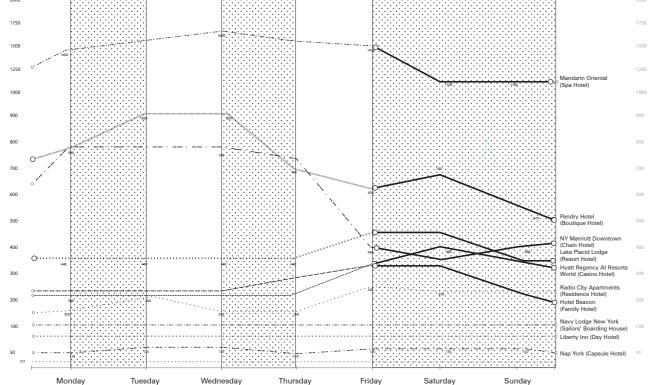






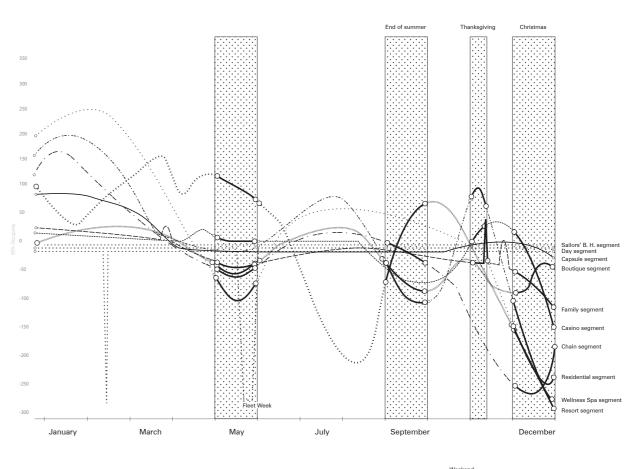
I 50 m

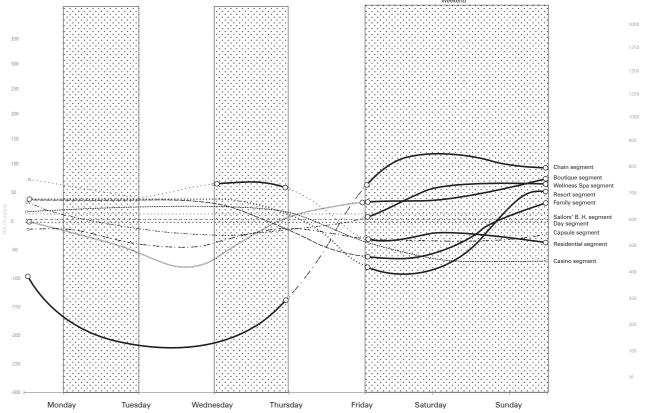




# Yearly/Weekly Hotel Prices per Type

These diagrams map the yearly and weekly hotel price fluctuations based on different hotel-type precedents.





# Projected Yearly/Weekly Room Availability per Type

A visualization of the projected occupancy and room availability of each hotel type throughout the year based on the size as a way to map potential seasonal occupancy compensations.

#### Skyscraper Museum

The Skyscraper Museum tour in NYC traced a timeline of significant skyscraper landmarks, spanning from the Landmarks Preservation Commission's inception in 1965 to the completion of the AT&T Building in 2018. Insight from the tour guides delved into city commission dynamics, exploring the impact of appointed mayors and diverse commissioner backgrounds. The evolution of landmark designations initially focused on Midtown and later downtown. Museum maps showcased designated skyscrapers, highlighting Manhattan schist's (bedrock) role and financial factors influencing locations.

A section spotlighted the Empire State Building's early 2000s restoration, addressing disrepair

and past modifications. Led by preservation architect Byran Linda Bell, the restoration, approved by the Landmarks Preservation Commission, involved replacing marble, restoring an Art Deco chandelier, and creating a new typeface. The guides pointed out the historical significance of the Bankers Trust Building, emphasizing the need for comprehensive designation reports to prevent loss to development. The AT&T Building, a 2018 landmark, exemplified adaptive preservation in a postmodern style.

Air rights and zoning emerged as crucial elements in NYC's preservation landscape, sparking public debates. The collaboration between the Landmarks Preservation Commission and building owners, fueled by federal historic preservation tax credits and tourism, played a pivotal role

in landmark decisions, underlining the intricate balance between preservation and development.

#### Skidmore, Owings & Merril

The meeting with the architecture firm began with a tour of the firm's 20th floor New York City office. The office values collaboration spaces, open areas, natural light, and acoustic solutions. The tour covered dedicated collaboration spaces, a double-height forum, material research, technology's role, flexible workspace usage, and overall comfort in the office environment.

Following the tour, a discussion on skyscrapers and hospitality took place, featuring two main projects. One project focused on a prominent super tall tower in Midtown, deemed a mega-project,

Saturday

documentation

The Barbizon

Four Seasons

The Ritz-Carlton

The Roosevelt

Hotel

Hotel

Sunday Monday Tuesday Site visit Remnants of Penn 7th Avenue and Station Museum 32nd Street and Tour with Justin demolition of Rivers Hotel Pennsylvania

Hotel Nap York Marriott Marguis Paramount Hotel

Vornado Realty Meeting with Barry Langer and Patrice Derrington

documentation: The Jane Liberty Inn

Archive visit New York City Municipal Library Skyscraper Tour, presentation and discussion

> Skidmore, Owings & Merrill (SOM) Tour, presentation and project

Wednesday

Guy Nordenson Associates Presentation and project discussion

Hotel documentation

Resort Worlds

Casino

Thursday

Columbia University Asset course on hospitality and real estate

> Hotel tour Equinox Hotel

Friday

documentation The Standard Hotel PUBLIC Hotel Hotel Chelsea The New Yorker Algonquin Hotel design and collaboration was emphasized, showcasing an office redesign project for health and wellness.

while the other highlighted low-

carbon skyscrapers. The impact

of the pandemic on workplace

The conversation delved into a research project centered on environmentally friendly, highperformance buildings. This included a manufacturing facility and research center dedicated to exploring low-carbon materials. Later, the focus turned to an indepth exploration of the Urban Sequoia project, aiming to design buildings that mimic trees and actively absorb carbon. The design featured an integrated construction approach, a concrete shell, a timber floor, and a cavity for air distribution to surpass netzero carbon emissions.

The presentation underscored the importance of flexibility in building design, incorporating technologies like solar glass, photovoltaics, and direct air capture for sustainability. The envisioned building network contributes to a forest-like system of structures for environmental benefits. The meeting concluded with a video presentation showcasing the Urban Sequoia project, addressing reduced embodied carbon, clean energy production, and an extended building lifespan.

#### **Guy Nordenson Associates**

The consultation with Guy Nordenson Associates aimed to gather expertise in designing the structure of a skyscraper featuring diverse hotel programs. The primary focus was on overcoming challenges related to core structure and fostering innovative design to shape a

distinctive communal space. The engineers emphasized

the resilience of reinforced masonry structures, spotlighting variations like cage-frame and skeleton frame constructions. The discourse also touched upon strategic material choices, including the use of timber with a height limit of 85 feet. Exploring the dichotomy between heavy and light structures, the conversation underscored the role of glass facades in light structures for optimal views. The engineers discussed the benefits of redundancy and reducing weight, proposing potential integration of masonry for infill or load-bearing functions, challenging conventional perceptions of skyscrapers as exclusively glass towers. Further discussions revolved around the relationship between structure and core, examining ad-hoc structures like the Seagram building and moment frames, alongside innovative concepts like outrigger trusses meeting the core. Superstructures were positioned as primary elements, complemented by adaptable and lighter secondary structures aligned with a Metabolism approach. Additional considerations included sitespecific factors such as bedrock presence, potential subway rails below, and the utilization of trusses for spanning tracks. The meeting concluded with insights into the significance of skylobbies, the flexibility of secondary structures, and considerations for spread footings contingent on-site conditions.

Remnants of Penn Station Tour

Justin Rivers, the enthusiastic tour guide, led a captivating

exploration of Penn Station, weaving personal anecdotes and historical insights. His roots in New York and a 25-year obsession with Penn Station, dating back to his Fordham University days, added a personal touch.

The two-hour tour delved into Penn Station's rich history, from its grand opening in 1910 to the controversial demolition and the subsequent construction of Moynihan Train Hall. Using images, Jason showcased the station's original grandeur, drawing parallels with Roman baths and European architecture. Exploring the station's layout, Rivers touched on challenges faced by non-vehicle travelers, navigating areas like Seventh Avenue. He detailed the original driveways, courtyards, and waiting rooms, which have long been replaced by retail and high-traffic concourses. The back area discussion covered baggage carousels, entryways, and historical lighting fixtures. Art installations, redevelopment plans, and controversial proposals were also addressed, emphasizing the significance of oftenoverlooked details.

Jason's narration extended beyond Penn Station to Hotel Pennsylvania, touching on its failed restoration plans and proposed redevelopment. He discussed the challenges of preserving historical landmarks, the potential relocation of Madison Square Garden, and the historical context of Gimbels Mall. Concluding with the latest Penn Station renderings, including art installations and the challenges faced during its original demolition, the tour provided an in-depth insight onto the complex history of renovation and development around Penn Station since the 1960s.

#### **Expert Conversations**

Ten-day schedule of fieldwork in New York City, along with summaries of conversations we had with experts from different fields.

Hotel visit

One Hotel

Hotel

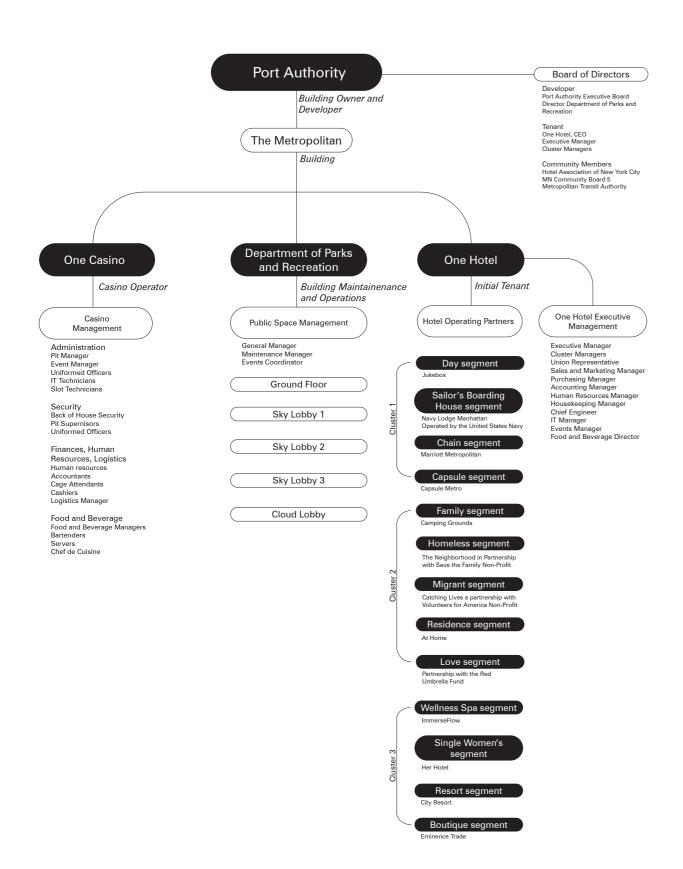
Brooklyn Bridge

documentation

Waldorf Astoria

Archive visit

New York City Municipal Library



A casino where gamblers are dealt a good time.

A boarding house that refreshes enlisted sailors.

A day hotel where lovers cross paths and share fleeting intimacies.

Capsules that treat cheapskates with a good deal.

A chain hotel that entices business travelers to extend their journey.

A family hotel that all members of the nuclear family can enjoy.

A homeless hotel that invests in children's better future.

A migrant hotel that shelters those on long-term relocation.

A residential hotel that is (almost) home to precariats on the move.

A love hotel where sex workers and customers can be intimate in a safe environment.

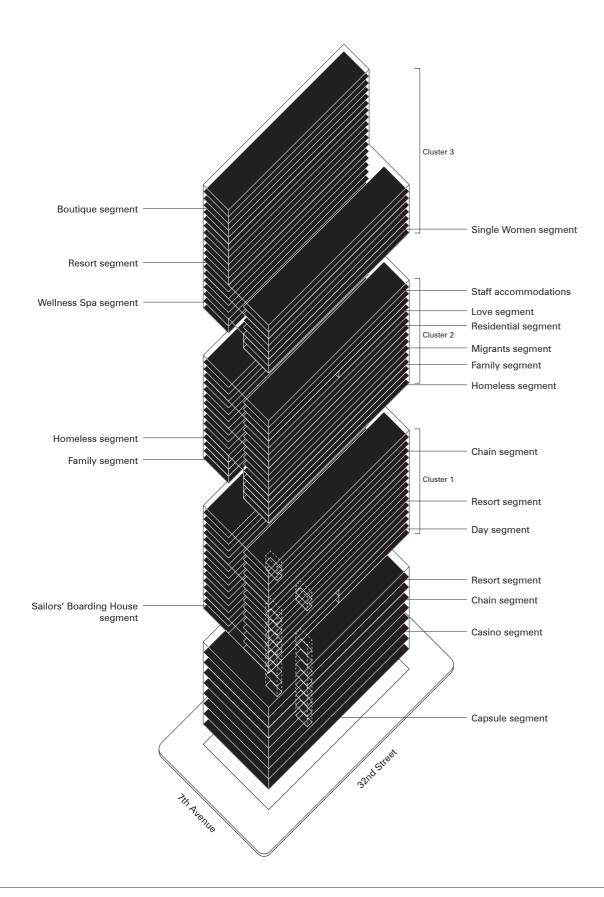
A wellness spa that blends sensory treatment with water-enhanced tranquility.

A resort that indulges vacationers in a manicured paradise.

A single women's hotel that supports women to live freely and confidently.

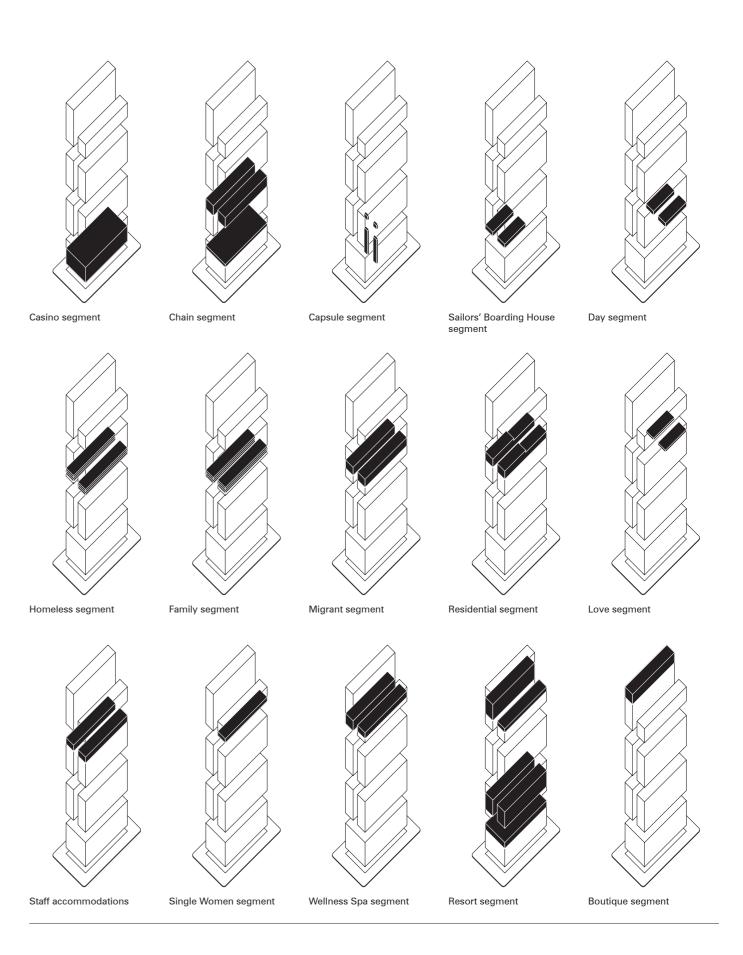
A boutique hotel that elevates aspirants' real life and online presence.

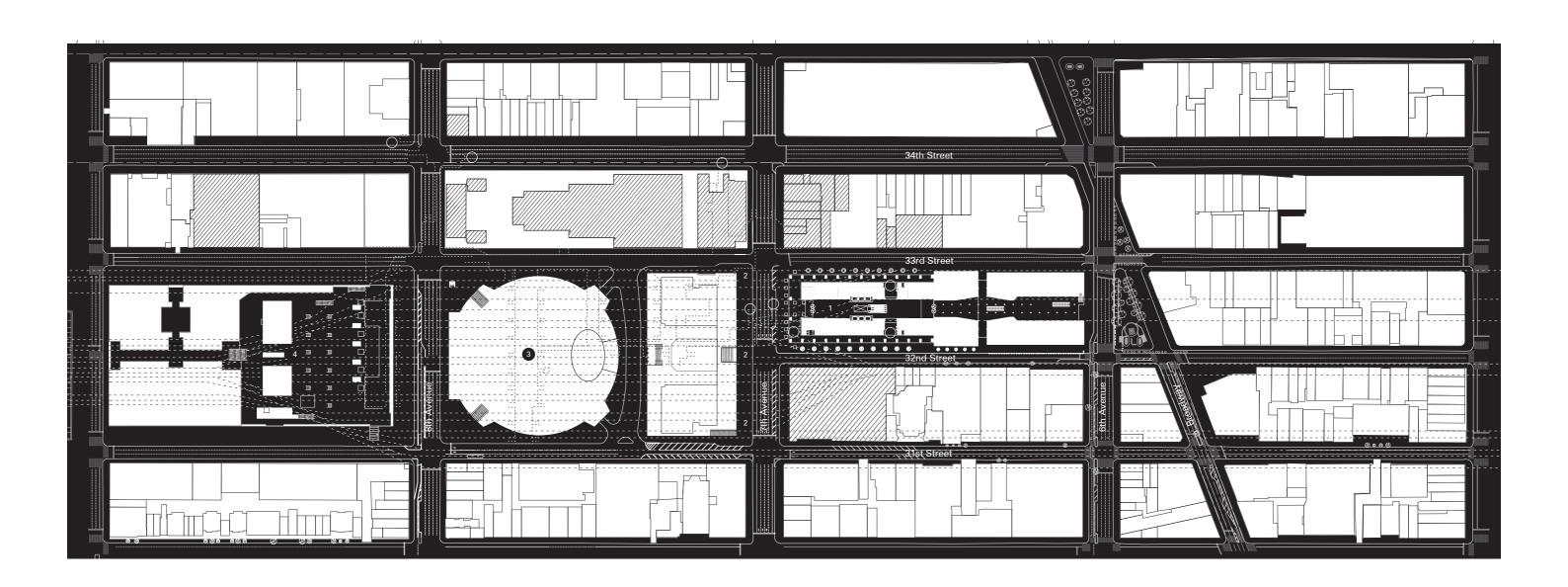
Hotel Ownership and Operation Diagram





The fourteen segments are arranged in clusters in the building. The first cluster has hotel accommodations and amenities intimately connected to the life of the city. The hotel types of the second cluster are associated with longer-stay accommodations and amenities. The accommodations in the third cluster are more private in nature. They are still connected to the city, but this connection occurs through views, rather than through the public invitation at the base of the building.





## Site Plan

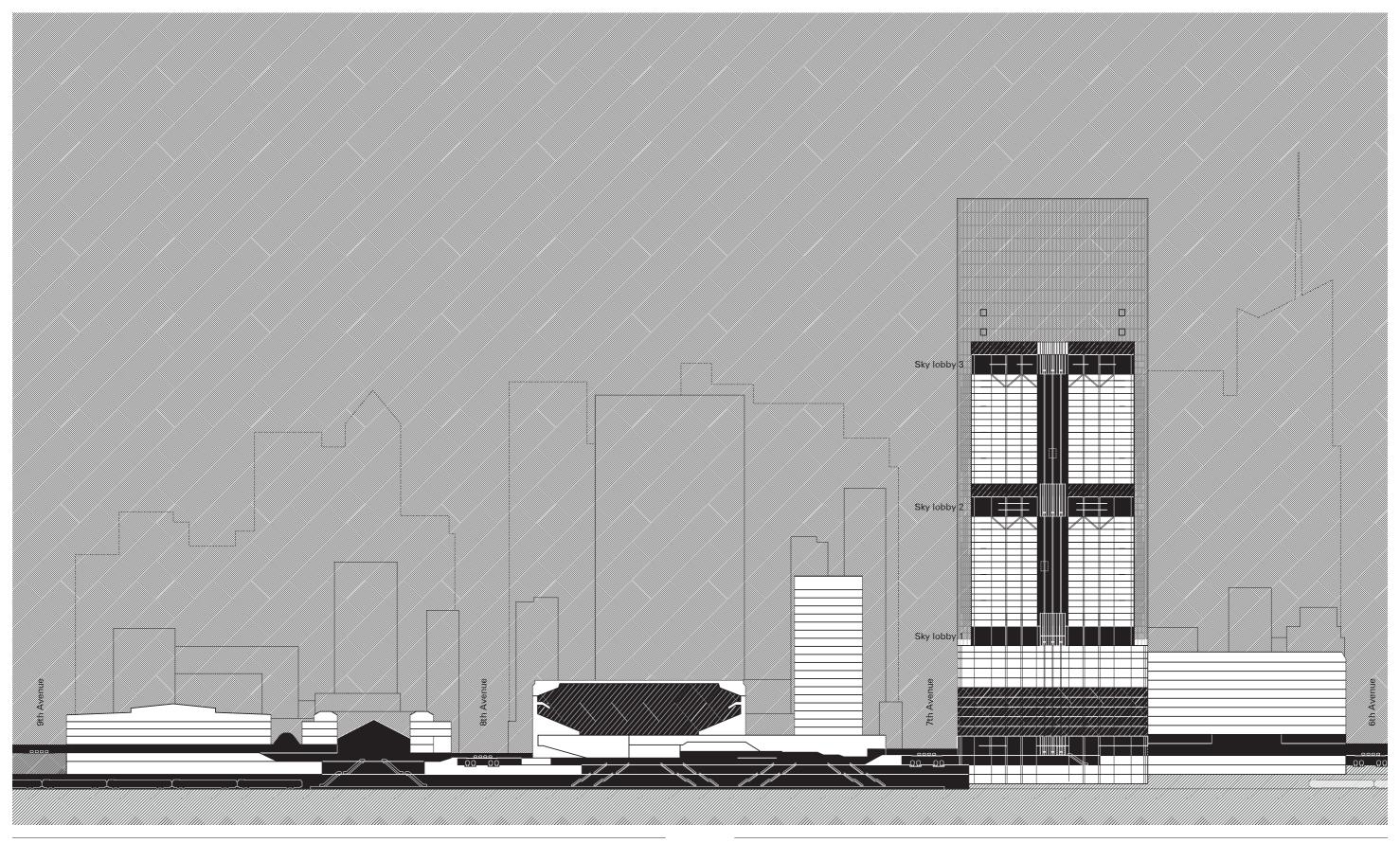
The Site of The Metropolitan is largely influenced by the Pennsylvania Station which runs below Madison Square Garden. The entrances to the station are at several points around the site thus leading to a complex underground network. The Moynihan Train Hall, redeveloped in 2020, is an above ground part of Pennsylvania Station and contributes to the commuter traffic. Besides the density of the site the details of ownership and real estate are important factors to note. The Vornado owned and development sites around The Metropolitan have a great influence on the design decisions that are taken for it. This would eventually modify the current nature of the site.



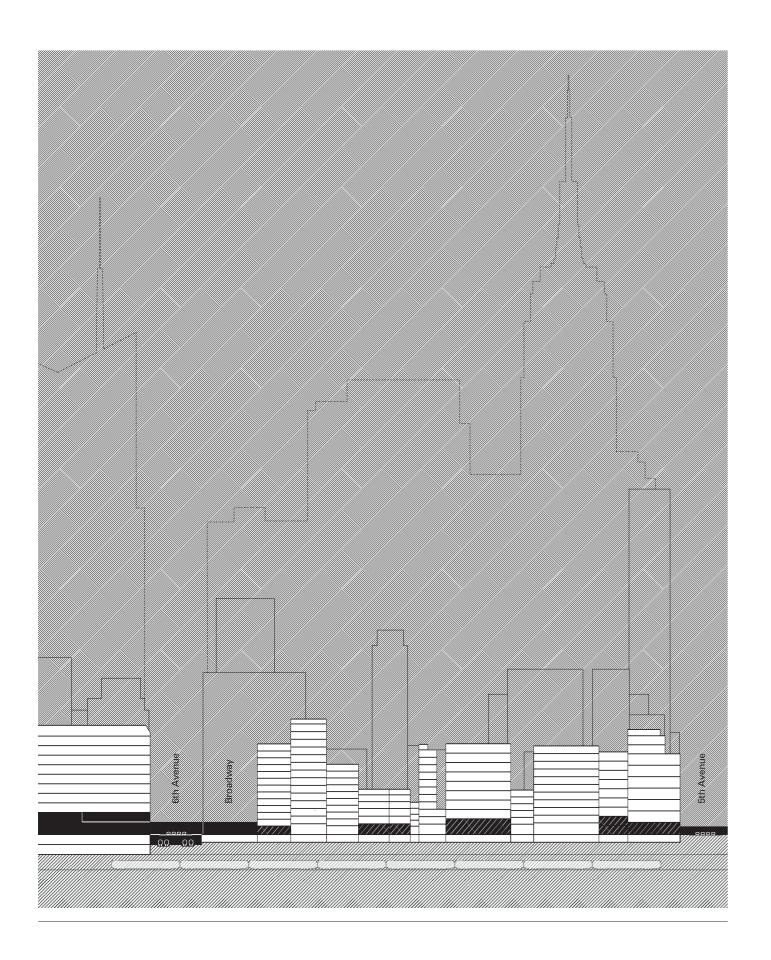
50

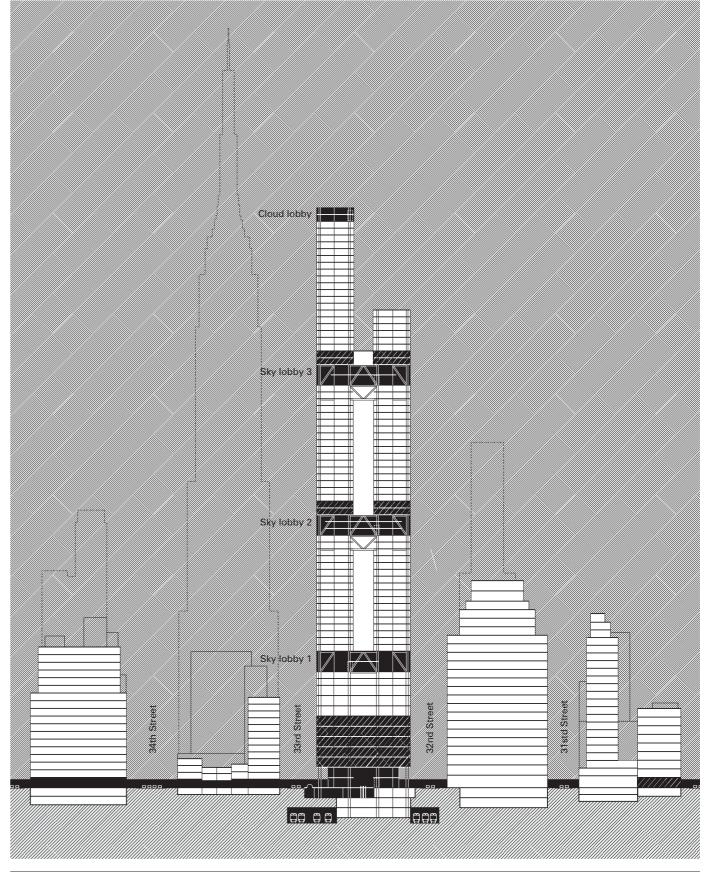
m ()

- The Metropolitan
   Access to Penn
- Station 3. Madison Square
- Garden
  4. Moynihan Train
  Hall
- Public space
  Subway exits
  Vornado property
- --- Penn Station tracks
  --- Lower level commute
- --- Lower level com

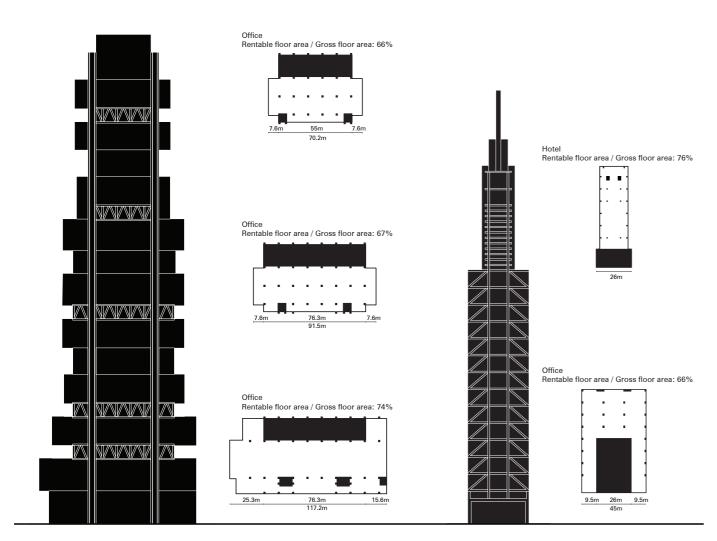


Context Section East-West





Context Section North-South



The peripheral core in PENN15 is designed to provide large office space to attract high-end tenants.

Off-set cores of different sizes at different heights in the Comcast Technology Centre give the office and hotel their own spatial flexibility.

Hotal
Rentable floor area / Gross floor area: 71%

Office
Rentable floor area / Gross floor area: 75%

Office
Rentable floor area / Gross floor area: 75%

Office
Rentable floor area / Gross floor area: 63%

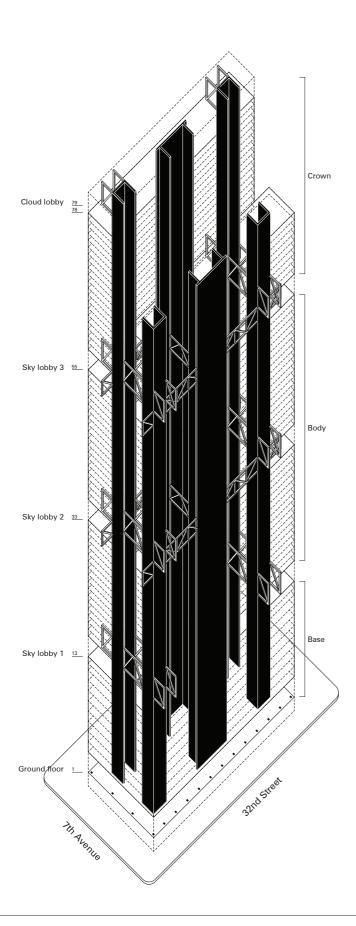
Office
Rentable floor area / Gross floor area: 63%

Office
Rentable floor area / Gross floor area: 63%

The decentralized cores of HSBC reduce the area ratio of the cores through a structural system enhanced by the association of multiple cores.

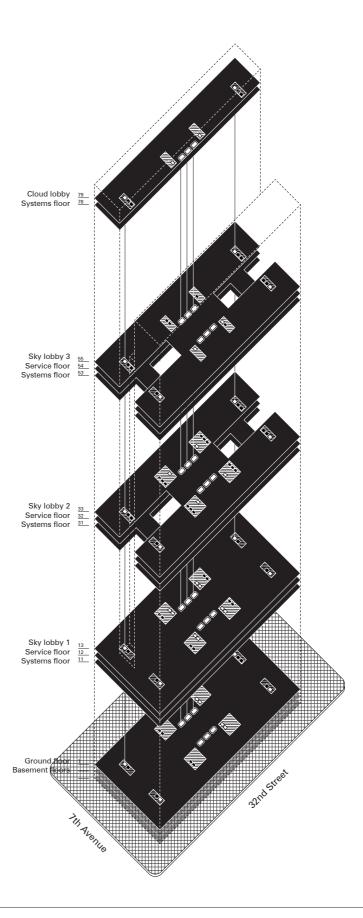
Kingkey 100 embodies the high potential of an outrigger structural system, and the core shrinks with increasing height and splits from the central core into two atrium cores.

Skyscraper Core and Structure Case Studies



## Structure Axonometric

Symmetrical cores and trusses increase the structural efficiency, thus reducing core sizes. The cores are divided into three six smaller cores along the length of the building, leaving adaptable open spaces, and allowing for differing arrangements between hotel types across the floors. The lateral load is absorbed by an outrigger truss system that stiffens the building. Where the outrigger trusses are located, big open spaces with long spans become possible, which is desirable for public amenities.

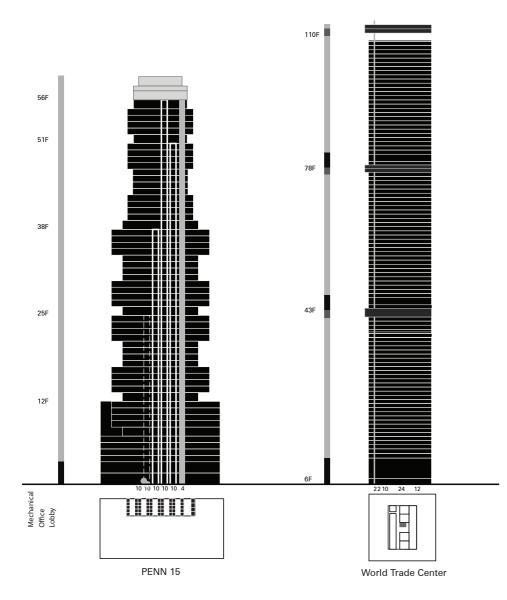


### Vertical Circulation Axonometric

The vertical circulation is composed of three elevator systems: Metro Express, express, and local. The Metro Express connects with the subway, and stops on the ground floor, sky lobbies and observation deck. The express and local elevators are separated according to guest (central cores) and service use (corner cores). The express elevators stop at public and service floors, while the local elevators shuttle inside designated clusters.

Guest elevator core

Service elevator core



Office building high-rise like PENN 15 uses a straight-forward elevator scheme where the elevators connect the ground floor to a set of higher floors.

Sky lobby is a typical elevator scheme employed to reduce shaft space, and improve the efficiency of the elevator system. It acts as an intermediate interchange floor where people can change from an express elevator to a local elevator that stops at a subset of higher floors.

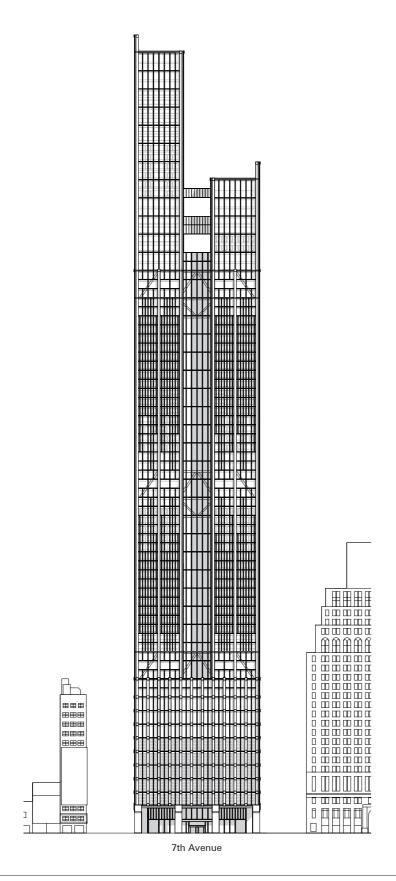
75F 

Shenzhen Jingii Tower

In the case of a mixed-use skyscraper with office and hotel, Kingkey 100 has a more complex elevator system with different ground access, one sky lobby for its office space, one check-in lobby for hotel, and an observational deck.

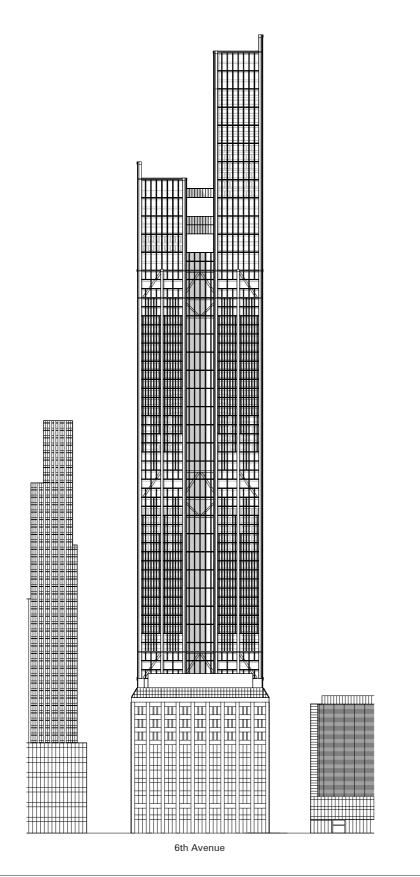
When envisioning a mixed-use highrise with office, residence, and hotel, the sharing of amenities floor is achieved through additional express elevators.

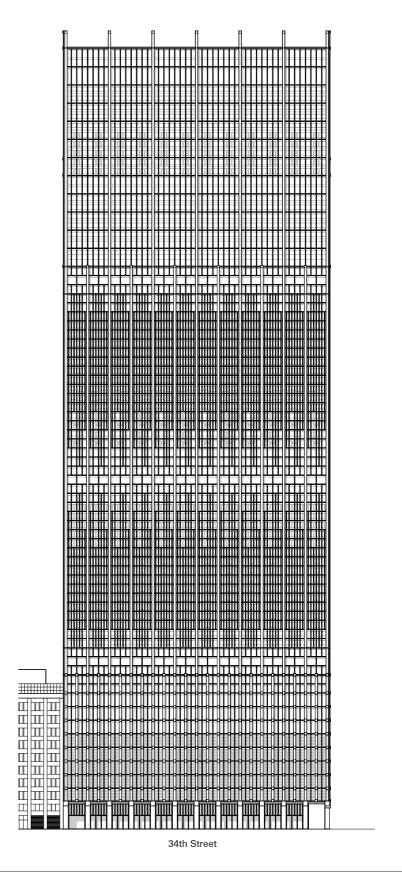
Skyscraper Elevator Case Studies

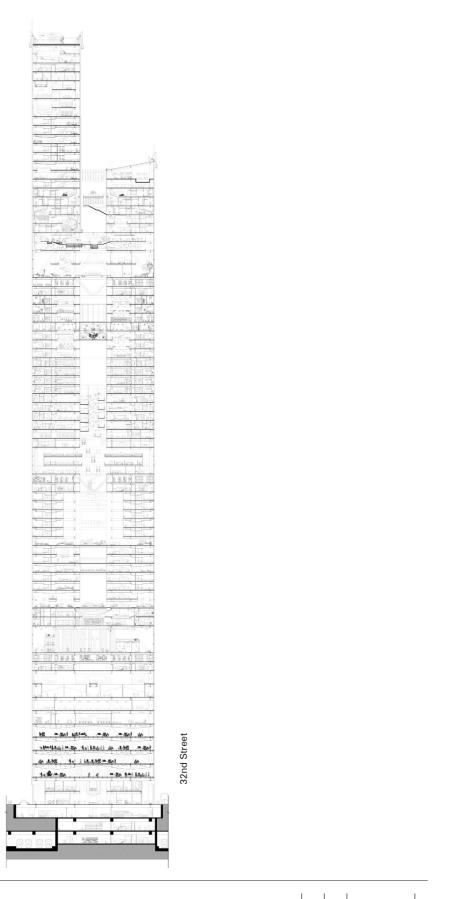


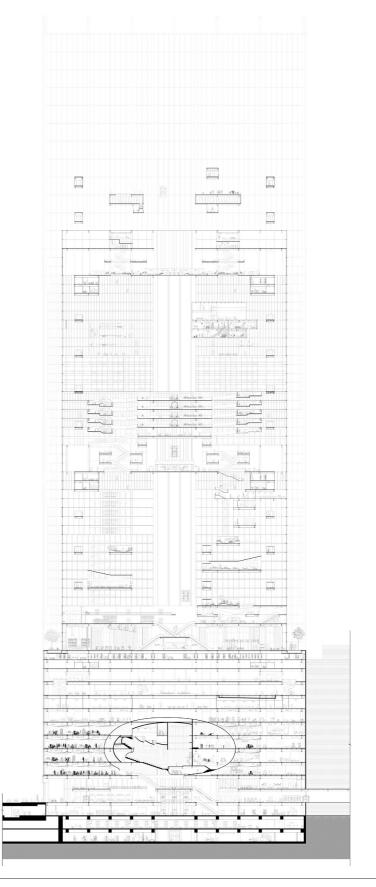
33rd Street

Tower Elevation - West Tower Elevation - South



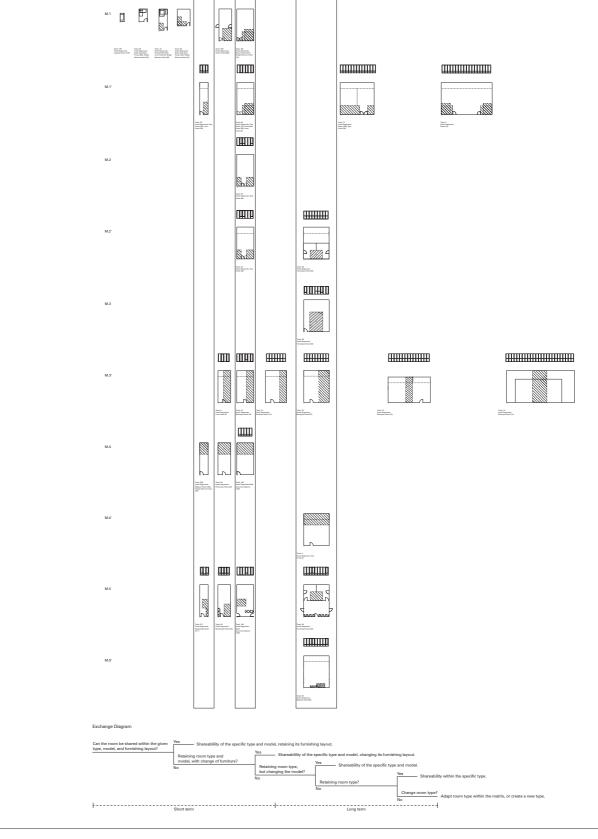






Tower Section North-South Tower Section West-East

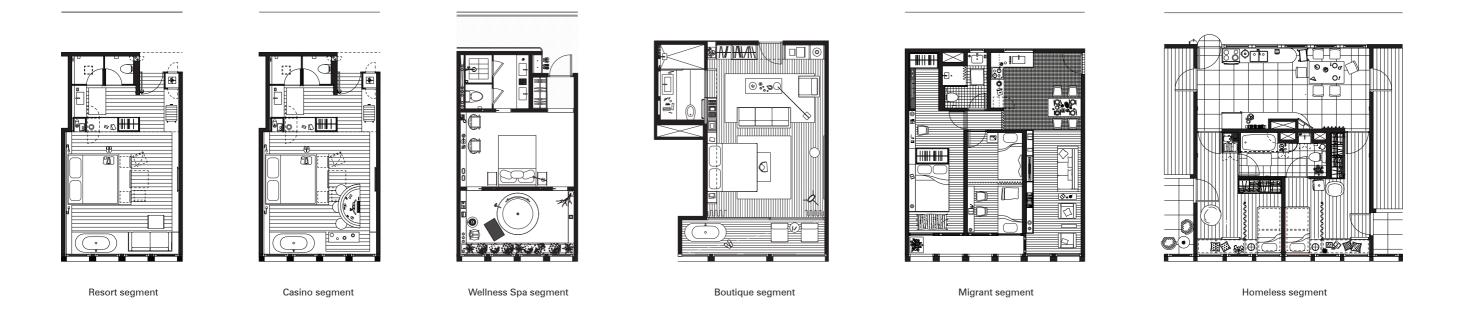
0 Casino segment 72 Day segment 100 Sailors' Boarding House segment 160 Capsule segment 300 Chain segment 112 Family segment 84 Homeless segment 264 Migrant segment 365 Residential segment 40 Love segment 130 Wellness Spa segment 112 Single Women's segment 508 Resort segment 70 Boutique segment 180 Staff Accommodation 2497 One Hotel Total Keys



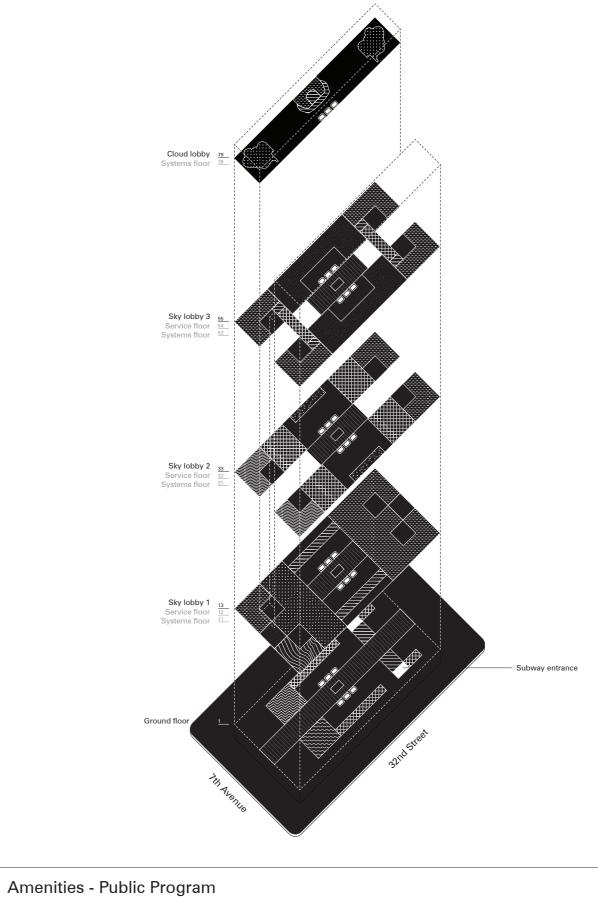
Accommodation Matrix

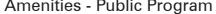
One Hotel Keys



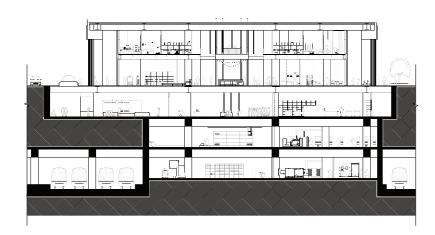


Typical Room







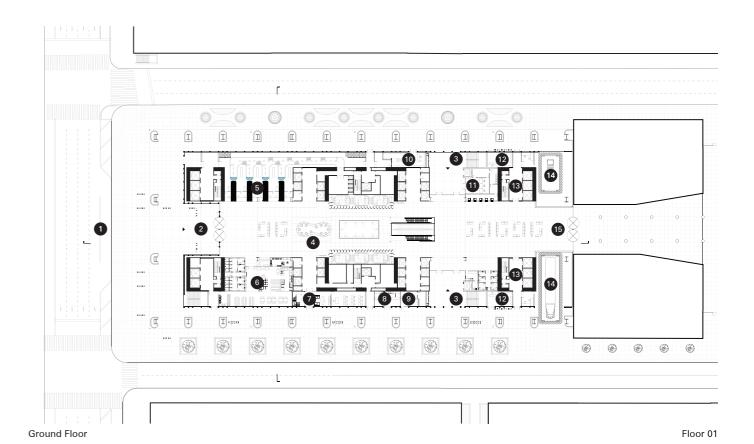


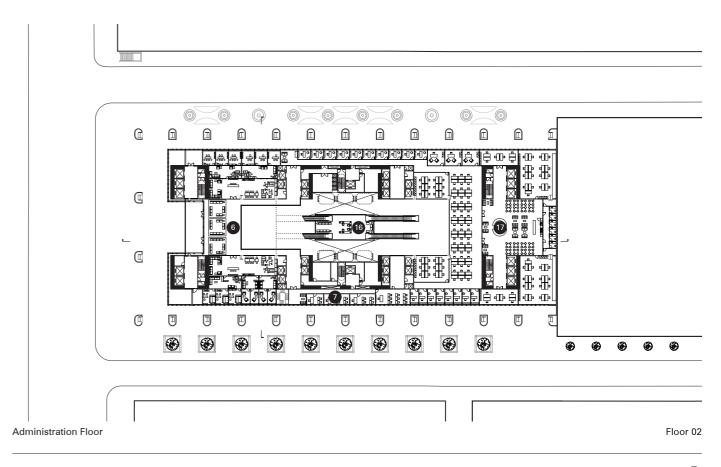
Cross Section of Basement and Ground Floor



Longitudinal Section of Basement and Ground Floor

**Ground Floor** 





1. Motor lobby

4. Reception

facility

6. Migrant

2. Entry plaza 3. Subway entrance

5. Luggage drop-off

7. Language center

8. Coffee shop

9. Post office

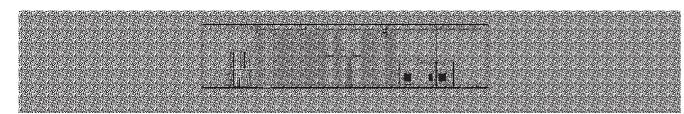
welcoming center

10. 24/7 convenience

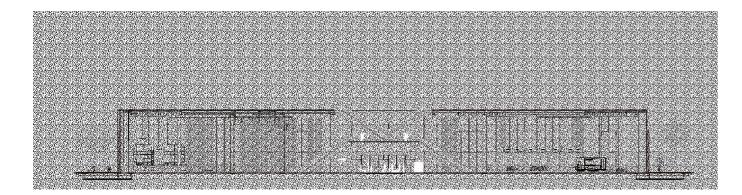
store 11. Bank 12. Flower shop 13. Staff entrance

14. Truck elevator to loading dock below

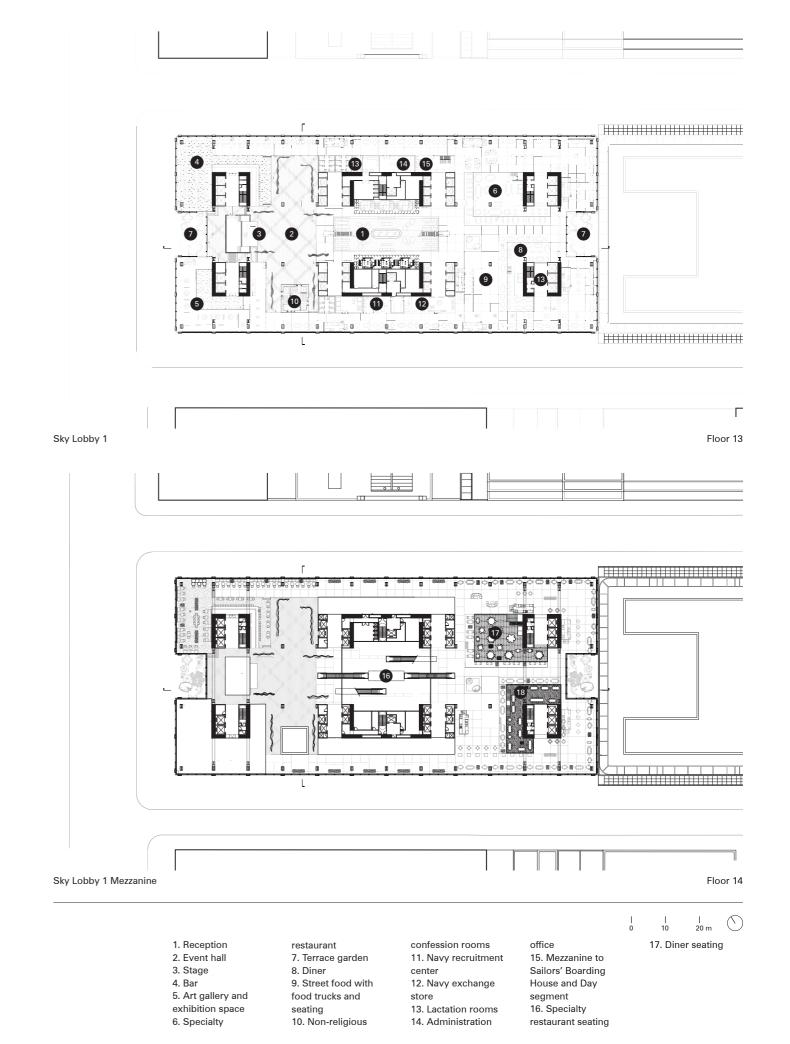
15. Link to Manhattan Mall 16. Casino security check-point 17. One Hotel administration offices

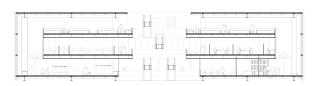


Cross Section of Sky Lobby 1

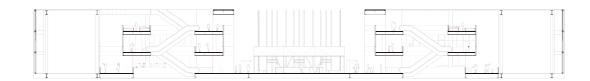


Longitudinal Section of Sky Lobby 1

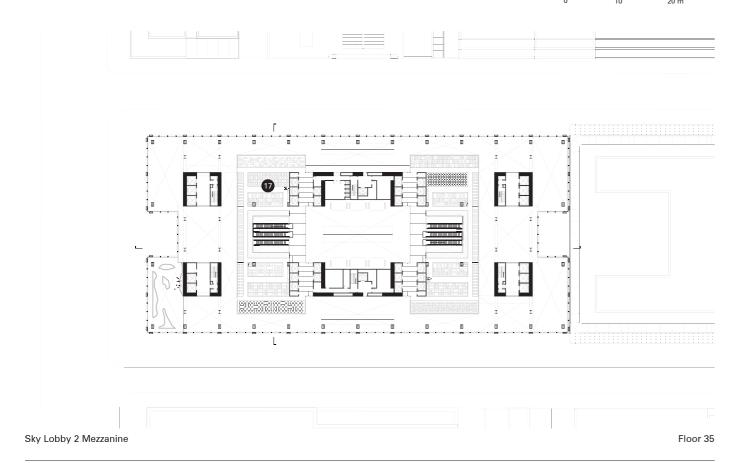




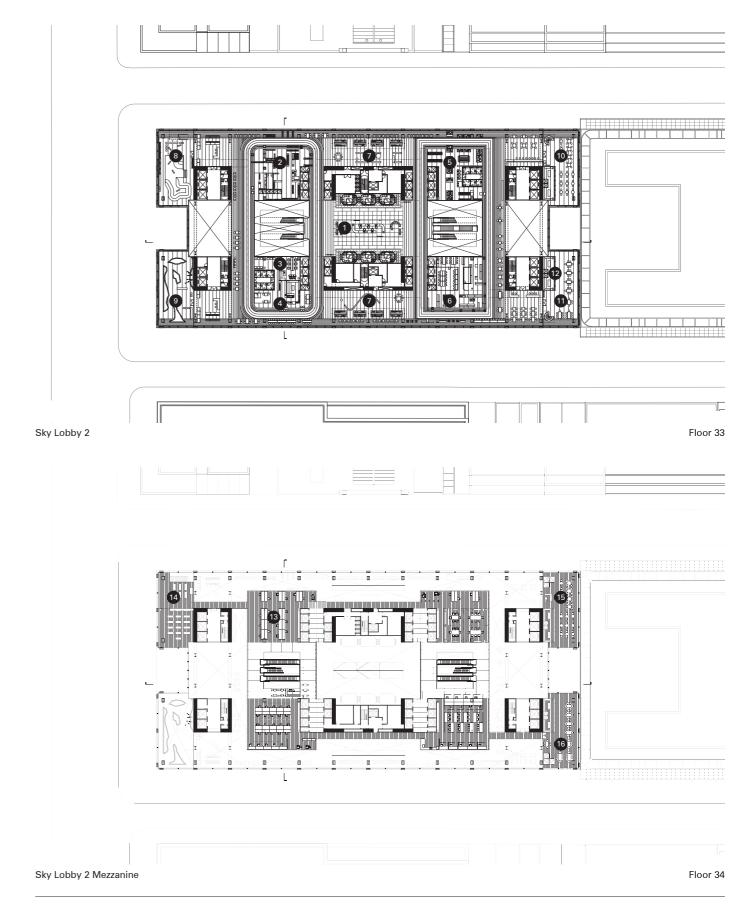
Cross Section of Sky Lobby 2



Longitudinal Section of Sky Lobby 2



Sky Lobby 2



Reception
 Thrift shop and tailor's shop

hop 9. Rock o

3. Barber shop

4. Bakery5. Convenience store

5. Convenience store restaurant
6. Library 11. All-day

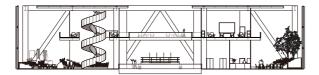
7. Street market8. Skatepark9. Rock climbing

gym space 10. Specialty 14. \

restaurant
12. Dumbwaiter
13. Co-working
spaces

14. Yoga studio
15. Specialty
restaurant seating

16. All-day restaurant seating 17. Indoor production garden

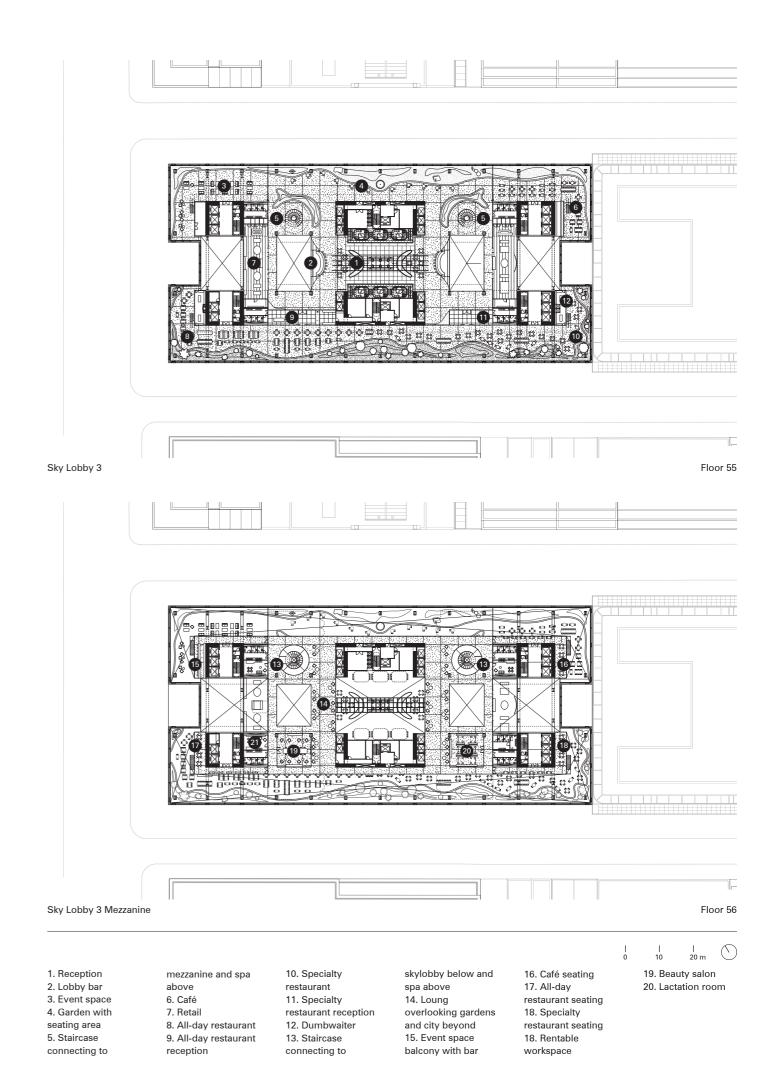


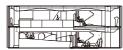
Cross Section of Sky Lobby 3



Longitudinal Section of Sky Lobby 3

Sky Lobby 3



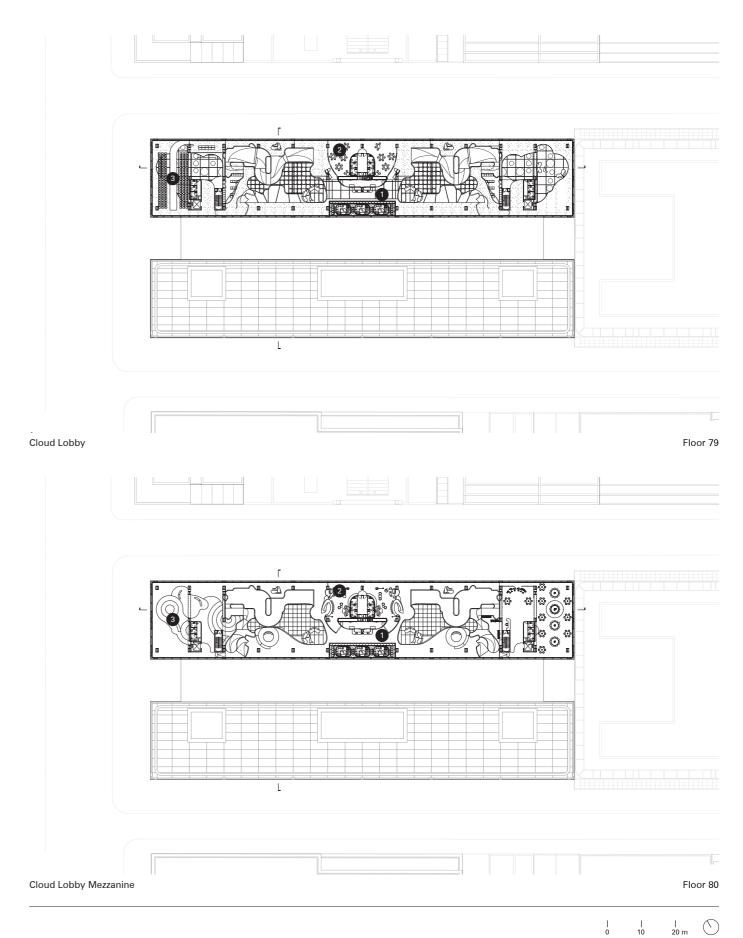


Cross Section of Cloud Lobby



Longitudinal Section of Cloud Lobby

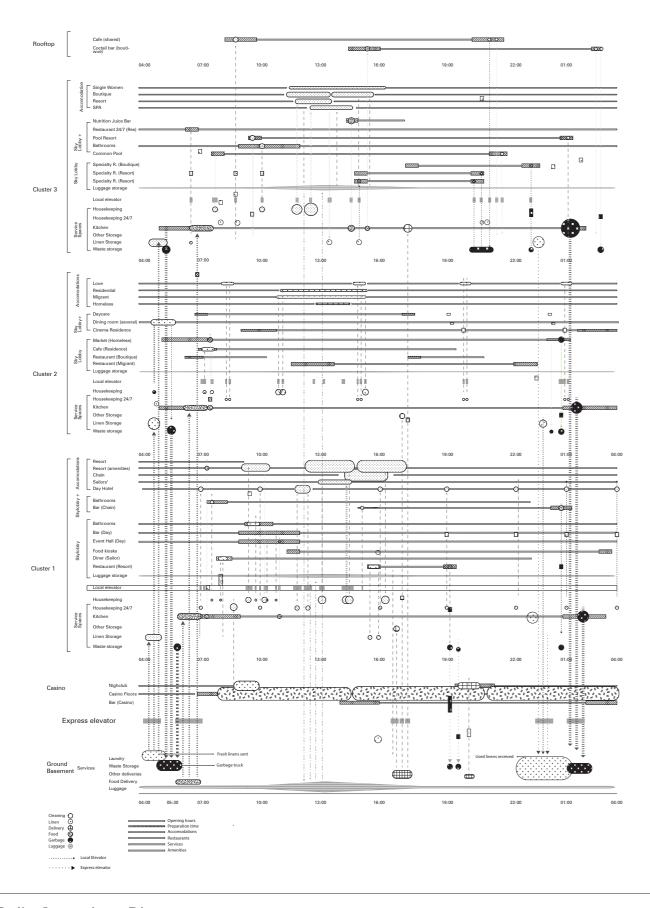




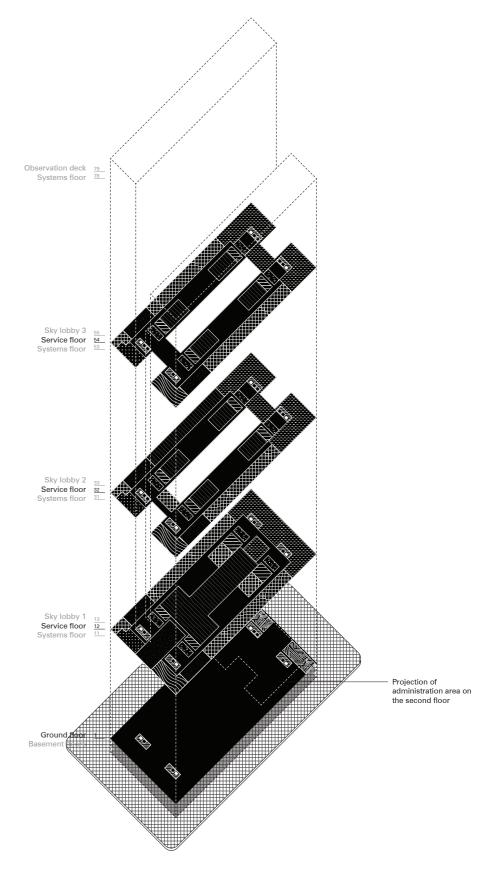
1. Reception

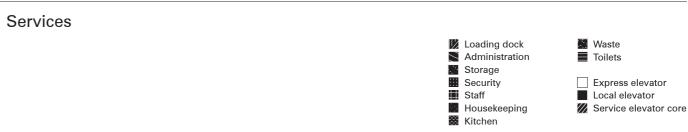
2. Café

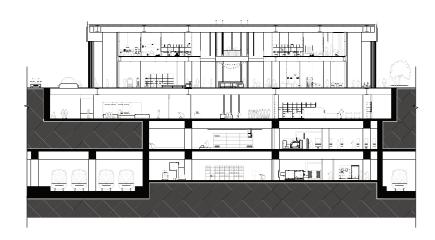
3. Event space



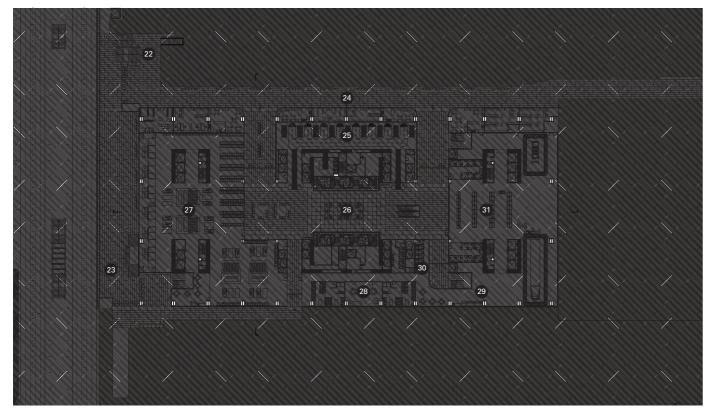
Daily Operations Diagram











Basement Floor -1

#### **Basement Floors**

- 1. Elevator maintenance and
- repair 2. General storage
- 3. Truck elevator
- 4. Casino vault
- 5. CCTV room
- 6. Water treatment room
- 7. Water tank room
- 8. HVAC room
- 9. Maintenance room 10. Smoke control
- 11. Sprinkler System room
  - 12. Fire pump room 13. Irrigation pump room
  - 14. Gas distribution 15. Access control
- 16. Luggage storage facility 17. Waste loading
- and sorting area connected to truck elevators
- 18. Track compactor
- 19. Backup generator 20. Uninterrupted

passage to Penn

- power supply room 21. Storage 22. Underground
- 23. 34th Street Penn Station subway platform

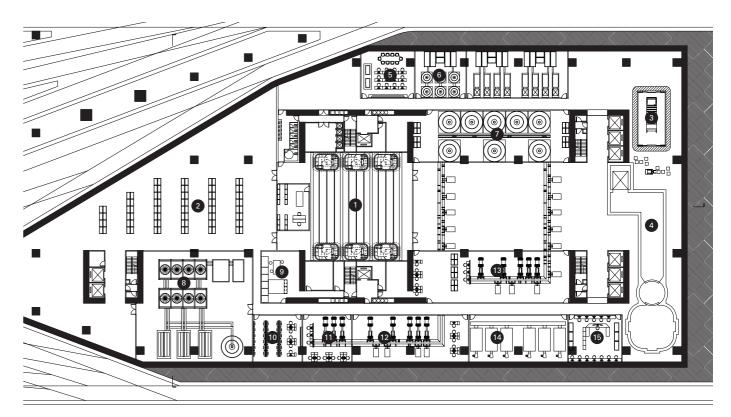
Station

24. Gimbel's passage and retail 25. Luggage drop-off facility 26. Reception 27. Central laundry

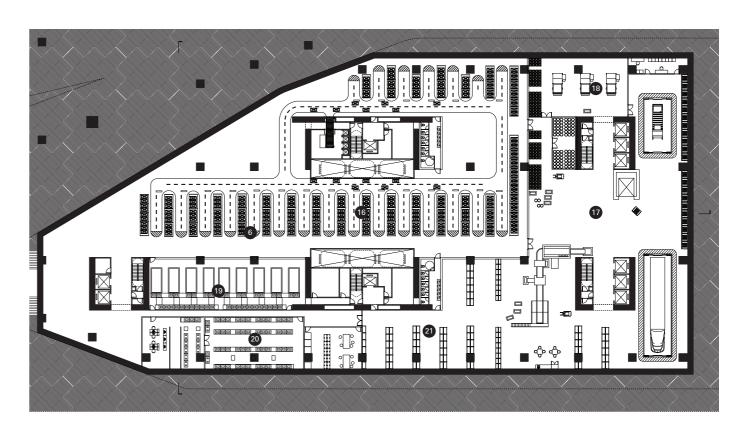
28. Employee uniform and changing areas 29. Employee

lunchroom 30. On-duty sleeping pods 31. Loading dock connected to truck elevators on the

floor above



Basement Floor -3



Basement Floor -2

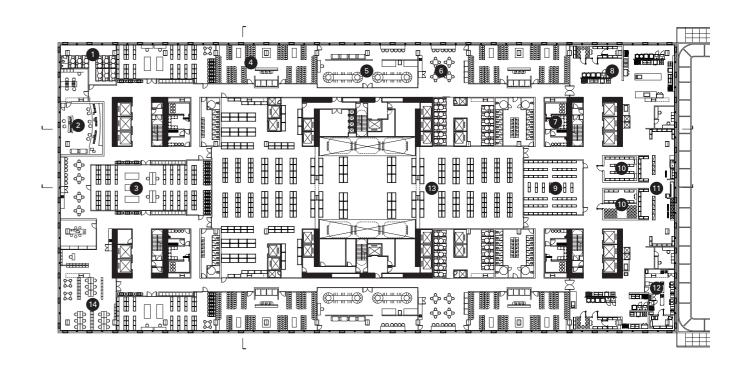


Service and Systems Floor Sections (Floors 11–12)

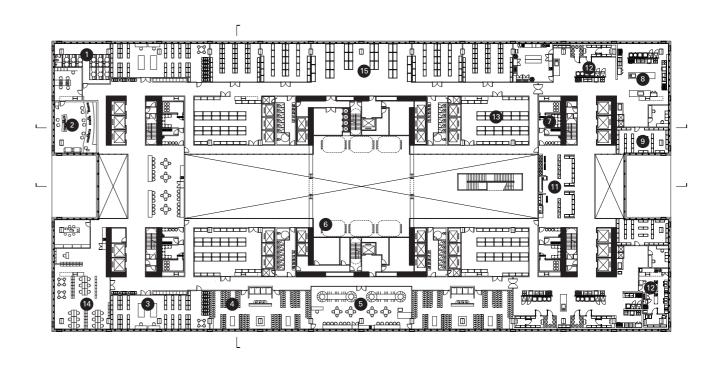


Service and Systems Floor Sections (Floors 31–32)

Service Floors



Service Floor Floor 12



Service Floor Floor 52

1. On-duty sleeping pod

CCTV control room
 Housekeeping

offices 4. Employee

room 8. Kitchen

room

changing room 5. Uniform room

6. Employee lunch

7. Waste collection

Dry storageCold storage

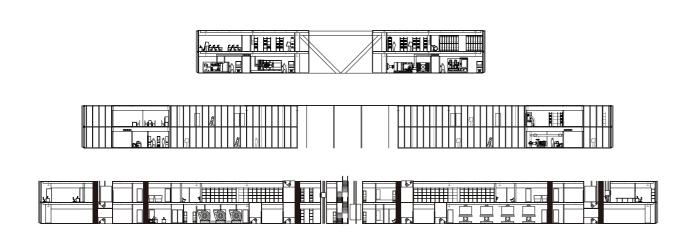
10. Cold storage 11. Dishwashing

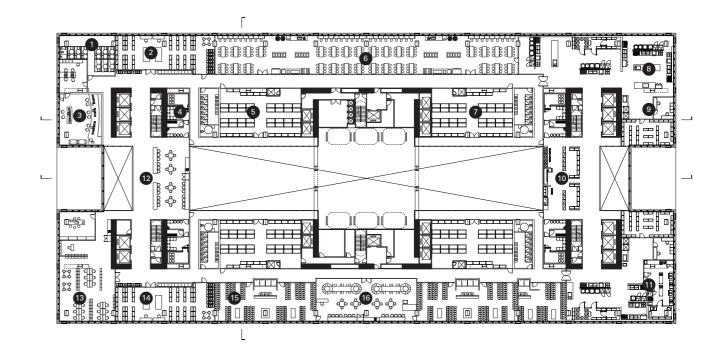
station 12. Pastry kitchen

13. General storage14. Cluster

management offices 15. Guest storage

87





Service and Systems Floor Sections (Floors 53–54) Service Floor Floor 54

Service Floors

pod 2. Housekeeping offices 3. CCTV control room 4. Waste

1. On-duty sleeping

5. Luggage storage 6. Employee dining 7. General storage

8. Kitchen

10. Dishwashing

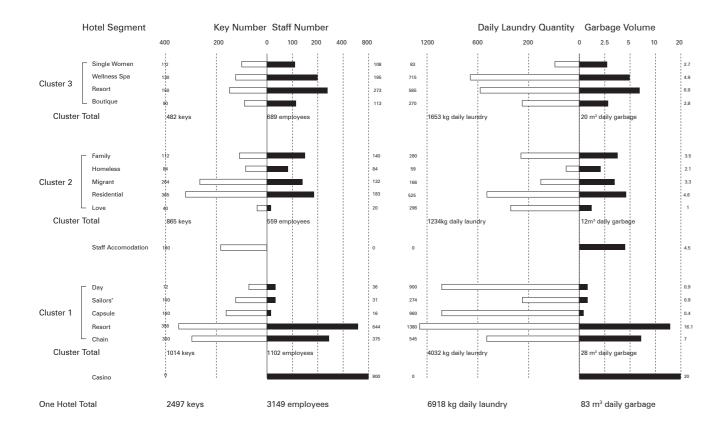
9. Dry storage

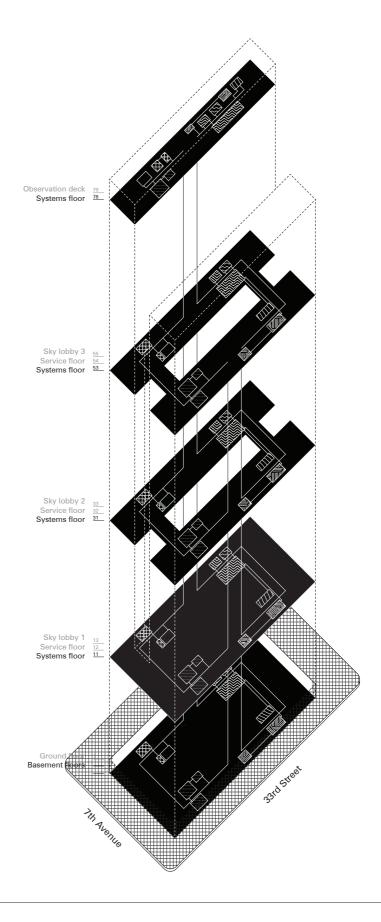
station 11. Pastry kitchen 12. Employee lunchroom

14. Housekeeping

13. Cluster management office

office 15. Employee changing room 16. Uniform room

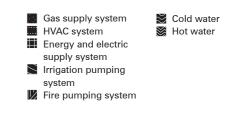




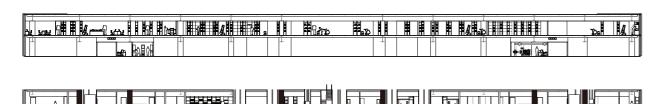
## **Hotel Calculations**

Diagram comparing hotel segments through number of keys, calculations of number of elevators, number of staff, amount of laundry and waste.

# Systems





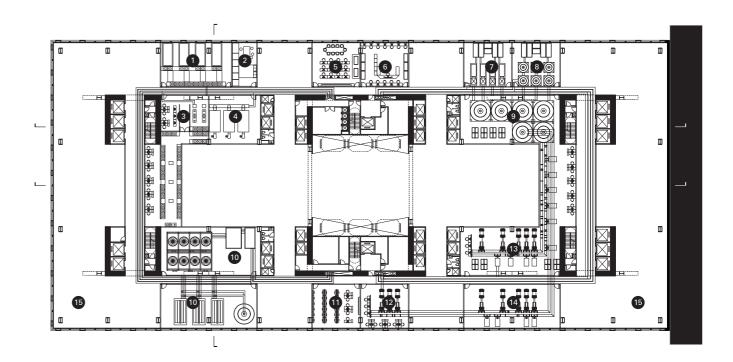


Service and Systems Floor Sections (Floors 11–12)

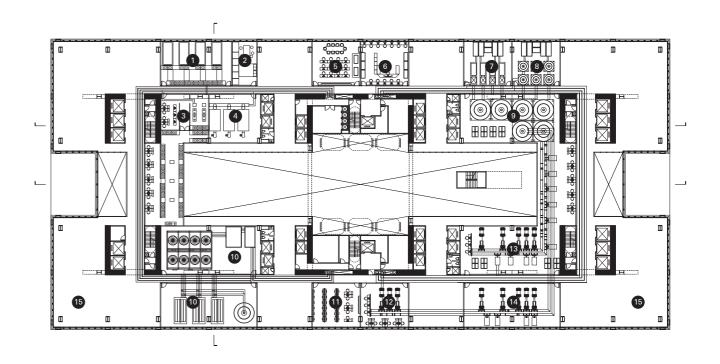


Service and Systems Floor Sections (Floors 31–32)

Systems Floors



Systems Floor Floor 11



Systems Floor Floor 31

room

room

Backup generator room

2. Maintenance

workshop
3. Uninterrupted
power supply room

4. Gas distribution

7. Water treatment room8. Hot water plant

5. CCTV room

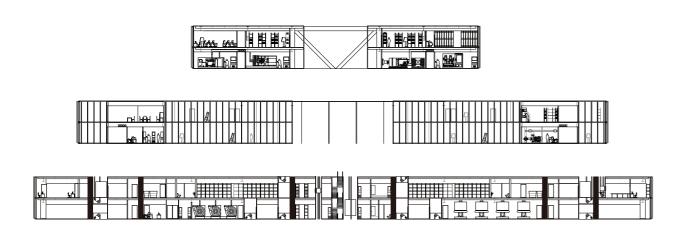
6. Access control

room
9. Intermediate water tank rooms
10. Central HVAC

13. Irrigation pump
HVAC room
14. Fire pump room

plant room 14. Fire pump room 11. Smoke control 15. Refuge area

12. Sprinkler system

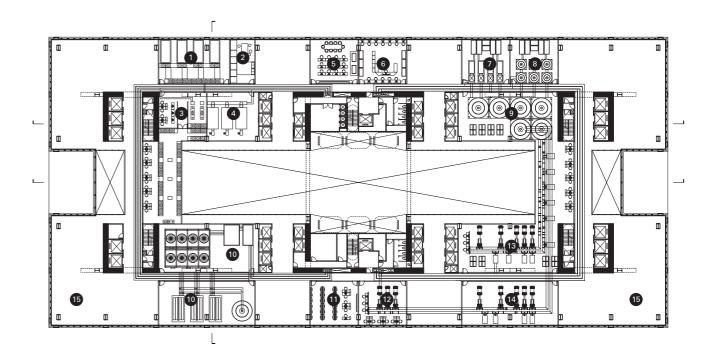


Service and Systems Floor Sections (Floors 53-54)

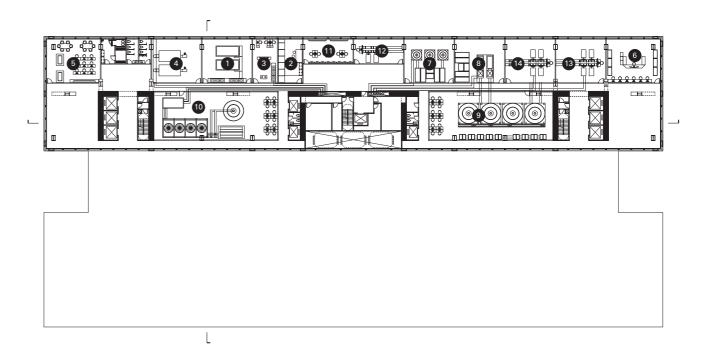


Systems Floor Cross Section

# Systems Floors



Systems Floor Floor 53



Systems Floor Floor 78

room

room

1. Backup generator 2. Maintenance

workshop 3. Uninterrupted

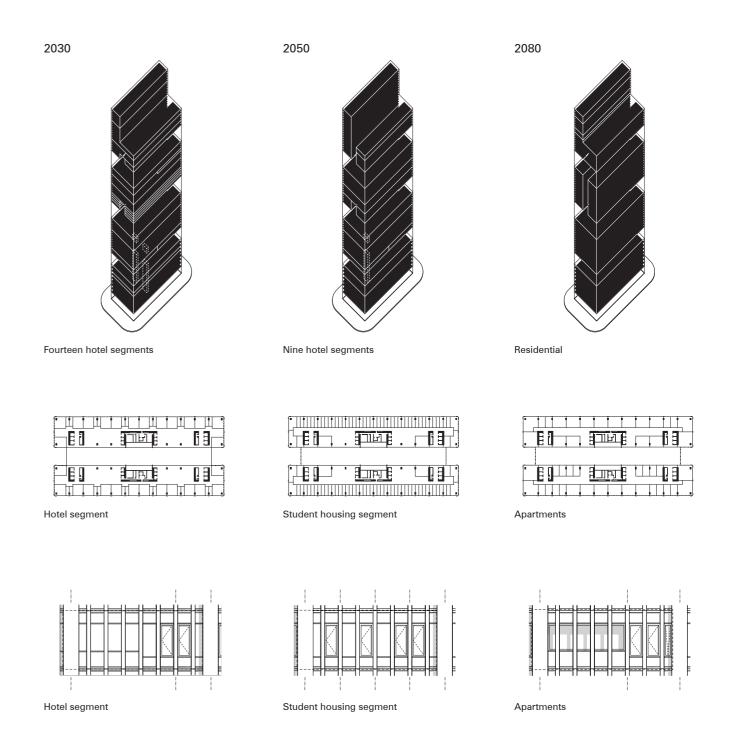
power supply room room 4. Gas distribution 8. Hot water plant

5. CCTV room 9. Intermediate water 6. Access control tank rooms 10. Central HVAC 7. Water treatment

room

plant room 11. Smoke control 12. Sprinkler system 13. Irrigation pump

room 14. Fire pump room 15. Refuge area



### Afterlife

One Hotel may shift and change in response to changing demographics. A successful hotel segment may take over another. The hotel segments could move from thirteen, to eight, or twenty-three. As the program shifts, the facade's secondary elements will come and go. As will temporary walls and plumbing. Public spaces will host new tenants. Apartments could fill the floors once held by One Hotel. Regardless of the fluctuation inside, the Metropolitan will remain a landmark in the skyline of New York City.

New York City has the highest population of homeless people in the United States.

Data from May 2023 show that out of the total 83,030 homeless individuals registered in New York City's DHS shelters, one-third were children and one-third were individual adults with children. During the 2021–2022 school year, one in ten students in New York City lived in unstable or temporary accommodations. They numbered 104,292.

As a result of intense instability in their family environment, unhoused children typically experience difficulties in school enrollment and attendance. They perform significantly lower than peers who live in stable homes, and they require more time until graduation.

The root causes of homelessness in New York City are complex, encompassing the lack of affordable housing, systemic poverty, and crossgenerational trauma, such as domestic violence.

These conditions are intimately linked to the city's laissez-faire and often discriminatory urban development. Since the time of its establishment as a Dutch colony, New York City has grown because of its stakeholders' affluence, and their aspirations have manifested in plans to continuously accommodate more capital.

"Not in my backyard"—NIMBY, the idea that problems are better solved at a safe distance from one's own idyllic abode—is still a prevailing mindset among the city's citizens. There are currently fifteen support facilities for homeless families in Manhattan, sixteen in the Bronx, nineteen in Brooklyn, twelve in Queens, and three in Staten Island. Most of these support facilities fall into the transitional housing category, offering temporary accommodation along with certain services, such as healthcare, childcare, career guidance, housekeeping, and security. Almost all of these facilities operate in retrofitted spaces, primarily hotels, former industrial sites, or residential buildings and schools.

Guests in these facilities frequently report issues such as congestion, subpar hygienic conditions, inefficient servicing, and security concerns. In

response, city officials have proposed relocating some families to permanent housing and renovating existing support facilities. However, the 2013 story of Dasani, a girl growing up in a homeless family shelter in Brooklyn as it was documented by Andrea Elliott and awarded with a Pulitzer Prize in 2022, remains as topical as ever. The number of homeless children and families in New York City is consistently growing, and yet there is a notable absence of government-led efforts to increase the supply of affordable housing.

To address existing cycles in New York City's homelessness crisis, the contribution reinterprets the homeless family hotel type as a combination of the transitional housing type and the boarding house type. It proposes a temporary housing establishment that provides a framework of emancipatory amenities, services, and systems, and a framework for community participation/engagement that together allow for personal development toward independence, in a home-like, flexible, and safe environment. The guests of the Homeless segment enter One Hotel via the building's public ground floor or via the Hotel's direct underground connection to Penn Station. On the ground floor, a sign close to the 24/7 reception desk displays the segment's room vacancies. The experience of checking in at the Homeless segment is meant to be both comfortable and streamlined. To ensure efficient servicing during guests' stays, the Homeless segment operates in the broader regulatory framework of DHS's Prevention Assistance and Temporary Housing (PATH), meaning that a set of identification documents defined by the agency are requested by the reception during check-in, and assistance to retrieve them is provided if needed. Initially, through the express, metro, and local elevator system, the guests can then experience the skyscraper as a new, temporary neighborhood.

The segment and the neighborhood are walkable transitions. The Homeless segment offers 140 private rooms, and its accommodation floors are articulated in the second accommodation cluster, from floor thirty-eight to floor forty-one. The pedestrian parkway, a structure of accessible ramps leading to

recreational and play spaces that runs across the vertical open space of the skyscraper, connects all floors to the semi-private mezzanine level of sky lobby two. Each floor plate and the pedestrian parkway between them are shared with the Family segment. The positioning of both segments alternates between the north and south sides on each floor, intentionally blurring the line between homeless and non-homeless families, while the parkway becomes a place for play between children and for everyday encounters between parents who stay at One Hotel.

The segment and the neighborhood consist of unique places across the entire skyscraper. The design and location of the places where amenities are available to the guests of the segment considers the length of their stay, an estimated three years. Proximity and accessibility are instrumentalized to ensure safety and facilitate routines that could promote well-being, while the sensory qualities of the spaces aim to create a pleasantly memorable living experience, along with opportunities for social mixing and exploration that could have positive effects on disposition. particularly on the cognitive and physical development of children. On the parkway, the placement and form of the green spaces, seating areas, and playgrounds is consistent across its five levels, and vegetation and Montessori play equipment make the experience and presence of the space both intriguing and comforting. Safety precautions are facilitated through key-card sensitive portals installed at the parkway's entrances, and by staff members who oversee the space to help deescalate potential accidents. The connection to floors thirty-seven and thirty-six, accessible only to guests and staff of One Hotel, integrates the parkway into One Hotel's overall program of amenities and acts as an additional safety threshold.

Through the thresholds, the guests of the Homeless segment can walk safely and pleasantly among peers, or engrossed in their thoughts, to and from activities and amenities of varied privacy levels: on floor thirty-seven these are carefree days at the daycare, nutritious shared meals at the dining room, individual or group sessions at the healthcare, therapy, and consultation facility, and relaxing

visits at the semi-public bathhouse. On floor thirty-six, an escalator below, they are aptitude-building classes, study sessions, or lectures at the school assistance and vocational training facility, creative experiments at the hobby rooms, both of these boosted by the cutting-edge devices of the technology-borrowing hub, and checkrooms that ensure that any belongings not needed during a stay remain safe at the long-term storage facility. On floor thirty-three, the public main level of sky lobby two, a couple more escalators below, the guests can purchase everyday life goods in the 24/7 market and the thrift store by using their key cards to charge the balance to their rooms, as part of the Homeless segment's budgeting training program.

Similarly, on sky lobby three, an elevator ride above, the guests can book appointments for renewal and care at the beauty salon, and on sky lobby one they can take part in the 24/7 vibrant festive atmosphere of a square. The metro system of elevators is a safe threshold between the neighborhood and the city streets on the ground floor, its subway on basement one, and its skyline of possibilities on the observation deck.

The segment and the neighborhood are community.

The Homeless segment offers 140 private rooms comprising 84 keys that become the base of a flexible and supportive community. There are two main categories of keys. The most common type is primarily comprised of two private rooms and one bathroom shared between them. It has two variations, depending on whether it also includes a communal kitchen or a glassed loggia. Each of the private rooms of this type, in both of its variations, is designed to accommodate one individual adult or child. The second type consists of one private room, one private bathroom, and a glassed loggia. The room, in this case, is designed to accommodate a couple, a single mother with a toddler under the age of four, an individual needing a higher level of privacy, or two individuals who wish to live in the same room. On each floor there are fourteen keys of the former type and seven of the latter. The sequencing of the keys in clusters allows for all the

private rooms to remain interlinked through the shared communal spaces between them, which are the glassed loggias on the facade side of the room, and the kitchens on the room's corridor side. In this way, a family of guests can always stay together, no matter its size, while it is certain that they will have "housemates," with whom they can develop amiable relationships and share the responsibility of their common spaces during everyday routines. The glassed loggias can be adapted to their negotiated preferences through furnishing provided by the Hotel. They can be appropriated into living rooms to hang out, while enjoying the view and listening to music, additional places to cook and eniov meals together, play areas for children, and additional storage space for bikes, strollers, or other everyday objects. The loggias at the outer corners of the floor plates are significantly larger and can be used on occasions by more guests than those who have immediate access to them through their rooms.

On the side of the corridor, each front door has a mailbox for the guests who share it.

Clearly visible and across from the front doors, the corridor and open shared spaces on each floor are a foremost everyday nexus, the core of the walkable neighborhood that is formed across the skyscraper. And simultaneously, they are unique places on each floor, integral to the guests' engagement in the neighborhood. On all floors, the design is distinct from the accommodations, partially imitating the non-housing or outdoor context that usually surrounds a house. However, the placement of furniture reflects the proportions of the rooms, providing an aspect of continuity. Amenities and activities catered to parents and children aged 0-12 are consistently placed on the west side of each floor; things meant for teens are located on the east.

Floor thirty-eight is called the Court, due to its clearer boundaries. As the first accommodation floor of the Homeless segment, directly above the floors of sky lobby two, it is pet friendly, providing guests with opportunities to responsibly care for fluffy critters and take dogs for walks through the parkway, the metro elevator, and to the city. The shared open space on the east

is a boxing club run by the Homeless segment for its guests, and, depending on availability, for children and parents who are otherwise guests of One Hotel. The sport's principles of pursuing discipline, mental strength, control, and focus is proposed to address potential behavioral problems and put young guests on a pathway to improved life chances. The design of the space stands out due to its smooth and easy-to-clean surfaces, embellished by minimal geometric tiles, its stone-like furniture, its floor pillows, and its light curtain or glass partitions. The subtle scent of lemon and peppermint in the floor's air-conditioning system has mood-boosting properties.

Floor thirty-nine, the Yard, is designed with porch-like corridor thresholds. The guests there can make and enjoy some tea or coffee while chatting, reading books, or playing boardgames that they could pick out of the tree-like shelves. The space is neutral, cozy, scented with pine; the playful layout of the tree-like furnishings comprise a perfect place for hide-and-seek games.

Floor forty is called the Hills. The corridor's carpeting resembles grass, and toward the open space the floor shifts and forms the impression of hills. The Hills is ideal for activities such as playing with toys, picnics, movie nights, or just for lying on the soft, grass-like carpet, scented with chamomile and lavender. Self-service laundry is also available at this level, as well as on floor forty-one.

The Valley is at the top of the Homeless segment, and is characterized by technology-centered amenities that aim to engage children with the creative possibilities of the digital world. The Valley offers interactive toys for toddlers, and a curated collection of console, arcade, and desktop video game titles to be played at this level. The minimally designed, orangescented spaces assimilate certain characteristics of break rooms in Fortune-500 tech headquarters.

The segment and the neighborhood are moments of privacy.

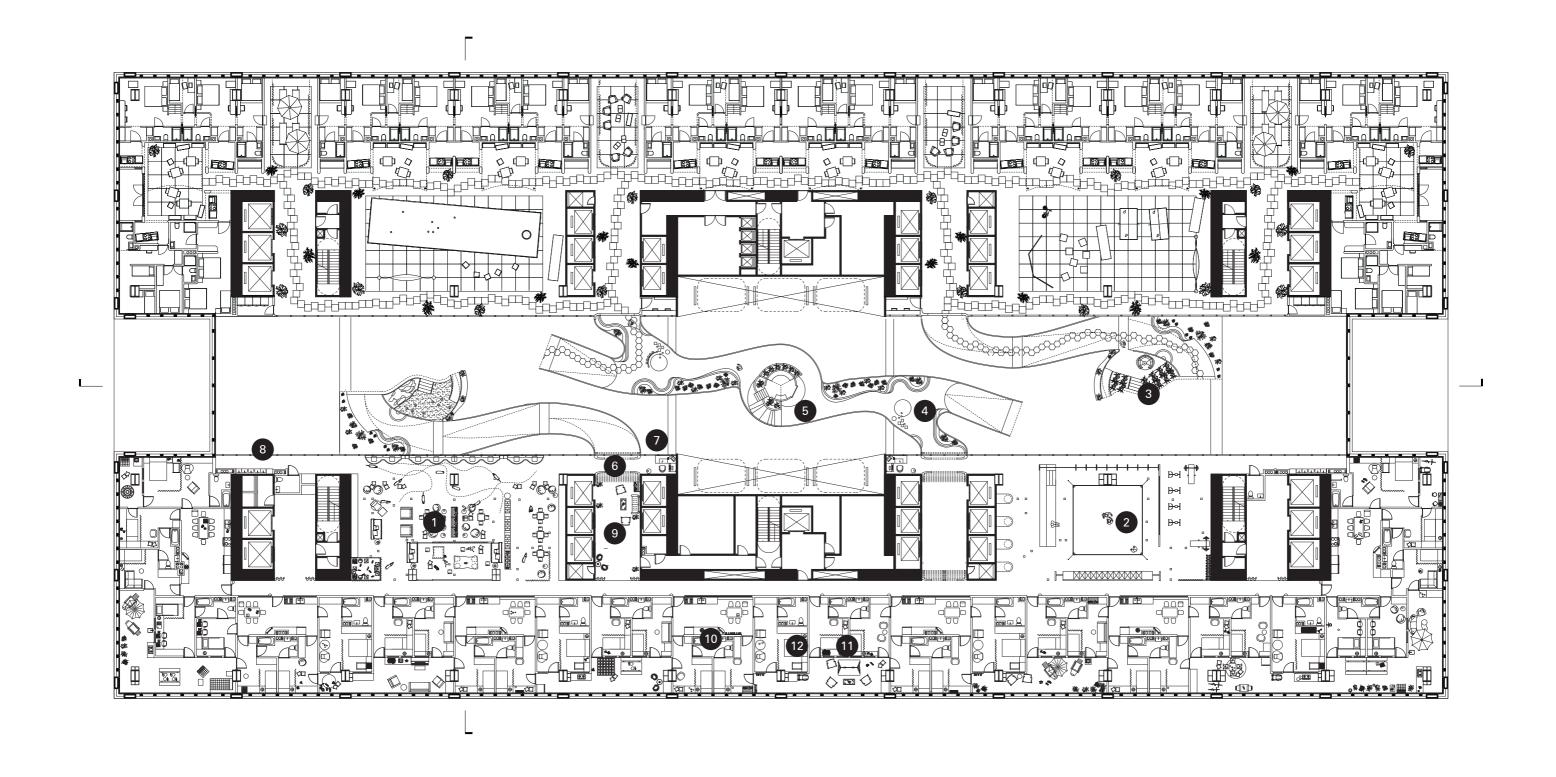
The Hotel's typical room is the one where the kitchen is shared by four private rooms, which also have access to glassed loggias. The kitchen, as well as the loggias, are conceived to be used as informal communal and

yet relatively private spaces. In the kitchen, housemate-families can enjoy homecooked meals while chatting or watching TV, or spend time throughout their everyday routines, using the table as a work or play area. Through the windows at the corridor-kitchen partition, adults can keep an eye on children playing in the open shared spaces, while cooking or doing chores. The private rooms of this type are designed for children aged four to eighteen and for their parents, typically mainly single mothers. These rooms are furnished with enough storage cupboards for long-term living, but do not compromise important sightlines and sunlight. Two drawers under the beds can be used to store toys or off-season clothes, while the drawers, shelves, and cupboards on the walls can be used to store everyday clothes, towels and sheets, more toys or other lifestyle objects, or to display favorite items. An armchair or a built-in seat, along with a curtain partition structure, is included to make spending time in the room with a housemate, friend, or family member more comfortable. Considering the wish of most children to be part of the adult world, agespecific aids, such as stepping stools, can be incorporated or provided by the hotel when needed.

Guests check out once parents or guardians achieve self-sufficiency, and are capable of providing stable housing and care for themselves and their children.

#### Propositions

- 1. The Homeless segment addresses homelessness as a generational issue.
- 2. The Homeless segment is a walkable neighborhood across the skyscraper.
- 3. The Homeless segment is a home before a homeless family can get their home.
- 4. The Homeless segment normalizes the accommodation of homeless families in the skyscraper hotel.
- 5. The Homeless segment encourages trust in welfare and personal development.



1. Communal space for children and parents

2. Communal space for teenagers

3. Children's play area

4. Play area for toddlers

5. Teen hangout area

6. Playground entrance

7. Office for playground supervisor

8. Communal space bathroom

9. Communal sitting area

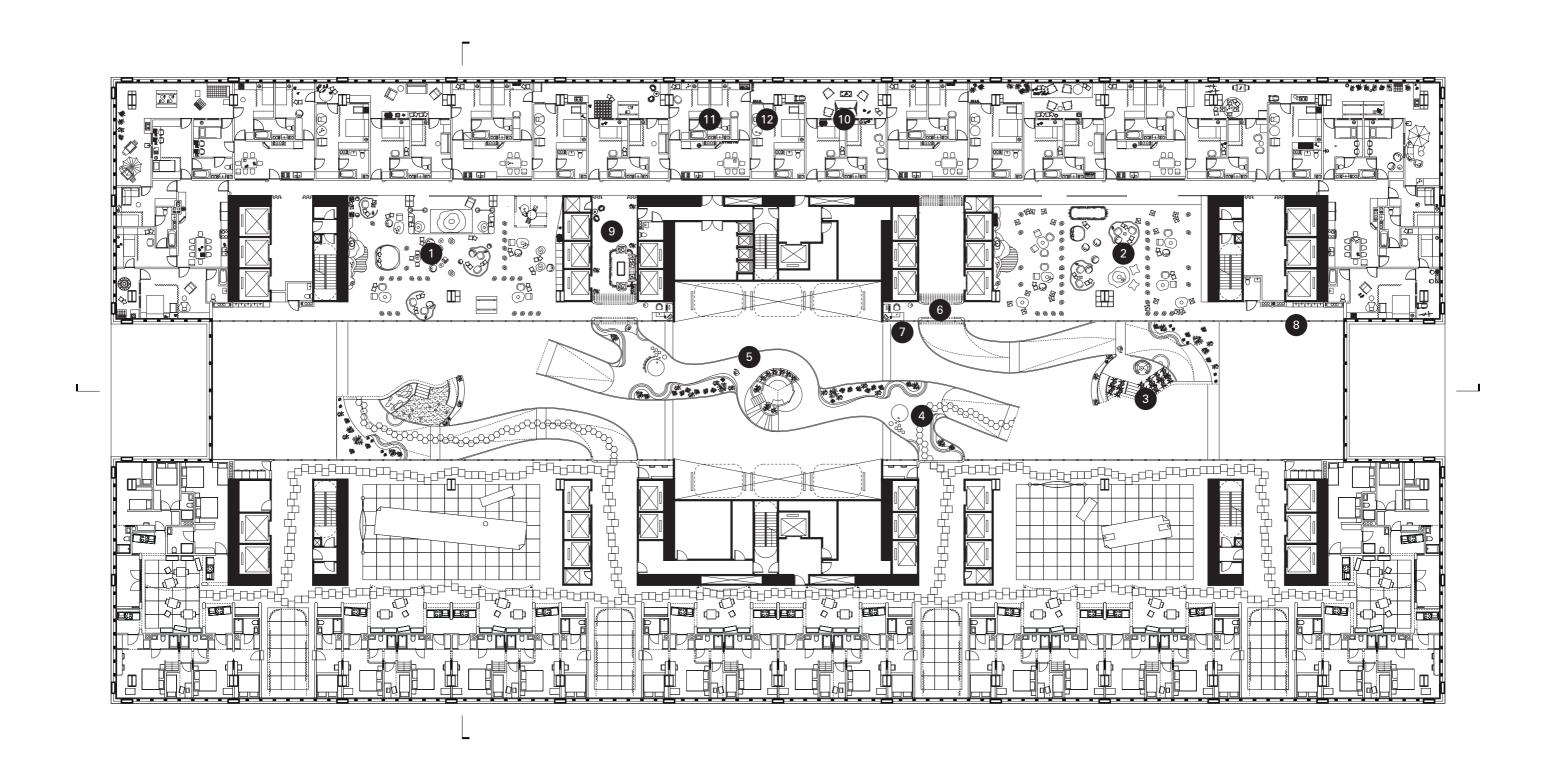
10. Rooms with connecting kitchen (Type I5)

12. Double room (Type F4)

11. Rooms with connecting loggia (Type I2)

106

10 m



1. Communal space for children and parents

2. Communal space for teenagers

3. Children's play area

4. Play area for toddlers

5. Teen hangout area

6. Playground entrance

7. Office for playground supervisor

8. Communal space bathroom

9. Communal sitting area

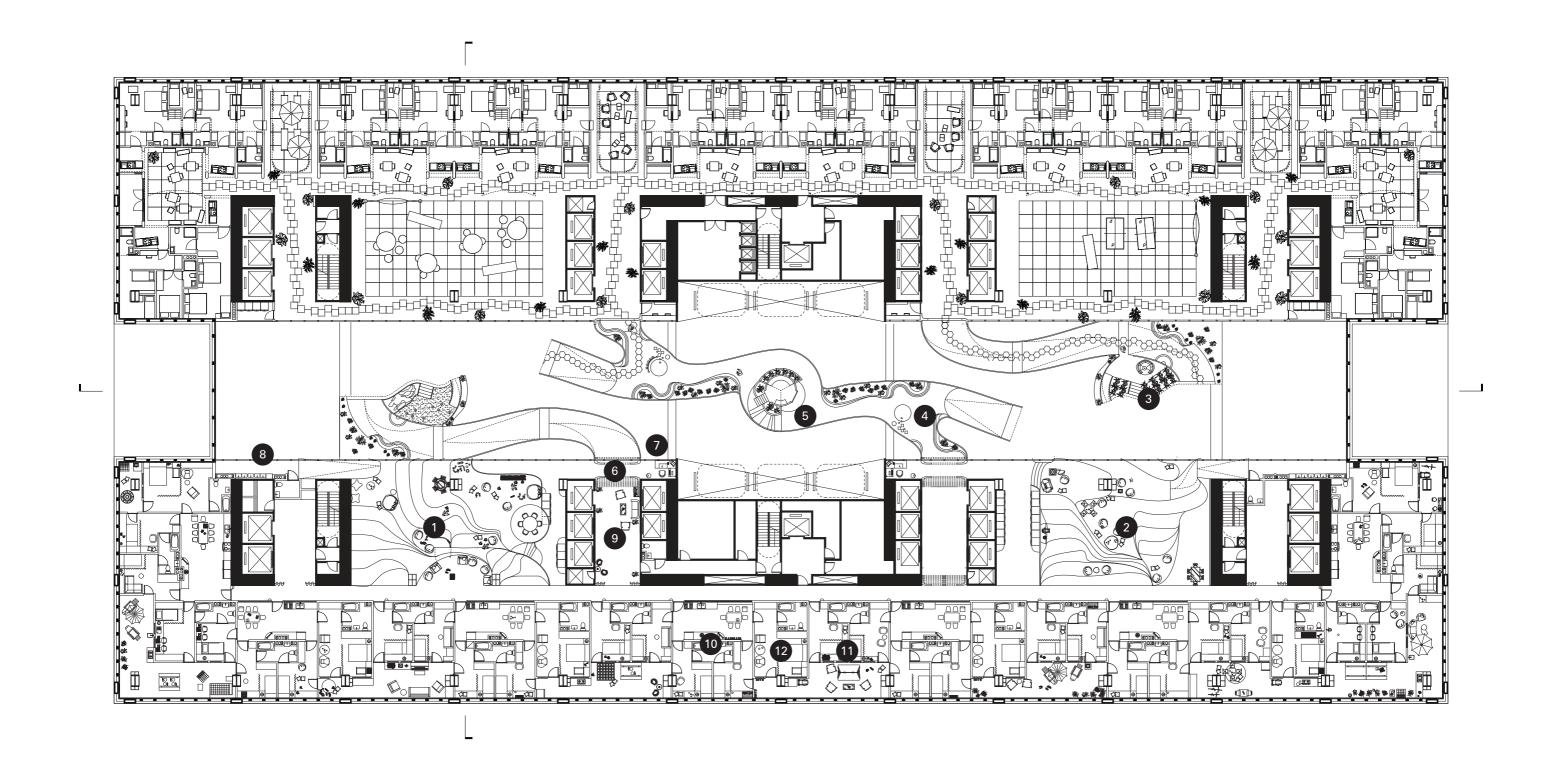
10. Rooms with connecting kitchen (Type I5)

12. Double room (Type F4)

11. Rooms with connecting loggia (Type I2)

108

10 m



1. Communal space for children and parents

2. Communal space for teenagers

3. Children's play area

4. Play area for toddlers

5. Teen hangout area

6. Playground entrance

7. Office for playground supervisor

8. Communal space bathroom

9. Communal sitting area

10. Rooms with connecting kitchen (Type I5)

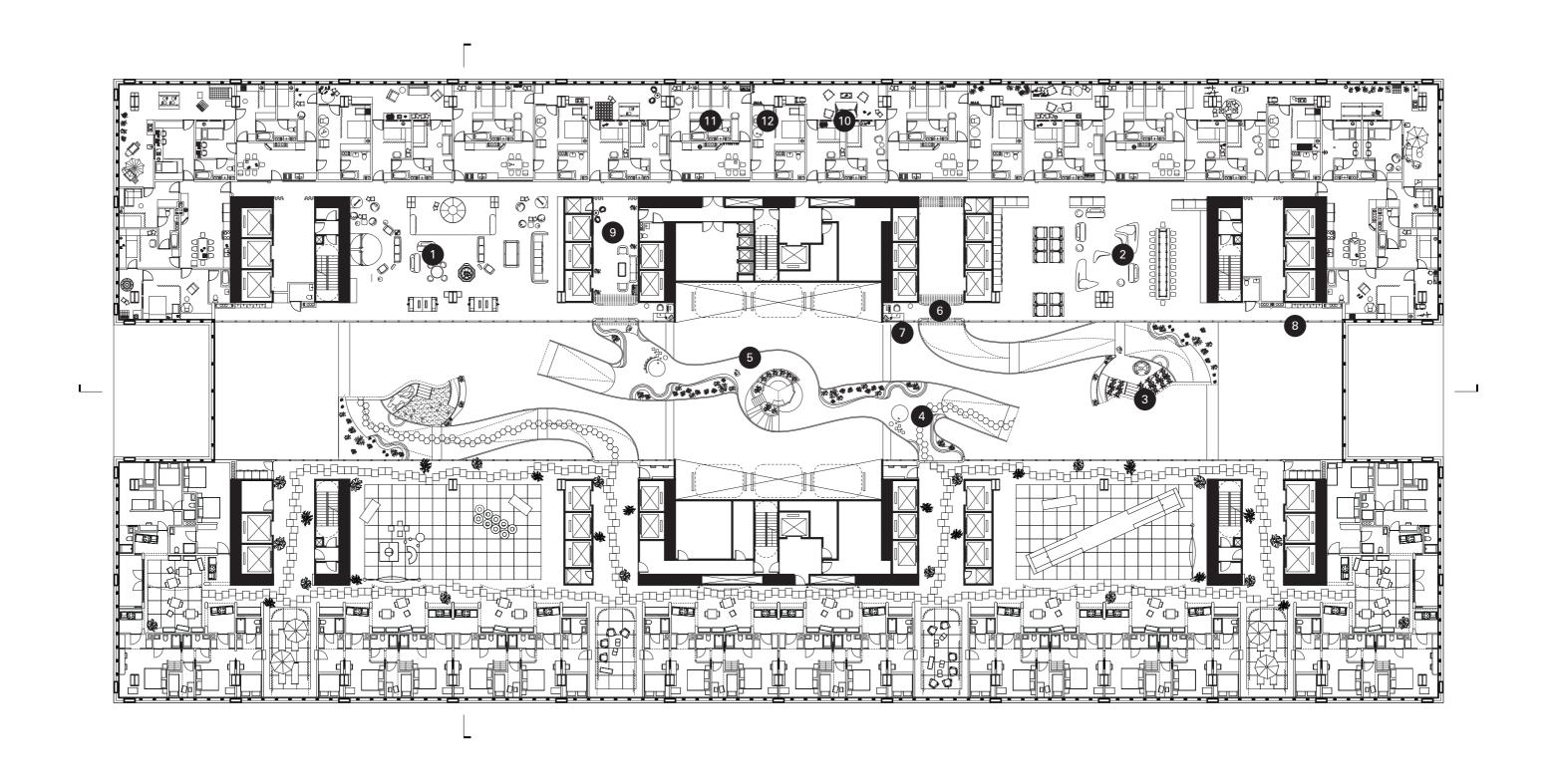
11. Rooms with connecting loggia

12. Double room (Type F4)

(Type I2)

110

10 m



1. Communal space for children and parents

2. Communal space for teenagers

3. Children's play area

4. Play area for toddlers

5. Teen hangout area

6. Playground entrance

7. Office for playground supervisor

8. Communal space bathroom

9. Communal sitting area

10. Rooms with connecting kitchen (Type I5)

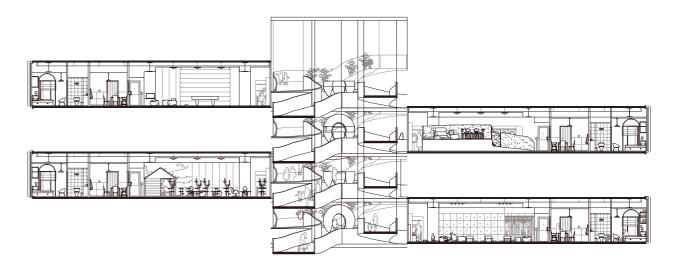
(Type I2)

12. Double room (Type F4)

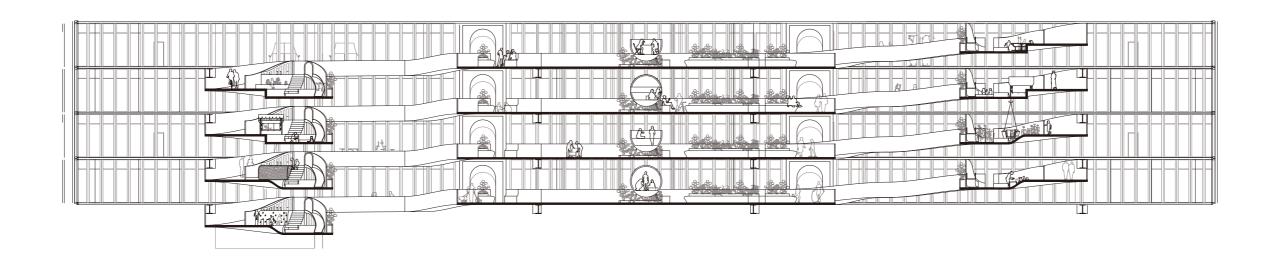
11. Rooms with connecting loggia

112

10 m



#### Cross Section





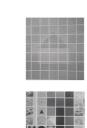
What does the perfect childhood look like? Quiet, flowers everywhere, sparkles on the ground



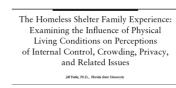
Suburban neighborhood



Trauma-Informed Design of Supported Housing







the author of its auth, what of homes white beloom, stelling as size of cortect incurs in school pilling for ended bed cortex, and recovered entrops. This case is stress of interest control to the control cortect and in the control cortect and interest cortect and in the control cortect and interest co

# The Homeless Shelter Family Experience





The Greatest Goal, Hajime no Ippo



Folding Park by Approach Design



Home Hills, Teletubbyland



Montessori Architecture - Design instruments



Cola Boyy - Don't Forget Your Neighborhood feat. The Avalanches

The Hotel is a collective project that studies the hotel, both as a building type and as a place of hospitality, through a collection of fourteen individual contributions inside one skyscraper. The project imagines hospitality as a realm of exchange that condenses the diversity of the city through an assortment of guests, staff, and the broader public.

This contribution is a homeless hotel that invests in children's better future.

The Berlage Center for Advanced Studies in Architecture and Urban Design

Faculty of Architecture and the Built Environment

**Delft University of Technology** 

#### Thesis advisory team

Salomon Frausto Pavel Bouše Benjamin Groothuijse Michiel Riedijk

Thesis examination committee

Dick van Gameren Kees Kaan Daniel Rosbottom Paul Vermeulen Nathalie de Vries

#### Students

Nicolaos Charalambous (CY)
Chaomin Chen (CN)
Sneha Gireesh (IN)
Thomas Gkikas (GR)
Ujal Gorchu (AZ)
Eliott Moreau (FR)
Ana Nuño de Buen (MX)
Kelly Olinger (US)
Lenneke Slangen (NL)
Maria Stergiou (GR)
Yuhe Tan (CN)
Felix Verheyden (BE)
Han Yang (CN)
Nien-Heng Yang (TW)

Director of Studies

Salomon Frausto