

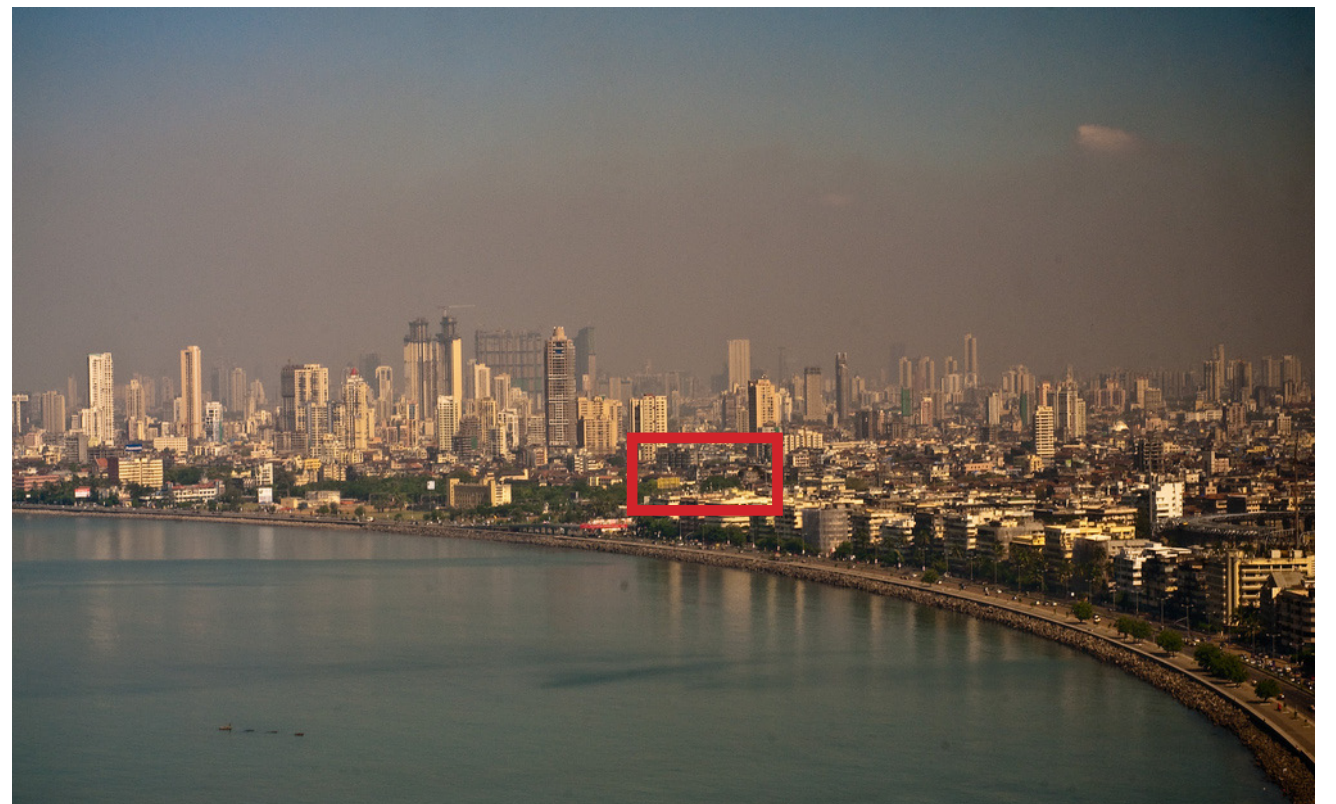
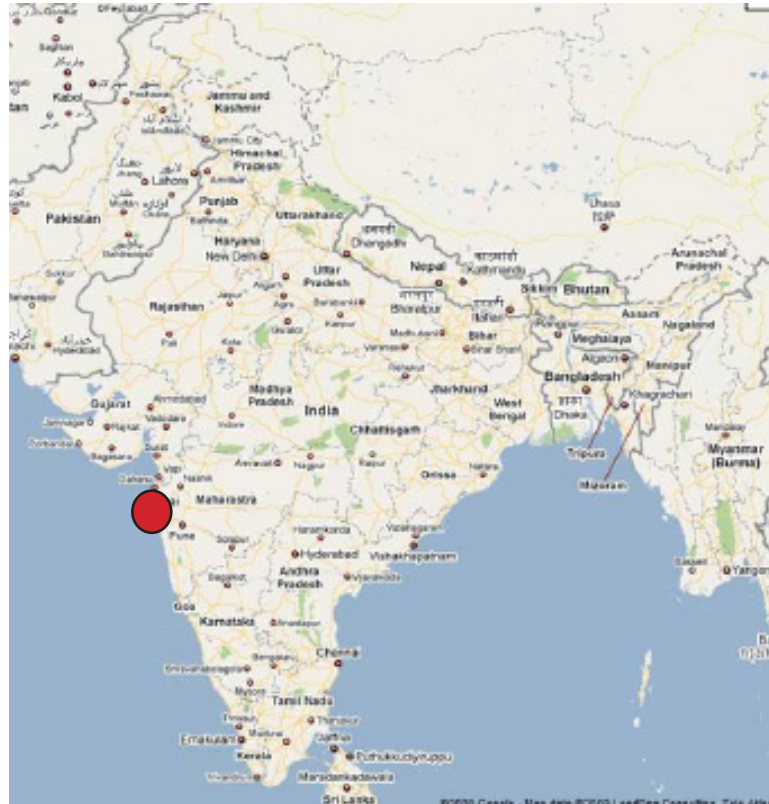
A Mixed-Use High Rise

C-Ward, Mumbai, India

Master's Project -Spring 2011

Irshas Saleji

Professor - John Durbrow



C-Ward

Site



ROMF (Remaking of Mumbai Federation) has taken the initiative to develop the C-ward and the site part ROMF master plan.

ROMF is made up of over 12,800 local members, over 50 Associations, Institutions, Chambers and NGOs who represent millions of stake holders in this commercial capital of India.

The Federation proposes to create a replicable project to develop the island city of Mumbai, which contains over 32,000 pre-1940 old & dilapidated buildings having population of around 2.5 million.

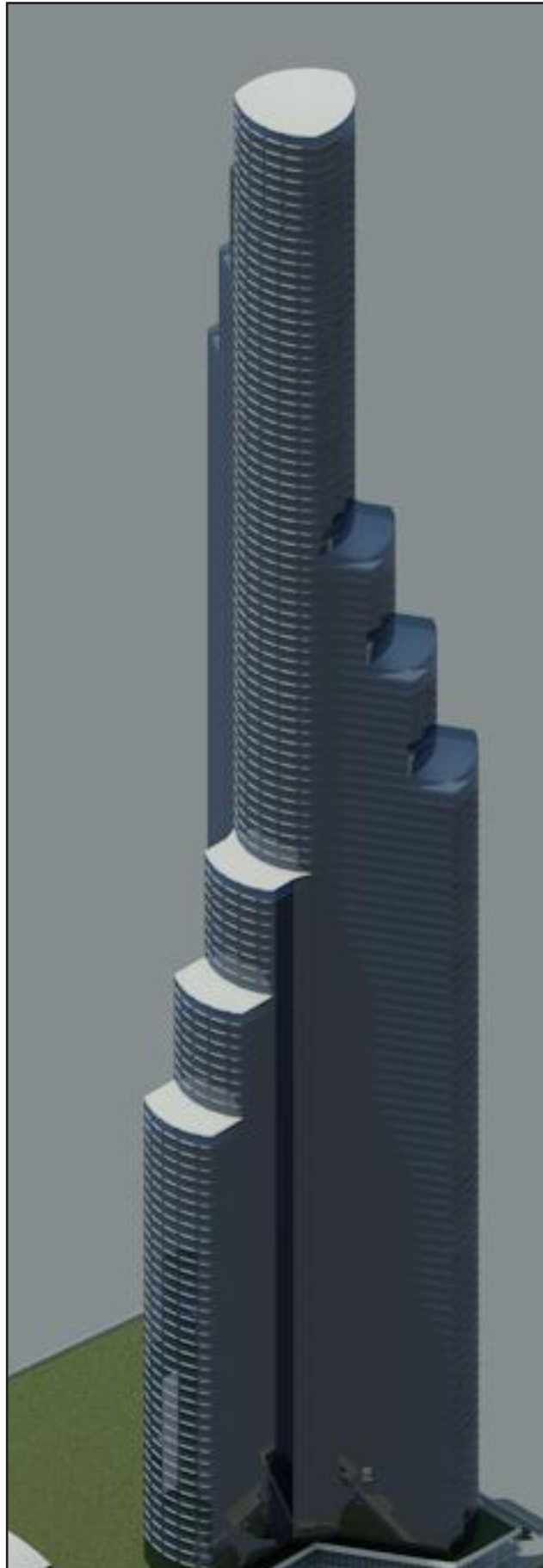
The objectives of the Federation are,

- Protection to life and property of over 2.5 million people who live in these old dilapidated houses.
- Deliberate planning process for the entire city of Mumbai
- Increase and augmentation of infrastructure to meet the requirements of this modern economic capital of India.
- Creation of housing stock for the poor.
- Setting standards of excellence in constructing buildings using engineering and technological advances in this developing country.
- Transform horizontal urban space to tall buildings with lots of open spaces, amenities and play grounds.



Site location – South Mumbai (C-ward)
 Site Area – 270,000 sq.ft
 FAR – 6
 Total Built Area – 1,630,000 sq.ft
 Zoning – Mixed use

Mixed used development with Residential, Service Apartment, Hotel and Retail.



The project is to design a mixed-used high-rise that response to the needs of the commercial district of Mumbai (C-ward).

Case Statement

The history of Mumbai recounts the growth of seven islands on the west coast of India, to becoming a commercial capital of the nation, and the second most populous city in the world.

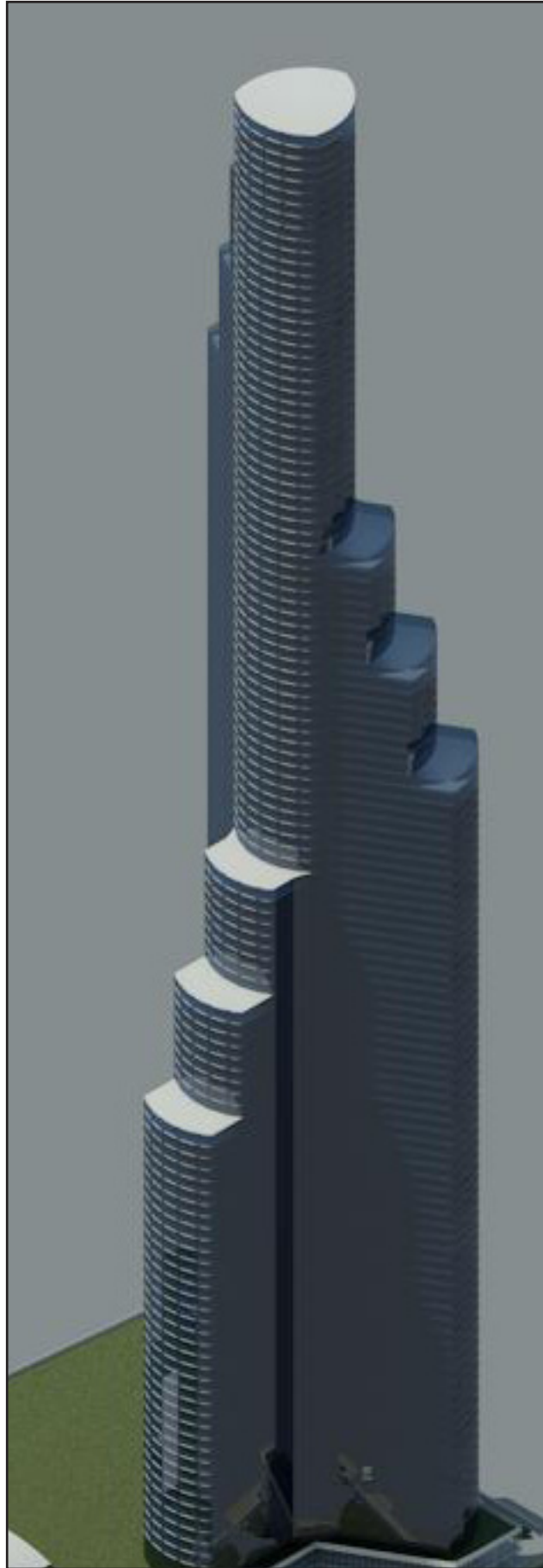
Mumbai suffers from the same major urbanization problems seen in many fast growing cities in developing countries. With available space at a premium, Mumbai residents often reside in housing that is relatively cramped, expensive, usually far from workplace, thus resulting in long commutes on crowded mass transit and clogged roadways.

Mumbai face an acute shortfall of real estate. As a result, the real estate prices are among the top ten world-wide. As per the ratio to average per capita income, real estate prices in the business districts remain the most expensive in the world.

C-ward is the neighborhood (in Mumbai) that was design and developed around 1940 and thereafter there has been no or very little improvement in infrastructure, which has lead to narrow street, unsafe pedestrian and limited open space. C-ward in one of the most prime real-estate location considering it right next to financial district , close to major train station and close to Shoreline.

ROMF (Remaking of Mumbai Federation) has taken the initiative to develop the C-ward and the project site part of ROMF development area.

City centers have always been source of density because of scarcity of land. The sensible and effective use of such land would be to build vertical (high-rise) and also to have the possibility of expansion for the future development. A mixed use high rise development diversifies the use of space within a single building structure. Combination of living, entertainment, shopping and lodging in single urban structure, helps to utilize the full potential of an urban site.



The key goal for my project is to design a Mixed-Use High-rise that answers the practical demands of a modern city and also upgrades the urban environment.

Guiding principles

Efficient planning

Develop a balanced ratio of mixed-use spaces within the building based on market analysis. A balanced ratio that reflects the local demand, to generate maximum revenue and one that will help to create a vibrant urban environment.

Form

Design a form that contributes to the overall design. Building form and geometry should reflect the importance of structure and local climate. The design of the building should focus on maximizing the building performance.

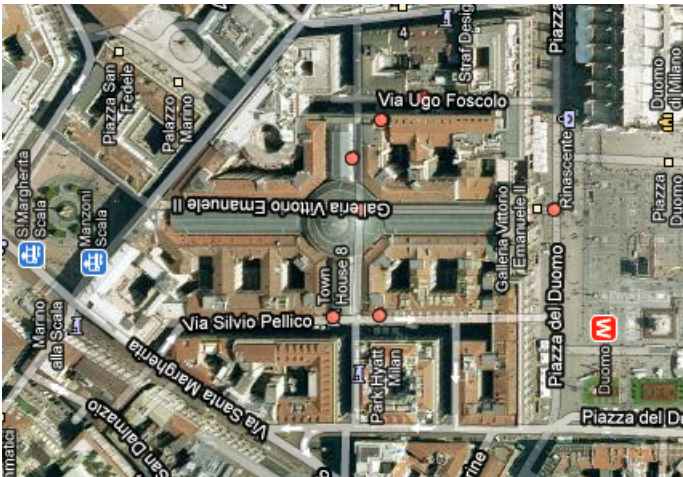
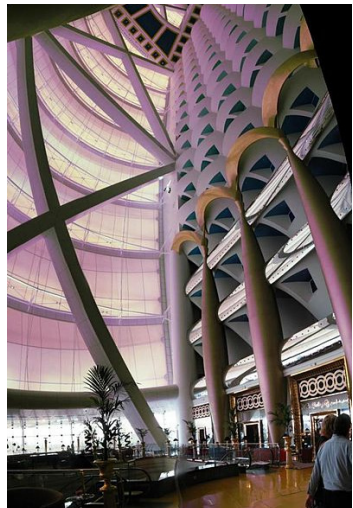
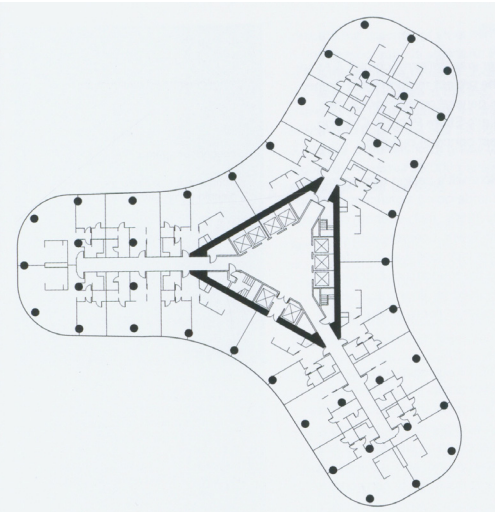
Community

Establish a pedestrian-friendly character within each activity center through the design of spaces, Plaza, and sidewalks that provide a quality public space with the pedestrian amenities. Creating spaces that will help promote informal social contact and cultural celebrations, as well as promote overall shopping and living experience.

Adaptability

Changes in population demographics every period of time due to economic changes, migration, and other factors will require the building occupiable spaces to be flexible in order to be sustainable in the long run.

Precedents



Lake Point Tower - completed in 1968, is approximately 645 feet (197 m) tall, and was the tallest apartment building in the world at that time. Radiating from the core are three arms, which form an asymmetrical Y-shaped floor plan. The original plan for the building was to be a four-armed design but was later changed to a three-armed design (120° apart) with the outer walls strategically curved to ensure that the various residents could not see into the other condominiums.

Bellagio was designed by DeRuyter Butler and Atlandia Design.

The three wings of the buildings are strategically located so that there is less possibility of overlooking rooms and maintains privacy.

The Fountains of Bellagio is a vast, choreographed water feature with performances set to light and music. The fountains are set in a 9-acre (3.6 ha) manmade lake. One third of the hotel rooms face the fountain.

Burj Al Arab stands on an artificial island 280 m (920 ft) out from Jumeirah beach.

Construction of Burj Al Arab began in 1994. It was built to resemble the sail of a dhow, a type of Arabian vessel. Two “wings” spread in a V to form a vast “mast” and overlook the ocean, while the space between them is enclosed in a massive and magnificent atrium. Atrium is 180 m (590 ft) tall with exterior facade made of fabric skin that allow diffuse natural light in to the atrium.

Milan Galleria – Simple in plan that two intersecting streets make a cruciform plan with domed octagon at center. Glass-roofed arcade with shops and cafes on sides of the covered street, creating a space that attracts people to pass through it.

The success of the Galleria is due to important anchors that it helps to connect. 640-foot-long north/south axis of its cruciform plan links the secular Piazza della Scala on the north to the spiritual Piazza della Duomo on the south.

The Galleria is an upscale mixed-use urban development centrally located in the Uptown District of Houston. The shopping center, anchored by Neiman Marcus, was modeled after the Galleria Vittorio Emanuele II in Milan, borrowing, as its most distinctive architectural feature, a glazed barrel vault spanning the central axis of the mall. The central axis helps to connect major anchor in the galleria.

Program

India’s middle class is growing and the demand for the housing is constantly growing. Mumbai’s is one of the cities which is facing acute shortage residential unit.

C-ward in one of the most prime real-estate location considering it right next to financial district , close to major train station and close to shoreline. C-ward has great potential for the development that can serve all sector of the society.

The program for the site was design considering three major factors one the market demand, second the location and the third the return on investment.

With a population of 1.1 billion, a GDP that’s projected to grow about 8% annually until 2020, and a burgeoning middle class, India is one of the most preferred investment locations for several hotel developers. Service sector accounts for more than 50% of the GDP and that growth is also reflecting in increasing in demands of the service apartment.

Indian Middle class spends more than 50% of their income on shopping and food. India has rich and diverse culture and religion. Different festival and celebration take place around the year, which helps to cre-ate a retail market that lasts for whole around the year. The official government figure shows that future retail market is of \$ 500 billion in terms of Investments.

Residential

- Public area –6,000 sq.ft
- Recreational area –12,500 sq.ft
- Residential amenities –7,500 sq.ft
- Service apartment– 255,000 sq.ft
- Condominium– 792,500 sq.ft

Retail– 115,000 sq.ft

Hotel– 347,363 sq.ft

Additional Area – 90,000 sq.ft

Public area	Qty	Net Area (s.f.)	Total Area (s.f.)
1.Lobby	1	4,000	4,000
2. Management office	1	200	400
3. Security desk	1	400	400
		Total	4,800

Condominium	Qty	Net Area (s.f.)	Total Area (s.f.)
Studio	90	500	45,000
2. One bedroom Unit	160	1000	160,000
3. Two bedroom Unit	240	1,500	360,000
4. Three bedroom Unit	35	1,800	63,000
5. Duplex unit (4 bedroom)	30	2,500	75,000
6. Penthouse	7	5,000	35,000
		Total	738,000

Serviced Apartment	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Studio	56	500	28,000
2. One bedroom Unit	90	1000	90,000
3. Two bedroom Unit	25	1,300	72,500
		Total	190,500

Retail	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Medium retail		160,000	160,000
2. Anchor retail	1	90,000	90,000
3. Street Retail (2-Story)	7	2,500	18,500
4. Restaurants (food court)	3	6,000	18,000
5. Public restroom	3	500	3,000
		Total	289,500
Gross Area (total x 1.25)			361,875

Hotel	Qty	Net Area (s.f.)	Total Area (s.f.)
1.Lobby	1	10,000	10,000
2. Front desk	1	1,000	1,000
3. Coffee shop	1	2,000	2,000
4. Restaurant	1	6,000	6,000
6. Public Restrooms	1	500	500
	Total		19,500
Gross Area (total x 1.25)			30,250

Hotel Rooms	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Standard Room	160	500	80,000
2. King Room	130	500	75,000
3. Junior suite	30	1,200	36,000
4. Presidential Suit	3	2500	7,500
	Total		198,500
Gross Area (total x 1.25)			245,000

Banquet Area	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Main ballroom	1	10,000	10,000
2. Meeting room	5	1,000	5,000
3. Conference Room	3	1,500	4,500
4. Rest Room	1	1,000	1,000
5. Banquet prefunction	1	5,000	5,000
	Total		25,500
Gross Area (total x 1.25)			31,875

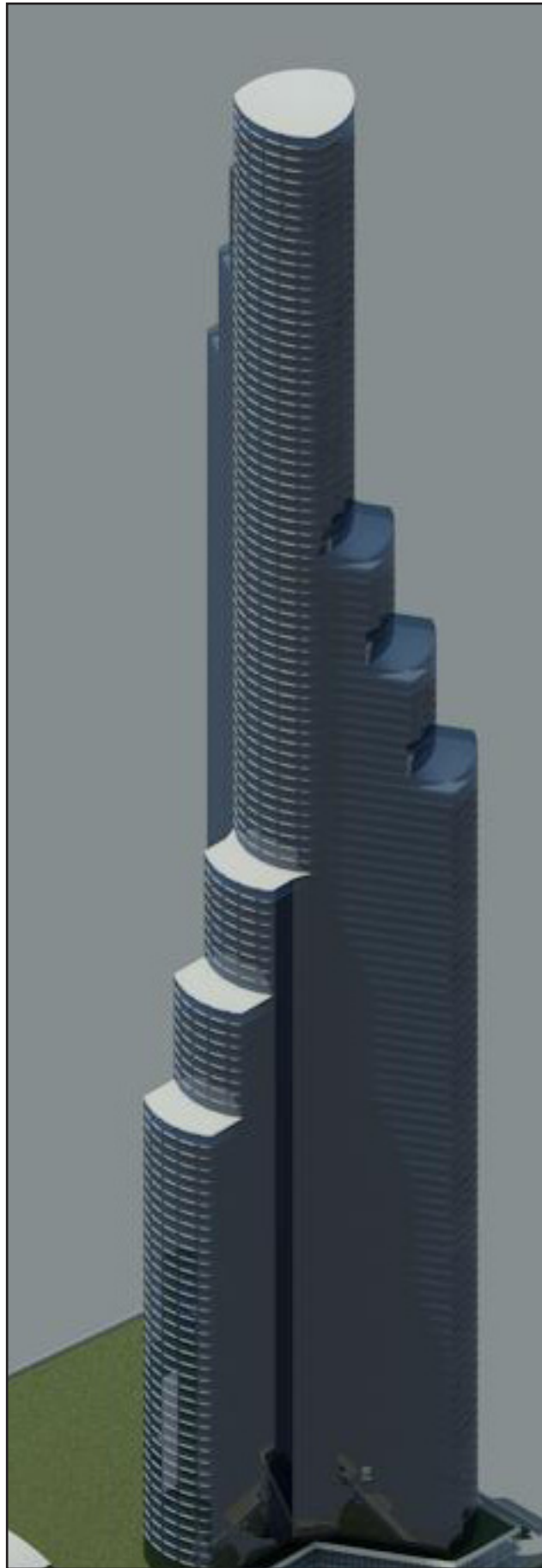
Additional area	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Maintenance	4	1,000	4,000
2. Mechanical	4	15,000	60,000
	Total		64,000

Recreation Area	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Fitness center	1	4,000	4,000
2. Aerobic center (Yoga room)	1	2,000	2,000
3. Spa	1	2,000	2,000
4. Salon	1	1000	1000
5. locker room	1	2000	2000
4. Indoor swimming pool	1	6,000	6,000
	Total		17,000
Gross Area (total x 1.25)			21,250

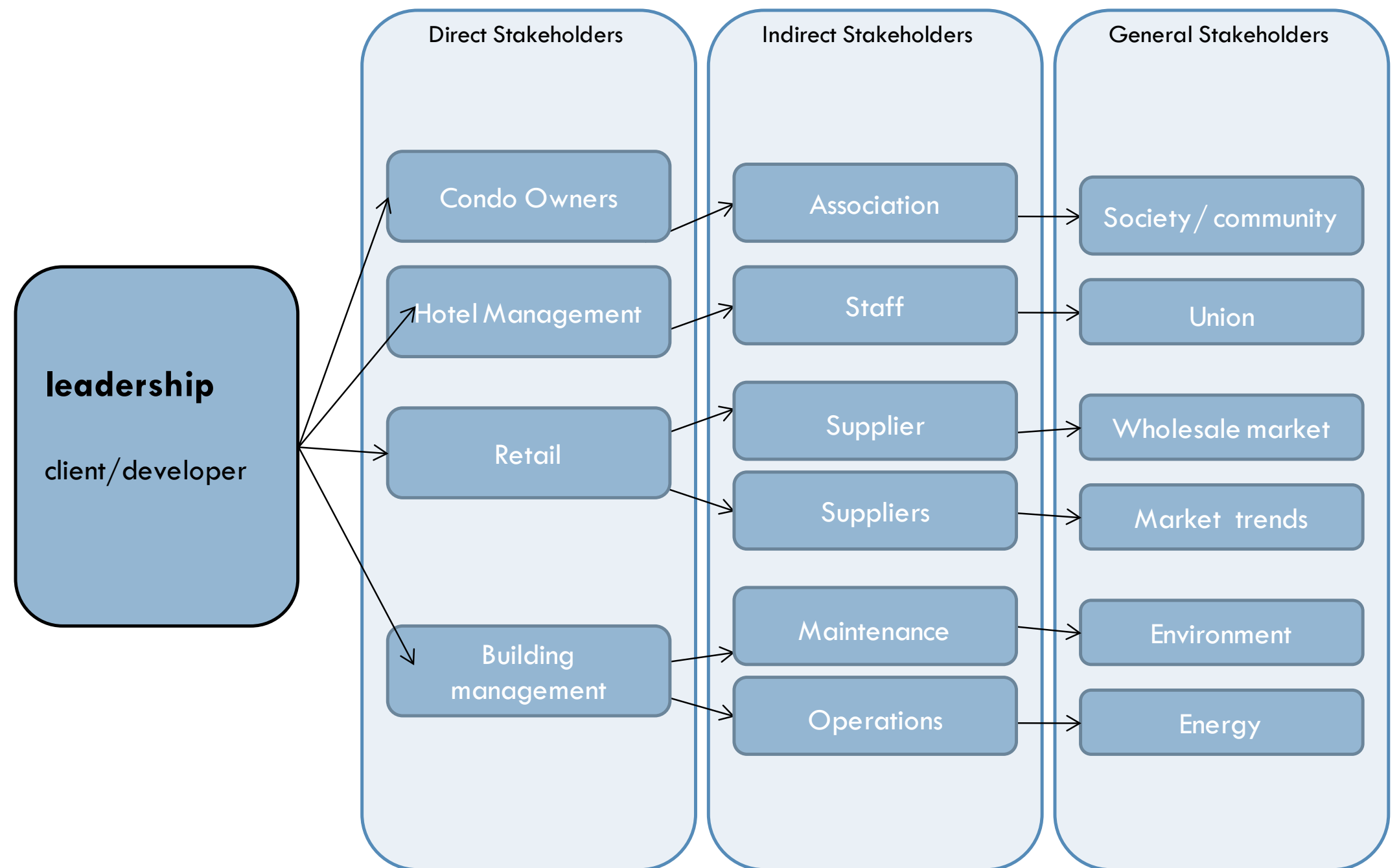
Administration	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Front office	1	1,000	1,000
2. Manager's office	1	600	6,00
3. Accounting office	1	450	450
4. General staff office	1	1,600	1,600
5. Staff conference room	1	1,200	1,200
6. Staff restroom	2	400	800
7. Employee dinning room	1	1,000	1,000
8. Kitchen	1	800	800
9. Locker room	2	600	1,200
10. Training room	1	1,000	1,000
	Total		9,050
Gross Area (total x 1.25)			11,312

Hotel support	Qty	Net Area (s.f.)	Total Area (s.f.)
1. Maintenance room	1	1,500	1,500
2. Furniture storage	1	1,000	1,000
3. Receiving office	1	500	500
4. Receiving storage	1	1,000	1,000
5. Main kitchen	1	3,500	3,500
6. chef's office	1	500	500
7. Room service	1	450	450
9. Refrigerator	1	450	450
10. Storage area	1	2,000	2,000
	Total		18,400
Gross Area (total x 1.25)			23,000

Total Proposed Area = 1,650,312 Sq.ft.



Stakeholders

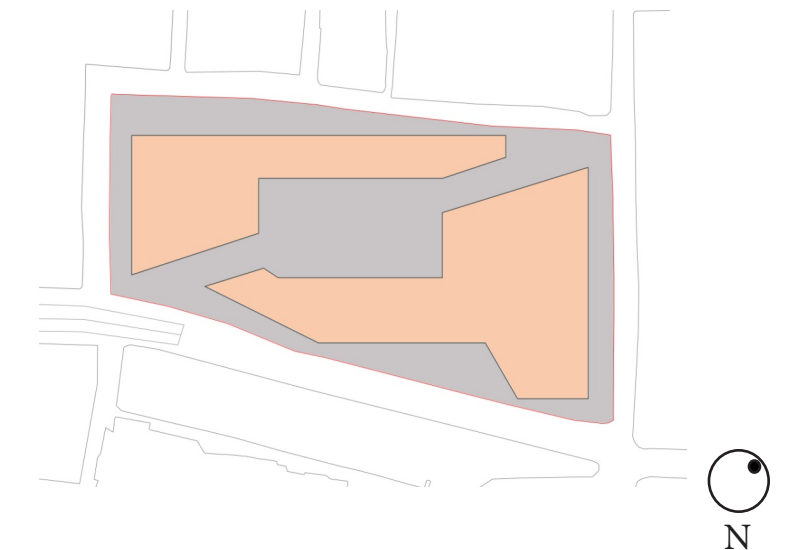
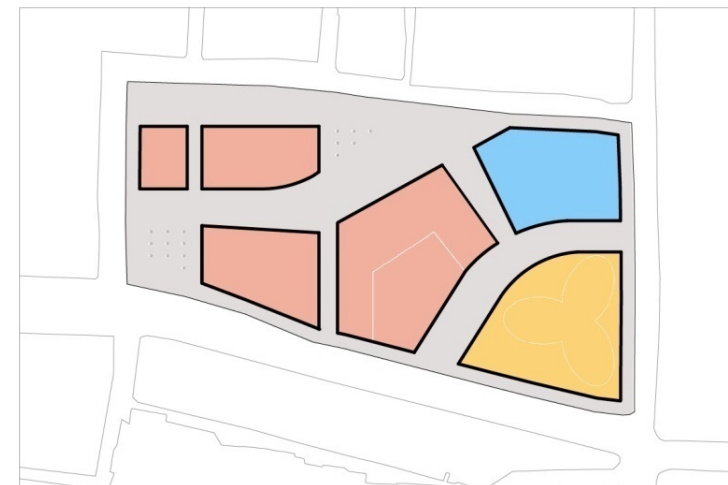
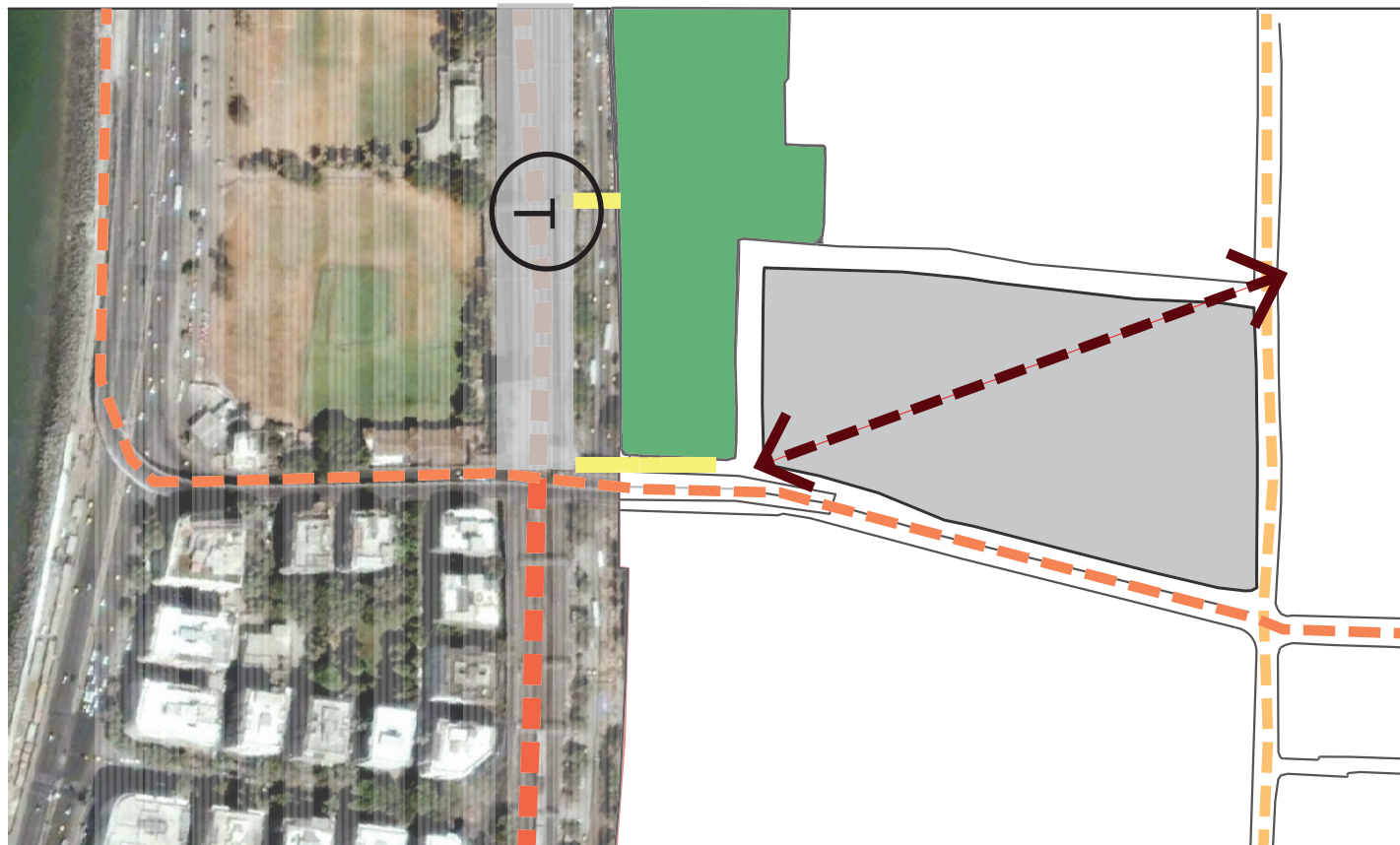


Retail Concept

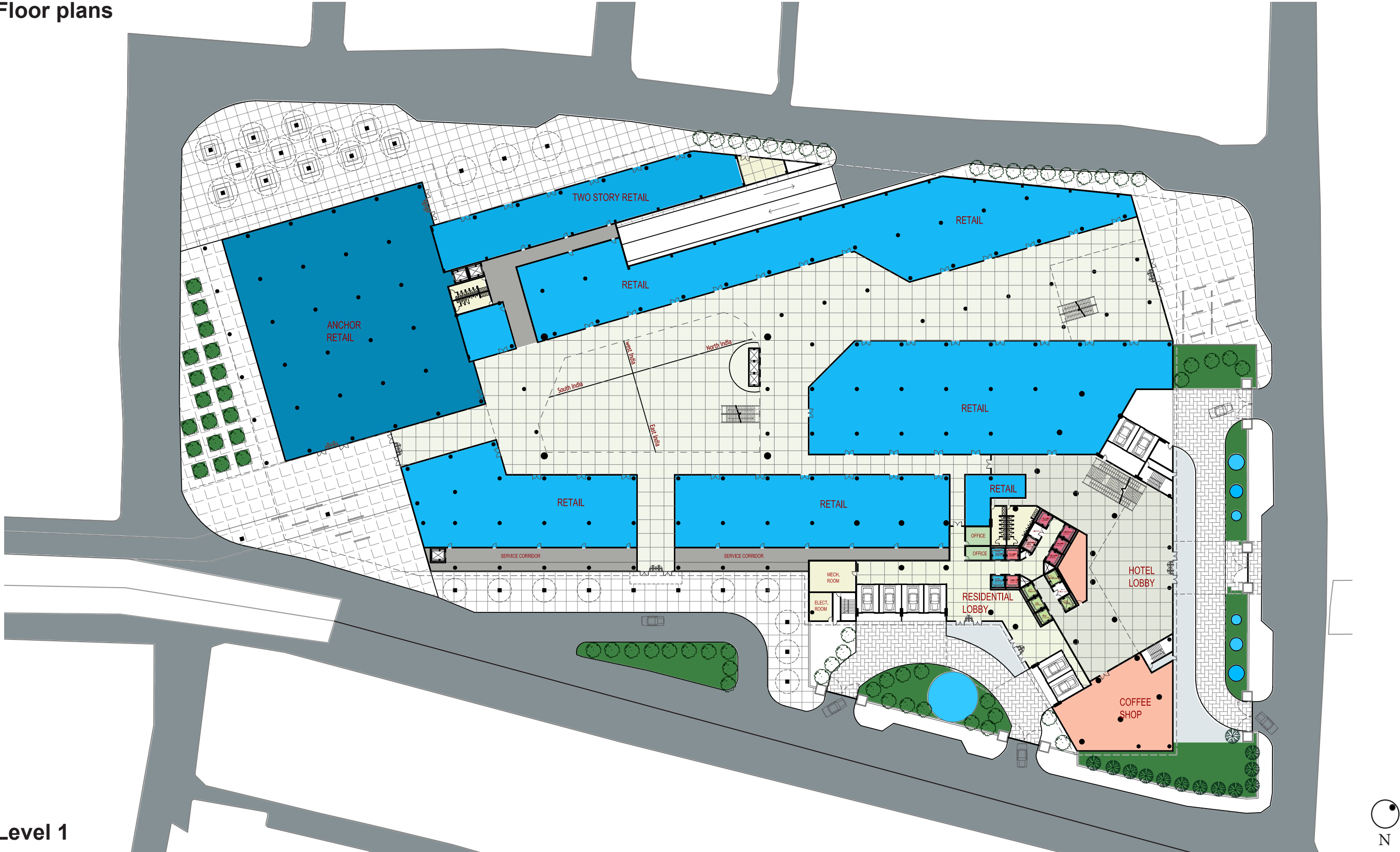
In Mumbai 6.9 Million people commute by train every day.

Considering there is only one possible way to go to the train station from the neighborhood is by using the bridge on the corner of the site.

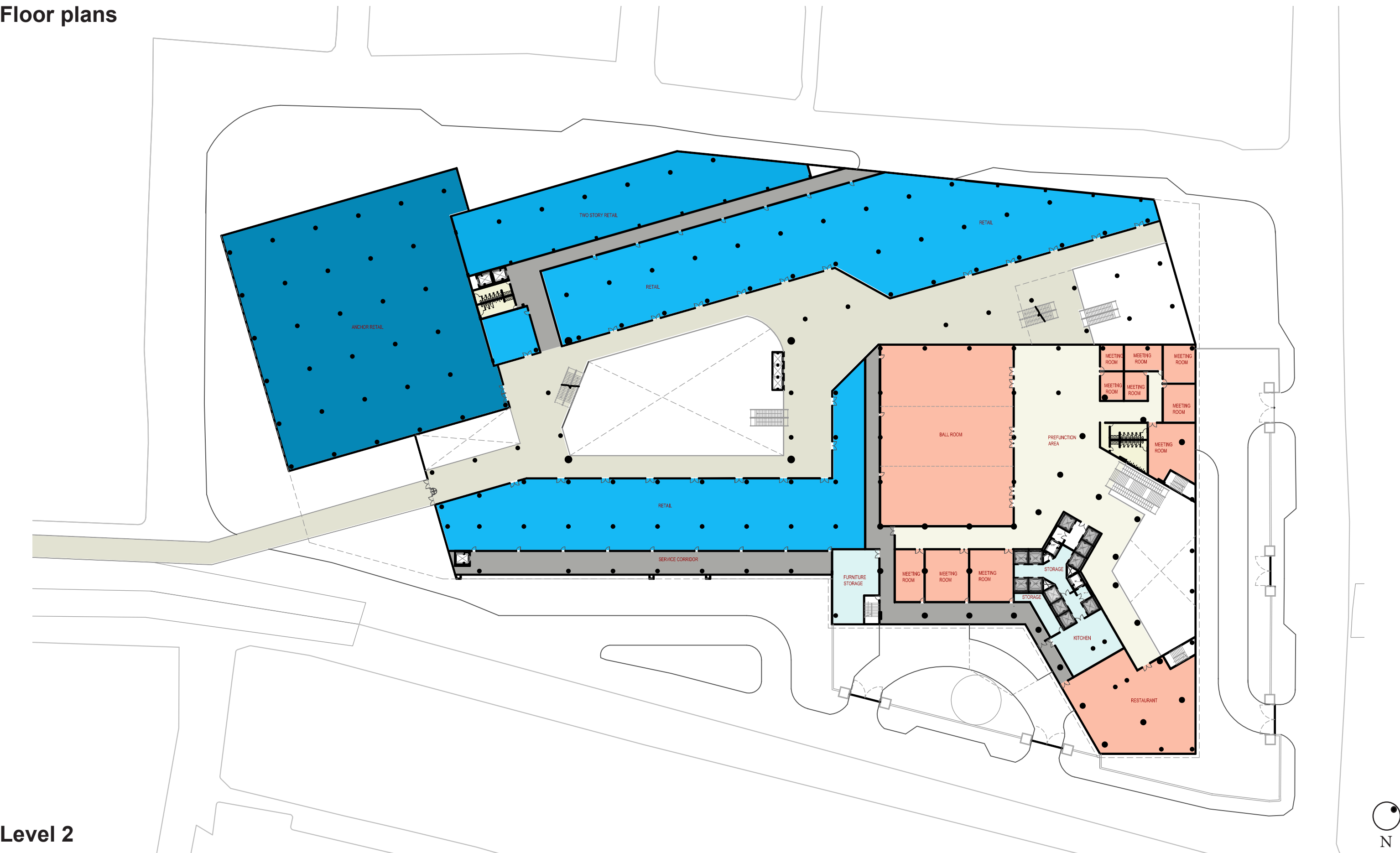
The strong access between the train station and neighborhood provides good opportunity for retail space.



Floor plans

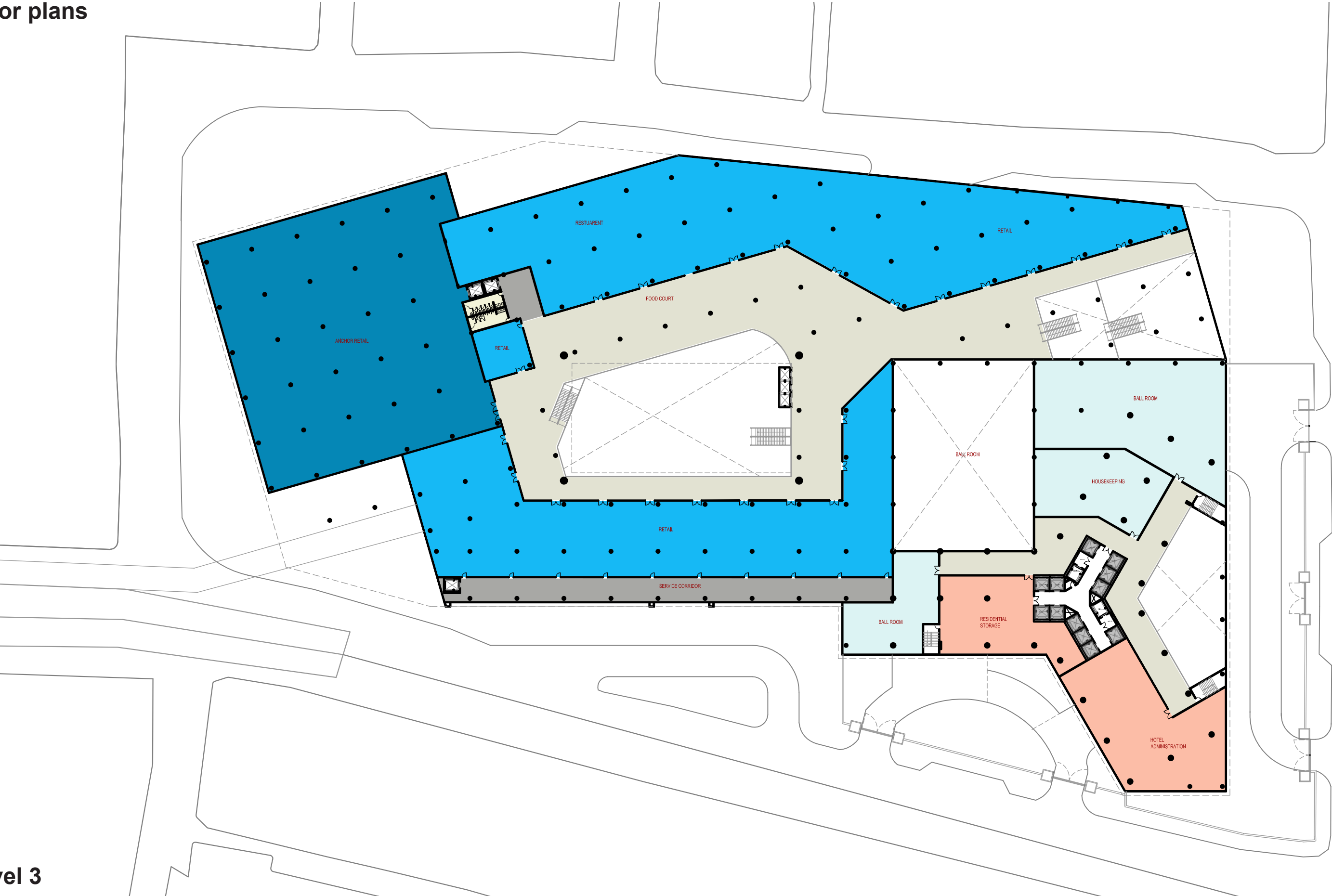


Floor plans



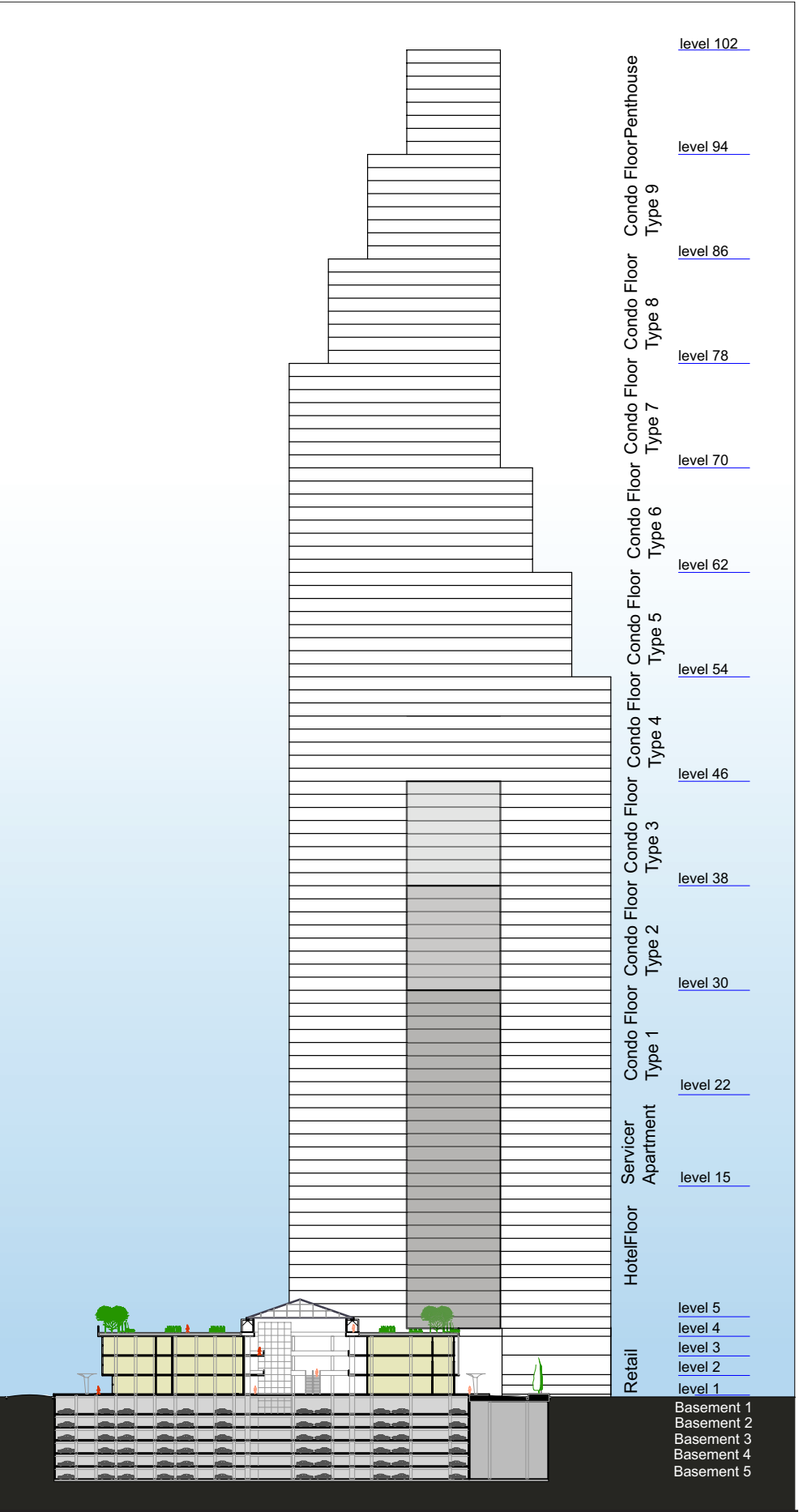
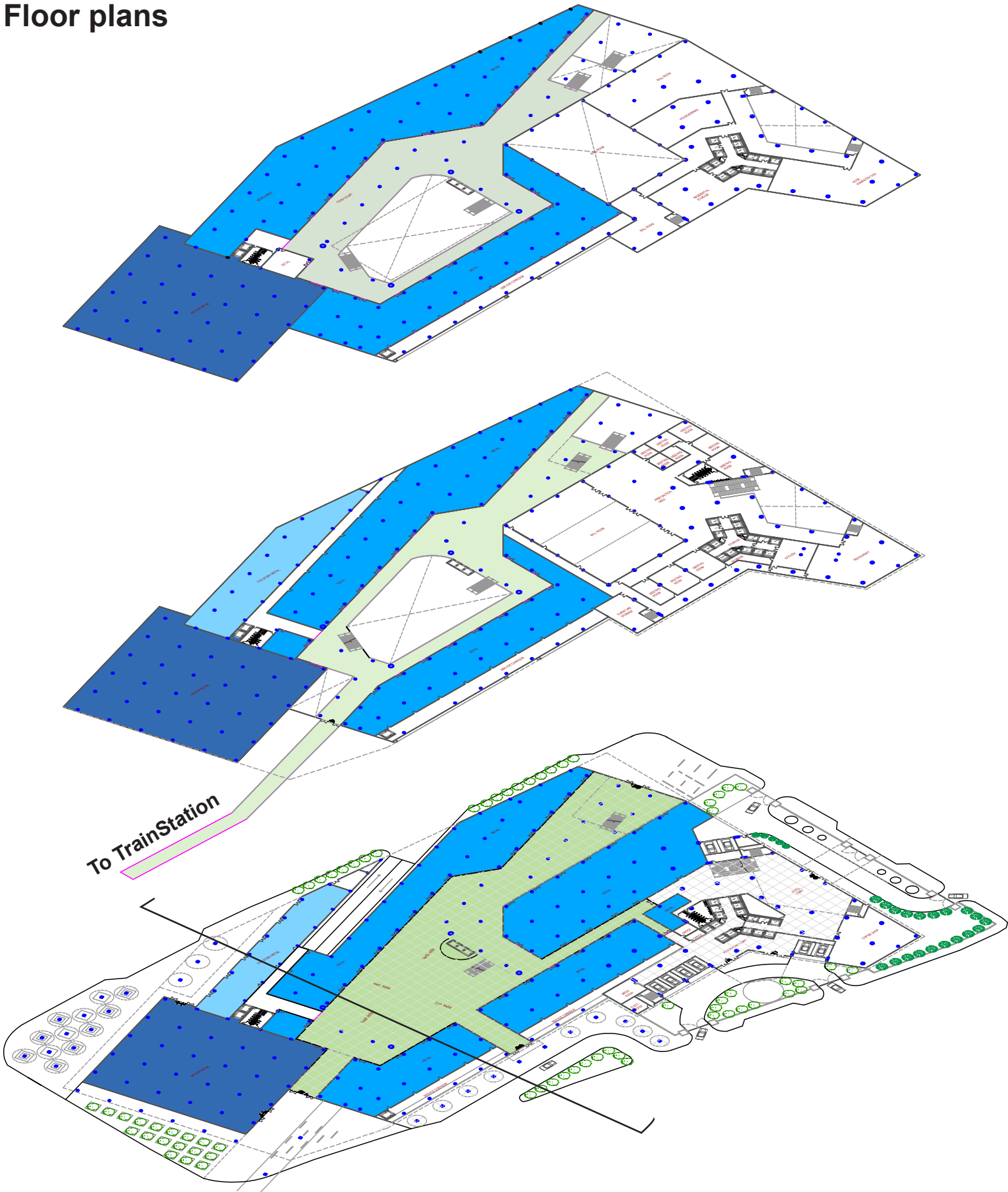
Level 2

Floor plans

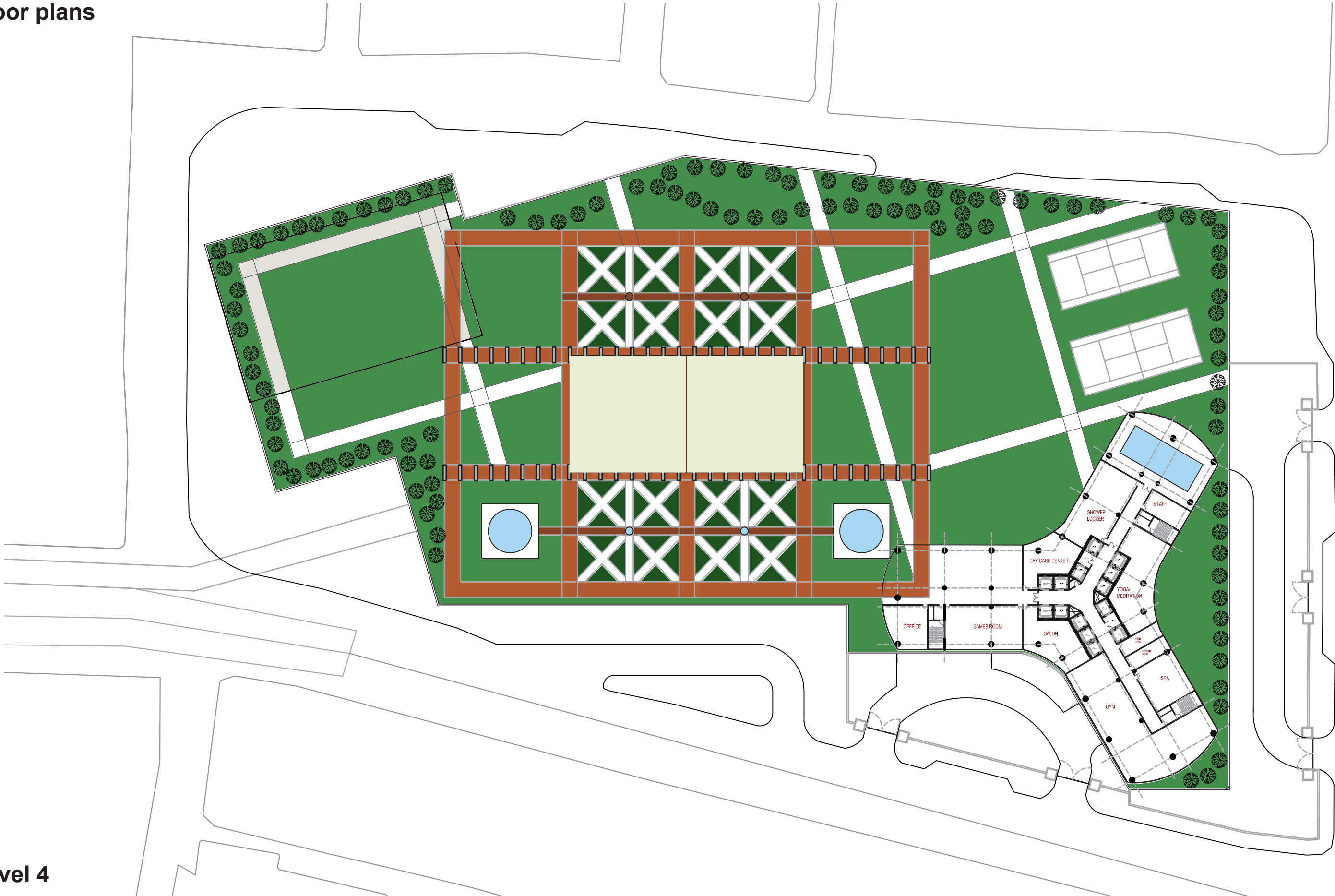


Level 3

Floor plans



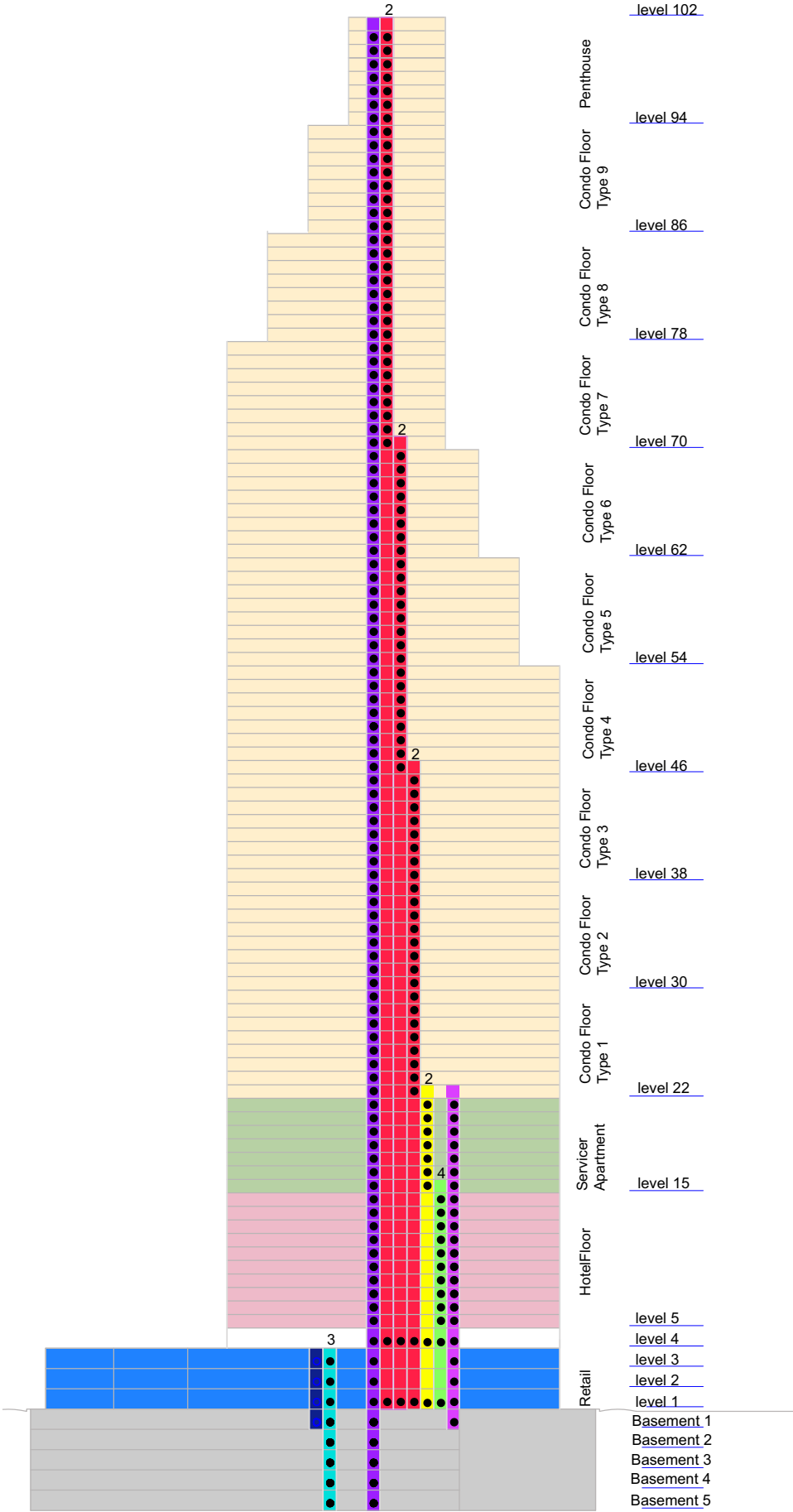
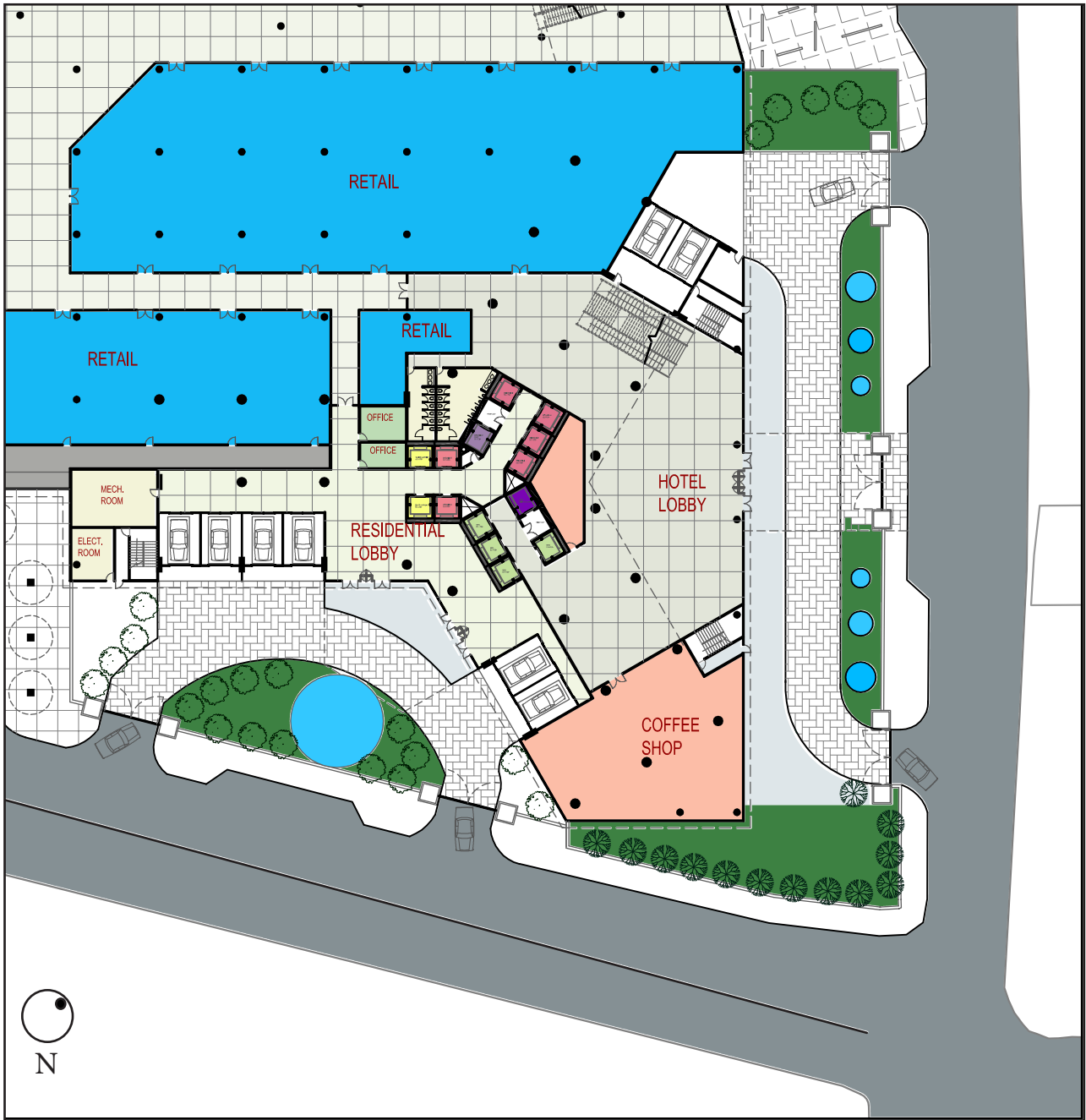
Floor plans



Level 4



Section



Vertical Transportation

Vertical Transportation

Hotel Capacity
1 passenger elevator every 75 rooms
1 service elevator every 200-300 rooms

Apartment/Condominium Capacity
1 elevator every 90 units
Minimum 1 service elevator

Means of Egress
75 feet maximum from the farthest unit.

Tower Concept Idea

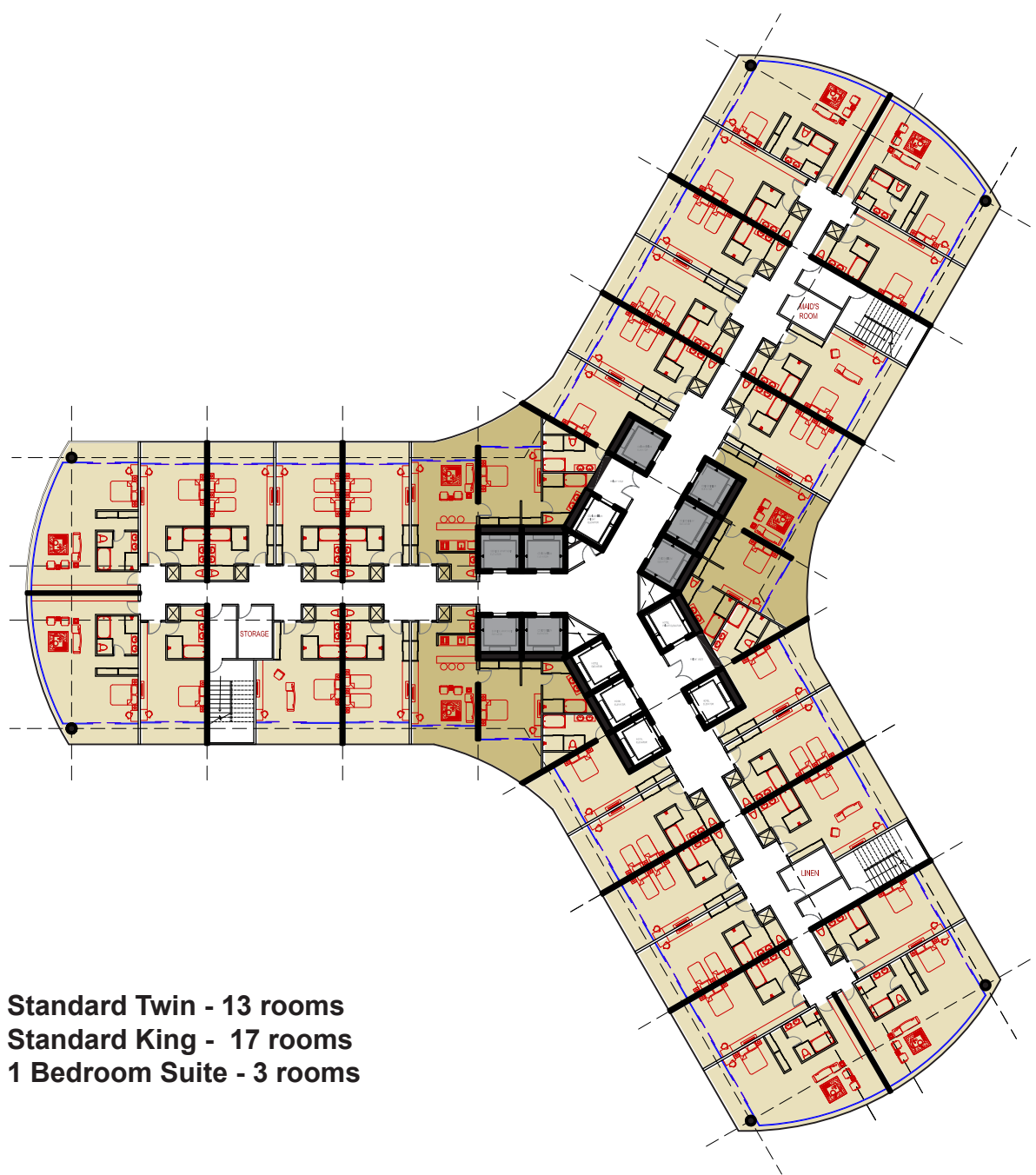


Program for the tower consisted of Hotel, Service Apartment and Condominium, which lead to views and height being important design determinant.

Design Determinant for were Ocean Views, efficient core, Maximum return on investment and iconic design.

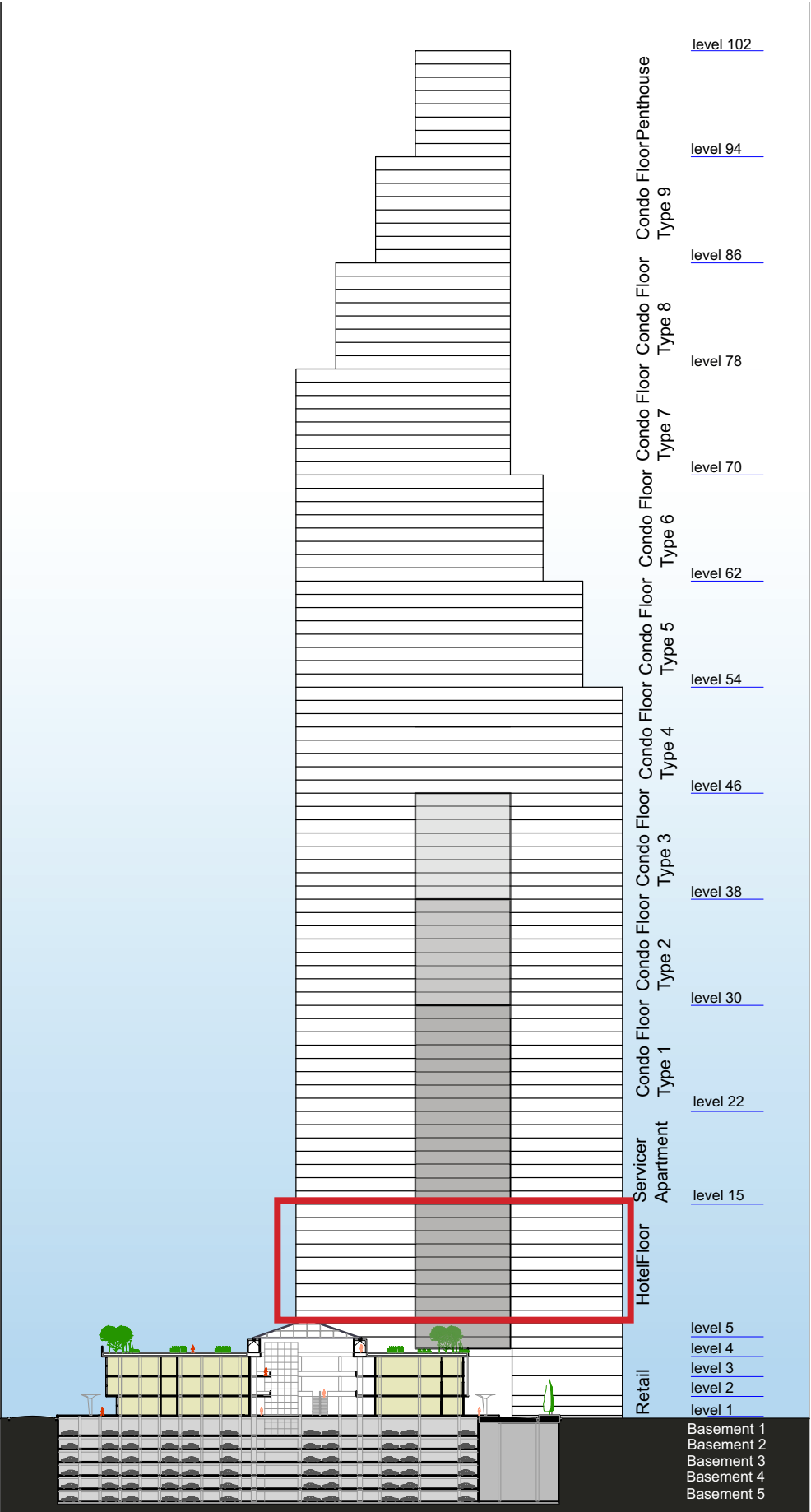


Floor plans

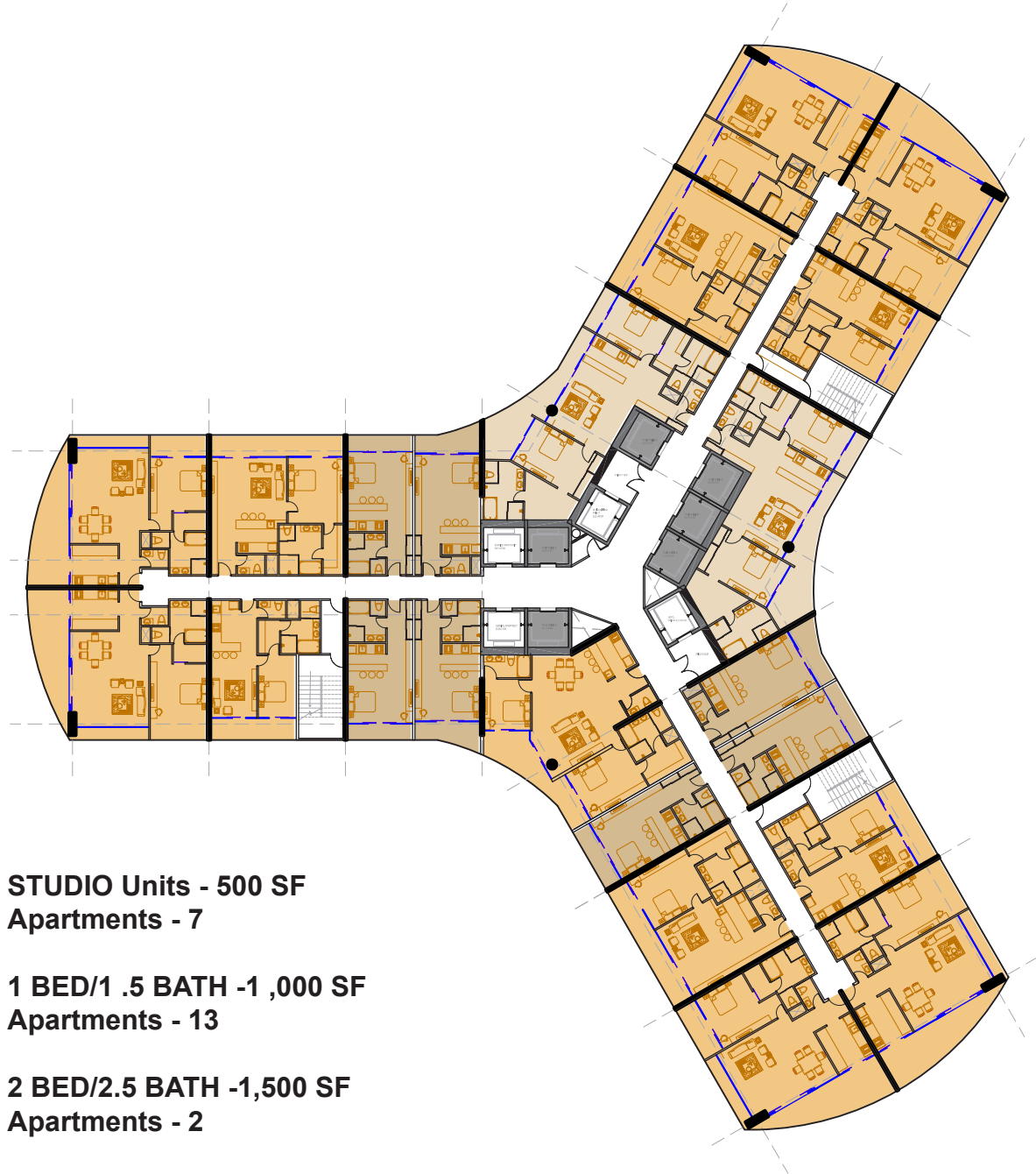


Standard Twin - 13 rooms
Standard King - 17 rooms
1 Bedroom Suite - 3 rooms

Typical Hotel Floor



Floor plans

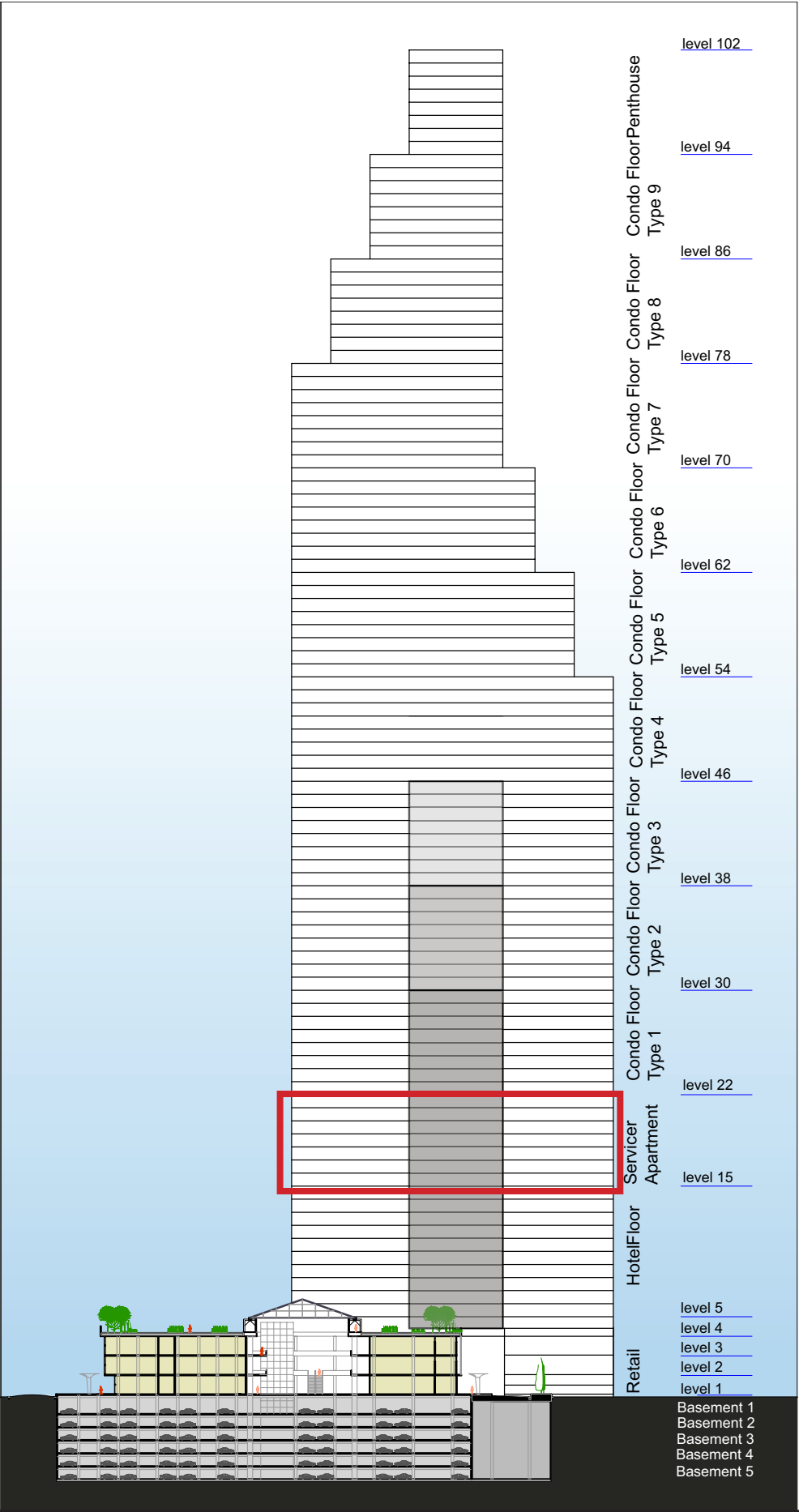


Typical Service Apartment Floor

A Mixed Used High Rise in C-Ward, Mumbai - India

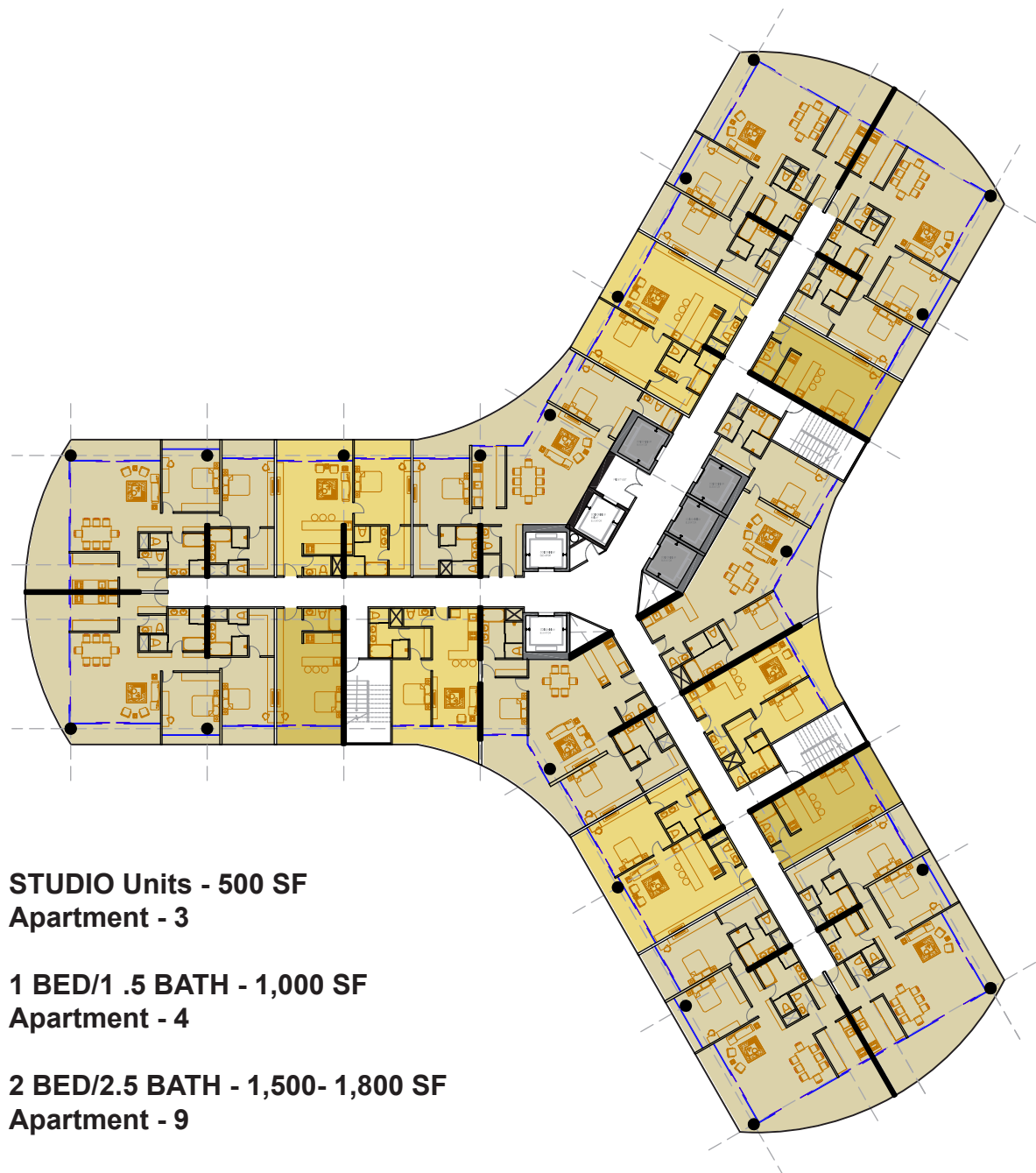


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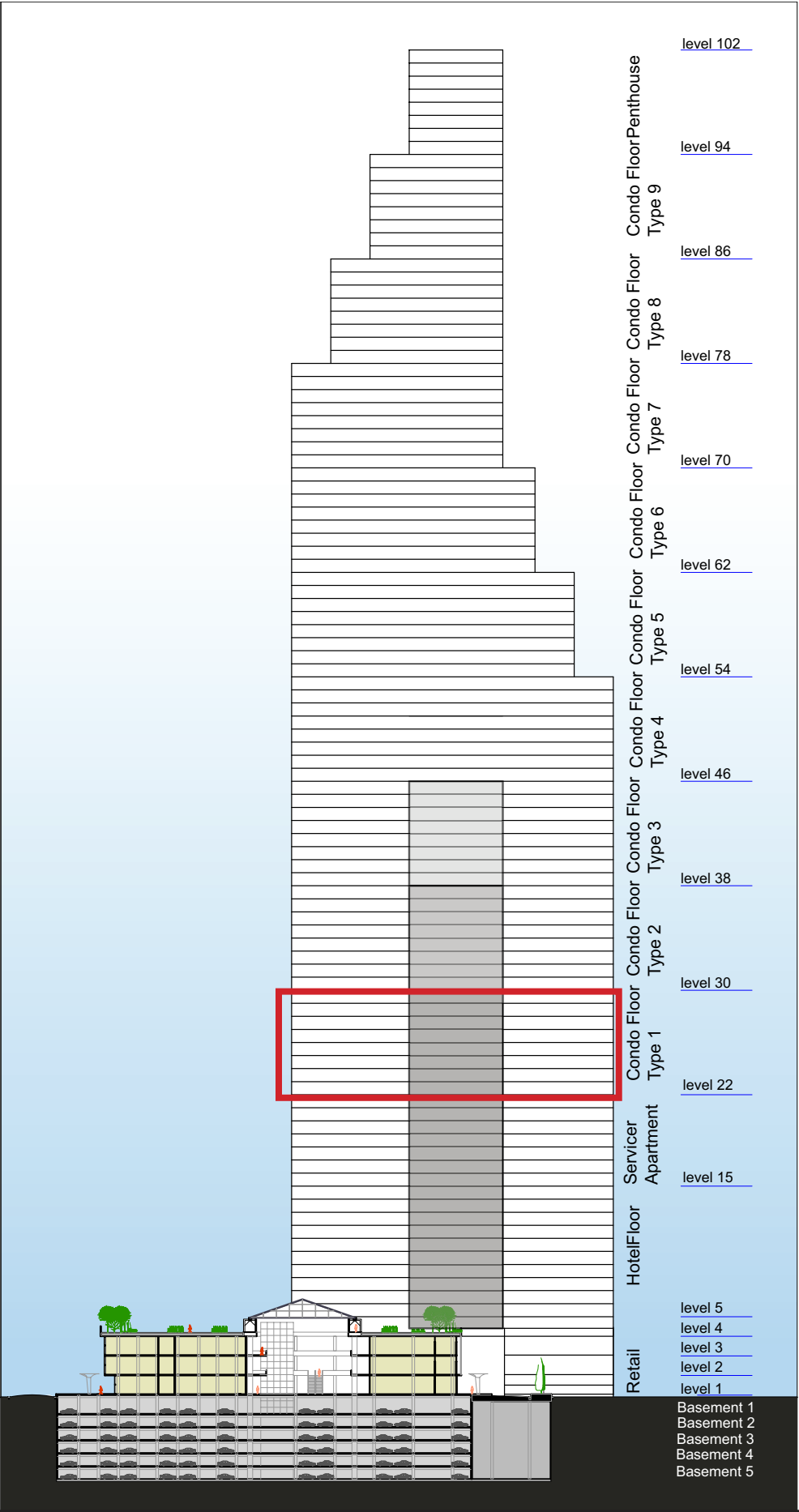
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Floor plans



- STUDIO Units - 500 SF
Apartment - 3
- 1 BED/1 .5 BATH - 1,000 SF
Apartment - 4
- 2 BED/2.5 BATH - 1,500- 1,800 SF
Apartment - 9

Typical Condominium Floor (Type 1)



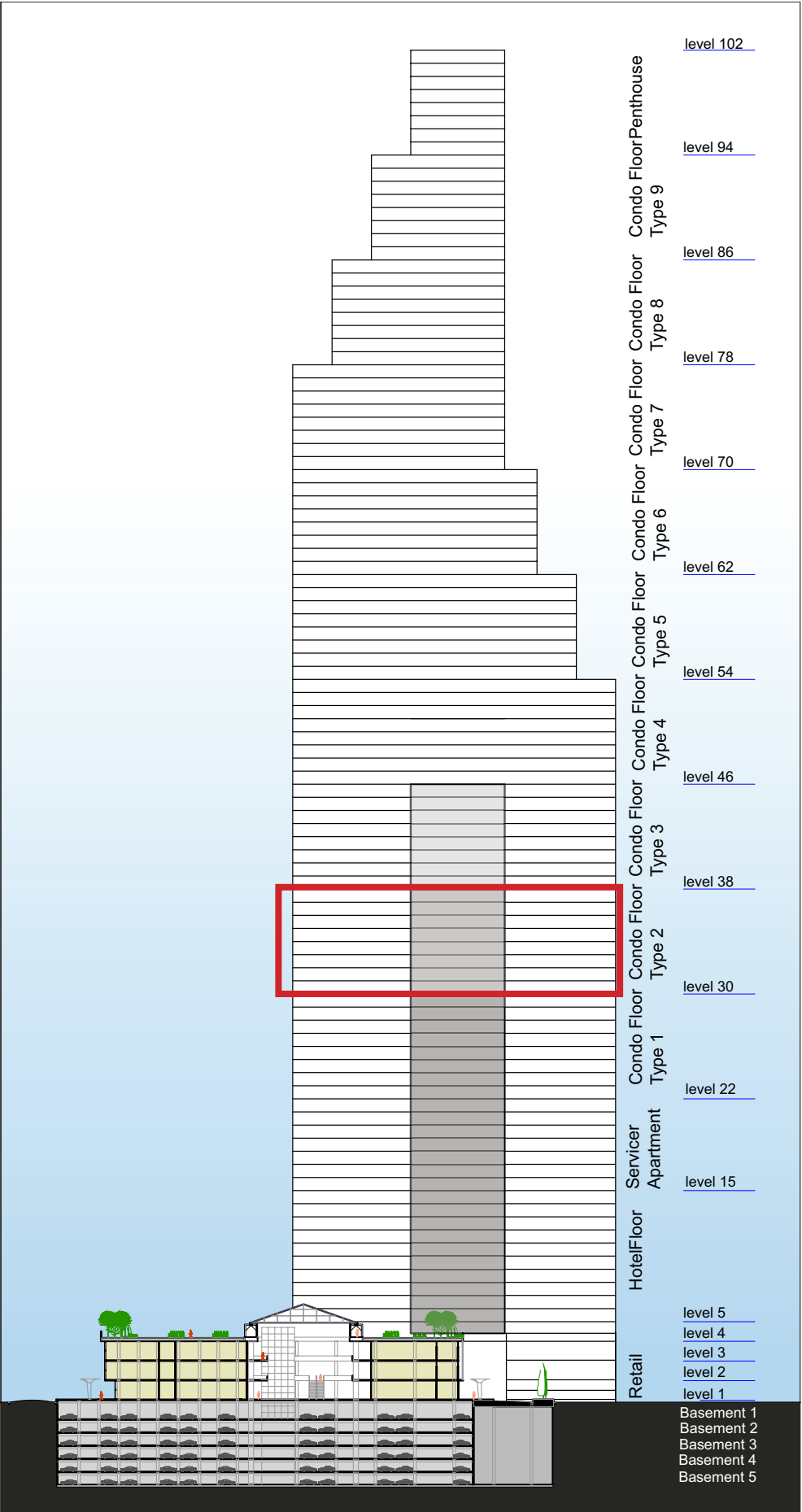
Floor plans



STUDIO Units - 500 SF
Apartment - 2
1 BED/1 .5 BATH - 1,000 SF
Apartment - 4

2 BED/2.5 BATH - 1,500- 1,800 SF
Apartment - 8

Typical Condominium Floor (Type 2)



Floor plans



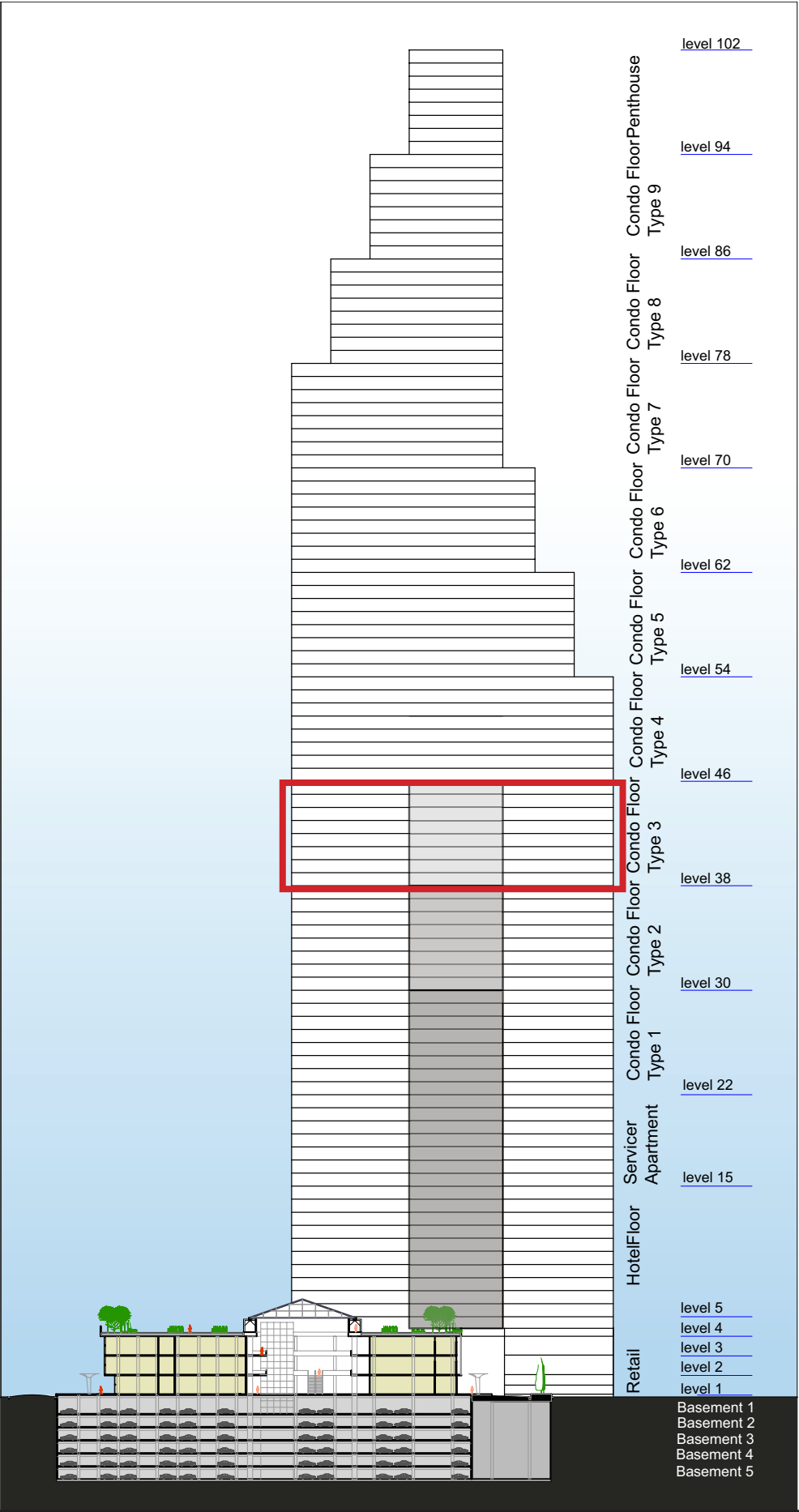
STUDIO Units - 500 SF
Apartment - 2

1 BED/1 .5 BATH - 1,000 SF
Apartment - 4

2 BED/2.5 BATH - 1,500- 1,800 SF
Apartment - 6

3 BED/3.5 BATH - 2,000 SF
Apartment - 1

Typical Condominium Floor (Type 3)

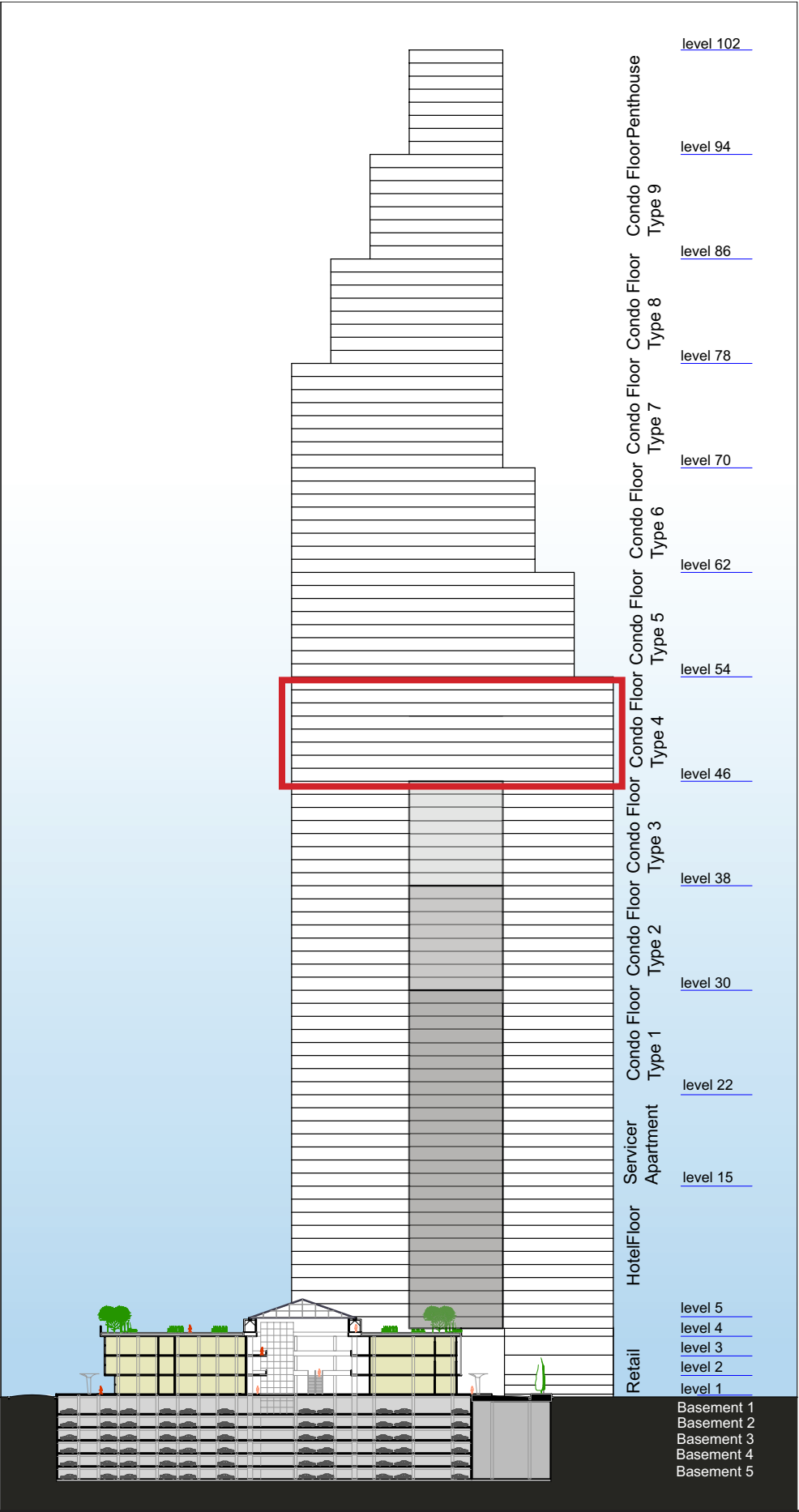


Floor plans



- STUDIO Units - 500 SF**
Apartment - 2
- 1 BED/1 .5 BATH - 1,000 SF**
Apartment - 4
- 2 BED/2.5 BATH - 1,500- 1,800 SF**
Apartment - 5
- 3 BED/3.5 BATH - 2,000 SF**
Apartment - 1

Typical Condominium Floor (Type 4)

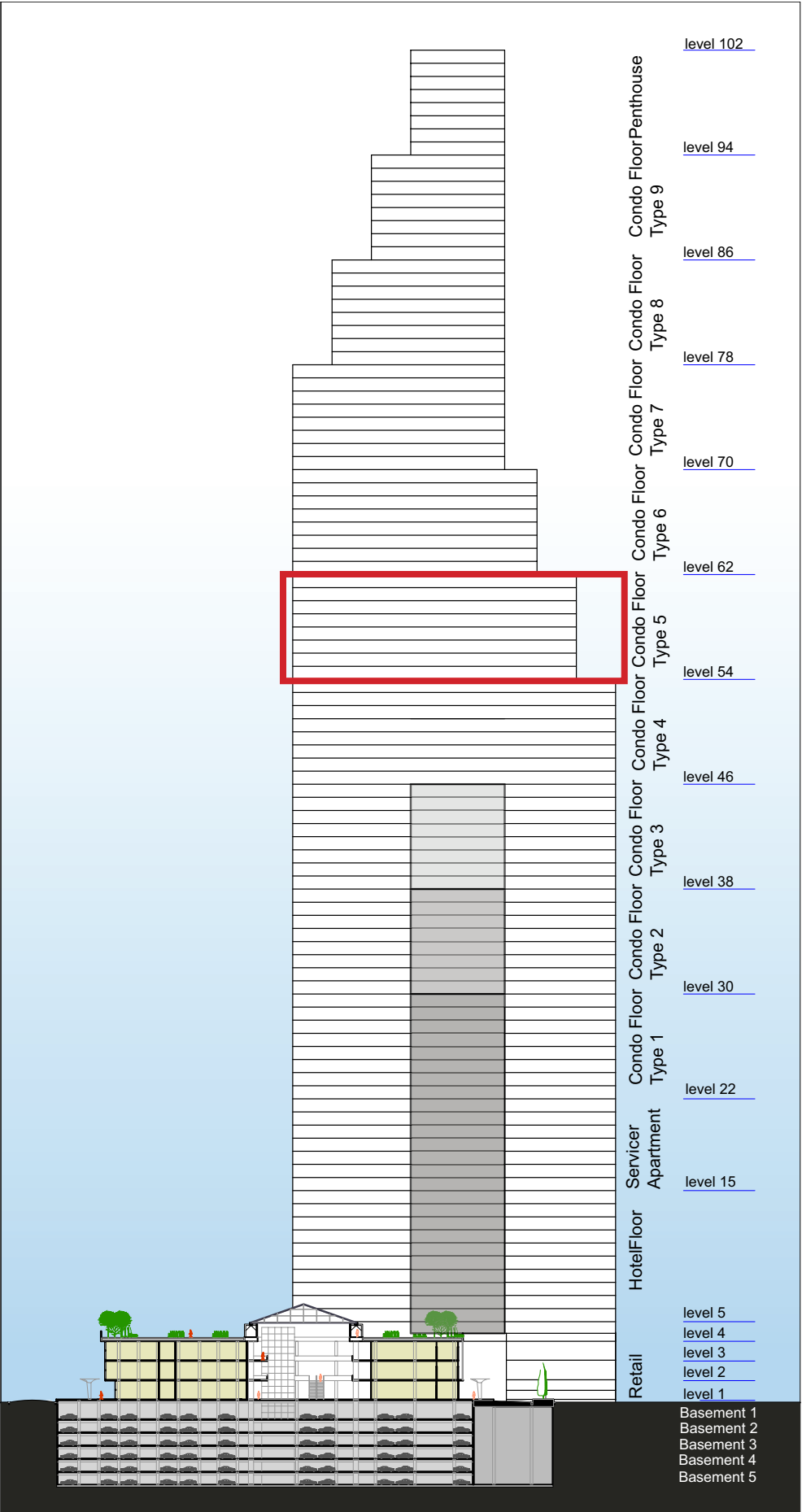


Floor plans



- STUDIO Units - 500 SF**
Apartment - 1
- 1 BED/1 .5 BATH - 1,000 SF**
Apartment - 3
- 2 BED/2.5 BATH - 1,500- 1,800 SF**
Apartment - 3
- 3 BED/3.5 BATH - 2,000 - 2,500 SF**
Apartment - 2

Typical Condominium Floor (Type 5)

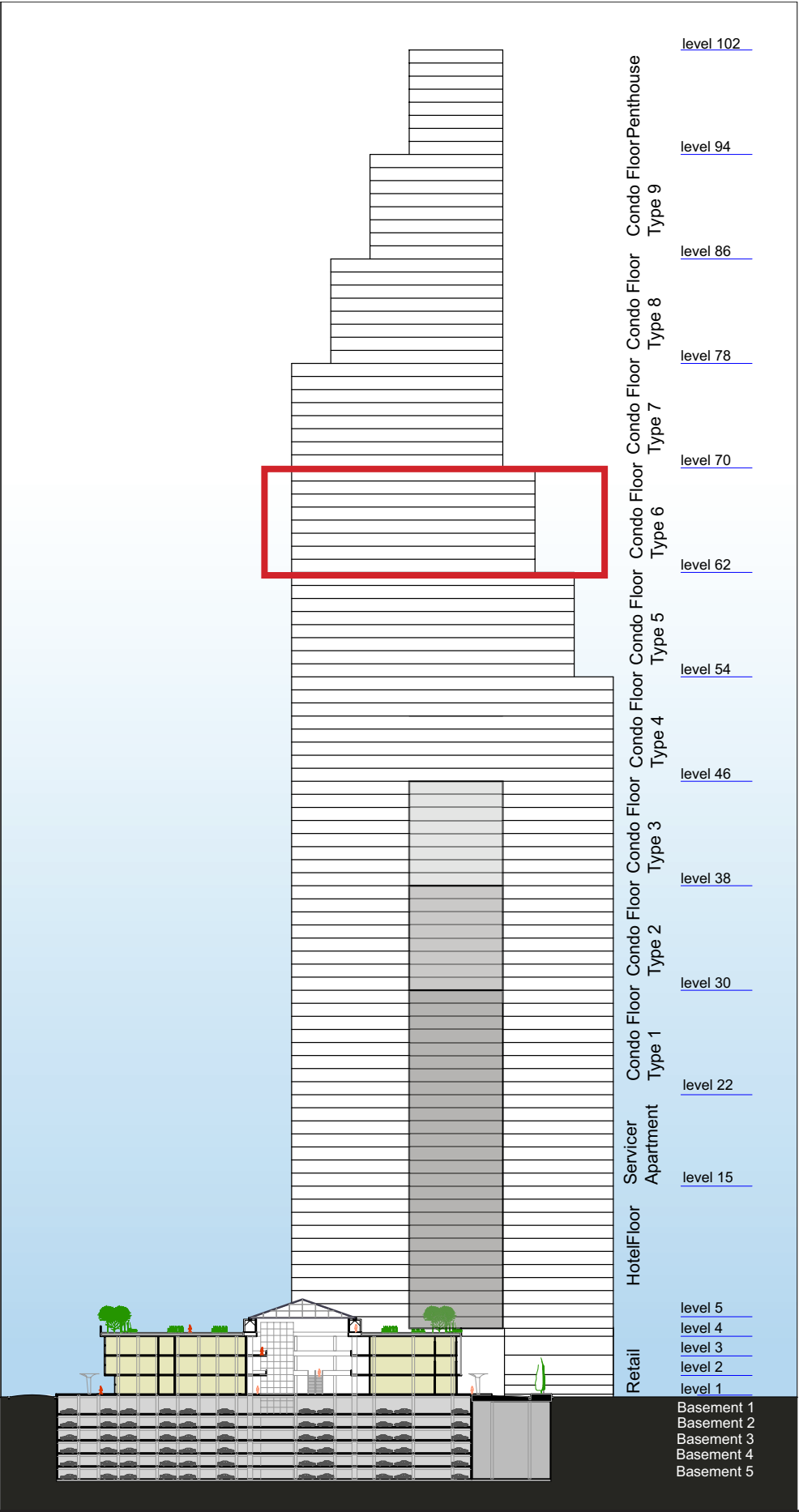


Floor plans

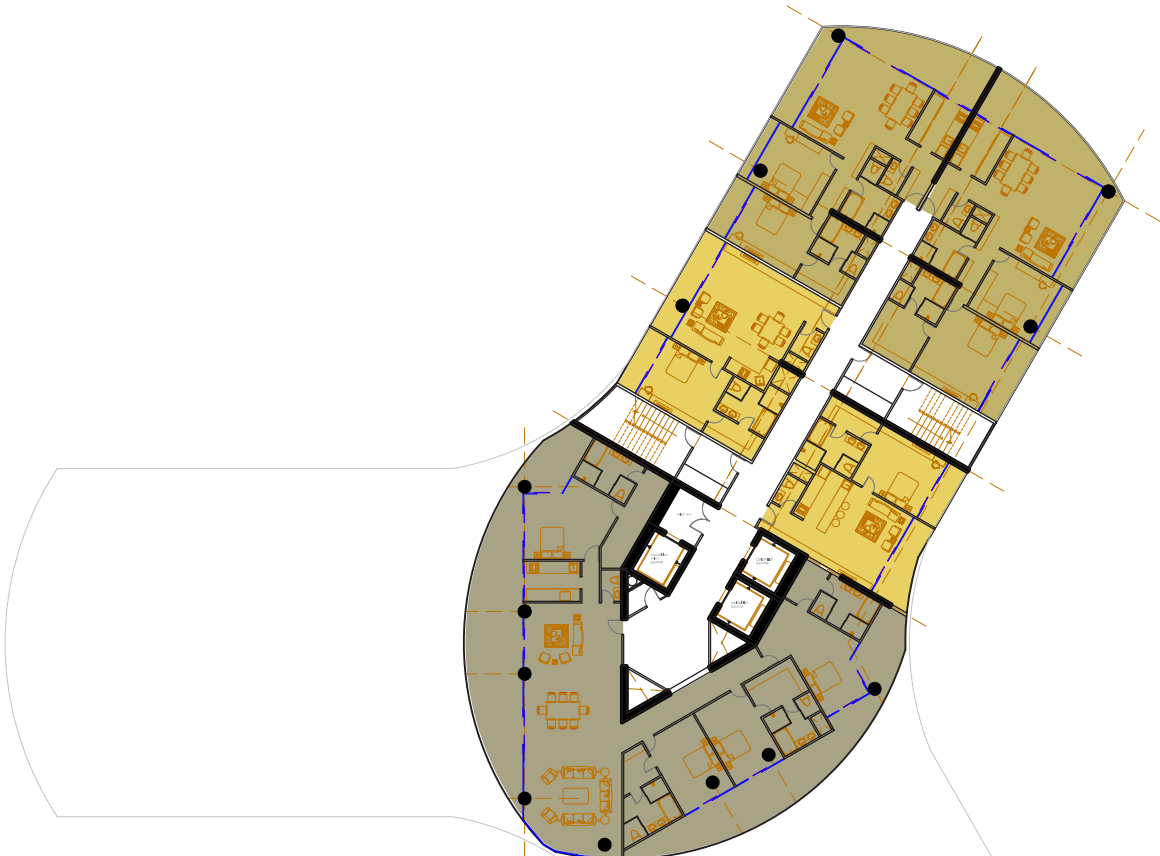


- STUDIO Units - 500 SF**
Apartment - 1
- 1 BED/1 .5 BATH - 1,000 SF**
Apartment - 2
- 2 BED/2.5 BATH - 1,500- 1,800 SF**
Apartment - 2
- 3 BED/3.5 BATH - 2,000 SF**
Apartment - 1
- 4 BED/4.5 BATH - 2,800 SF**
Apartment - 1

Typical Condominium Floor (Type 6)

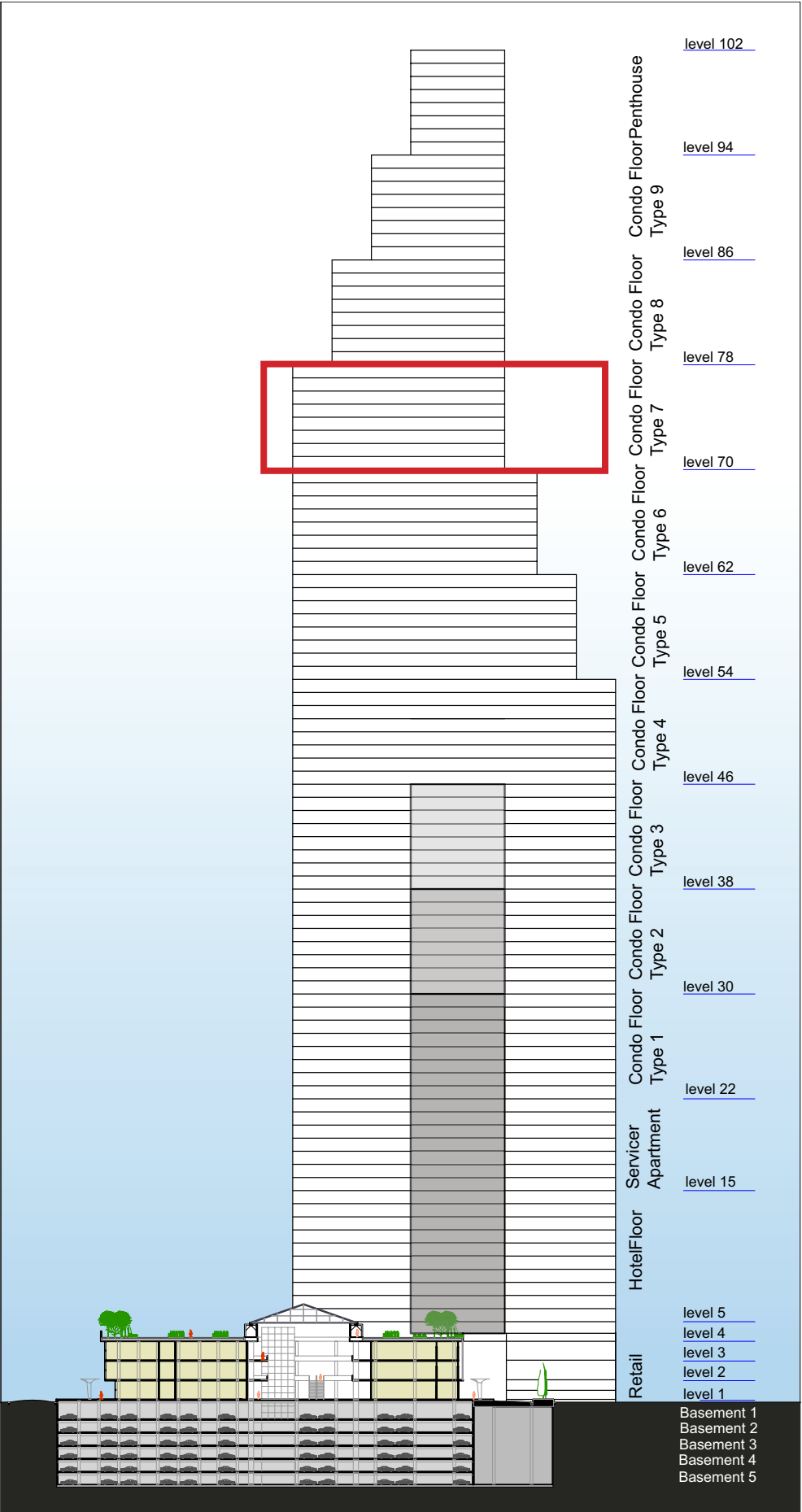


Floor plans



- 1 BED/1 .5 BATH - 1,000 SF
Apartment - 2
- 2 BED/2.5 BATH - 1,500- 1,800 SF
Apartment - 2
- 4 BED/4.5 BATH - 3,000 SF
Apartment - 1

Typical Condominium Floor (Type 7)



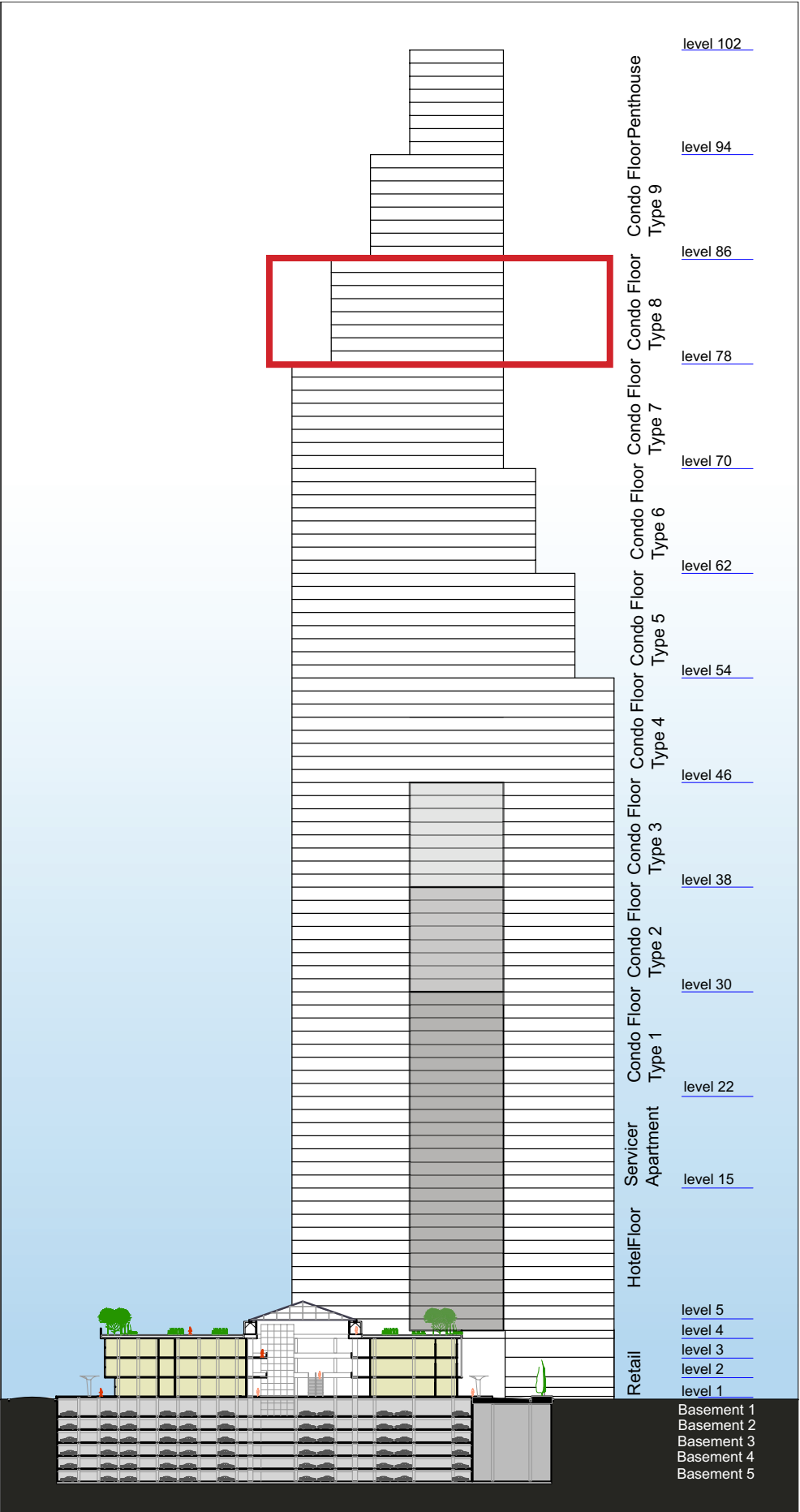
Floor plans



Typical Condominium Floor (Type 8)

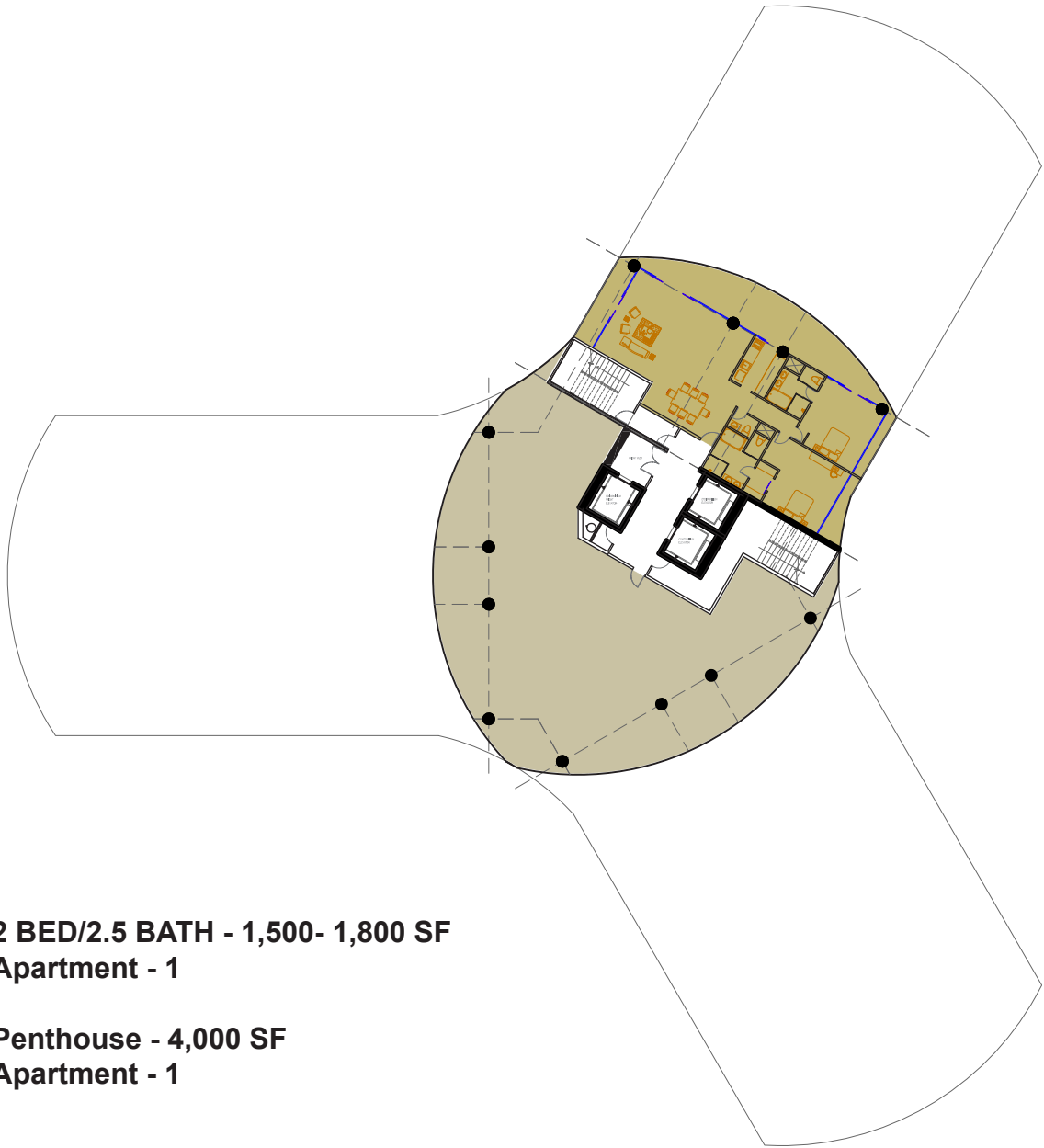
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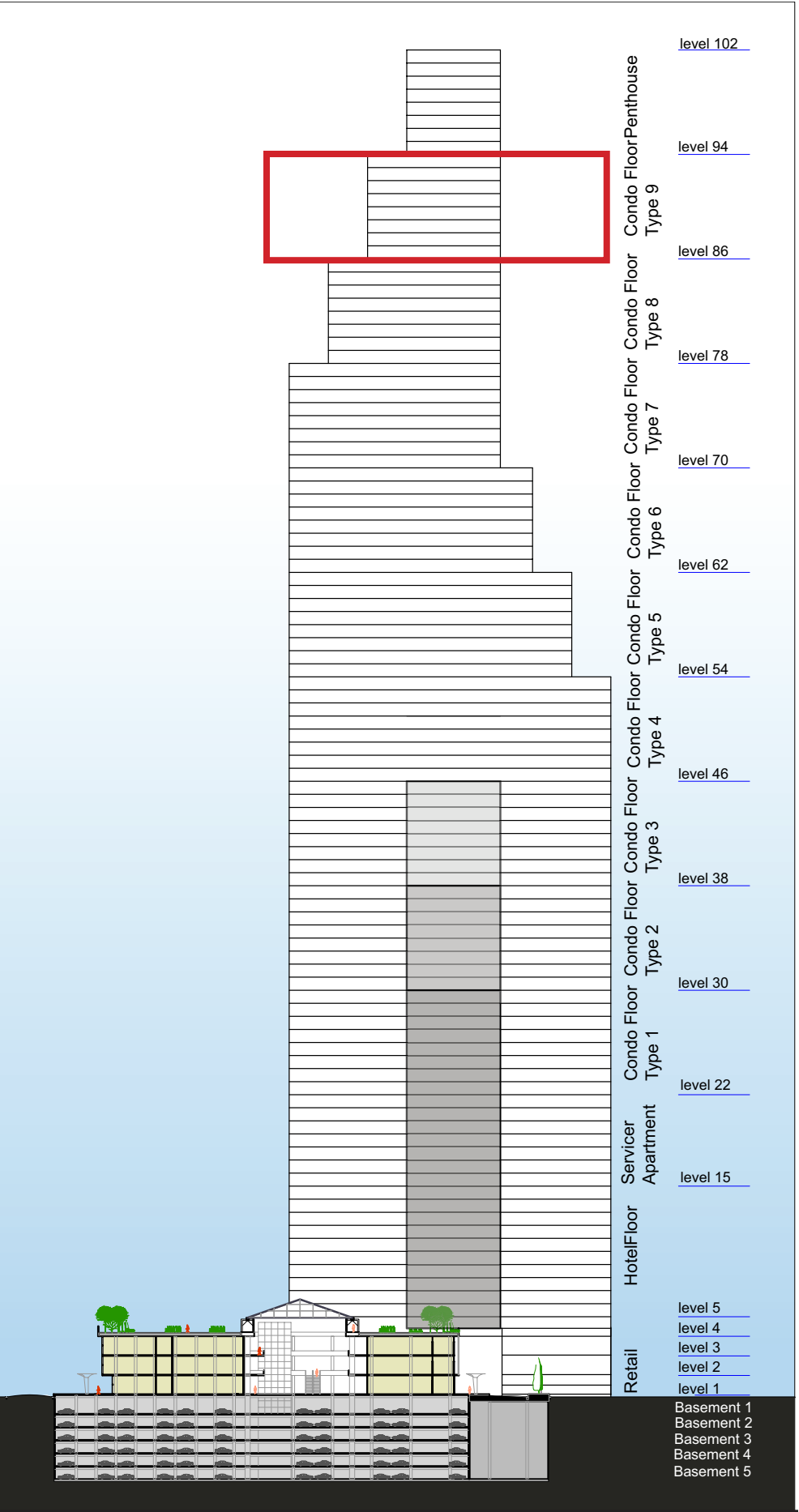
Floor plans



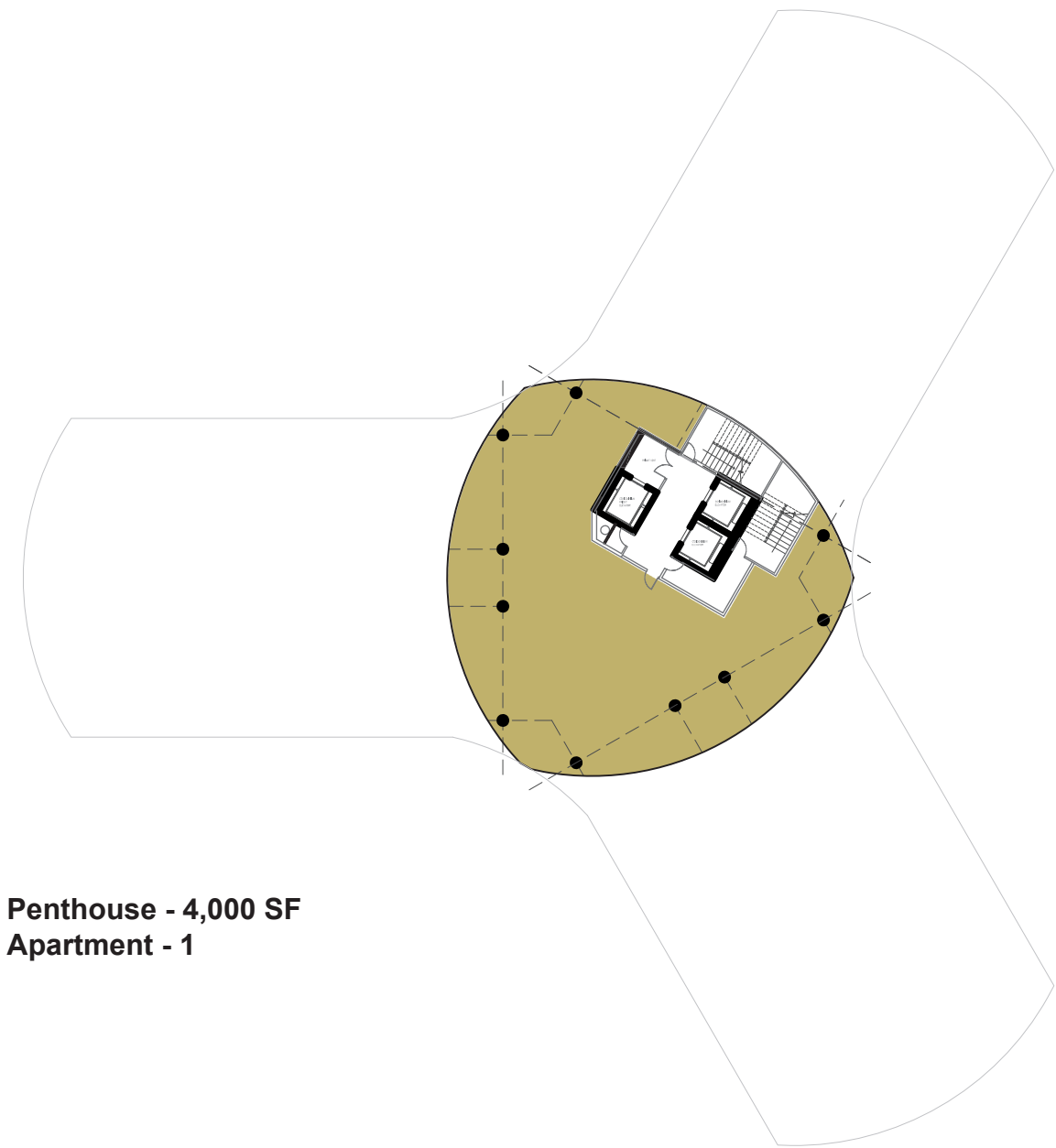
2 BED/2.5 BATH - 1,500- 1,800 SF
Apartment - 1

Penthouse - 4,000 SF
Apartment - 1

Typical Condominium Floor (Type 9)



Floor plans



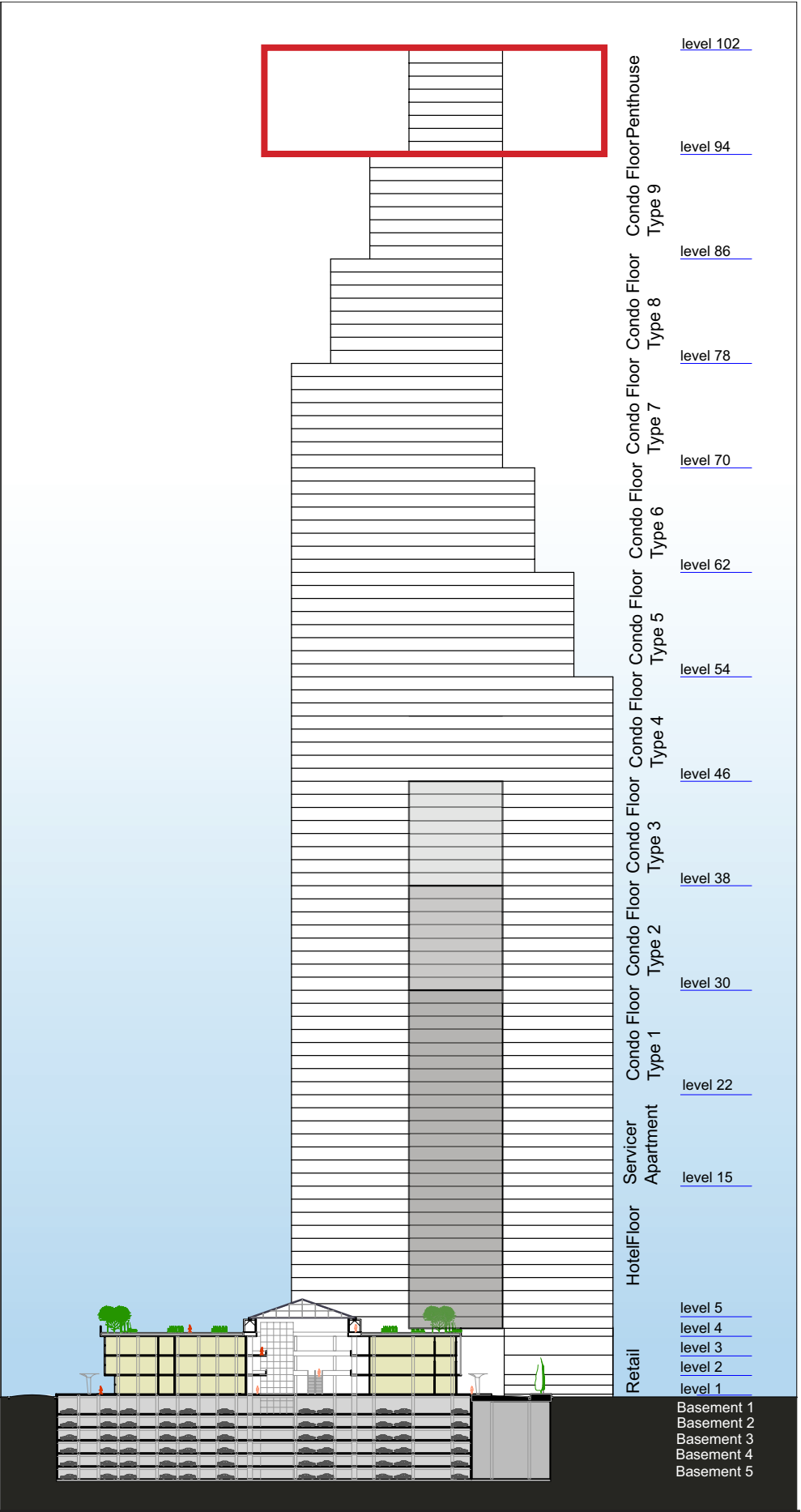
Penthouse - 4,000 SF
Apartment - 1

Typical Condominium Floor (Type 10)

A Mixed Used High Rise in C-Ward, Mumbai - India



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AutoParking system



WOHR- Multiparker (steel structure with pallets).

There many positive reasons to use auto parking system.

- It can accommodate 30-50% more cars then traditional parking.
- No ramps and driving lanes are required.
- No costly illumination and ventilation necessary.
- Great Amenity considering every user can use it just like a personal garage.



Residential Entrance



Floor plans

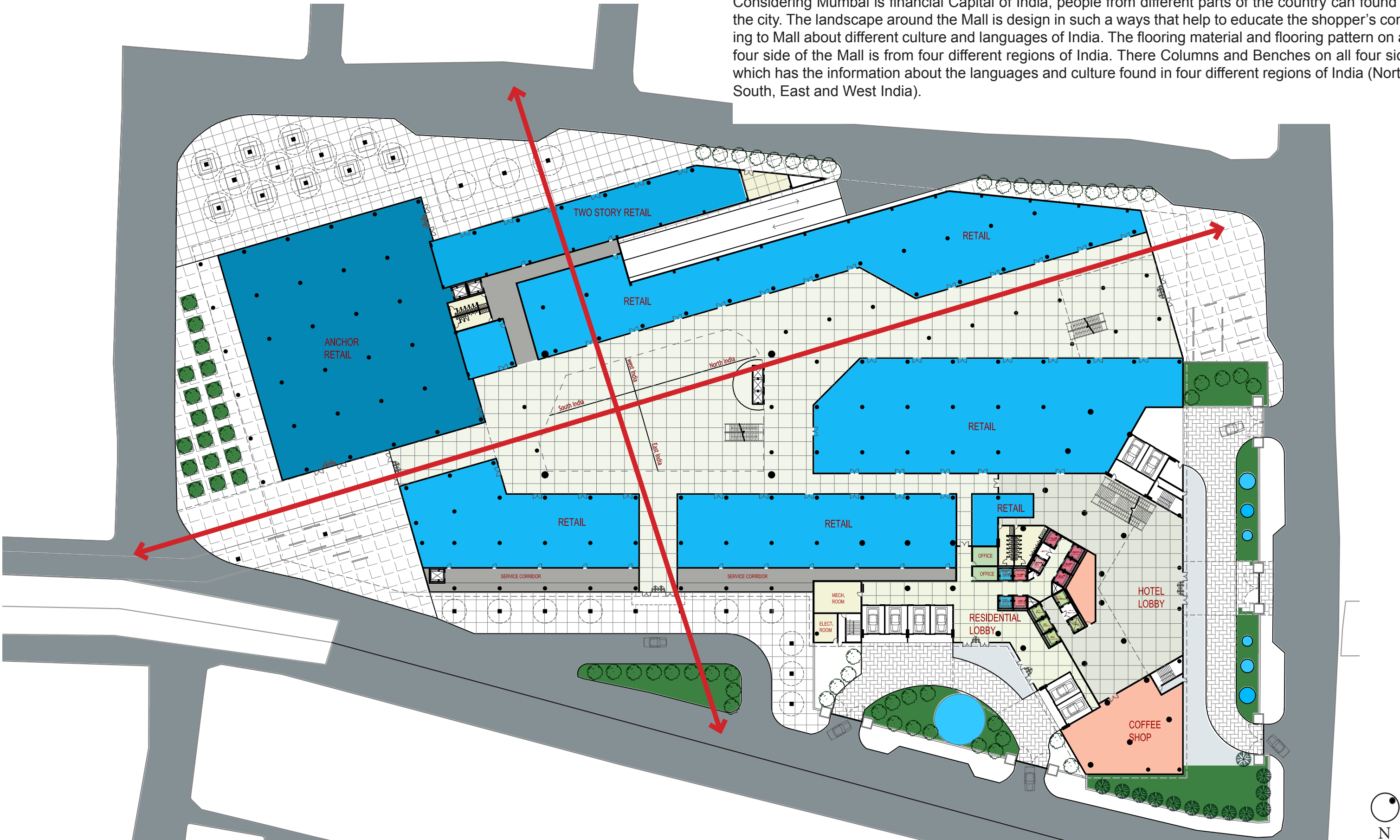


Basement Level

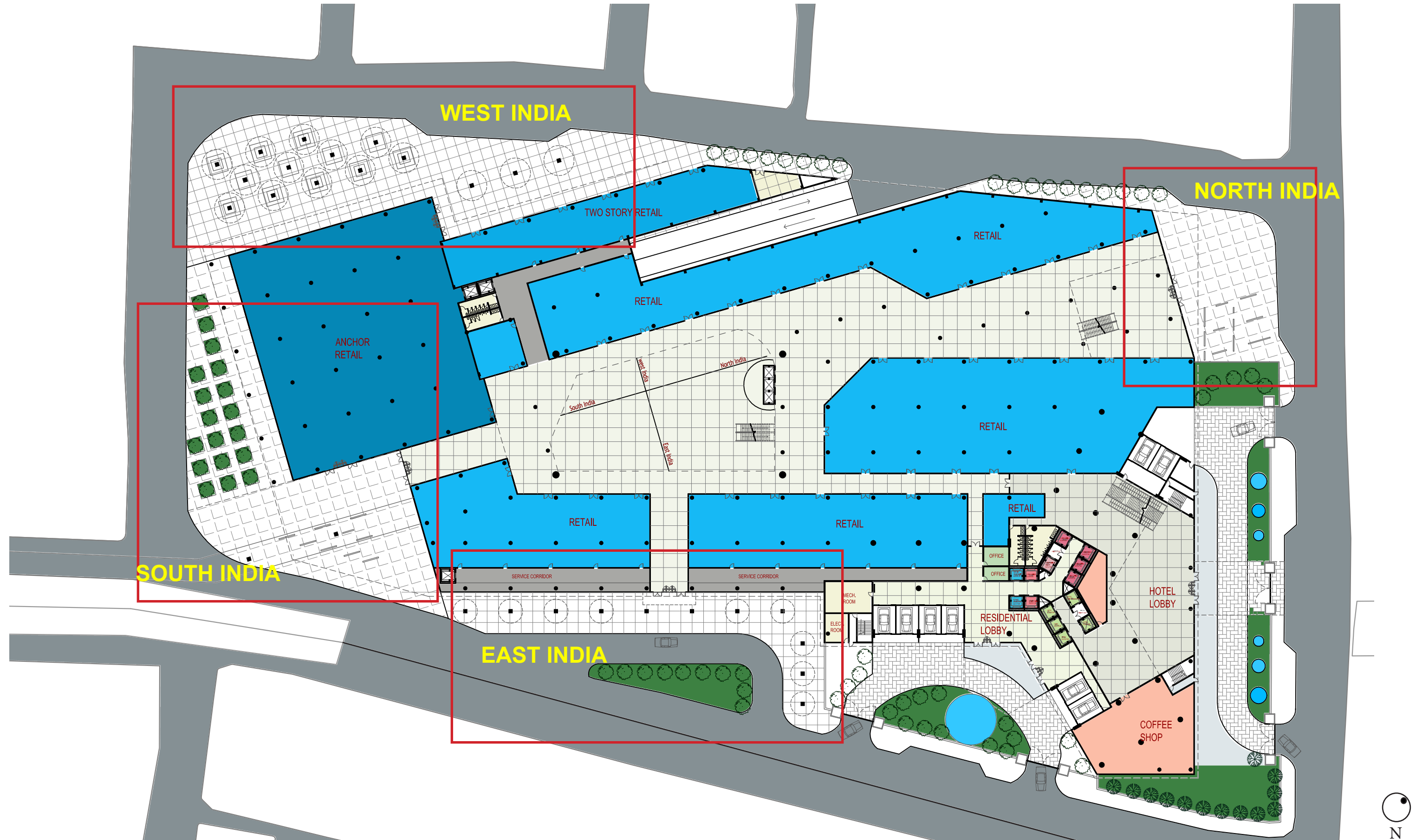


Landscape

India has and diverse culture. Each state of India was formed on the basis of Language and local culture. Considering Mumbai is financial Capital of India, people from different parts of the country can found in the city. The landscape around the Mall is design in such a ways that help to educate the shopper's coming to Mall about different culture and languages of India. The flooring material and flooring pattern on all four side of the Mall is from four different regions of India. There Columns and Benches on all four side which has the information about the languages and culture found in four different regions of India (North, South, East and West India).



Landscape



Landscape



Hotel Enterance

Residential and Hotel entrances are design with element from Palaces of Jaipur, Elements such as Fountains, flooring material and the Entrance Gates.

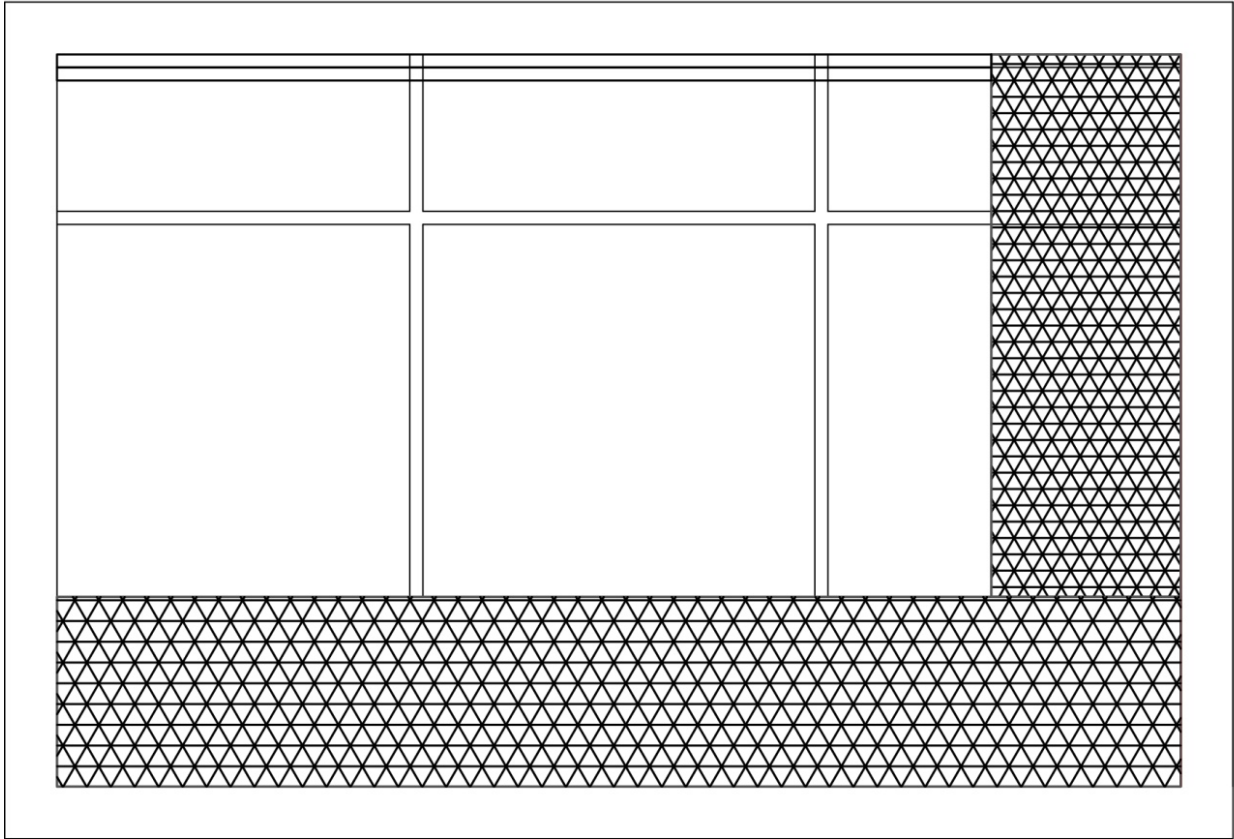


Tower Facade

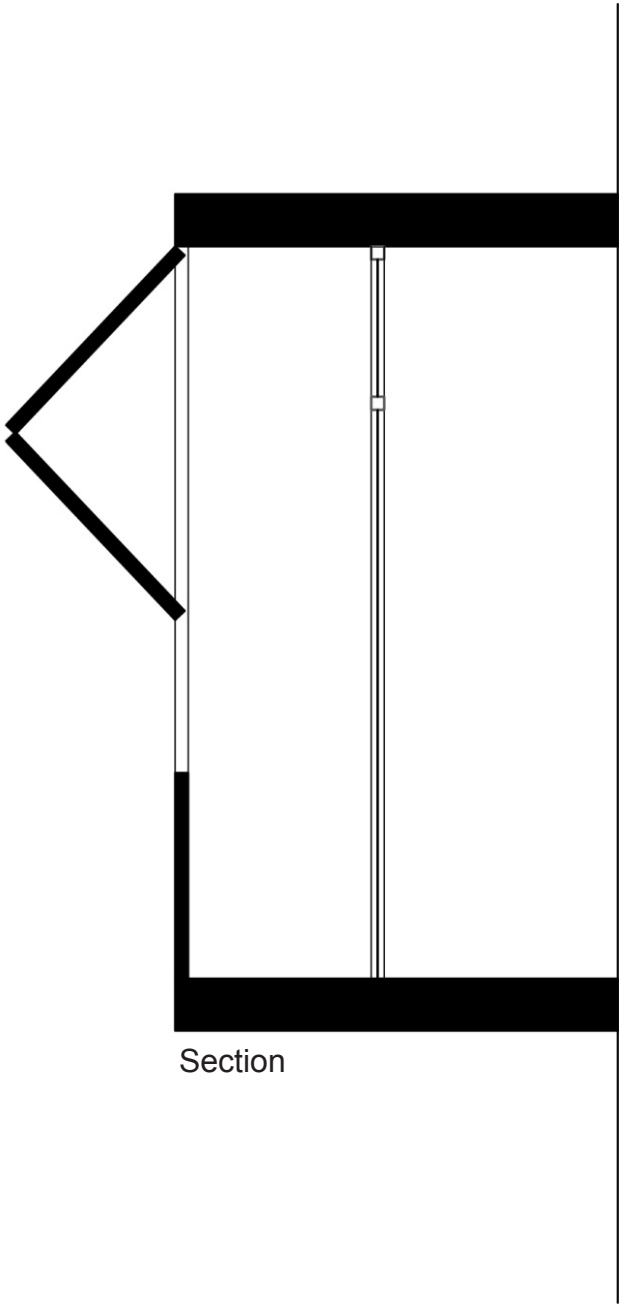
Mumbai has moderate climate and natural ventilation is commonly used for passive cooling. In Traditional Indian Architecture Mesh (Jali) facade was used, which allowed natural ventilation but blocked the sun light. The facade of the tower has an extra skin of mesh (jali). The Mesh facade is motorized that allows each apartment owner to open and close the faced. This would create constant changes in facade as each residents adjusts their screen.



Tower Facade



Elevation

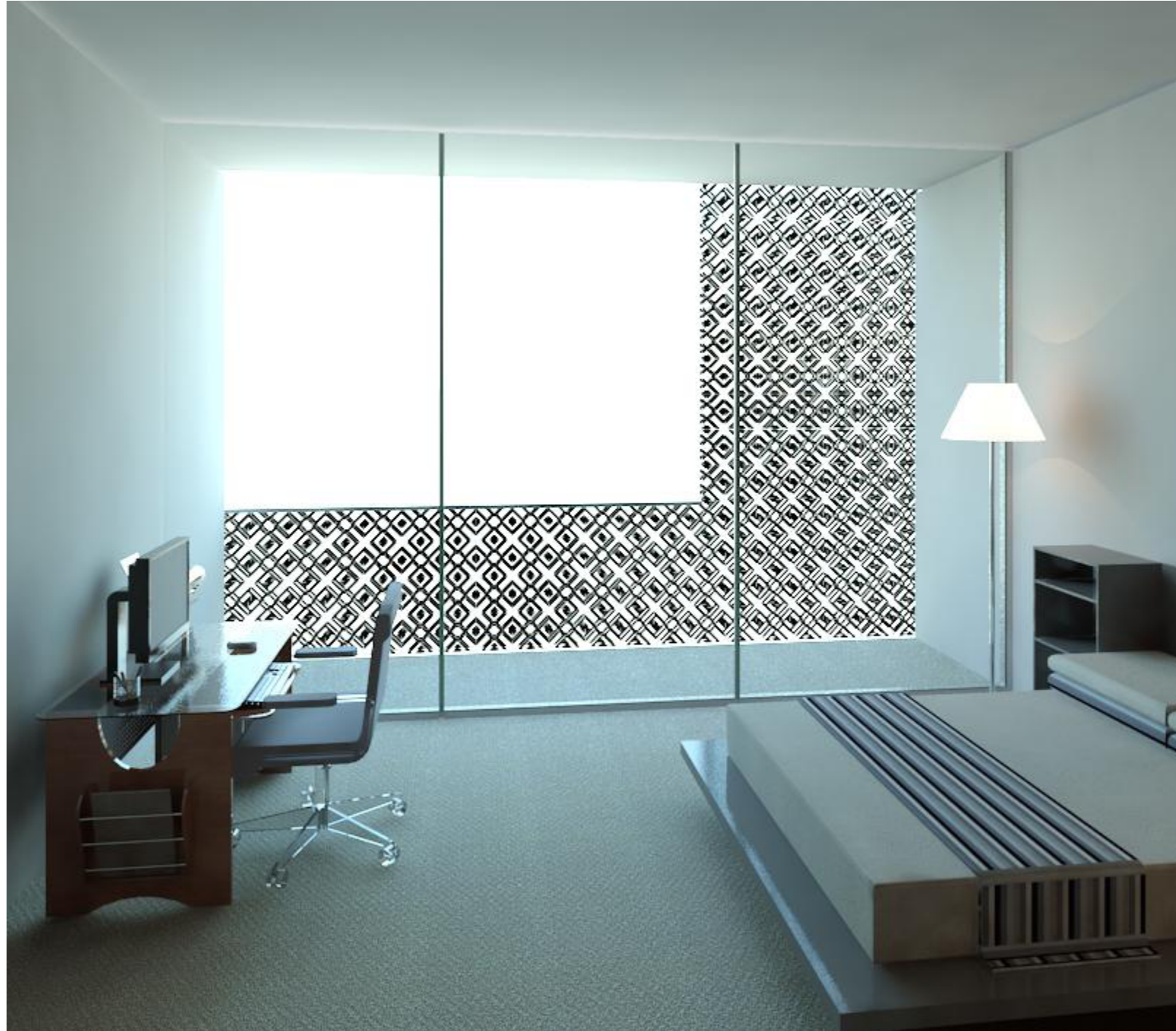


Section

Tower Facade



Tower Facade



Tower Facade



Roof Level



Roof garden above the Mall is designed with element for Mughal Gardens of Central India, Elements such as strong grid with a simple geometry, fountains and Flower garden.

Rendering



Inside view of the Mall

Rendering



Terrace Apartment

Rendering



Residential Lobby

Rendering



A Mixed Used High Rise in C-Ward, Mumbai - India



Master's Project -Spring 2011



Irshad Saleji

Site Plan

