

POST PANDEMIC RESIDENTIAL

CONVERTING AN OFFICE BUILDING TO A RESIDENTIAL BUILDING

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State University in partial fulfillment of the requirements for the degree of

Master of Architecture
in
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GENERAL AUDIENCE ABSTRACT

Architecture finds new meanings or loses the old ones, depending on what is happening in the world and how human lives changing. Since the pandemic hit in 2020, life has been abnormal in most aspects. Quarantine, remote working, and online activities are some of the new normals that inevitably became a part of the human lifestyle. Even after the quarantine, Internet-based communications is continued, and many office buildings left vacant while the need for more spaces for different activities felt in the residential buildings. Converting office buildings into housing is the new 'normal' in this post-pandemic era.

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ABSTRACT

In this thesis, I explored approaches to converting an office building into a residential building considering social activities and the new normal. Focused, productive work is likely carried out at home, at times that best suit individual lifestyles, while collaborative and socially interactive activities bring people together in a variety of spaces. We saw this leading to the need for resilient homes, homes with the adaptability to support a range of activities throughout people's days. Homes need to provide spaces for exercise, entertainment, digital collaboration, connection, and focus (without becoming isolated), alongside the traditional activities of eating, sleeping, and washing.

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RESEARCH

Over the past decade, office building vacancy rates are slowly rising. However, after the pandemic began in 2020, vacancy rates rapidly increased in all DC areas.

People spend less time commuting and socializing and spending more time with their families. Even after the covid cases decreased and the quarantines have ended, many people preferred to stay on remote or hybrid. Many existing office buildings are now left empty. Adaptive use has many green characteristics in nature. Adaptive Reuse helps to increase the life cycle of existing buildings, preserve more resources, decrease waste materials, and reduces the environmental impact of new material manufacturing and transportation.

In this situation, converting an office building into an apartment can address two issues at the same time: 1. increased housing demand and 2. increased office building vacancies.

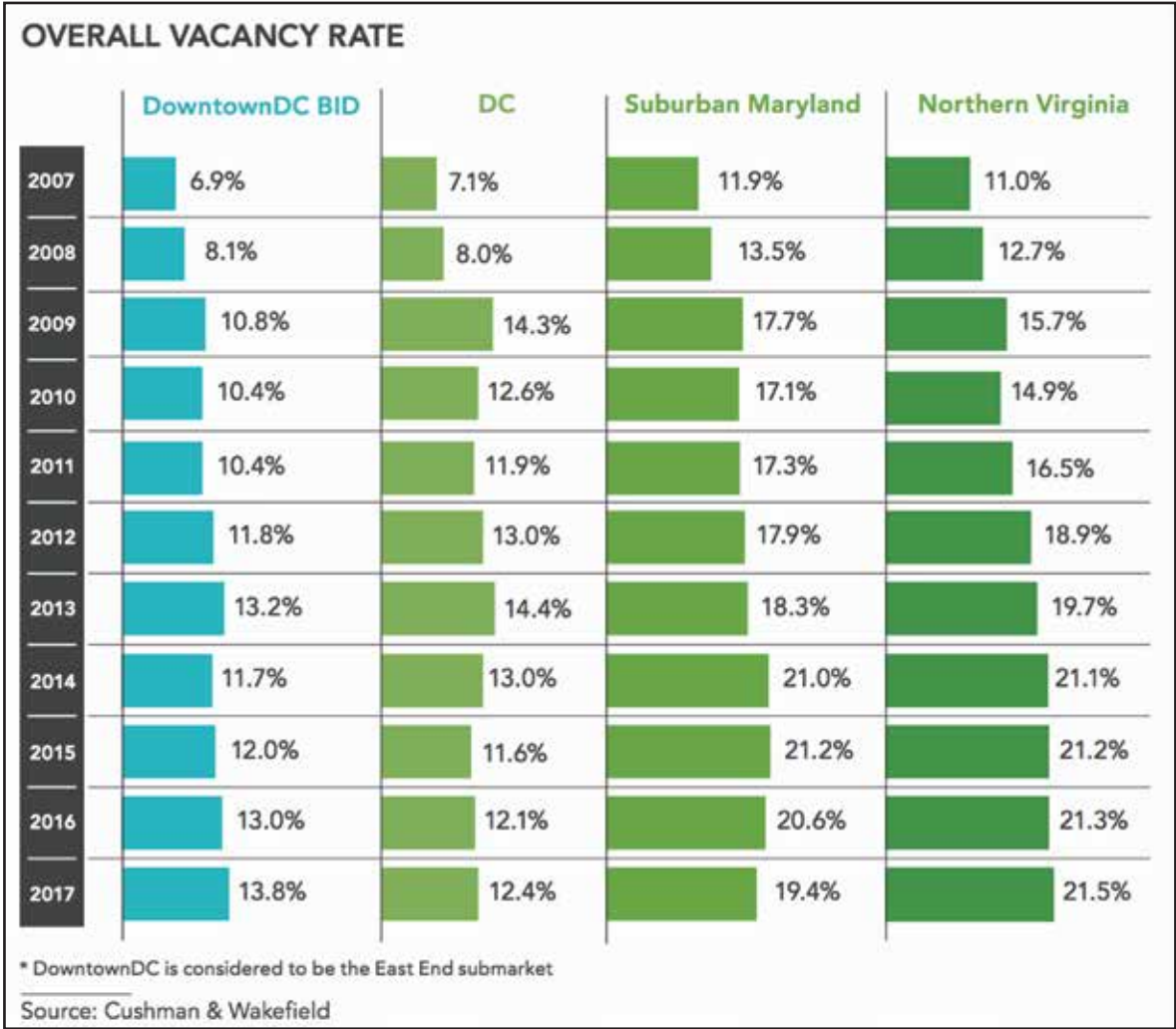


Fig.01

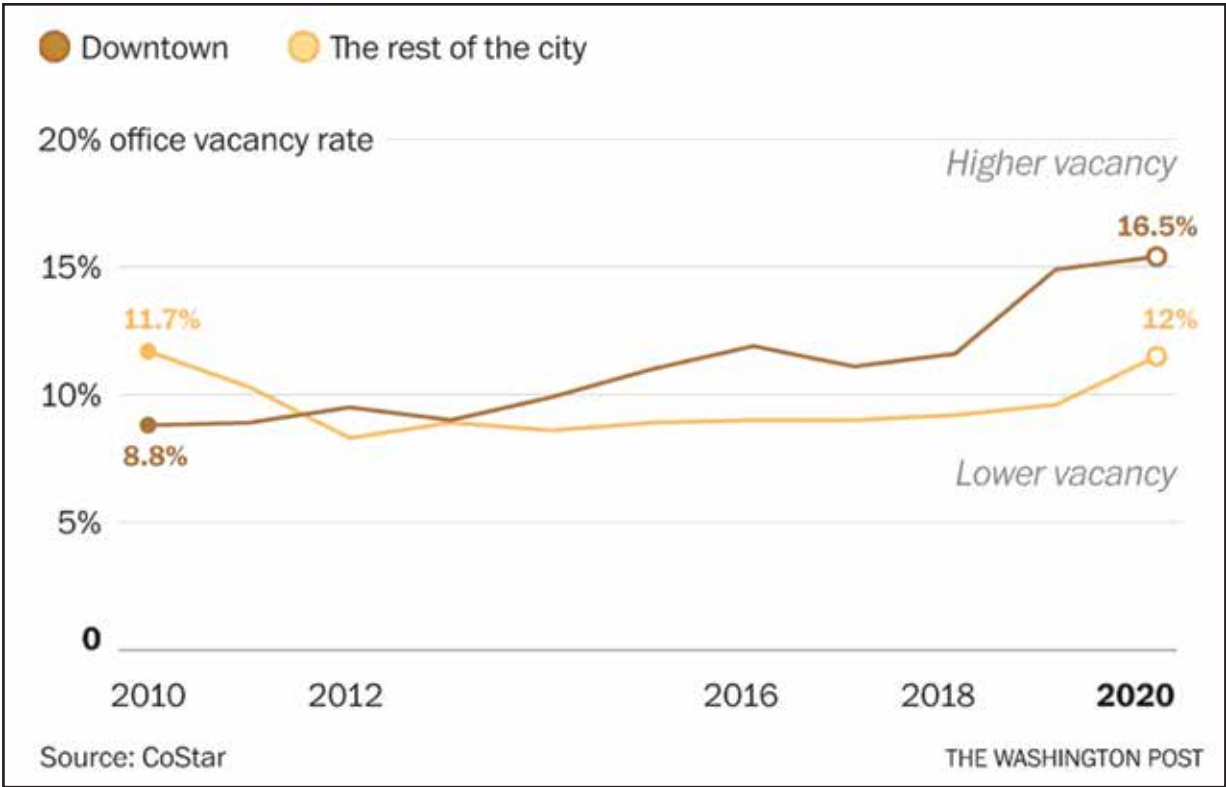


Fig.02

CASESTUDY

1) Micro-Unit Apartment: Welive! (2014)

- Crystal City: 2221 South Clark, Arlington, VA (Crystal Plaza 6)
- Developed by WeWork!
- Built-in 1960s
- Conversion of the 12-story office building to a multifamily residential building with ground-floor retail
- 252 Apartment units and 5,848 SF of ground-floor retail
- Fully furnished studio apartments between 300 and 360 SF
- Three- and Four-bedroom units, each under 800 SF
- The top 10 floors are designed to maximize interaction between residents
- Dorm-style living area: shared work areas, shared tv rooms, shared big kitchen

We live in micro-unit apartments in Crystal City, Arlington. From the outside, the only thing distinguishing the building from other structures of Crystal City are the splashes of color painted on the concrete. However, all nine levels of former office space are converted into a living space. Our live idea is organized based on shared spaces and shared experiences. The idea is that residents would be more interested in hanging out together outside or in common areas than in their apartments. The company built a small apartment by placing a common area in the middle of the floor. WeLive created two-floor “neighborhoods,” connected by stairs, with common space in the center of each floor. Each quarter there is a communal area with a commercial kitchen, dining area, living room, and other amenities. Each unit has a private bathroom and a small fridge, a microwave, and a kitchenette with a sink, but no oven or stove. It complies with both code and zoning for a residential building. The other floors of the building, slightly smaller than the others, features standard apartments. WeLive residents still have their apartment, from the studio to the four-bedroom apartment.



Fig.03



Fig.04

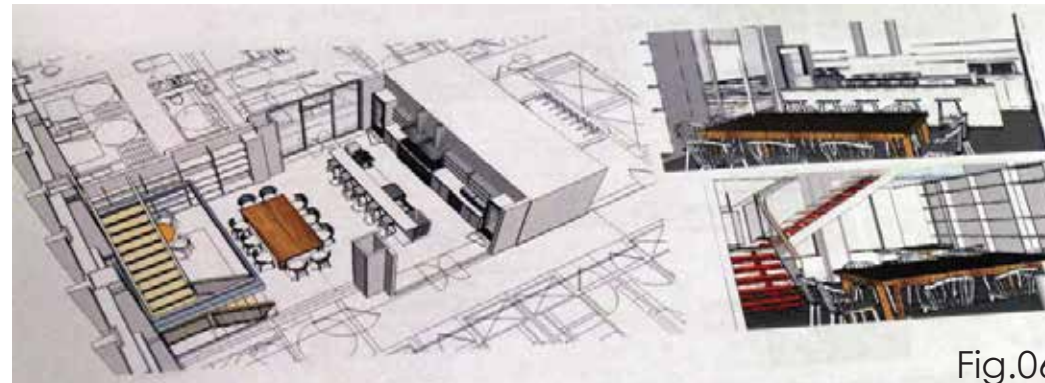


Fig.06



Fig.05



Fig.07



Fig.08



Fig.09



Fig.10



Fig.11



Fig.12

2) The Oronoco Waterfront Residences (2015)

- 601 N Fairfax St, Alexandria, VA
- Built 1986
- Developer: EYA, Architect: Shalom Baranes Associates, -Designer: SR/A Interior Design
- Expansive space and fewer shared areas
- Six stories, 60 condos, 155,00 SF, two- and three-bedroom units
- AWARDS: AGC of DC Washington Contractor Honorable Mention, Renovation/Restoration, Contractor's overs \$400M; ENR Mid-Atlantic Best Renovation

Formerly was the headquarters of the Sheet Metal Worker's International Association. despite its convenient location and view of the Potomac River, because of its awkward C shape, the waste courtyard, the small windows, and due to lack of sufficient natural light, the original tenants shrank and relocated, and building owners had a hard time finding new commercial tenants. EYA, a real estate developer, has recognized the potential of this site and its ideal fit for residential purposes due to its one-way corridor. And with new, bigger windows, all the units would have ample light, many with riverfront views. The stepped-back configuration even allowed for multiple roof terraces.

The original building was the largest solar power office building in the world at the time. We used renewable energy for heating, cooling, and storing water. To preserve this environmentally-conscious legacy, Architects approached the renovation with a sustainable strategy — recycling many of the old building's components while introducing new design and technology throughout the property. Ultimately, this earned the LEED certification.



Fig.13



Fig.14



Fig.15



Fig.16



Fig.17



Fig.18



Fig.19

4) Park +Ford, (2021)

- 4401 Ford Avenue, Alexandria, VA - along Virginia Route 7 and I-395
- Constructed between 1981 and 1986
- Developer: Lowe
- Architect: Boonstra | Haresign Architects
- Interior Architect: ESG | Architecture & Design
- Two 14-story towers feature 16,000-square-foot floorplates

"Park Center was in the market for sale since 2016. Its large office floors were approximately 90 feet deep. So, it means rooms will be too far from the windows, making them dark and unappealing. Lowe's plan for larger units allowed for configurations using interior dens with openings to the living space to capture natural light. The floor-to-ceiling window walls provide abundant natural light into the living spaces.

In addition, the buildings have higher slab-to-slab dimensions than in most new residential construction. Lowe was able to create units with 9.5 to 10-foot ceilings, compared to a typical residential unit with 8.5 to nine-foot ceilings.

Office buildings require multiple elevator banks to move tenants, and the occupant load is typically three times that of a residential building. At Park Center, each of the towers had six elevators, yet only three are necessary for the lesser demands of residential use. This excess former elevator space was transformed into trash chutes (including one for recycling), as well as space for mechanical, electrical, and plumbing risers. Another elevator shaft was filled in and incorporated into residential units.

Common-area restrooms happened to be located where they could be easily demolished, with the space merged into the residential units.

One of the challenges in this conversion project was to devise a way to add balconies. Lowe's design and engineering team found a way to attach the new balconies onto the building by bolting the anchor plates to the existing concrete floor slabs."



Fig.20



Fig.21



Fig.22



Fig.23



Fig.24



Fig.25

3) Skyline (2021)

5201-5205 Leesburg Pike, Falls Church, VA
Architect: Highland Square Holdings (2HSQ)

live/work platform

720 live-work loft

30,000 sf of ground floor amenity space and 8,000 sf of community-centric retail.

The single largest project of its type in the U.S. and one that meets the single fastest-growing demand constituency in the Real Estate industry

Best work from a home community in the U.S.

Able to meet large, growing, and underserved market segments with a traditional apartment operating system.

“The Skyline Lofts is the next iteration of 2HSQ’s live/work platform. The conversion of three identical 280,000 Sf empty office buildings into 720 cutting-edge loft-style live/work units and associated ground floor retail and amenity space. Consistent with the prior live/work communities, each building will be crafted to function within a traditional apartment operating system, and each loft unit will have three different permitted uses at all times: a chic apartment, a light-filled loft office, or a live/work-space.

At a time when working from home is conspicuously on the rise, the Skyline Lofts will become the largest community in the United States that specifically privileges this growing constituency. Crafted from three high-quality office buildings that sit atop, 1900 underground parking spaces and situated less than 4 miles from the Pentagon and 5 miles from Downtown DC, the buildings had been largely vacant since 2012. 2HSQ was able to engineer the purchase of the three buildings and parking for less than the cost of building the parking alone. Through the unique redesign and construction process, 2HSQ will be able to deliver all 720 units in a fraction of the time and for a fraction of the cost associated with similar ground-up development.”



Fig.26



Fig.29



Fig.27



Fig.28



Fig.30

SITE INTRODUCTION



Source: Arlington Medical Center Brochure

Fig.31

GOOD LOCATION

- Commercial / High Rise Buildings
- Residential / Low Hieght Buildigns



Walker's Paradise
Daily errands do not require a car.

Excellent Transit
Transit is convenient for most trips.

Very Bikesable
Biking is convenient for most trips.

CONVENIENT DROP OFF/PICK UP AREA

5-MINUTE WALK TO BALLSTON METRO STATION

DIRECT ACCESS TO I-66 & WASHINGTON BLVD

WALKABLE TO NEARBY EATERIES

ABUNDANT NATURAL LIGHT

BUILDING INTRODUCTION



Fig.32

The office building that I chose is at 1005 North Glebe Road, Arlington. It has access to public transportation (5 min walk to the metro), a very bikeable area, surrounded by many eateries, and direct access to the I-66 highway. The building is located between high-rise commercial buildings and 3-story level residential units. Arlington is opening the new Amazon headquarter soon and the demand for more residential building is rising in this area.



Fig.33

The building is built in 1988. 8-story level and approximately 170.000 sf. It has a concrete structure, and the slab-to-slab height of each level is 11 feet. It's a huge bulky building and the daylight cannot go through the building. so, the middle spaces are gloomy and dark. Because of the facilities on the ceilings, the height seems low, and it feels depressing. Now, almost half of the building is unoccupied.

because of its good location, its good bone, the octagonal form, and abundant natural light around the building, I found it suitable for converting into a residential building.

Building type: Office
 Year Built: 1988
 Building Hight: 8 Stories
 Building Size: 173,814

Who lives there?
 Tech engineers working at
 Amazon Headquarter
 in Arlington

Good Location
 +
 Good Bones

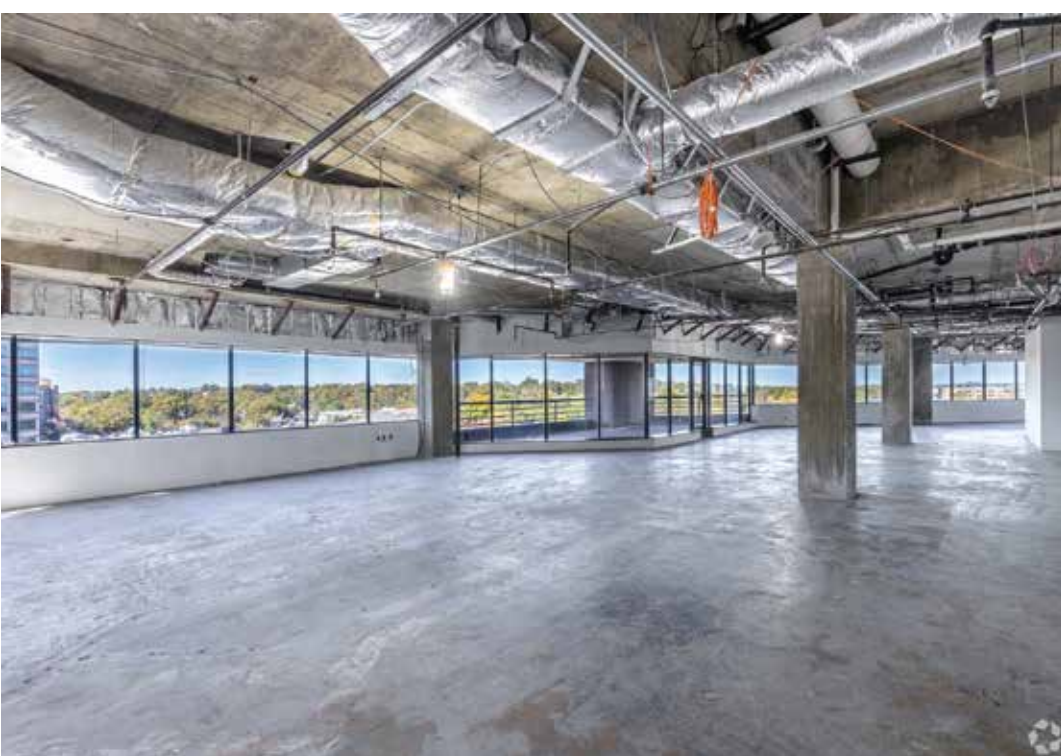


Fig.33



Fig.35



Fig.34



Fig.36

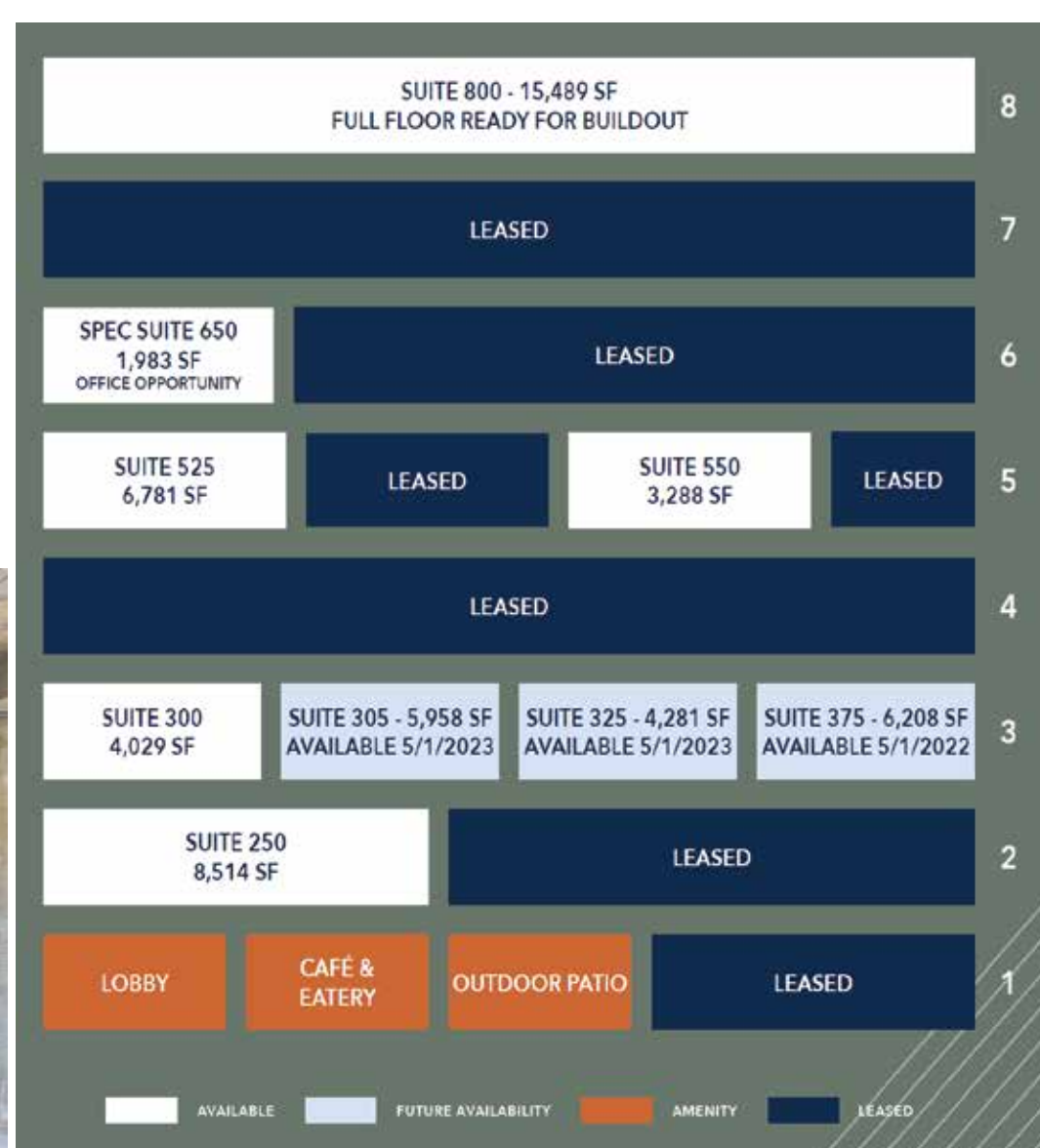


Fig.37



Fig.38

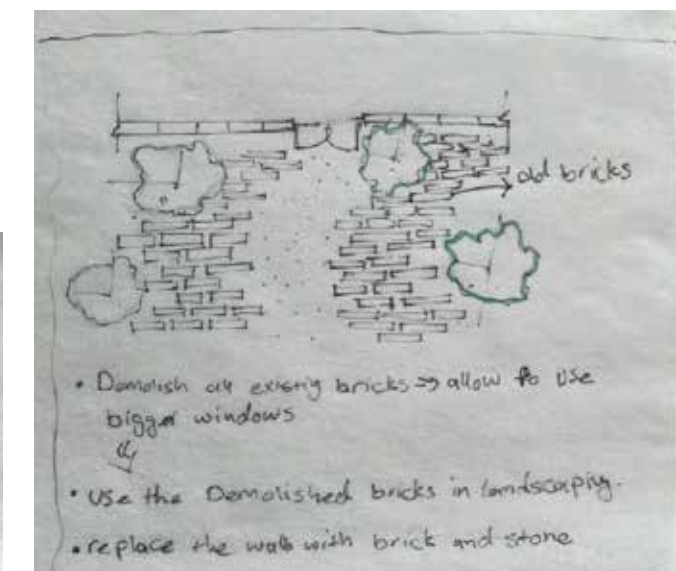
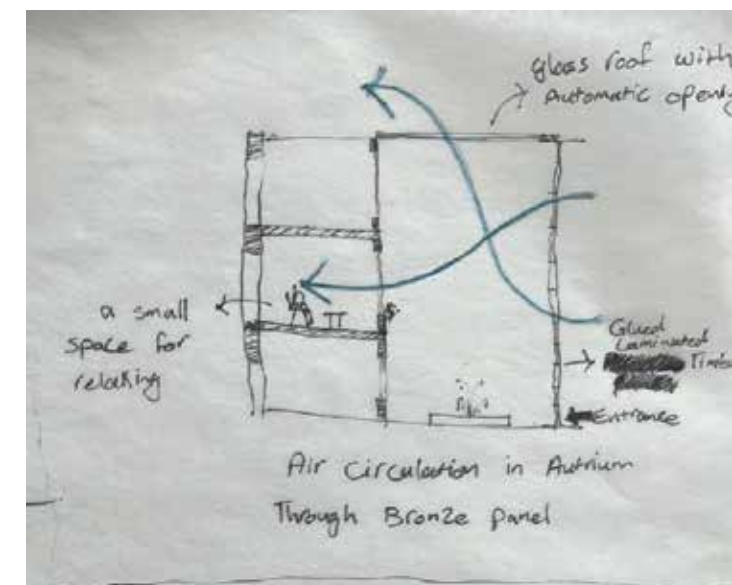
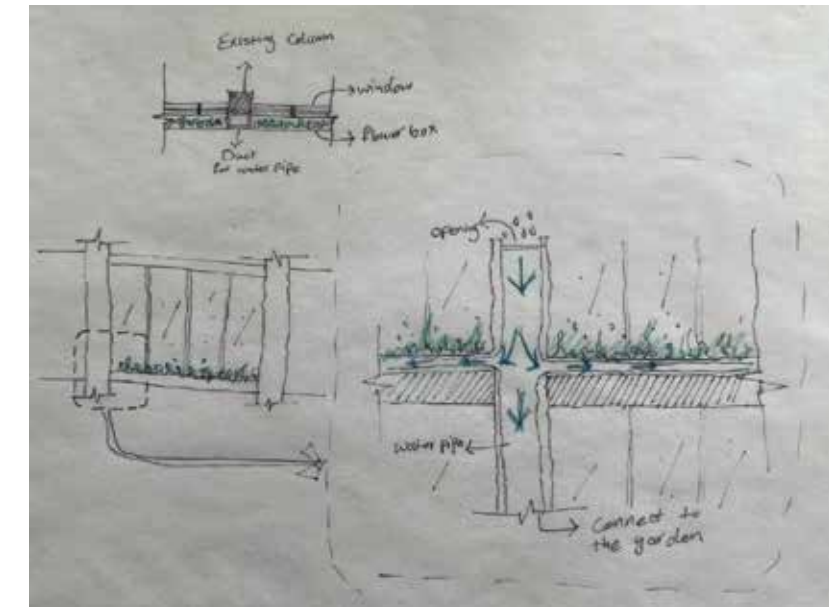
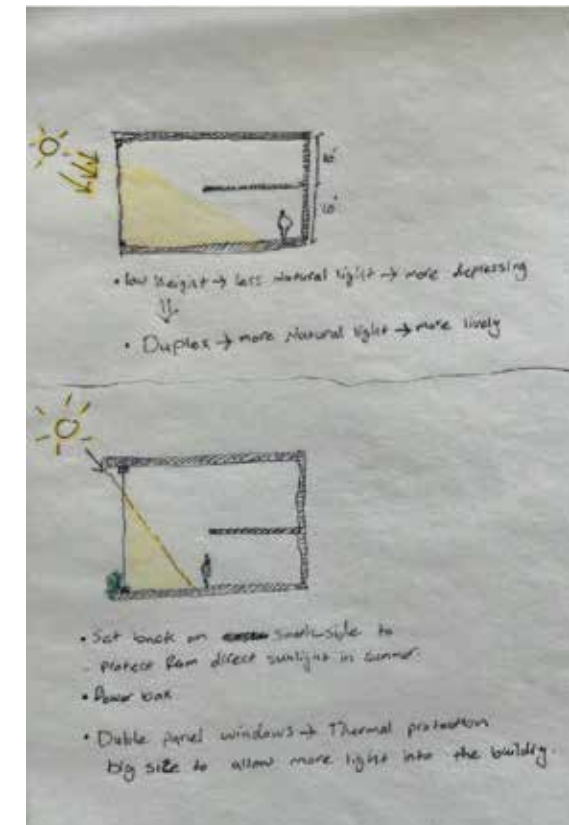
IDEA

After the pandemic, residents would be more interested in hanging out together outside or in common areas than in their apartments. So, I offered small sitting areas on each level so the neighbors can sit there and spend some time socializing.

I also considered a small office space on each level for remote working, somewhere inside the building with more privacy.

I offered green spaces on each level, on the roof, on balconies, and in outdoor spaces to bring new vibes to the building and create a pleasant environment for the residents. I also considered a water pipe in the roof which collects rainwater. This pipe comes all the way down to the levels and the ground to water the flower boxes and the outdoor green spaces.

To capture more natural light, I decided to have duplex units, balconies in each unit, and bigger windows. So, I had to demolish the existing walls and an edge of every other floor. I considered the demolished bricks to use in the landscaping.



DESIGN

One of the more challenging aspects of the project was transforming the exterior from a tired 1980s office structure to a modern 2022 residential building. To achieve this, I designed an atrium in front of the building with a huge bronze panel and a skylight, and crystal balls that capture more daylight and make the space brighter and more energetic. The atrium in the entrance makes it dramatic, inviting, and unique for visitors and people who pass in front of the building.

N Glebe Rd.

11th St.

Vermont St.

Playground

ENTRANCE/
LOBBY

Gym

Office

Drop Boxes

Hot tub

Pool

Daycare

First Floor Plan



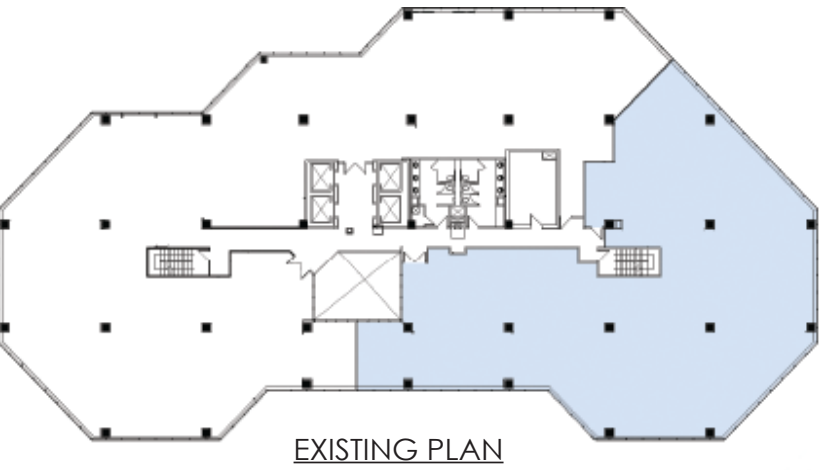
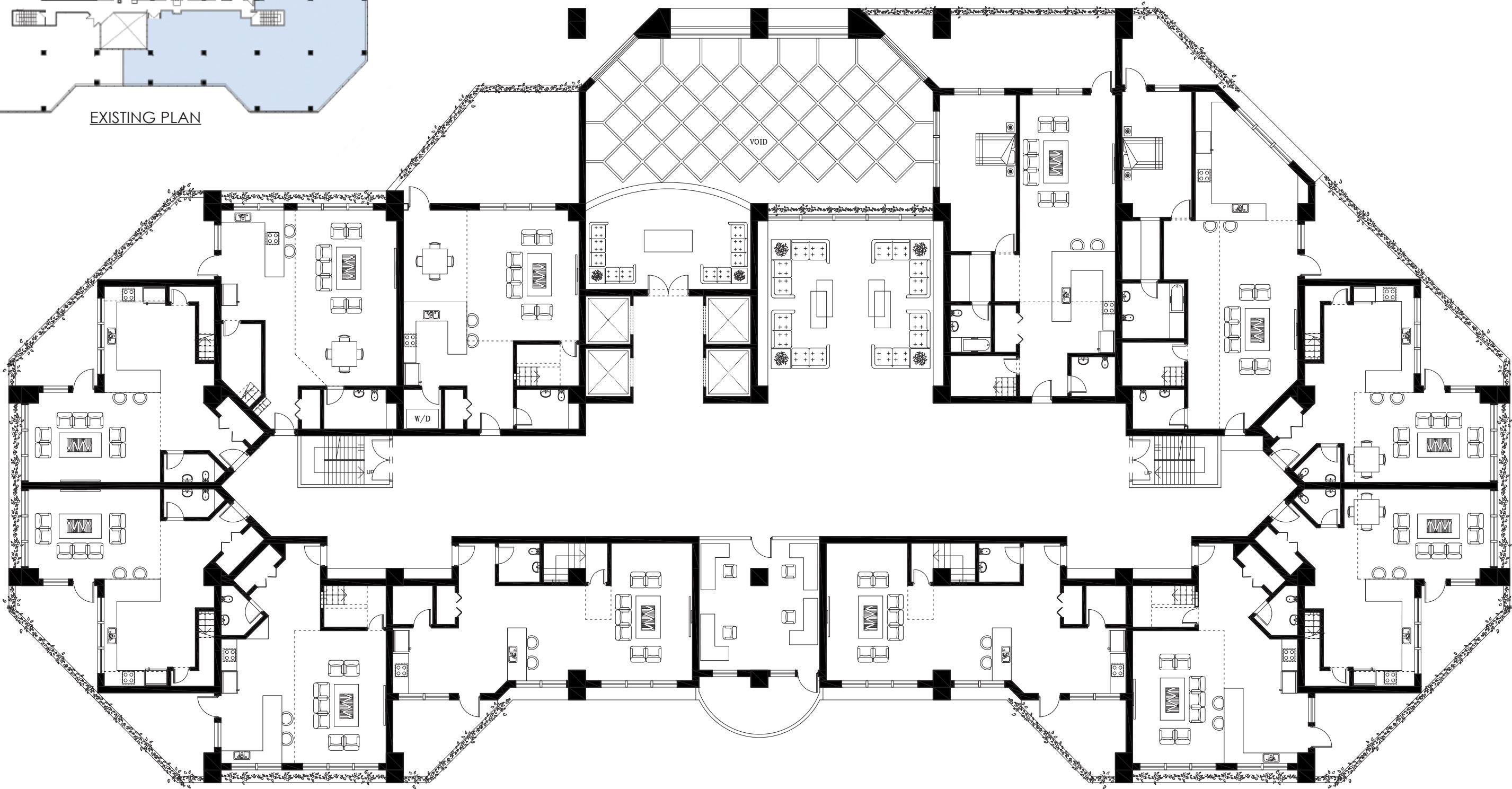


Fig.39



Second Floor Plan



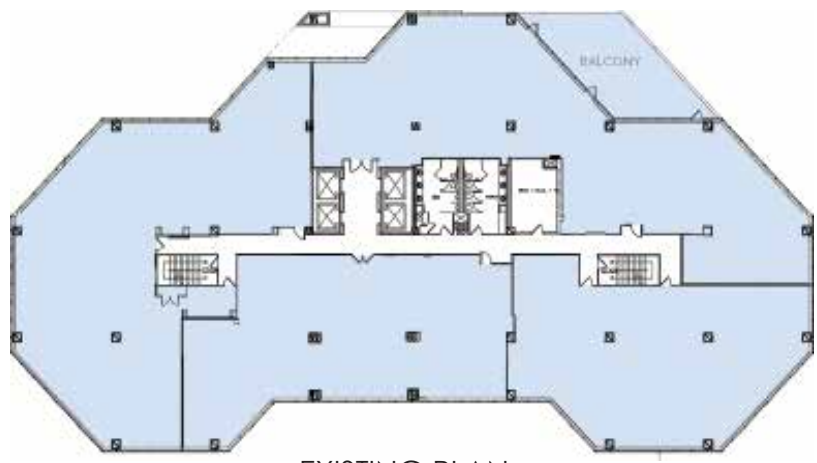
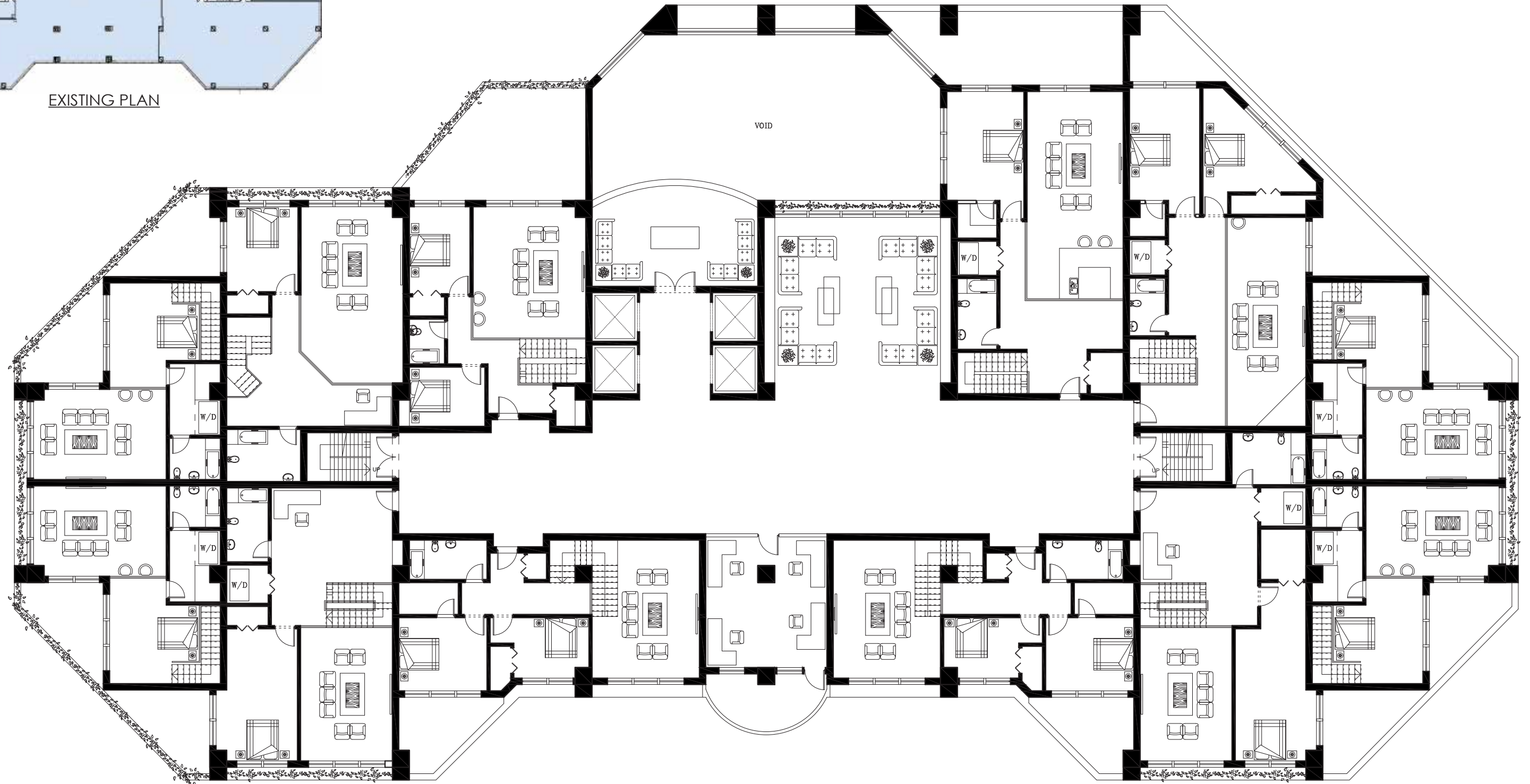
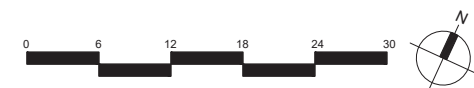


Fig.40



Third Floor Plan



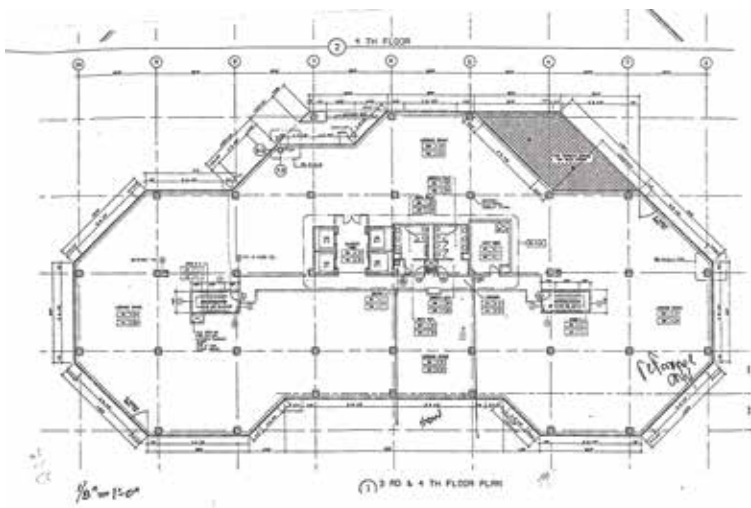
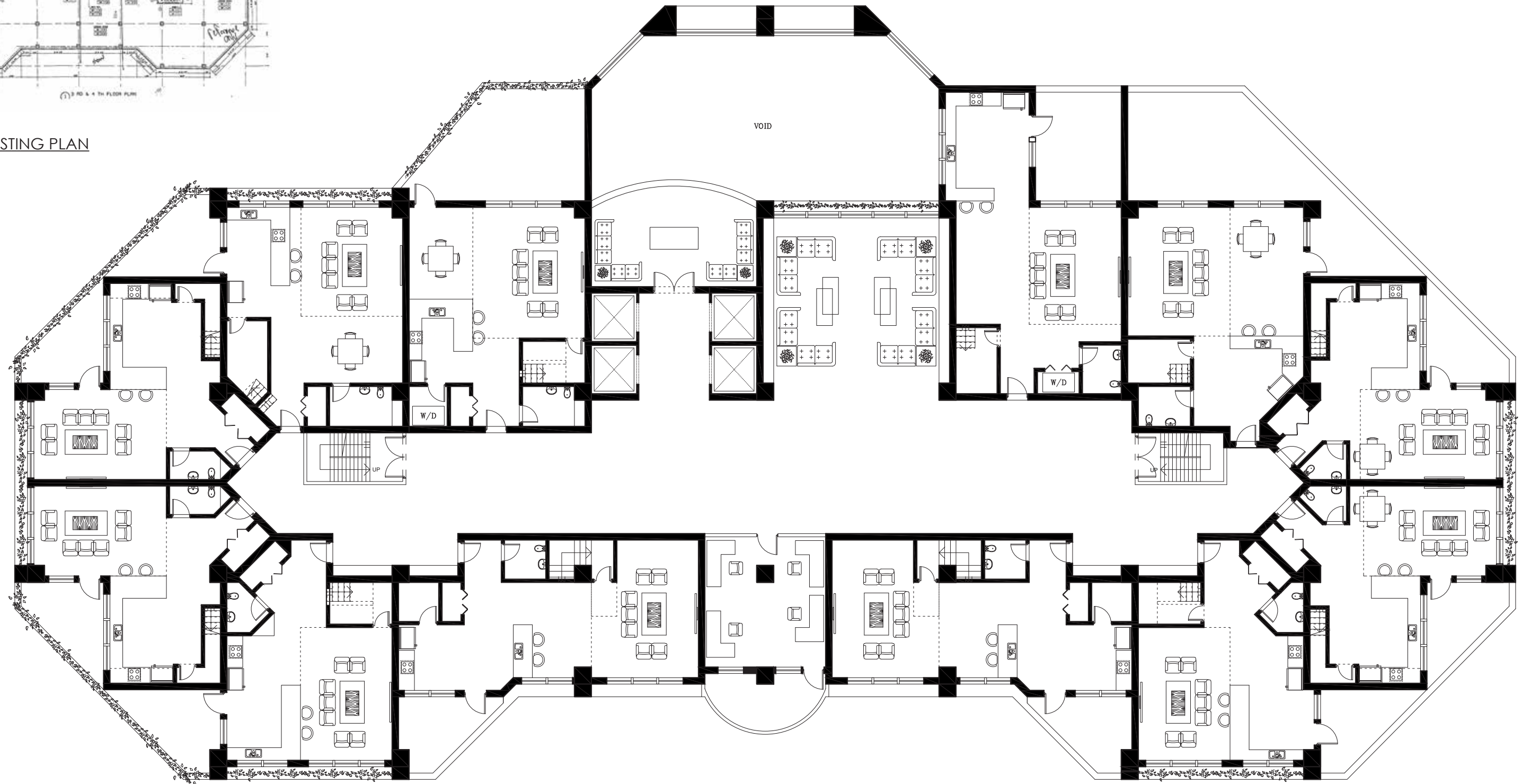
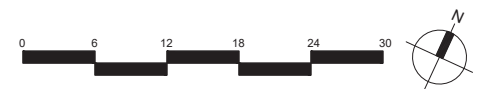


Fig.41 EXISTING PLAN



Forth Floor Plan



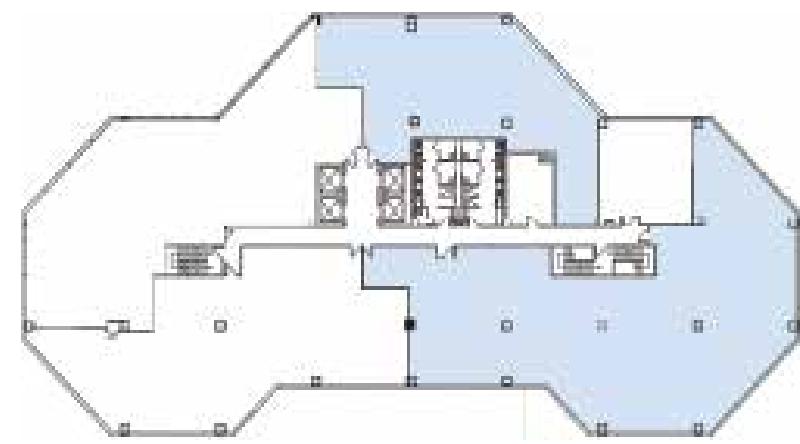
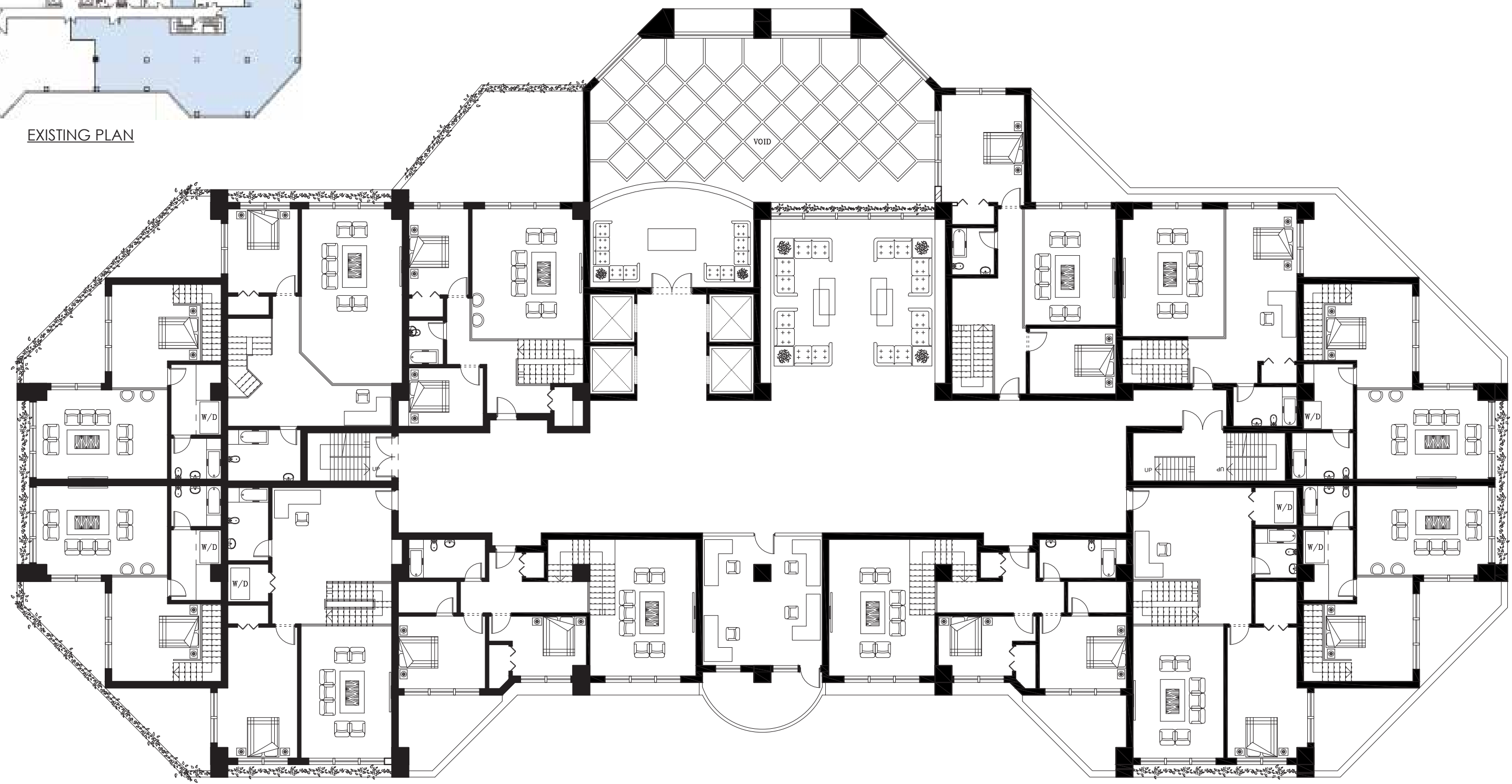


Fig.42 EXISTING PLAN



Fifth Floor Plan

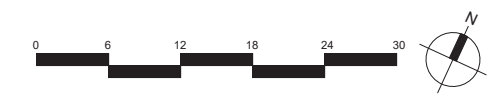
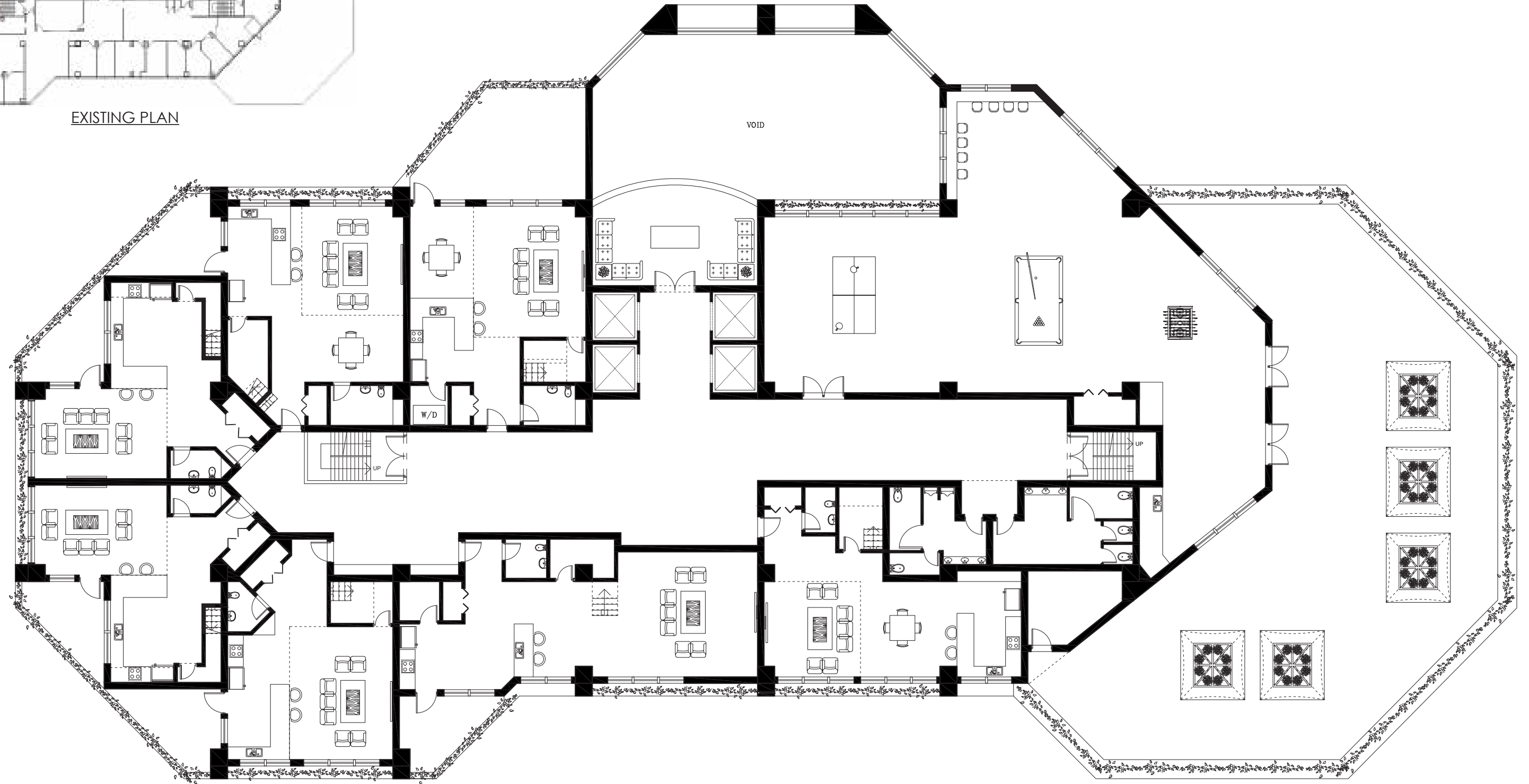


Fig.43

EXISTING PLAN



Sixth Floor Plan



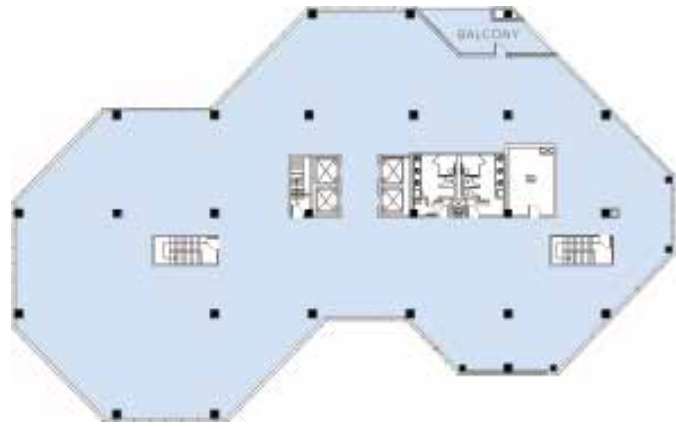


Fig.44

EXISTING PLAN



Seventh Floor Plan

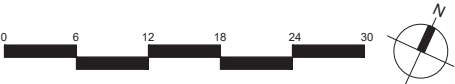
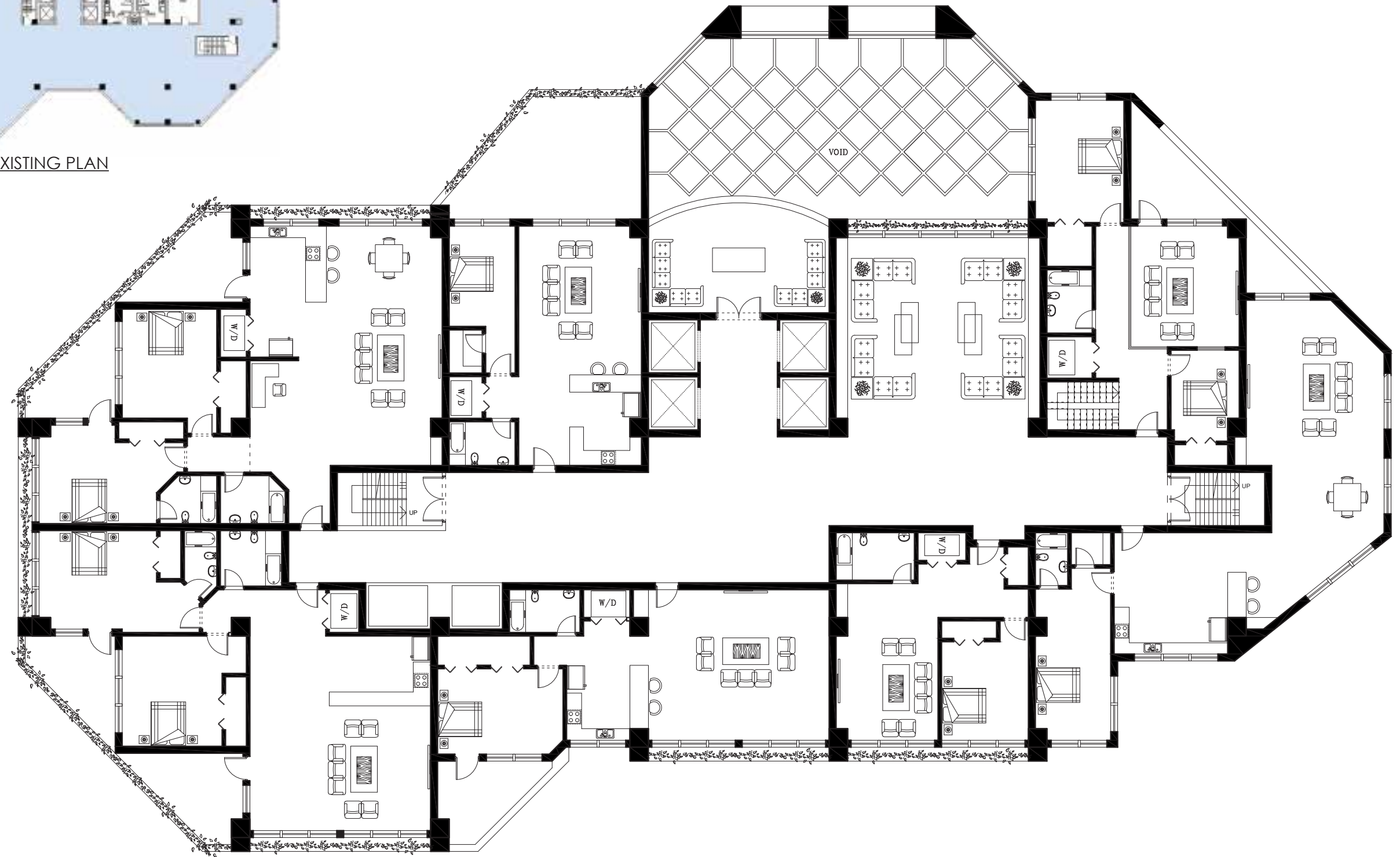


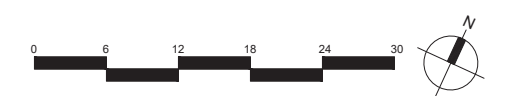
Fig.45

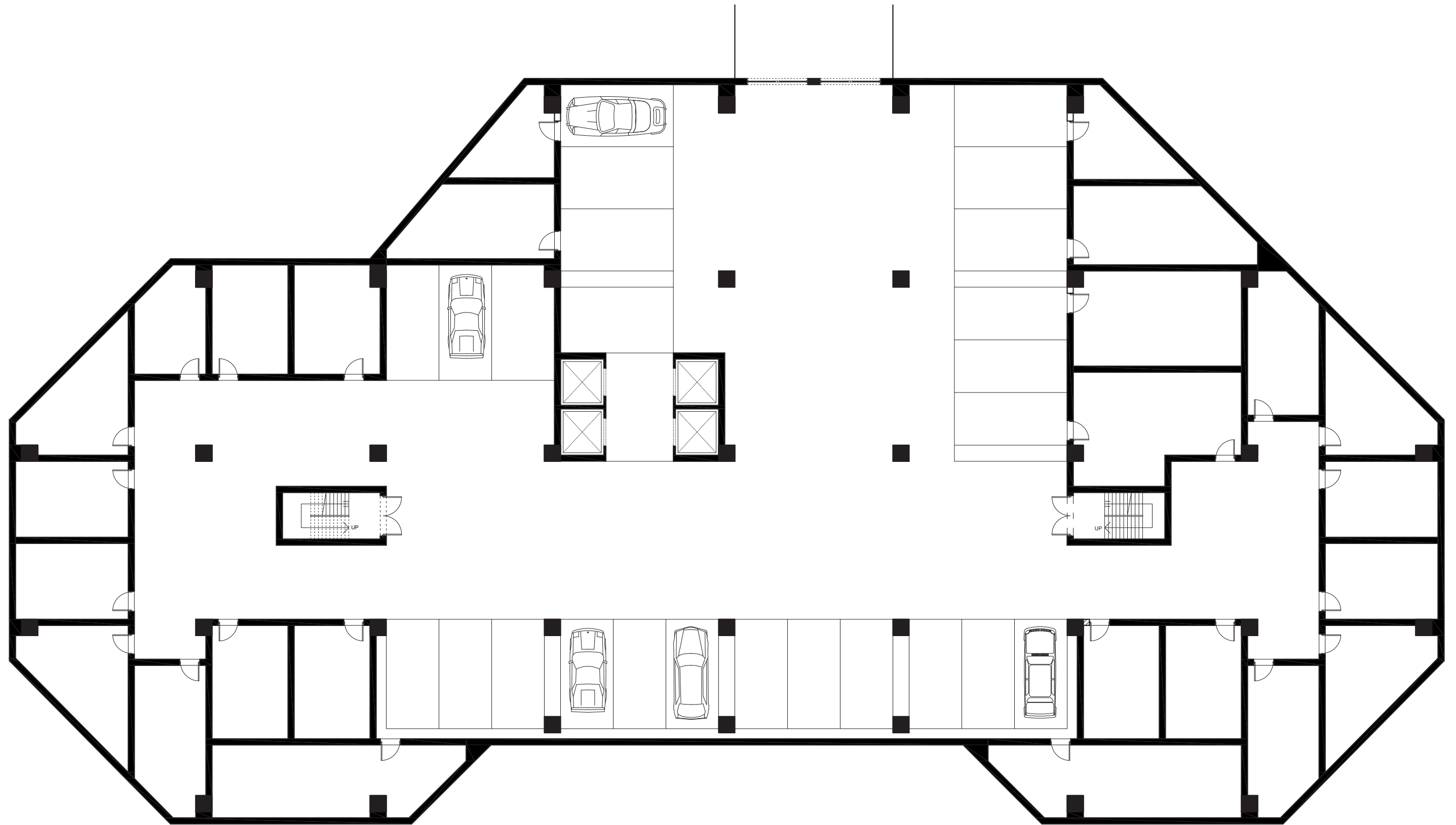


EXISTING PLAN

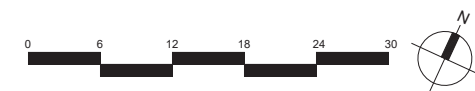


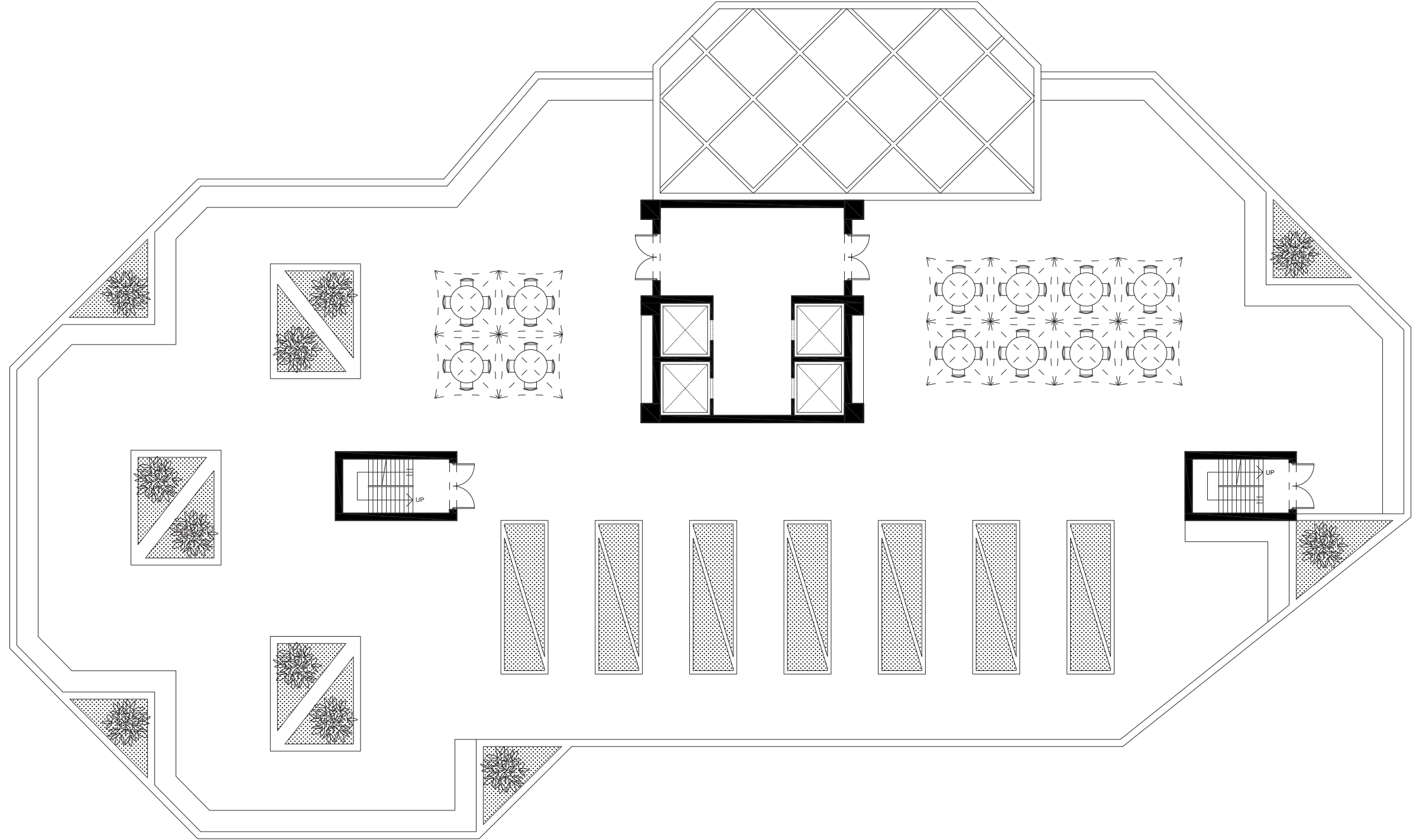
Eighth Floor Plan



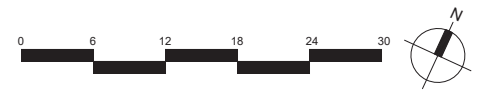


Parking Plan





Roof Plan





EXISTING





EXISTING



**ONE-BEDROOM
UNIT**

At each level, I designed a gathering space for the residents to hang out or work. It's open to the atrium by windows. And it's decorated with plants, and patterned walls to make the space compelling.

GATHERING AREA



It's a small balcony next to the elevator which is open to the atrium. The reflection of the sunlight on the crystal balls creates a unique and dreamy space.

BALCONY





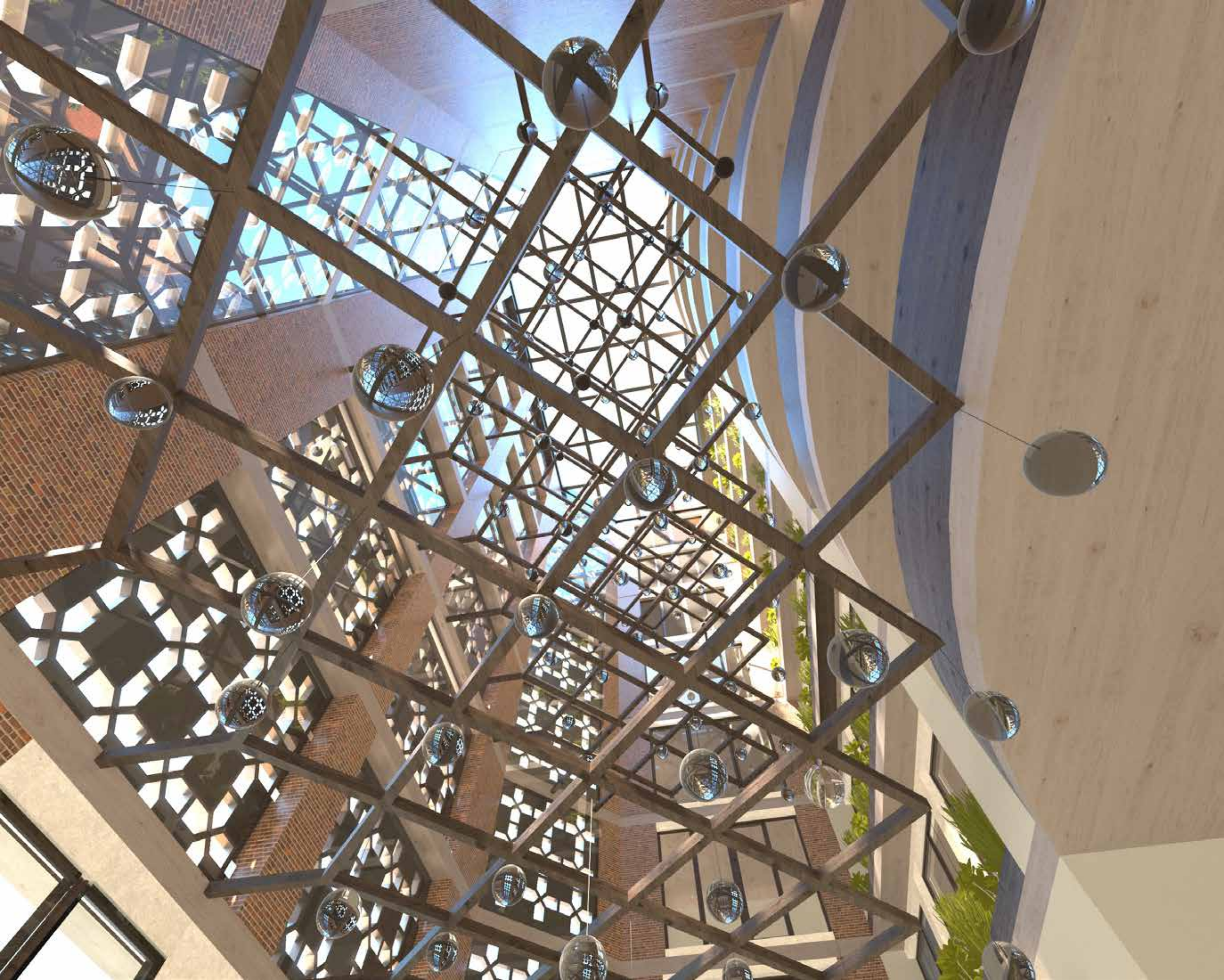
OUTDOOR PARTYROOM

This level has 7 units. I placed the party room on this level because of the big balcony which is suitable for large gatherings and doing BBQ and playing games. Because this balcony is on the north side of the building, makes it more pleasant on hot summer days. I added flower boxes, canopies, and sitting areas on the balcony to make the space nicer and more enjoyable.

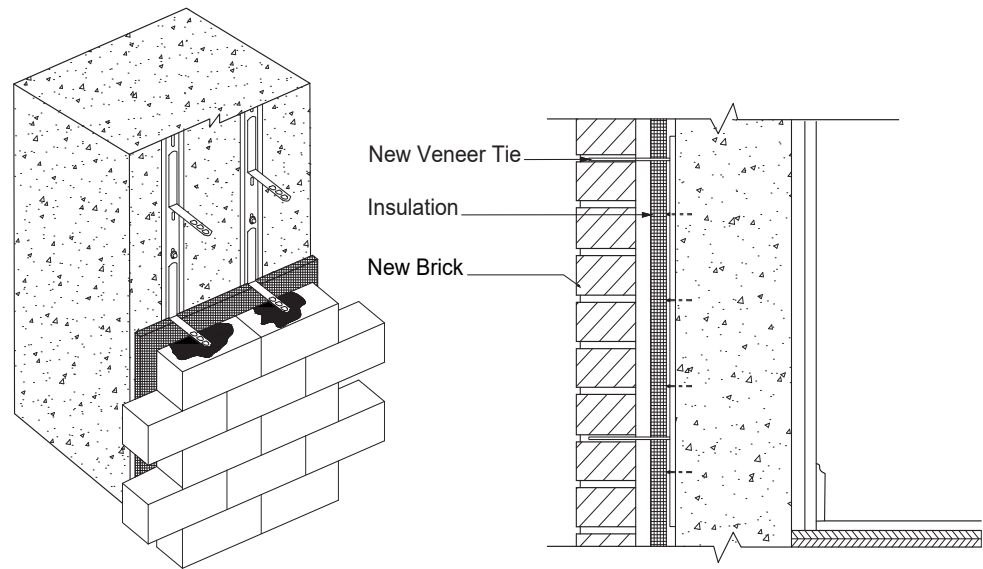


ROOF GARDEN

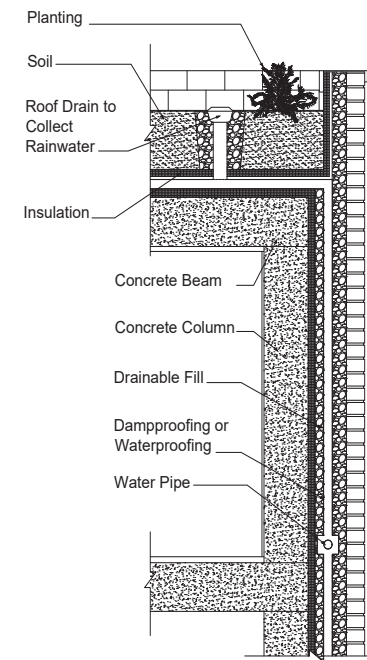
Gardening is one of the activities which help residents to go out and use the natural light and pleasant environment to keep their moods up after their long day of using electrical devices.



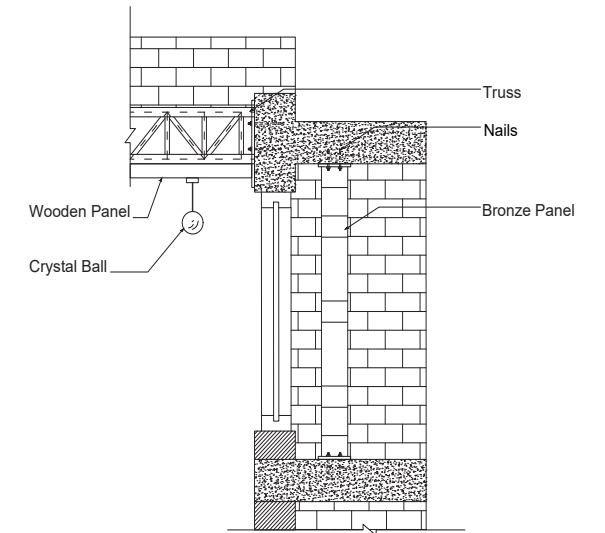
ATRIUM



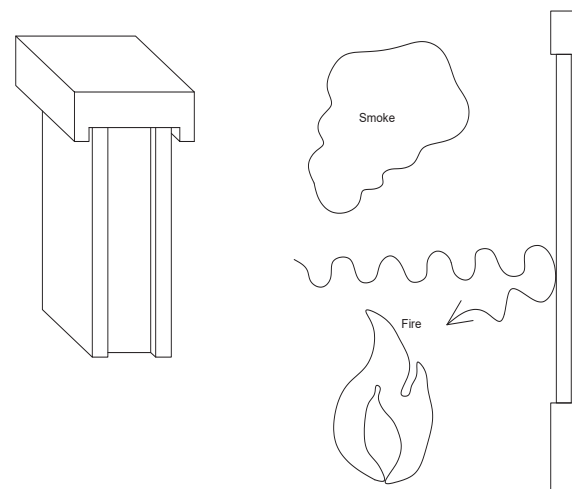
Anchorage to Concrete Column



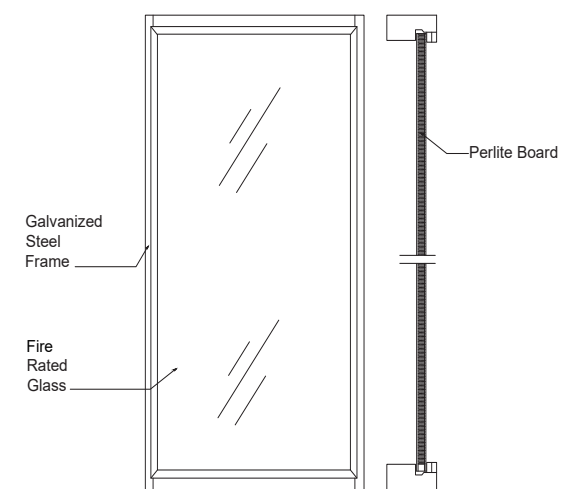
Water Pipe Detail

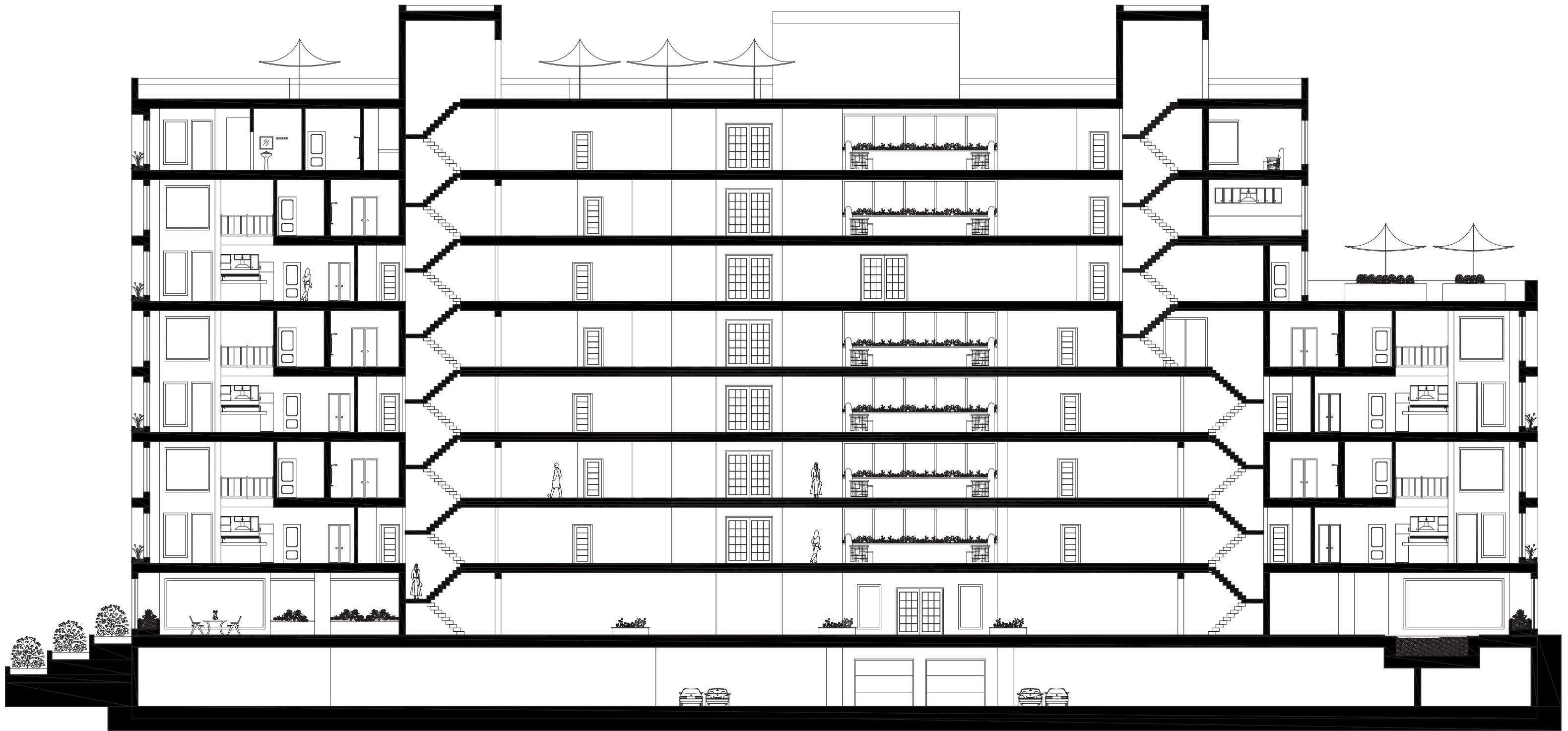


Truss-Wall Connection



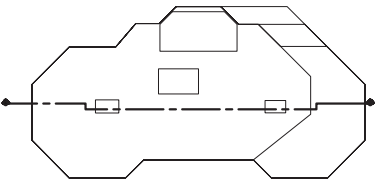
Window Detail

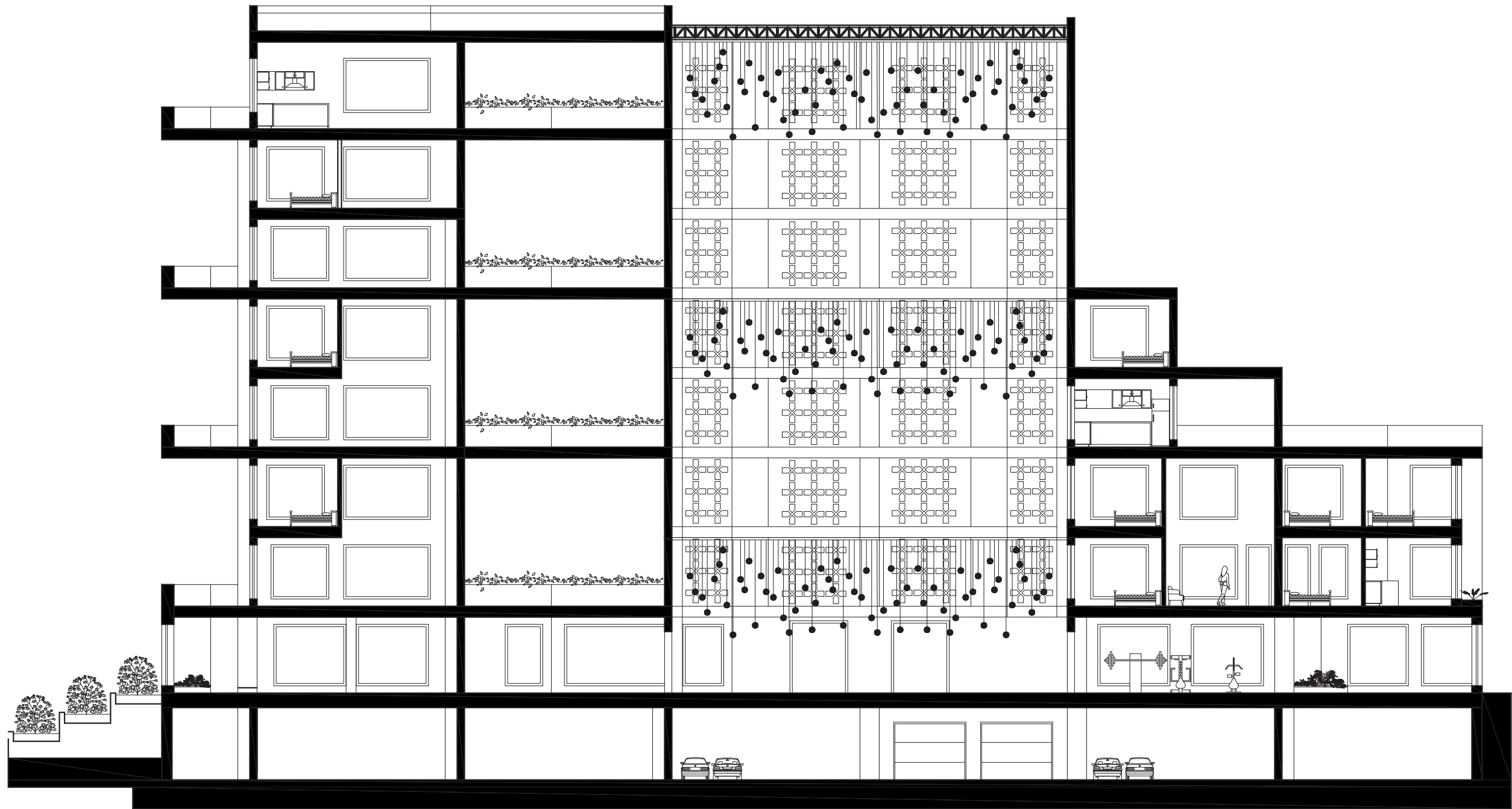




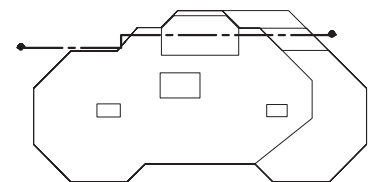
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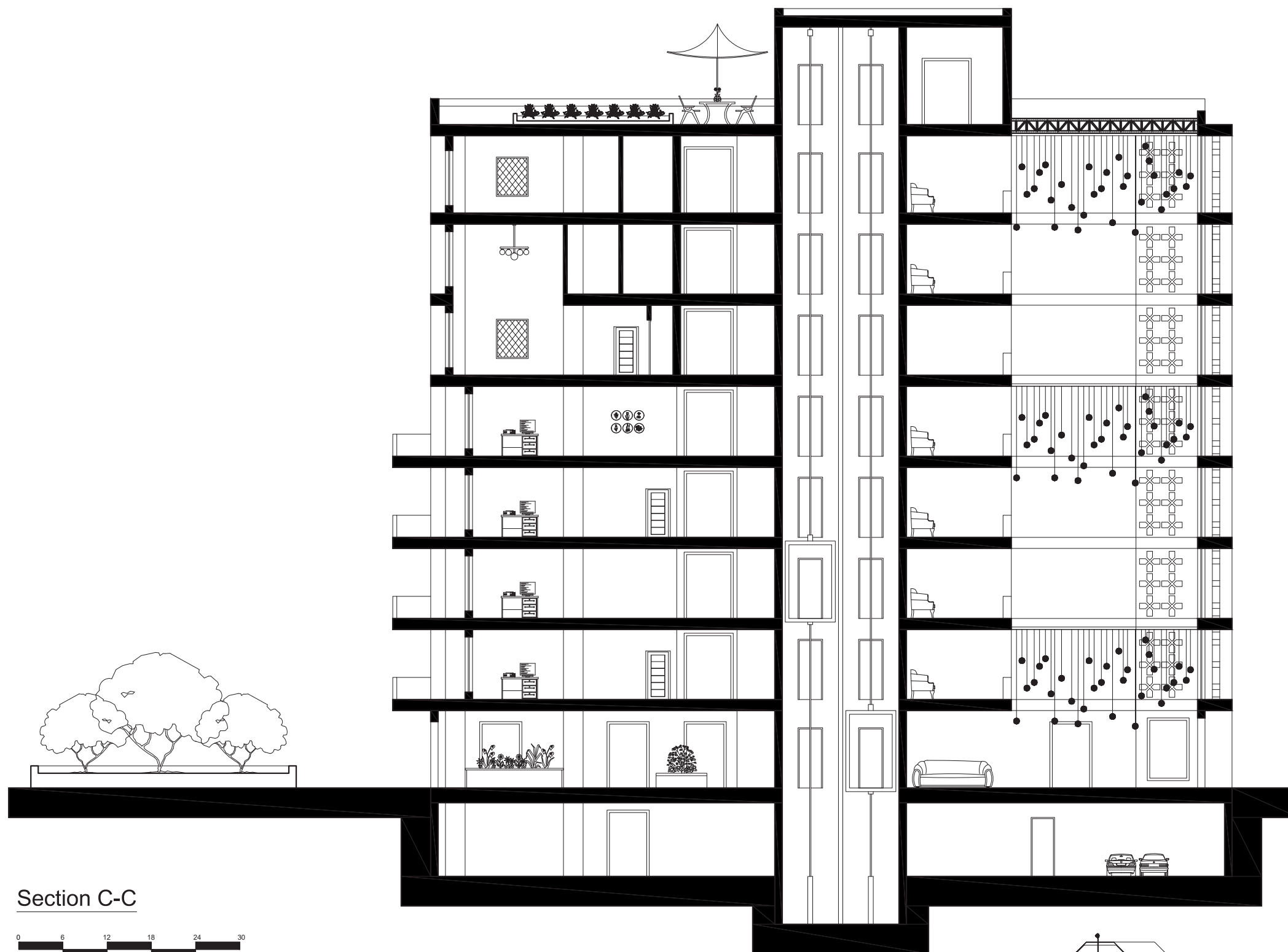
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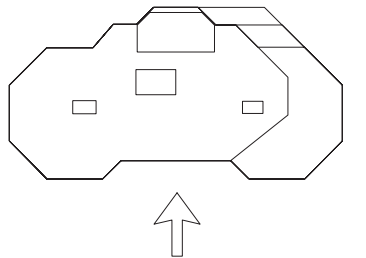
Section B-B





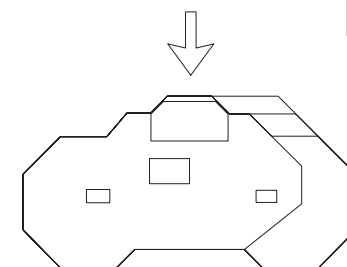


East Elevation



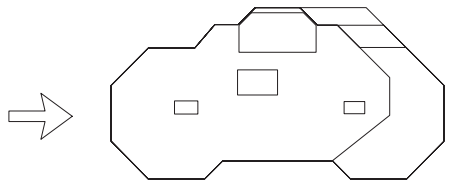


West Elevation



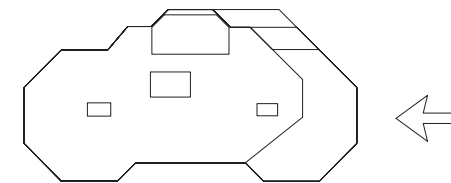


South Elevation

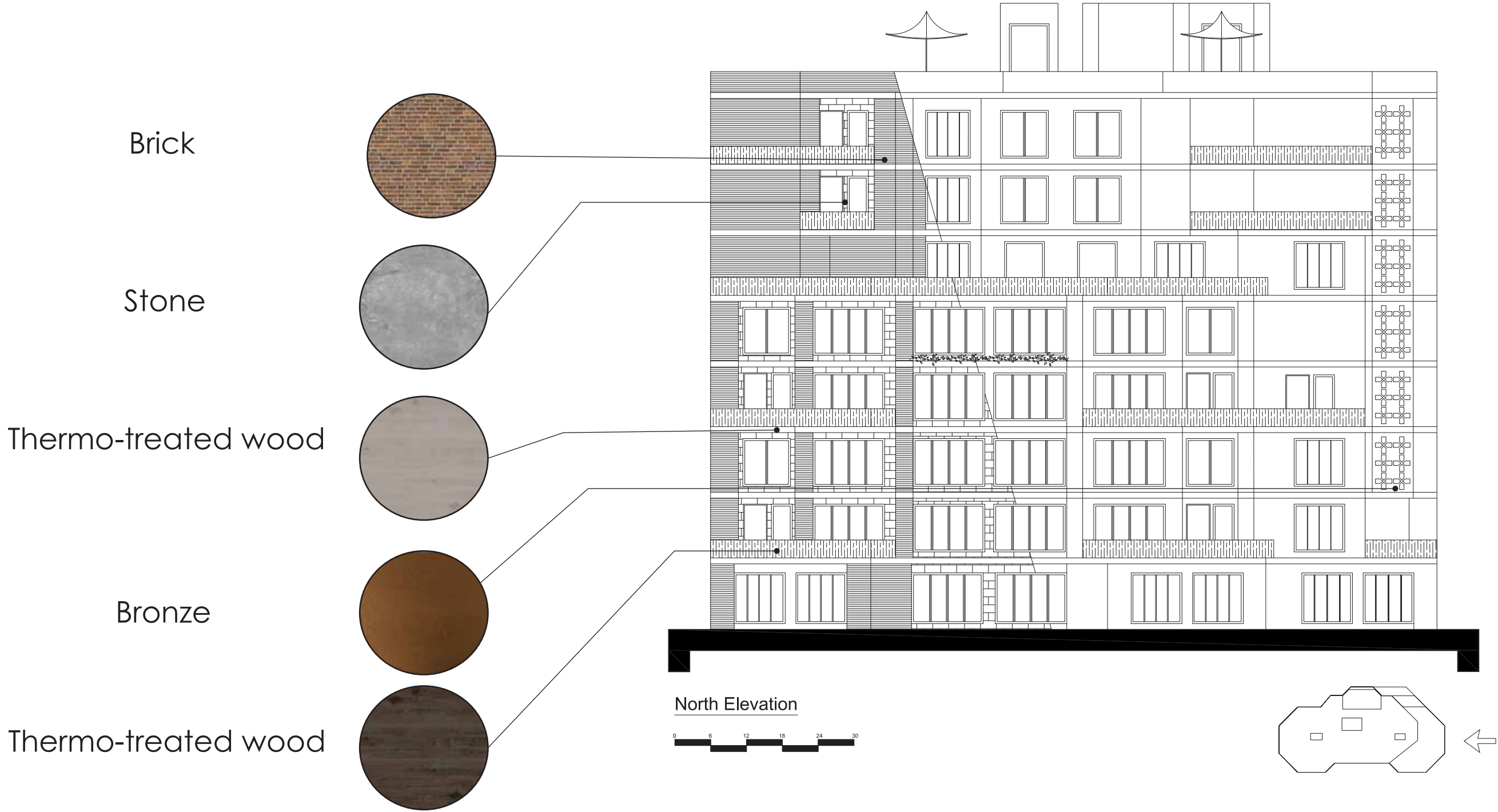




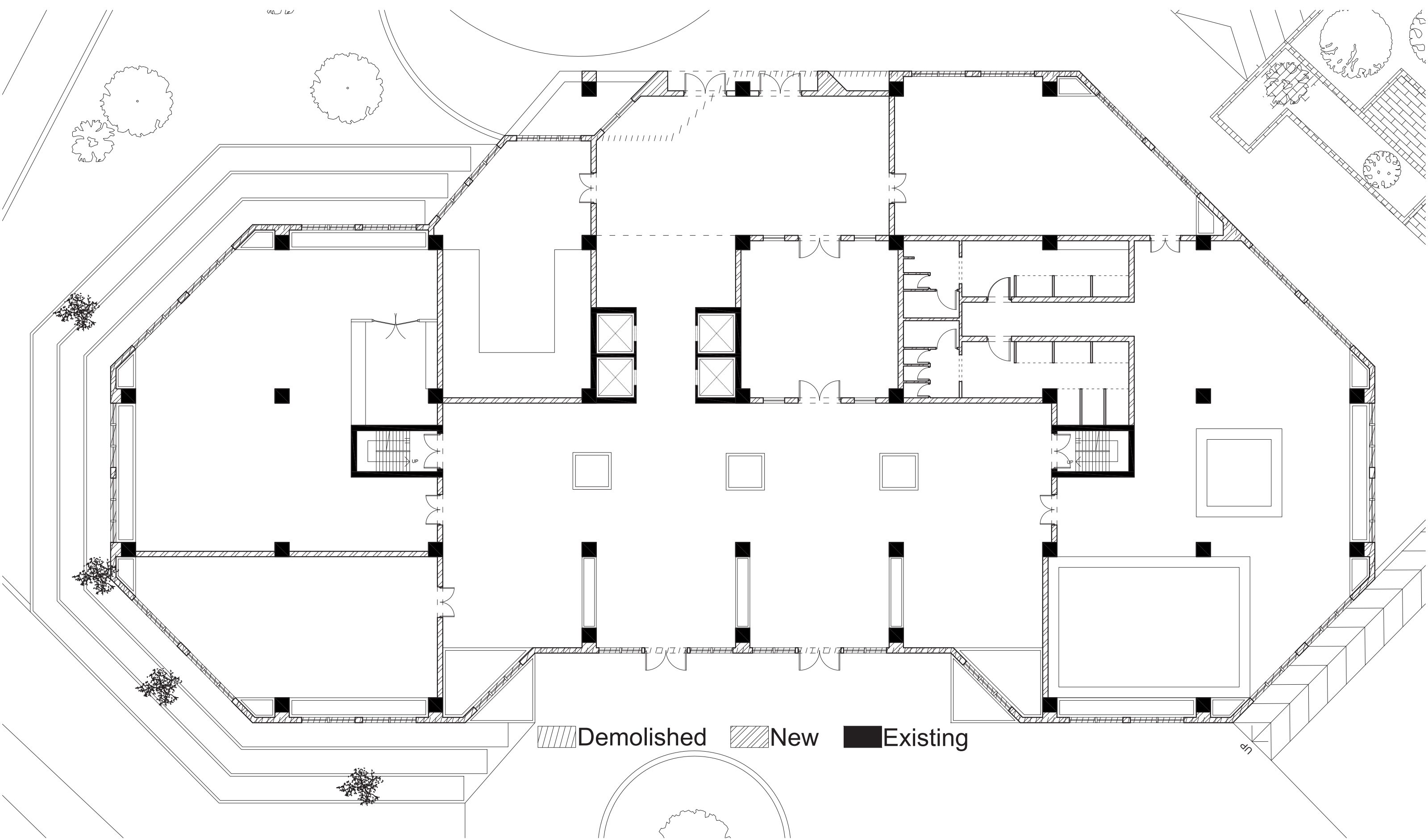
North Elevation

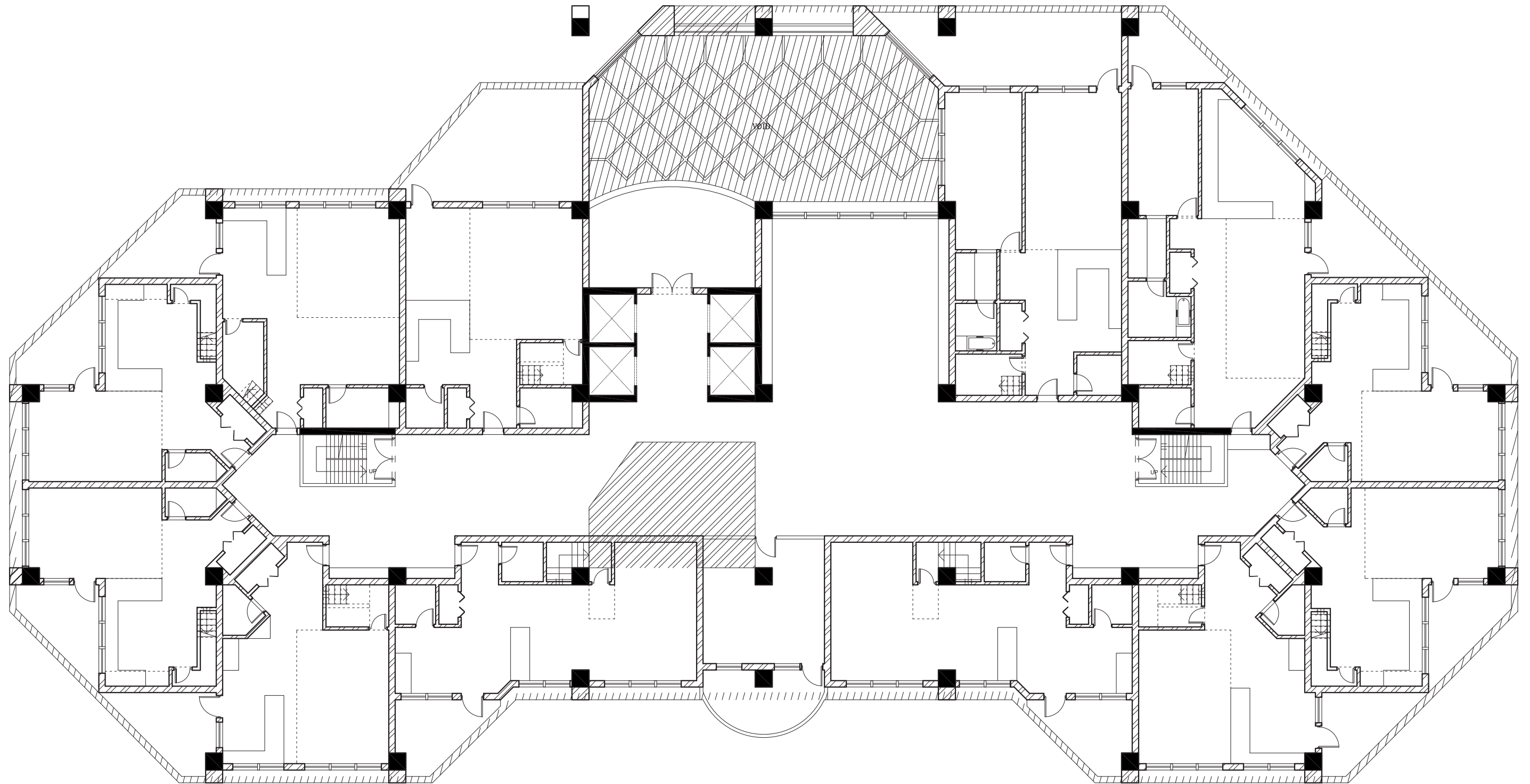


FACADE MATERIAL

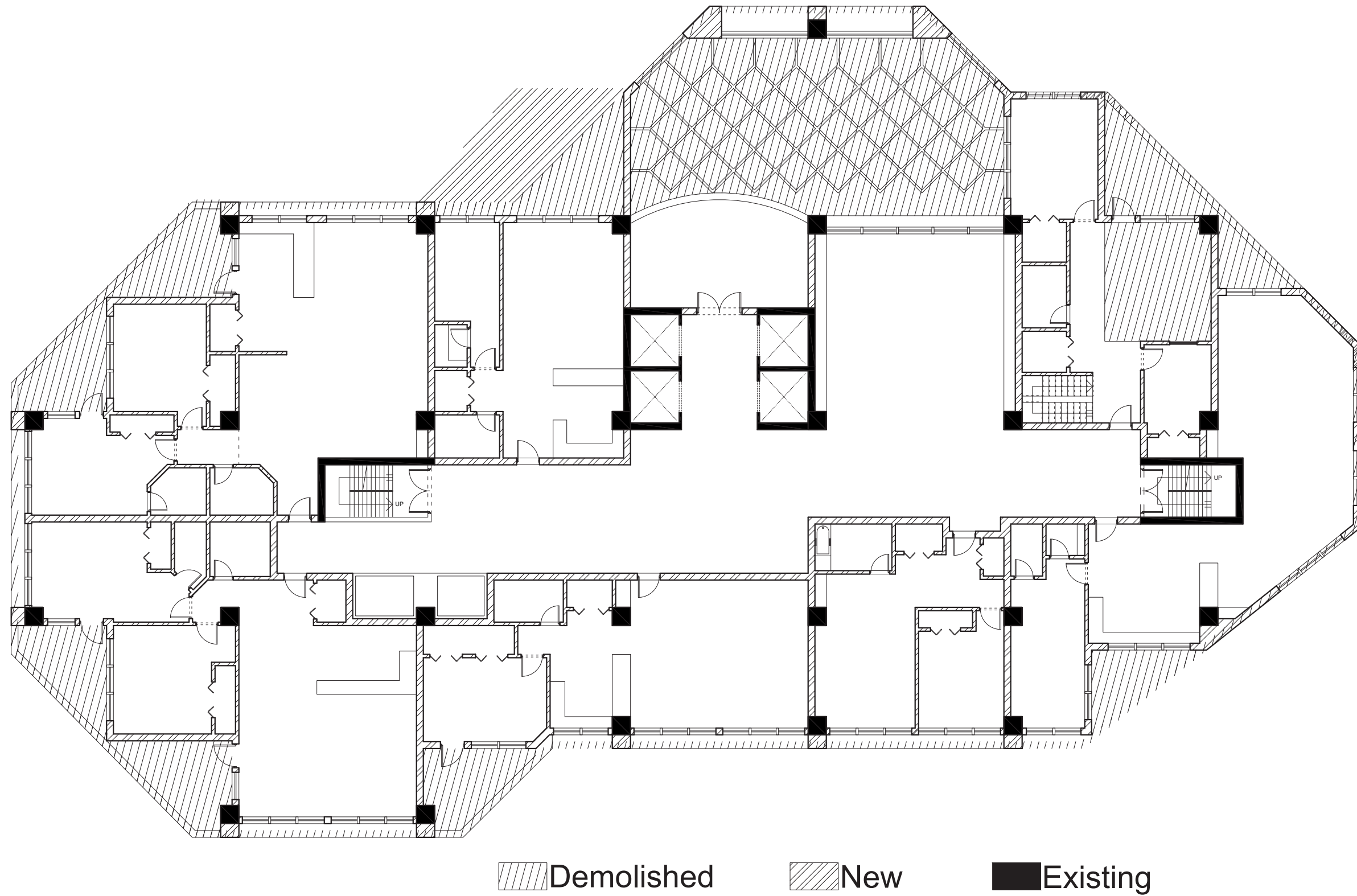


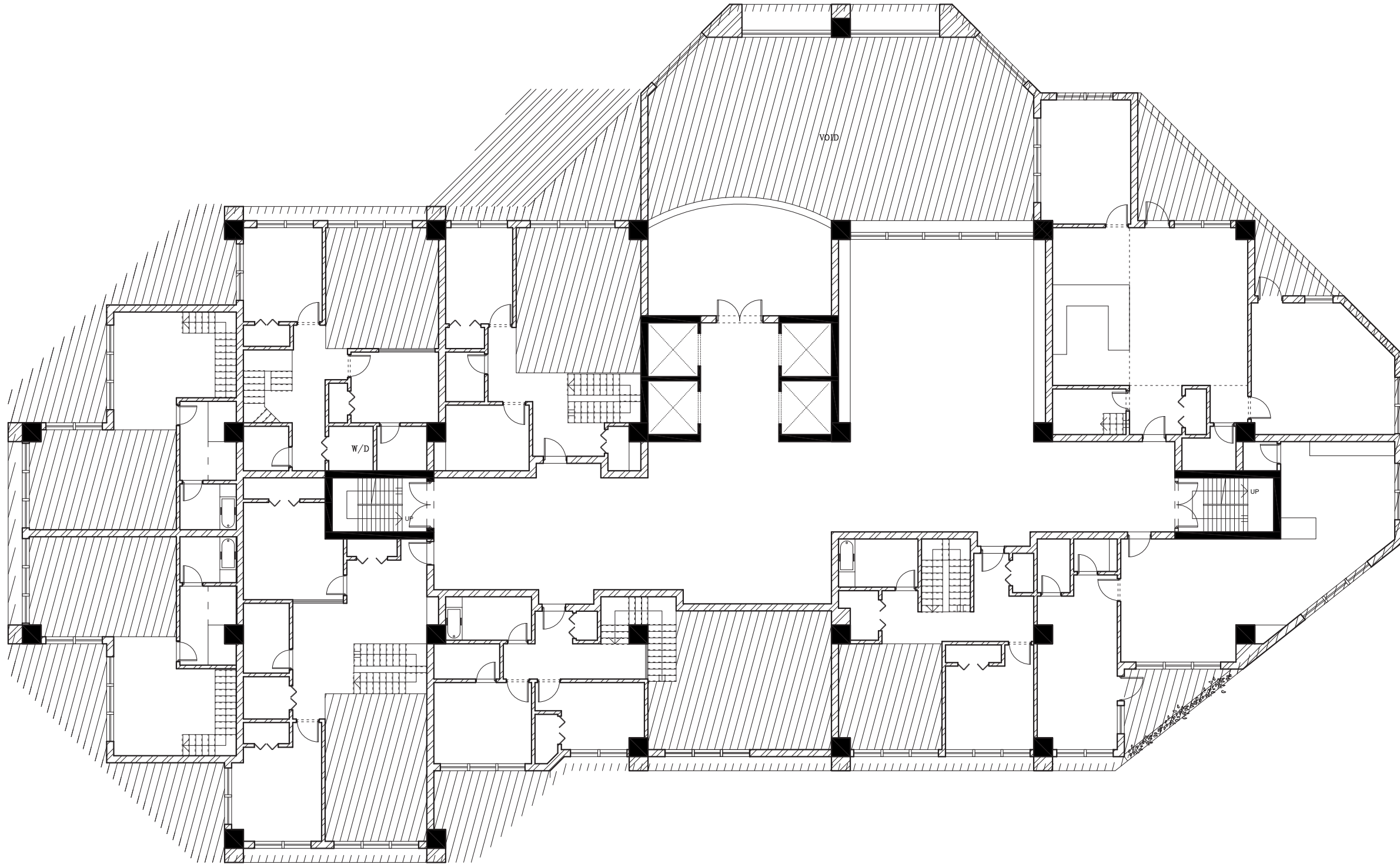
DEMOLITION PLANS





 Demolished  New  Existing

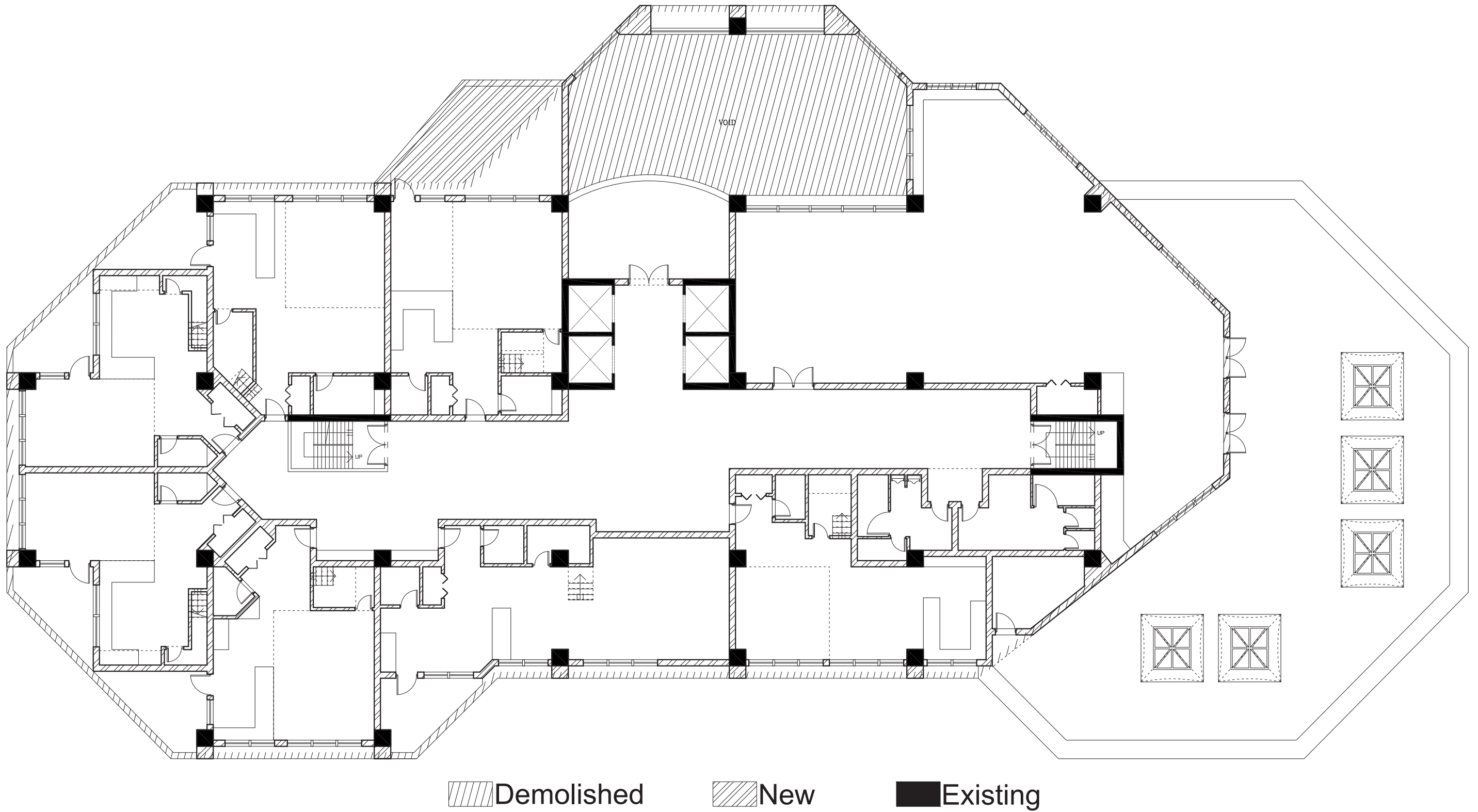


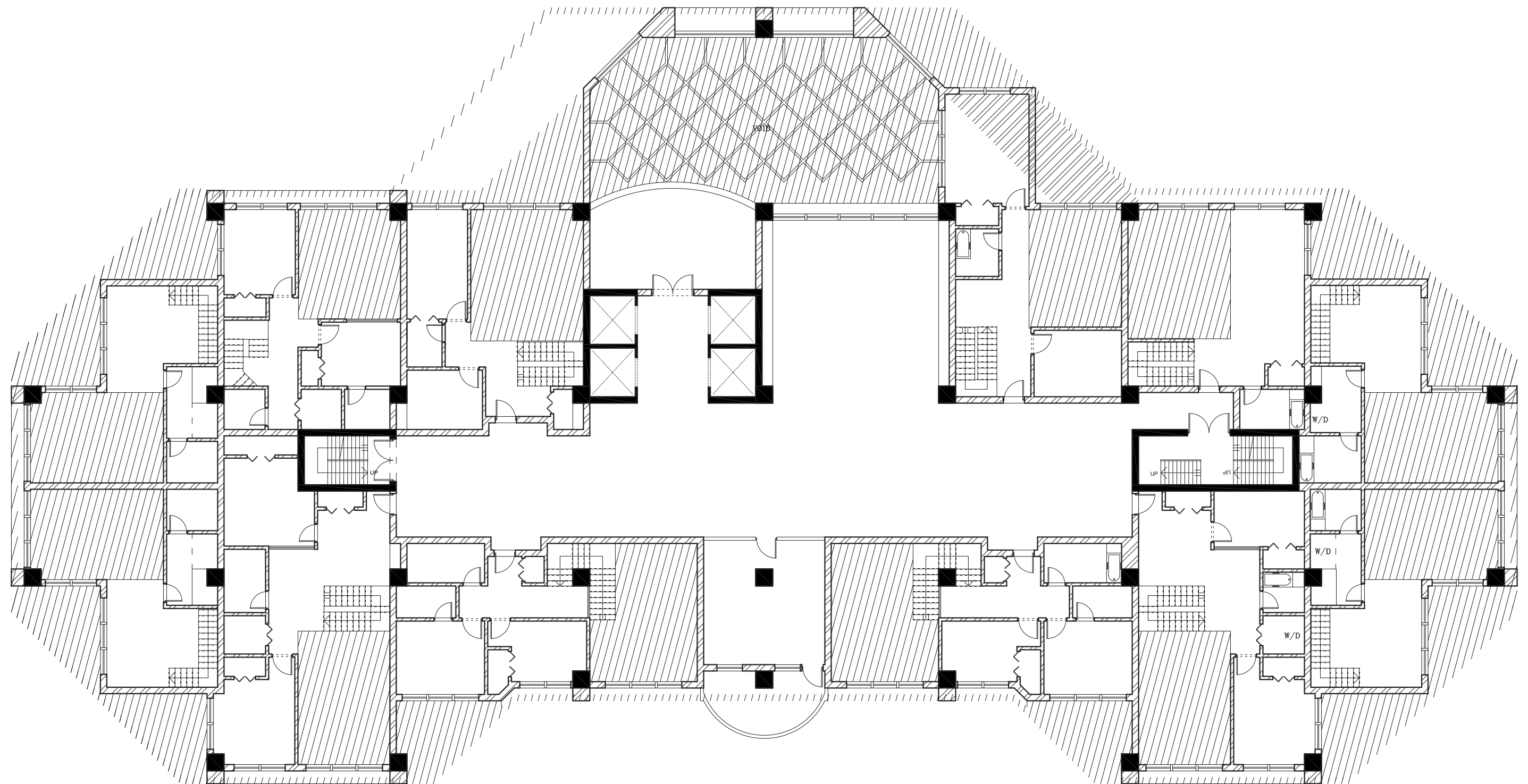


 Demolished

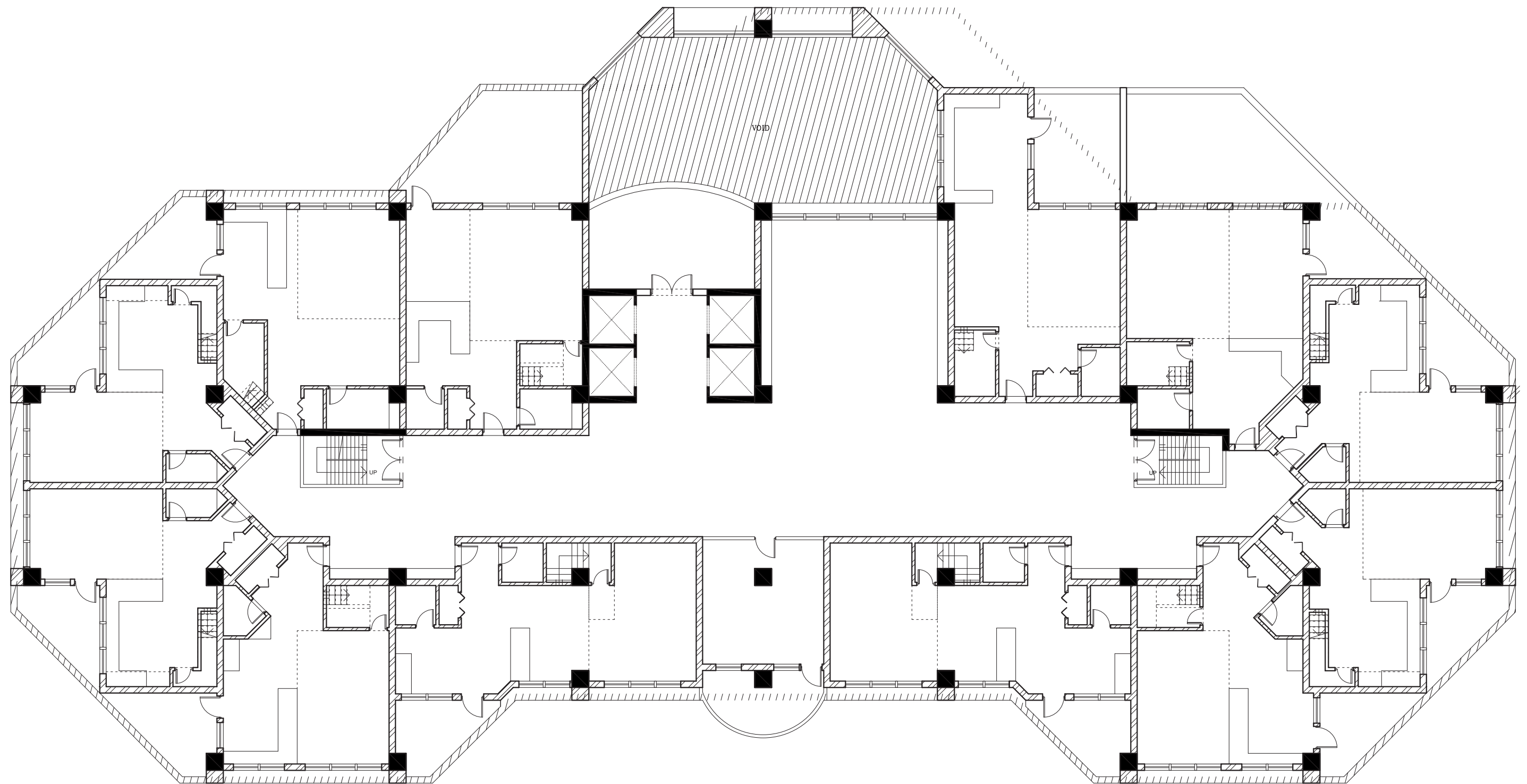
 New

 Existing





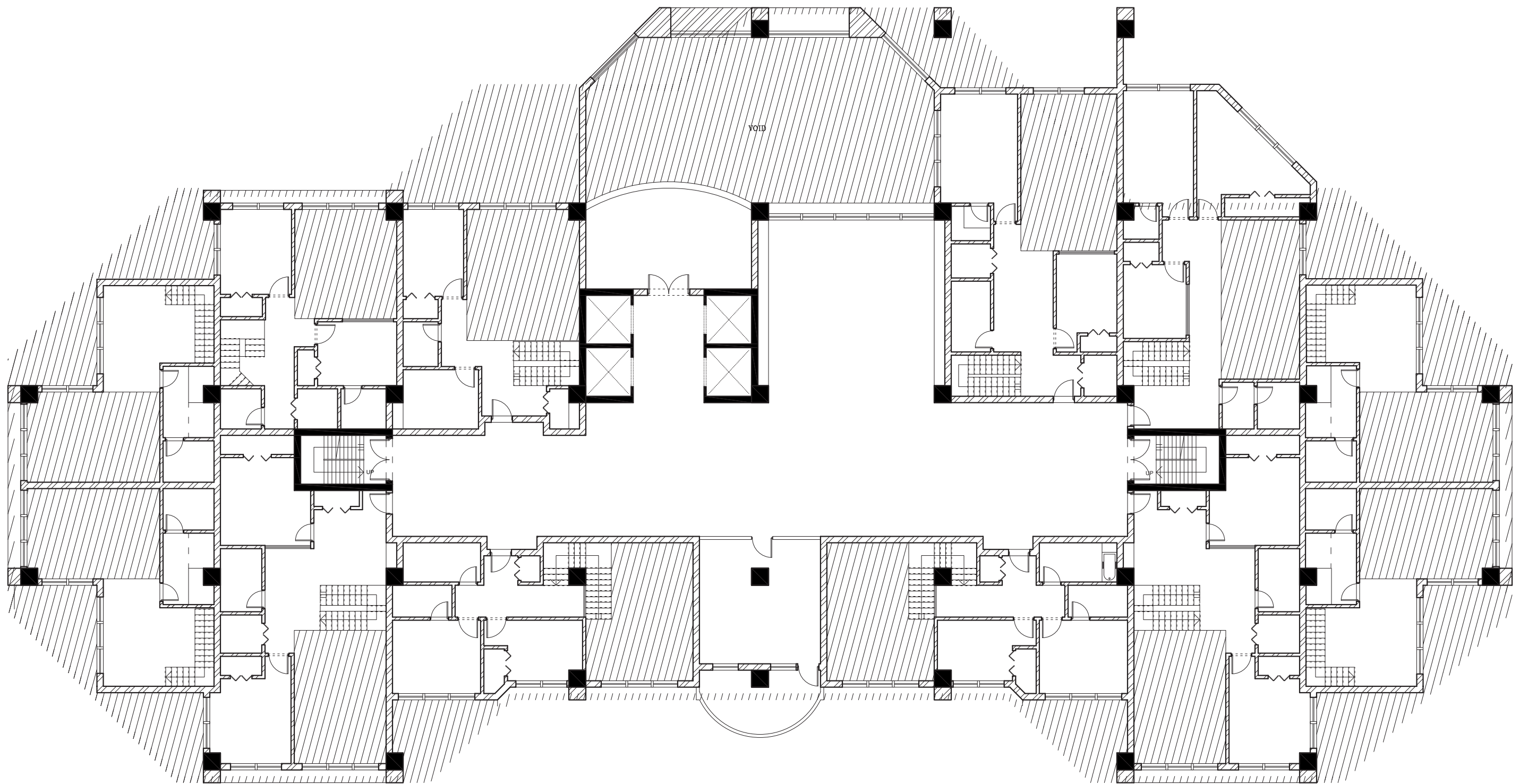
Demolished
 New
 Existing



 Demolished

 New

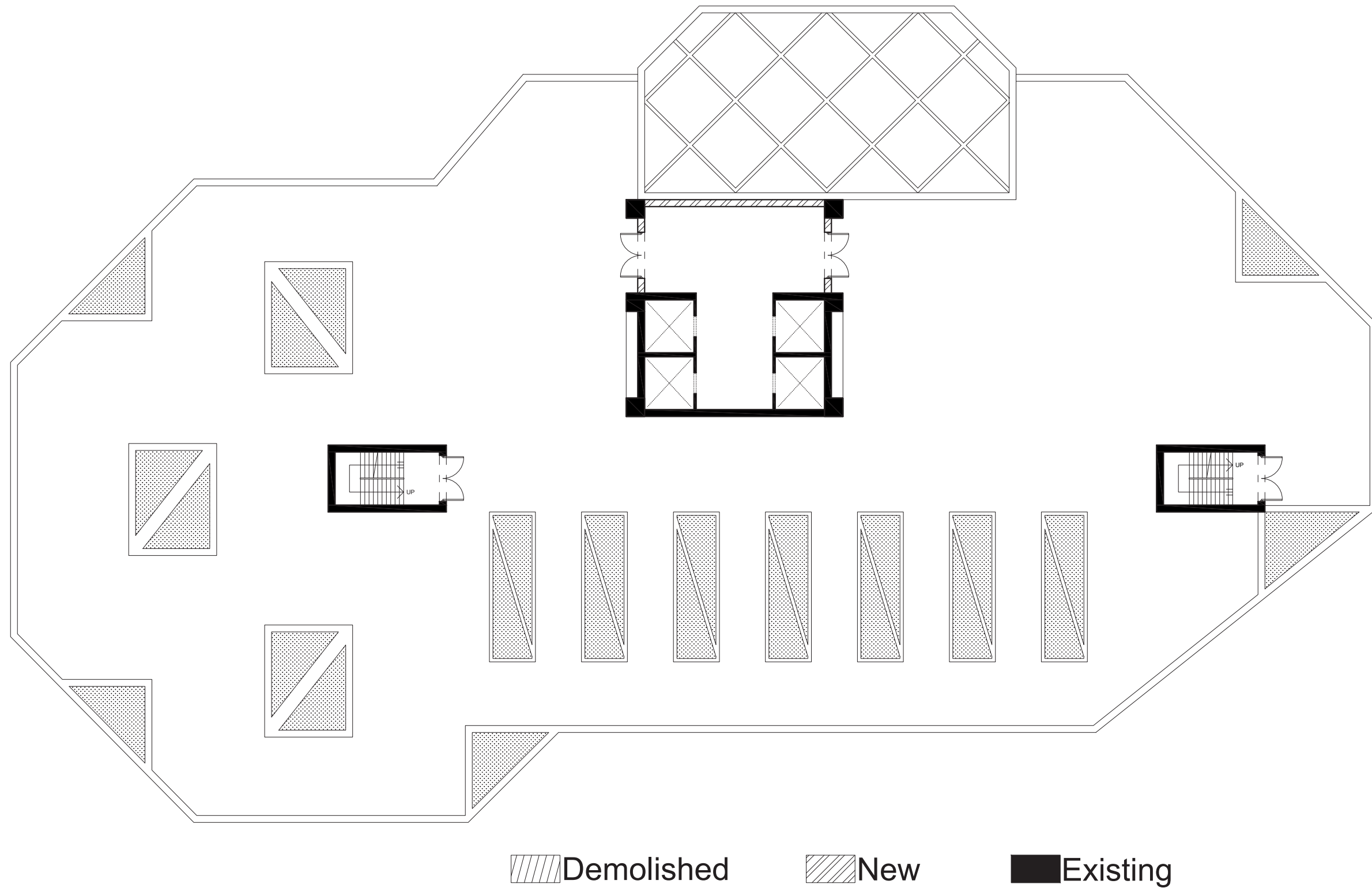
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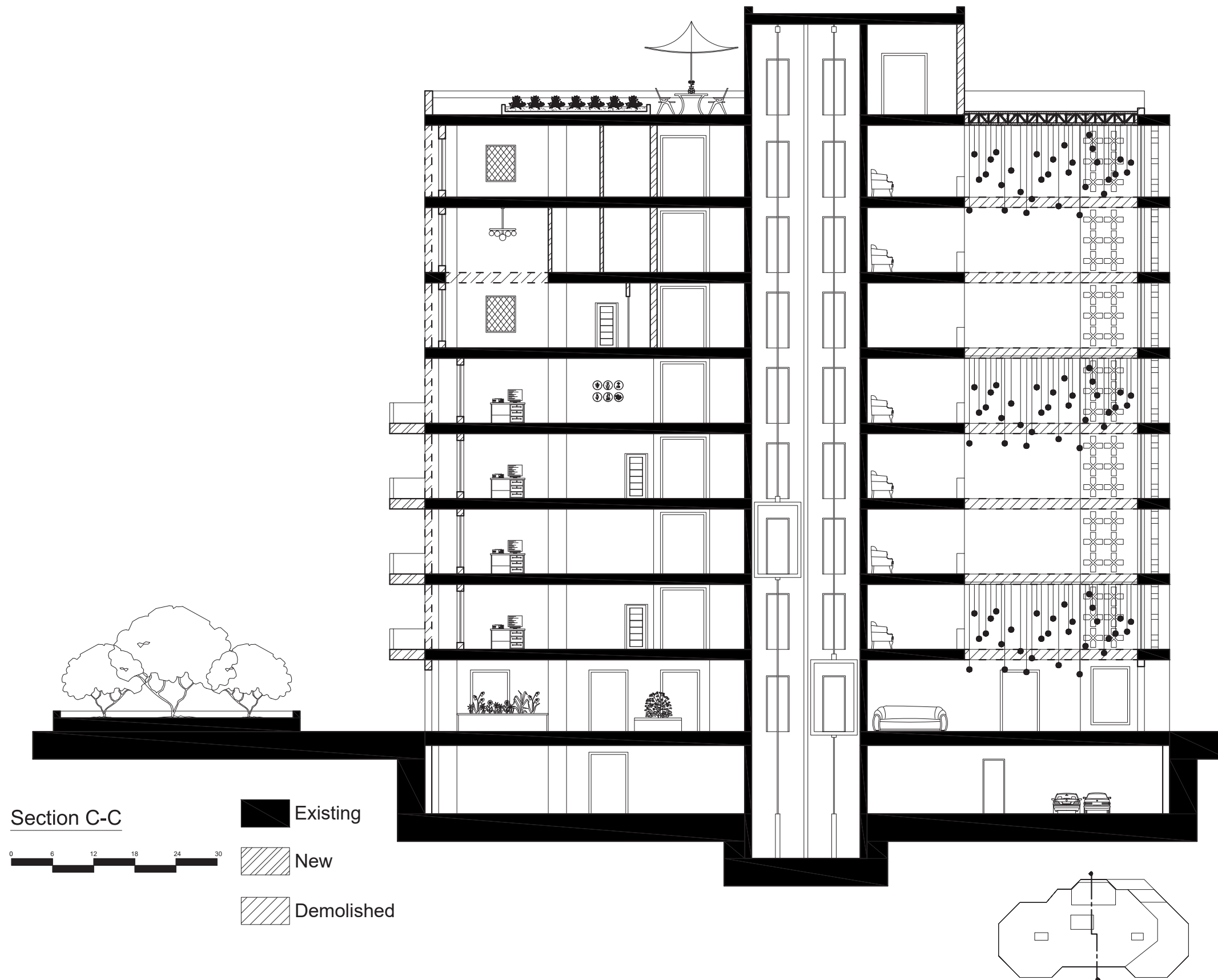


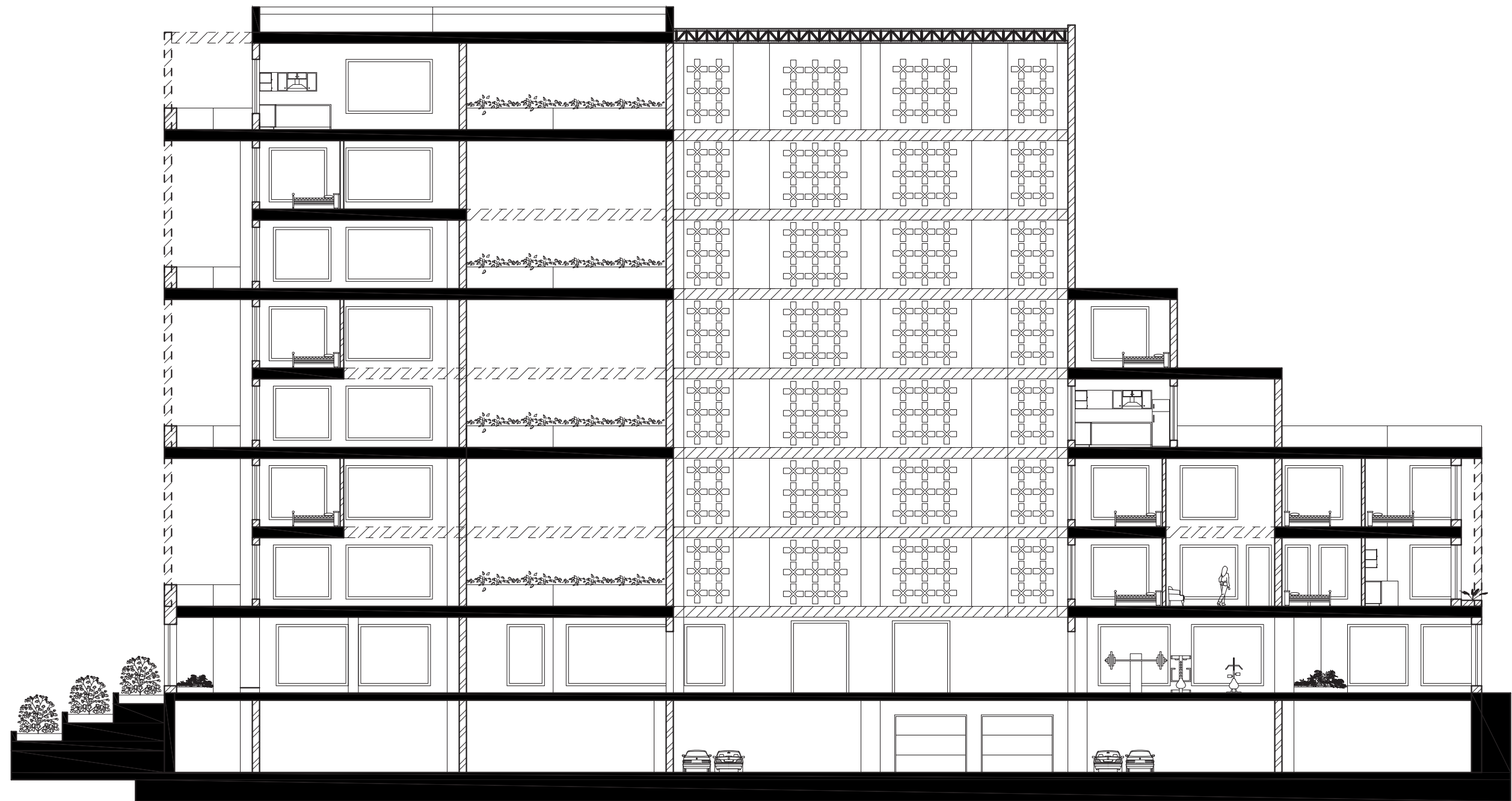
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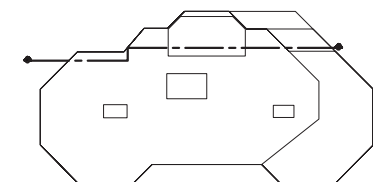
Section B-B

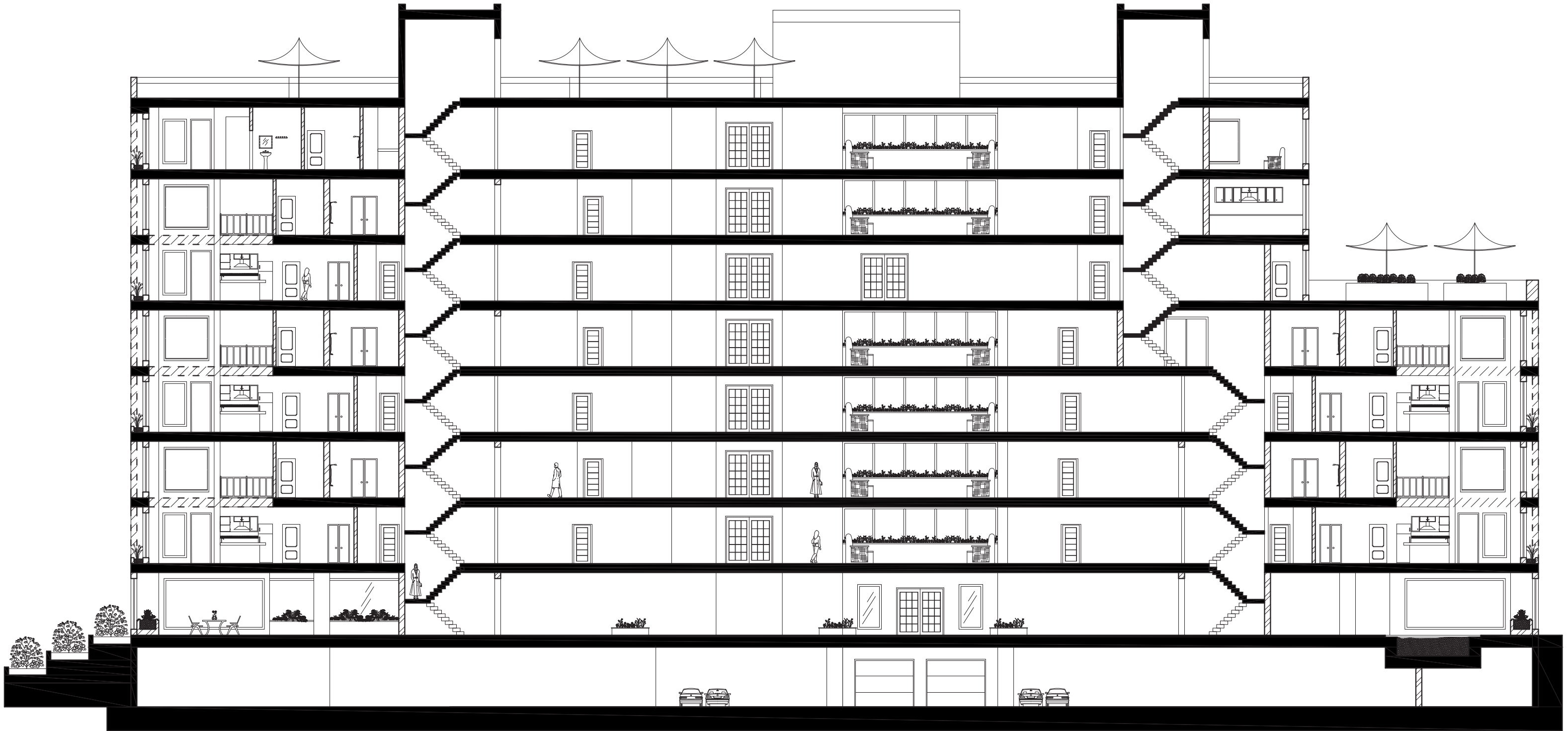


Existing

New

Demolished





RESOURCES

Fig.01, Fig.02 “Washington post” article by Roger K. Lewis on April 3, 2021

Fig.03, Fig.04, Fig.05, Fig.06, Fig.07, Fig.08, Fig.09, Fig.10, Fig.11 dc.urbanturf.com

Fig.12 Google Map

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