

مصادیق ارزش افزوده در پروژه ساختمانی

شیشه کاوه – بیستون یوسف آباد



Architecture, Geometry, Light and color affect

On Physical, Mental and Spiritual Health

Spring - 2018

Shiraz - IRAN Conference

Specific colors were used to restore health among ancient cultures in Egypt, Greece, China and India. During those civilizations, the windows of healing rooms were covered with cloth dyed red, blue, etc. to capture the healing qualities of color. Later, in the fourteenth century, a priest and physician in England, John of Gaddesden, wrote a treatise on the use of red color to treat smallpox. The patient was wrapped in red cloth and red window drapes were used to diffuse the light.^{3,4}

Skip ahead to nineteenth century Denmark and the work of Dr. Niels Ryberg Finsen. In 1892, he reported the successful use of red light to prevent scar formation from smallpox. He was honored with a Nobel Prize in 1903 for his pioneering work with light therapy. This time he had successfully healed tubercular skin lesions with ultraviolet light.⁵ Encouraged and plant growth and flavor can be enhanced.²



Biography

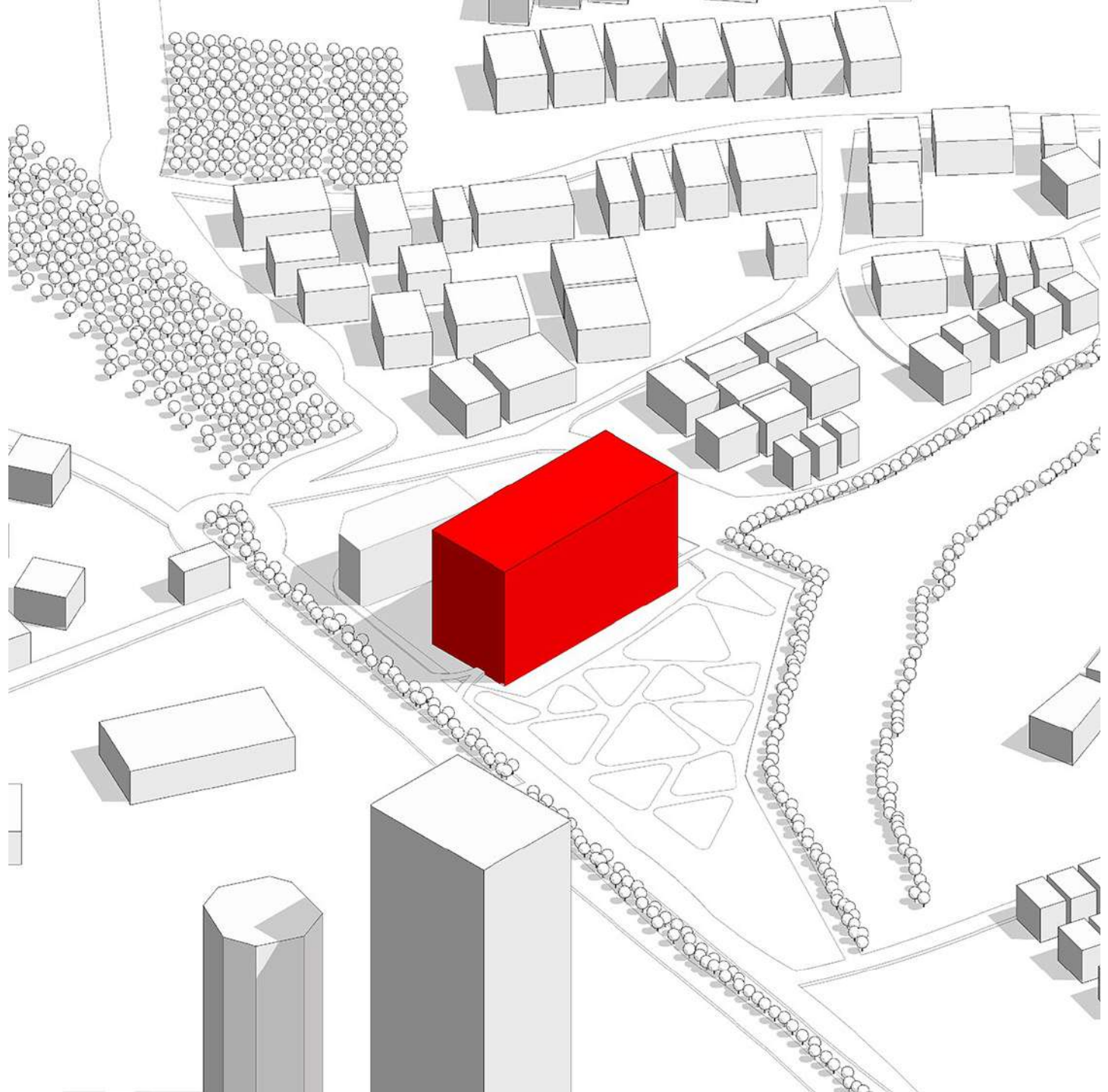
Amir was born on April 29, 1977, in Tehran, and had a childhood interest in painting and music that has stayed with him throughout his career. He received his Master's degree in Architecture in 2003.

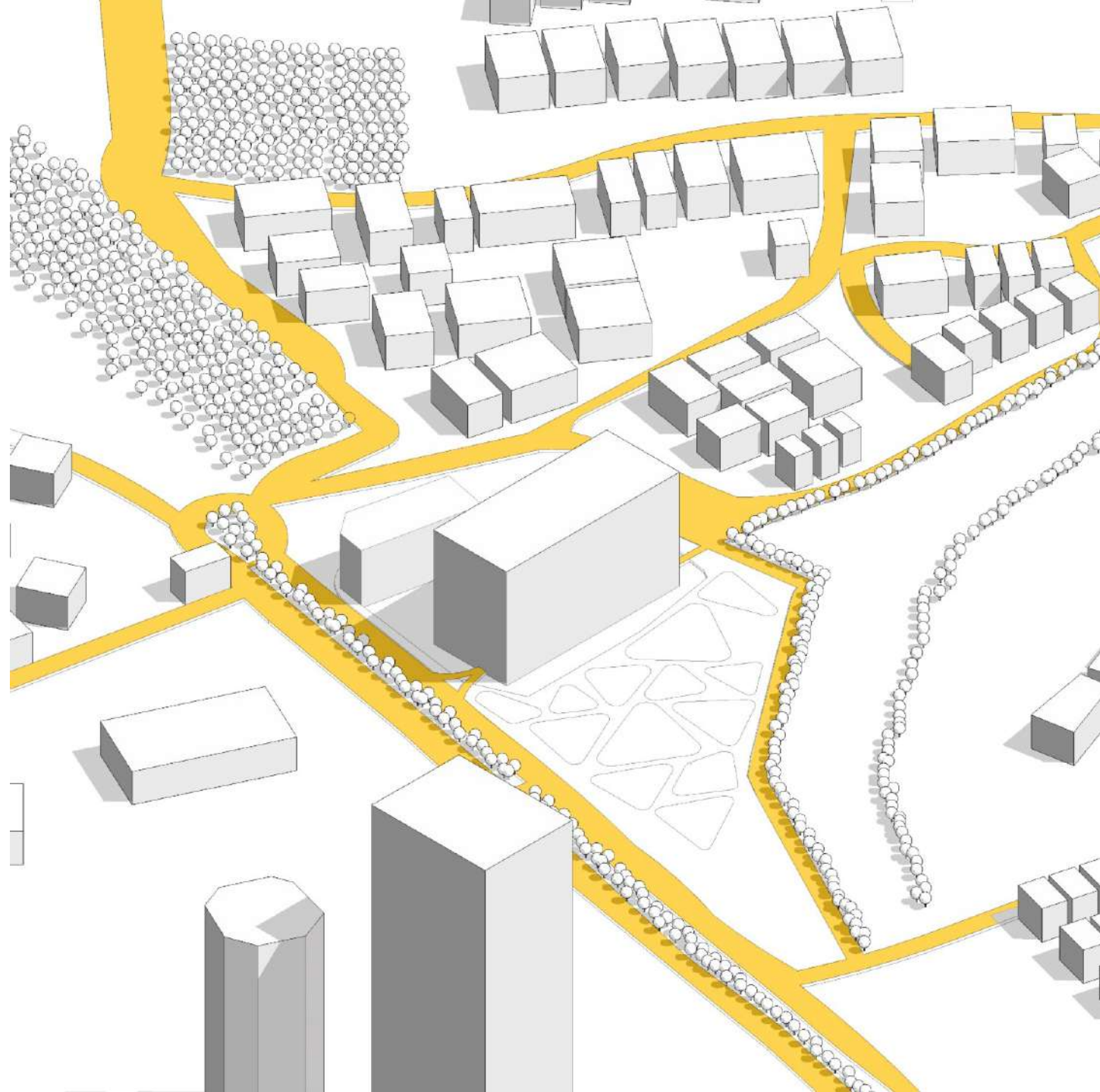
He experienced working in the international atmosphere as a concept designer in Iran, Emirates, Malaysia, and Kuwait (2003 to 2008).

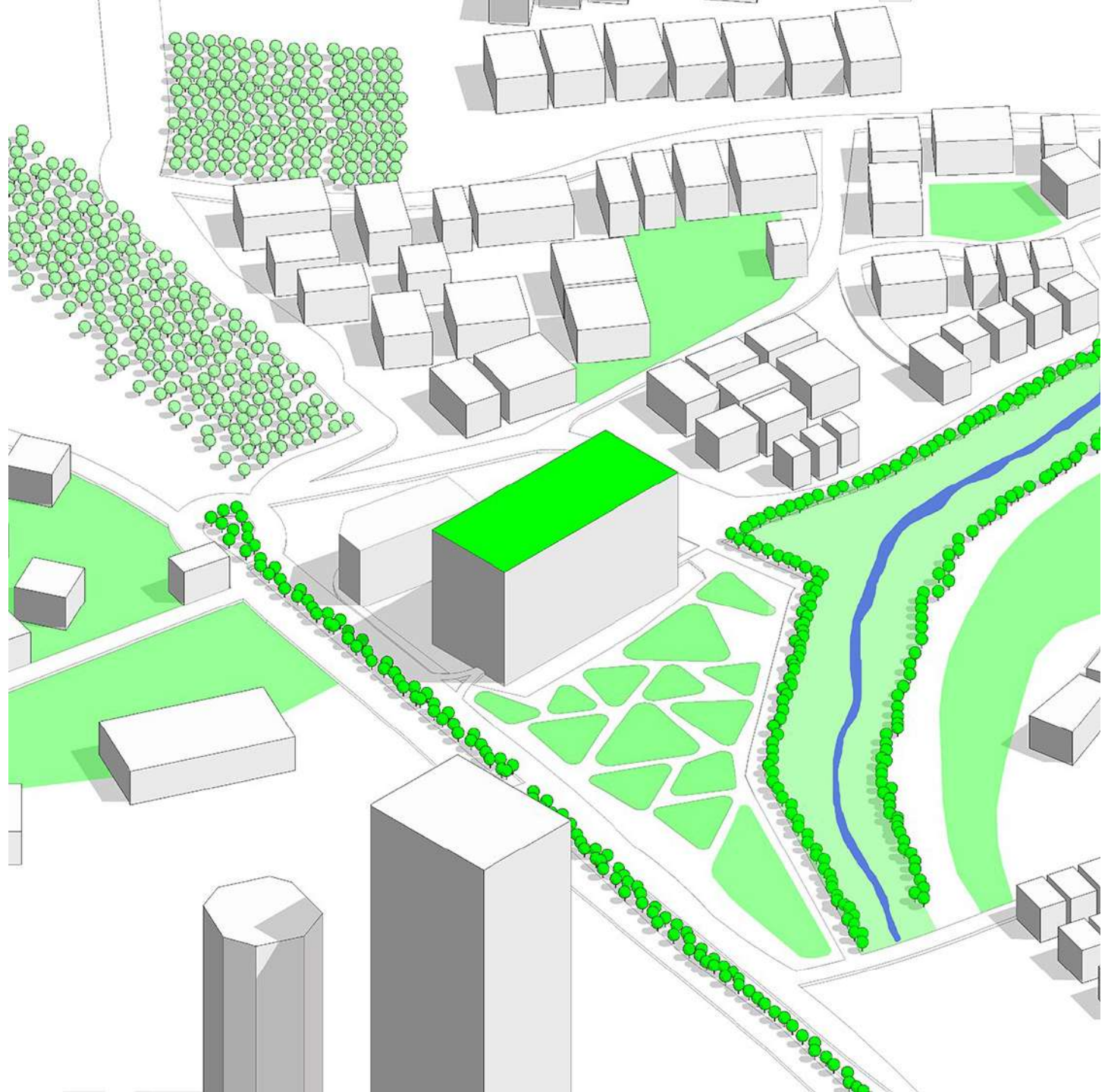
Amir founded "AA Design studio" in Tehran in 2008, which is dedicated to architectural design practices. The studio has an interdisciplinary approach, which combines the features of culture, health, sense, and ethics with context-aware and human-centered concepts and ideas. He established the printed and digital Villa Magazine in 2015 which is a medium and a platform for architectural workshops, discourses, interviews, critics, campaigns, and reviews, aiming to develop cultural interactions and idea exchanges between Iranian artists/architects and other societies of art/architecture throughout the globe.

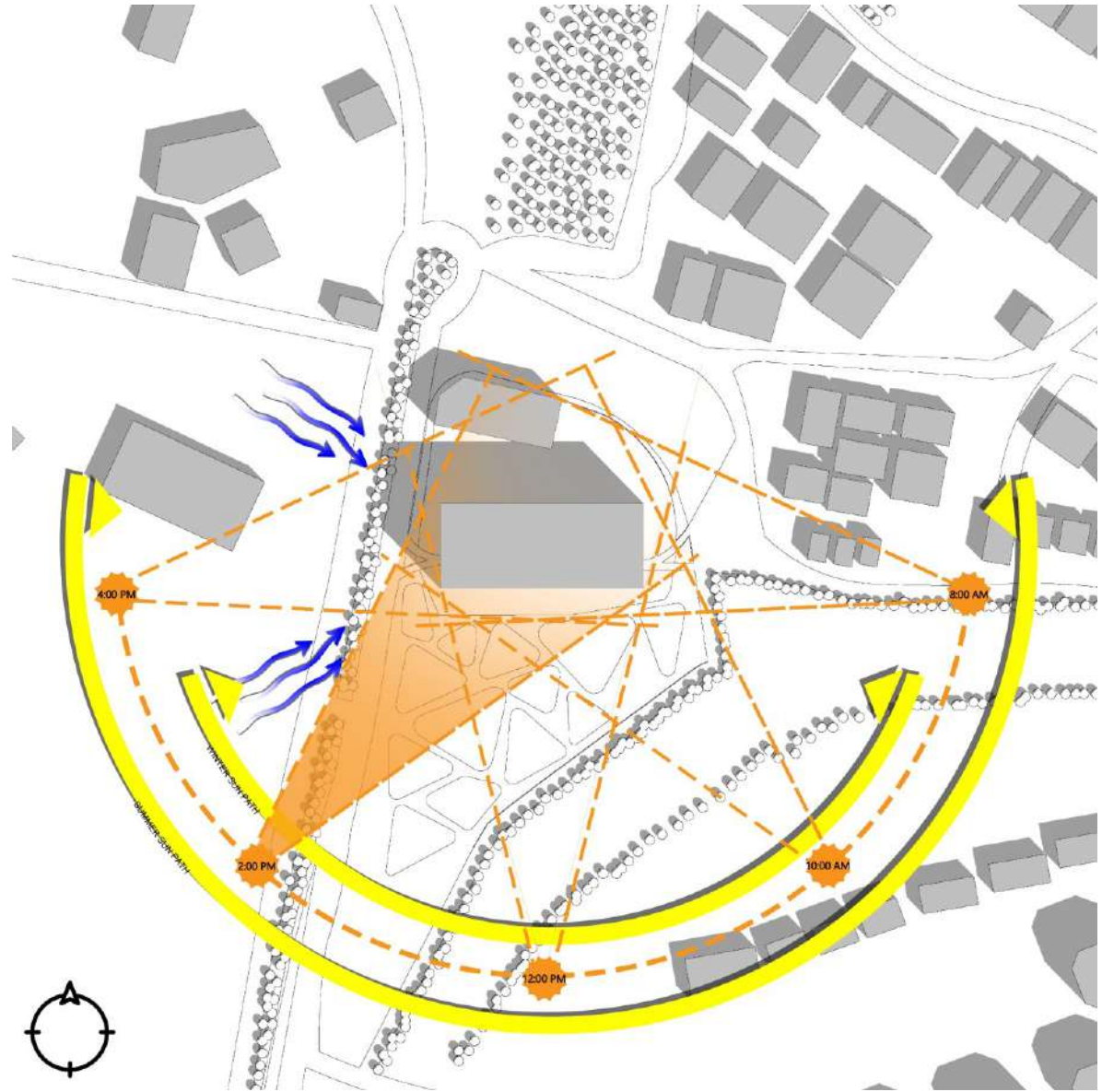
He is the co-editor-in-chief of the magazine which is trusted by more than 600 leading design & architectural firms/products in Finland, Norway, Germany, Italy, Japan, the Middle East, and South America.

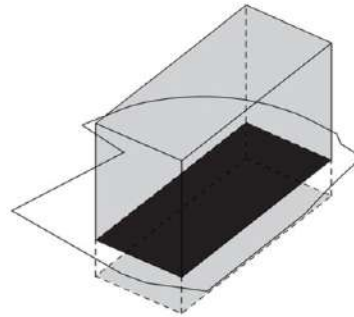
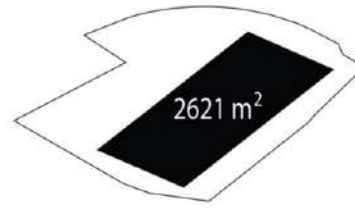
Amir is a co-founder of the Iranian health and architecture group and a co-founder of the association of Charbagh in the sense of culture and art with a seat in Zurich-Switzerland aiming to foster cultural and professional exchange between the artists/architects from the middle east and Europe.



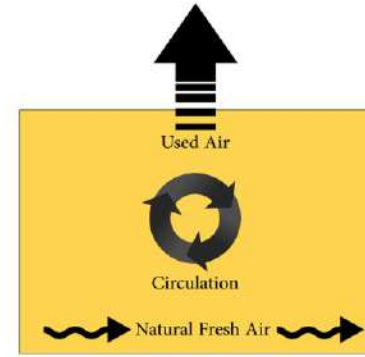




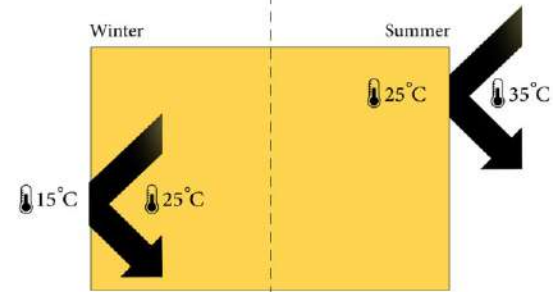




~34.850 m³
33.40 m x 78.56 m
13 FLOOR



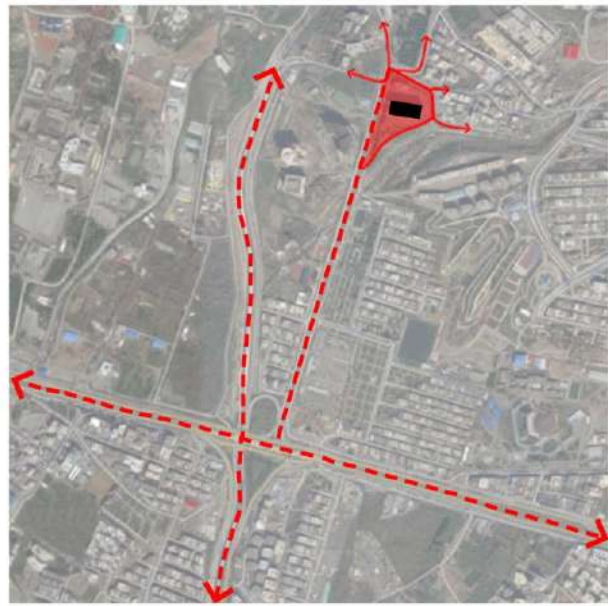
Natural Ventilation



Low-E Glass Technology



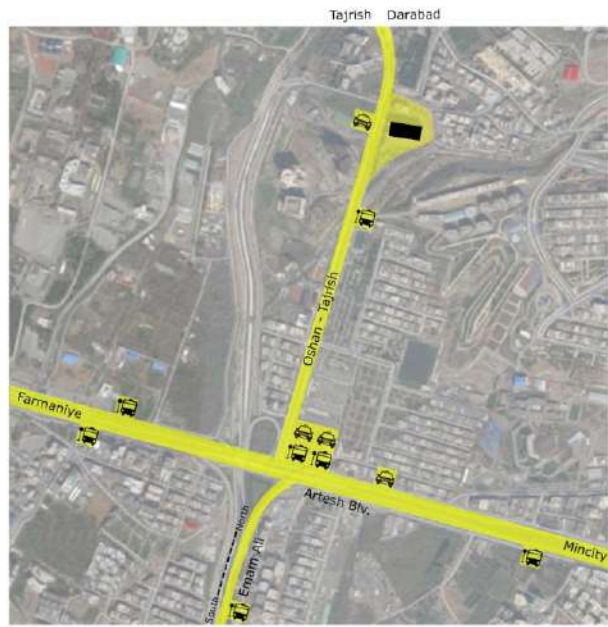
35% Energy Saving



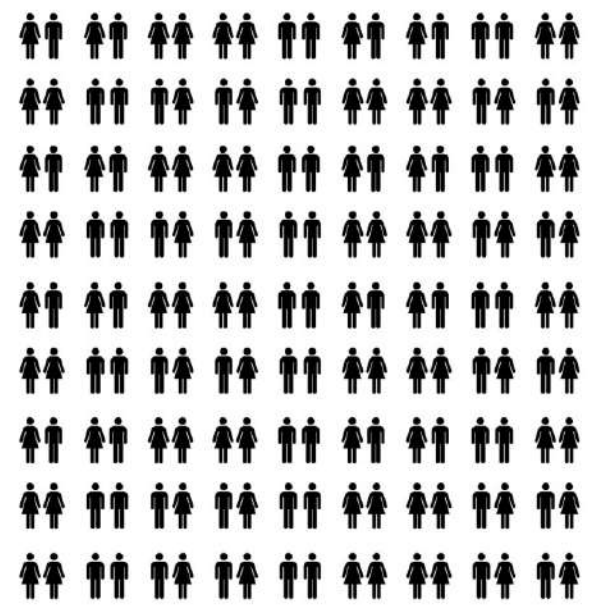
Vehicular circulation



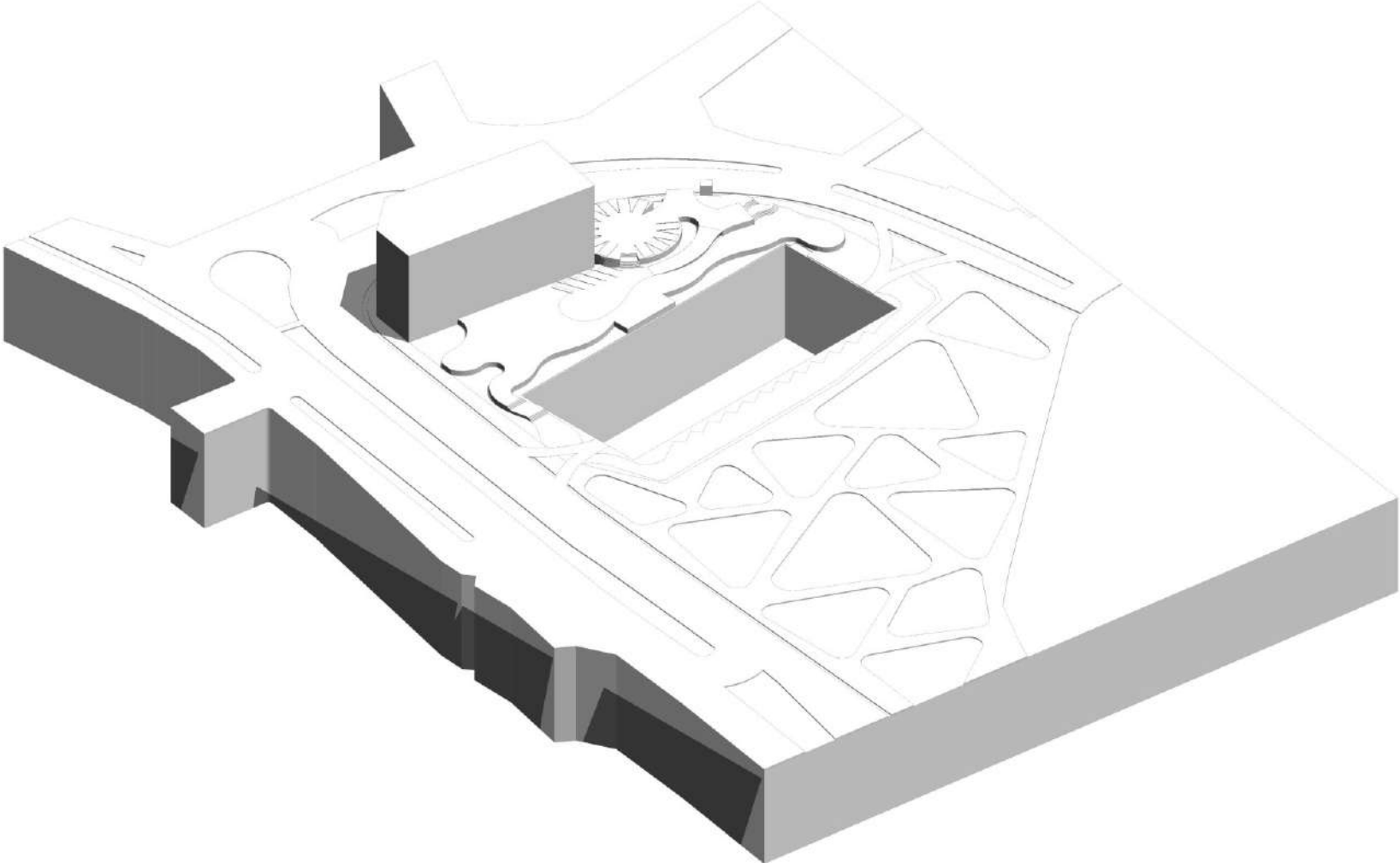
550 Car parks

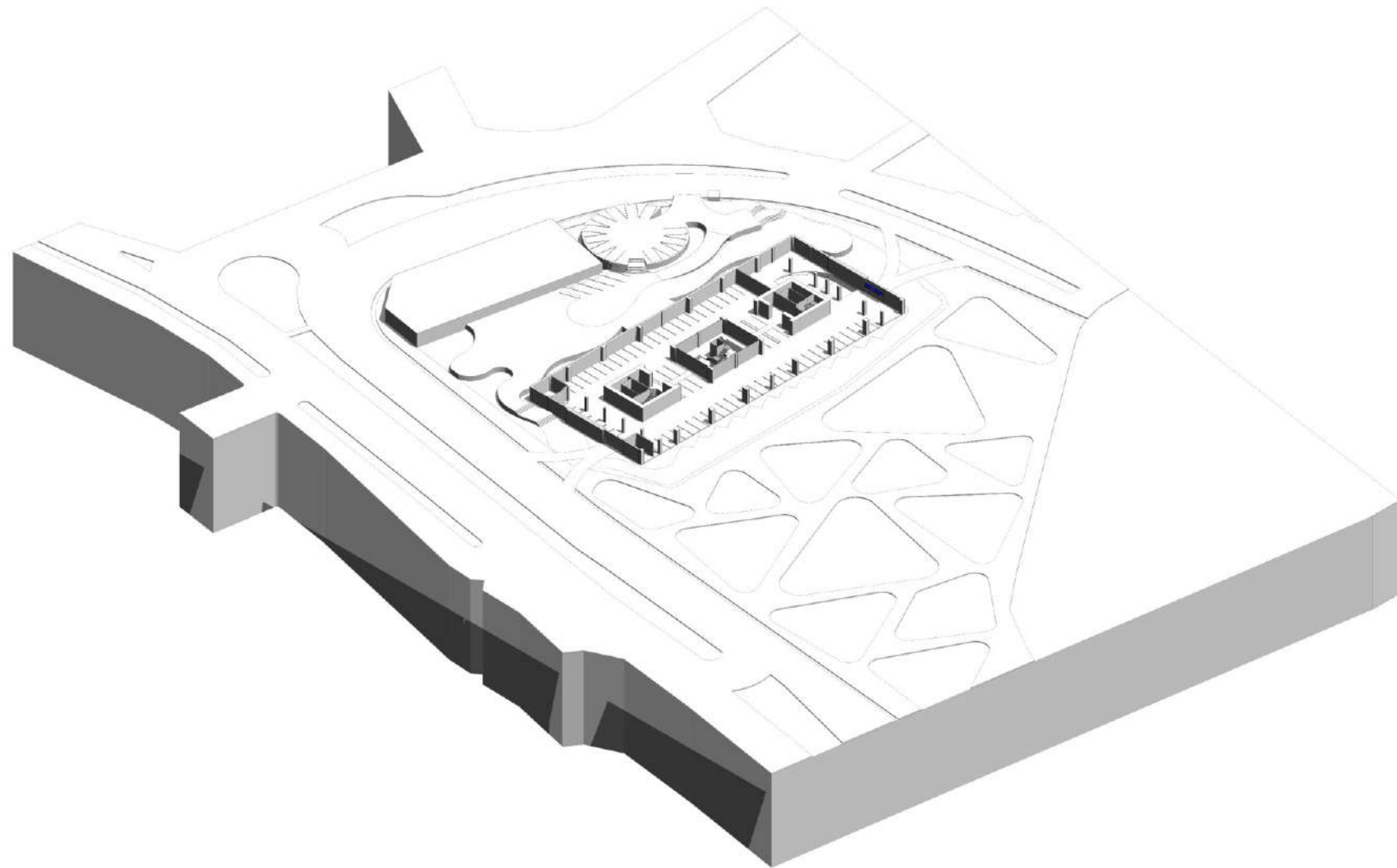


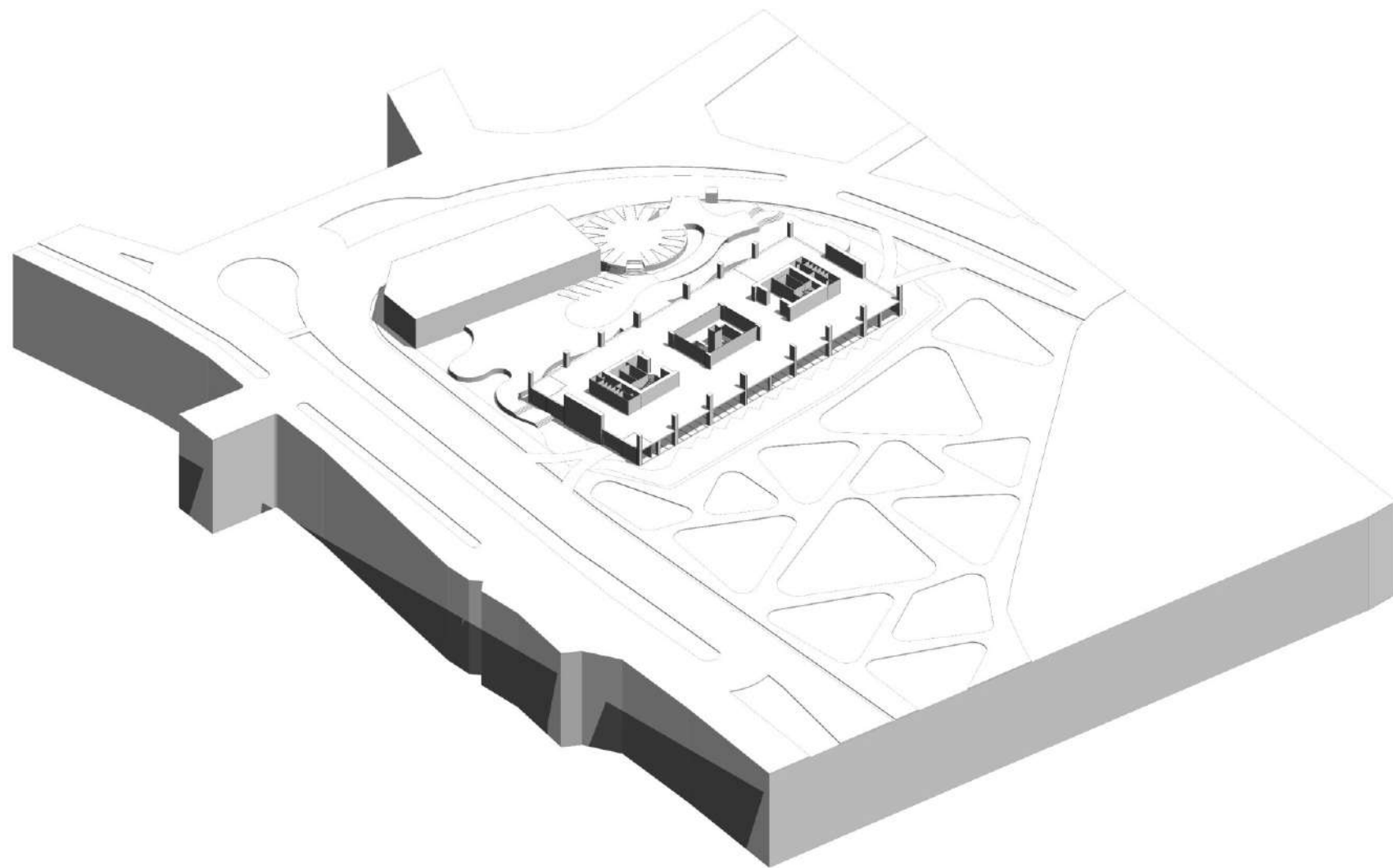
Public transportation

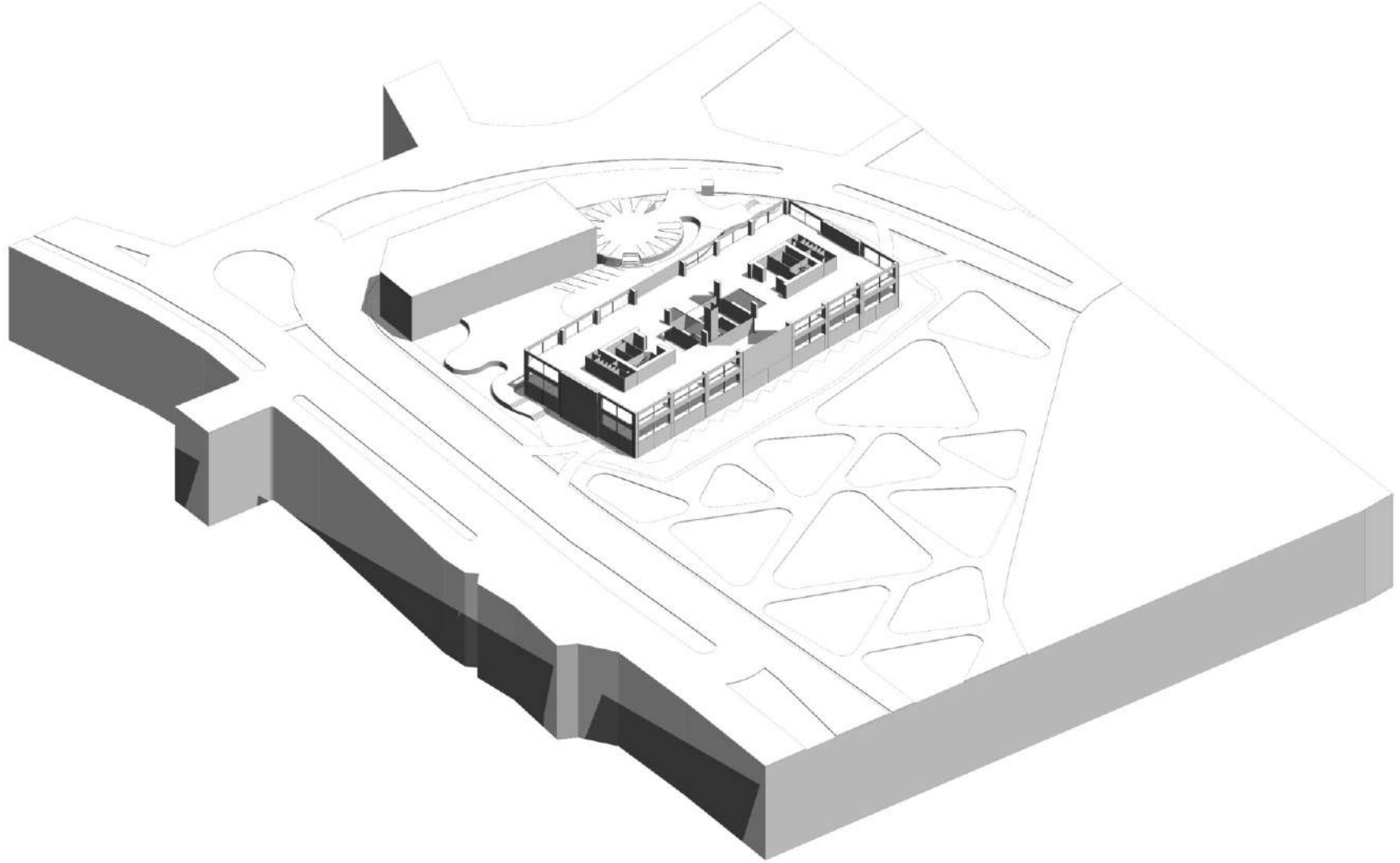


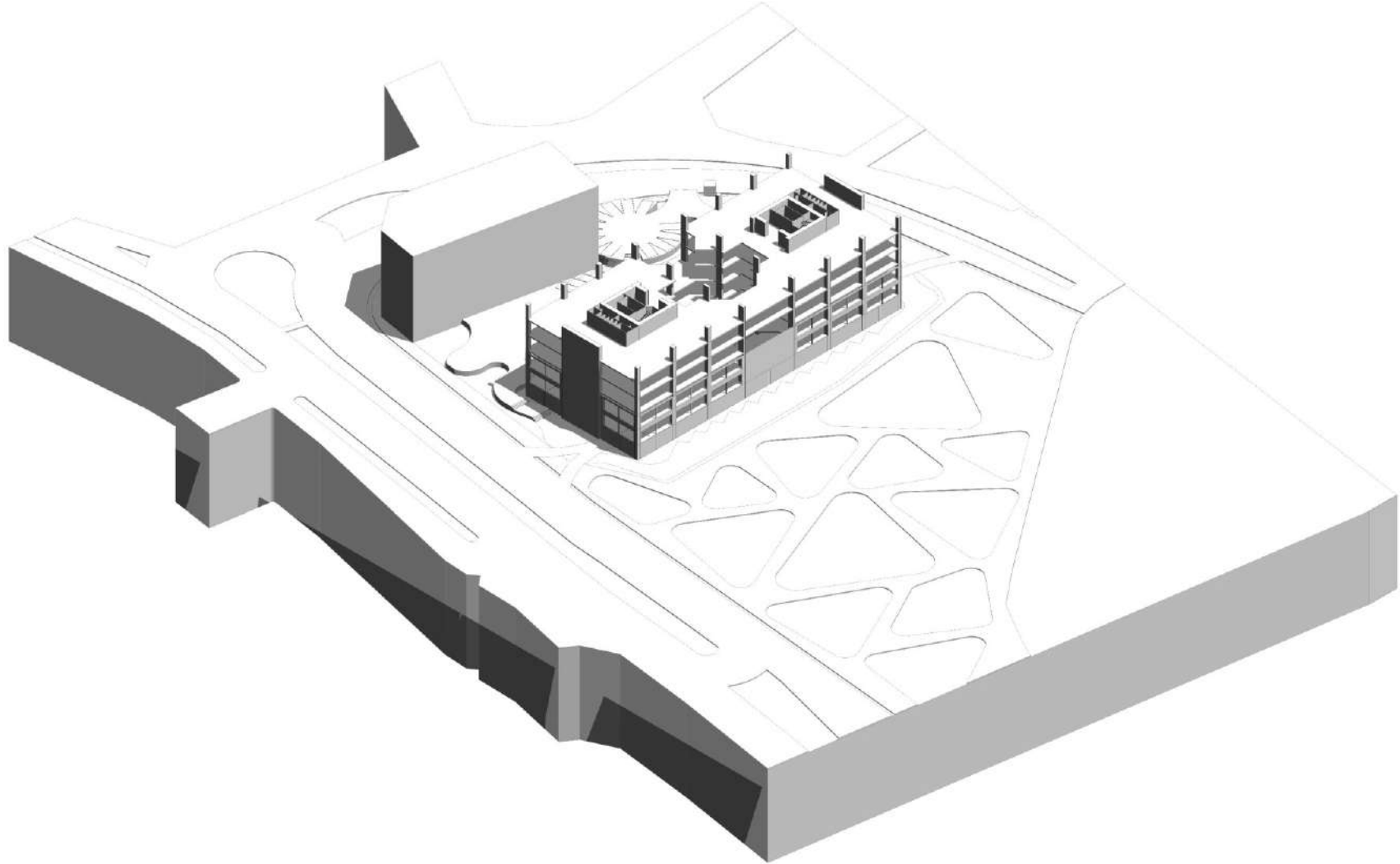
2000 Employee

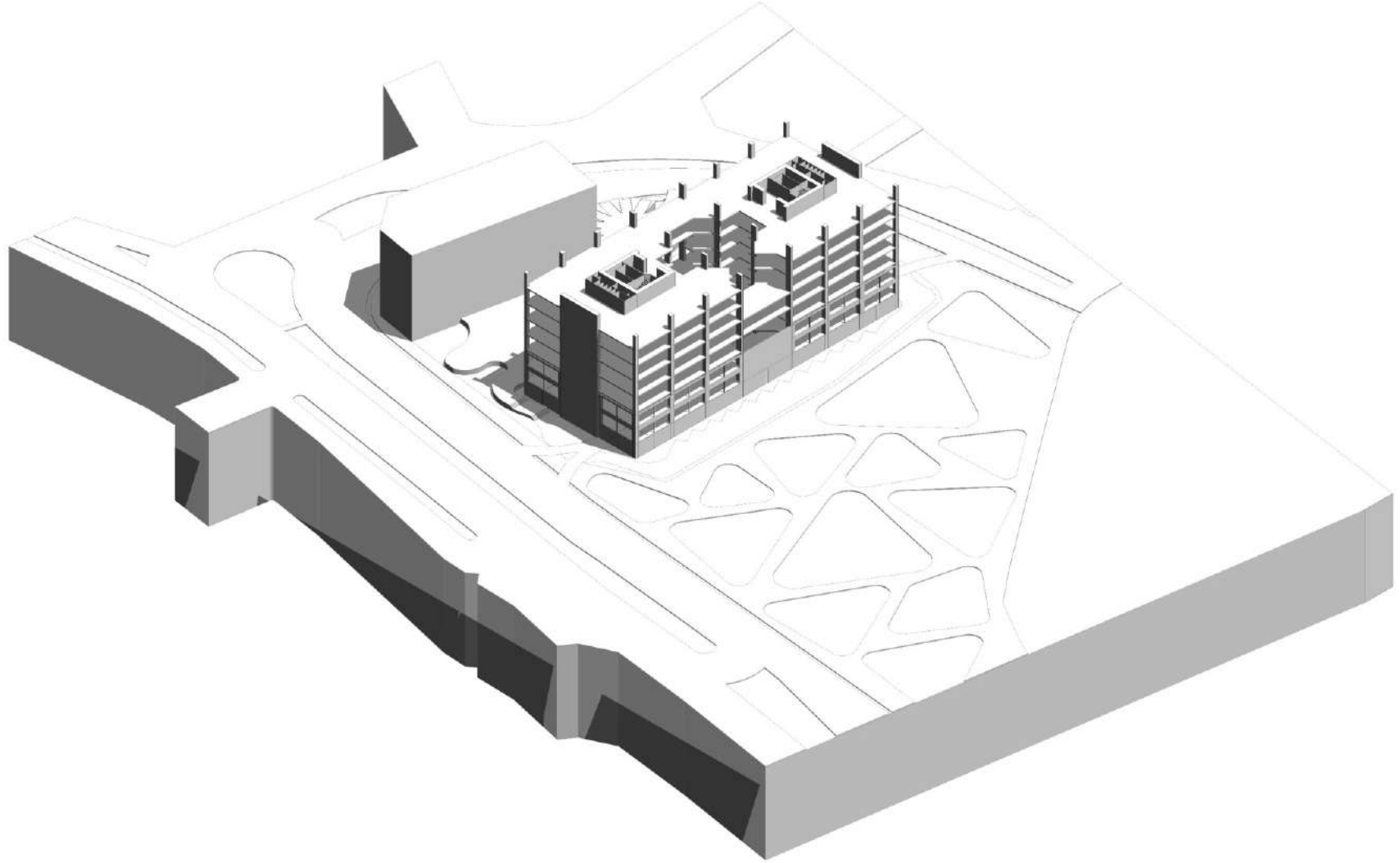


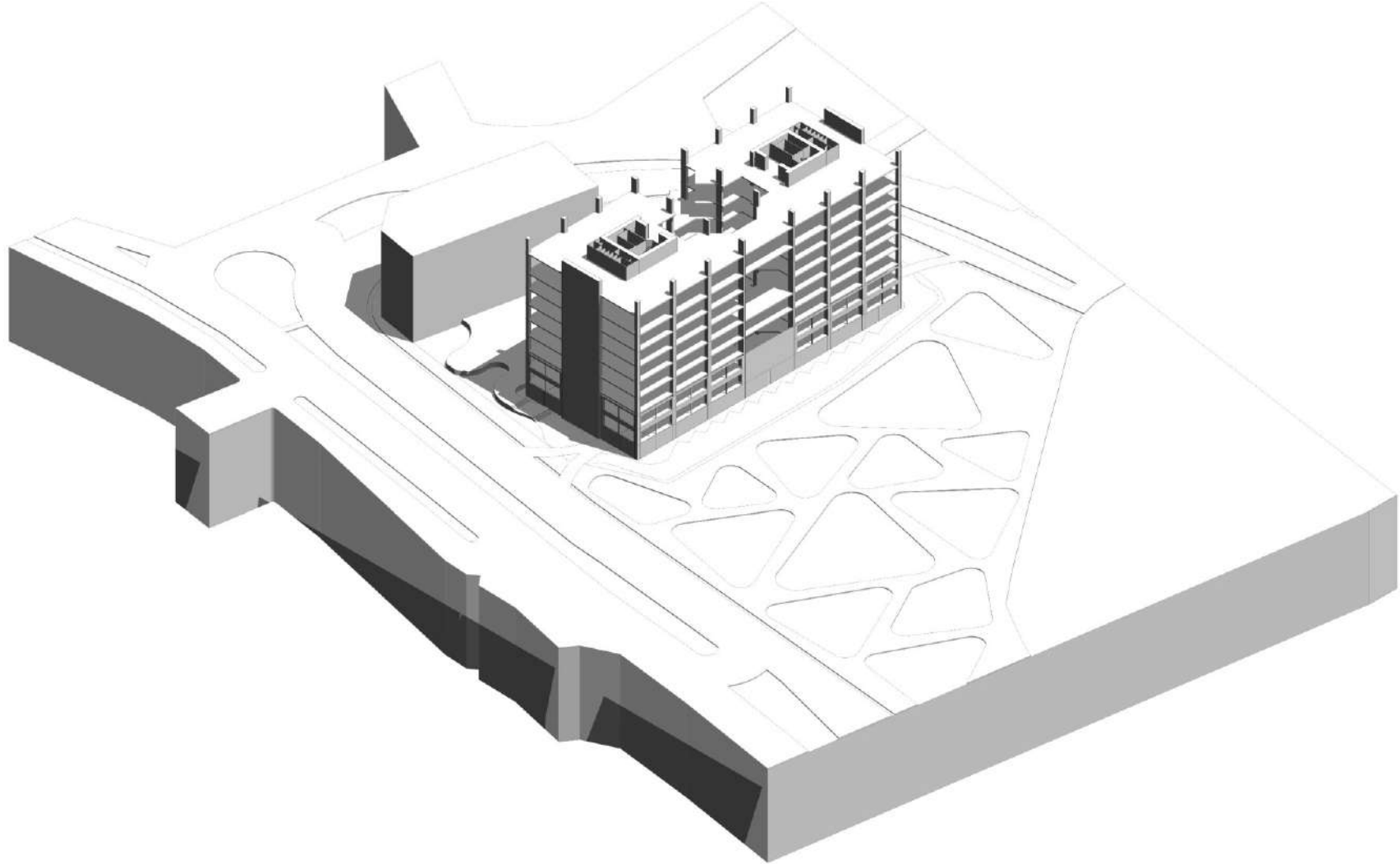


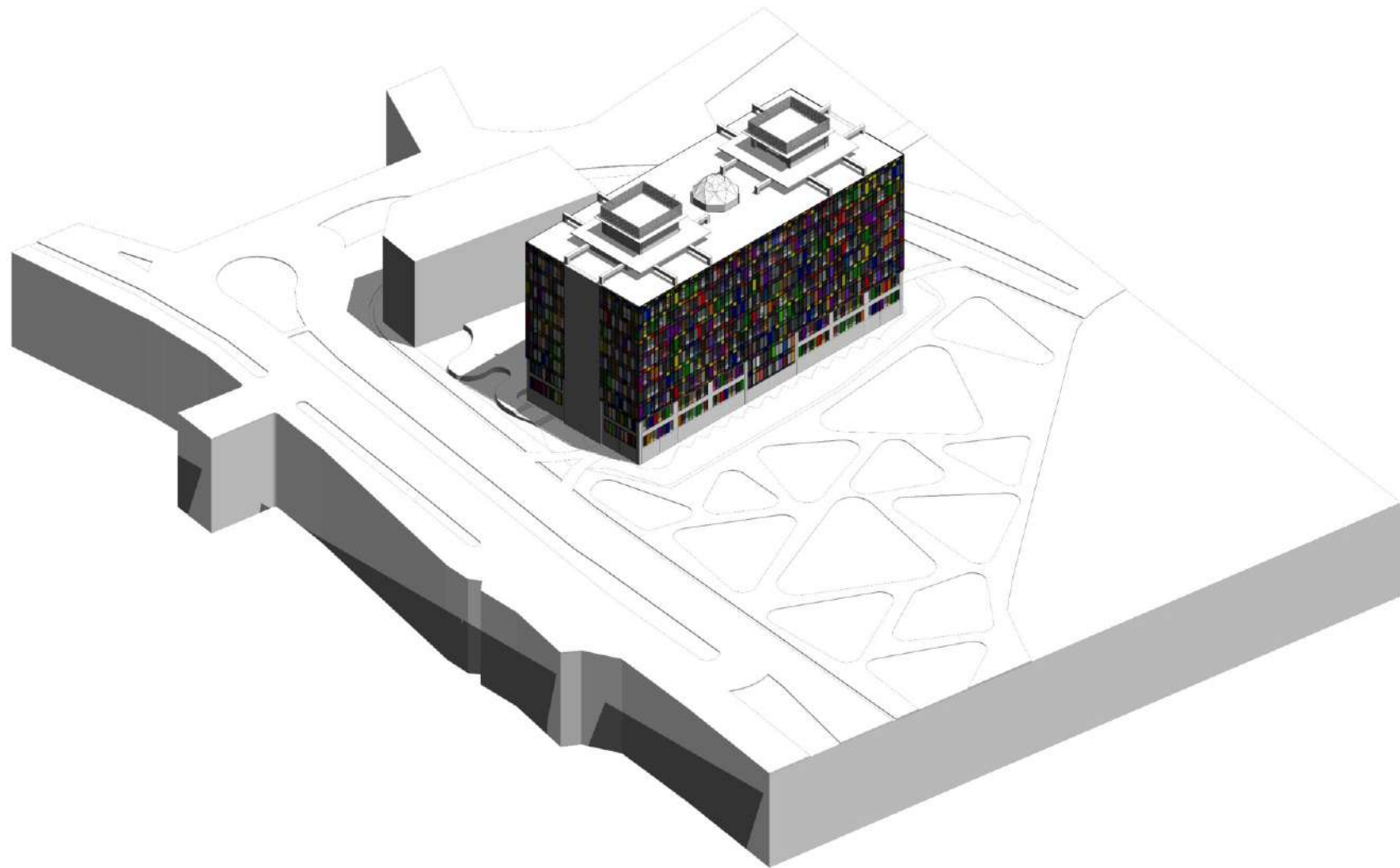


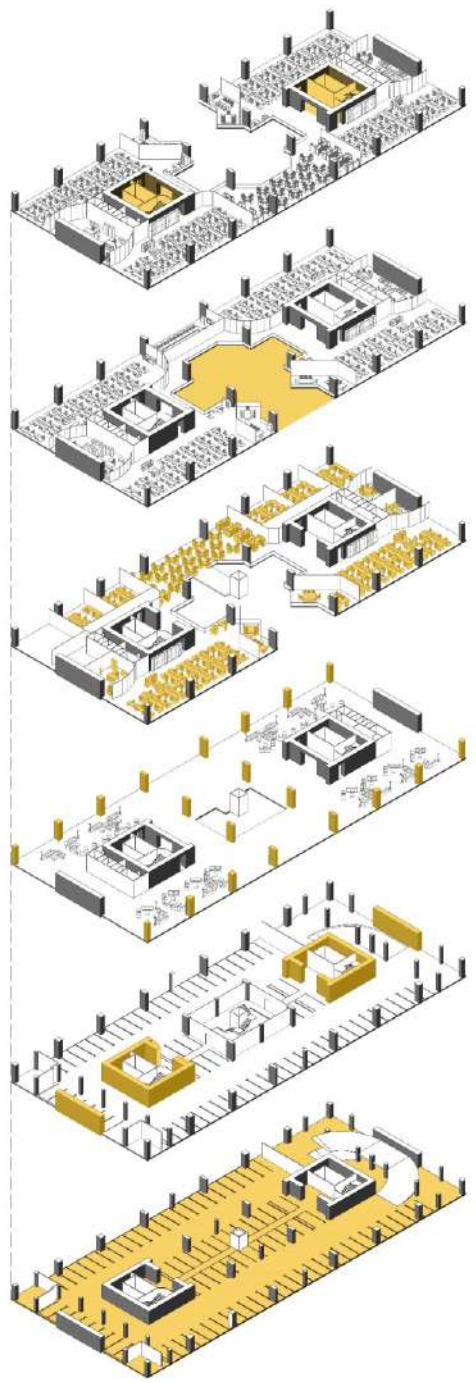


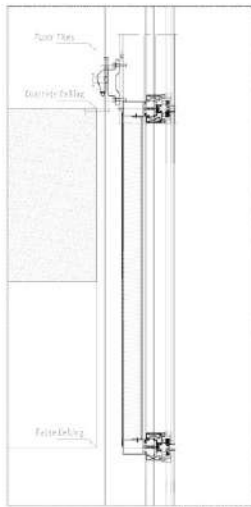








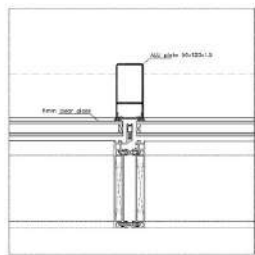




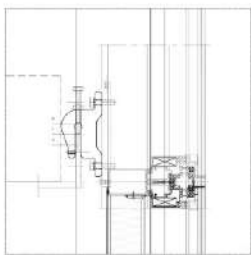
Master Section-Scale 1/10

Facade Engineering

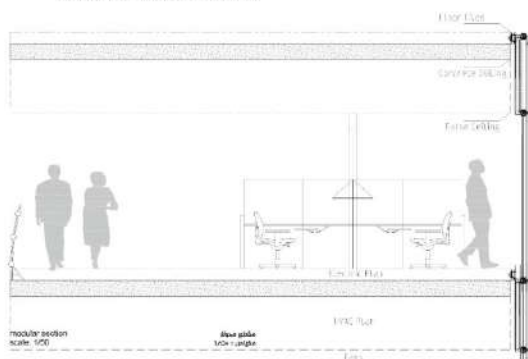
- calculation for green building
- fire protection
- noise protection / Sound proofing
- protection against sun (UV / Heat)
- structural design including "Heavy rain investigation"
- developing of concepts
- developing of tailor-made hinge systems



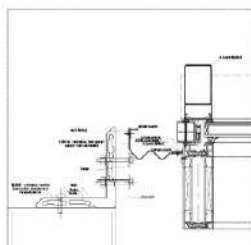
movement in the case of earthquake 2" - 15cm
+20mm (-40mm)



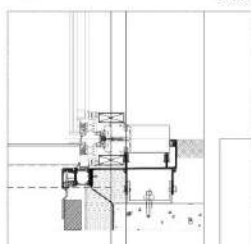
locking detail scale: 1/5



module section scale: 1/20



WPC detail scale: 1/5

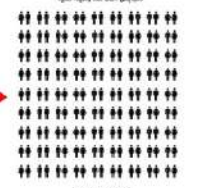
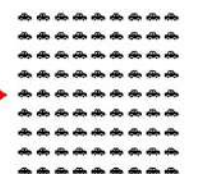


movement of the suspension scale: 1/5

- مهندسان (ها)
- طراحی در جهت معماری یکپارده
 - مقاوم در زلزله مرتبه 7 و آنکس نیوری
 - مقاوم در برابر امواج دریایی
 - مقاوم در برابر آتش
 - مقاوم در برابر بار باد و باران
 - کاهش آلودگی صوتی
 - کاهش آلودگی آینه موجود در جلوه دیدگاه



- Skylight
- Roof Garden
- Curtain Glass Facade
- Corridor
- Open Office Level +3-4-7-8
- Open Office Level +1-2-4-6
- Parking
- Vertical Access
- WPC
- Lib Lobby
- Shaw Walls
- Column



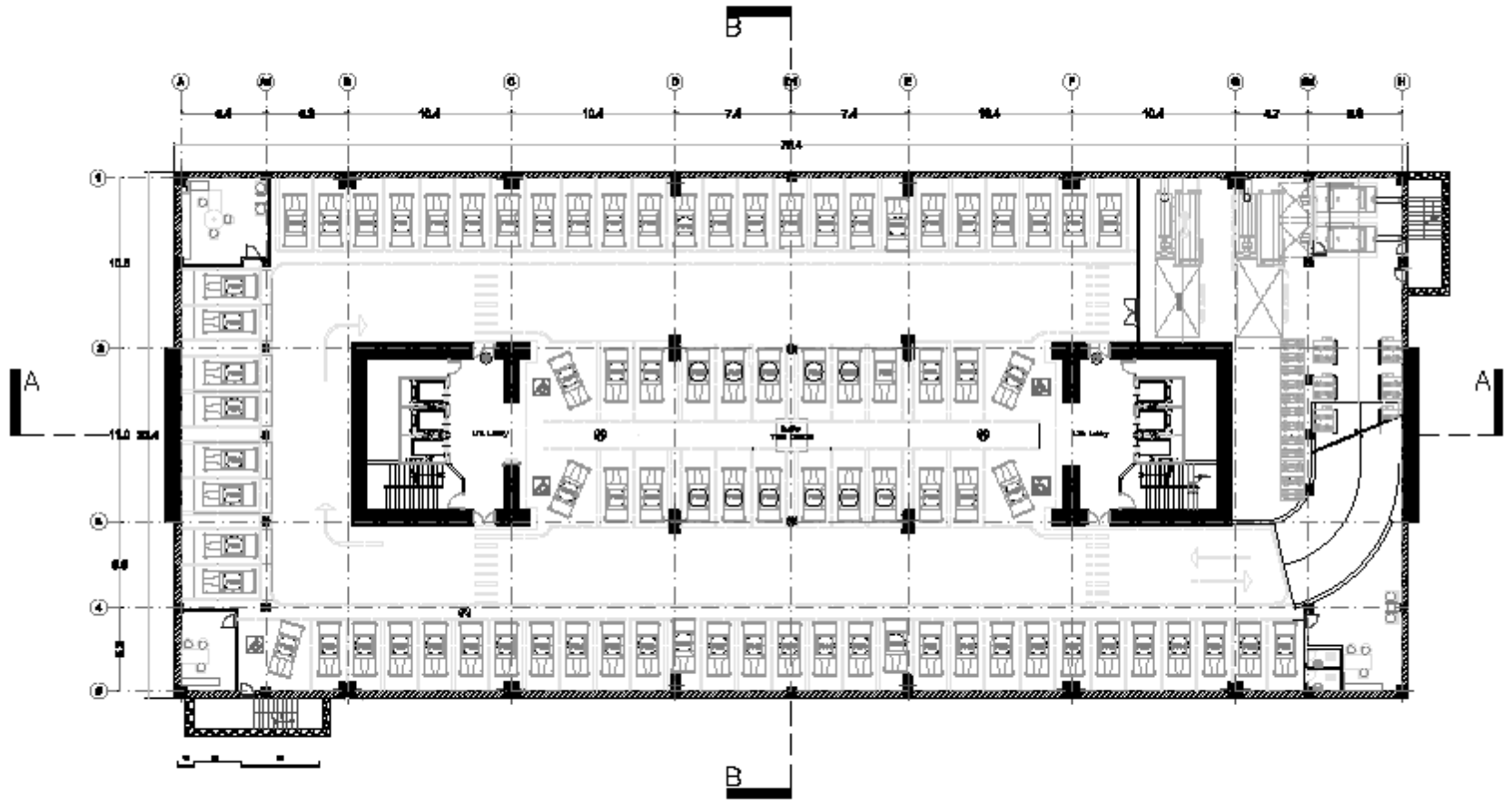
Site
The site for a huge program and detailed a linear planning. Hence, special efforts were made to ensure the creation of non-rigid outdoor spaces which did not necessarily follow the established road pattern.

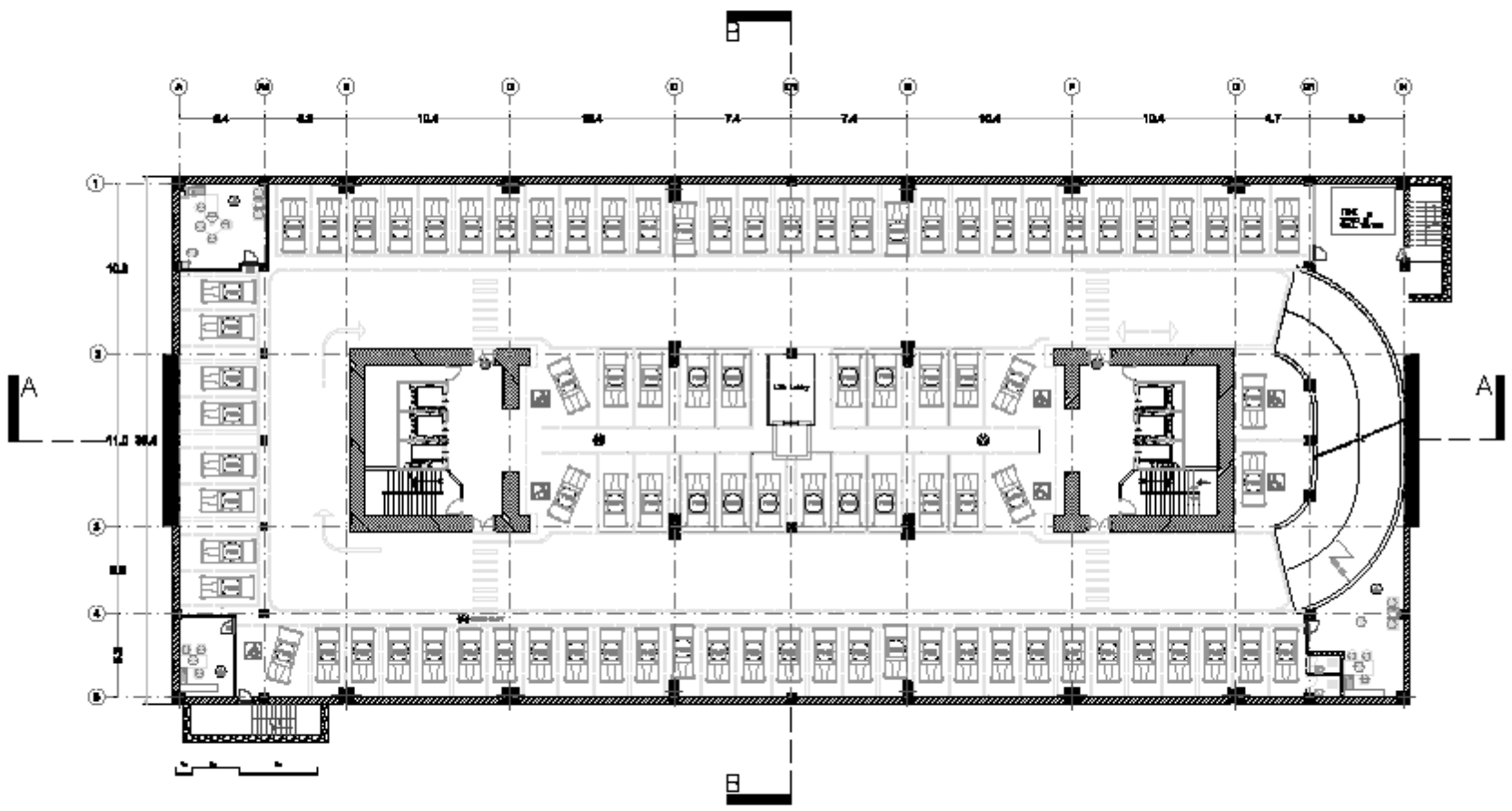
Building Orientation
Building orientation and massing is the key to good urban design.

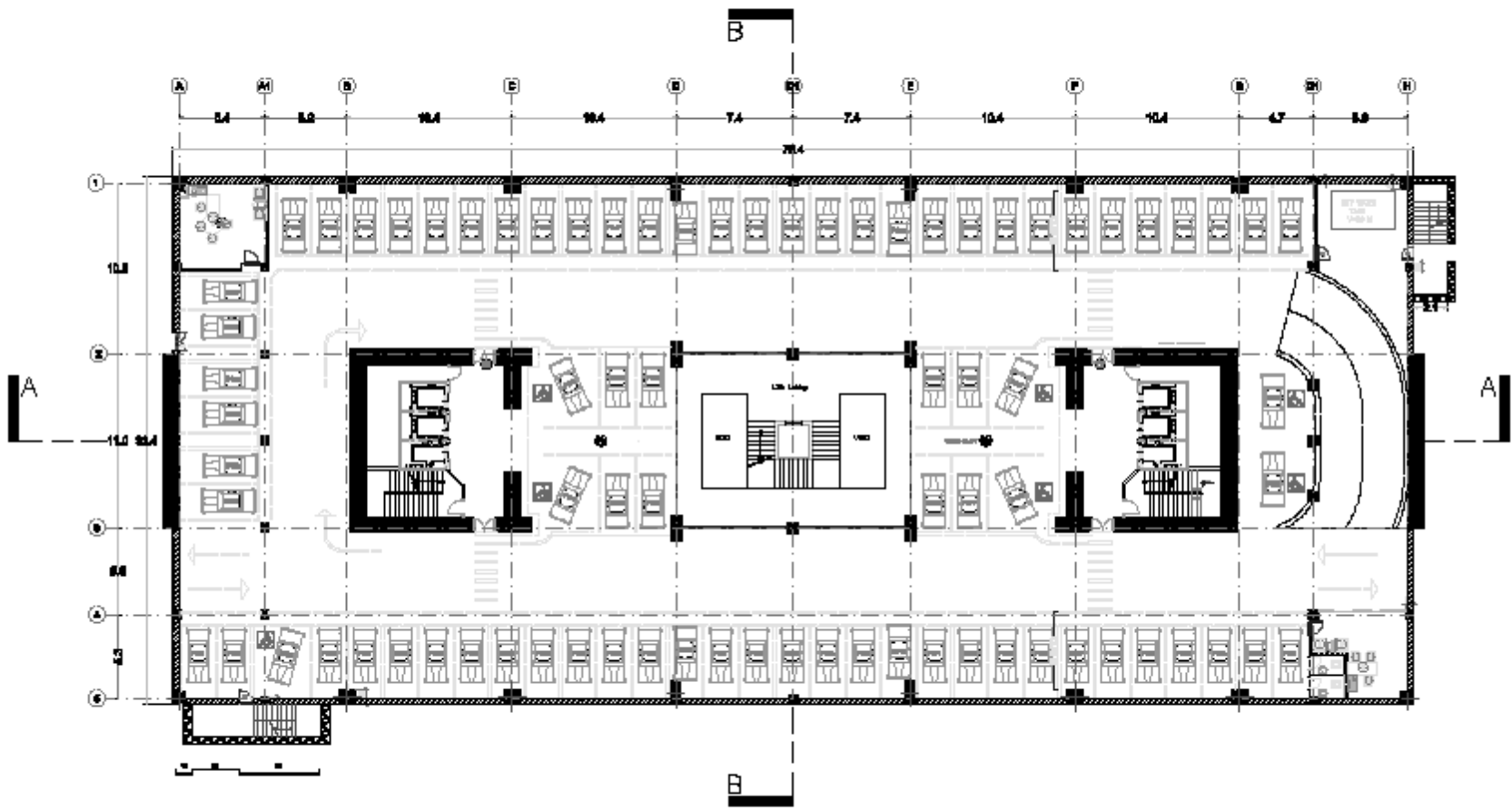
Public Transport and Cycle Scheme
By virtue of its location, Haveli Glass Office Building has excellent access to public transport with a bus stop directly outside the main entrance and T-tube stop 5 minutes walk away.

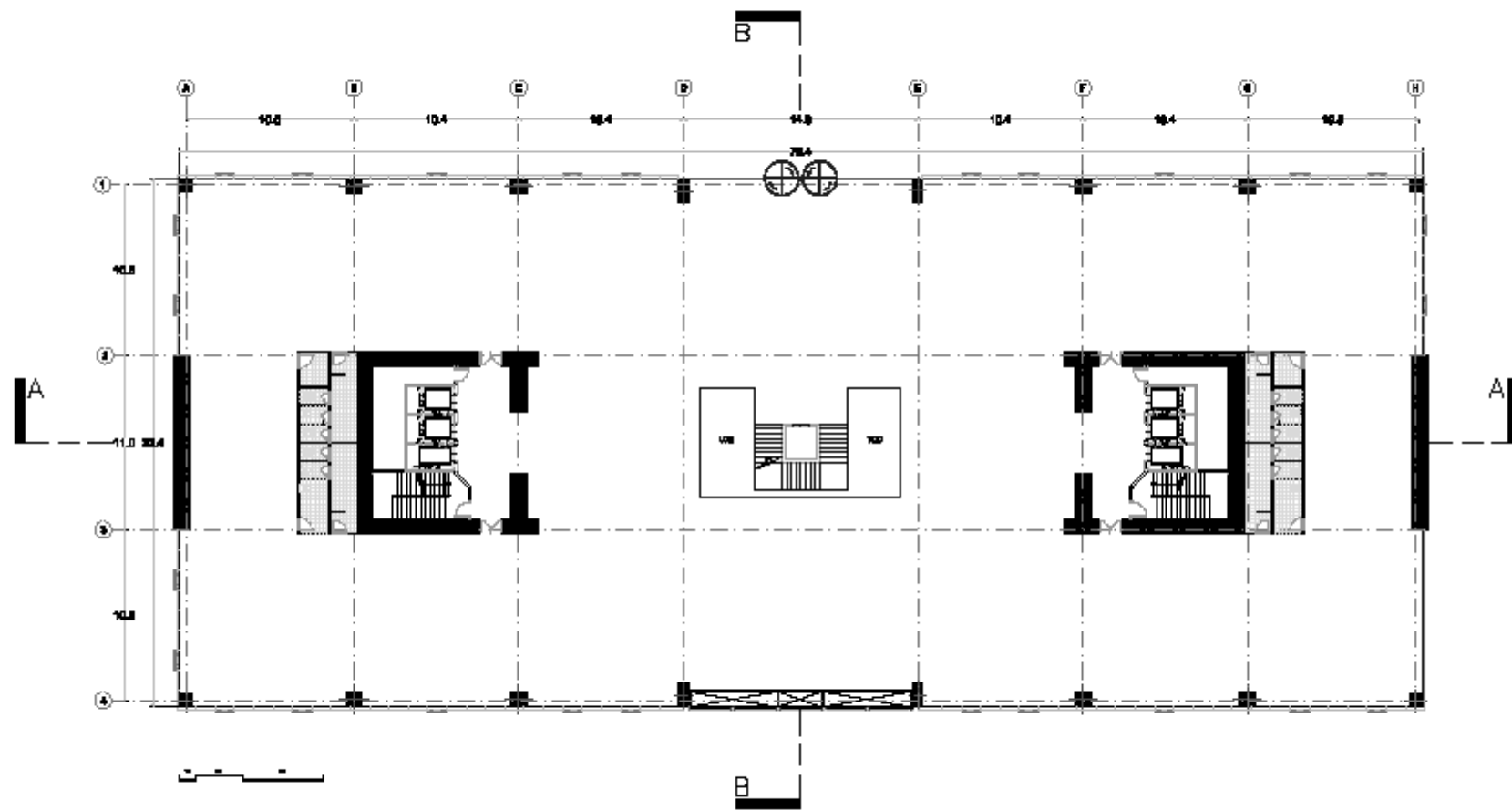
Modularity
Existing mature trees have been retained and new semi-rigid trees and a meadow habitat have been added to the landscape around the building, which is designed to create an agreeable micro-climate between streets and

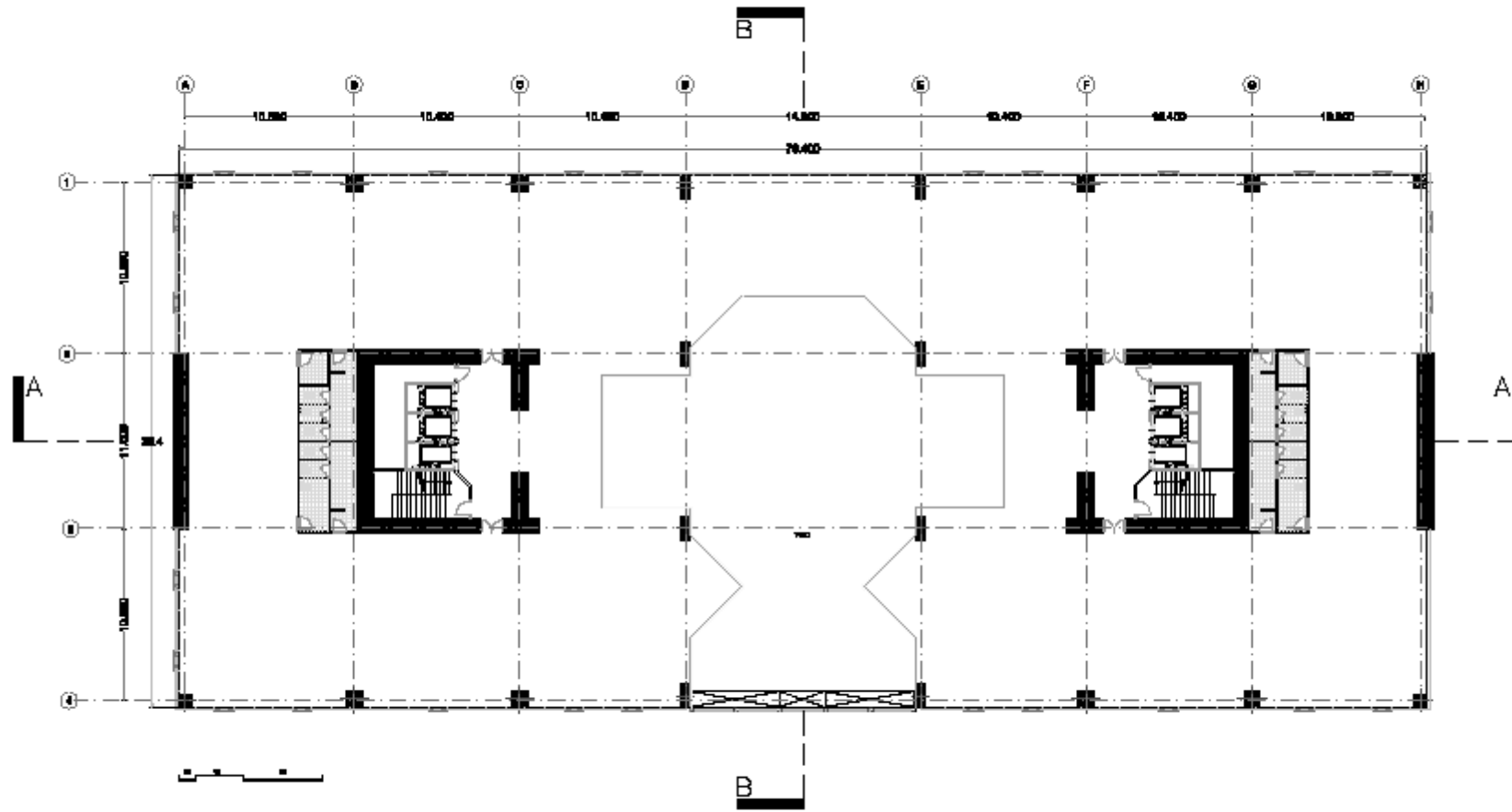
ساخت
معماری با توجه به موقعیت خاص زمین و با توجه به نیازهای کاربردی و زیبایی شناسی، فضای بیرونی با طراحی خاص و متنوعی طراحی شد. این فضای بیرونی که از نظر معماری بسیار مهم است، در کنار فضای داخلی ساختمان، نقش مهمی در ایجاد یک محیط کار مناسب و جذاب دارد. همچنین، با توجه به نیازهای کاربردی و زیبایی شناسی، فضای بیرونی با طراحی خاص و متنوعی طراحی شد.

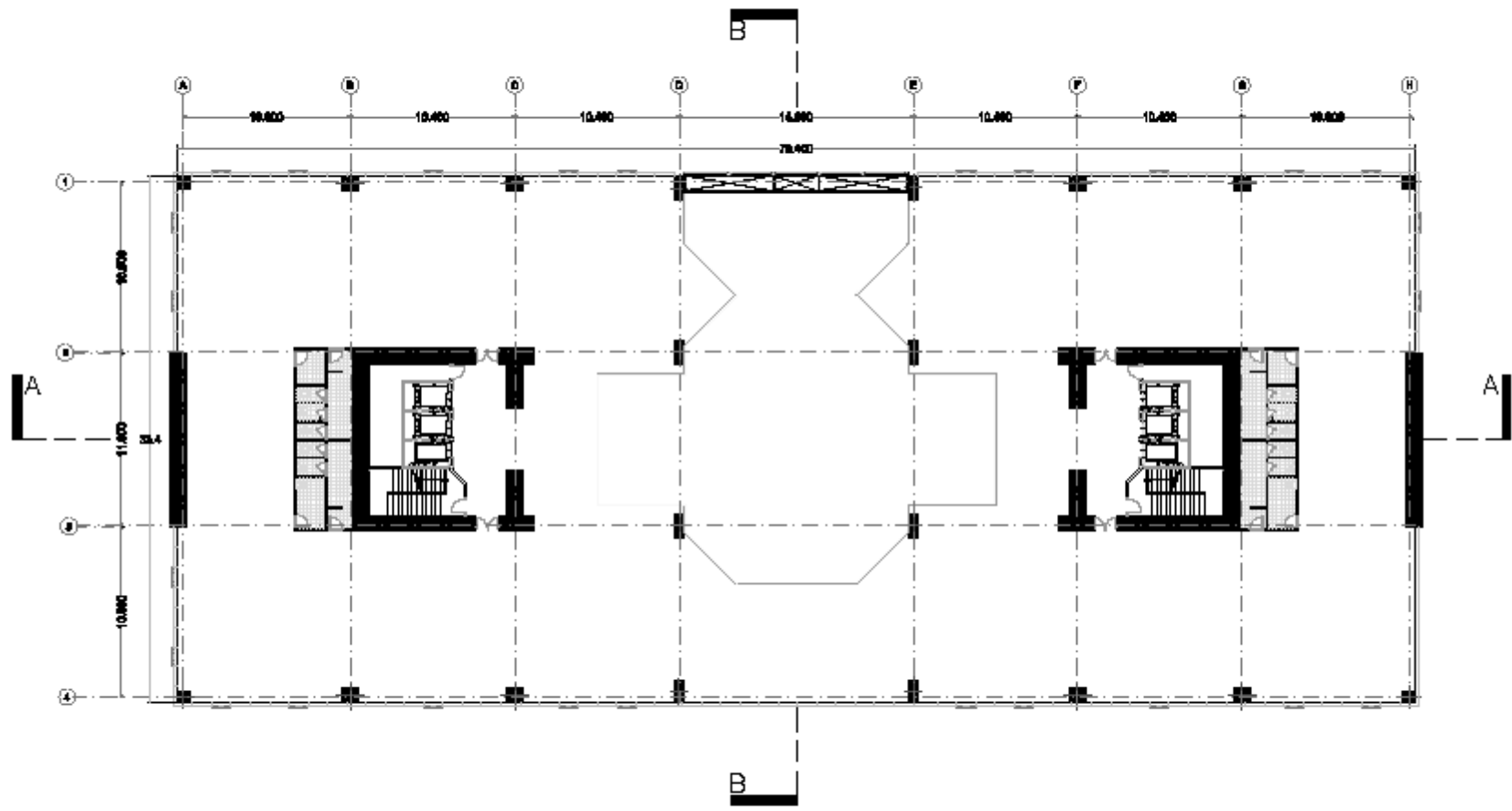


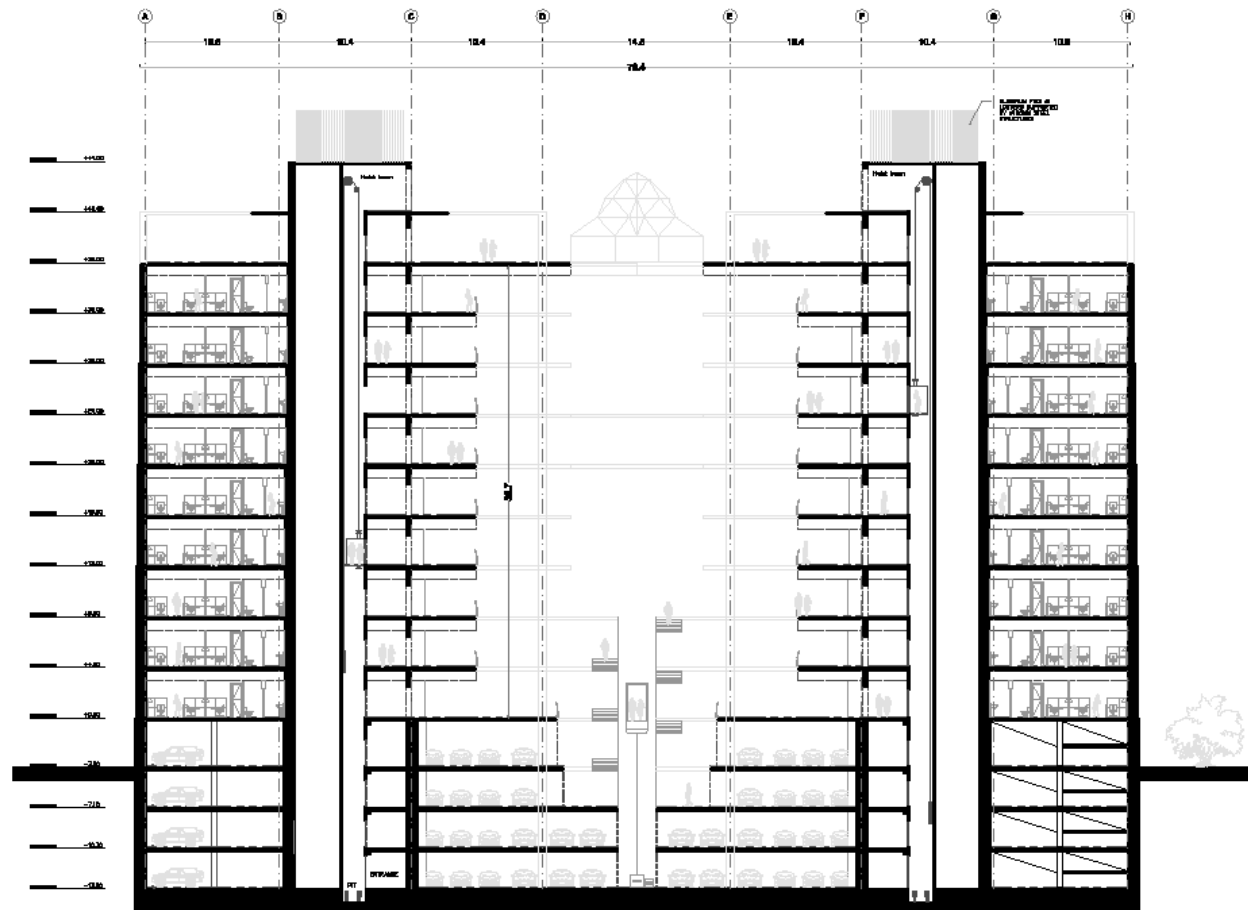


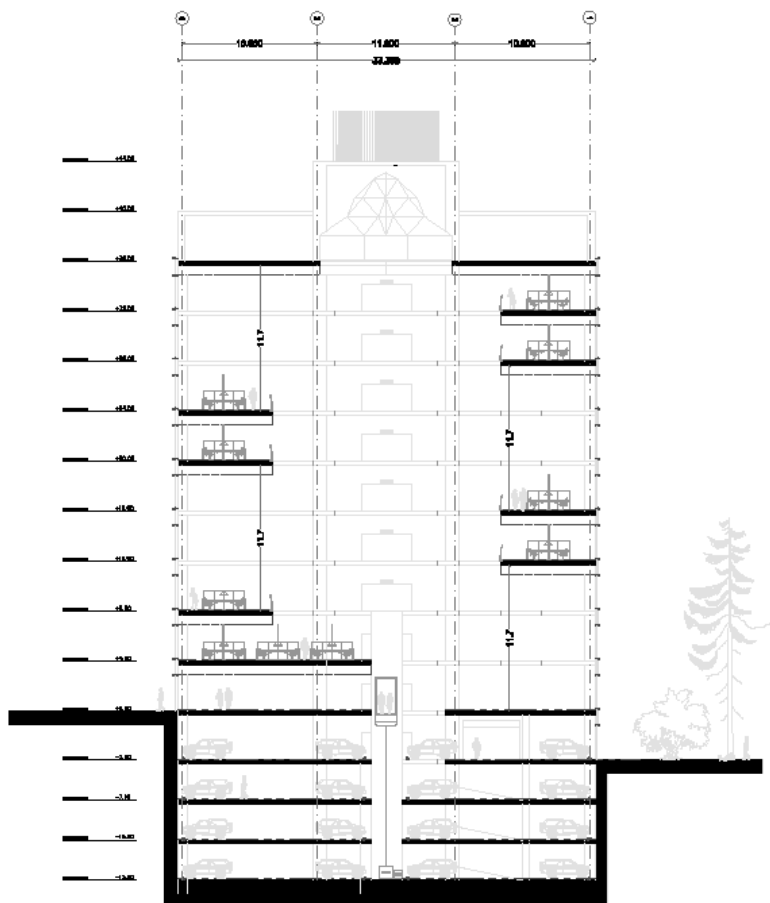


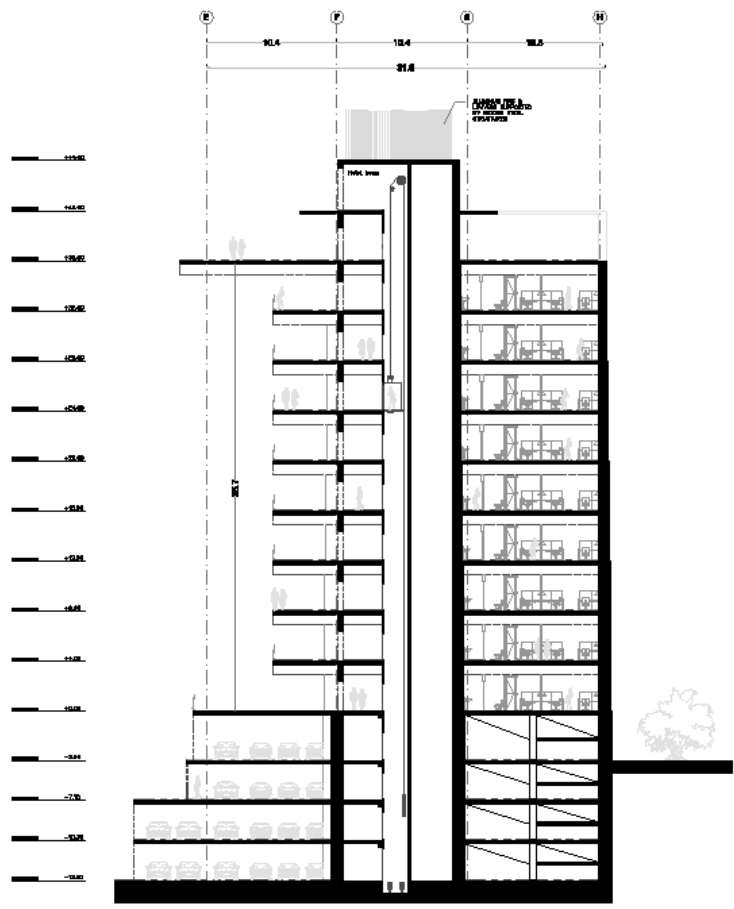


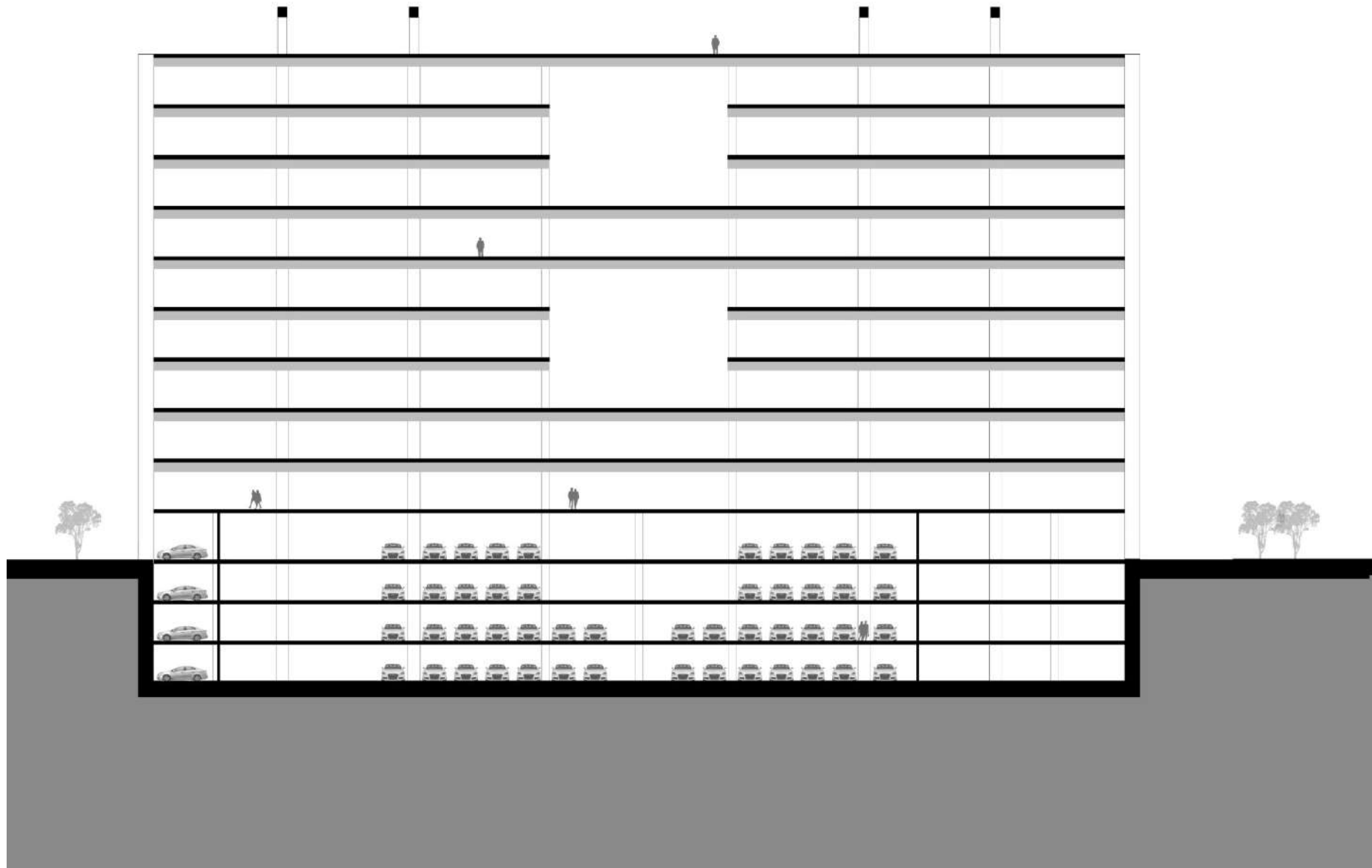


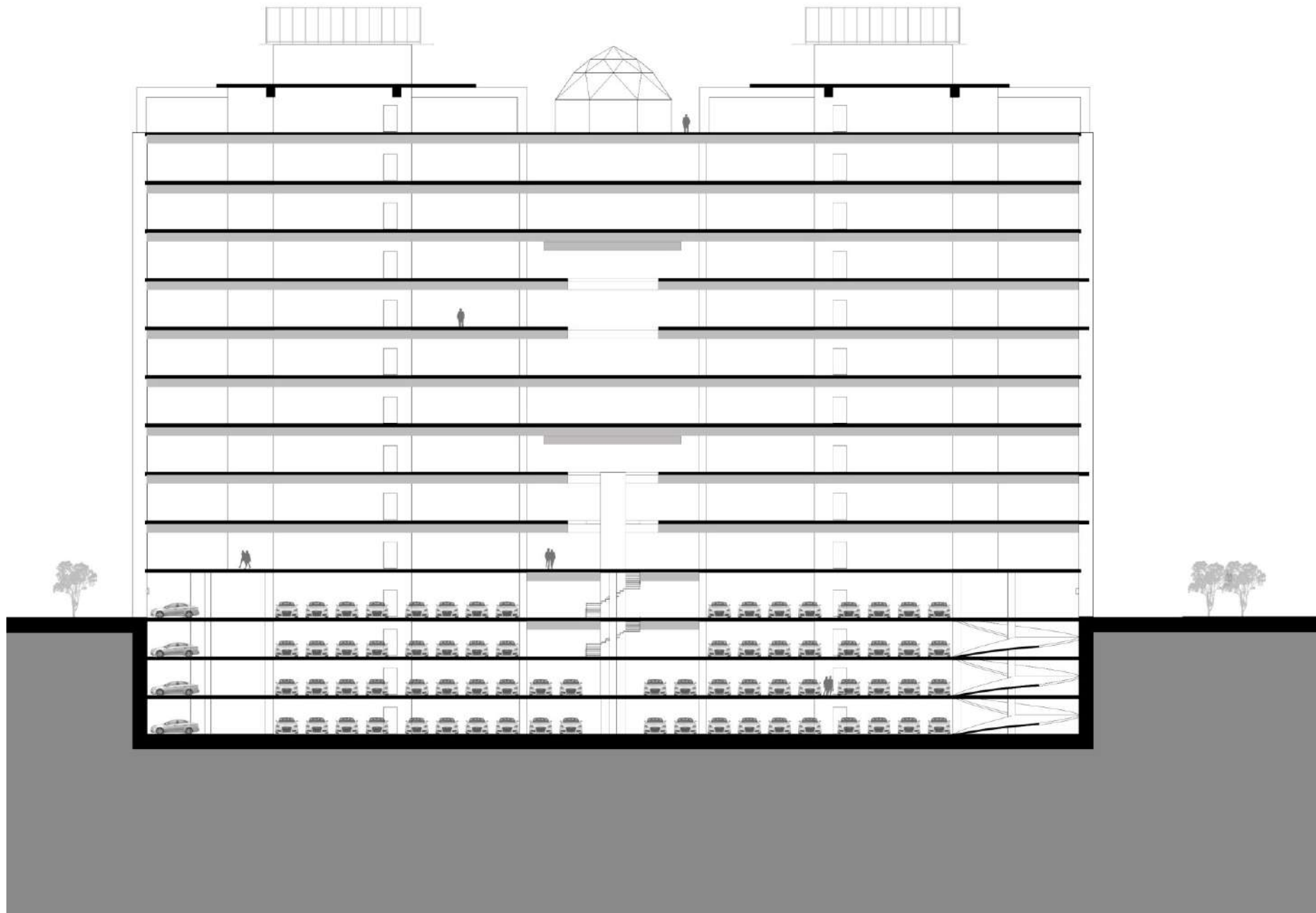


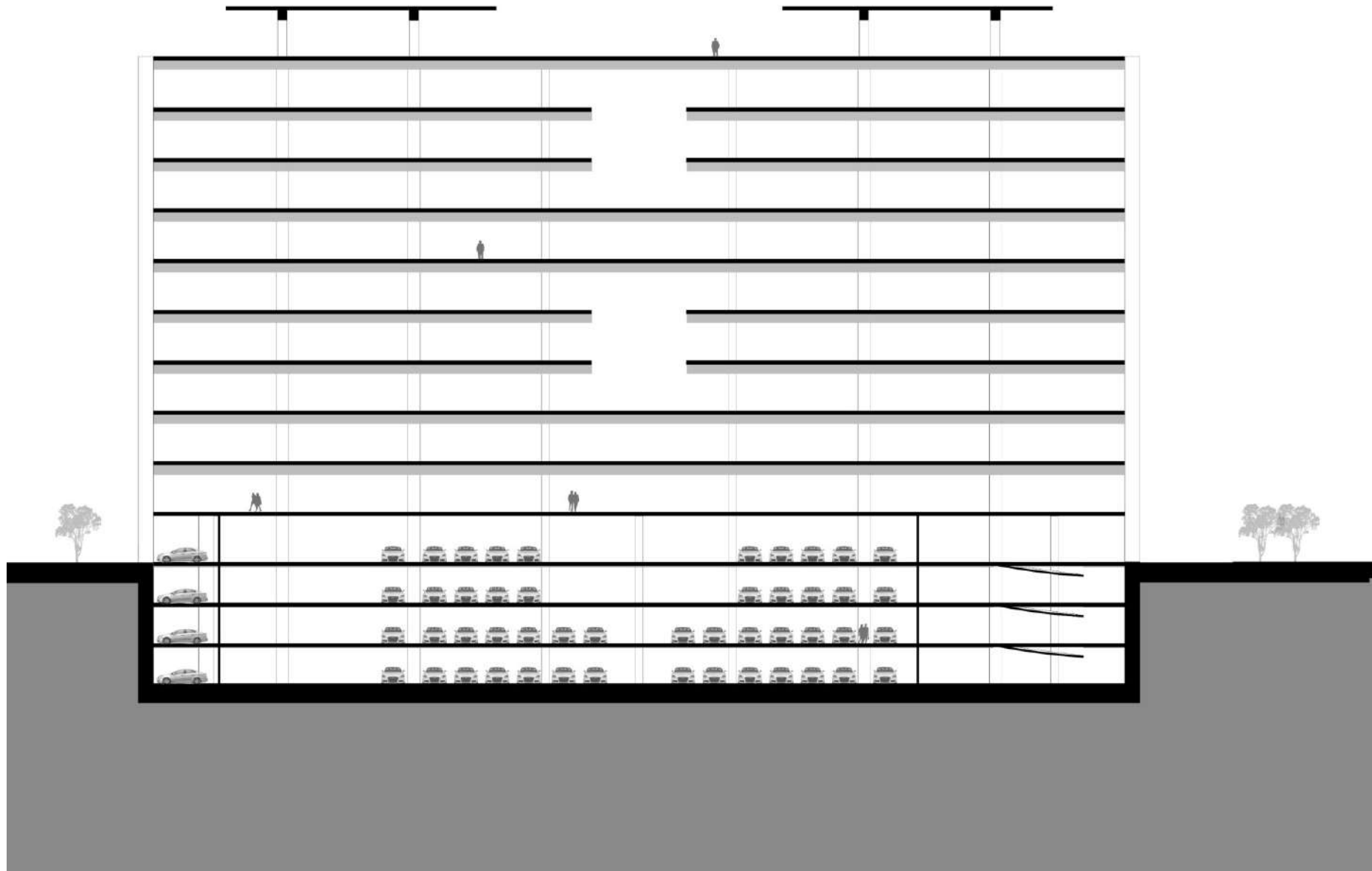


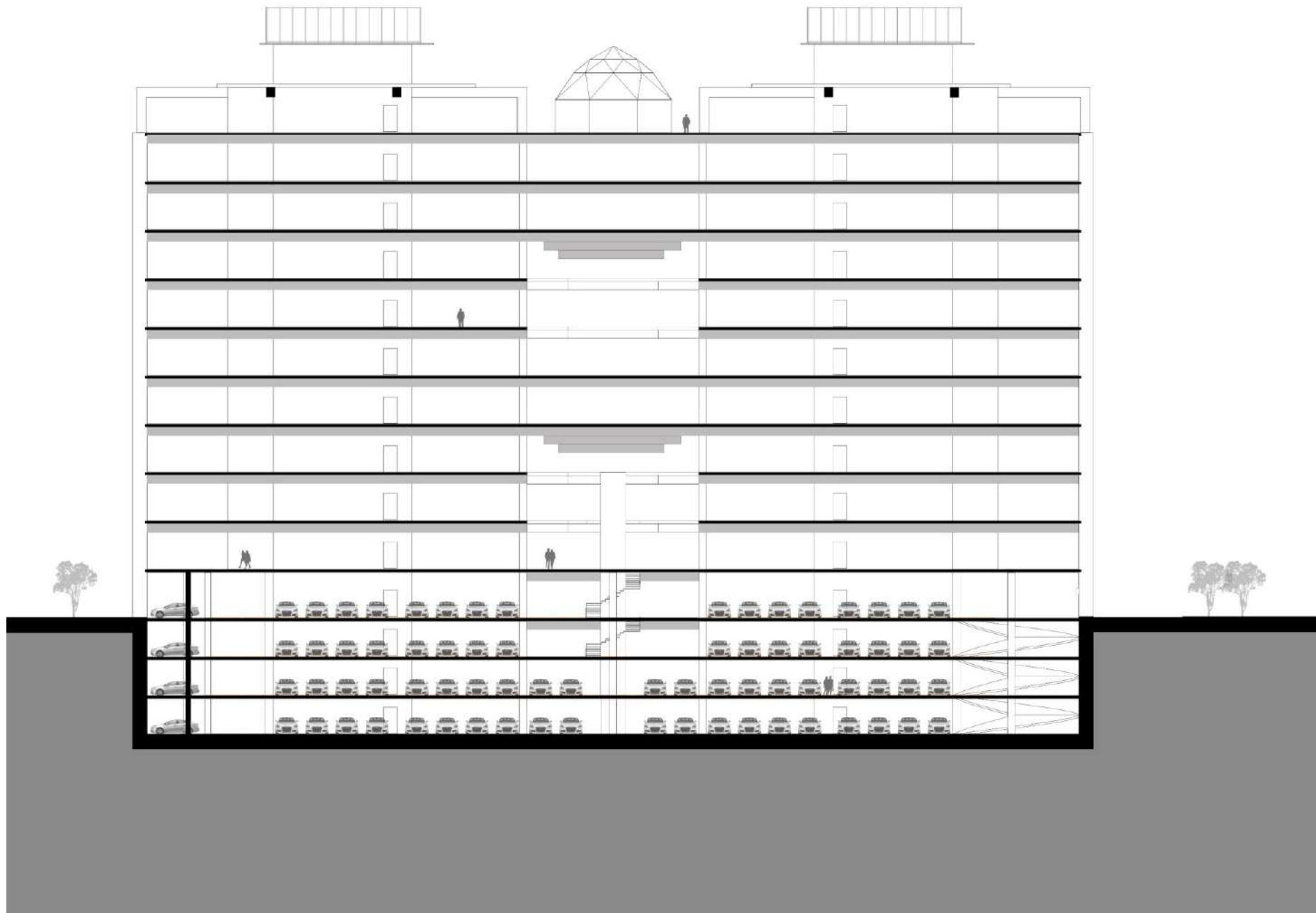


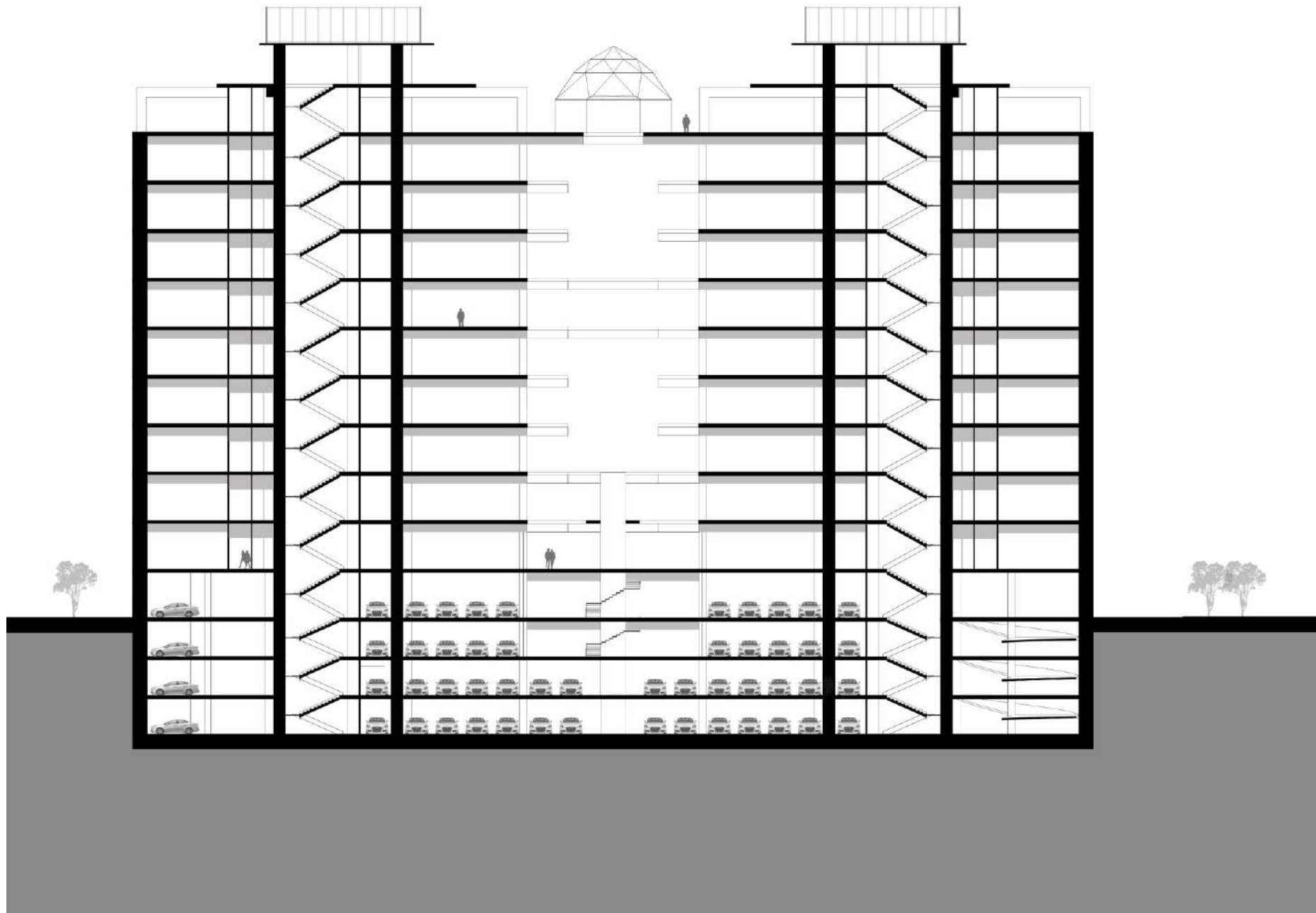


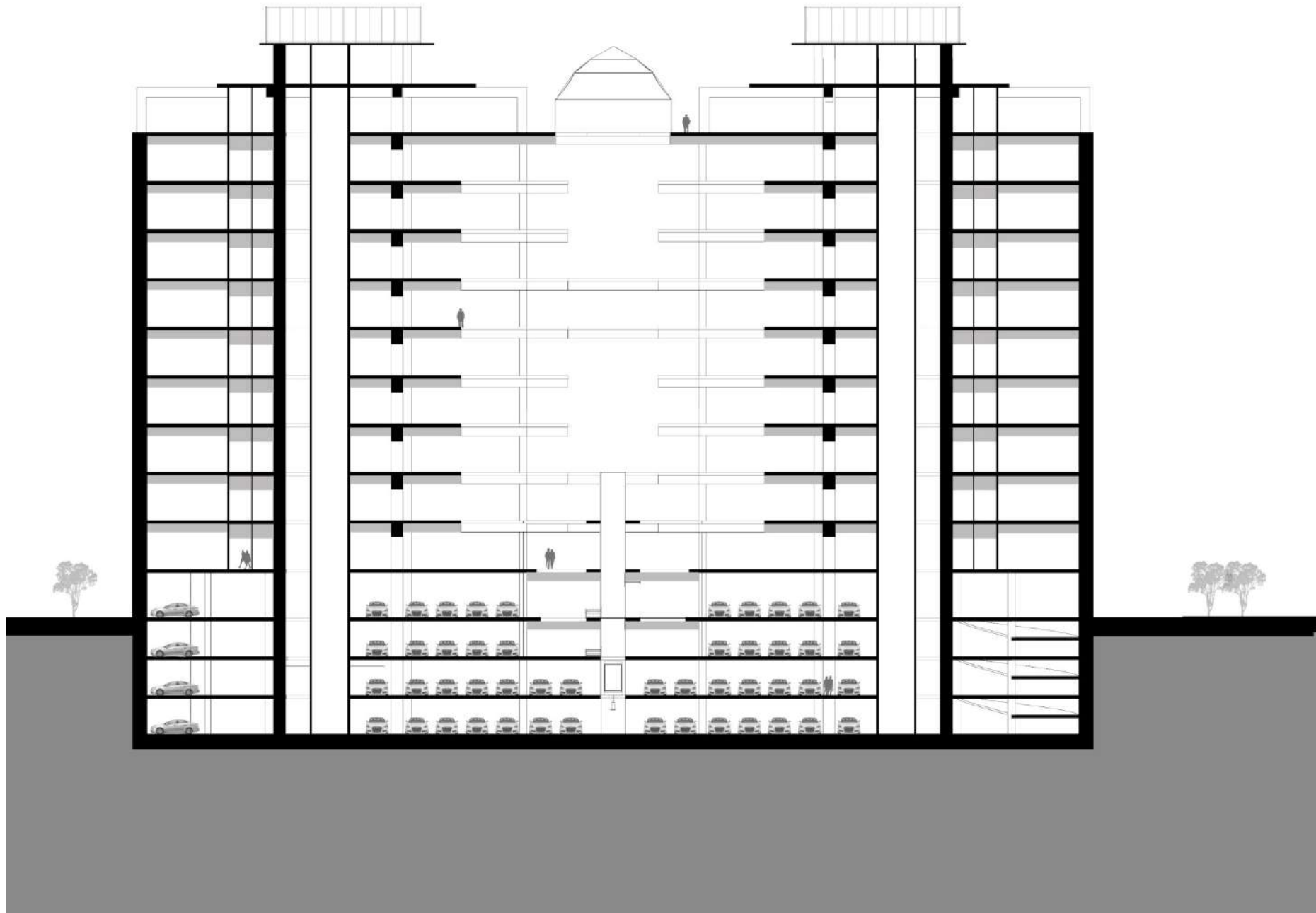


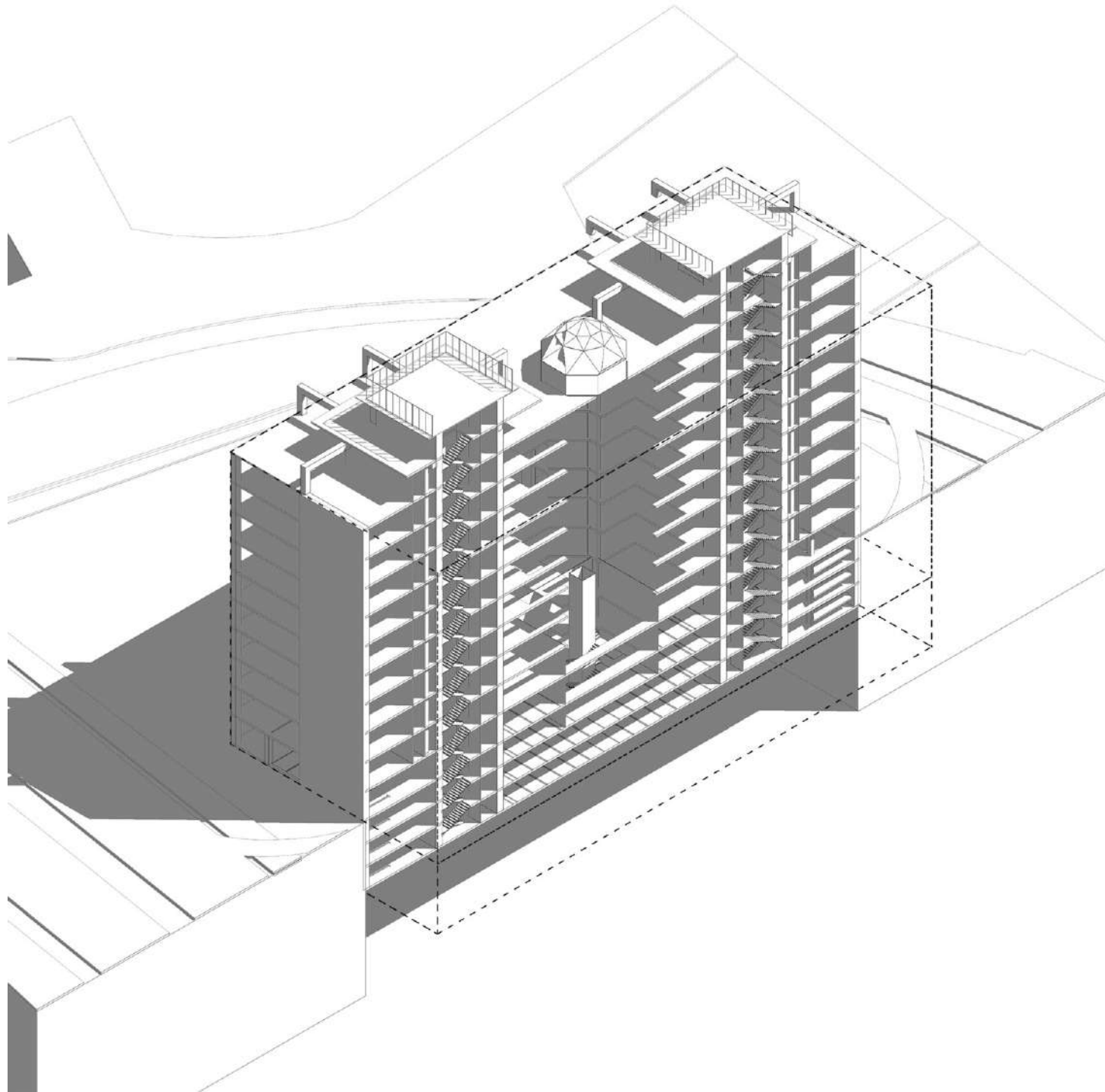


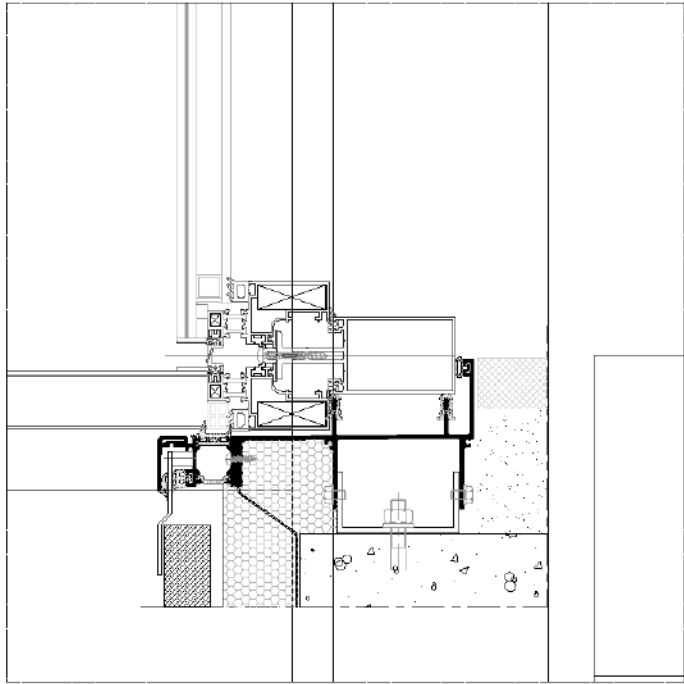




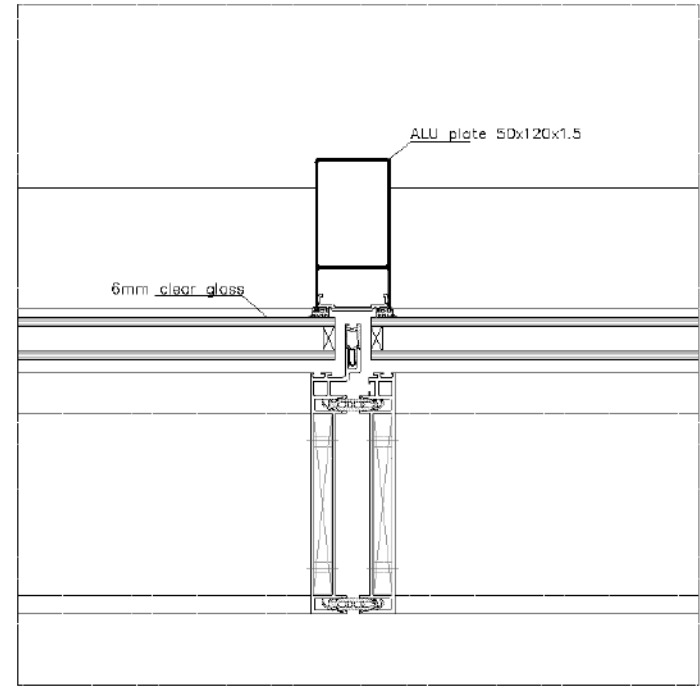
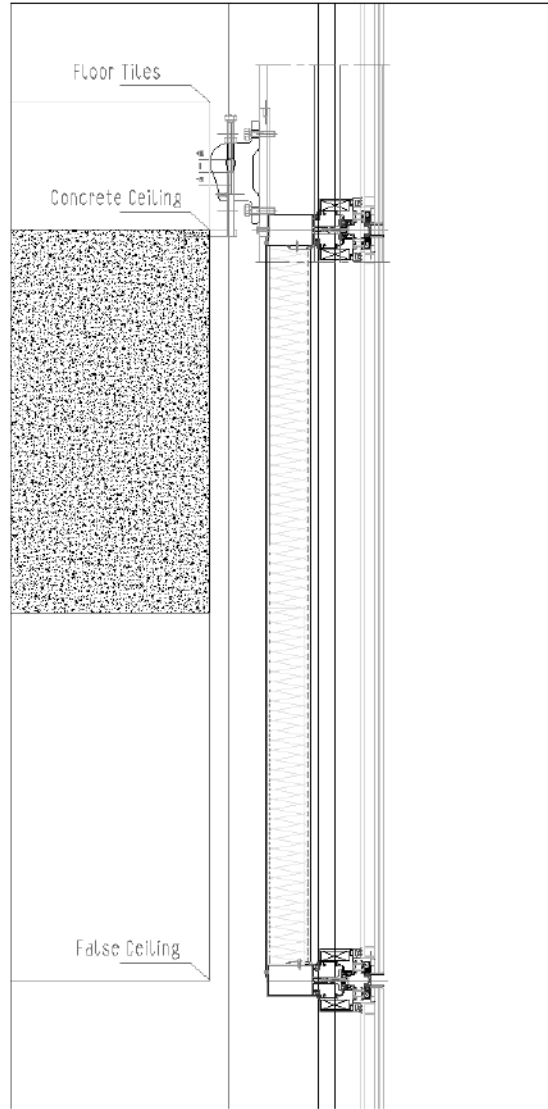




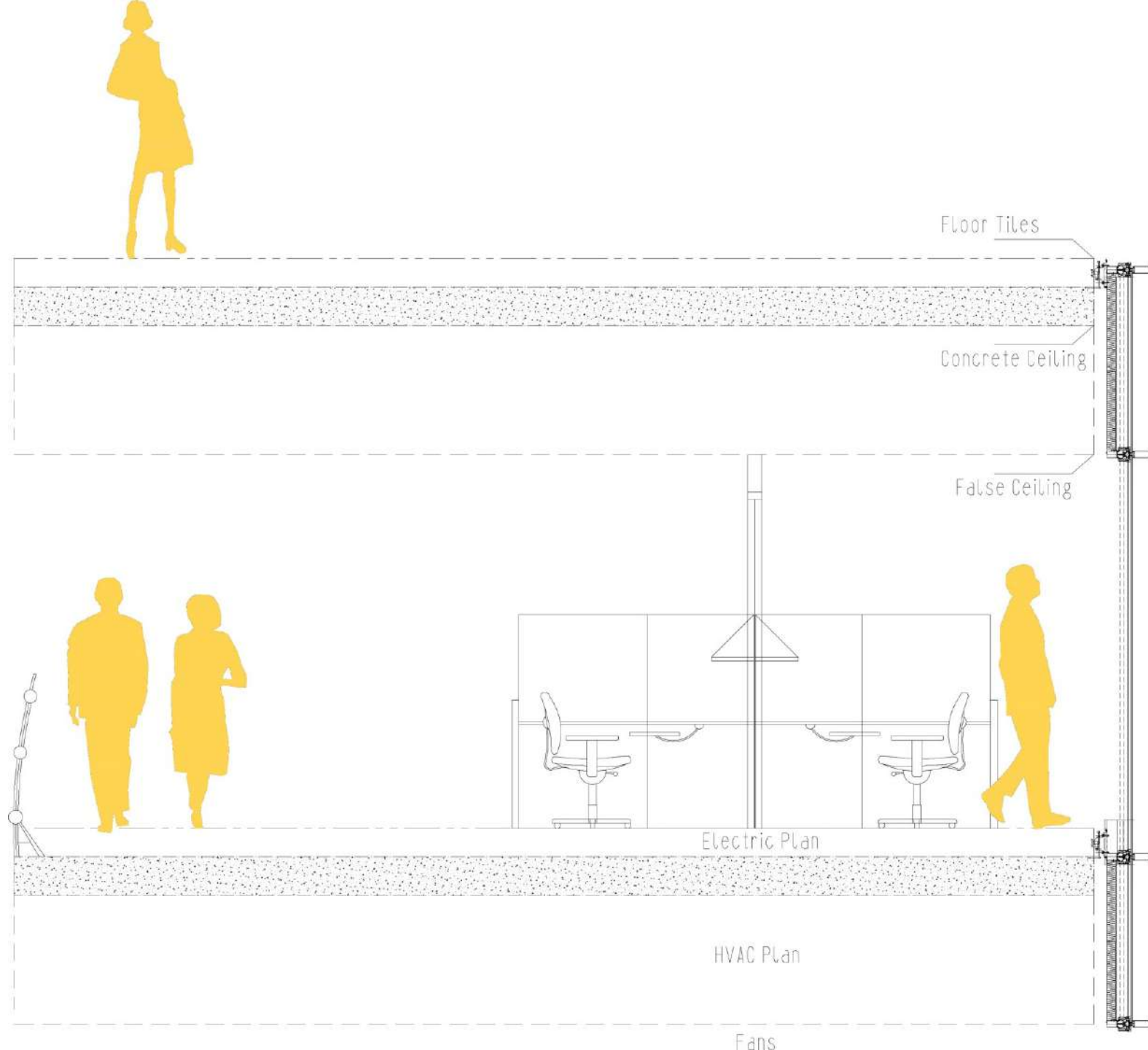


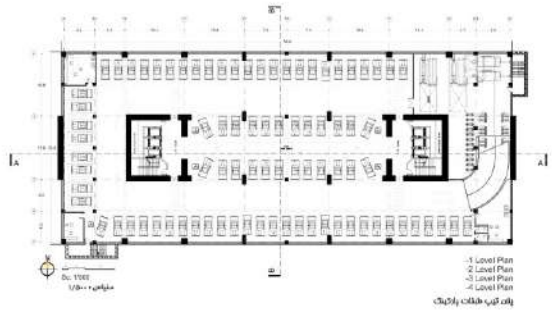


Curtain wall joint to shearwall

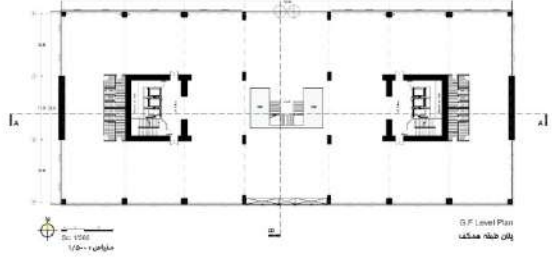


Bracketing Plan Detail
SC: 1/5

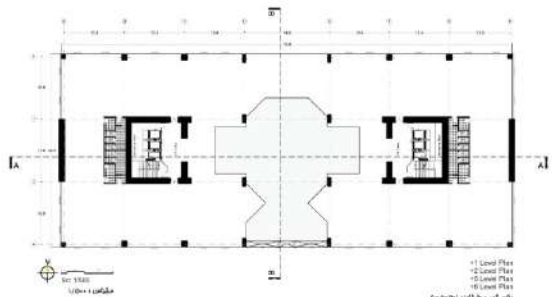




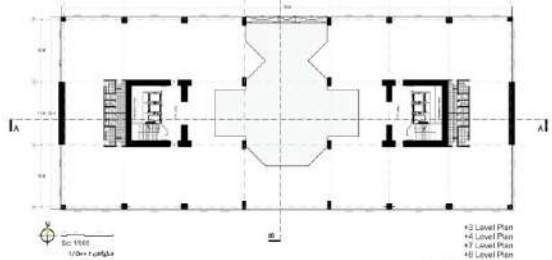
1-Level Plan
2-Level Plan
3-Level Plan
4-Level Plan
رابطه بین طبقات وایلیت



5-Level Plan
6-Level Plan
رابطه بین طبقات



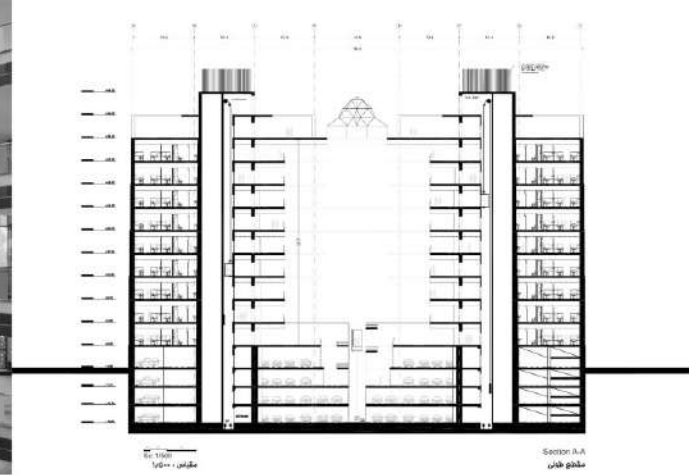
7-Level Plan
8-Level Plan
9-Level Plan
10-Level Plan
رابطه بین طبقات وایلیت



11-Level Plan
12-Level Plan
13-Level Plan
14-Level Plan
رابطه بین طبقات وایلیت



Section B
مقطع عرض



Section A-A
مقطع عرض



Light
Natural daylight is an indispensable design element for Kavehglass head office building which brings energy saving to the building and non-energy benefits. Daylight most closely matches the visual response that, through evolution, humans have coped to with all other light. Human are affected both psychologically and physiologically by day-lighting. It has been associated with improved mood, enhanced mood, lower fatigue, and reduced eye strain. Because natural views tend to produce positive responses, they may be more effective than artificial lighting.
SAD is one of the most researched areas in the fitness that light affects. Without the proper amount of light available, our circadian rhythms are affected and susceptibility to SAD is increased. SAD occurrences are dependent on the availability of outdoor in the winter and the latitude.
Specific benefits in the office area in this project include better health, reduced absenteeism, increased productivity, financial saving, and preferences of workers. Benefits of this office workers are so great that many countries in Europe require that workers be within 27 feet within a window. Full-spectrum bright lights allow day and night workers to adjust their internal clocks or circadian cycles to match their work cycle. Improvements in productivity, a decrease in accident, an increased level of mental performance, improvements of sleep quality, and an increase in moral among night shift workers have also been attributed to better lighting.
The proper use of daylighting decreases the occurrence of headaches, SAD, and eyestrain. Stress reduction and interior focus can also be increased by the presence of natural light.

در طراحی داخلی، نور طبیعی یکی از اجزای حیاتی است که به سلامت و رفاه کارکنان در محیط کار کمک می‌کند. نور طبیعی به بیشترین میزان سازگاری با پاسخ‌های بصری و فیزیولوژیکی انسان در طول تکامل رسیده است. نور طبیعی با نور مصنوعی در مقایسه، تأثیرات مثبتی بر خلق‌وخو، کاهش خستگی و کاهش سردرد دارد. همچنین، نور طبیعی به بهبود خلق‌وخو و کاهش استرس کمک می‌کند. به دلیل اینکه نور طبیعی به تولید پاسخ‌های مثبت منجر می‌شود، ممکن است مؤثرتر از نور مصنوعی باشد. SAD یکی از حوزه‌های تحقیق شده در زمینه تأثیر نور است. بدون مقدار مناسبی از نور طبیعی در دسترس، ریتم‌های طبیعی بدن ما تحت تأثیر قرار می‌گیرد و احتمال ابتلا به SAD افزایش می‌یابد. SAD در فصل زمستان و در مناطق با عرض جغرافیایی بالا شایع‌تر است. مزایای استفاده از نور طبیعی در محیط کار شامل کاهش غیبت‌ها، افزایش بهره‌وری، صرفه‌جویی مالی و ترجیح کارکنان است. مزایای کارکنان در این کشورها بسیار زیاد است. به گونه‌ای که بسیاری از کشورهای اروپایی الزام می‌کند که کارکنان در محیط کار خود در فاصله 27 فوتی از یک پنجره قرار گیرند. نورهای طیف کامل روشنایی به کارکنان اجازه می‌دهد تا ساعت‌های داخلی خود را با چرخه‌های طبیعی روز و شب هماهنگ کنند. بهبود عملکرد ذهنی، کاهش تصادفات، افزایش سطح عملکرد ذهنی و افزایش انگیزه در بین کارکنان شیفت شب نیز به نور طبیعی نسبت داده شده است. استفاده صحیح از نور طبیعی می‌تواند به کاهش سردرد، میگرن، سردرد و کاهش استرس منجر شود. همچنین، کاهش استرس و تمرکز را می‌توان با استفاده از نور طبیعی افزایش داد. استفاده از نور طبیعی در محیط کار می‌تواند به کاهش استرس و افزایش تمرکز منجر شود.

Color
The application and mixing of color has long been an intense area of study for scientists, artists and designers. At the same time, color can be an extremely subjective topic; everyone has their favorite colors, colors that excited them at a place or time, or that have specific evocative qualities. The role of color in this project rests dissemination into simple rules and ideas, and yet understanding the complexities of using color in space is fundamental to creating a successful architecture.

رنگ یکی از مهم‌ترین عناصر در طراحی معماری است که به خلق فضای خاص و تأثیرات عاطفی در محیط کار کمک می‌کند. در این پروژه، استفاده از رنگ به گونه‌ای است که به سادگی و در عین حال پیچیدگی، به کارکنان کمک کند تا در محیط کار خود احساس راحتی و آرامش کنند. همچنین، استفاده از رنگ به گونه‌ای است که به بهبود خلق‌وخو و کاهش استرس کمک کند. به دلیل اینکه رنگ به تولید پاسخ‌های مثبت منجر می‌شود، ممکن است مؤثرتر از نور مصنوعی باشد. استفاده از رنگ به گونه‌ای است که به کاهش سردرد، میگرن، سردرد و کاهش استرس منجر شود. همچنین، کاهش استرس و تمرکز را می‌توان با استفاده از رنگ افزایش داد. استفاده از رنگ به گونه‌ای است که به کاهش استرس و افزایش تمرکز منجر شود.

Creativity & Constraint
creativity in this project develop within the framework of constraint. infinite possibilities derived from the creative process, and by limiting the elements of design, those elements can be thoughtfully enclosed. The exterior and interior design reflect this idea and design elements are simply defined as light, color and space.

خلاقیت در این پروژه در چارچوب محدودیت توسعه می‌یابد. بی‌نهایت امکان‌های طراحی از فرآیند خلاقانه مشتق می‌شود، اما با محدود کردن عناصر طراحی، این عناصر می‌توانند به روشی فکری و هدفمند در فضای معماری محدود شوند. طراحی داخلی و خارجی این پروژه بازتاب این ایده را نشان می‌دهد و عناصر طراحی را به سادگی به نور، رنگ و فضا تعریف می‌کند. استفاده از رنگ به گونه‌ای است که به کاهش سردرد، میگرن، سردرد و کاهش استرس منجر شود. همچنین، کاهش استرس و تمرکز را می‌توان با استفاده از رنگ افزایش داد. استفاده از رنگ به گونه‌ای است که به کاهش استرس و افزایش تمرکز منجر شود.



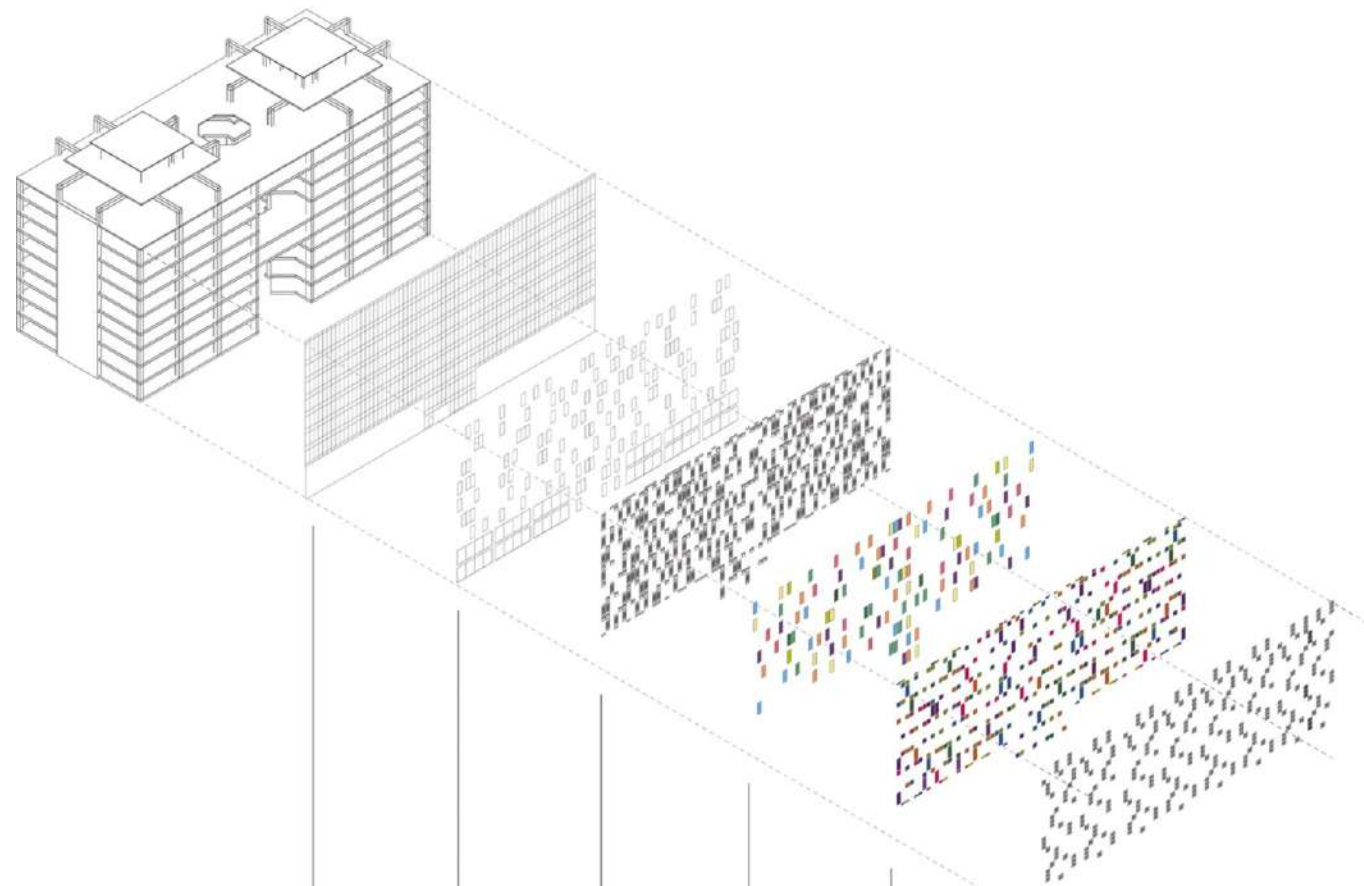
Space
Each plaza is composed of interlocking octagon shapes that create a zigzagging pattern. There are no corridors between the modular elements. At any given moment the visitors can 'step' what to beyond the immediate space in different directions and determine his or her path through the open offices accordingly.

The floor plans, and more importantly the way the employees and visitors experience it, favors freedom rather than constraint. Circulation spaces and spill out zones have been created along the floor glass facade giving them a An integrated plaza with 4.4 meter height atrium.
The central atrium receives no direct sunlight and creates a comfortable microclimate. Wherever possible shading trees have been planted on the hard landscape and landscape has been introduced. It is an 'open office building' that has achieved international standards not only by providing state of art facilities but also by having an architectural expression which represents it.

هر فضای کار در این پروژه به گونه‌ای طراحی شده است که به کارکنان آزادی عمل در حرکت و تجربه فضای کار خود بدهد. در هر لحظه، کارکنان می‌توانند به سادگی از یک فضای کار به فضای دیگر حرکت کنند. همچنین، استفاده از رنگ به گونه‌ای است که به کاهش سردرد، میگرن، سردرد و کاهش استرس منجر شود. همچنین، کاهش استرس و تمرکز را می‌توان با استفاده از رنگ افزایش داد. استفاده از رنگ به گونه‌ای است که به کاهش استرس و افزایش تمرکز منجر شود.



این فضای کار در این پروژه به گونه‌ای طراحی شده است که به کارکنان آزادی عمل در حرکت و تجربه فضای کار خود بدهد. در هر لحظه، کارکنان می‌توانند به سادگی از یک فضای کار به فضای دیگر حرکت کنند. همچنین، استفاده از رنگ به گونه‌ای است که به کاهش سردرد، میگرن، سردرد و کاهش استرس منجر شود. همچنین، کاهش استرس و تمرکز را می‌توان با استفاده از رنگ افزایش داد. استفاده از رنگ به گونه‌ای است که به کاهش استرس و افزایش تمرکز منجر شود.



FRAME

COLORLESS

SMOKED TRANSPARENT

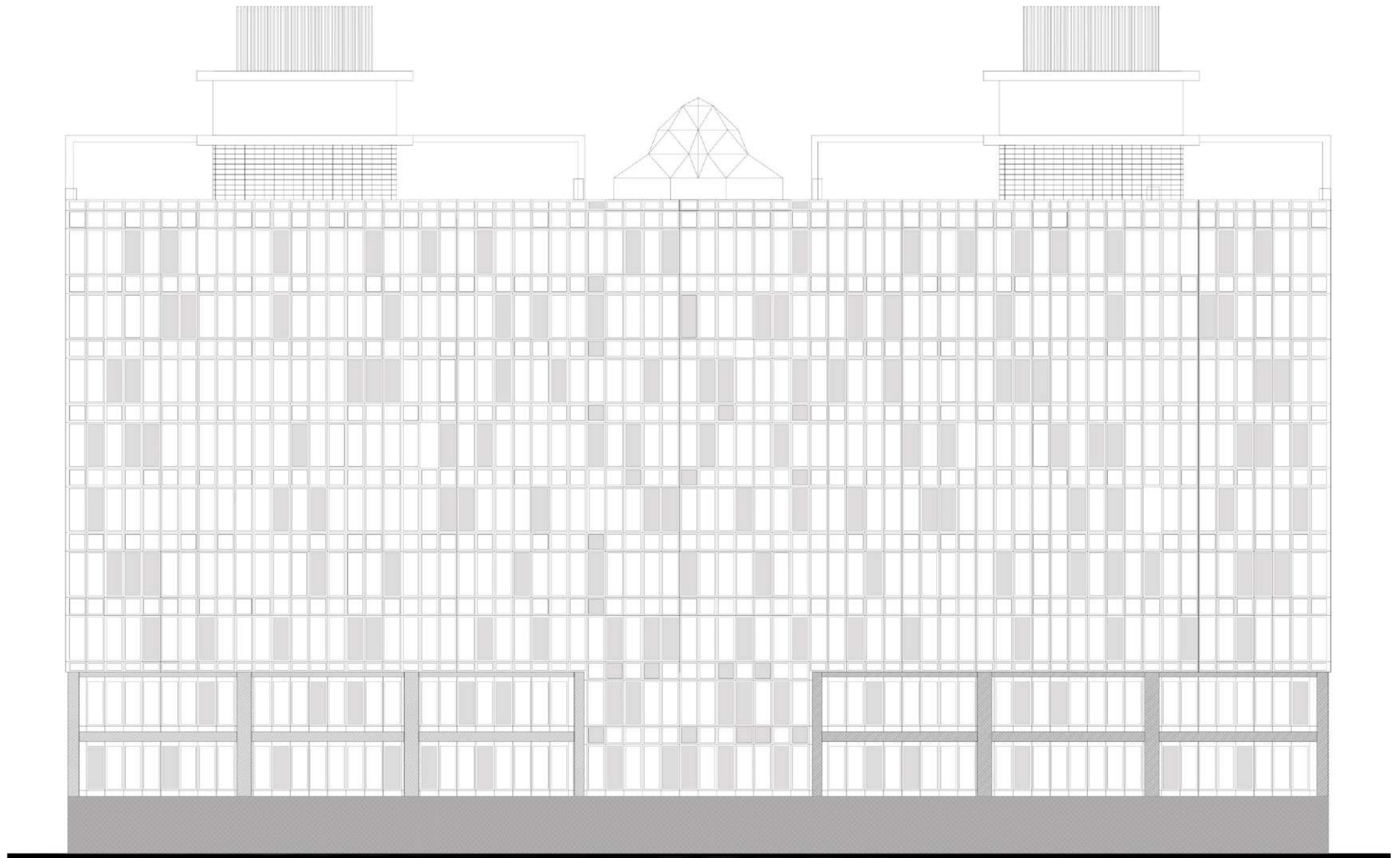
TRANSPARENT

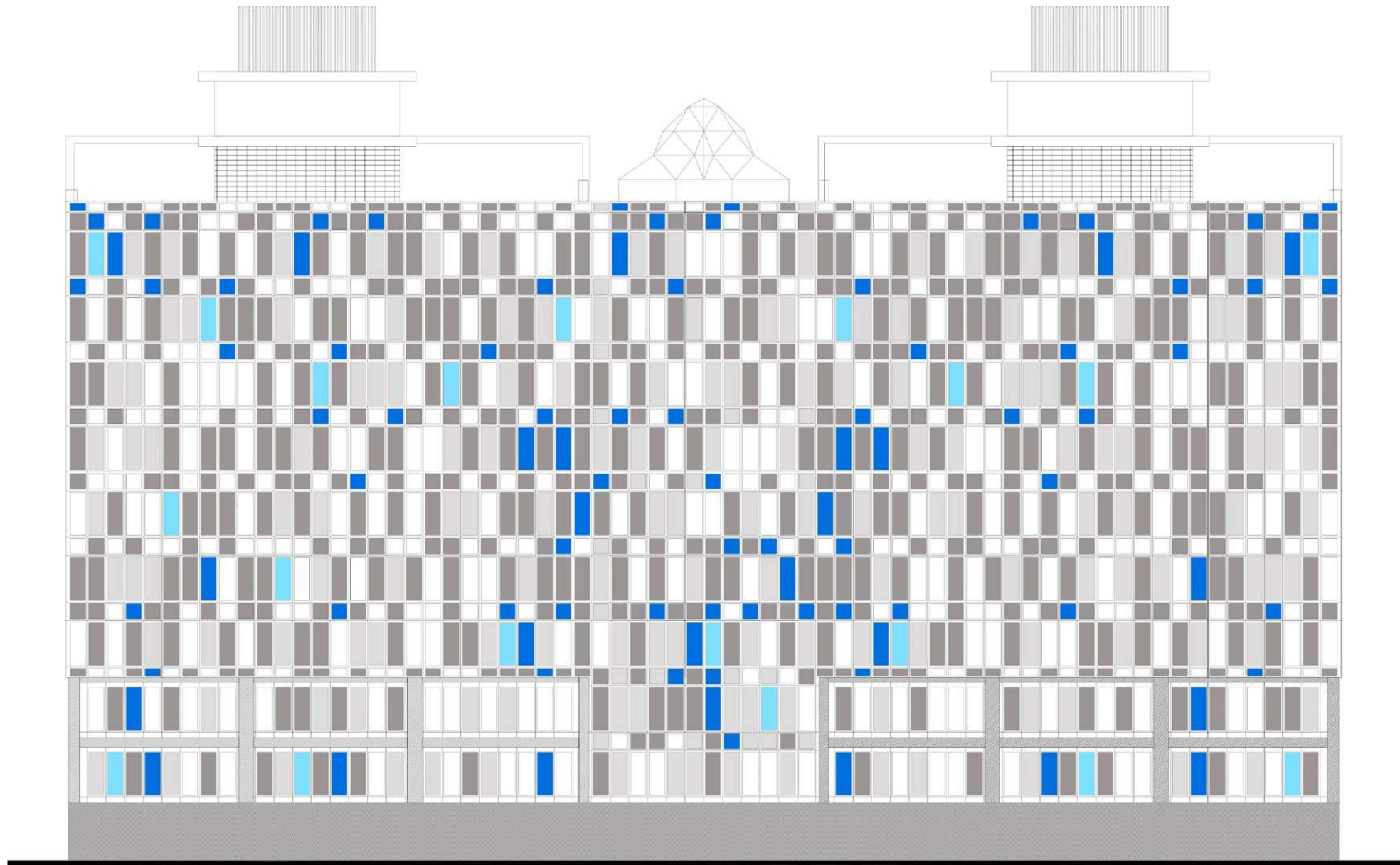
Opaque

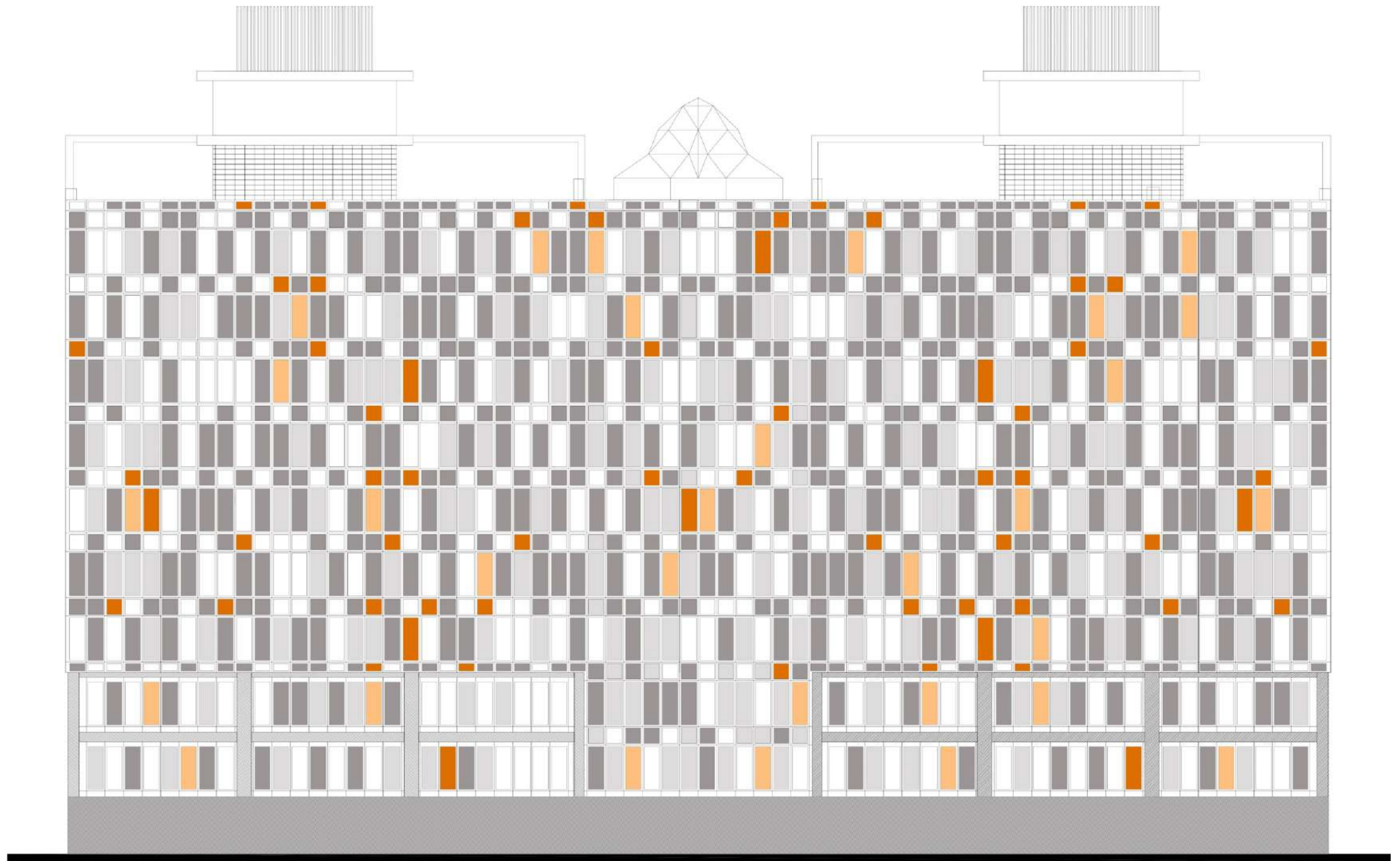
ISLAMIC MOTIFES

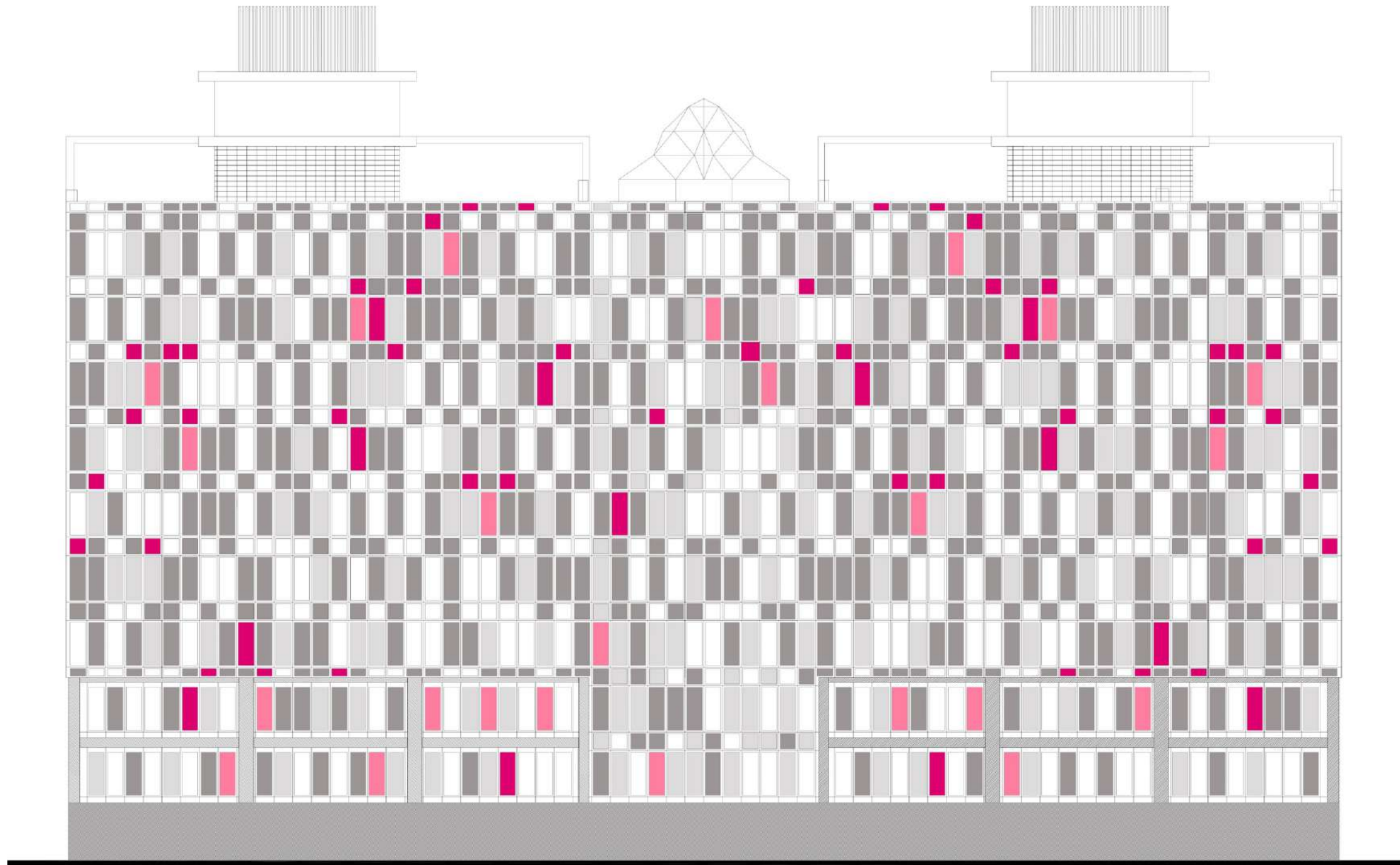
TYPE OF GLASS

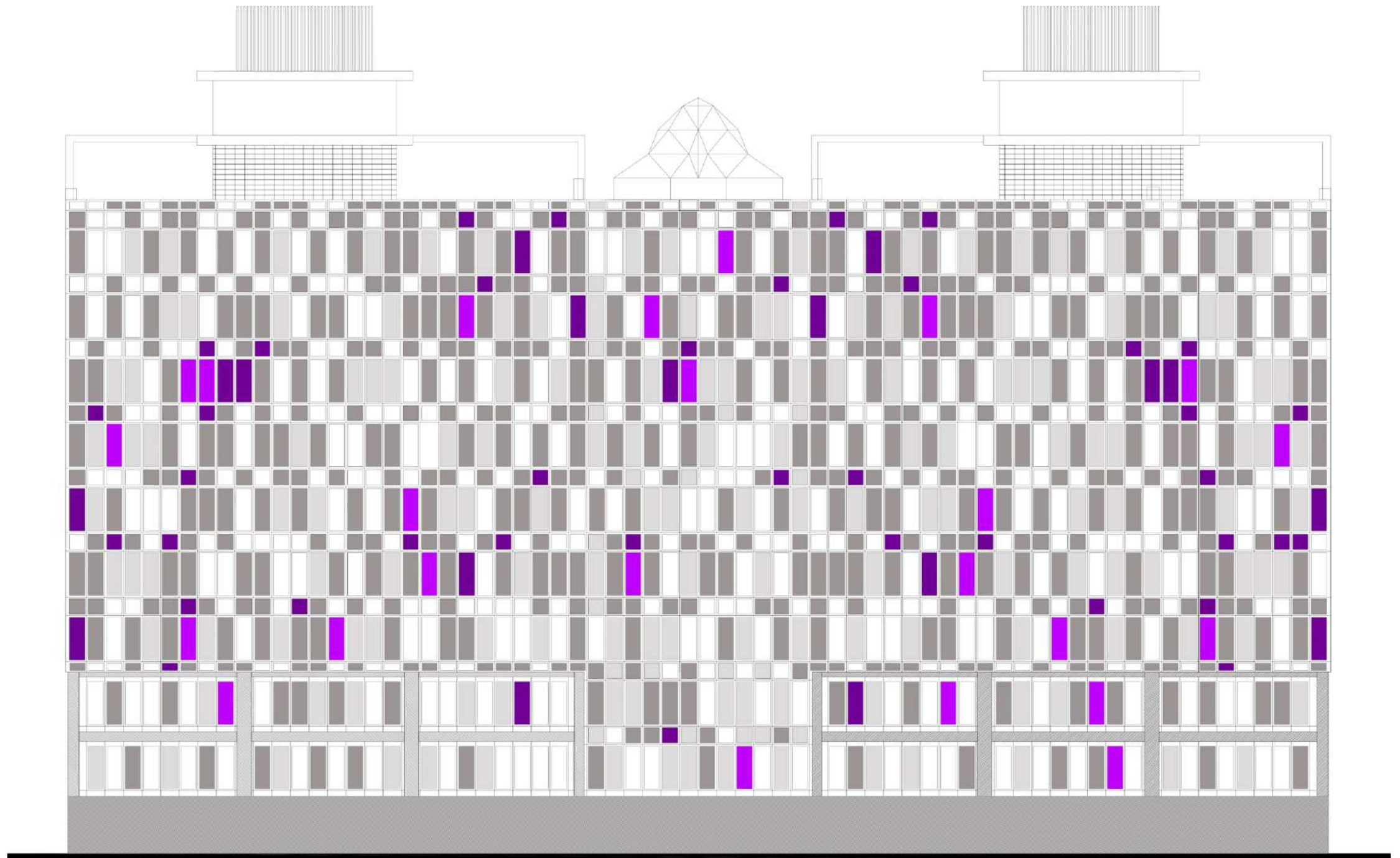


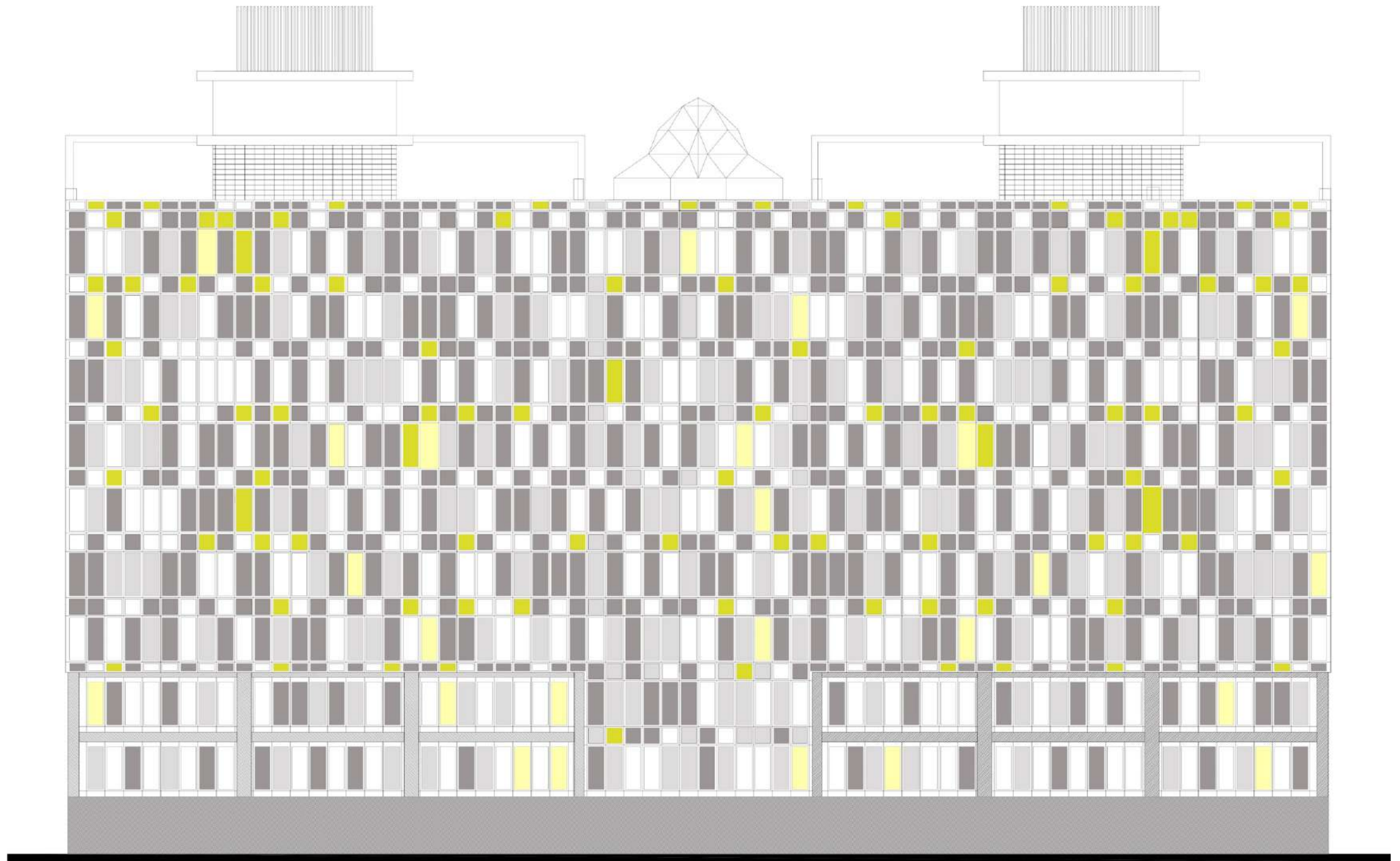






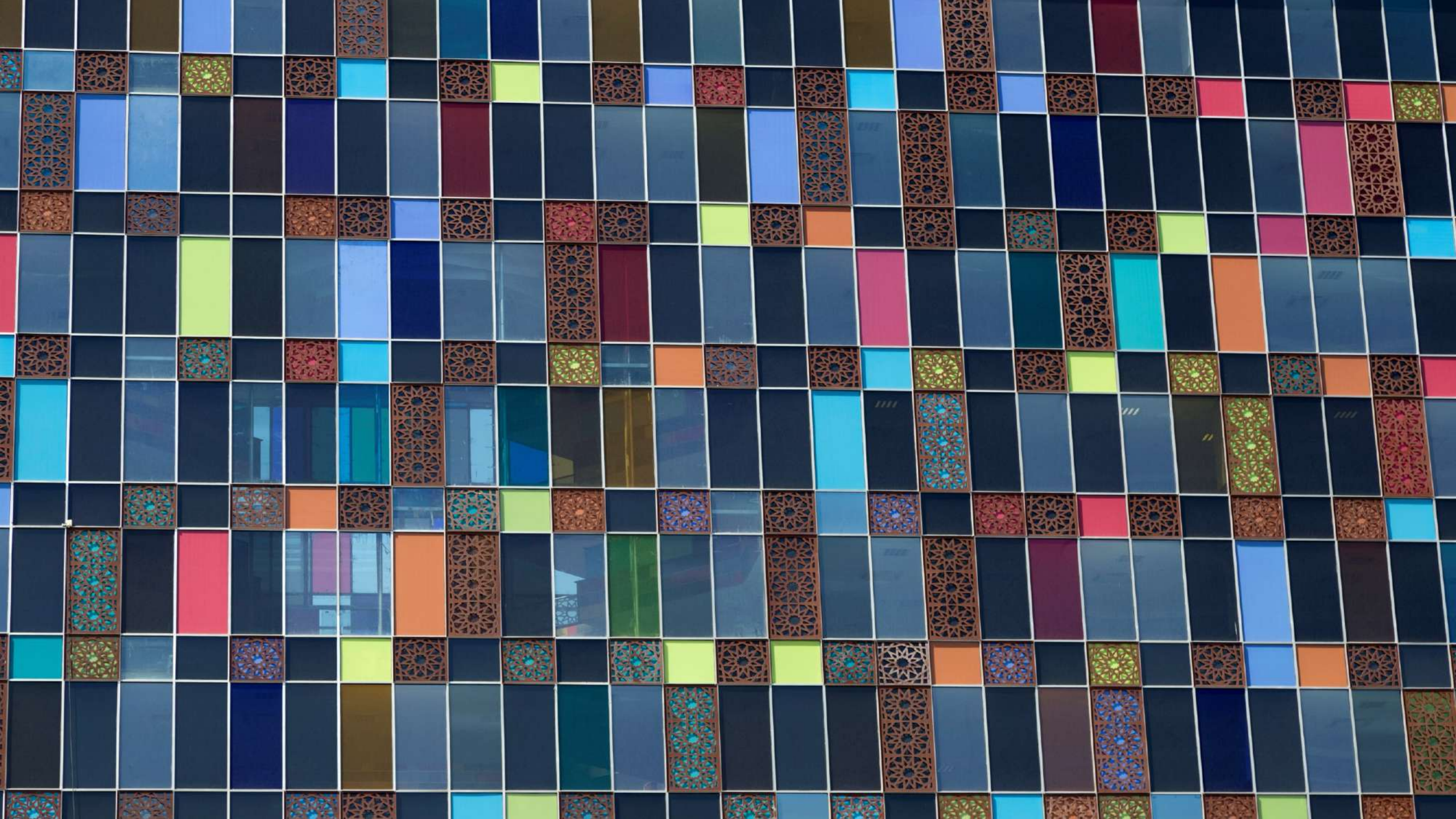


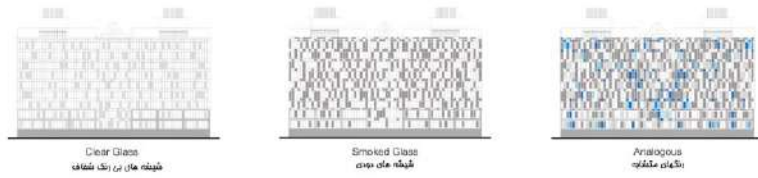










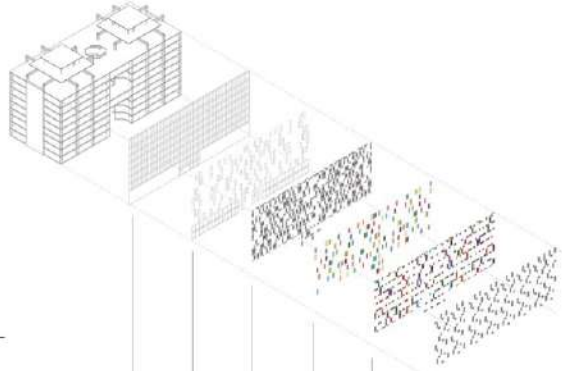


Clear Glass
شیشه های بی رنگ شفاف

Smoked Glass
شیشه های دودی

Analogous
رنگهای مشابه

Design Idea:
GABBEH
ISLAMIC GEOMETRY
MODERN ARCHITECTURE
GLASS INDUSTRY



Analogous
رنگهای مشابه



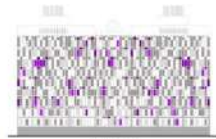
Analogous
رنگهای مشابه



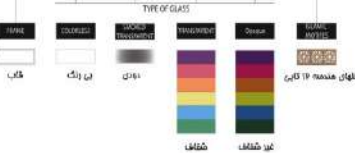
Analogous
رنگهای مشابه



Analogous
رنگهای مشابه



Analogous
رنگهای مشابه



Main facade
رنگهای مشابه رنگ نما



Tetradic-color scheme 1
ترکیب رنگی 4 رنگی 1



Tetradic-color scheme 2
ترکیب رنگی 4 رنگی 2

Color schemes
Applying rules of contrast

ترکیب رنگی - اعمال قوانین هم تضاد



simultaneous contrast
هم سطحی مایل



contrast of hue
هم سطحی رنگی



contrast of extension
هم سطحی ابعادی رنگی



complementary contrast
هم سطحی تشکیل کننده



color-warm contrast
هم سطحی سرد-گرم



light-dark contrast
هم سطحی تیره-روشن

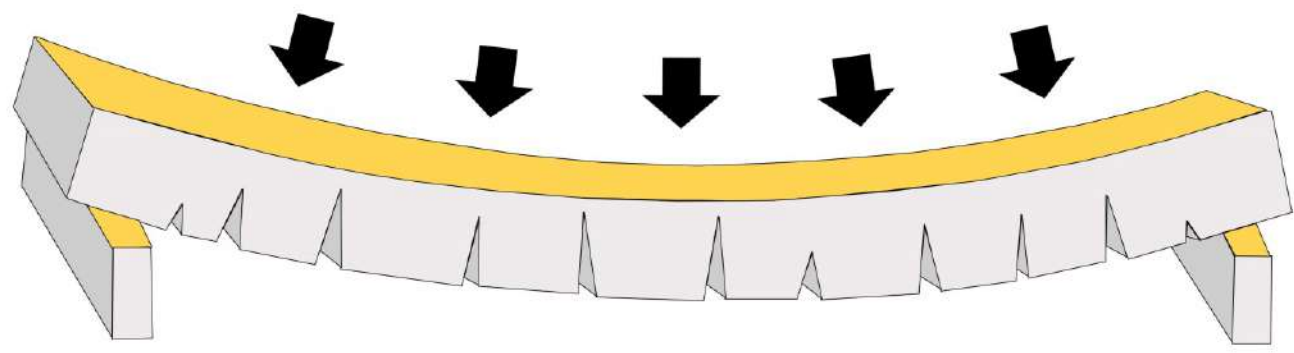
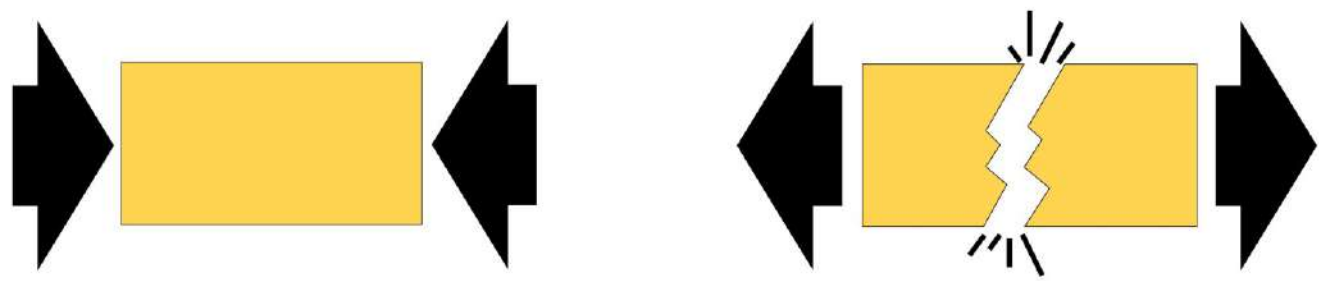
Facade
- Curved glass (Sick facade system)
- Low-E Solar Glass panels (PVB coated laminated)
- High-performance reflective thermal insulation
- Total Absorbance (Energy & Air mass)
- Reproductive glass system design
- Glass Panel Thickness: 325 mm (12.78 in), 0.325 m (10 mm)
- System Weight: 3.2 t/m² (65.8 lb/ft²) (a/m)
- Max. Steel Connection: Dependent on system span and configuration
- Joint Width: 3.75 mm (0.149 in)
- Coating: Color matched, Low iron
- Glass Panel Types: Low Iron (Colorless glass) or Clear Float (Green edge - Standard)
- Colors: Custom color capabilities including: semi-transparent, or translucent possibilities. All colors UV stable and chemical resistant
- Notes: Custom color capabilities including: semi-transparent, or translucent possibilities. All colors UV stable and chemical resistant
- To meet safety regulations, the outside layer of the modular consists of partially tempered glass (annealed safety glass unit)

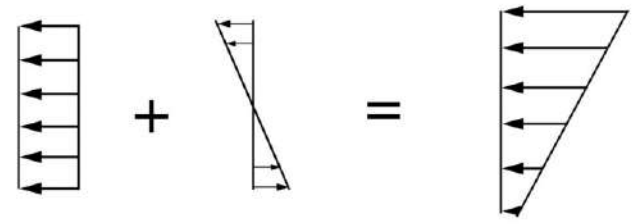
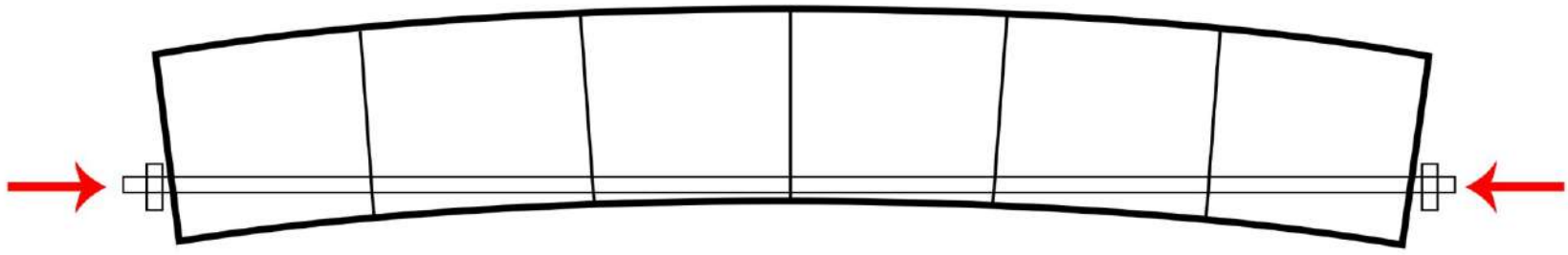


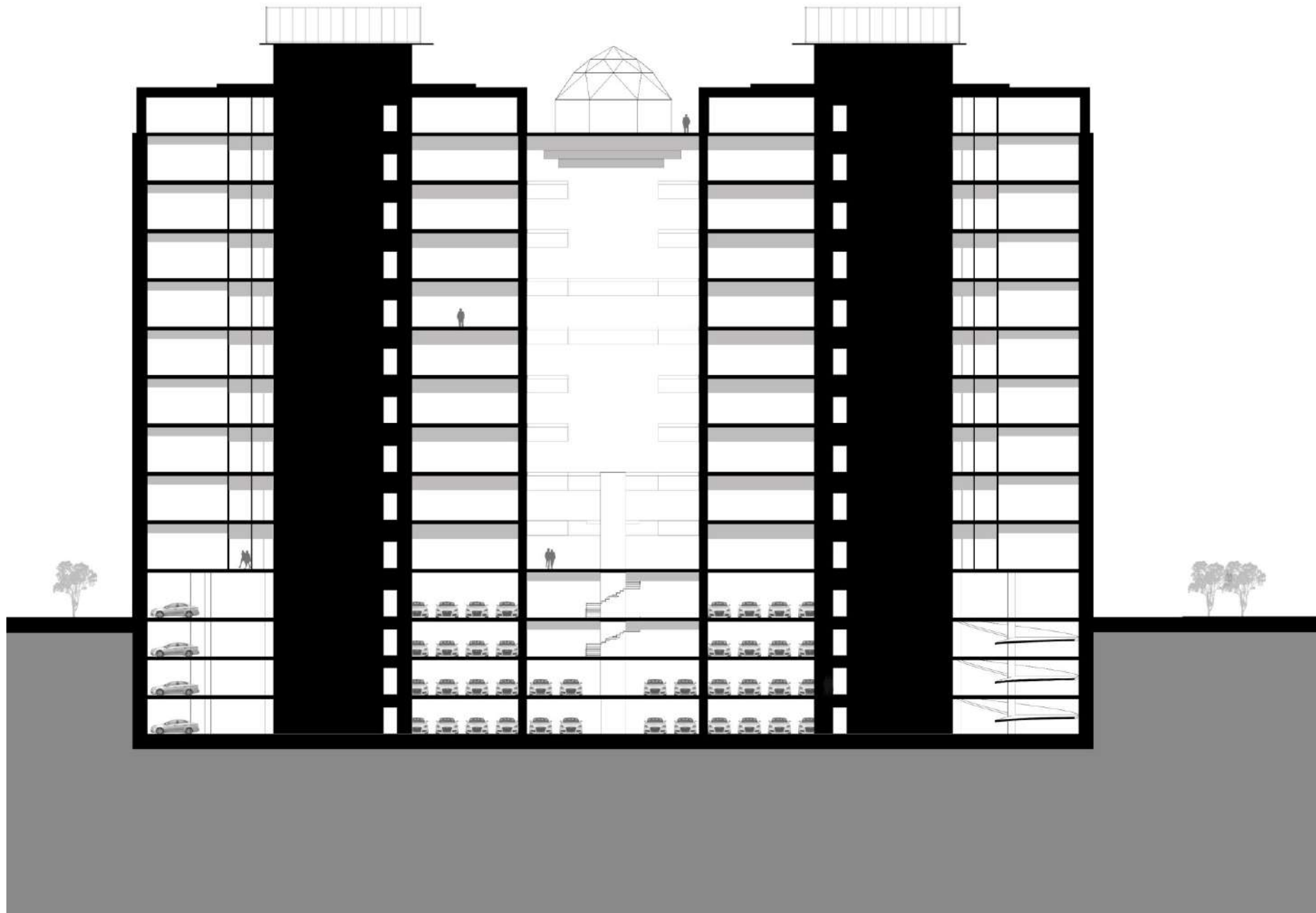
The panels based on a series of circles containing figures, set out on the basis of hexagonal geometry, the circles mutually touching on their circumferences and located along a common straight line. In fact there is a vertical circle. Formed by two semi-circles enclosing the panels for the pattern but, in contrast with many such patterns, the geometry has been selected to suit the panel structure in accordance with the necessary lines.

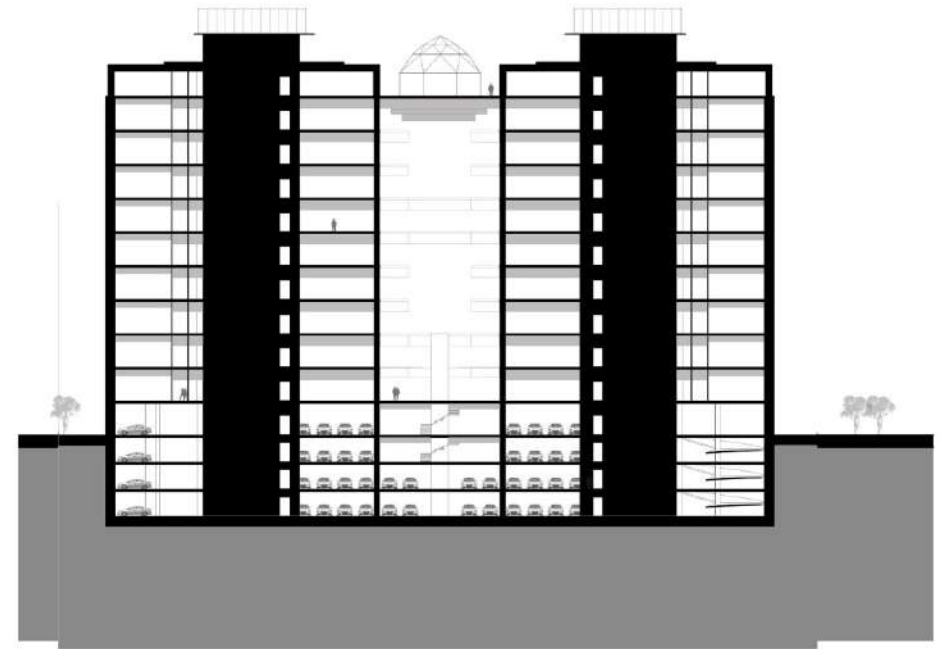
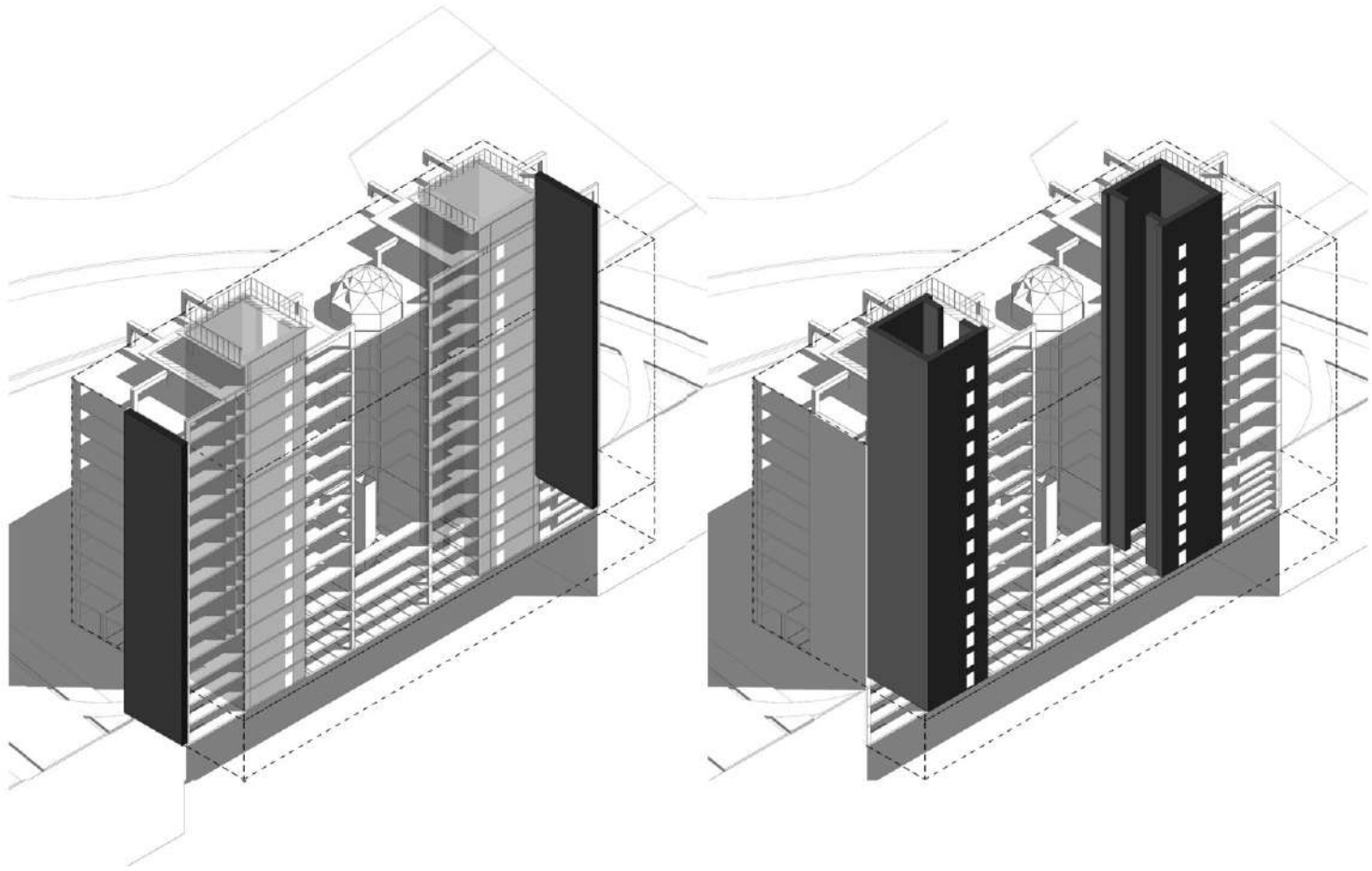
رنگهای مشابه 10 گانه

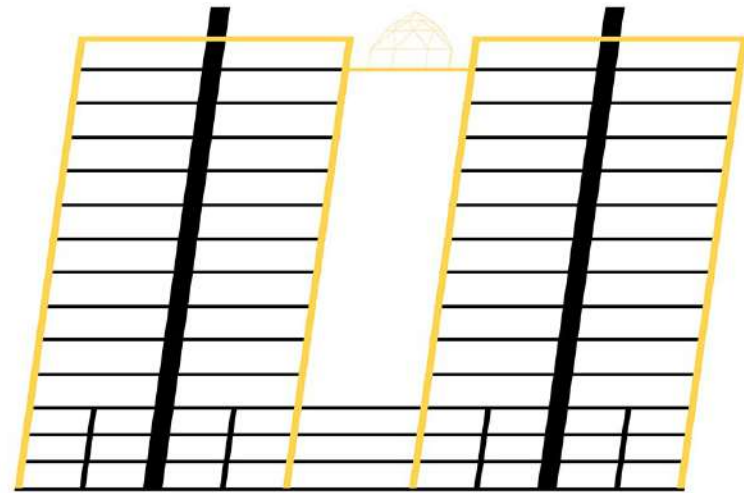
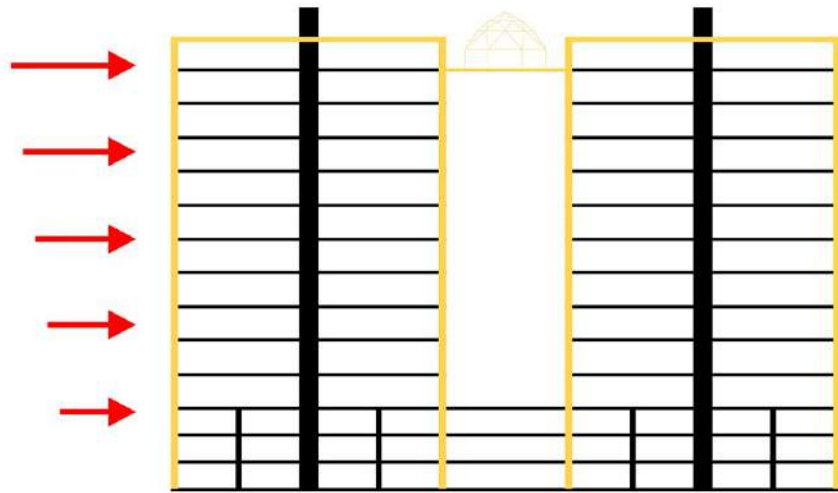
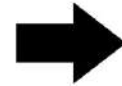


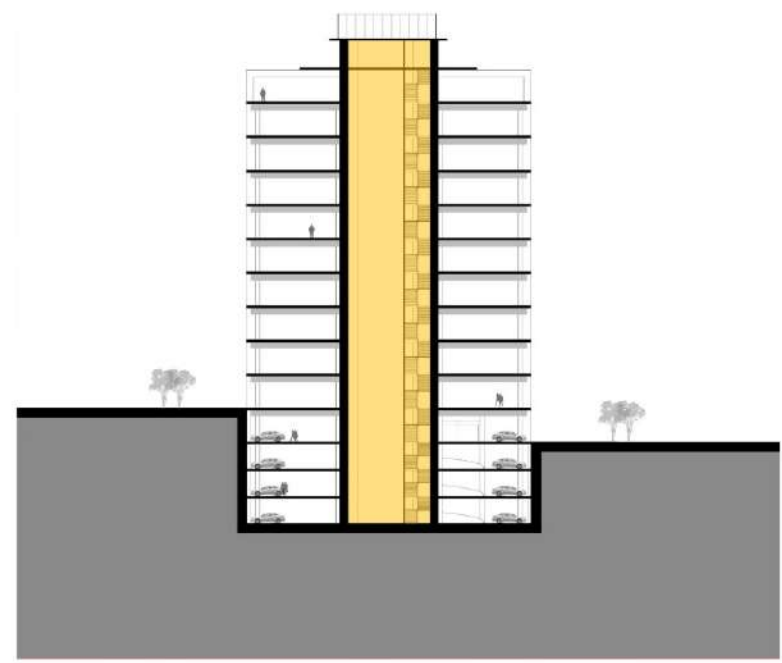
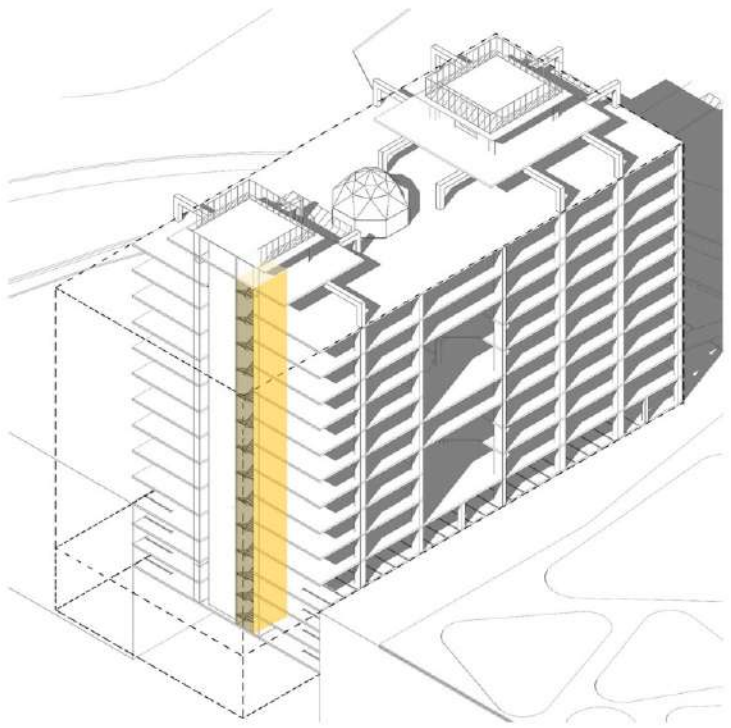
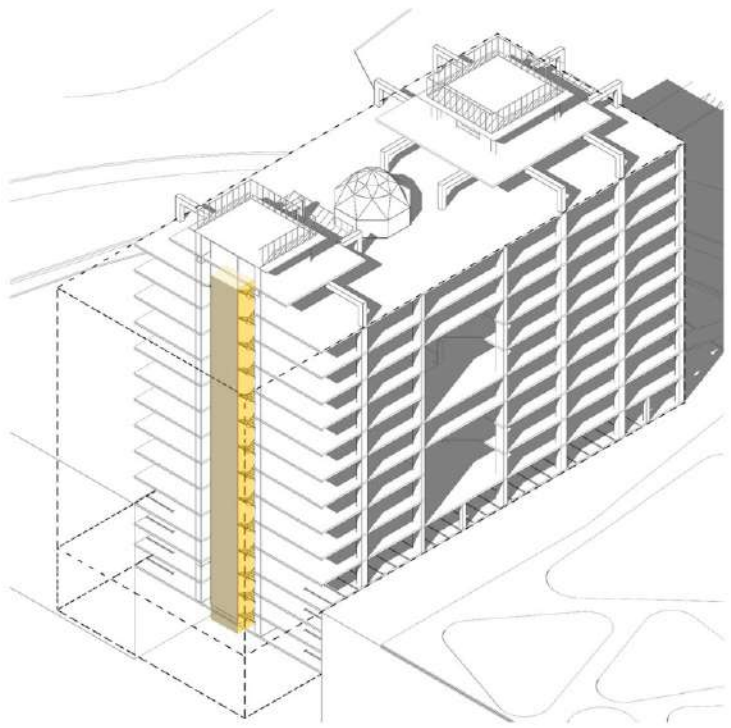


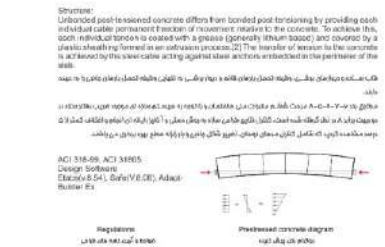
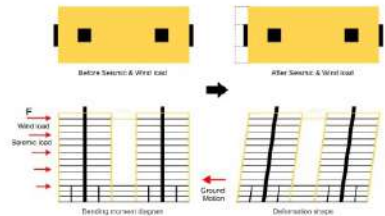
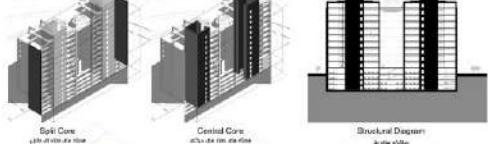
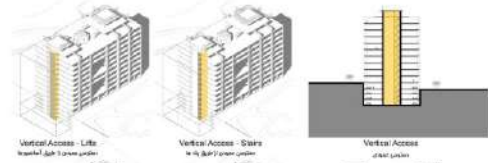
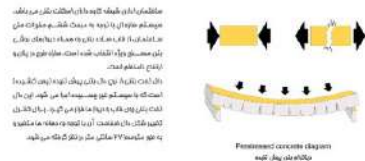
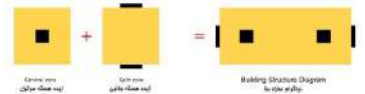
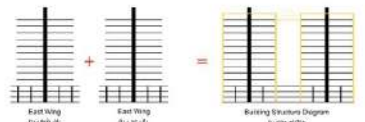












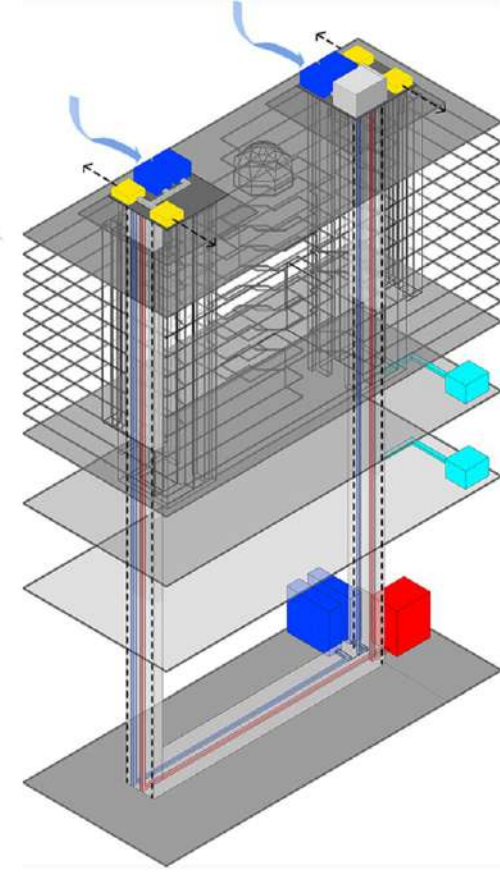
معماری و مهندسی معماری

The structural concept is based on the idea that a building can be designed to resist lateral loads by designing it as a hollow cast-in-place perpendicular to the ground. In this concept, the perimeter of the exterior consists of closely spaced columns that are tied together with deep spandrel beams through moment connections. The assembly of columns and beams forms a rigid frame that amounts to a dense and strong structural wall along the exterior of the building. The outer framing is designed to resist all lateral loads on the building, thereby allowing the interior of the building to be simply framed for gravity loads. Interior columns are comparatively few and located at the core. The distance between the exterior and the core frames is spanned with beams or joists and is laterally braced in-plane. This maximizes the effectiveness of the perimeter tube by transferring some of the gravity loads with the exterior frame and increases its ability to resist overturning due to lateral loads.

LOW-E Glass

Double Glazing : (4mm : Low-E Coating + 12mm Argon + 6mm : Clear Glass)

Cod	Thickness mm	Light Factors				Solar Radiation			U Value
		Transmission (%) ±3	Reflection (%)		UV(%)	Transmission (%) ±3	Reflection (%)	Solar Factors	
			Outside	Inside					
Single Low-E	4mm	70	10	18	0.26	44	16	0.54	1.34
Double Low-E	4mm	65	20	24	0.26	35	20	0.42	1.24
Super Low-E	4mm	55	30	40	0.23	30	31	0.35	1.20

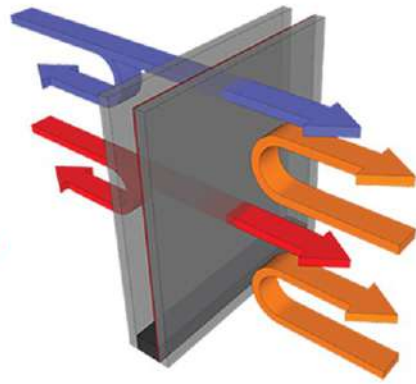


How it works :

Example : 4mm Solar Neutral Tough / Gas / 4mm Elight Tough

Outside:
Light Transmission
100%
Reflection 11%

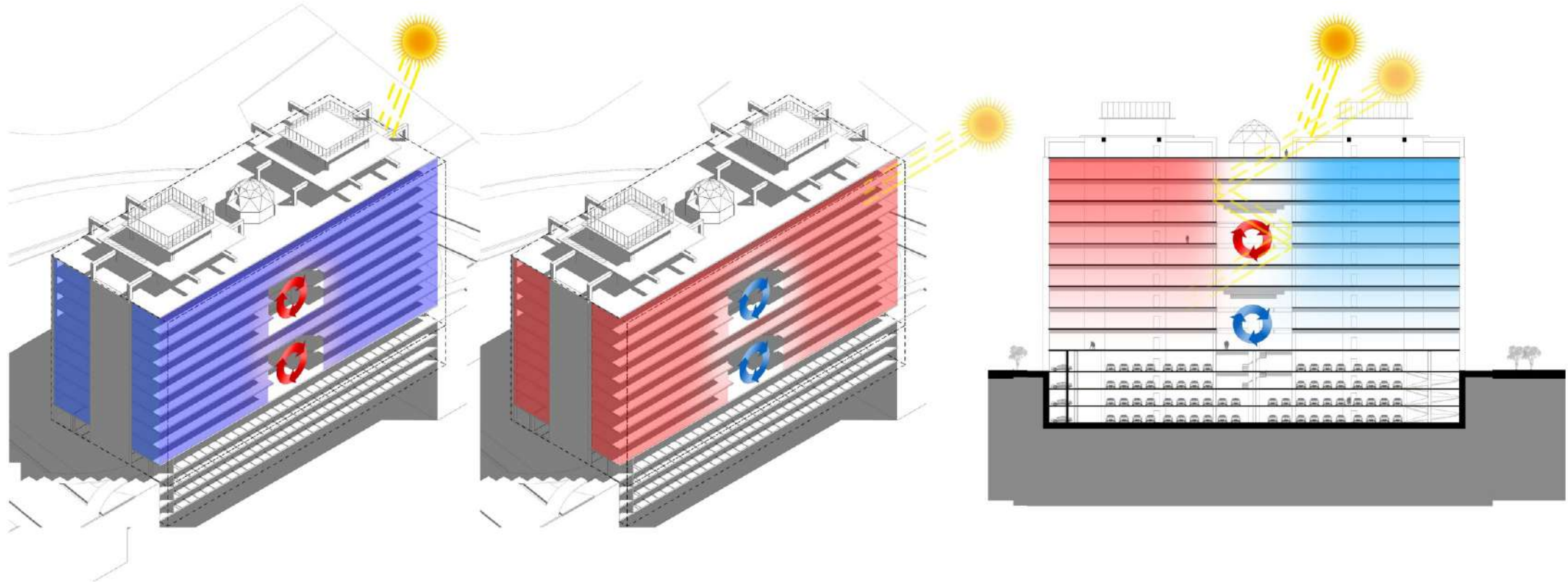
Solar Transmission
100%
Reflection 13%

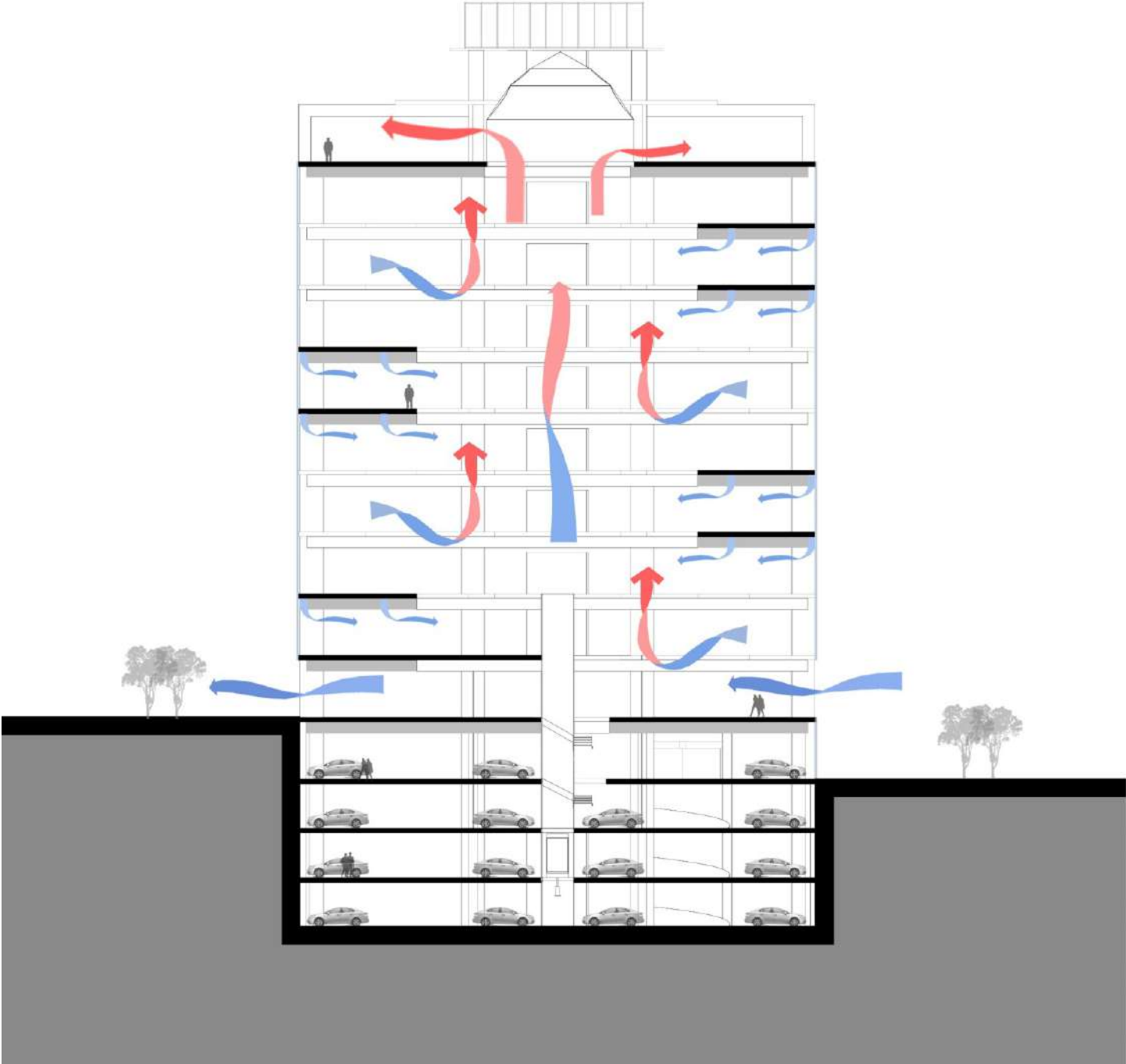


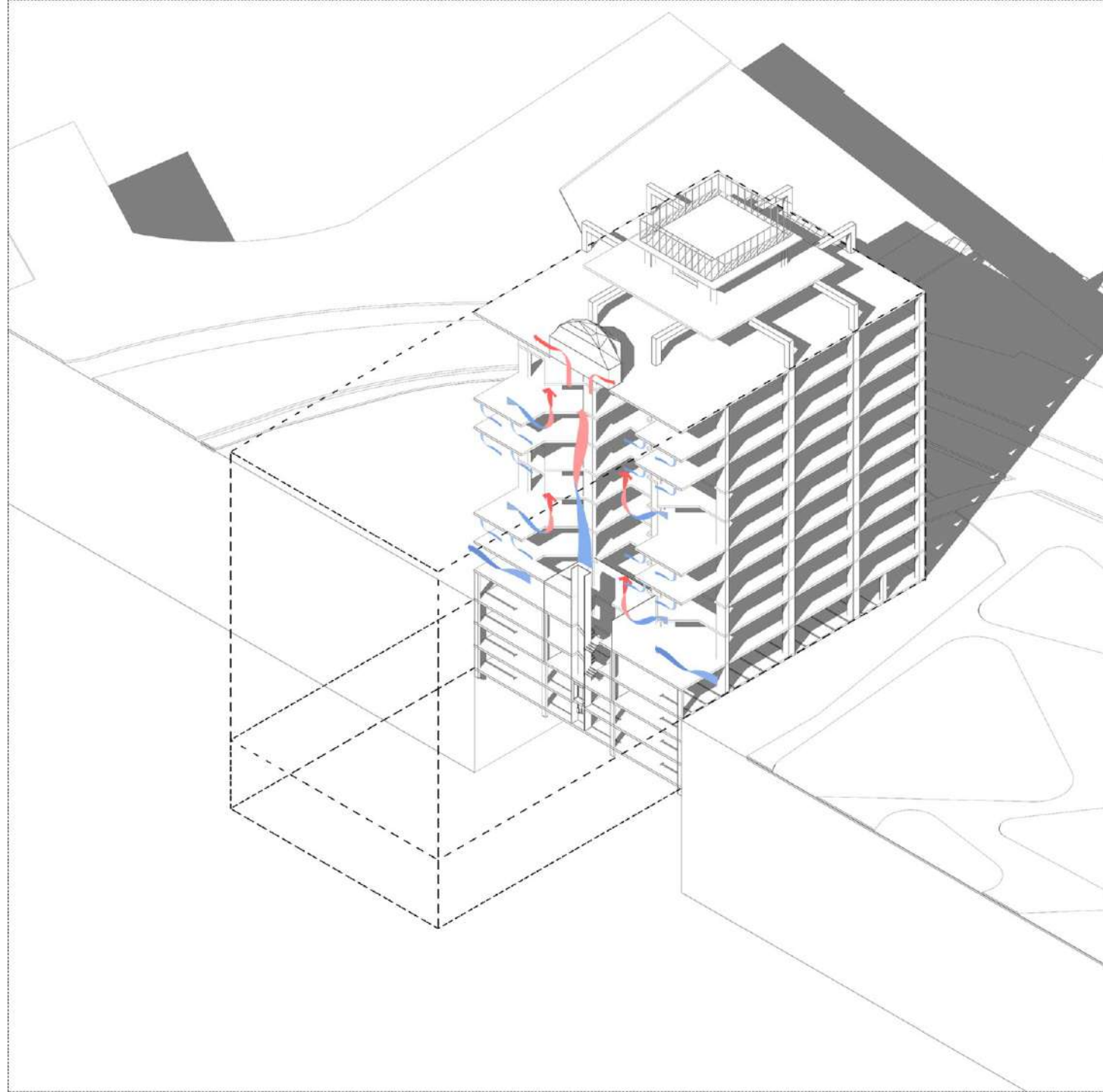
Inside:
Light Transmission
61%

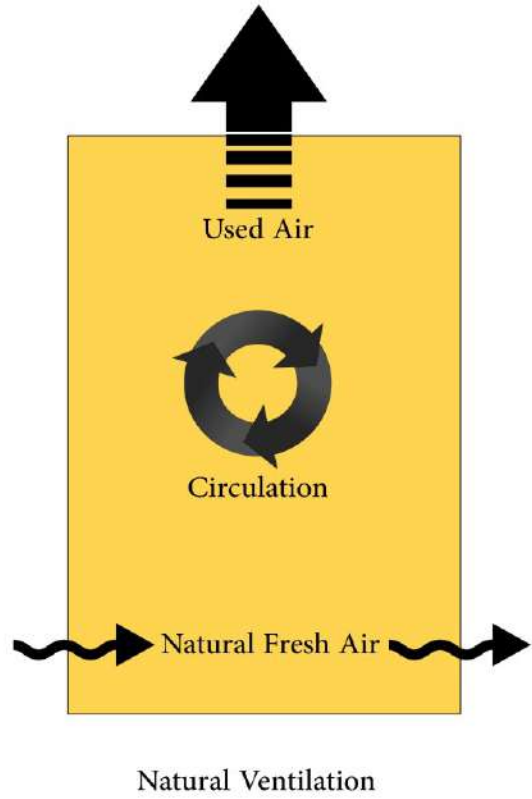
Heat Generated Internally
is reflected back to the room

Solar Transmission
49%

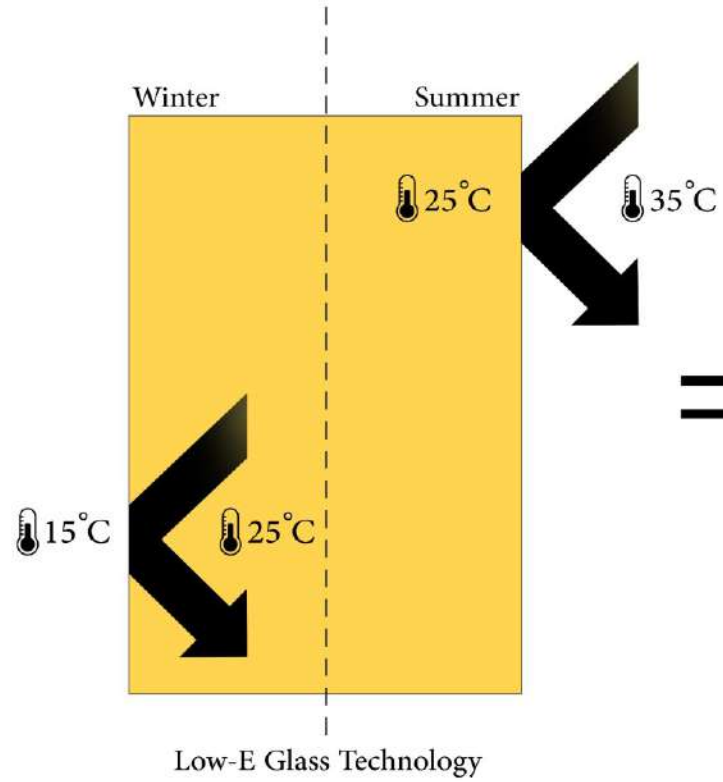






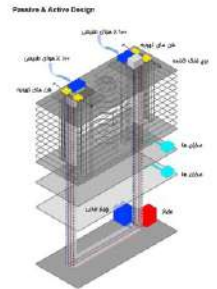


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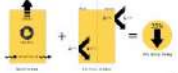
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Key features of passive design

The key elements of passive design in this project are: building location and orientation on the site, building layout, glass facade engineering, Low-E glass, buffer zones, and natural stack ventilation. Each of those elements works with others to achieve comfortable temperatures and good indoor air quality.



تأثير كل واحد

المكان الذي تم اختياره للمبنى كان له دور كبير في تحقيق الأهداف المطلوبة من حيث توفير الطاقة وتقليل انبعاثات الكربون. كما تم اختيار الموقع بناءً على اتجاه الرياح السائدة في المنطقة، مما ساعد على تحقيق التهوية الطبيعية للمبنى. بالإضافة إلى ذلك، تم اختيار الموقع بناءً على اتجاه الشمس السائد، مما ساعد على تحقيق التظليل الطبيعي للمبنى.

HVAC

In addition to ensuring the necessary compliance with the Building Regulations, the has also installed a HVAC system to be installed that offers high occupancy comfort but also combined with low energy use. يتم توفير التهوية الطبيعية للمبنى من خلال تصميم المبنى بحيث يسمح للرياح السائدة في المنطقة بتوفير التهوية الطبيعية للمبنى. بالإضافة إلى ذلك، تم اختيار الموقع بناءً على اتجاه الشمس السائد، مما ساعد على تحقيق التظليل الطبيعي للمبنى.

Measure	Energy Saving Potential (%)	Cost (£/m²)	Payback Period (Years)
Low-E glass	15%	10	7
Double glazing	10%	15	15
External shading	10%	20	20
Internal shading	5%	5	10
Buffer zones	5%	10	20
Stack ventilation	5%	5	10
Hot water tank	5%	10	20
Lighting	5%	5	10
Heating and cooling	5%	10	20
Total	60%	70	15

Saving Energy

توفير الطاقة من خلال المبنى

- Hot water: 5%
- Ventilation: 35%
- Lighting: 45%
- Electrical: 45%
- Heating and cooling: 35%

Energy efficient system design. Energy performance was kept to delivering a high and building which would be welcomed by the local community. To achieve this much thought was put into reducing energy consumption through passive building design, energy efficient system design and renewable energy technology.

The Al Rajh Building is serious about reducing energy usage, hence carbon emissions, hence running costs. It does this in three ways: firstly by maximising unobstructed access to the structure, secondly by being situated with a full range of energy saving measures, and finally by being well-served by public transport and cycle-friendly.

Low-E Glass Double Glazing (4mm Low-E Coating + 12mm Argon + 6mm Clear Glass)

توفير الطاقة من خلال المبنى

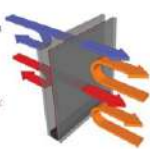
Code	Thickness (mm)	Light Factors			Solar Factors			U Values	
		Transmission (%)	Reflection (%)	UV (%)	Transmission (%)	Reflector (%)	Solar factors		
single low-E	4mm	70	10	18	0.28	44	18	0.54	1.34
double low-E	4mm	65	20	24	0.20	36	20	0.42	1.24
super low-E	4mm	55	30	40	0.23	30	31	0.35	1.20

Light & Solar Transmission

توفير الطاقة من خلال المبنى

Outdoor:
Light Transmission: 100%
Reflection: 11%
توفير الطاقة من خلال المبنى

Solar transmission: 100%
Reflection: 13%
توفير الطاقة من خلال المبنى



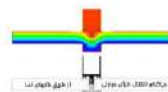
Light & Solar Transmission

توفير الطاقة من خلال المبنى

Indoor:
Light transmission: 91%
توفير الطاقة من خلال المبنى

Heat generated internally is reflected back to the office

Solar transmission: 49%
توفير الطاقة من خلال المبنى

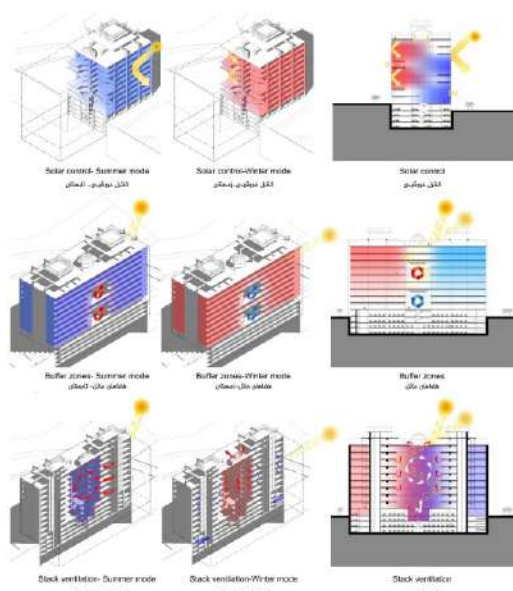


Light / Solar / Sound Factors

توفير الطاقة من خلال المبنى

- Heat Transfer Coefficient: 2.2 W/m²K
- Direct Energy Reflection: 35%
- Direct Energy Transmission: 49%
- PCVt Filter: 0.45 mm
- Shading Coefficient: 49/100
- Direct Energy Reflection: 35%
- Sound Reflection: 35 (dB)

توفير الطاقة من خلال المبنى



Solar Control
Control construction was given to minimize the effect of solar over heating on the office areas by providing a facade with a very high level of solar control. This was achieved by combining high performance glazing with tinting to reduce solar energy being transmitted into the space. In addition to ensuring the necessary compliance with the Building Regulations, the has also installed a HVAC system to be installed that offers high occupancy comfort benefits combined with low energy demands.

Buffer Zones
There are 4 buffer zones (each 12 M height) in this building. They are located on ground floor, 2nd floor, 4th floor and 8th floor. These buffer zones are connected to the office areas and at the same time they are connected to the vertical shafts which the stack effect is happening in. Heat is from the office areas will go out of the building by those buffer zones in the winter mode they act as an energy source to collect the heat energy.

Stack Ventilation
The office areas are ventilated and cooled using a stack ventilation system. This stack system provides the opportunity to use outside air for cooling and cleaning the used air when it is in an external (ambient) conditions. Face cooling will be available for approximately 40% of the building's standard operating hours. This has resulted a very energy efficient as no mechanical building heating up to 35% energy saving.

توفير الطاقة من خلال المبنى

المبنى تم اختياره للمبنى كان له دور كبير في تحقيق الأهداف المطلوبة من حيث توفير الطاقة وتقليل انبعاثات الكربون. كما تم اختيار الموقع بناءً على اتجاه الرياح السائدة في المنطقة، مما ساعد على تحقيق التهوية الطبيعية للمبنى. بالإضافة إلى ذلك، تم اختيار الموقع بناءً على اتجاه الشمس السائد، مما ساعد على تحقيق التظليل الطبيعي للمبنى.

توفير الطاقة من خلال المبنى

توفير الطاقة من خلال المبنى. يتم توفير التهوية الطبيعية للمبنى من خلال تصميم المبنى بحيث يسمح للرياح السائدة في المنطقة بتوفير التهوية الطبيعية للمبنى. بالإضافة إلى ذلك، تم اختيار الموقع بناءً على اتجاه الشمس السائد، مما ساعد على تحقيق التظليل الطبيعي للمبنى.

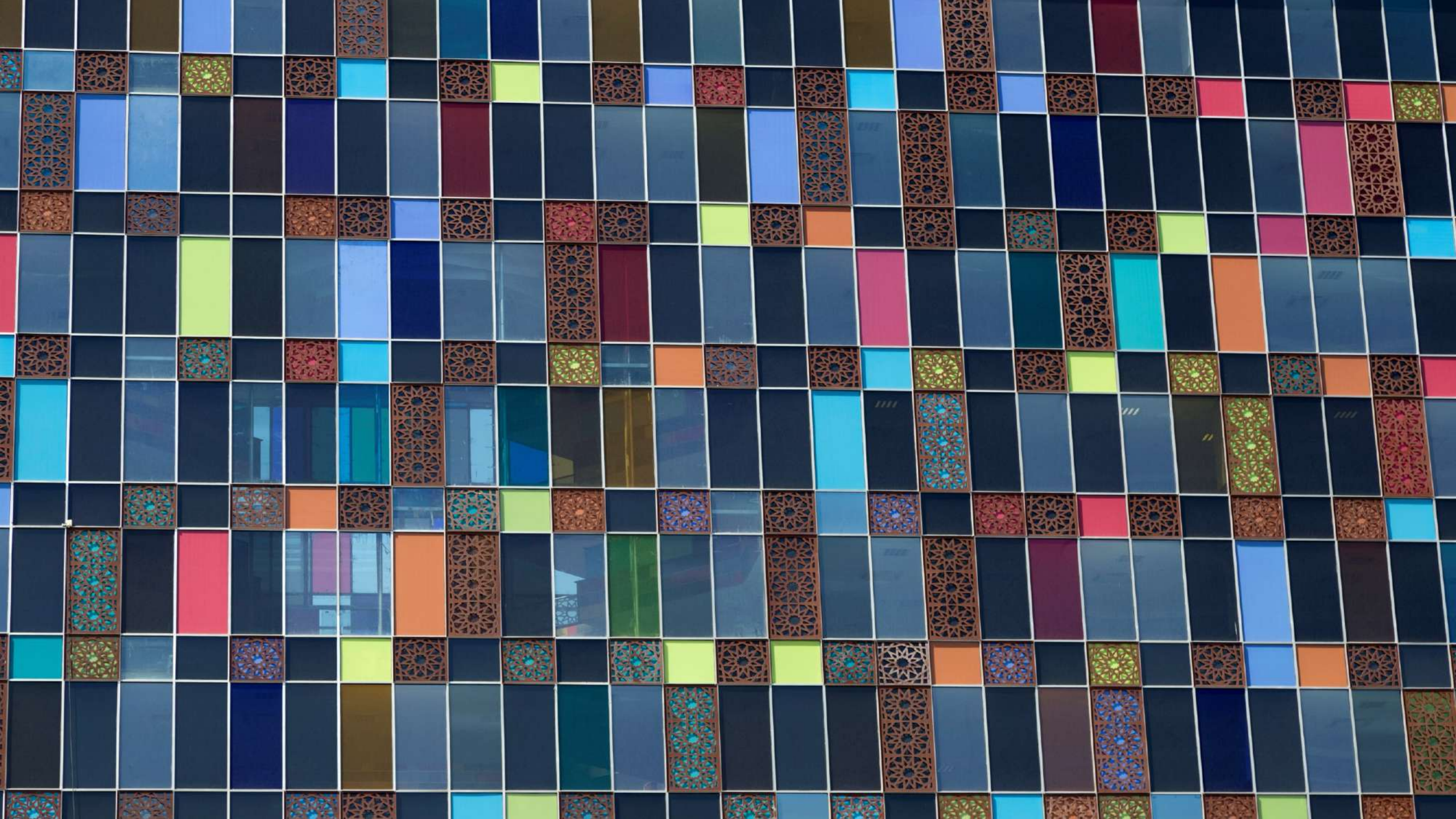
توفير الطاقة من خلال المبنى

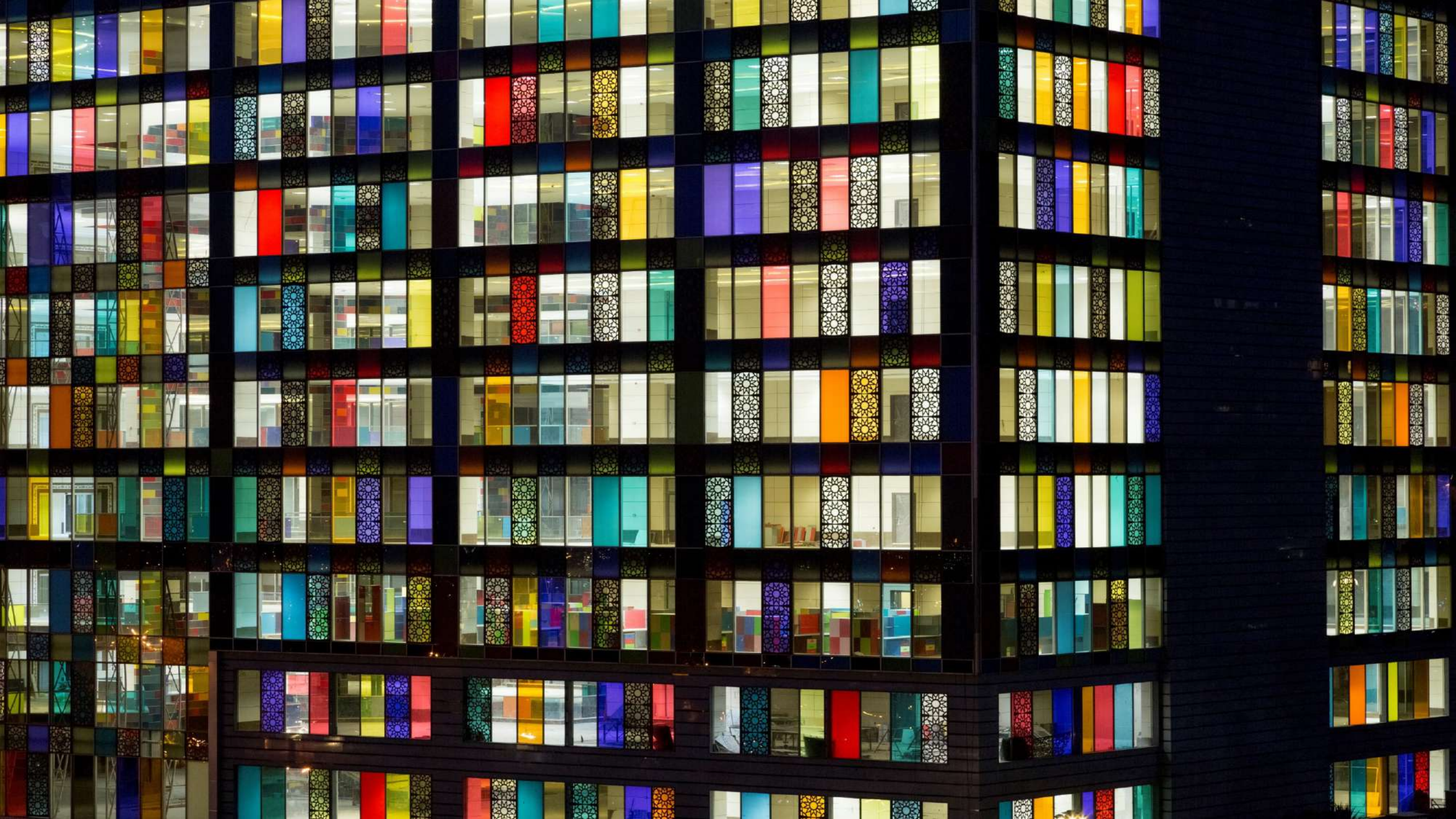
توفير الطاقة من خلال المبنى. يتم توفير التهوية الطبيعية للمبنى من خلال تصميم المبنى بحيث يسمح للرياح السائدة في المنطقة بتوفير التهوية الطبيعية للمبنى. بالإضافة إلى ذلك، تم اختيار الموقع بناءً على اتجاه الشمس السائد، مما ساعد على تحقيق التظليل الطبيعي للمبنى.















Color and Light in Architecture and its Effects on Spirits of Space Users in a Psychological View

Reza Babakhani*

Islamic Azad University, Zanjan Unit, Youth and Elite Club, Zanjan, Iran

Abstract

Light and its effects considered as a complex issue, since the effects happens during the time i.e. space users reside in the spaces for a long time and exposed to different radiated energies of color and regular radiation of the colors make longer effects on sprit of space users and it has longer durability. In current world situation, in which psychological and spiritual problems arise in different layers of society, most of the problems are the result of the environmental effects, and this is the environment, causing intellectual deviation of people, home and city considered as environment in which city is composed of mass of homes.

Conditioning relax and pleasant environment provided at homes and individuals in the home live together peacefully, the city and society approach relaxation, however, color and light considered as factors cause relaxation and/or stress, which bear strong and deep effect due to endurance. One shall provide a relax and happy environment through correcting interior decoration and using the light and natural colors as well as their effects. In this study, we move toward an environment in which at first color and lighting composed of organic/natural components, colors and lights directed toward natural colors, second, lighting and color of public places shall increase social communications and we prioritize using colors leading spiritual and psychological relaxation. Meanwhile, we shall remind appropriate use of artificial lights, since most of people are not aware of artificial light's side-effect, neither know their disadvantageous aspects.

All researchers know that whatever exists in nature is useful and considering man-made things, although there are useful aspect, its considered as an artificial one and its use bears side-effect, since its an artificial and non-natural thing, and all non-natural things bear environmental side-effect, including spiritual and psychological one, etc. One shall consider side-effects of artificial spectrum and lights in current life of human being, and use them with caution.

Keywords: Color; Light; Architecture; Spirit; Psychology

Introduction

Human life affected by different environmental and ultra-environmental factors, impressiveness of human being from the environment considered as one of effective and persistent factors, i.e. architectural environment, the most effects of architectural space through color and light is obvious on human being.

Using light is widespread in urban architecture and design, thus studying their effects on human being and animals is an inevitable issue, which is in the event of environment protection and sustainable architecture, consequently the effects of color and light on human being is studied [1-4].

Methodology

Many books, papers and journals used which are published in the field, in an experiment for six months lighting change and rooms color change are studied to investigate their effects on the individuals' communications and spirits.

Finding

For six months incandescent lamp used instead of fluorescent lamp in personal house and the house lighting decreased to sufficient amount, so that radiated light of the spaces was complaint to proposed standards in while people and things are visible, only incandescent lamp used, finally following table achieved which is the result of six months to study the effects of the way of lighting and adjusting light and its effects on individuals who enter the space (Table 1).

According to table above, maximum hours that people could bear in the space is a colored compound with white wall and yellow

natural light in which individuals had intimate and warm relationship together, and some issues proposed considering family and individual relationships.

Since many years ago light and color in interior architecture and urban design's architecture have been familiarized, the longer coexistence effected space users' spirits and their social communications,

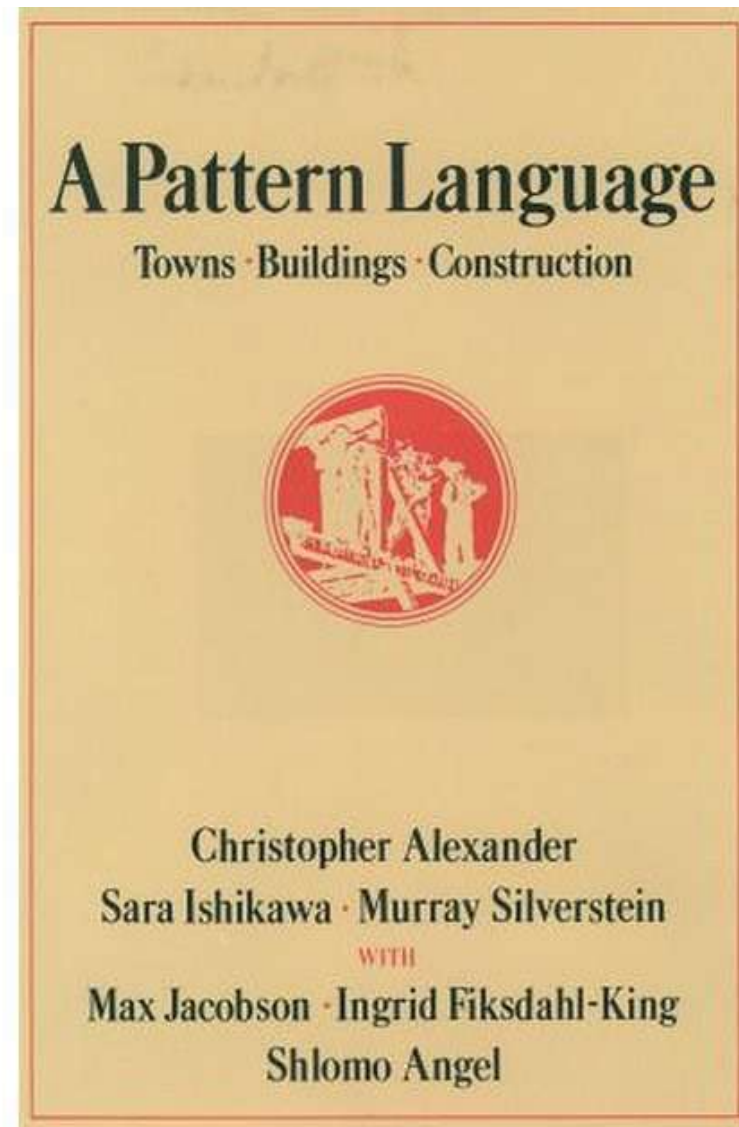
In this sense, research indicate that design and planning for appropriate use of color and light increases efficiency, and provide proper and safe communication between space users, in spite of its crucially, neglected in recent years in residential houses only for economical saving of incandescent lamp costs, which forms family basis and first human society and the most important one forms bigger community i.e. society while they were close to natural and warm spectrum and classified as lights with good quality but macro lamp economically and false pattern for useless and extra indoor lighting with fluorescent lamps and energy-efficient lamps, causes failure in eye sight and skin complications, etc. in addition to not using

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Received August 17, 2016; Accepted January 24, 2017; Published January 30, 2017

Citation: Babakhani R (2017) Color and Light in Architecture and its Effects on Spirits of Space Users in a Psychological View. J Archit Eng Tech 6: 184. doi: 10.4172/2168-9717.1000184

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“For about six years I have given close attention to the action of colors in restoring the body functions, and I am perfectly honest in saying that, after nearly thirty-seven years of active hospital and private practice in medicine and surgery, I can produce quicker and more accurate results with colors than with any or all other methods combined—and with less strain on the patient.”¹

- Kate Baldwin, MD

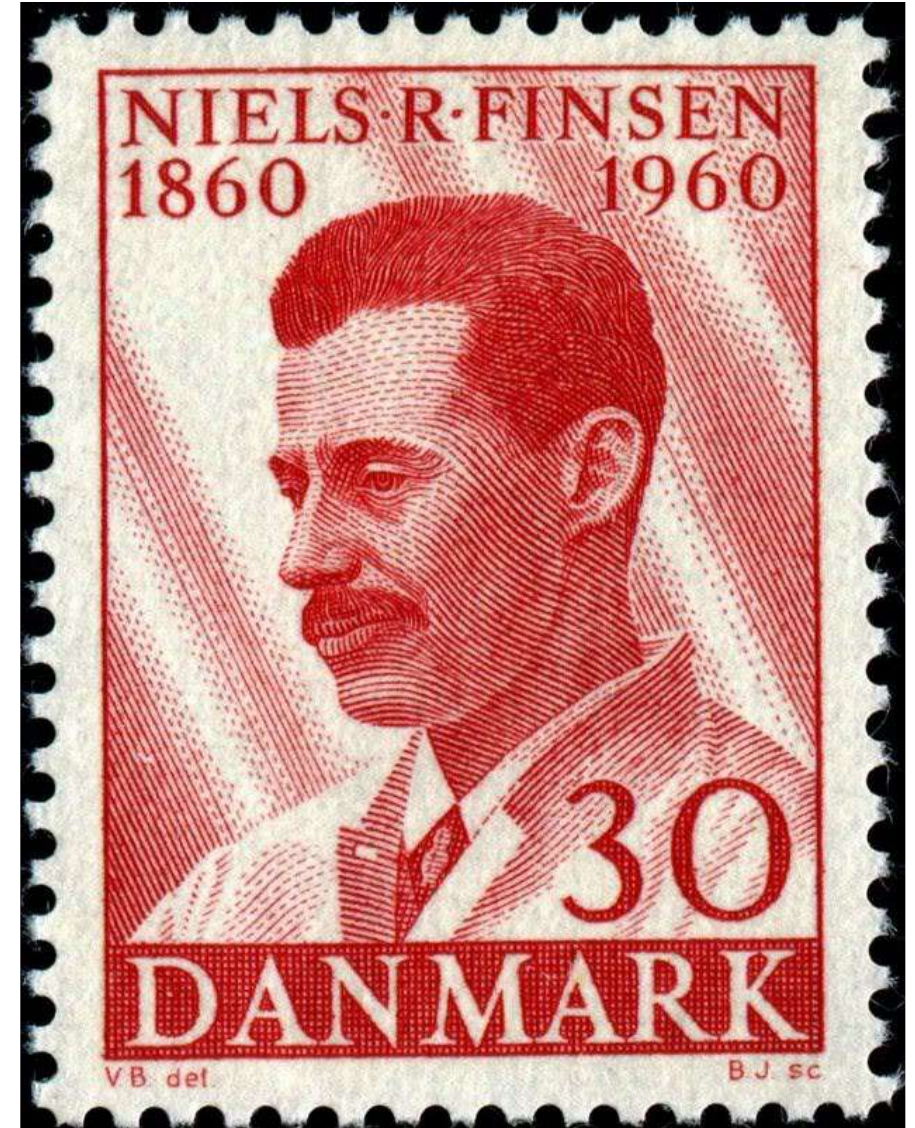
The use of color to heal has ancient roots. Native cultures discovered that the color of plants often determined their healing qualities. For example, blood conditions were treated with red flowers and herbs. Long before modern technology, healers discovered that light coming through colored fabric or colored glass had the ability to speed healing.

Light in the form of specific colors gives our food—vegetables, fruits, herbs—their nutritional or nourishing qualities. Color is the active ingredient in vitamins, minerals and other nutrients in our foods. Research with plants also indicates how colored light affects plant health. By laying specific colors of plastic sheeting on the soil around the plants, pests can be discouraged and plant growth and flavor can be enhanced.²



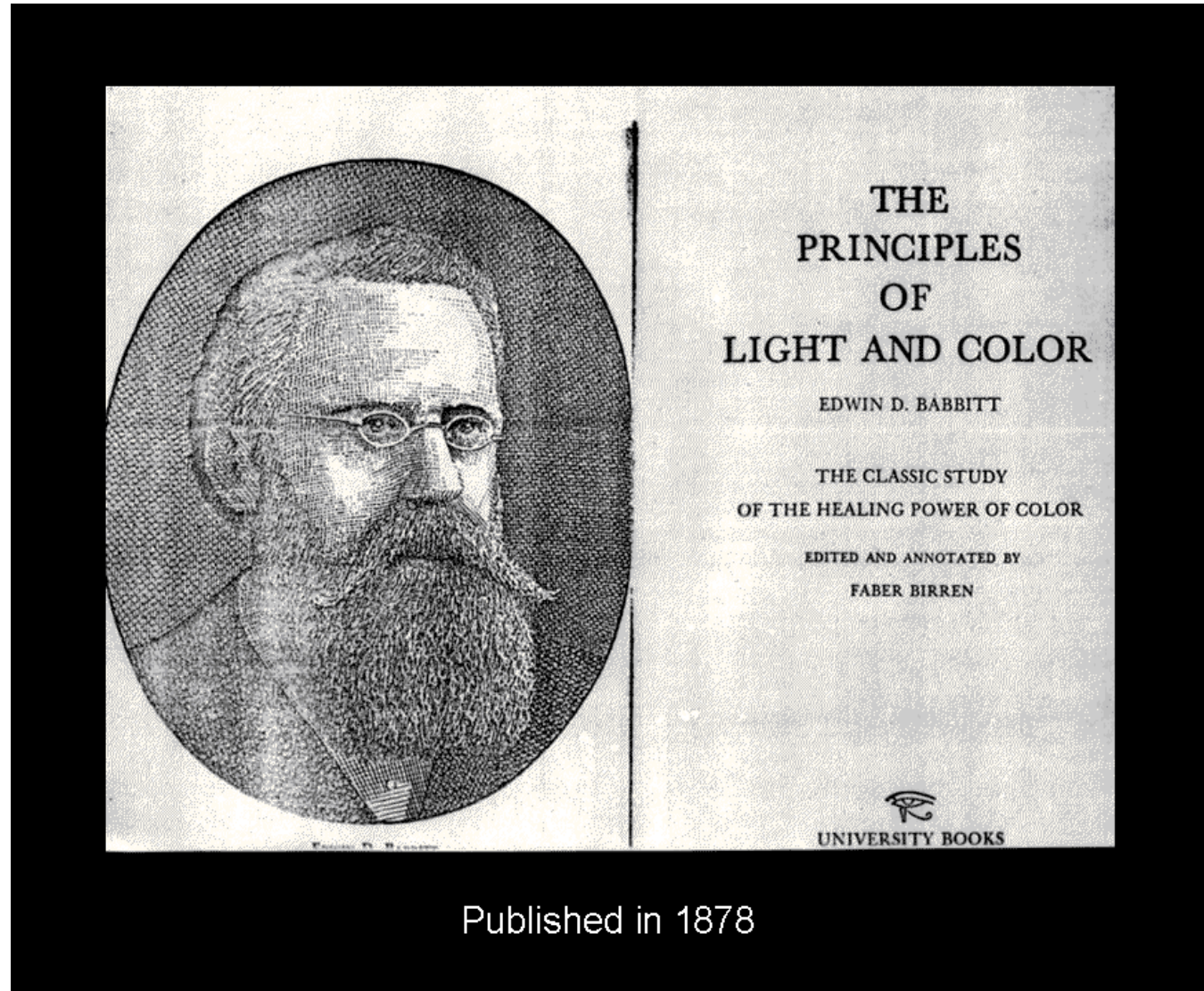
“Specific colors were used to restore health among ancient cultures in Egypt, Greece, China and India. During those civilizations, the windows of healing rooms were covered with cloth dyed red, blue, etc. to capture the healing qualities of color. Later, in the fourteenth century, a priest and physician in England, John of Gaddesden, wrote a treatise on the use of red color to treat smallpox. The patient was wrapped in red cloth and red window drapes were used to diffuse the light.^{3,4}

Skip ahead to nineteenth century Denmark and the work of Dr. Niels Ryberg Finsen. In 1892, he reported the successful use of red light to prevent scar formation from smallpox. He was honored with a Nobel Prize in 1903 for his pioneering work with light therapy. This time he had successfully healed tubercular skin lesions with ultraviolet light.⁵ e discouraged and plant growth and



“Across the Atlantic in the United States, Edwin D. Babbitt, a contemporary of Finsen, published Principles of Light and Color in 1878. His work established a firm basis for the use of color therapy. Babbitt’s work caught the attention of a young doctor, Dinshah Ghadiali, while he was visiting the US from India in 1896.

On his return to India, Dr. Ghadiali was summoned in the dark of night to the bedside of a woman from a prominent family. Despite an array of medications and the care of a learned doctor, the woman was dying from mucous colitis. She was in great pain and having 50 bowel movements a day. Young Dinshah knew he had to do something different if he was to save her life. After a fervent prayer, Edwin Babbitt’s work with color popped into mind.

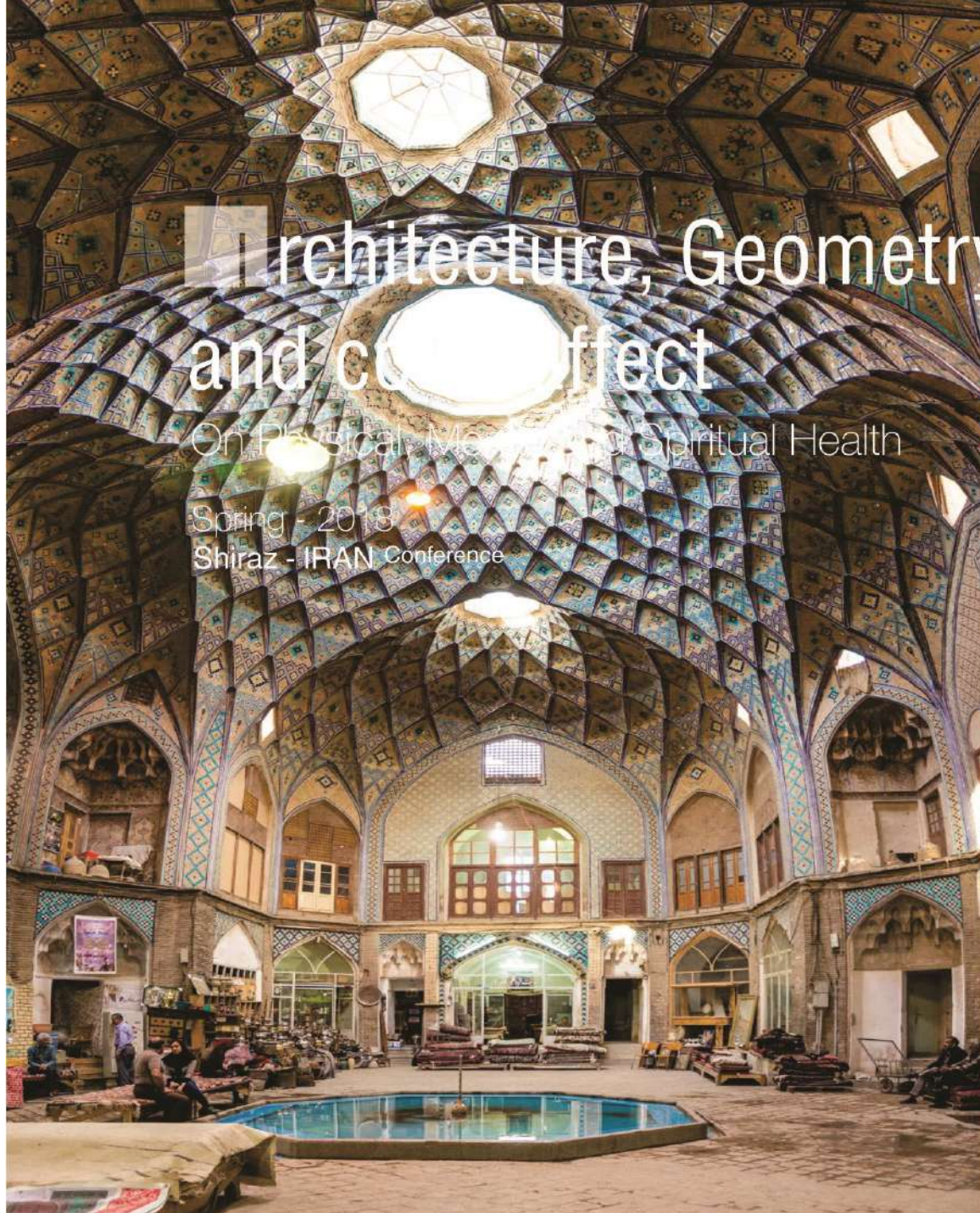


Published in 1878

Architecture, Geometry, Light and color effect

On Physical, Mental and Spiritual Health

Spring - 2018
Shiraz - IRAN Conference



"For about six years I have given close attention to the action of colors in restoring the body functions, and I am perfectly honest in saying that, after nearly thirty-seven years of active hospital and private practice in medicine and surgery, I can produce quicker and more accurate results with colors than with any or all other methods combined—and with less strain on the patient."¹
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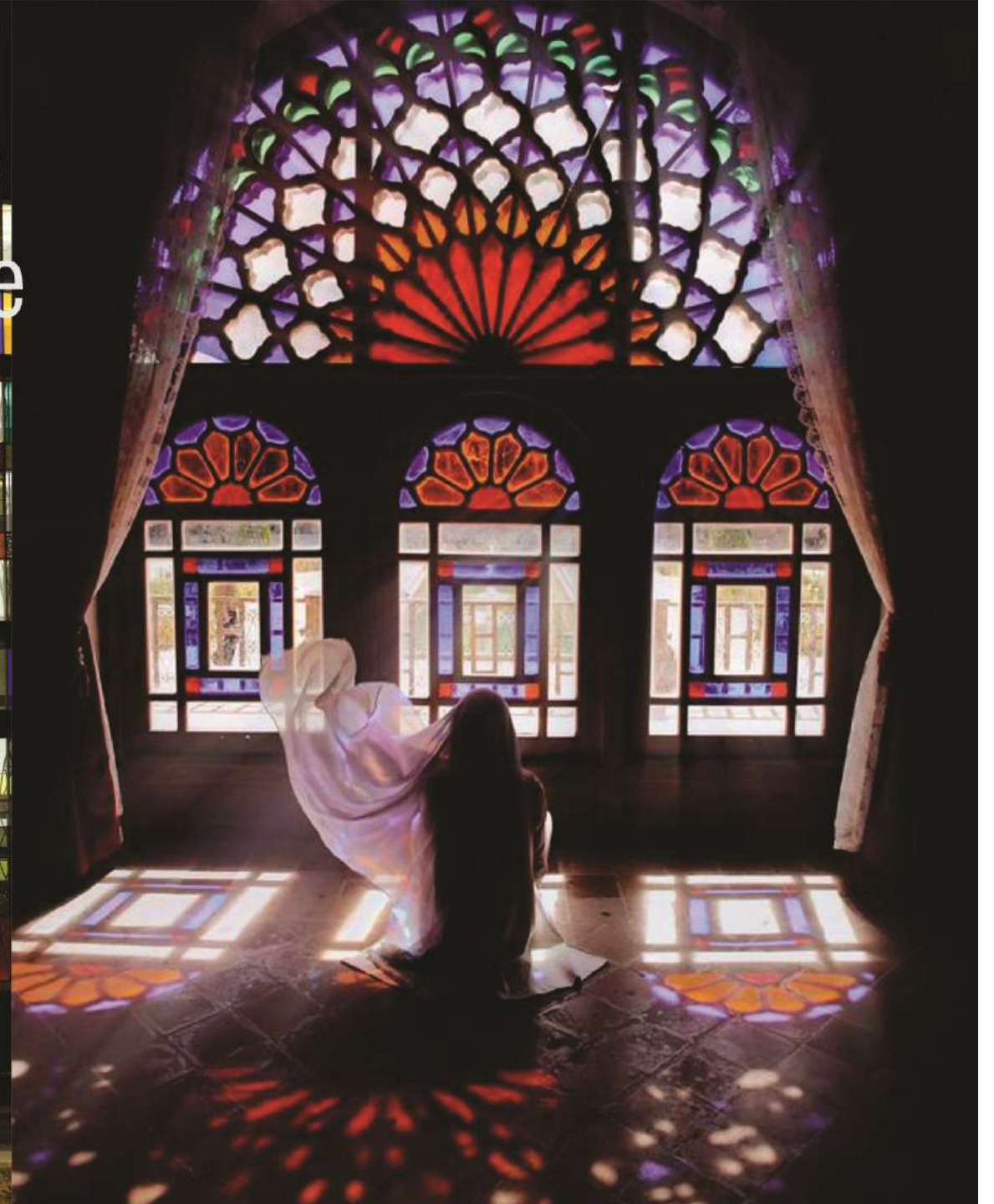
Pattern Language Large to small scale

Physical, Mental and Spiritual Health

Spring 2013
Shiraz - IPAAI Conference

As the American architect, writer, critic, and theorist, Edwin D. Babott, a representative of the modernist movement, published his book "Color in Architecture" in 1878. His work established a basis for the study of color theory. Babott's work caught the attention of the young architect, Dr. Ziahan Ghadiali, while he was visiting the US from India.

On his return to India, Dr. Ghadiali was summoned in the dark



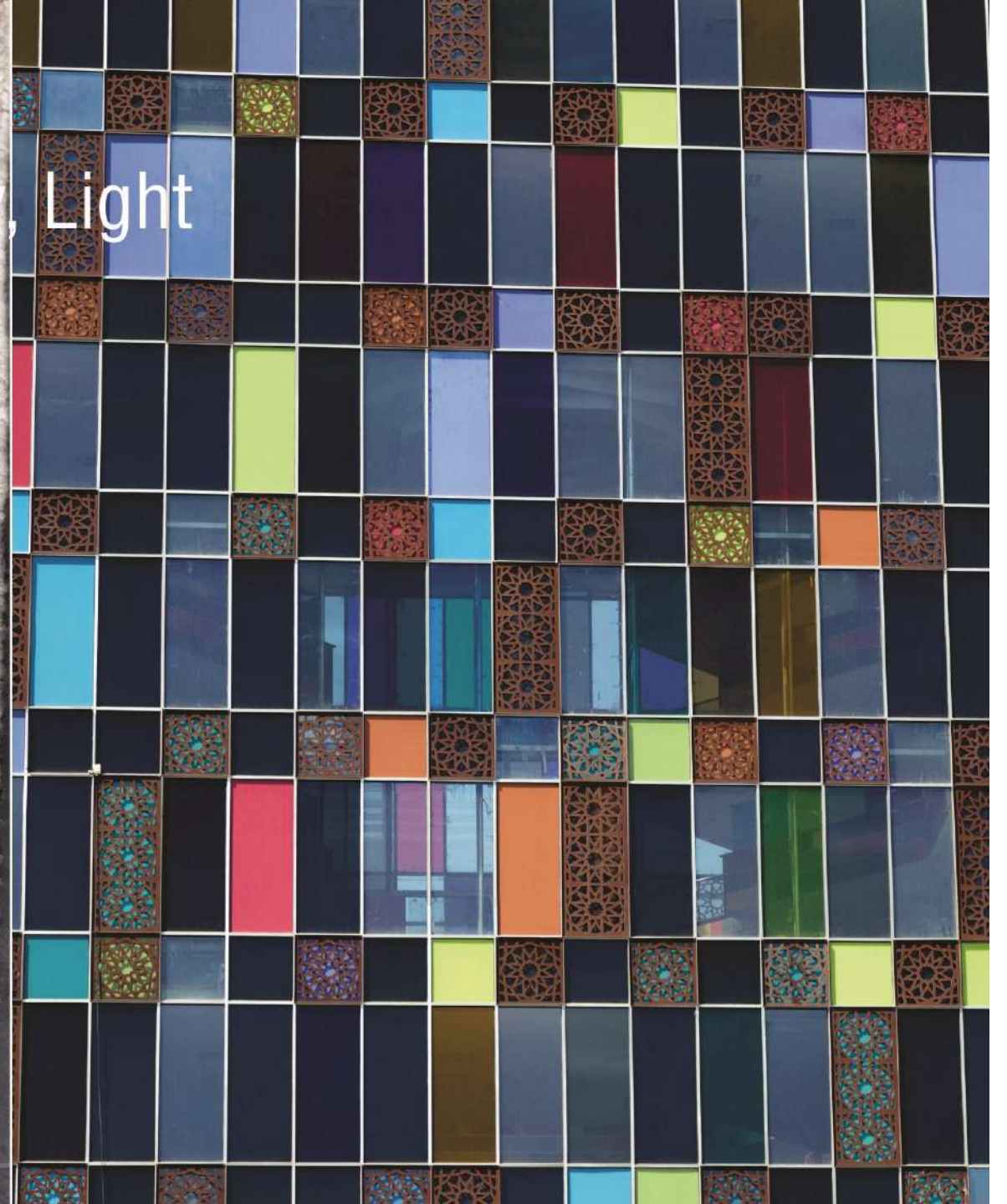


Architecture, Geometry, Light and color affect,

On Physical, Mental and Spiritual Health

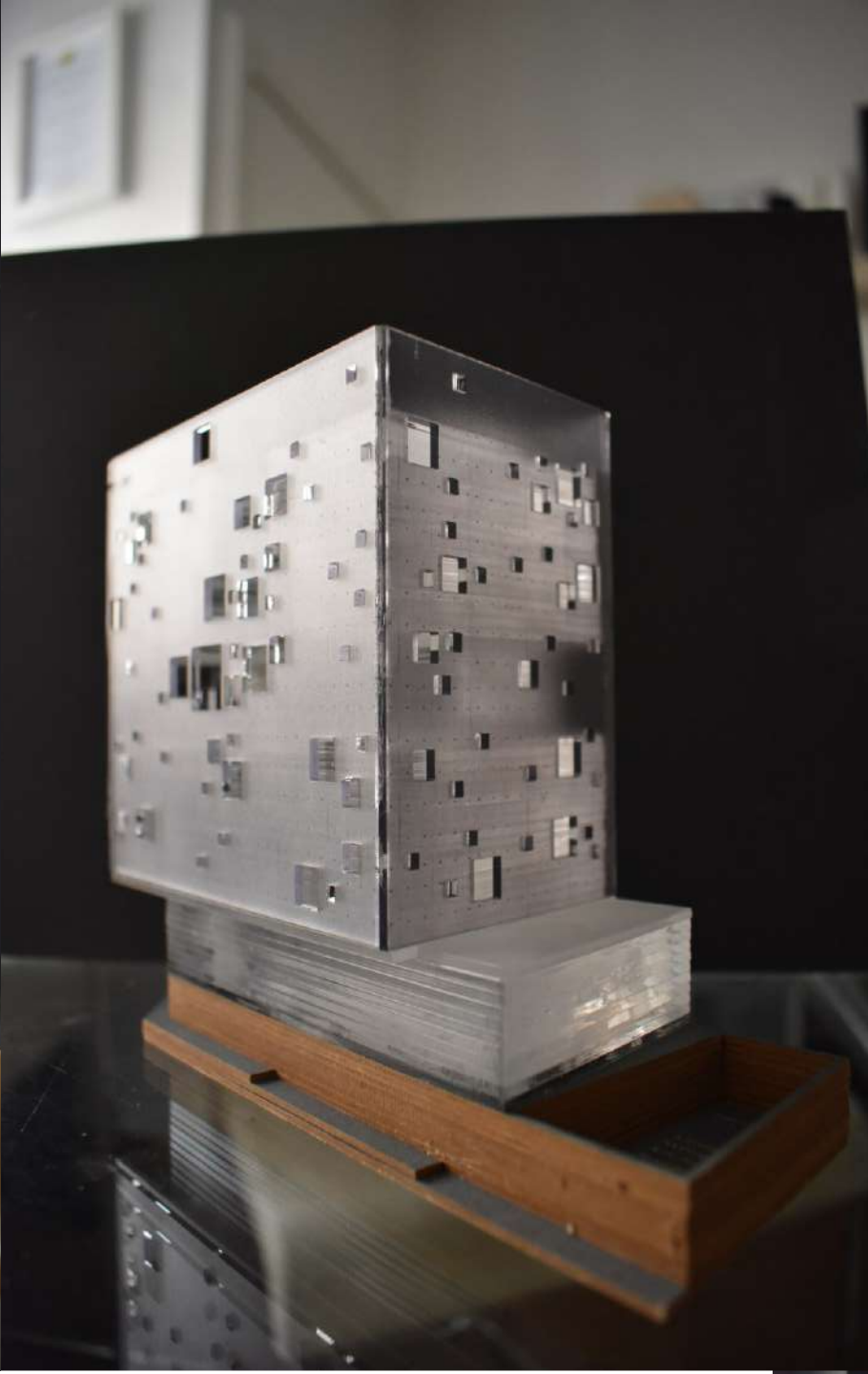
Spring - 2018
Shiraz - IRAN

I have
use attention
of colors in re
the body and I
am be
in
after
over years of a
hospital and private
practice in medicine and
many
the
results, with



مصادیق ارزش افزوده در پروژه ساختمانی

- بیستون یوسف آباد





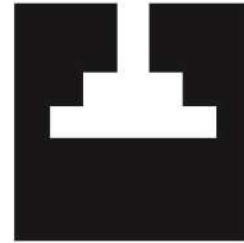
MASS



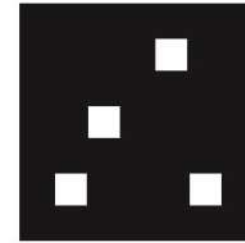
SPACE



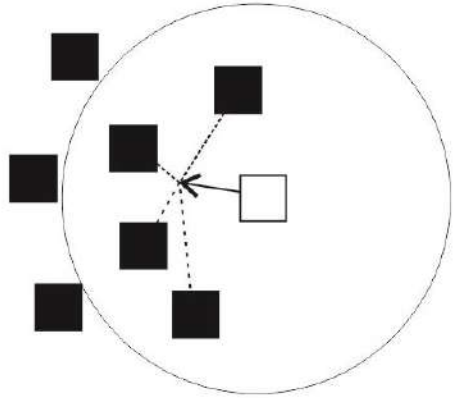
CROSS
SECTION



WIDTH
SECTION

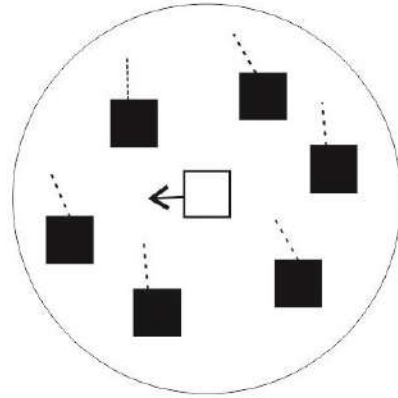


SKIN



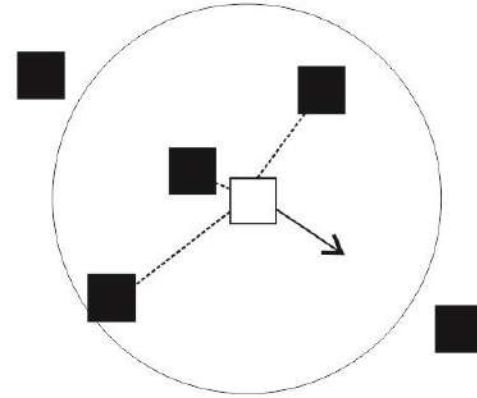
Cohesion:

Steer to move towards the average position of the flock's members.



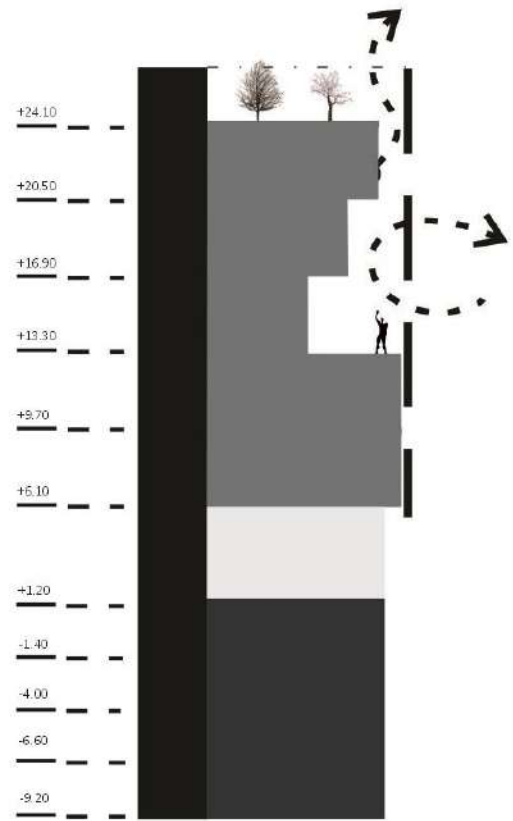
Alignment:

Steer towards the average heading of the flock's members.



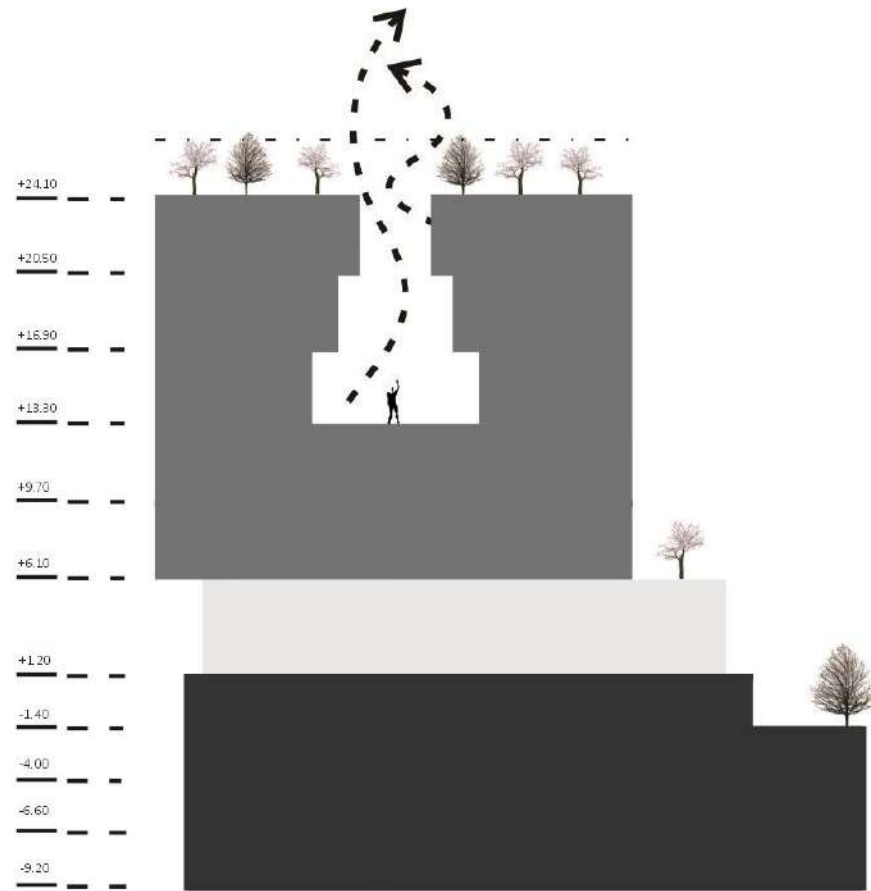
Separation:

Steer to avoid crowding the flock's members.

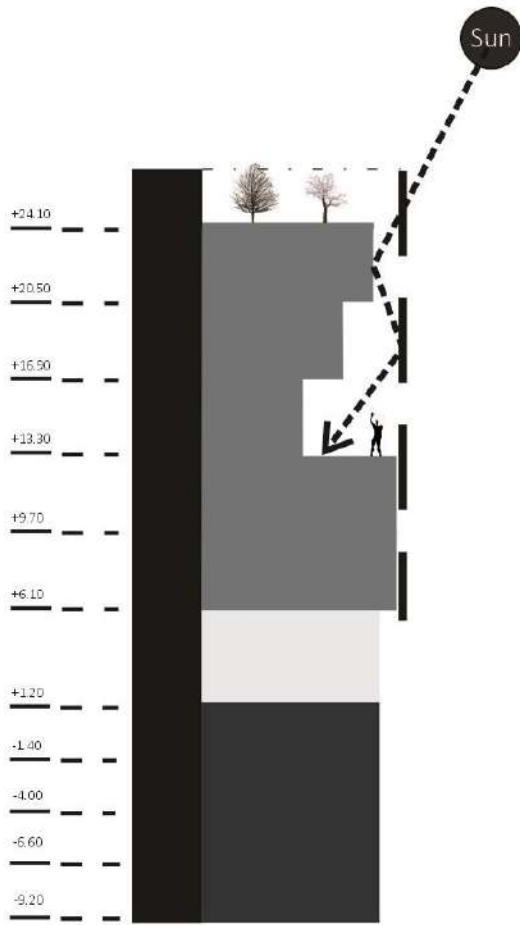


NATURAL VENTILATION

- Structure
- Solid
- Semi Clear
- Clear
- Air

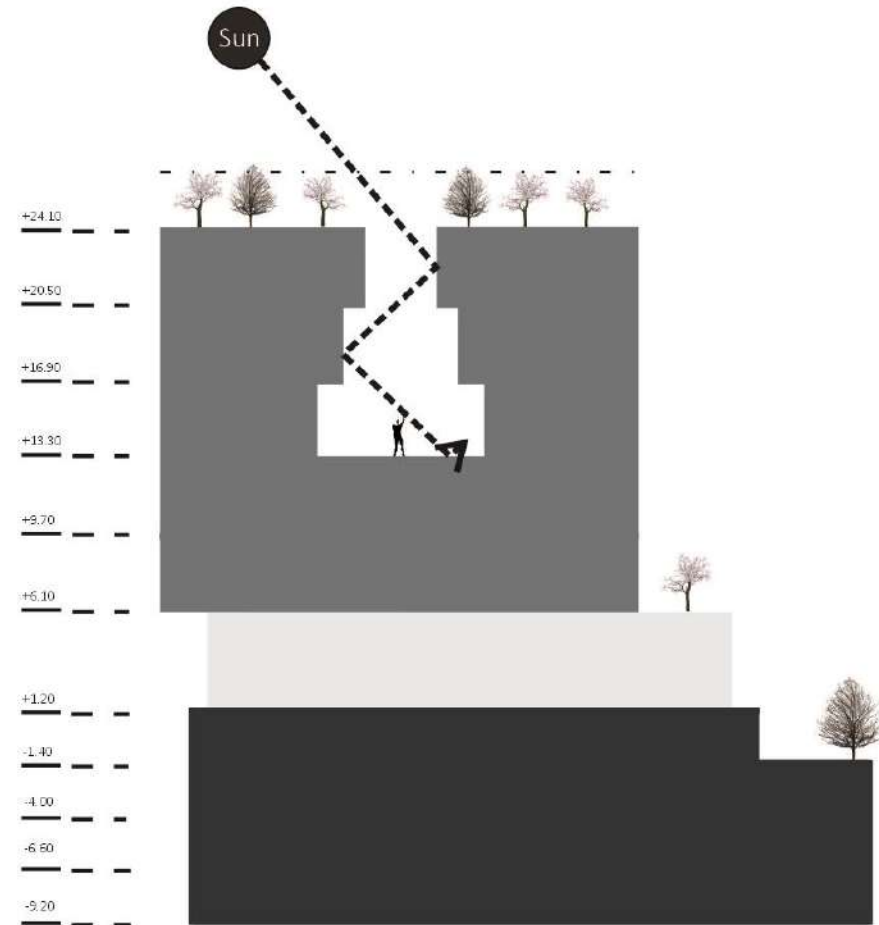


AIR CIRCULATION

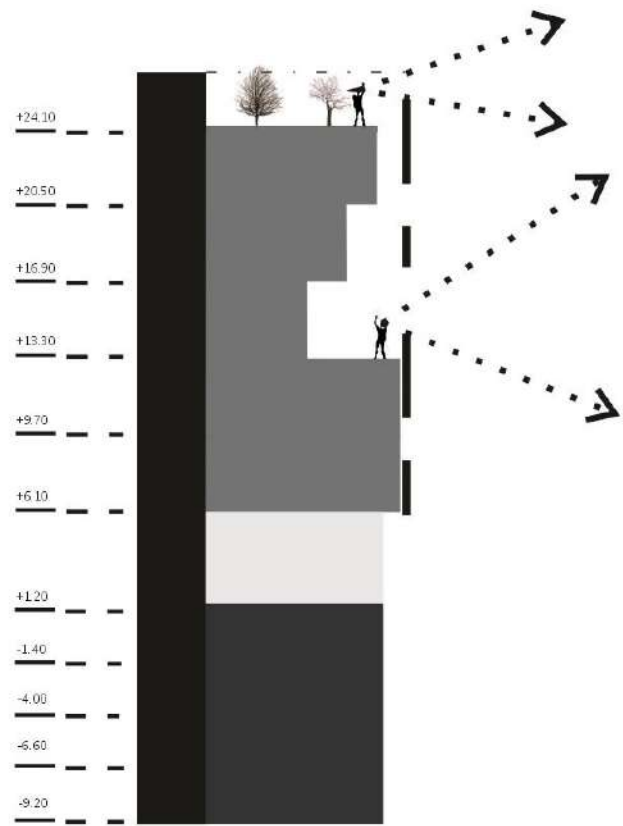


DEFUSE LIGHTING

- Structure
- Solid
- Semi Clear
- Clear
- Air

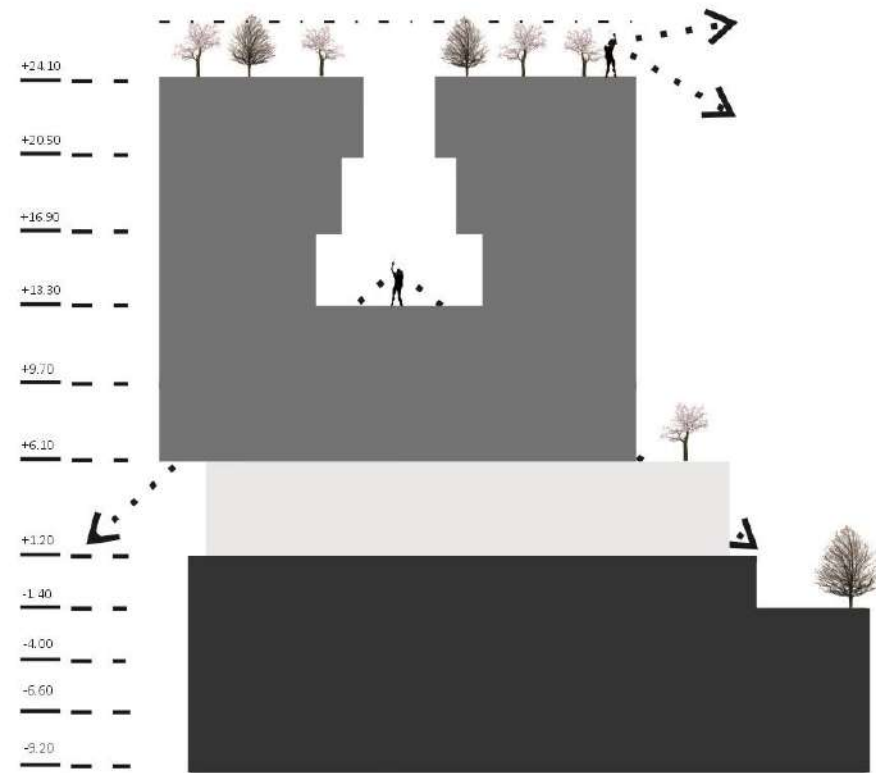


INDIRECT NATURAL LIGHTING



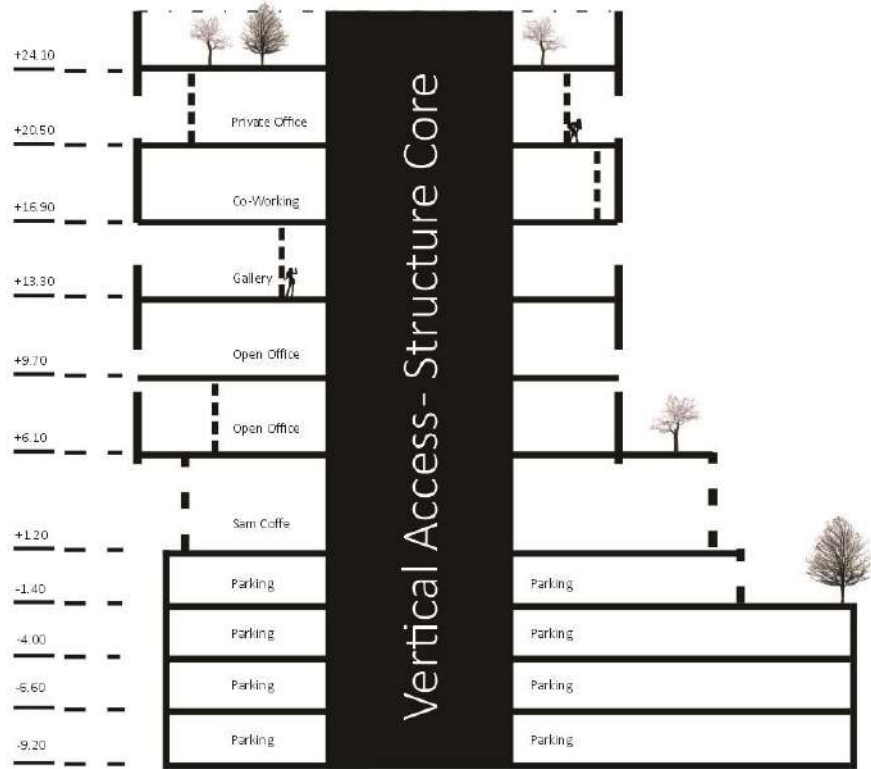
VIEW

- Structure
- Solid
- Semi Clear
- Clear
- Air

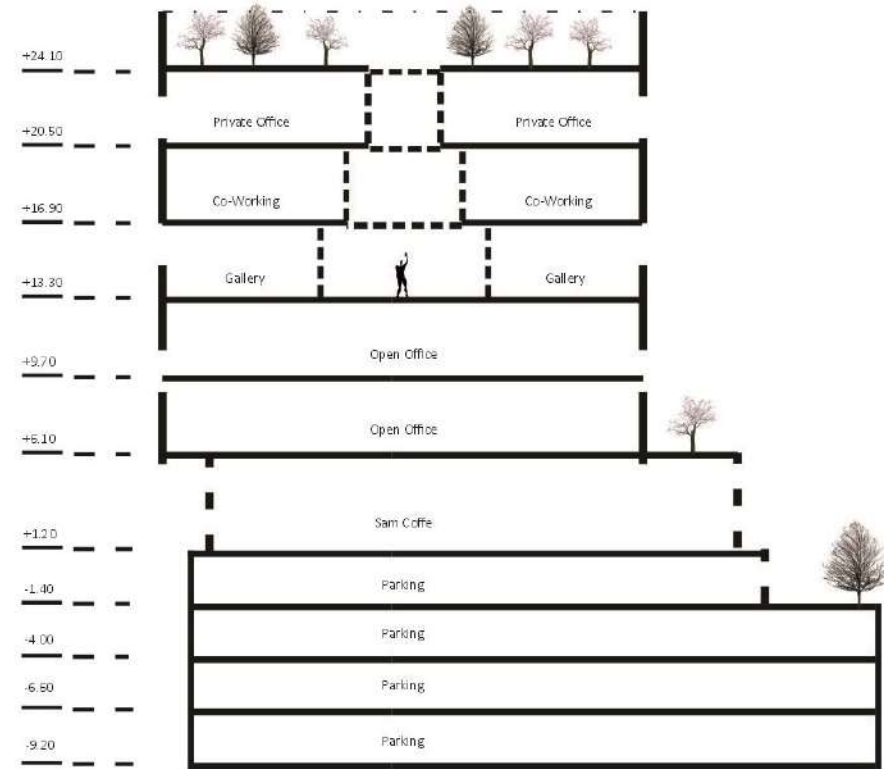


VISUAL INTERACTION

SCALE 1:100



WIDTH SECTION 01

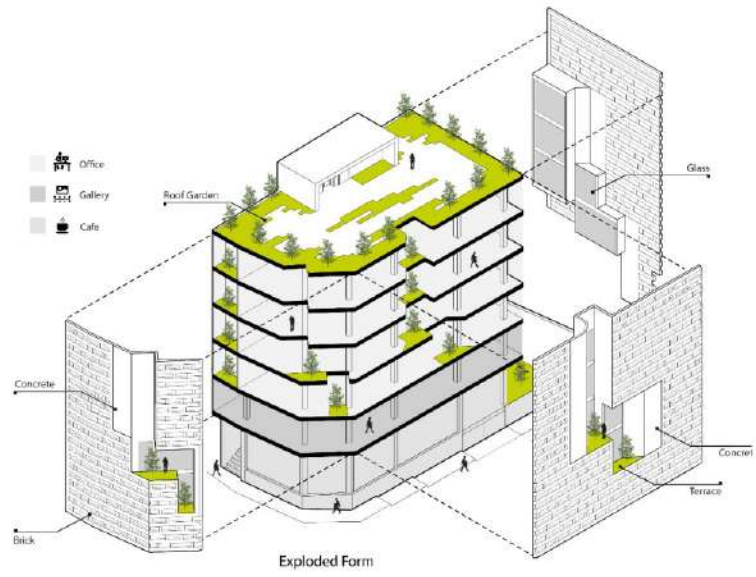


WIDTH SECTION 02



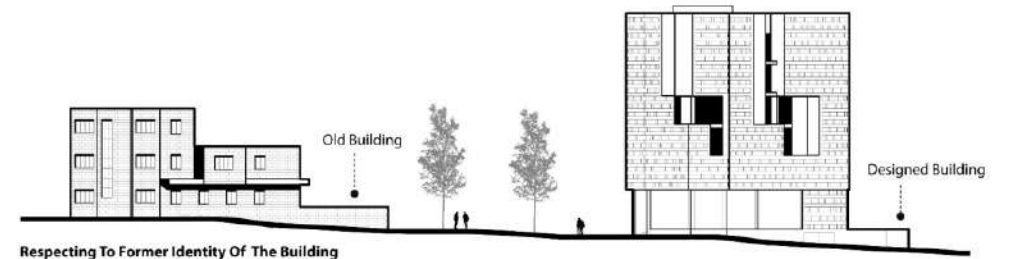






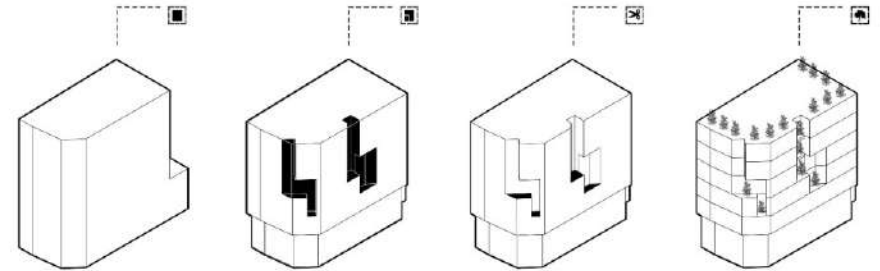
introduction

Each architectural project that emerges in the city can cause to special feelings in that area of the city that represents the identity of the project . In this project considering the site and identity of the existing building , we tried to focus on these items below : Developing the culture of impression and mutuality . Paying attention to the materials that are used in existing building and renovating and renovating Iranian architecture in contrast with modernism . Using brick and glass in the elevation showing the modernism and Iranian architecture together . Concrete elevation surface is a metaphor of birth and it's effect on the elevation meaning of modernism . paying attention to city identity and history of the city considering regionalism . city and the architecture having communication and we see the effects on the main surfaces . using glass in designing with solid materials shows mobility and can cause some shadows on surfaces . Architecture of lighting and shadows shows itself in this project . Looking back to the historic architecture of Iran and the importance of lighting and shadowing in making the erotic spaces . We focused on designing elevation using economic and available materials with the same strategy as we used in designing the city spaces . Good perspective and developing the quality of negative spaces views . Making the opportunity for green surfaces to be shown considering the safety and plants as symbols in traces . Glassiness and lighting among the privacy because of being in the commercial-residential part of the city . Lighting and shadows with the pore materials focusing on openings and glassiness . Paying attention to find the best circulation in interior designing . Ordering the stores in the best way according to the functions . After investigating and analyzing the functions in the project we decided to set the gallery in first floor instead of the third floor , and because of the short width of the building , we avoided to use transparent surfaces and we used traces with the appropriate length and width that can help air conditioning



Respecting To Former Identity Of The Building

Terrace . Shadowing . Using Break



1- Basic Volume

2- Negative Space

3- Remove Negative Spaces

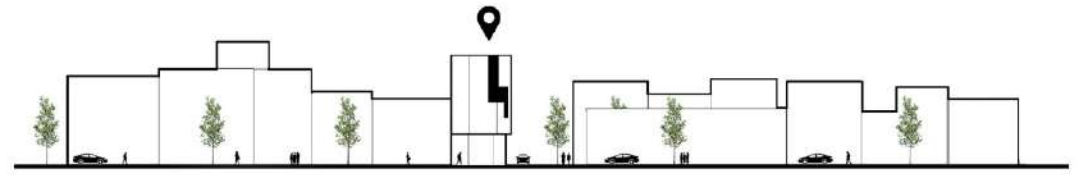
Green Space



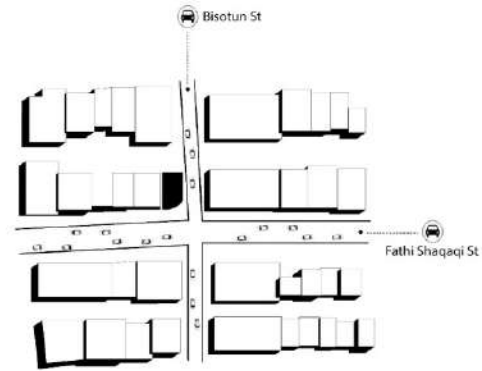
South Elevation

North Elevation

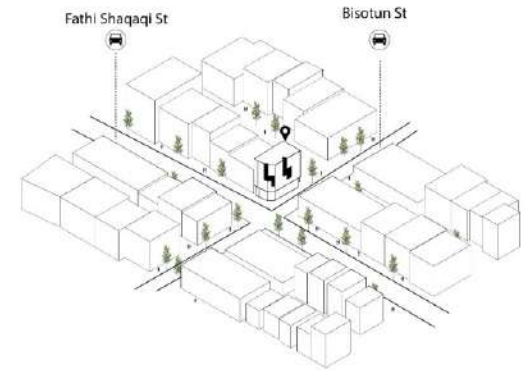
West Elevation



Sky Line



Site Plan



Urbanism Diagram



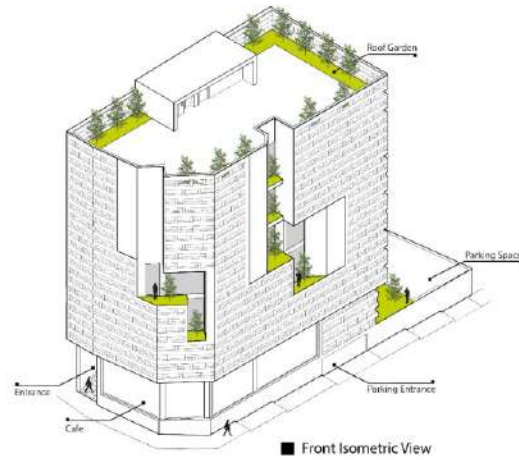
Creating gap for communicating with the city



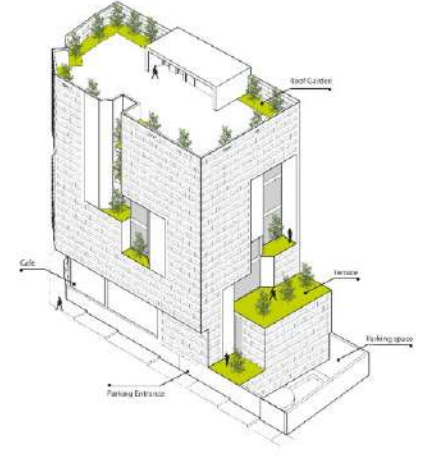
Creating indent & overhang



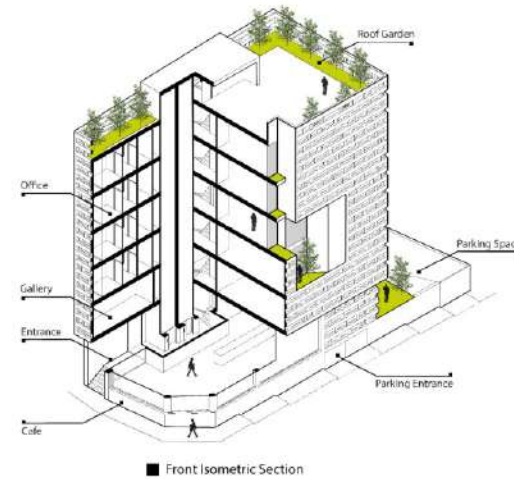
Terrace for shadowing



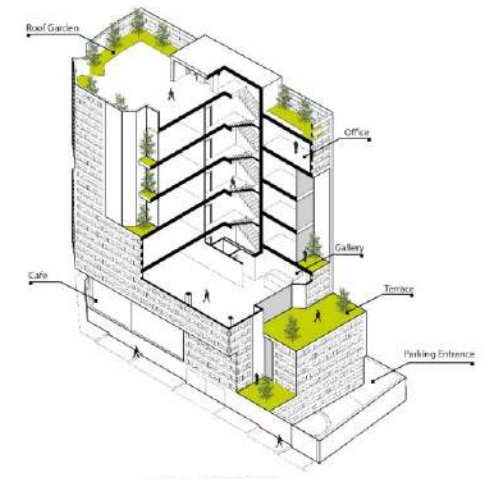
■ Front Isometric View



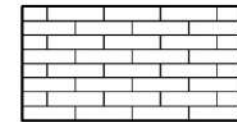
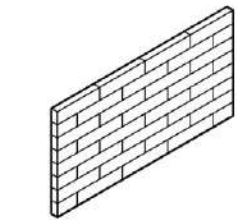
■ Back Isometric View



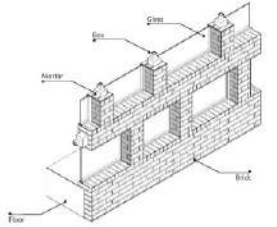
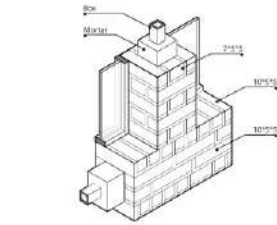
■ Front Isometric Section



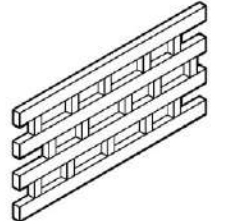
■ Back Isometric Section



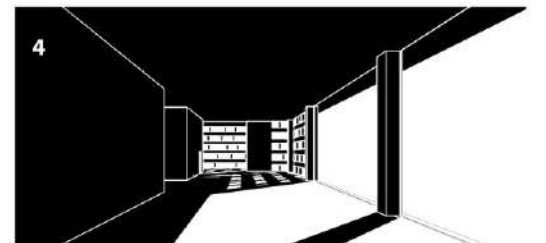
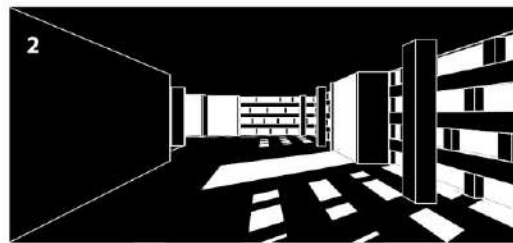
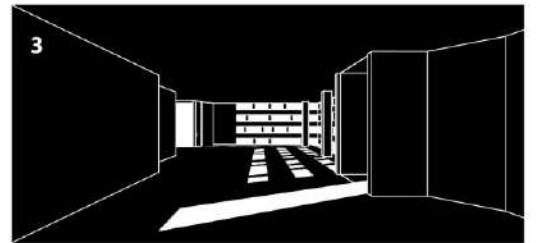
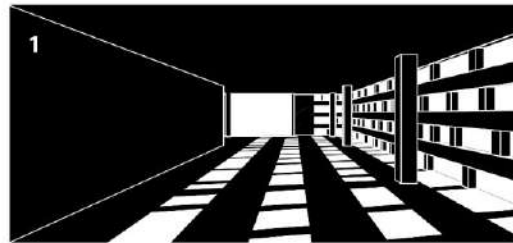
Existing Brick Wall



Positioning Of The Window

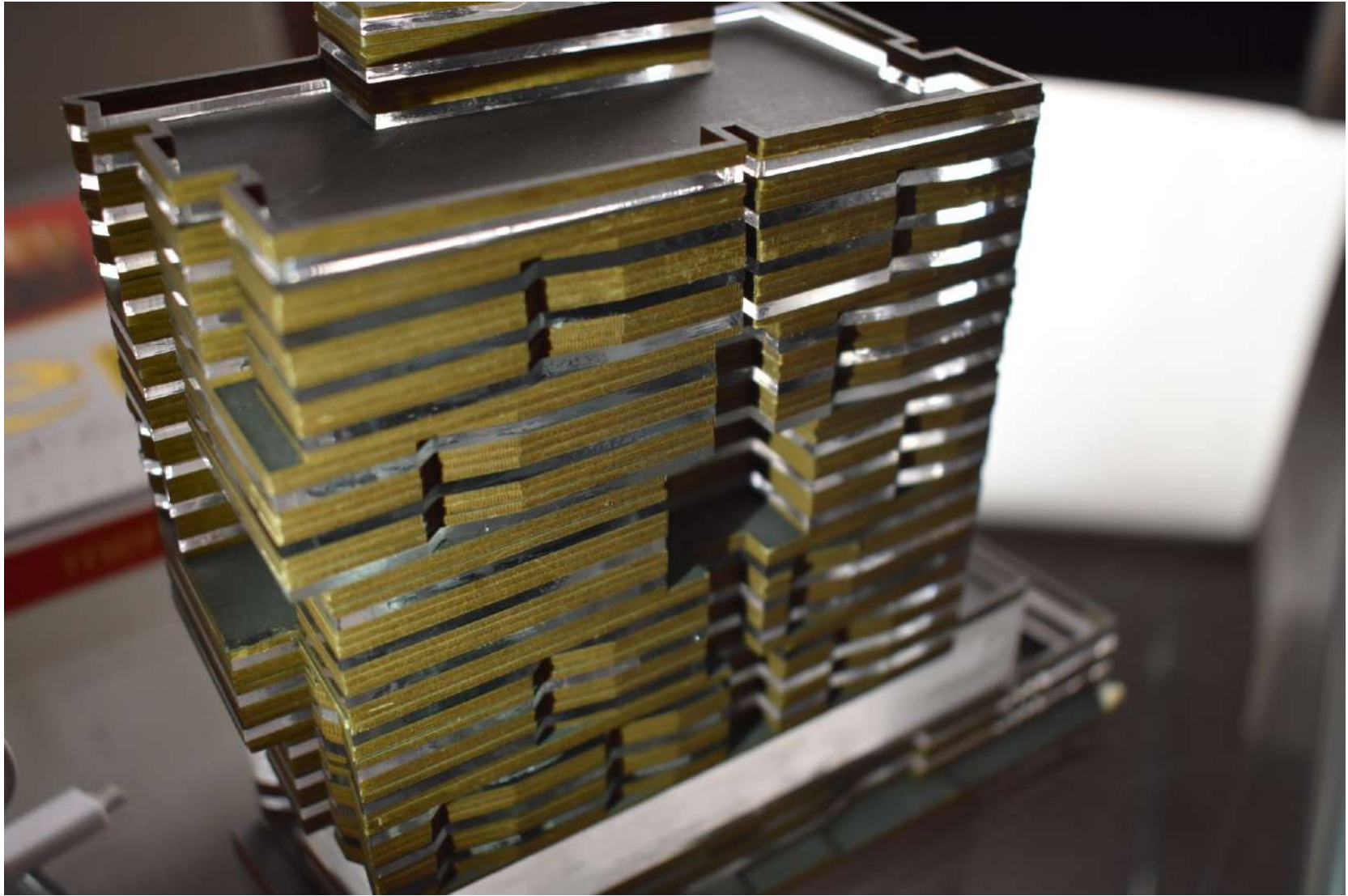


Evolved Pattern



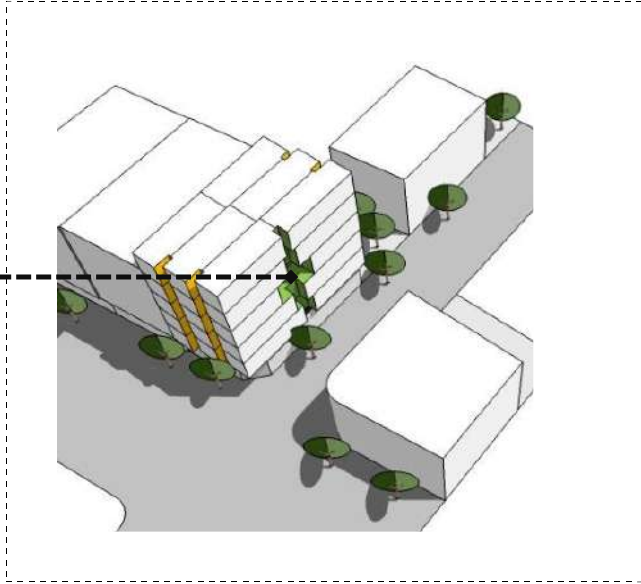
Day Lighting In Different Level

1. Gallery 2. Second Floor | Office 3. Fourth Floor | Office 4. Cafe



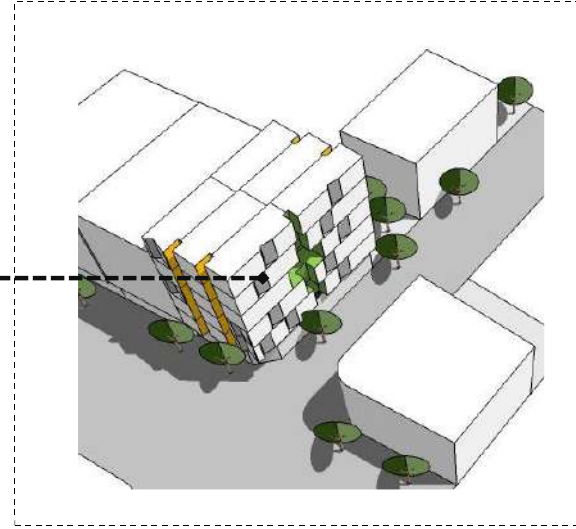
ایجاد حیاط در ارتفاع طبق سطح اشغال

ایجاد شکاف شفاف
در جداره غربی

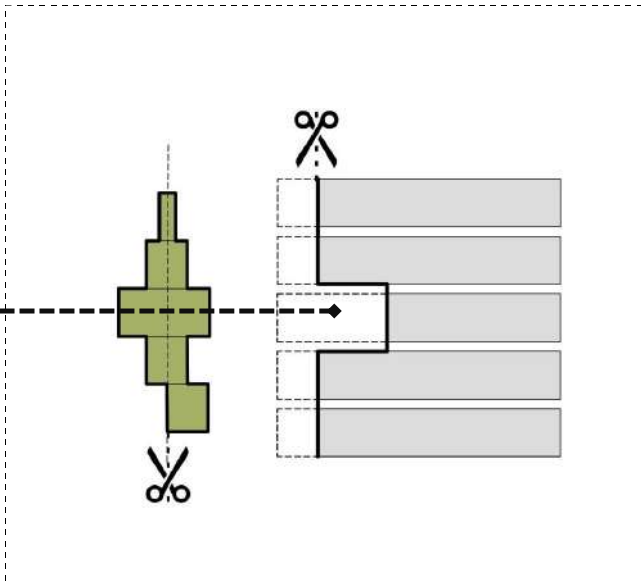


اهمیت امتداد طولی نمای غربی در نورگیری اصلی کلیه فضاها

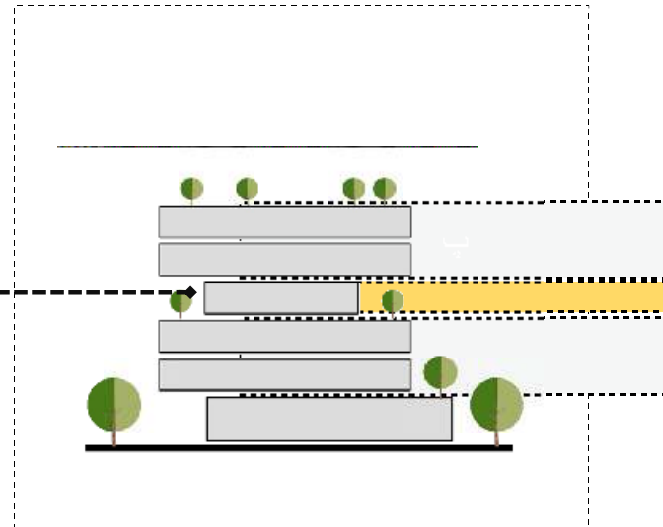
قرارگیری باز شوها با
زاویه ۳۰ درجه
رو به جنوب



ایجاد حیاط در
طبقه سوم



ترکیب فضاهای باز
پوشیده و بسته

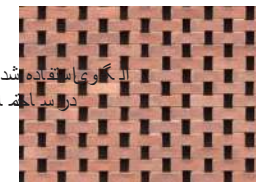


اهمیت سطح اشغال در ایجاد کیفیت های معمارانه بنا

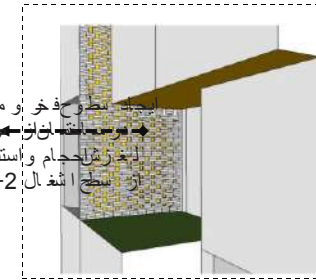
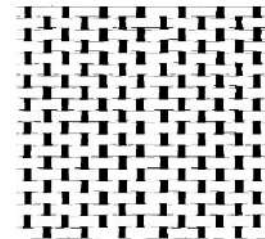


فخرو مدین در بازار ایرانی

رنگه پونیا



ایجاد و استفاده شده در ساختمان

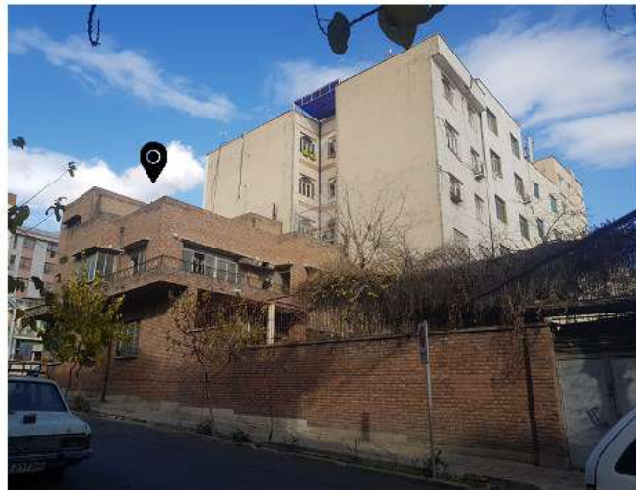


از سطح اشغال 2+60

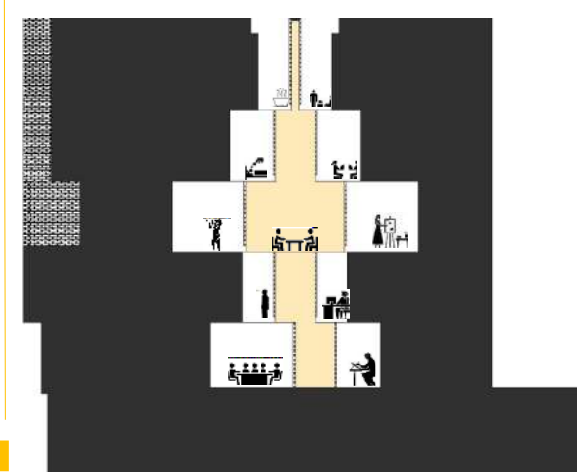
موقعیت ملک در ناحیه و منطقه



تصویر هوایی پیش روی ساختمان های مجاور تا خط ۱۶۰٪



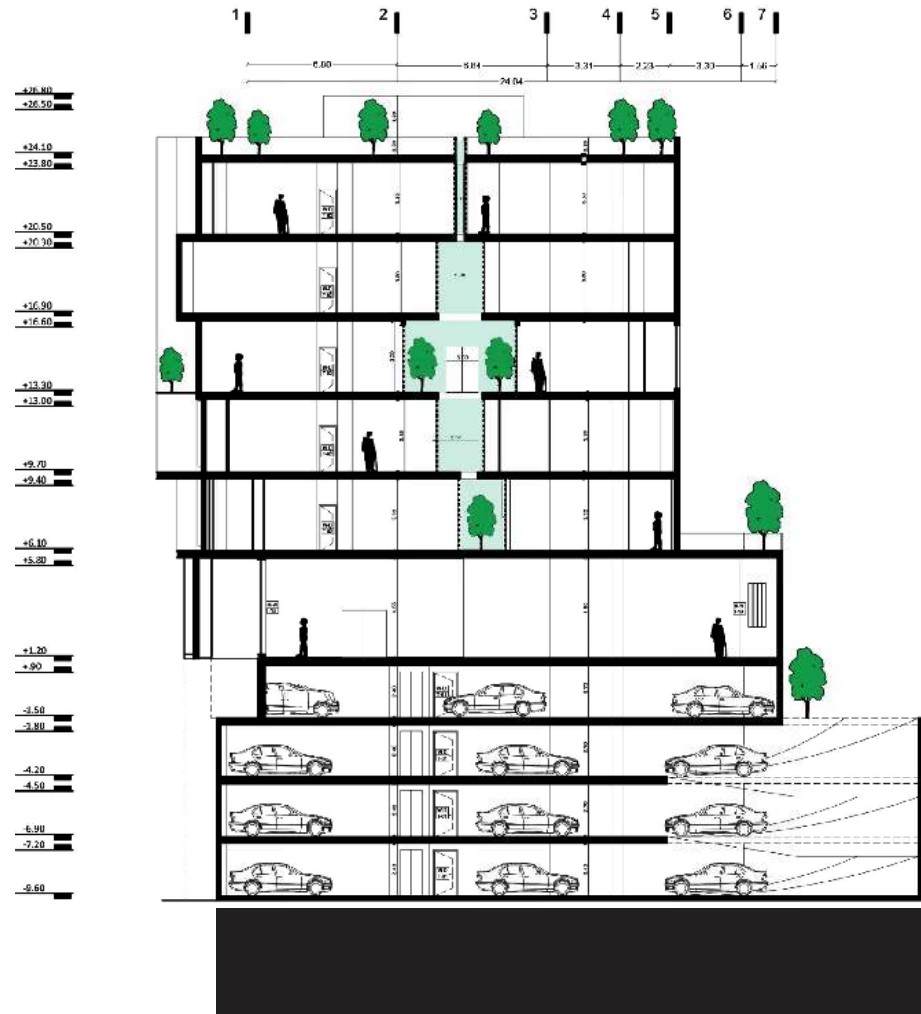
دید از خیابان بیستون پیش روی ساختمان های مجاور تا خط ۲۶۰٪



ایجاد فضاهای عمومی و دیدگاه از طبقه زیر خطی کریدور



اولیه طراحی - نگاه جدی به فضای تهی و معماری سلامت



حیاط مرکزی به مثابه یک فرم

فرم نمود عینی مفهوم
الگو نمونه ای برای تکرار
ساختار استخوان بندی
مفهوم معنی و سیرت

معماری ایرانی
چهار عرصه
فرم ، الگو ، ساختار ، مفهوم

سیدهای میرمیران

صفات معماری ایرانی
شفافیت، کاهش ماده و
افزایش فضا، سادگی، حرکت
از کیفیت مادی به کیفیت
معنوی یا از ماده به روح.



حیاط مرکزی به مثابه یک الگو

گذشته	حال	آینده
مفاهیم	نمود و ماندگاری بالا	نمود و ماندگاری بالا
ساختار	نمود و ماندگاری متوسط	نمود و ماندگاری متوسط
الگو	نمود و ماندگاری متوسط	نمود و ماندگاری پایین
مفاهیم		

محمد رضا حائری

سوازی در معماری ایرانی
عرصه عمل خود را داشته و
دارد بدین معنی که معماری
در هر دوره ای نوانگیزه است
مفهوم را دوباره از نو
تعریف کند و مصادیق تازه
ای از آن مفهوم ارائه دهد.



حیاط مرکزی به مثابه یک ساختار

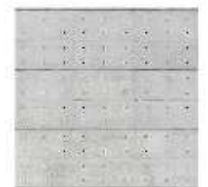
فضایی شفاف است که
بتوان تمام اجزا آن را
درک کرد.



شفافیت

به مثابه مفهوم
قابل رویت بودن ماهیت
هر چیز

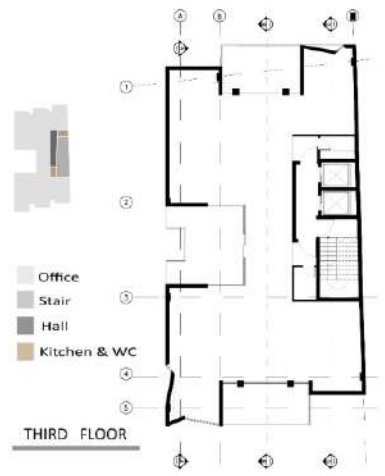
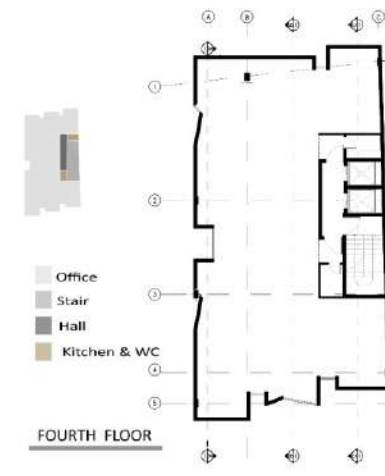
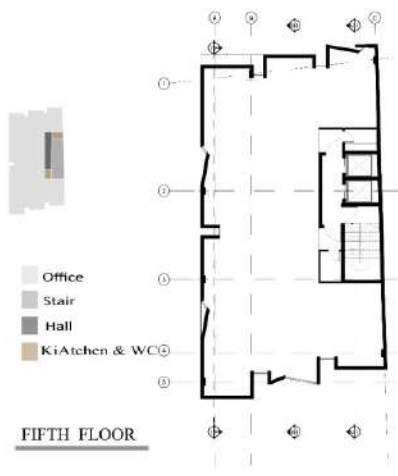
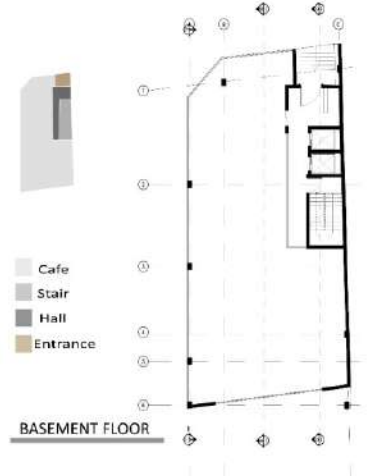
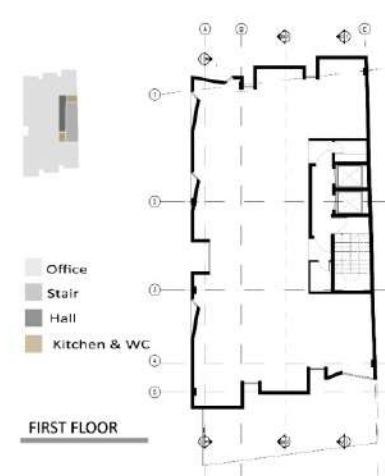
استفاده از بتن آکسیوز

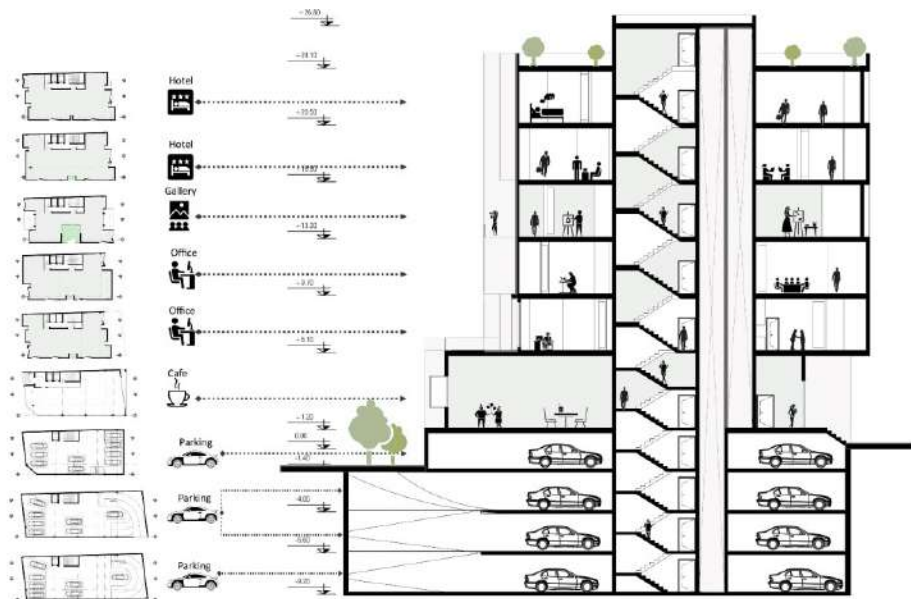


حیاط مرکزی به مثابه یک مفهوم

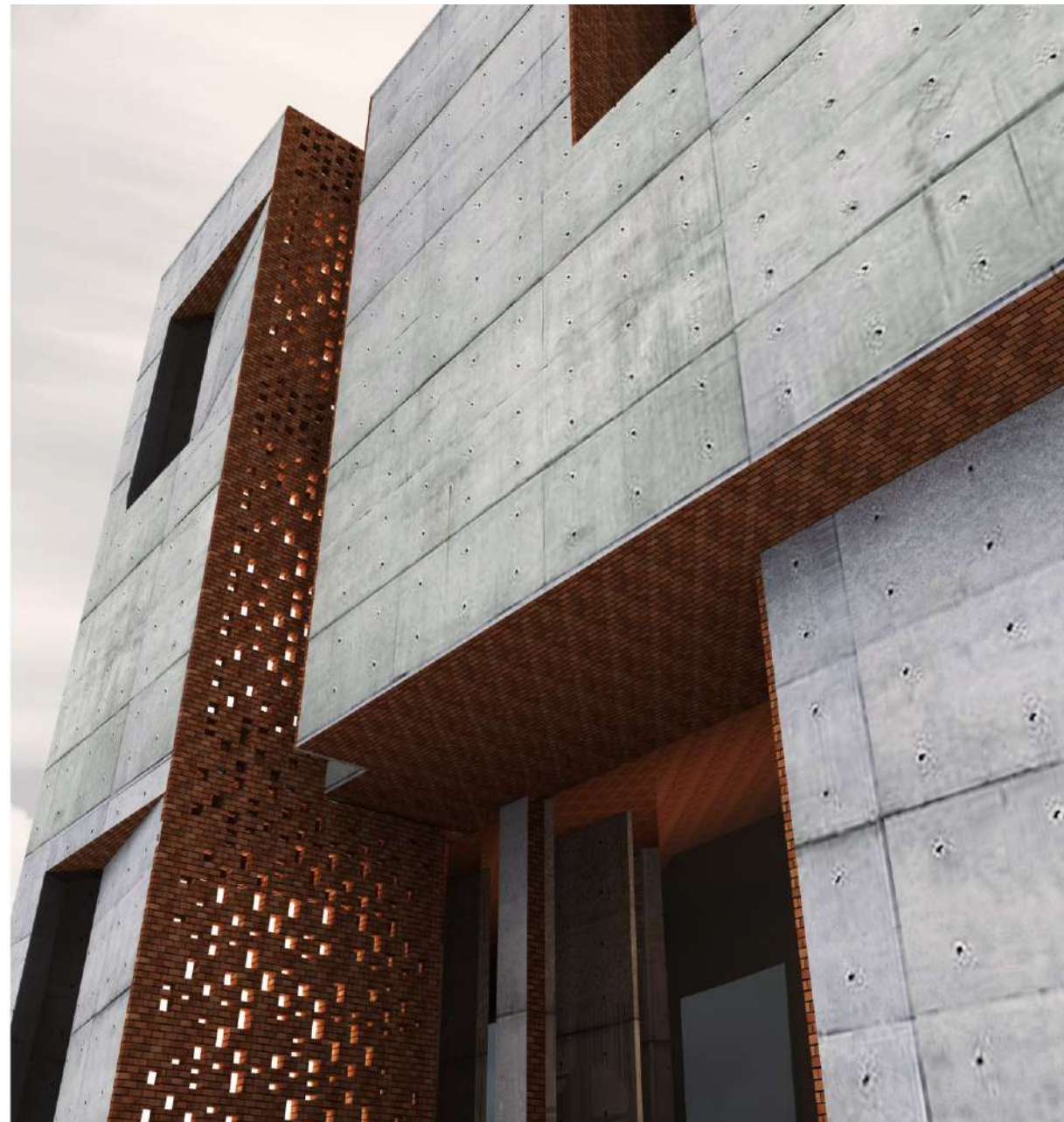
شفافیت
فضایی که در آن نور
نمود میکند و عاری از
اضافات است.



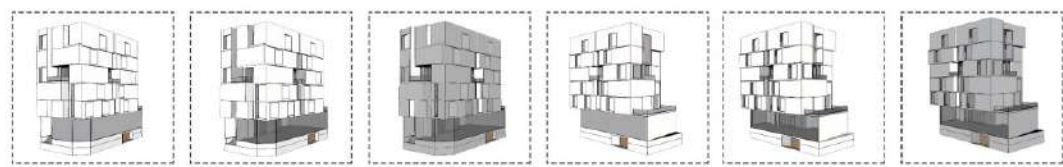
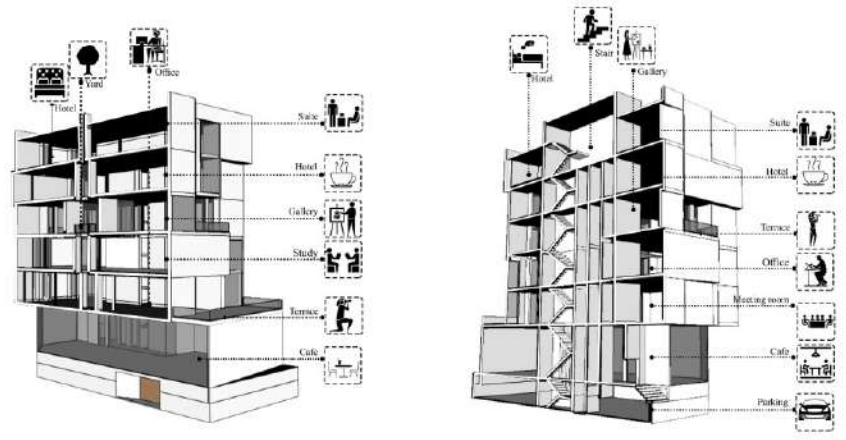




SECTION C-C



FAKHROMADIN



Glass material Brick material Concrete material Glass material Brick material Concrete material





NORTH ELEVATION

