

# Yearbook 2014

Shahid Beheshti University  
School of Architecture





## **Yearbook 2014**

Faculty of Architecture and Urban Planning  
In Collaboration with the Scientific Association of Students

**Shahid Beheshti University**

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## Introduction

# The Perpetual Rethinking of a Deep-Rooted Insight

Seyed Hossein (Iradj) Moeini

The present assortment, collected for publication for the first time, is a selection of design studio works from our BA course during 1393-4 (2014-5) academic year. They represent works from each of the nine studios run jointly in the two terms of every academic year. Having shared its origins with the standard Iranian curriculum, the School decided to revise the programme in order to, among other things, better integrate theoretical and technical units with design studios.

One of the two pillars of modern architectural education in Iran, SBU architecture school is particularly renowned for its user- and practice-oriented approach. The works in this collection represent this by always keeping an eye on where is it we are building, who are the people we design for, and what are our available means to do so.

Design studios in our school have a linear sequence and take students from learning the ways to look at the built environment around them through to the design of basic architectural elements, certain aspects of a building, complete design of buildings, housing, design development, and working drawing packages, after which they end their studies completing a holistic design in their final studio. This well-defined structure, however, is not designed to close the door on individual initiatives of tutors, who run their own takes of the curriculum. Despite a consistency in the School's overall approach, this structure has constantly been rethought in the past, and we are currently doing a fresh round of revisions which, among other things, would clearly define progressing yearly themes, namely: design basics, design process, housing design, technical design, and specialist design.

The consequences of the breaking up in Iran of a seamless architectural education system where students could continue their studies straight towards an MA degree, has widely been discussed. But as far as our curriculum is concerned, we have responded by adjusting our BA courses to train professionals capable of taking responsibilities in architectural practices immediately after their graduation. Our MA in Architecture course, therefore, focuses on training students to deal with more complicated designs and take larger responsibilities. MA in architecture works will be included in our forthcoming yearbooks, which are also planned to go on print.

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## **Introduction Design Studio**

Architectural Design Preliminaries workshop is the introductory course for new students who, typically having mathematics and physics backgrounds, enter into an unchartered territory. As such, they are likely to have limited skills and knowledge in the field of art and architecture: skills such as drawing, sketching, photography, working with colours, working with equipment, fixing and creating things. Also, many are unfamiliar with art and have had little opportunity to visit museums and art galleries due to their involvement with theoretical education in high schools and the fierce competition in universities admission general examinations.

Studio Tutors: Mojtaba Badiee, Gisoo Ghaem, Atefeh Karbasi

# Group 1

Atefeh Karbasi

To mitigate this situation, students are introduced here to design in its general sense and to some extent architectural design, including its language, expression and terms. There are, therefore, exercises related to architectural language in which skills such as technical drawing, free-hand drawing, model making, working with materials, principles and techniques of working with colours, photography, and even report writing are developed. There are also site and art museum visits arranged in order to gradually familiarise students with art and architecture. The other group of exercises is to do with developing artistic insight and creativity: these include exploring geometric patterns and their underlying order, followed by making use of them to create new works with a variety of materials, so that working with materials is also practised. The other goal here is developing in students a knowledge of fundamental architectural matters such as function, structure, and force delivery, proportions, visual beauty, as well as 2D and 3D languages of architecture. Importantly, in response to the wide-ranging curriculum most exercises are multi-aspect and comprehensive. Below are four examples of these exercises in a chronological order:

## Exercise 1: 3 D construction of a utilitarian object

Subject: making a pencil case, preferably made from a single piece of cardboard using minimal glue.

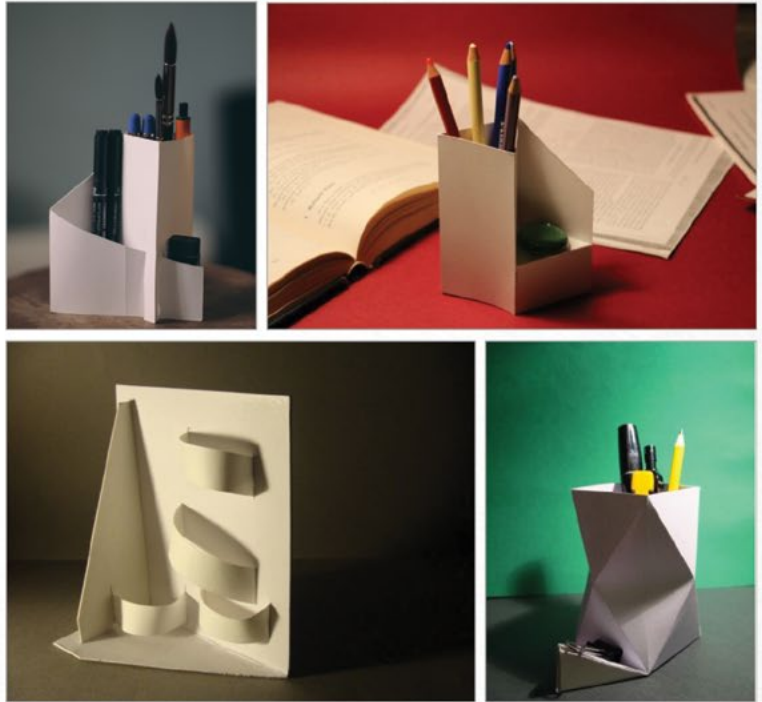
Objectives: Understanding the process of creating a small-scale object; taking into account its efficiency, beauty, stability, and understanding the fact that design and building occasionally develop in tandem; a creative understanding of materials.

Methods: Students were asked to create a desktop pencil case that can accommodate a number of pens, and has a designated place for a rubber. The design starts with making from the outset, gradually developed into its final shape through modifications. Students were to try to make use of the single pieces of cardboard, and employing its properties in a way to avoid using glues. They should constantly test their work's desirability, which is itself an exercise in achieving visual qualities. The work and its making process was also photographed and used as the subject for exercising freehand and technical drawings.

## Exercise 2: Building a three-dimensional structure

Subject: Construction of a straw and thread structure, capable of spanning between two desks and withstanding the weight of a particular book.

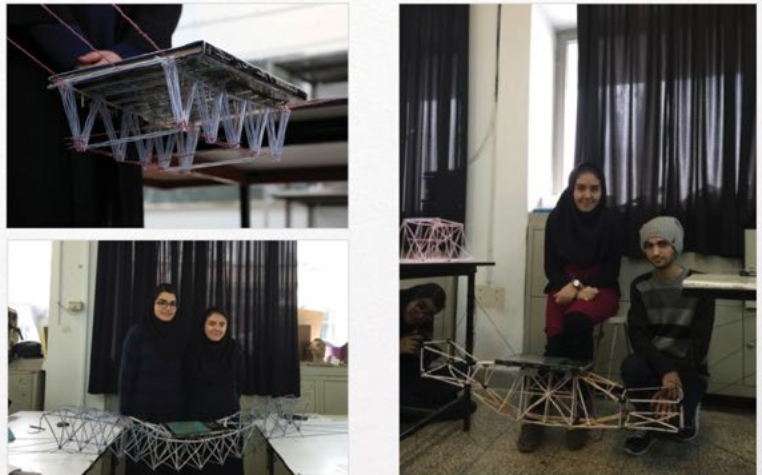
Objectives: experimentally understanding the how tension and



Exercise 1

pressure work in materials, practising design by making, practising teamwork.

Methods: Design started from the outset by making, and was



Exercise 2



**Exercise 3:** Design and construct of two-dimensional applications

Subject: New Year greeting card for the best friend.

Objectives: Understanding the link between content and meaning with function and appearance, familiarity with processes of creating a functional two-dimensional artwork and its graphics issues, applying the principles of colour and painting techniques, paying attention to an existing geometric nodes and transforming it to create a new design consistent with the original, practising how to develop the work through alternative study sketches. Methods: Students were asked to design and make a New Year greeting card of predefined dimensions for their best friend. Islamic art girih patterns were to be used as design generators explored and drawn up in their previous exercise. It had to be monochrome or of a limited palette, making use of their previous work with colours. Decisions needed also to be made about the cards trim, stability, fonts and contents.



Exercise 3

**Final Exercise :** drawing up a building and making its model  
Subject: making a model of a house designed by a well-known architect

Objectives: an introduction to architectural discipline and an internationally well-known architect and his or her image, familiarity with the language, conventions and symbols of architecture drawings, understanding the connection between various 2D drawings of a building, understanding solids, voids and stairs, practising architectural model-making and its materials and tools, practising teamwork and how to develop a comprehensive subject into conclusion.

Methods: This long exercise was actually the term's wrap-up practice, with a view to improve students' technical knowledge and architectural language literacy. Thus, each of student groups of up to three chose one of the suggested architects (Louis Kahn, Mario Botta, or Le Corbusier) explored his oeuvre and visual language through library and online searches. A house was then selected from each architect, with its documents revisited and collected. These were redrawn by each student individually, with drawings' accuracy being cross-checked through which the building was better understood. A study model and then the main model made by the group followed. Some models were made on a storey by storey basis complete with interiors. Students also completed their drawings alongside their model making.



Exercise 2

## Group 2

Gisoo Ghaem

The studio programme was divided into four parts: technical drawing, freehand sketching, artistic experiments and contemplation development.

### Technical Drawing

Technical drawing studio sessions began with abstract technical drawings and concluded with technical architectural drawings:

a) The programme began with making simple platonic solids with corrugated cardboards 40 to 50 centimetres long on each aspect. Public crit sessions were held at the end of this exercise in which the tutor discussed the works and made recommendations to improve model making skills. The volumes were then used for freehand sketching.

b) Students learned how to glue papers and use the T rulers and set squares before beginning technical drawings programme, which consisted of drawing exercises for vertical, horizontal and 45 and 30 degree oblique lines and making regular grids.

c) They then drew up a piece of calligraphy using their regular grids, through which they familiarised themselves with traditional Iranian tiling and brick work whilst staying within the main objective of this part, namely, developing their drawing skills.

d) The teaching of drawing three views in the studio began with lessons on Human, Nature, Architecture: a previously freestanding course in the curriculum – and was followed by an exercise on drawing the three views of natural objects. This was followed with the tutor's own drawings of the three views of volumes and then students' additional exercises to complete the learning process.

e) Drawing a girih was another programme in this part, which initially started as an exercise in technical drawing. Students were asked to go to the library and find an example of a girih in a piece of moulding, mirror work, tiling etc. and report it to the studio. These were then explored further and drawn up, to be subsequently used in artistic creativity exercises.

f) 3D drawing exercises started with oblique projections of given elevations and plans. This was followed by rotation exercises and isometrics. The studio then moved on to volume flattening exercises and the making of complicated volumes using their flattened drawings.

g) Drawing horizontal and vertical sections came next, by which time students were ready to survey a small part of their

school building, first as sketches and then as accurate 1:50 technical drawings complete with dimensions and isometric views.

h) This part was concluded with shading exercises and discussions about topography as well as solving some problems in this regard.

### Freehand drawing

The intention in doing these practices is to develop students' vision, imagination, and skills in presenting their designs with freehand drawings. These exercises mainly include hand-drawing lines from left to right and vice versa, from up to down and vice versa, sketching simple geometrical volumes previously made by students, or an assembly of them, sketching the faculty building and other places.

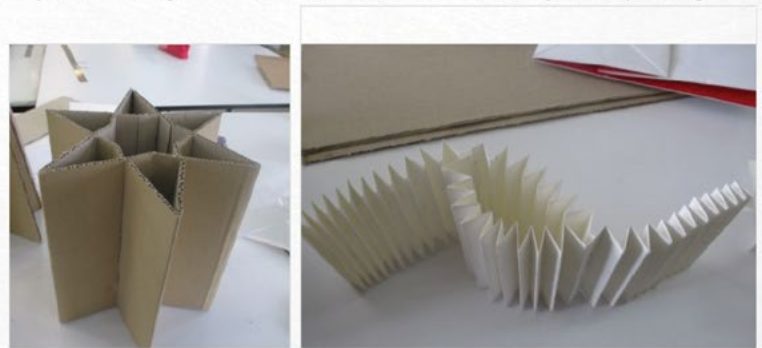
### Artistic experiments

The contents of this part include three general subjects:

- 1: experiments with 2D patterns and 3D shapes
- 2: photography
- 3: colour

A range of experiments were included in this part:

a) The programme started with making a paper flower pot of at least 25 centimetres height. Students started their studies experimenting with models and their stability, completing the



Artistic experiments (a)

b) Students were asked to cut a square into 4 equal pieces, and they ended up finding hundreds of alternatives for doing this. They were then asked to convey a given meaning making a patchwork of these pieces.

c) Students were asked to choose a natural phenomenon and draw three views of it together with sections and perspectives and think about its balance, positioning, reproduction, its colour and other details in its creation and see its influences on artistic creativity, particularly architecture.

d) Students were asked to colour the girih previously drawn on an A2 paper in order to get familiar with girih colour schemes in architecture and ornamentalations, as well as general principles of using colours. This was their second 2D practice.



Artistic experiment (b)



Artistic experiment (c)



Artistic experiment (d)

e) Students were asked to do a research arabesques and turn their girih to an arabesque, transferring it onto a Plexiglas sheet and paint it as a vitrail.

f) The next exercise was to take a cube as their family and try to break the cube down in a way that each piece represents a member. The pieces needed to be interlockable and stable. Studies for this exercise were done with playdough.

g) Making clay head sculpture was a one-day workshop ran alongside other students in this year.

h) Students were asked to choose a simple geometrical volume creating it by repeated use of a 2D shape, to be installed in a faculty space previously surveyed. The approximately -50cm cube size works were then photographed and the photographs were used as subjects for an exercise in ink renderings.

#### Contemplation development

Anyone wishing to study architecture is supposed to be interested in the cultural heritage of his or her country as well as others', understand the importance of sciences in human life, realise that many art experiments are based on scientific

knowledge, and be aware that the nature enjoys a wonderful architecture. In order to invoke such insight programmes were arranged to watch films, visit museums and explore nature. To explain ways of observing natural phenomena we walked around the university campus to observe its plant species, and to learn from them lessons about statics and colour variations. We also watched a film made by the Institute for the Intellectual Development of Children and Young Adults about model making. We also visited the Carpet Museum, the Museum of Contemporary Art and the creativity centre in the Intellectual Development of Children and Young Adults, all of which documented and reported by students.

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Artistic experiment (f)



Artistic experiment (g)

Artistic experiment (h)



## **Design Studio I**

Design Studio I aims at generally familiarising students with the discipline, and exercising how to look at works of architecture, as well as designing basic architectural elements. It includes visits from small towns and villages as well as significant works designed by architects, based on which small design exercises are carried out by students.

Studio Tutors:

Mojtaba Badiee, Gisoo Ghaem

Atefeh Karbasi, Azadeh Agha Latifee

# Group 1

Mojtaba Badiee, Gisoo Ghaem

## Studies

At Architectural Design Studio I students begin design exercises studying a rural site. Therefore, a trip to a village is necessary in order to provide the basic information. They initially team up to gather information including pictures and aerial maps of the village, cross-checking their collected information between teams. Students also present seminars during the term. Each member of groups of two is to give a seminar about five buildings – a rural and two urban buildings in Iran, and two other important ones in other countries. In these seminars they should be able to analyse entire building elements, paying attention to some key architectural terms.

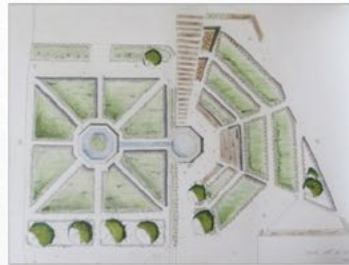
They also provide reports on architectural details such as those of railings, troughs, gardens, windows, doors, roof edges, ground lines, entrances, openings, floorings, fountains etc. The purpose of these reports is to bring these elements to students' attention, with reports being allocated limited times and rather of a pictorial, familiarising nature.

## Exercises

Design exercises started with more in-depth studies on rural architecture. This included studies of rural architecture principles and readings of some key Persian texts on the matter, including *Cloudy Is My Home*, *Owrazan*, *Rural Sociology*, *Rural House Typologies in Khuzestan*, *Rural House Typologies in Kohgiluyeh and Boyer-Ahmad*, *Khark: the Orphan Gem of the Gulf* etc., each studied by a group and explained to the whole class. Meanwhile, another group searched organisations such as the National Cartographic Centre, National Geography Organisation of Iran, Statistical Centre of Iran and Housing Foundation of Islamic Revolution for additional information about their site.

The first sketch session was held on Taleqan village. The purpose of this sketch was an evaluation of students' familiarity with the subject on one hand, and an exercise in time management on the other. These sketches were judged by students themselves. This was followed by a first trip to Taleqan in order for students to find a general understanding about the village, choose their flooring design sites, and survey them in groups. The surveys were drawn up in the next week in tandem with a design scope briefing session (limiting it to 2D design) and a lecture on flooring by the tutor. From this session on, students presented their pictorial reports on relevant matters, accompanied with design tutorials. Meanwhile surveyed walls were also drawn up, and a visit was organised from the Japanese Garden of Laleh Park in order to further scrutinise flooring and landscaping. Tutorial sessions were held collectively in order for students to get familiar with critiquing themselves, and also to get ideas from other students' works. Large-scale images of the site were used at this stage to help students conceive their designs, this time in 3D.

To conclude the first half-term, sketch 2 session was held on a sitting corner in the village, with an emphasis on correct time scheduling and documentation.

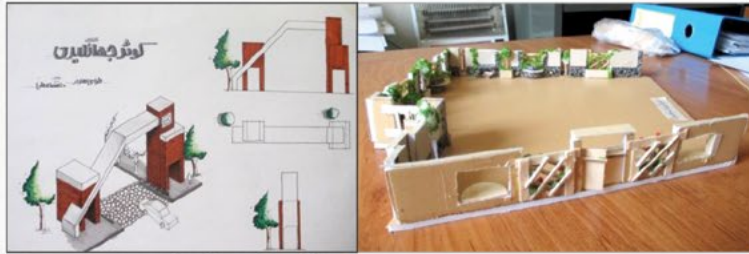


Rural architecture study

First Sketch

For the next exercise on walls a lecture was held by the tutor, followed by the making of a model of the design site, and then group tutorials and presentations of reports about the doors, windows and openings, entrances, and the roofs.

In the next stage the seminars about the five buildings were held, followed by the third sketch, a combined wall-floor design exercise and the subject an entrance gate for the university.



an entrance gate for the university

The next exercise started by a lecture on designing small spaces, and followed with the sketch 4 for a canopy at the Veshteh village of Taleqan. Here students had to consider volume, elevation, floor, roof and the place where the canopy is designed. This was followed by a design exercise for a book exhibition in the university area.

Next came a stair design exercise, again kick started by a lecture on stair design issues, its codes safety, and design criteria. This was followed by a survey of a stairway leading to the faculty's landscape department to proceed as far as accurate technical drawings of it.

The term was concluded with revisiting the village, this time focusing on the courtyard of the Village House in Veshteh with the design of both its floor and walls using the more holistic design skills students had gained throughout this term.



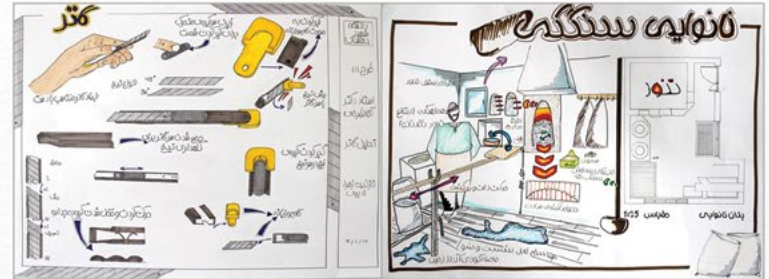
courtyard of the Village

## Group 2

Atefeh Karbasi, Azadeh Agha Latifi

### The Design of Sohrab Sepehri's Cottage, in the Plains Surrounding Niasar Pavilion, Kashan

The overall aim of the course, as approved by the faculty, is to lead students to turn their views towards architecture as a whole, and at the same time, experimenting in small scales, and familiarising themselves with two fields: 'architecture in general', and 'the physical elements and their design'. Choosing Sohrab cottage as the design topic, students faced, for the first time, a thought-provoking design theme, experiencing the design process from site selection and analysis site to a final design. Before getting to the main workout, preliminary exercises were given to familiarise students with conceptual and functional aspects of architecture, such as a concept sketch with the theme 'a way to go through' or 'another new day', functional analysis of an object and a simple architectural space, layout design of a student room, and a conceptual expression of an architectural in volumes.



An example of object analysis exercises

An example of the functional analysis of space

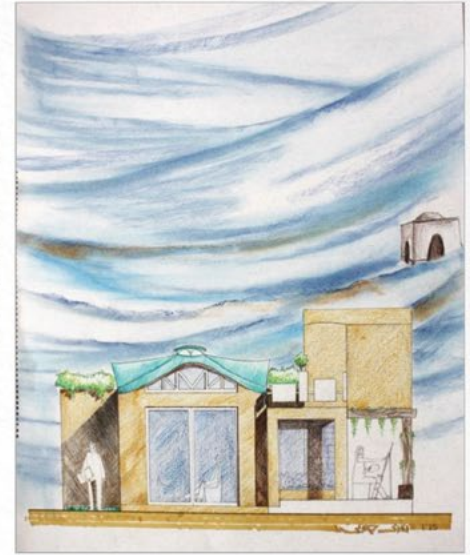


An example of laying out a student room

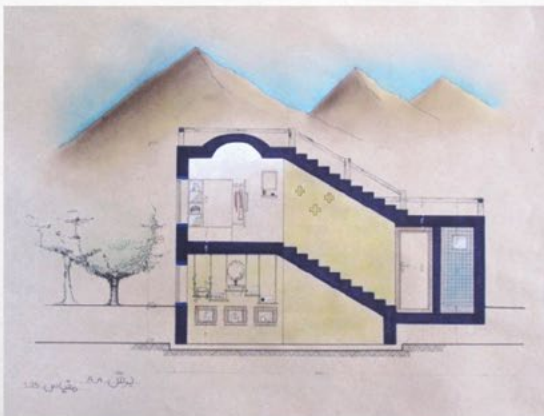
The main project was students' first encounter with architectural design. In previous years, students did relatively separate programmes of designing architectural elements such as floors, walls and ceilings, with occasional attempts for subjects to be parts of a whole. In the present experiment, it was decided that instead of designing discrete components, a small piece of architecture is designed in its entirety, scrutinising elements inside it. The design site is historically and environmentally important: an environment adjacent to the ancient pavilion in Niasar, Kashan. To the north it has a suitable view towards the pavilion, and to the south towards the surrounding mountains. Studying the poet and painter Sohrab Sepehri's biography, and experiencing his paintings and poems, students were to achieve an understanding of his spirit and mood, as well as his preferred spaces in the form of a cottage. Stages included site selection and analysis, concept model making, drawing various frames of landscapes and developing early designs towards a more detailed design.



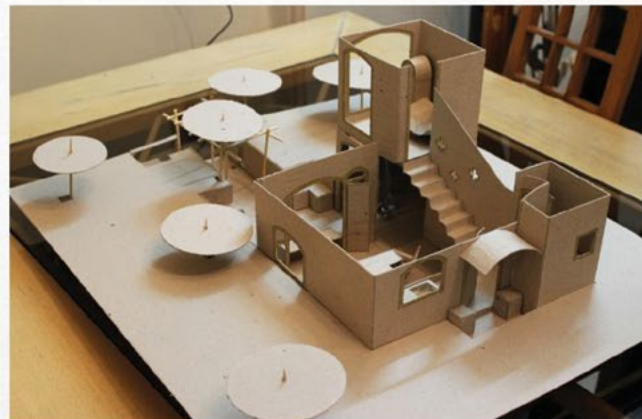
Fatemeh Nowroz Zadeh



Sana Dehghan



Rayhaneh Abarghooii





## **Design Studio II**

An introduction to interior, external volumes and facades,  
and landscape design

Tutors: Saeed Mir Riahi, Zahra Taaghi, Sepideh Mas-oudi  
Nejad, Maryam Farhady

### I. Interior Design:

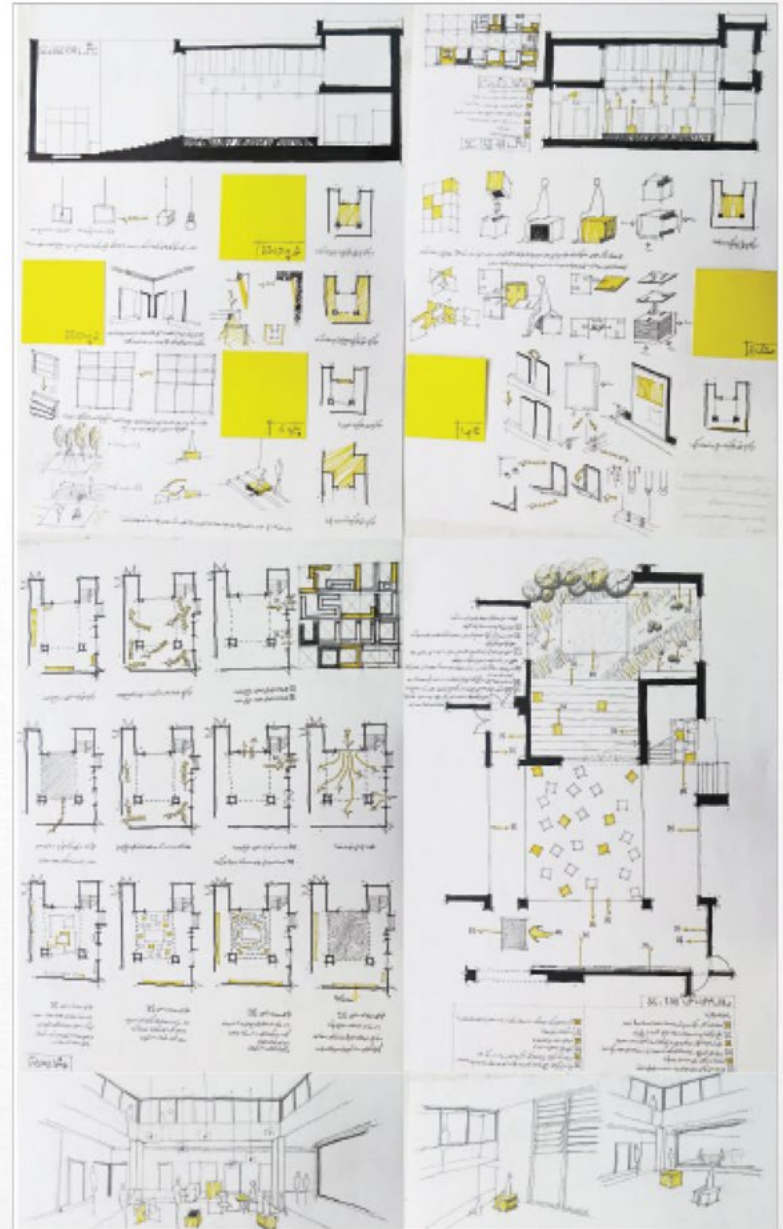
Students were asked to choose one space from the faculty building and propose a remodelling scheme to improve its quality. The focus was to be, among other things, on functions, geometry, sizes (in connection with human scales), materials, natural and artificial lighting, furniture organisation, and the dialogue between inside and outside.

### II. Landscape Design:

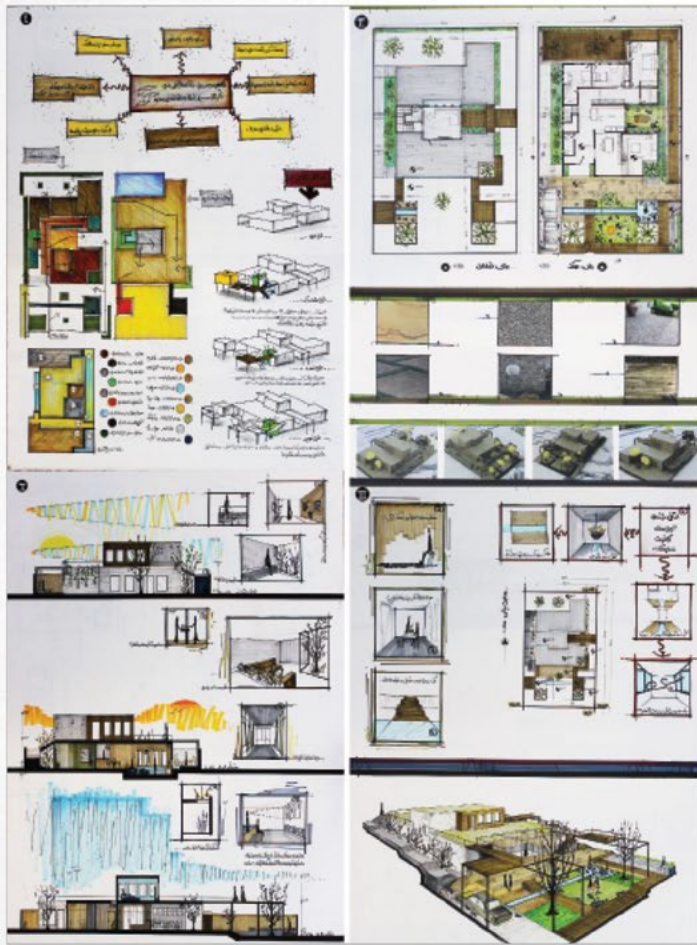
In this exercise students were asked to design the university's main street with the aim of pedestrianising it. The exercise created an opportunity for students to familiarise themselves with exterior architectural elements such as plants, water, paving and covered spaces paying attention to matters such as making the right use of open spaces, designing open space components in details, and the importance of materials in designing components and the way they define a spatial character in line with that of the university.

### III. External Appearance

Students were asked to make alterations in the external appearance of a house in Tehran's northwest Shahrak-e-Gharb district. The house was to be used by the student and his or her family. As such, the design had to reflect their life style, necessitating major alterations in the internal layout as well. Aiming at a visual and semantic harmony in exterior design, students pay attention to issues such as the relation between external views and inside, the dialogue between façade design and the yard, fenestration, roof geometry, and the use of materials. Furthermore, this exercise sums up skills gained in previous exercises.



Interior design



Exterior design



Exterior design

## Design Studio III

Design Studio III is students' first serious engagement with fully designing a building, as well as with architectural analysis and criticism. The latter was aimed in this case at equipping students with decision-making abilities towards their design work.

The analysis and criticism was comprised of four exercises:

- Each group studied an analysis and criticism about a contemporary Iranian building and reported on how it is structured.
- Each student took a pictorial analysis of a historically important building and developed it using what they had learnt from the previous stage.
- Having chosen their subject from a pool of four agreed, each student analysed a similar building published in printed or electronic media.
- Each group visited a series of buildings in their chosen category choosing one as his or her design site and deciding, based on their analysis, whether the building needs an extension or a complete rebuild.

The four building types chosen were local market places, local cultural centres, local sports facilities and doctors' surgeries, each represented here by an example.

Studio Tutors: Saleh Bokharai, Hamidreza Khoei, Iradj Moieni, Nahid Sadeghipay

# Behroud Market Hall

Behrang Baseer

My design project is a market hall in Behroud square, north of Tehran. Regarding the studio programme, I chose an existing market in Behroud square. A semi-open market built of ready-made structures. I decided to replace the existing market with a new building to achieve these goals:

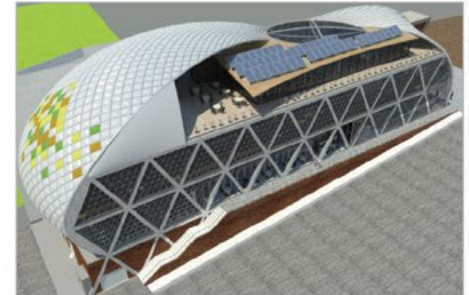
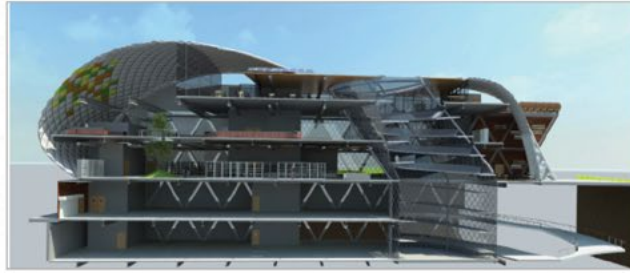
1. To respond to all functional needs of a market hall
2. To re-create an experience of daily shopping as a human and social event and produce novel affects
3. To create a new civic space and an urban quality for Behroud neighbourhood

To achieve these, the market hall was designed as an enclosed building, respectful to environmental design and green agenda, multi-functional, transparent and open to the public, containing spaces for leisure, which are alive in nights and improve the neighbourhood safety.

The Behroud Market hall is a 3 storey building. Because of using a diagrid structural system each story consists of an open floor. The project includes two levels of parking in basements, a super market and a pastry cafe in first floor, a fruit and vegetable market in second floor and a restaurant in last floor.

The main vertical circulation is a diagonal spiral ramp shaping an atrium connecting all floors. There is also another atrium with a tree inside to connect super market and fruit market and improve natural ventilation.

Besides the diagrid and diamond-shape glazing, there are two gridshells with ETFE panels as building envelope, both starting from earth and reaching to spiral ramp atrium.





# Doctors' Surgery

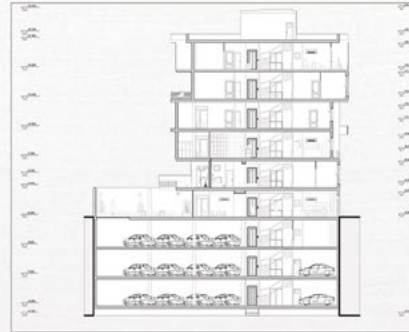
Zeynab Sharifi

Doctors' surgery building quality design is of obvious importance, because the people who enter these buildings are not in a suitable mental or physical condition and their surrounding might affect them more significantly than others. For this reason, we decided to study and analyse a doctors' surgery.

The studied surgery is in Tehran Mirza Babaei Street, opposite Boostan commercial complex. In terms of access, the location of this clinic at the heart of a commercial area is a positive point. On the other hand this area is a crowded and therefore uncomfortable place and lacks desirable qualities. The building has a backyard which is virtually useless, while it could provide a space for patients to calm down away from the crowd. The vertical organisation is in divided northern and southern mezzanines while there is only one lift in the building providing access for northern mezzanines. A part of the ground floor is allocated to a restaurant which is irrelevant to the identity of a medical building, while the ground floor is very important in terms of both the building facade and its access hierarchy. The current situation causes the building to lose its identity.

Overall, the building has no medical-specific features. This, together with the lack of proper entrance hierarchies, a special identity, a good vertical access for patients, comfortable patient spaces and also the neglecting of the yard and semi-open places, led us to propose a replacement design for this building.

The main idea in the new design is to form a single identity and a consistent whole. As a result, the clinic is not formed by isolated, independent units, but the building includes a continuous spectrum of public to private spaces such as reception and entrance lobby, public waiting room (cafe, enclosed, semi open and open spaces, children playground), doctor's room, resting areas etc., designed according to varying degrees of privacy needed in a clinic, but with consistency kept in mind. Meanwhile each floor is assigned to a medical speciality or a special usage and is designed based on its users' needs. Even the distribution of specialities and various usages in different floors are based on factors such as the need for access to the yard, good views, light, public movements etc.

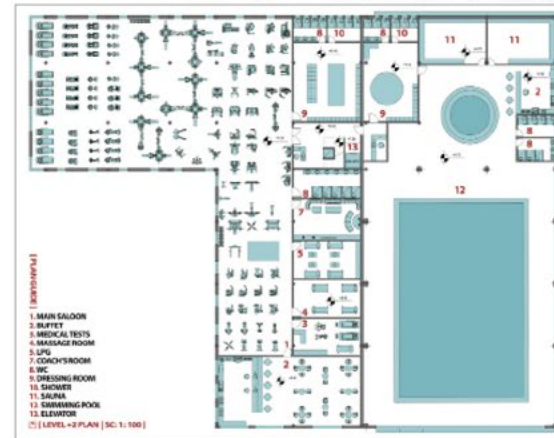


# Tochal Sports Complex

Arian Mehr Gorji

The site of the project is located in a rich neighbourhood of Tehran, called Velenjak. (Bam-E-Tehran, in front of the first station of Tochal telecabin) There are currently tennis courts on site, but they have been abandoned for a while and deteriorated due to climate conditions. Bam-E-Tehran is mostly recognised as a sporting zone, including a hiking area, skiing, zip line, Archery club, a number of restaurants and cafes and a 3 dimensional Cinema.

An analysis of the site resulted in a decision to propose the replacement of the existing facilities with new ones. The proposal includes a gym, a swimming pool, a food court and a cafe, tennis courts and an administrative section for managing the project. One of the advantages of the site which formed the first ideas of the design was the good view and its raised location. Of other concepts were the use of the 'L' form in order to better circumscribe the open space, and also the use of a pure and rectangular form in order to achieve a continuous space and make the gym an easy-to-use place. The project is a three storey building: office on the ground floor, food court on first floor, and the gym and the swimming pool on the second floor. The building has a steel structural system, with the structure of the pool hovering above the slope separated with a joint.





## **Design Studio IV**

Design Studio IV is students' first serious encounter with architectural design in many respects: first residential building, first scenario making, and first detailed planning among others. Students are asked to design two residential units of different sizes together with a work place in a plot of land under 1000 square metres, which they have chosen. In some cases a group chooses an urban or suburban block, each member designing one plot. First comes the scenario: who users are, what life styles they have, what kind of relation is there between the occupants of the larger unit – usually the student's own family – the smaller unit and the work place. Then they prepare a detailed brief covering every quantitative and qualitative aspect of design based on which the design process starts.

The chosen examples here are designed in three different contexts: a countryside retreat in the mild, humid Maazandaraan, a house in the outskirts of the hot, arid Kirman, and one in an urban but low-density area in Tehran. They not only engage with what the context demands, but also focus on a dreamed life style and how the three components of these mini-complexes stay in a dialogue without disrupting one another's independence.

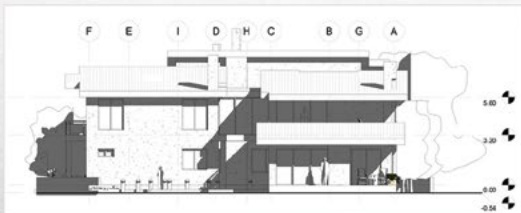
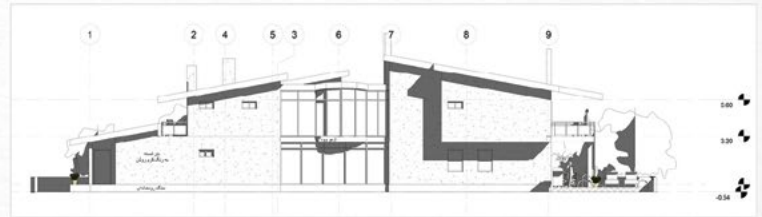
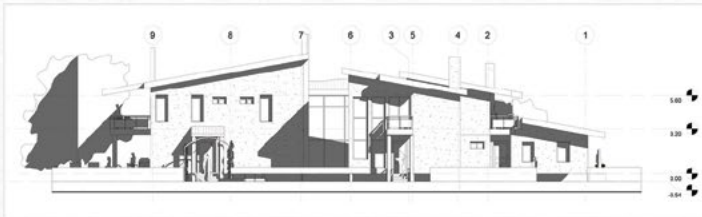
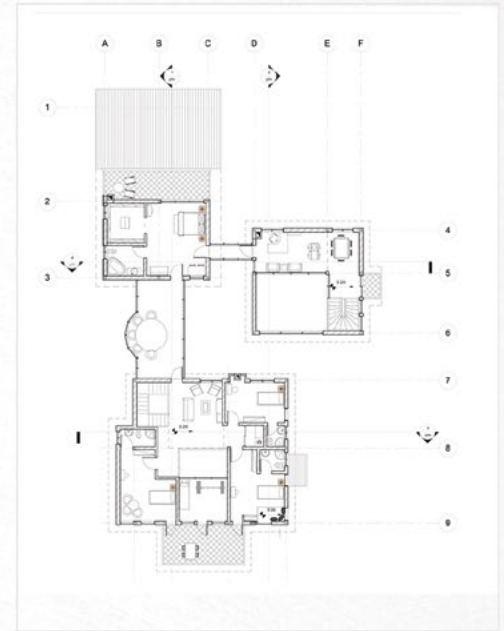
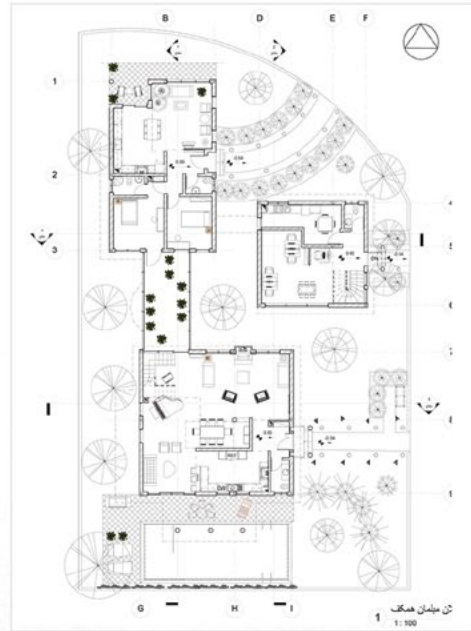
Studio Tutors: Hamidreza Khoei, Iradj Moinei, Mohammad Ali Parsa

# Amooei Residence

Pooneh Amooei

This project consists of 3 main parts: the first building for my family of 4, the second one for my grandmother and the third one an architecture studio and a working place for the members of the family.

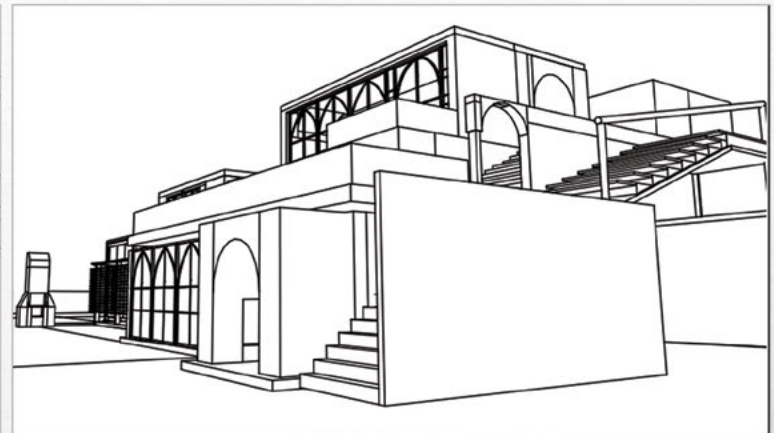
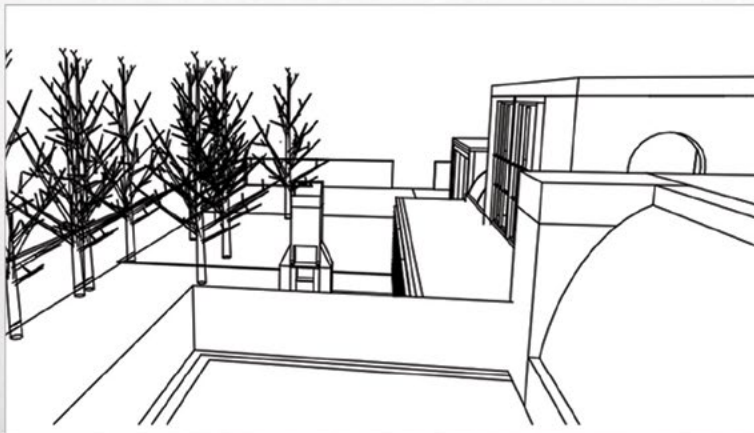
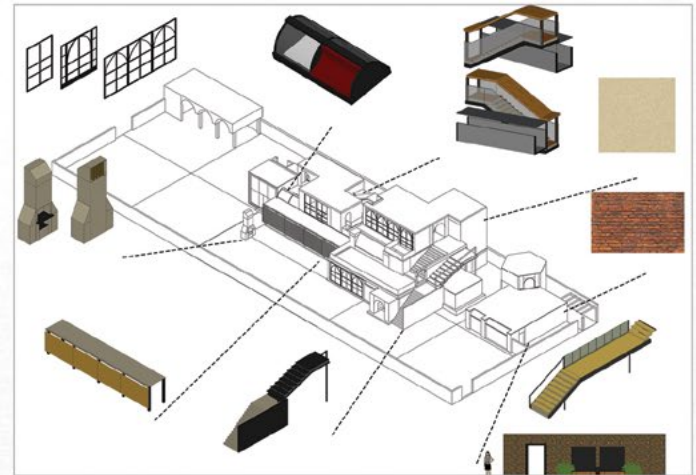
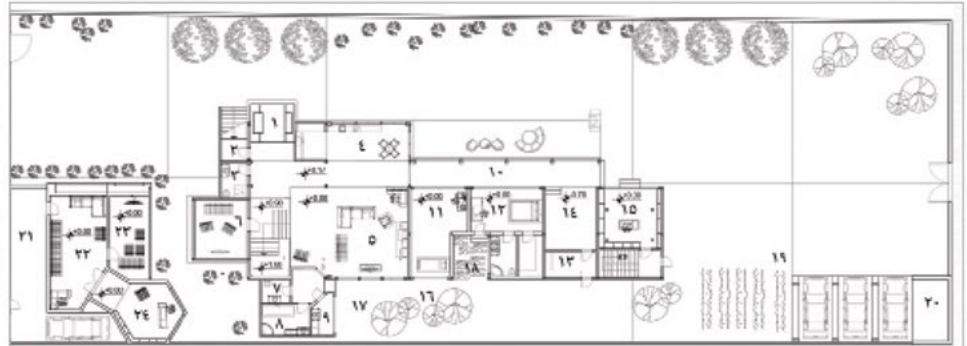
In the design of this project it has been tried to keep the building blocks connected according to the needs and the special uses of spaces, as well as keeping their independence. This has been made possible by using sheltered bridges because of the humid and rainy weather of the north of country, where the site is located. Also, each of the building blocks has their own private green spaces.



# Ghaffaree Residence

Amin Ghaffaree

In a warm climate in the southeast Iran, a small family decided to move to the suburb of city with all of its four members, a decision made to escape from increasing crowdedness of city. Meanwhile, demands of family members form the house's spaces and its organisation. The father's isolated office, mother's various open spaces and children's expectations of their spaces are some these demands. If we want to point main quality which made this design, we should name the mysterious organisation of demanded spaces to make a Home of passion and life.

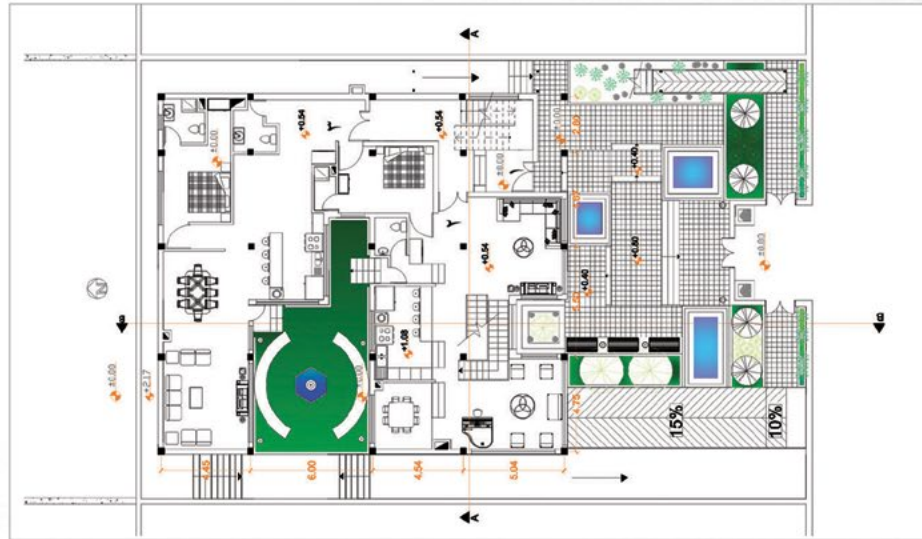


# Haatef Residence

Assal Haatef Mottaghee

The Design of two residential and one office unit in borough 2 of Tehran (Shahrak-e-Gharb, Hassan Saif Street)

The project consists of a larger and a smaller residential unit. The larger housing unit is for a family of four including the father, the mother, the daughter and the son. The grandparents live in the smaller unit. The office unit is an architectural office, which is the workplace for the daughter. The larger split-level residential unit is located on the ground floor, and the office unit is on the first. A few employees work in the office and there are stranger visitors here. So privacy and the separation of access routes for strangers and residents in the project was an important consideration. But because the site only has access from the south, municipal codes limit building area to the northern 60% of the plot, we tried to separate the employees' and visitors' route from the occupants using a bridge and directly access to the office through the bridge, with



## **Design Studio V**

Topic

Housing complex

Academic Members

Ali Ghaffari, Zahra Taghi, Mohammad-Yousef Nili, Maryam Farhady, Sepideh Masoudinejad

Goal and Objectives

Goal: Enabling undergraduate students to design a housing complex

Objectives:

-Giving the students a basic insight into the efficient housing design

-Encouraging the students to have a multi-dimensional approach toward housing design, focusing on three dimensions (social, environmental and physical)

-Introducing a process of design exercises, aiming to ensure the above-mentioned dimensions

## Approach

The studio's approach toward design of a housing complex is as follows:

-A hierarchy of «life», «space», and «building» in designing the living environment: Understanding the qualities of life is prior to designing space, and understanding space is prior to building. In other words, the first step is realizing the residents' daily needs and activities; the second step is designing a space suitable for their life style, and the third step is designing the building form.

-»Home patch« as a basic unit: home patch is considered as the smallest social/environmental/physical unit for the urban housing. It is a medium-scale between micro-scale (a housing unit) and macro-scale (a neighborhood), with the ability to expand and duplicate for shaping the urban blocks.

-»Low-rise high-density« housing model: It is a physical model with an efficient density level which aims to achieve a socially and environmentally sustainable housing.

## Content

Due to the multilayer nature of the housing design, in this studio, students are encouraged to follow a coherent design process introduced by the academic team. This method aims to help the students learn a logical, analytical and multi-dimensional approach toward design solutions. In this regard, this studio consists of two parallel parts; theoretical studies and design exercises.

Along with the design exercises, theoretical studies aim to give the students a general idea about the three dimensions of the housing design.

First design exercise, so-called «my home and neighborhood», focuses on observation and analysis of students' own home and its surroundings. Second exercise is a freehand sketching of a housing complex with 15-10 units, helping the students to encounter design challenges and questions before any design methodology introduced by the teachers. As an important skill for designing a housing complex, third exercise is assigned to the typology of housing units, their compositions and possible future changeability of units. Fourth exercise is focused on macro-scale arrangement in the level of an urban block located in Evin district, Tehran. In such a way that the students are supposed to volumetrically arrange a number of home patches to form the urban block. And, for the final design project, they would choose one of the home patches with 15-10 units, and

design it to the details.

## Achievements

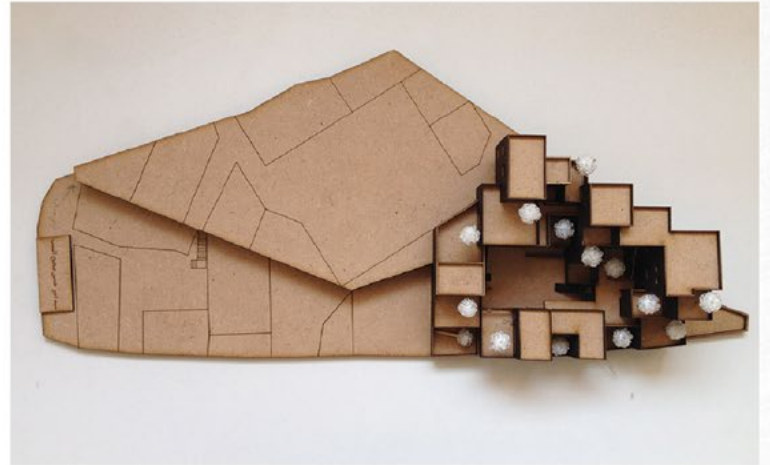
Theoretical studies and dialogues in this studio intend to highlight the multi-dimensional nature of housing design. Each exercise has a partial role, covering an aspect in the final project. The studio covers a range of scales from an urban block to the housing unit design. Also, in addition to the physical dimension of a housing complex, this studio encourages the students to consider the role of residents' life style in design, as well as the flexibility of design in accordance with their life stage transitions.

# Housing Complex

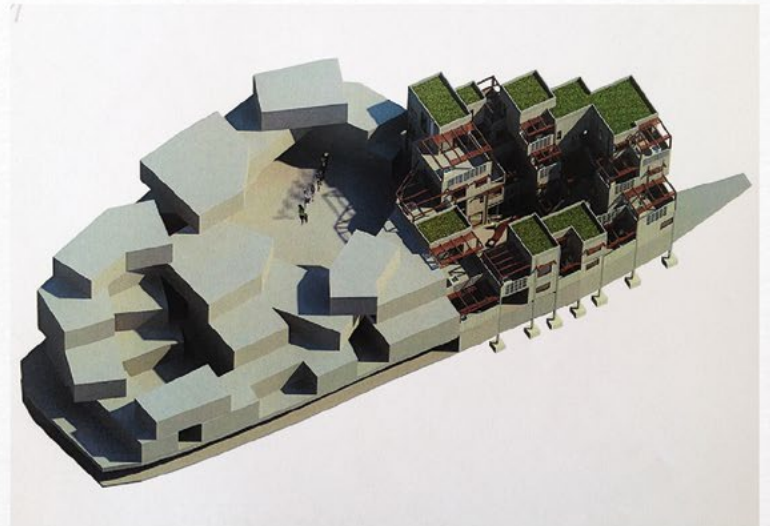
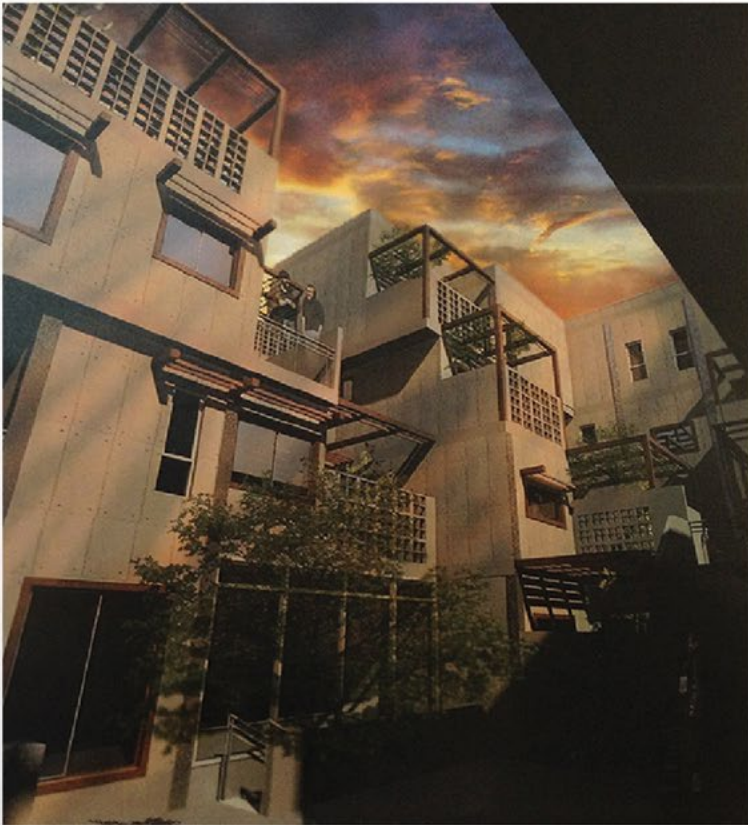
Amir Hossein Sahihonnasab



Urban block study

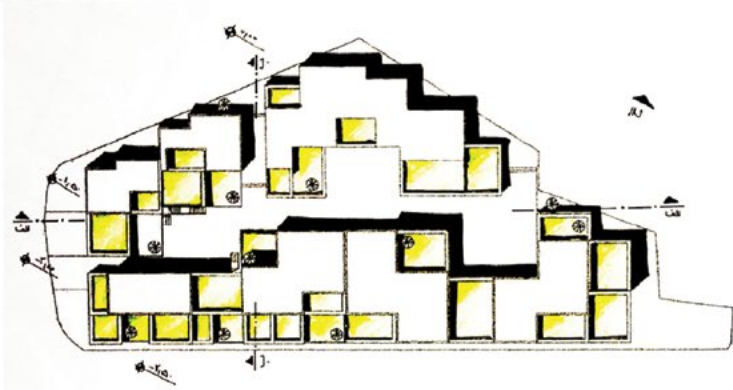


Home patch

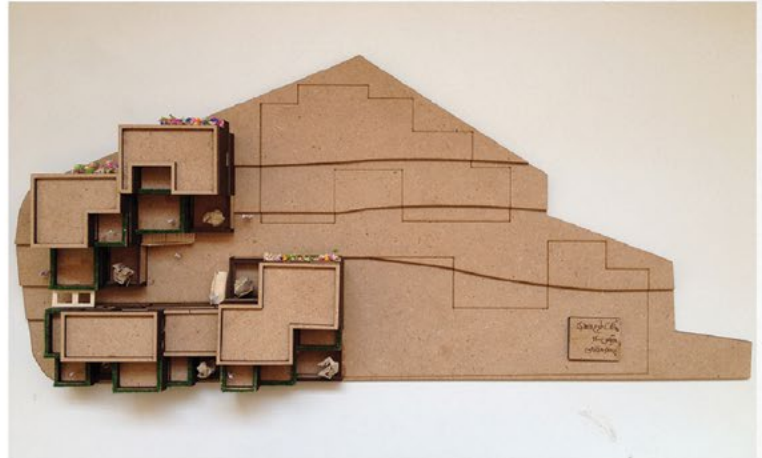


# Housing Complex

Parastoo Moghaddami



Urban block study



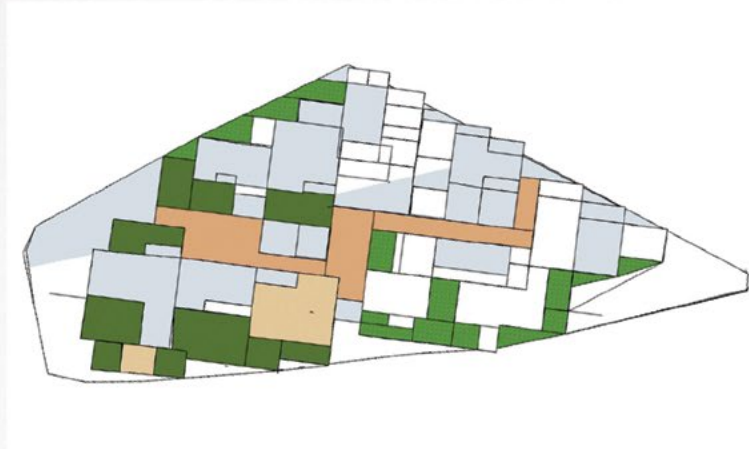
Home patch



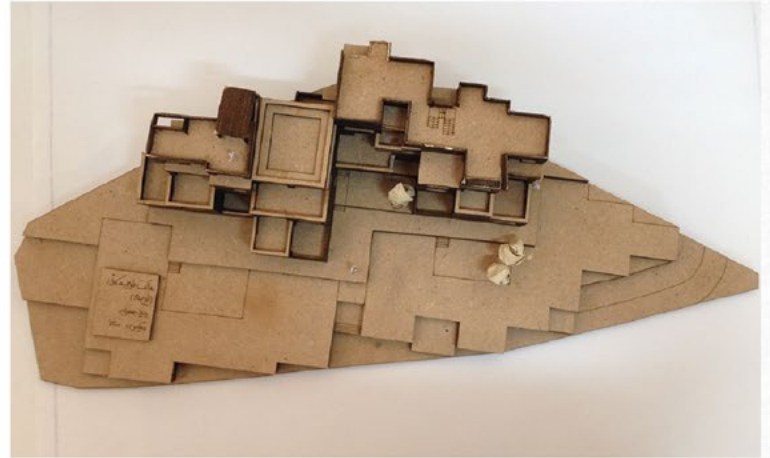


# Housing Complex

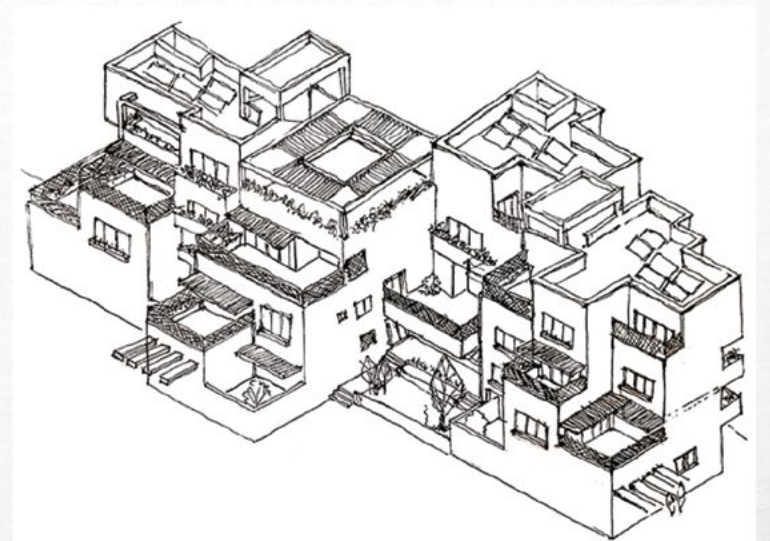
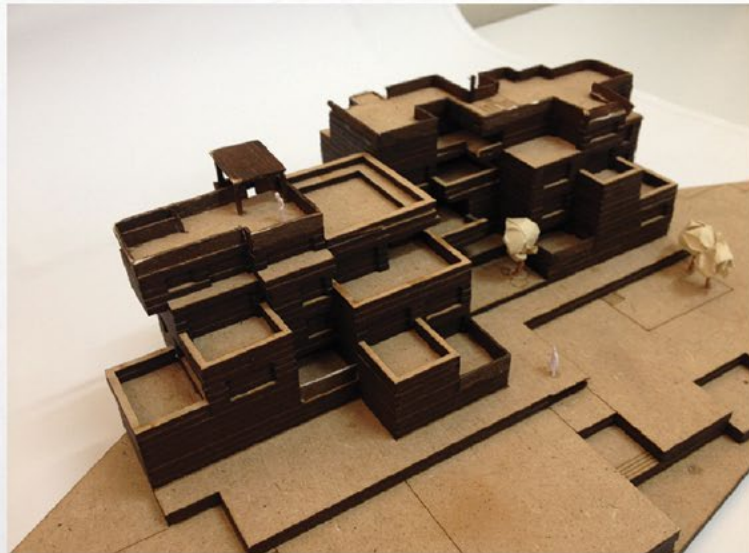
Rayhaneh Mehrabi



Urban block study



Home patch



## **Design Studio VI**

The aim of this studio is to provide the following:

1. Training students to work on larger projects.
2. Bringing together artistic and technical aspects of design.
3. Consideration of structural and mechanical and electrical services in design.
4. Preparing designs capable of being developed into full working drawings in the next term.

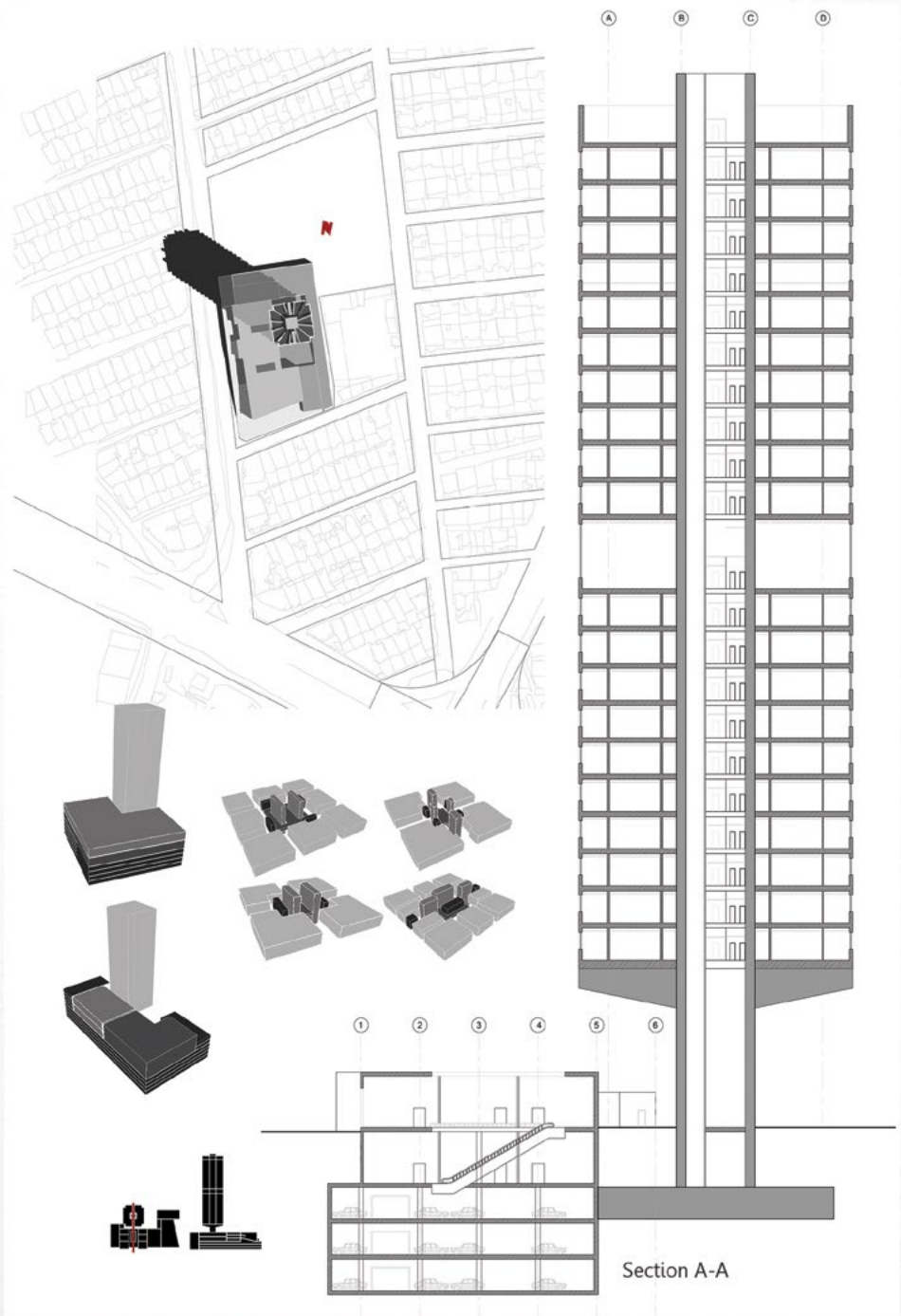
Public buildings such as educational, cultural, commercial, offices, sports and healthcare can be chosen as subjects. In the beginning tutors provide students with a professionally-prepared brief and detailed physical programme including general specifications and design criteria and codes. Students also attend sessions discussing the project's design principles and theories. The design process is technically oriented and enjoys input from building services and structure experts.

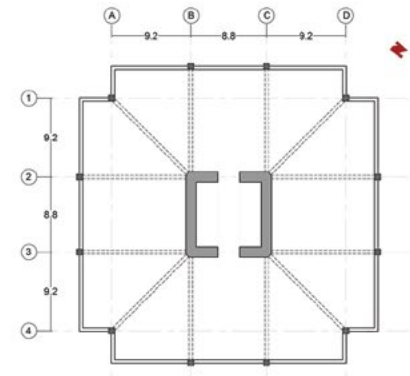
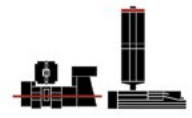
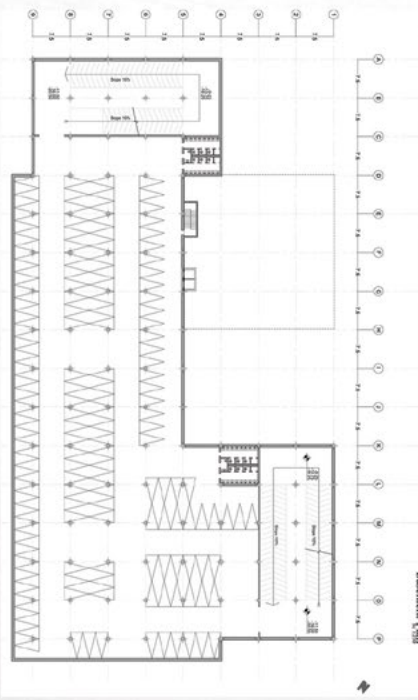
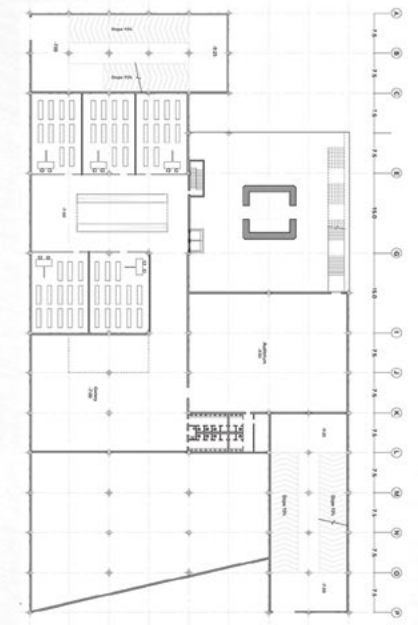
Studio Tutors: Farhad Azarmi, Mohammad Reza Hafezi, Asadollah Sadria, Mohammad Tahsildoost

# Gisha Mixed Use High-Rise

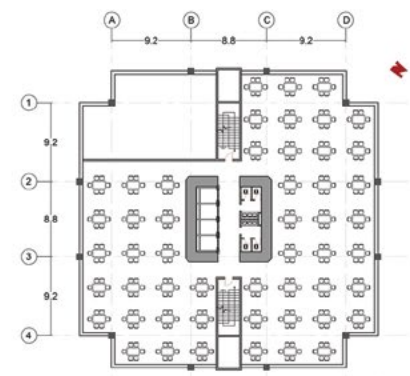
Farnaz Razmgah

Drawing on the crowded context of Tehran's Gisha and its ordinary buildings, this formidable structure will create a significant architectural presence, distinguishable from its immediate neighbours as foreseen in the master plan: both the form of the building and its façade detach it from its surroundings. On the other hand, the separation on volume of vertical and horizontal parts of the building reflects the functional articulation of the building. A roof garden is placed between the two parts to soften the detachment and make the complex more coherent.

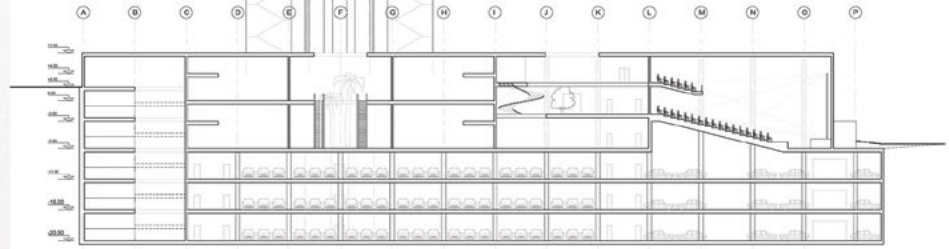




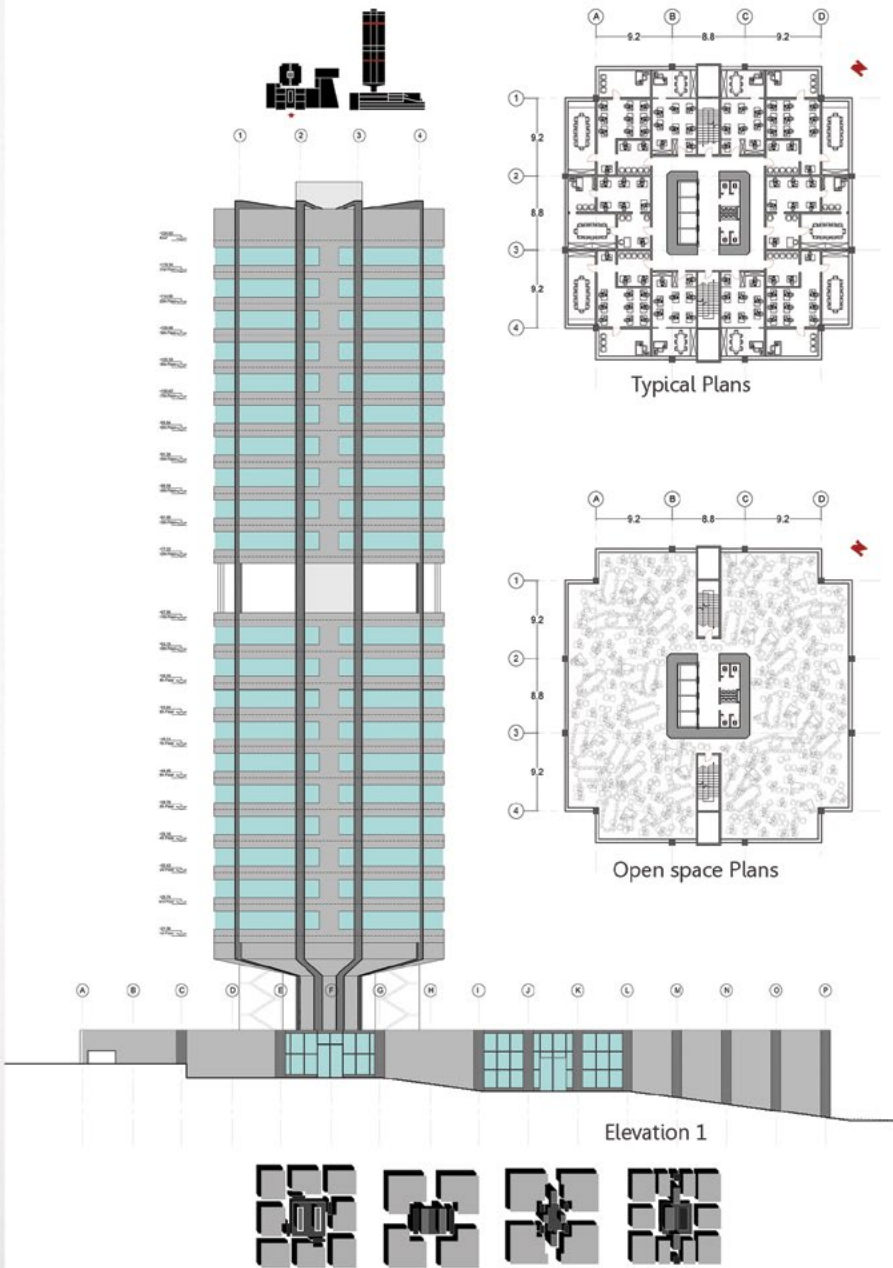
Structural Plan



Foodcourt Plan



Section B-B



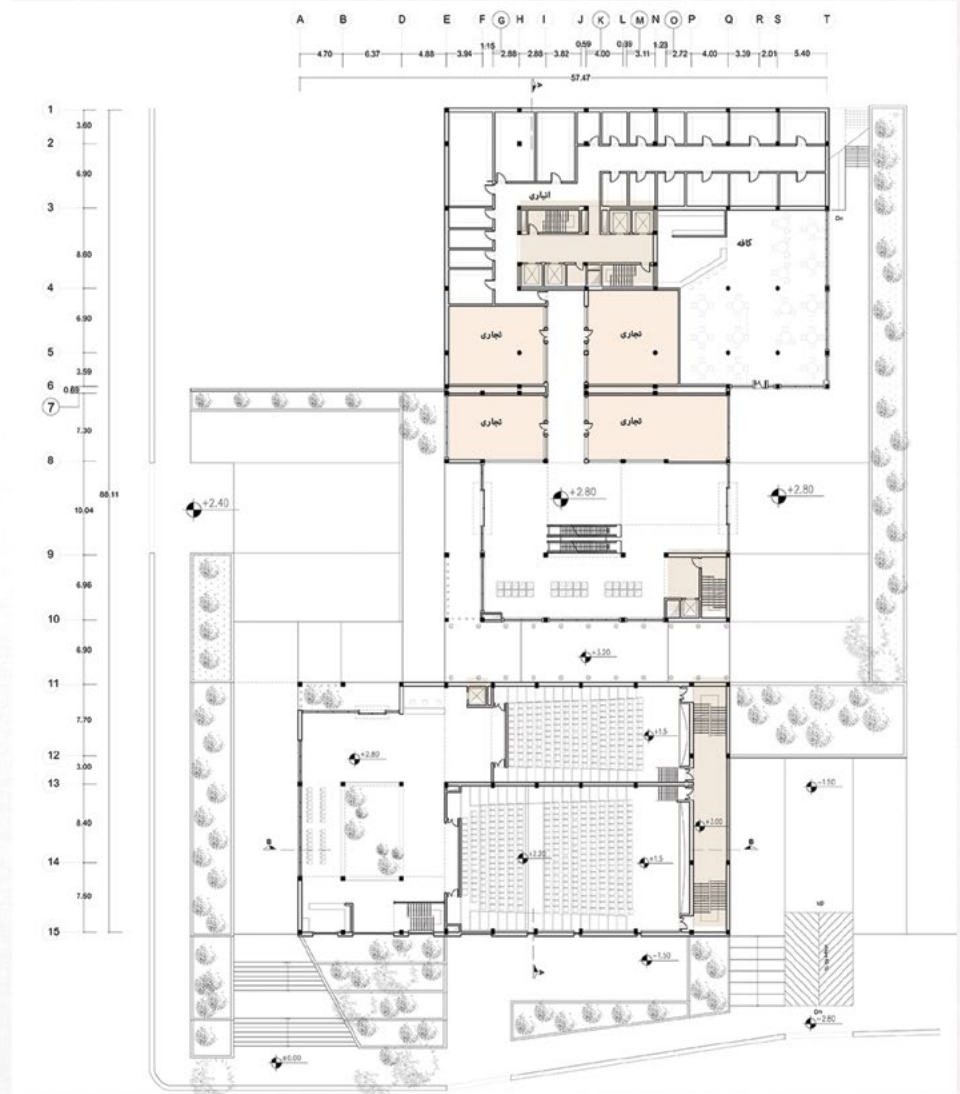
# Gisha Mixed Use High-Rise Complex

Hamideh Soroush

This commercial, administrative and cultural complex has been designed in Gisha, Tehran. It includes 3 blocks: one -20storey tower in addition to four basement floors in the office block, a three-storey building in the commercial block, and a four-storey building in the cultural block.

The office block contains a bank, small, medium, large and open space office units, a relaxation place and a dining room. The commercial block includes ten shops and a restaurant. The cultural block includes a fair and -400 , -200 and -600person cinemas. 446 parking spaces have been provided for the office block.

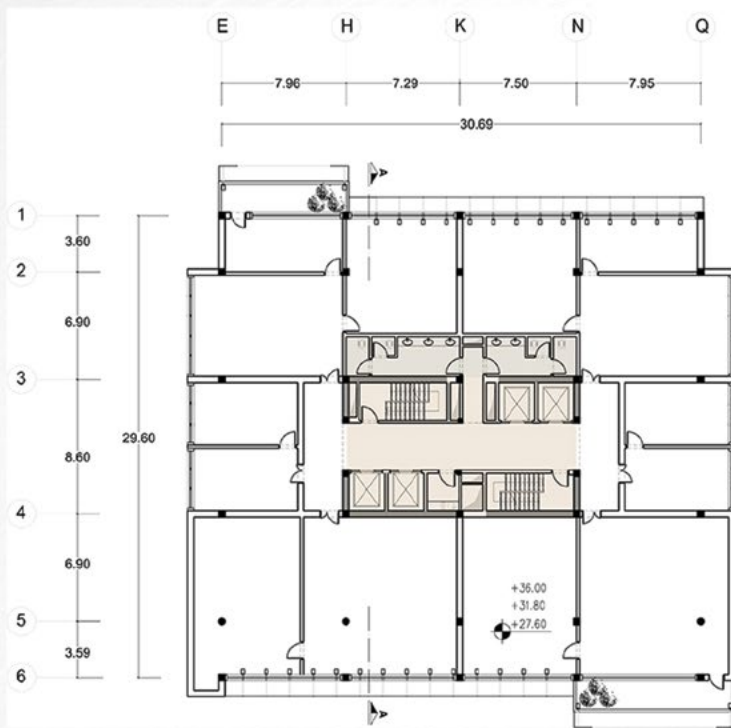
Design goals include: functional separation between office, commercial and cultural parts, taking into account special construction considerations of tall buildings, compliance with municipality and fire brigade codes and developing new ideas for tall buildings. Glazed, double skin façade has been used in the office tower for a well-adjusted use of light and view, light control and appropriate ventilation.



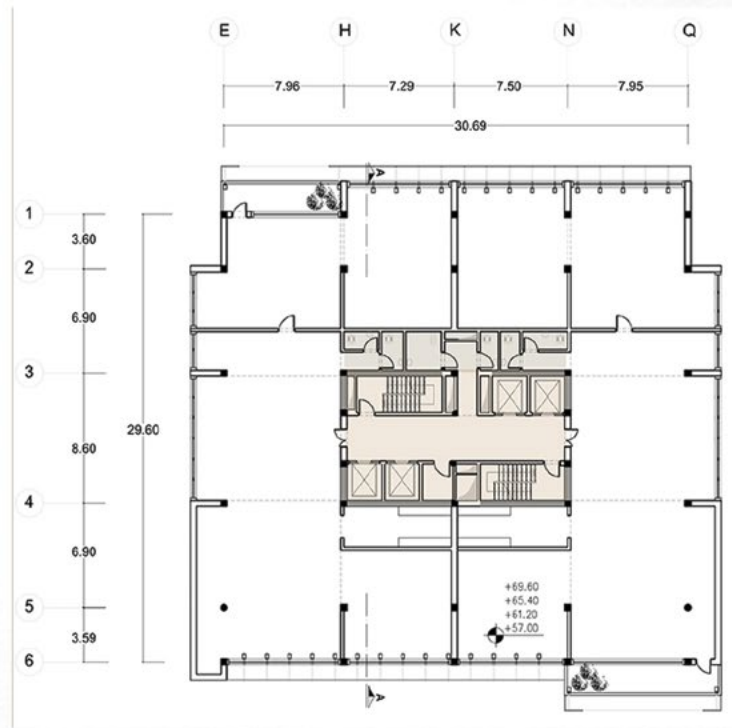
Ground floor plan



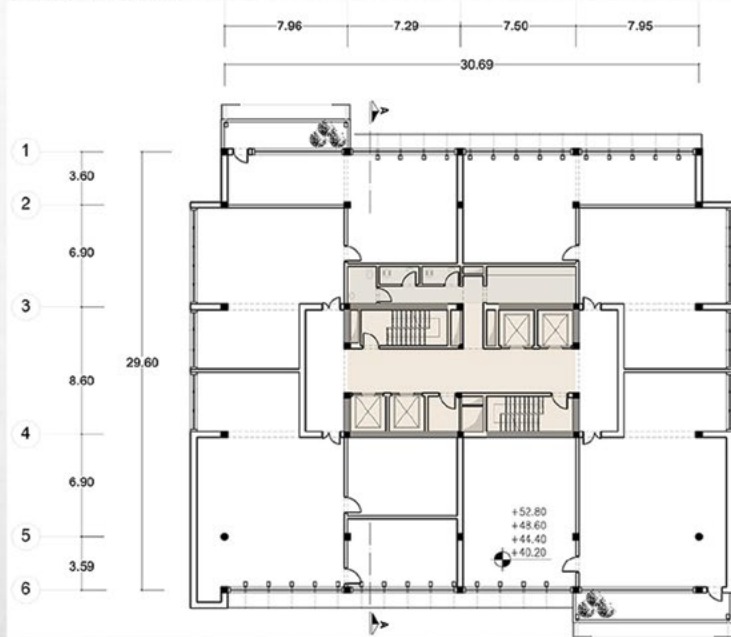
guide for plan types



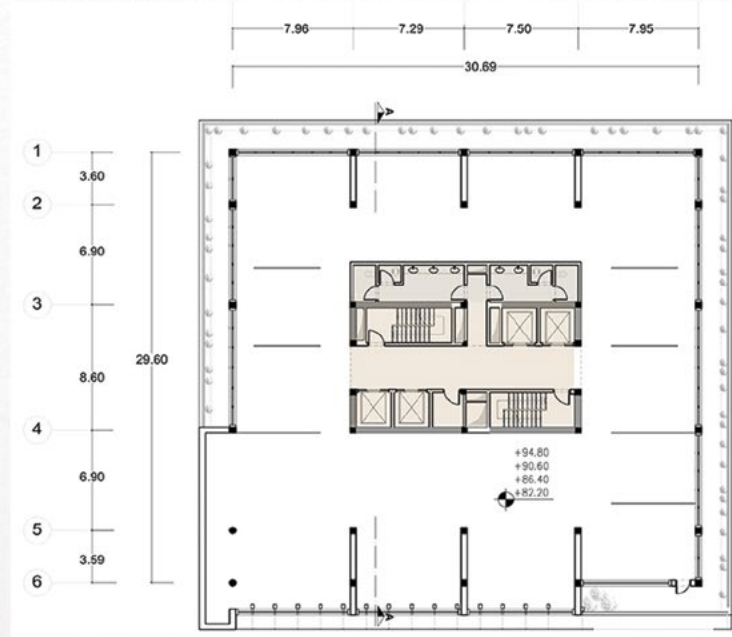
Office type 1 plan



Office type 3 plan

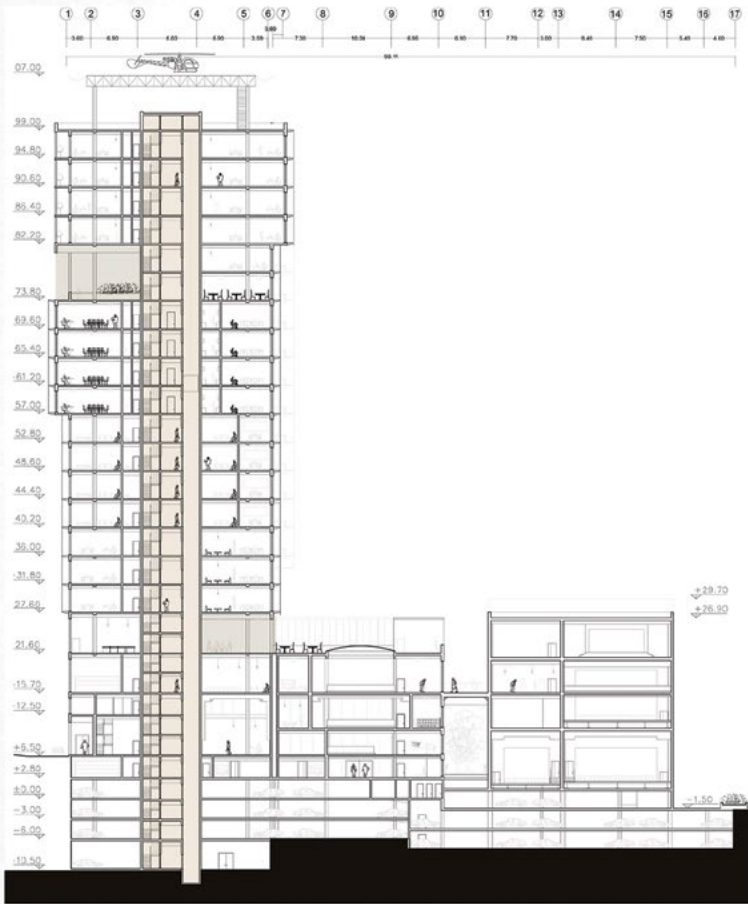


Office type 2 plan



Office type 4 plan

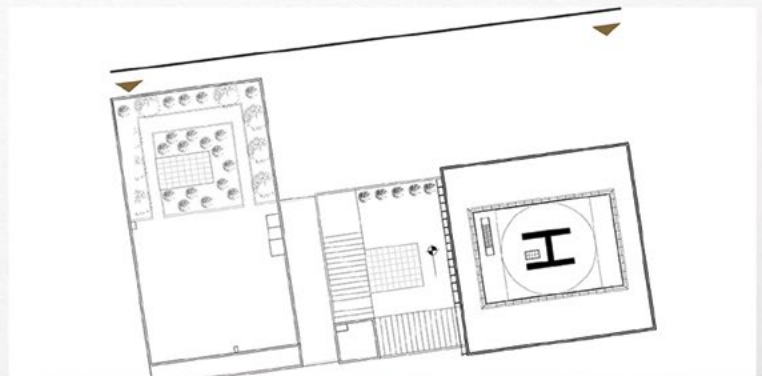
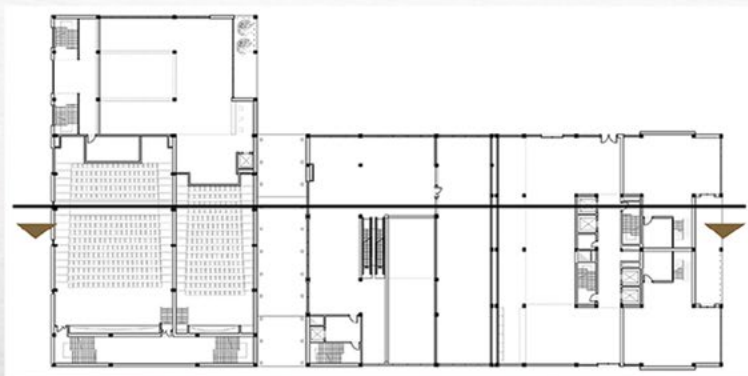




Section A-A



West elevation







# Gisha Mixed Use High-Rise Complex

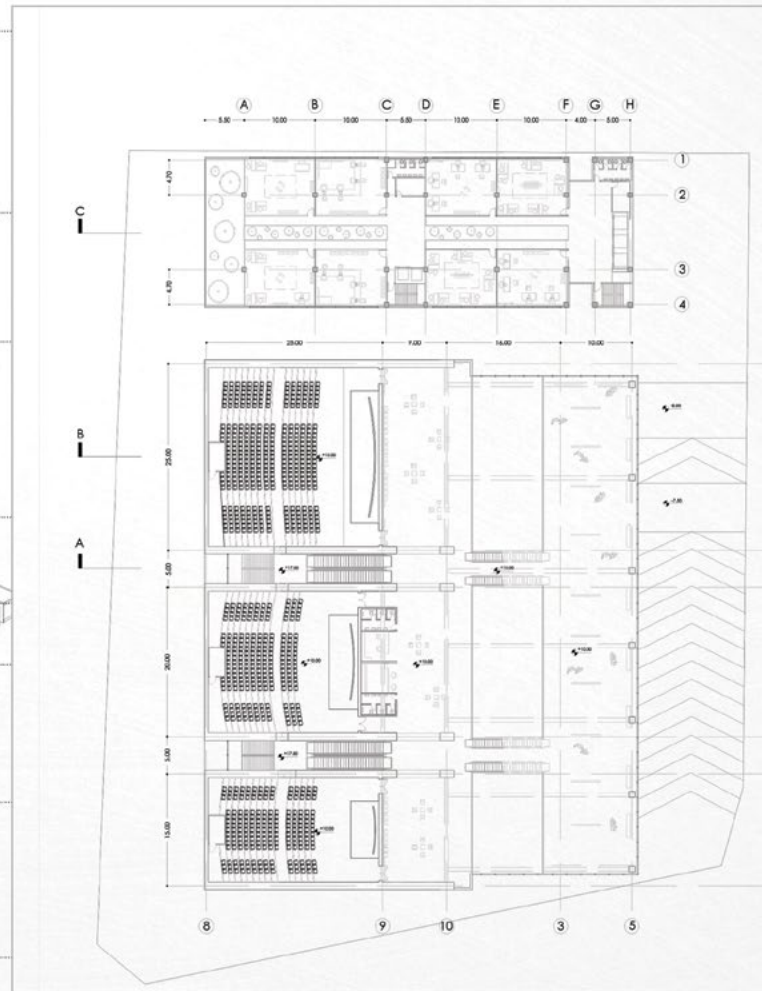
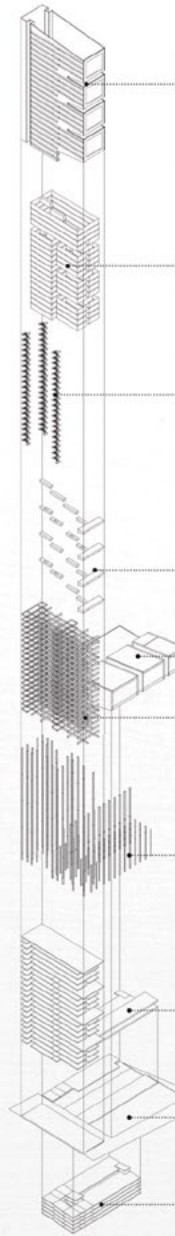
Iman Zangueinia

Designed as an office tower with cultural and commercial functions at the base of the tower, there were some major challenges to respond to:

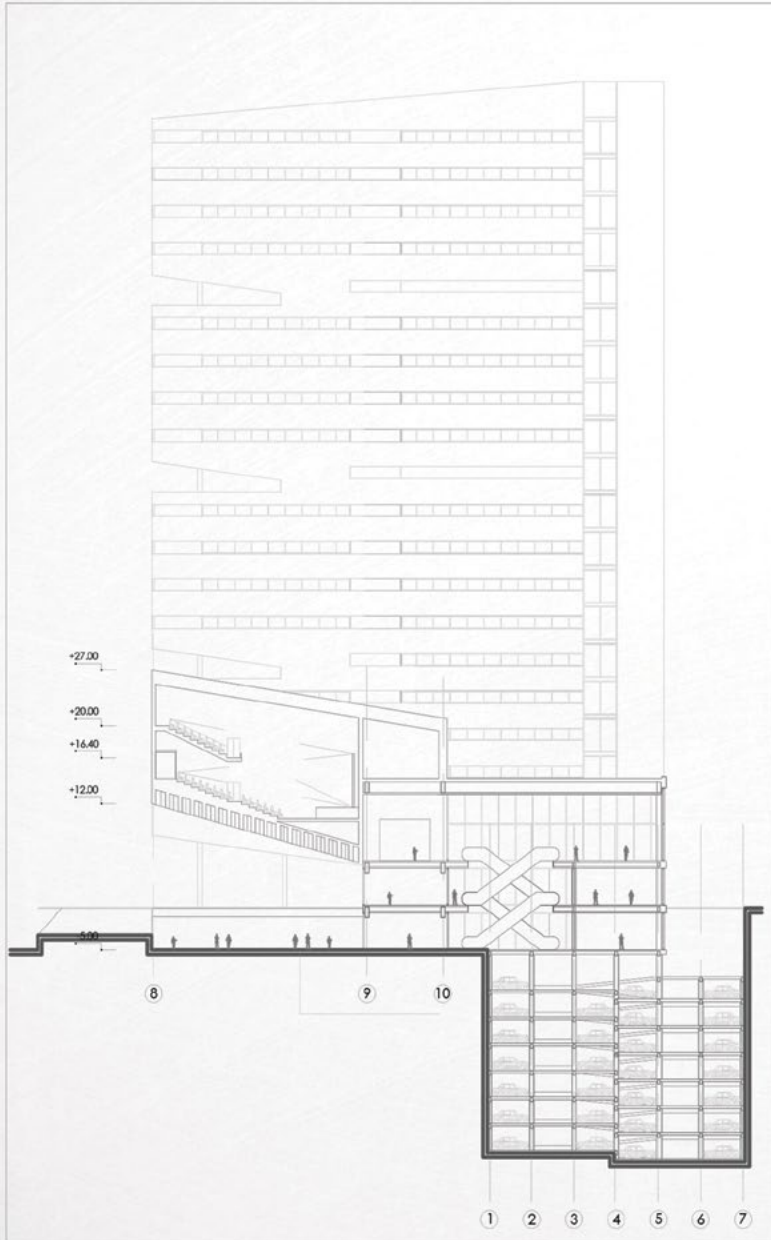
- How to meet urban needs of the building whilst responding to the relations and similarities between the three parts accordingly?

- How to emphasise the formal and functional articulation of these parts? The first step was the placement of the tower while «IT» is split off from the base. The next step was the physical and spatial separation of cultural and commercial parts with a long void, resulting in spatial and functional privacy of the two parts as well as visual connections which has been maintained. The last step was the protrusion of the three cultural halls, projected by cantilevers, from the main urban façade of the site. This protrusion spans a semi-public, semi-private space where its main feature is unpredictability and definability by users. On the other hand, it helps to enhance the articulation of the form. Having considered the form of the tower, the geometry and the form of the cantilevered halls, which is indicated in four-part form of the complex, is coordinated carefully with the tower as a whole.

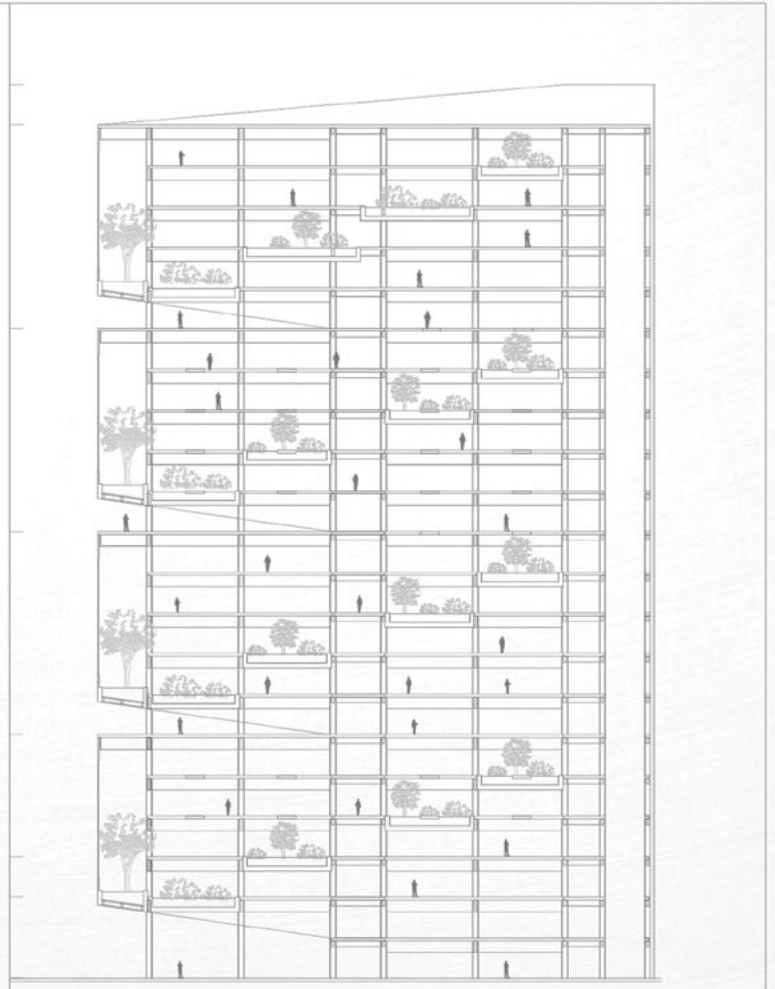
Another step taken was the placement of stepped voids facing an urban green space on the west side, causing an enormous impact on the interior space and urban façade.



First floor plan



Section B-B



Section C-C



## **Design Studio VII**

In this studio students work on preparing working drawing packages and estimating quantities and costs. They are divided into groups of two, developing one of the projects they have completed the previous term. The developed design contains information such as working general layout drawings, blown up plans and sections, construction details, and coordination drawings for structure and mechanical services. The project also includes the preparation of quantity/ cost surveys. Technically, students consider technical matters, planning codes, site-specific issues and codes, and national building codes. They are also helped throughout this projects by experts from architecture, structure and building services disciplines.

Studio Tutors: Farhad Azarmi, Mohammad Reza Hafezi, Asadollah Sadria, Mohammad Tahsildoost

# Gisha Mixed Use High-Rise Complex

Mahsa Sadri and Rayhaneh Zolfaghari Moghaddam

The 23 storey Mid-rise building in Gisha Street, Tehran, includes 3 zones: commercial, sociocultural and office.

The structure of this building is metal.

The building comprises two parts:

1. A -4storey parking, ground floor and first floor are in the podium (commercial and sociocultural parts are in this area) which are designed in a rectangular plan.

Also, a space was designed for taxis and bus stops next to parking 1 (first basement). Because the taxis and buses space is on an underpass, the entrance of the building will be an overpass.

2. Administrative part is in the -21storey tall building designed in a square plan and is situated on the podium. Most of the external surfaces of the tall building is clad with glass so it helps people to use natural lighting. The glass is designed in a way to prevent energy waste.

To cope with wind load for the tall building, diagonal braces were designed. These diagonal braces effect the facades, skylights and the shape of them.

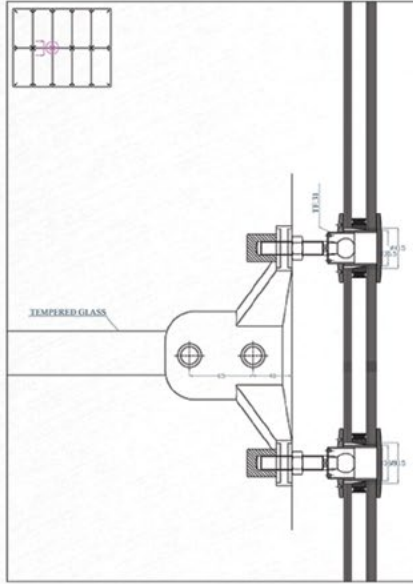
Also, the concavity in the windows of 10th to 20th floor makes people to see the stunning sky of Gisha Street and distract their attention from the crowded street.

The HVAC includes fan coil for most of the rooms, AHU (Air Handling Unit) for cinemas and toilets, and exhaust for the car park.

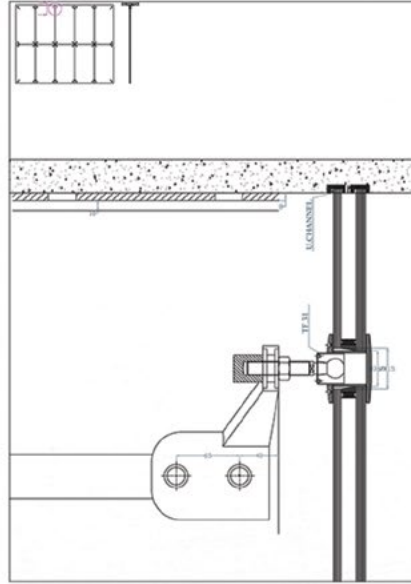


Plans and section

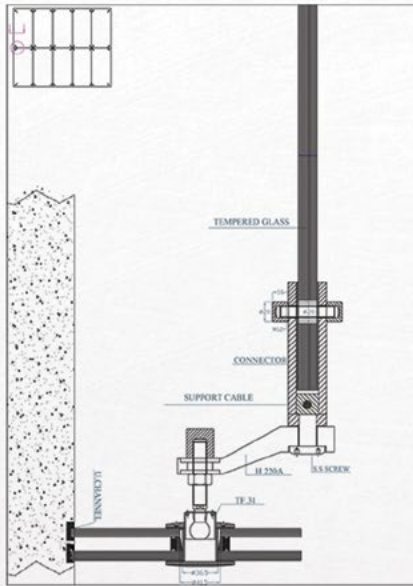




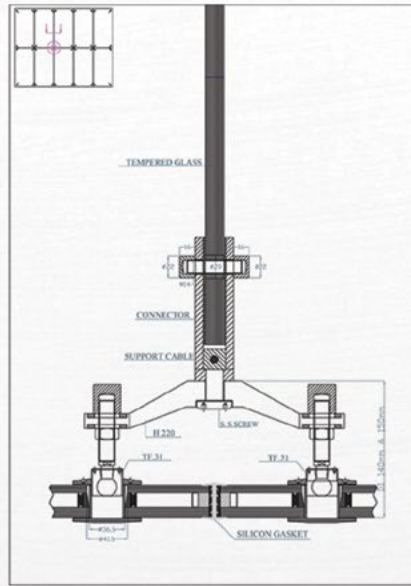
برش عرضی از اتصال اسپایدر به شیشه



برش عرضی از اتصال اسپایدر به سقف سازه

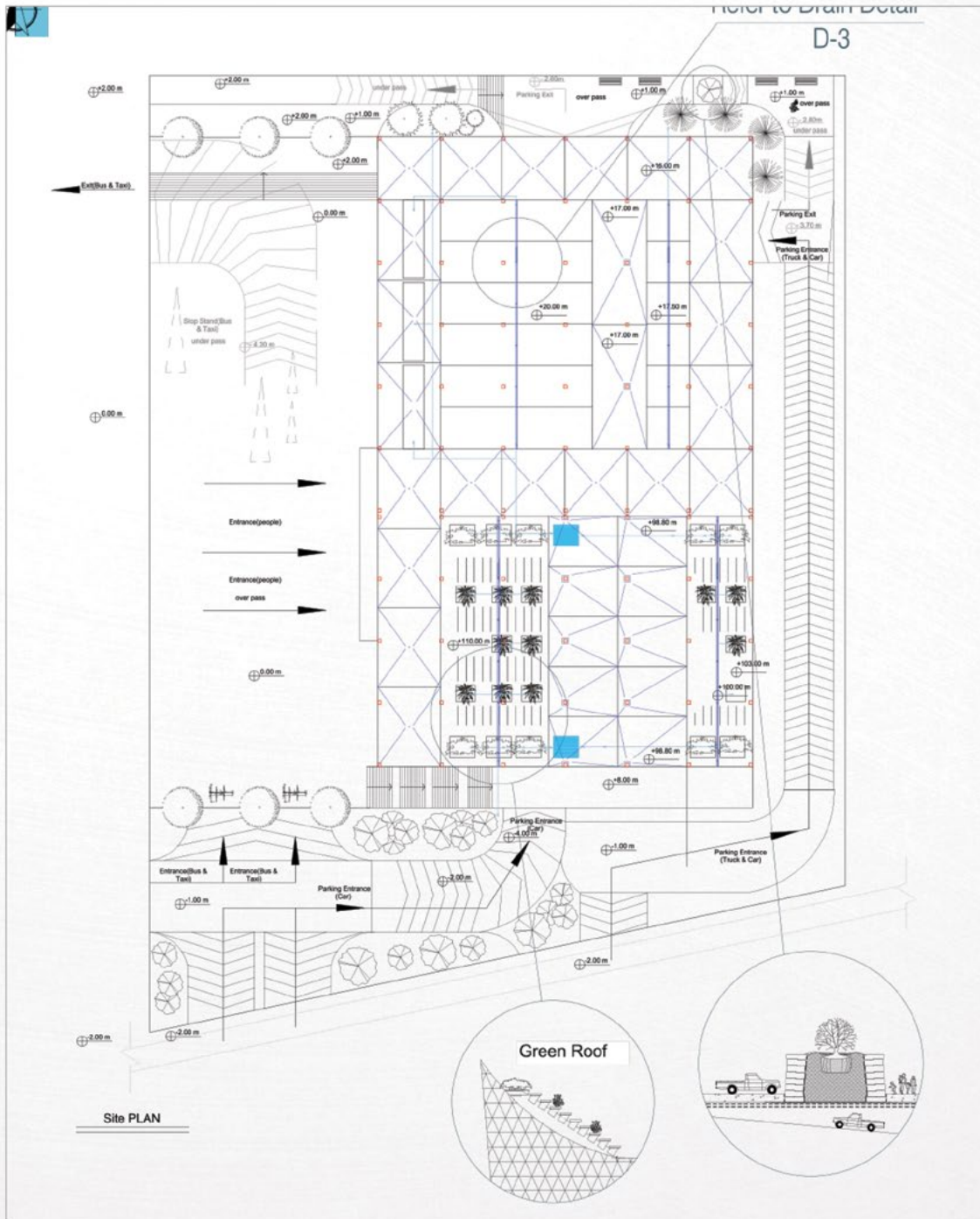


برش طولی از اتصال اسپایدر به دیوار  
Scale 1:20



برش طولی از اتصال اسپایدر به شیشه  
Scale 1:20

Spider windows details



Rain water system



# Gisha Mixed Use High-Rise Complex

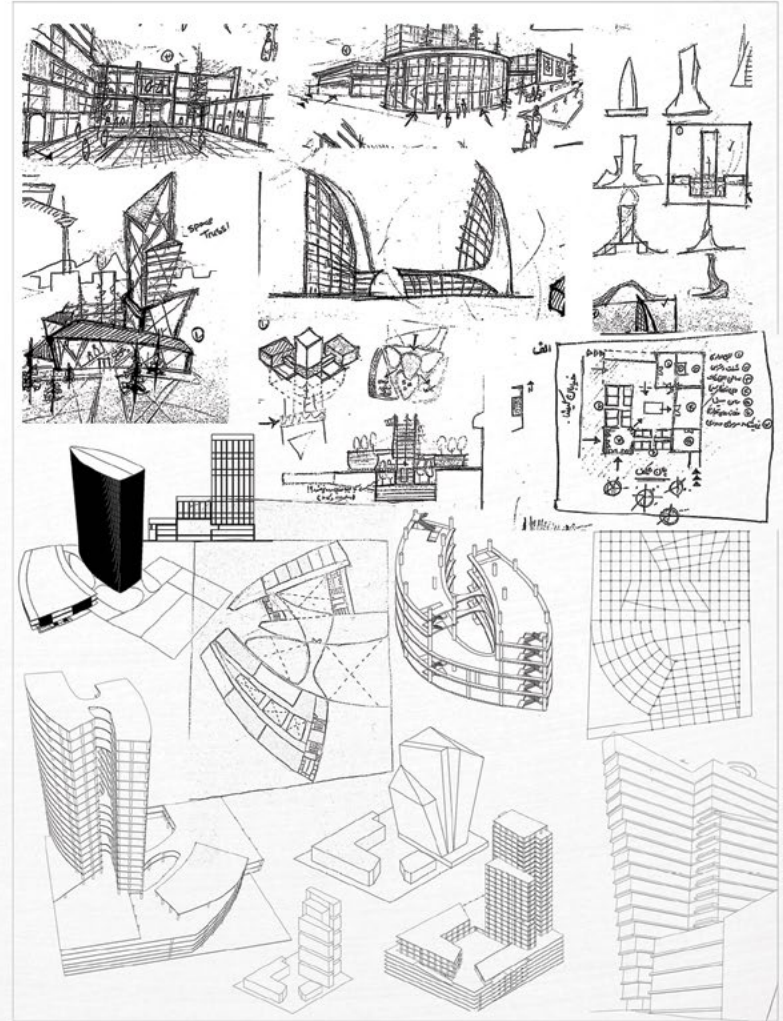
Mohammad Reza Torabi and Hamid Reza Noori Motlagh

The design subject is a cultural, office and commercial complex in a 9000 square metre plot, located in borough 2, Tehran. The area is adjacent to Gisha St. on the west, 4th St. on the south, a water reservoir belonging to the Water and Sewage Company and a large area of unknown use, thought to belong to neighbouring municipal and water supply facilities.

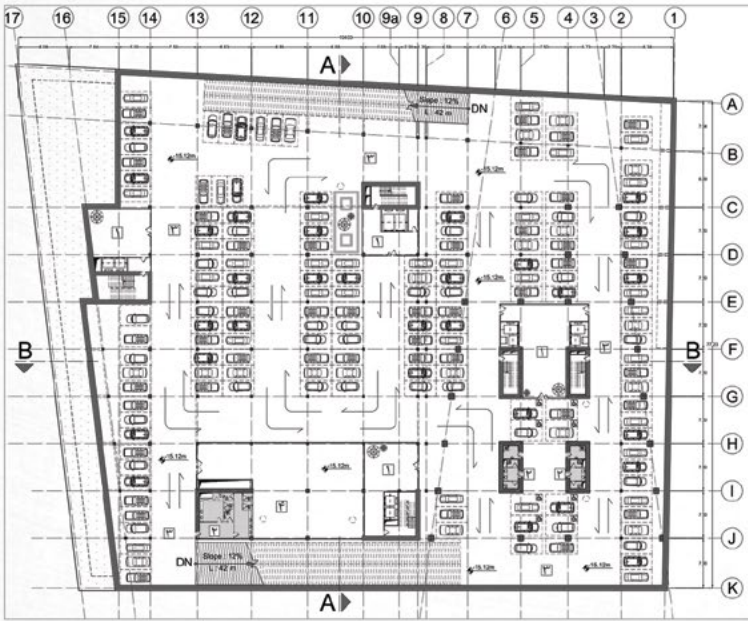
The office part of this complex consists of a 20 floor tower with units of 50 to 300 square metres. The commercial area consists of 10 floors selling cultural products and handicrafts etc., and the cultural part has three cinema halls with various capacities of up to 600 people. All of these spaces were to occupy no more than 3000 square metres of the land, resulting in a significant share of green space. Considering the site of the project, building such a complex could make a landmark in the area, and this was adopted as the aim.

The preliminary design of this project was selected from four alternatives for the site layout. In these four layouts, the noisiness of Gisha St. in connection with the office block, the importance of the façade of the commercial block along Gisha St. and also the existence of a characteristic green space belonging to the whole complex sufficiently separating the building from the street, were considered.

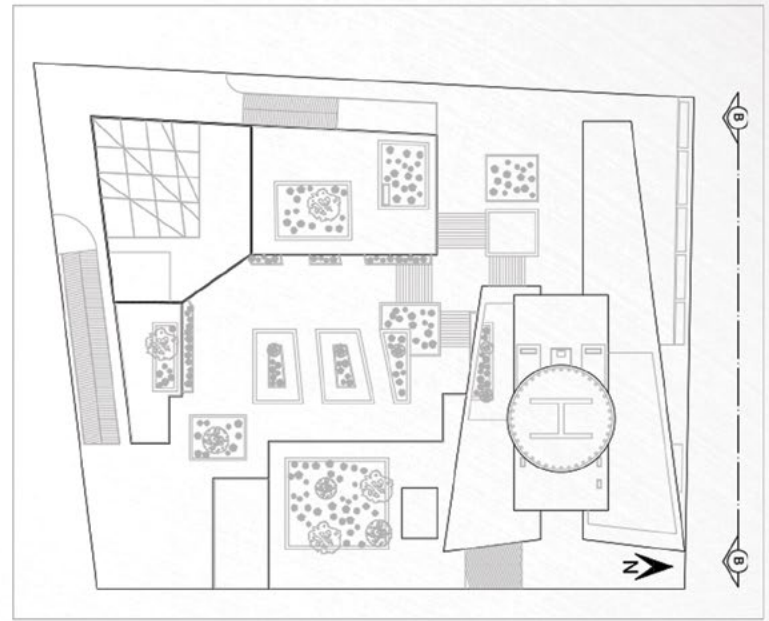
In the selected layout the green space was considered as a filter against the congestion of Gisha St. and with its own identity. This turned into a useful vivid yard interweaving paths of cinema visitors and those of the cultural block. In the end a characterful central courtyard was placed at the heart of the complex in order to connect different blocks of the complex.



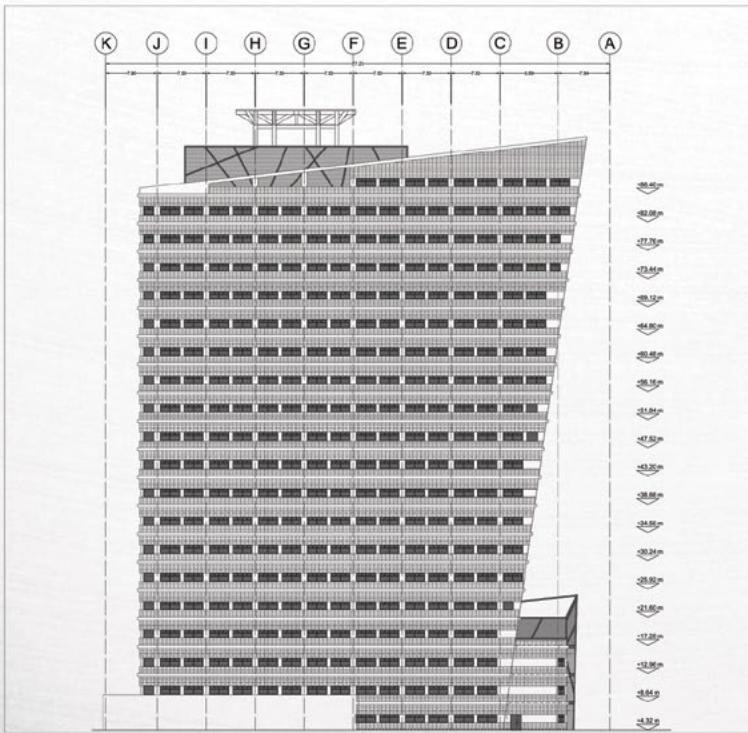
Design process



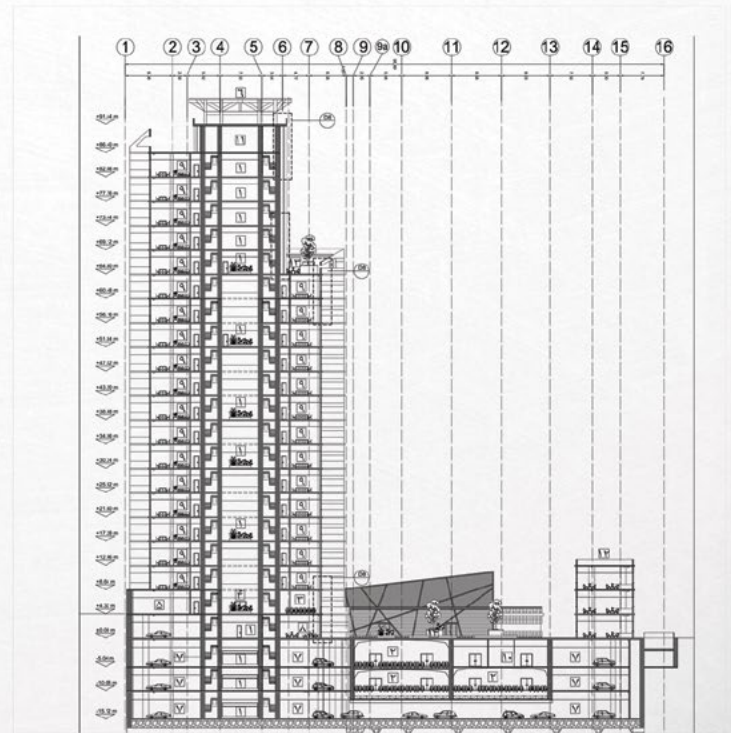
Parking plan



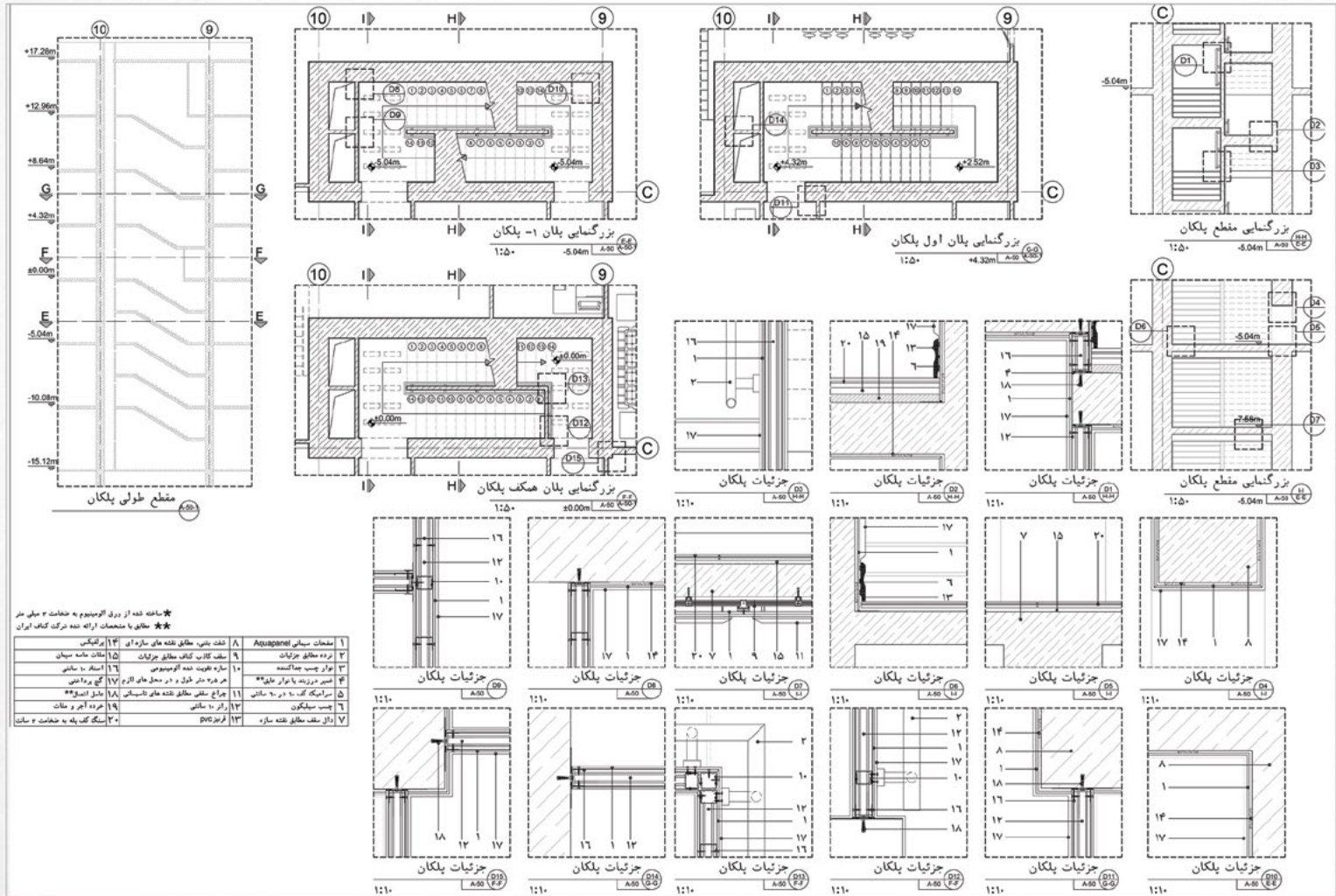
Site plan



North elevation



Section B-B



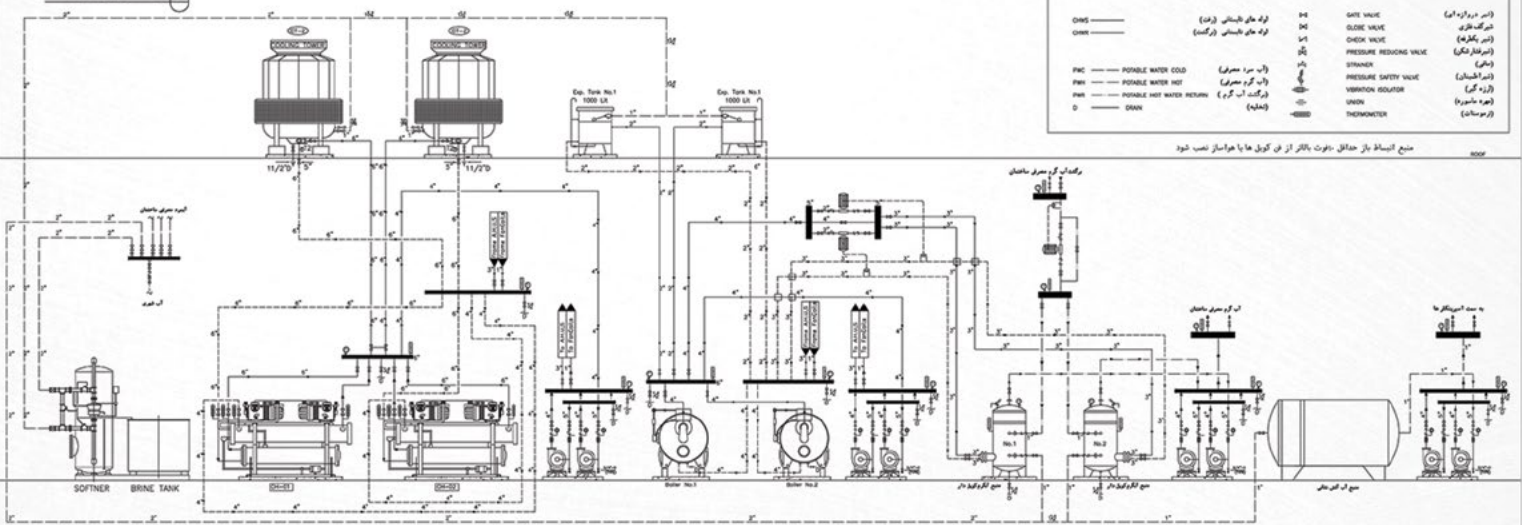
Stair details

فلو دیاگرام موتورخانه

راهنمای نقشه

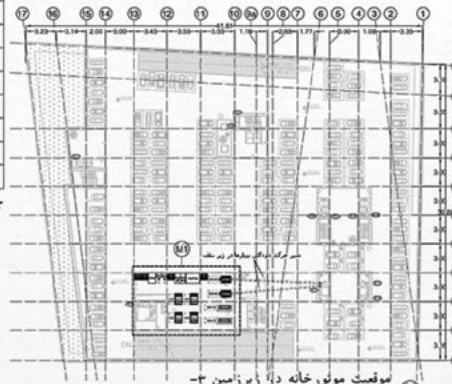
CHWS	توده های خنک کننده (چیلر)	PH	گیت وایو (دستر دروازه هوا)
CHWH	توده های خنک کننده (برگشت)	PC	بک وایو (دستر بک وایو)
PWC	توده های سرد (آب سرد)	CV	چک وایو (دستر چک وایو)
PWH	توده های گرم (آب گرم)	PRV	واحد کاهش فشار (دستر واحد کاهش فشار)
PWR	توده های گرم (برگشت آب گرم)	ST	سایز (دستر سایز)
D	دراگ (دستر دراگ)	PSV	واحد ایمنی فشار (دستر واحد ایمنی فشار)
		NS	واحد حل کننده (دستر واحد حل کننده)
		UN	واحد (دستر واحد)
		TM	ترموستات (دستر ترموستات)

منبع آبیستاد برای حداقل تفاوت بالاتر از ۱۰ کیلوپا با هوا ساز نصب شود

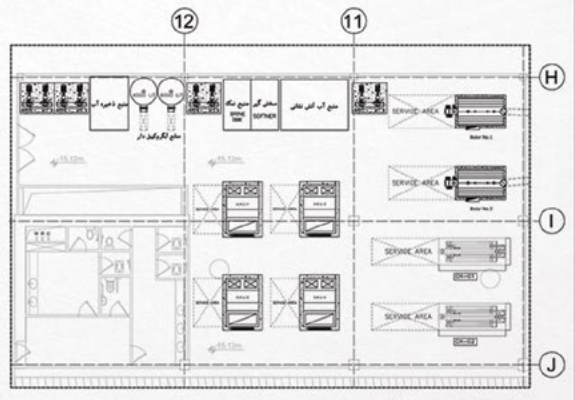


نام دستگاه	ظرفیت	ابعاد (متر)			تعداد	محل استقرار
		طول	عرض	ارتفاع		
هوا ساز چند مرحله ای سوئی	20000cbm	2.8	1.7	3.2	4	موتور خانه
منبع آبیستاد باز	1000L/hr	1	1	1	2	بام
منبع آب گرم کویل دار	6000L/hr	2.8	7.1	4	2	موتور خانه
پمپ تراکم	175RT	3.5	1.5	2.2	2	موتور خانه
دیگ آب گرم فولادی	400000kcal/hr	1.8	1.5	2.2	2	موتور خانه
منبع آب آبی نمک	100m <sup>3</sup>	7	5	3	1	موتور خانه
برج خنک کننده	200RT	2.8	3.8	3	2	بام
منبع ذخیره آب	16m <sup>3</sup>	2.8	2	3	1	موتور خانه

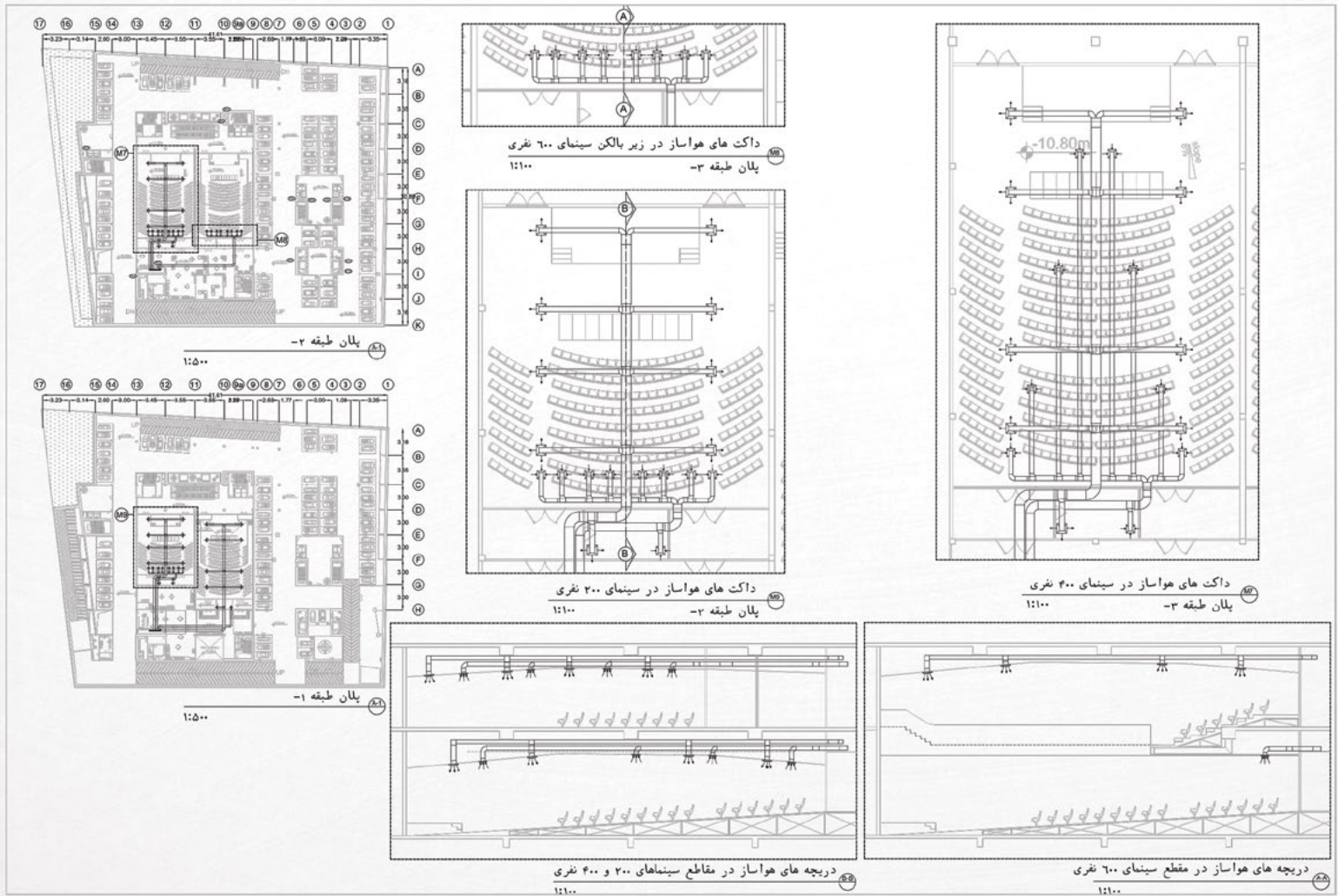
جدول مشخصات دستگاه های موتورخانه



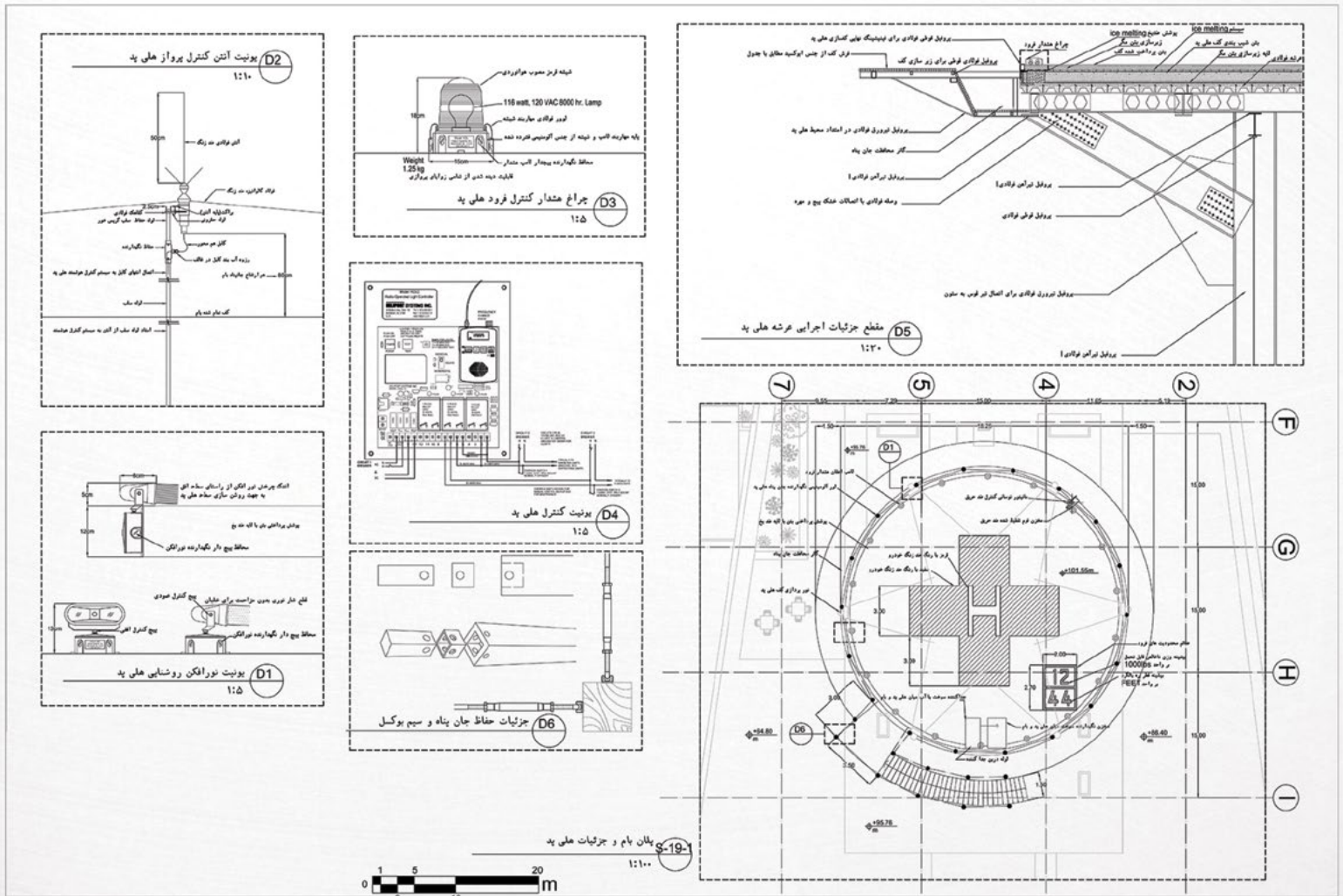
موقعیت موتورخانه در زیر زمین ۳-  
۱:۵۰۰ - ۳- طبقه



پلان استقرار موتورخانه  
۱:۱۰۰



Movie theatre ventilation system details



Helipad structural details

## **Final Design Studio**

Final Design Studio completes students' preparation to enter the profession. It involves, therefore, not only design inception but also its development into an advanced stage. On top of design development, the course demands a serious engagement with town planning regulations and the ways in which these regulations can be adapted to each project.

Each student works independently and on a separate site with subjects usually ranging from single-blocks of apartments to small- to medium-size residential complexes and local schools. The work also involves in-depth studies of regulations and decision makings on the planning of the building. The final assessment is carried out by a jury and after a presentation of the work by each student.

Studio Tutors: Hamid Reza Khoei , Mohsen Padidar, Hamid Nadimi,

# Minimum House

Bahar Amiri

The word 'social housing' has been misinterpreted in Iran. It resembles a list of unsuccessful experiences and coarse mass-productions, which not only are no solutions to the problem of housing the poor, but also exacerbates it. Pokey buildings of Navab St. were supposed to be the happy houses for those who gave up their old small houses for the promises of living in high-rise buildings. But the naïve imaginations of progressive planners and architects of the 90s resulted in nothing but hollow, pokey and disfigured buildings nobody would live in unless forced. Reckless mass-production of buildings in unoccupiable suburban deserts, called 'Mehr Housing' will never be forgotten from the minds of Iranian planners because of their deep economic and social impacts.

Low-cost housing has an element of corners cutting throughout the world, but this does not necessarily mean sacrificing quality. Housing quality is of course a widespread issue in Iran, but when it comes to 'Mehr Housing' and other similar examples, it is not just about low quality but the sheer lack of it. So long that our concept of low-cost housing is nothing more than building enclosures on empty unoccupiable lands, there will be no room to discuss the likes of architectural or urban design minimums. Look at the large, desolate complexes near small and big cities, and you will not be able to find a single supermarket for kilometres, let alone any school, cultural centre, library and green and public space. No wonder these buildings remain empty and unused.

Given the mentioned problem, and as a solution for building quality houses for the less fortunate, I decided to choose 'minimum house' as the subject for my Final Architectural Design Studio. The sight of this project is chosen in Yaft Abad district: an area of lower-middle classes. The area is packed with hundreds of tall mass-developed housing blocks without a single small park for hanging out in kilometres.

The residents of this project are a young couple in need for a combined working and living space. This includes office, living room, bedroom, guest room, bathroom and other necessary amenities. That is why I decided to design something between working and living space for them.

The site of the project is a very small 8x5 meters rectangle. Considering the small plot size, I was initially after flexible and convertible spaces, but eventually decided to design a vertical layer with horizontal slabs to create a building with no walls. Every space in the building, from the garage to the bedroom and

living room and even the bathroom, has a dedicated garden. One finds many green spaces in the building, all designed in a useable way so that residents get the chance to go out, have a break, read a book and enjoy spending time with friends in the open space around them in evenings after work. Apart from improving the environment these green spaces but make the space alive. A green roof and yard helps the residents the sense of sharing.

The façade has an orderly rhythm and is clad with perforated sheets in order to provide a degree of privacy. Transparent surfaces are obscured by tall plants in pots as well as curtains. Many are shocked when first seeing this project, but I think it is a weird reaction. Maybe the problem lies in how the public sees the affordable buildings. Those who have had the experience of designing large-scale housing complexes know how difficult it could be to convince clients that designing a few square metres of balconies improves the general quality. Theirs is investment logics in which quality is only a secondary issue. There are answers to this way of thinking, but what I find frustrating is those architects and urban designers who play by these rules. Perhaps one of the missions of this project is to change these conditions. Is architectural creativity – in such a banal shape – just limited to architecture for the rich? Is architectural creativity not supposed to show up where there are more limitations? Otherwise every architect will be able to design a big villa with a strange mass in a massive land at some stage in their career. In minimum house, every space is smaller than its slab to give a sense of freedom between the environment and garden space. In general, it is a wall-free, transparent building making it possible to make the best use of sunlight unlike the dark environment surrounding it: joie de vivre in presence of sunlight, natural ventilation helps spread a good feeling not only for the residents but also for those who pass by every day.



## Removing unnecessary elements



Handraat



Walls



Window Profile



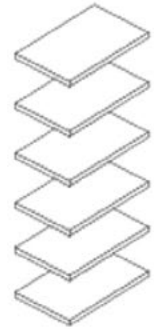
Hoping the building is covered by plants in years

What normally a house is



What we decide

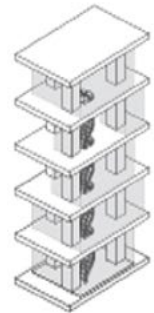
1. Horizontal Slabs in vertical direction



2. Locating vertical access and structural system



3. Adding free glass spaces in each slabs



4. What remains become green area

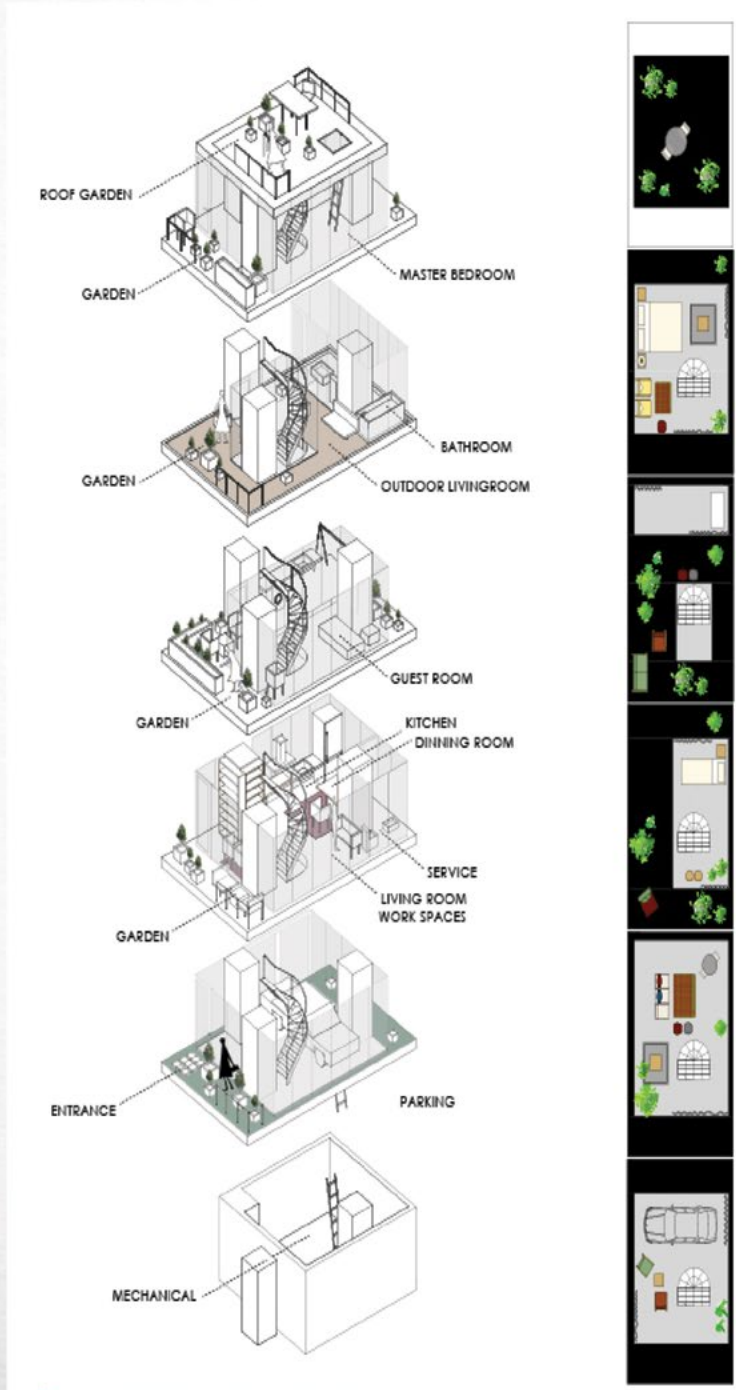


5. Covering some level with expandable mesh



Concept

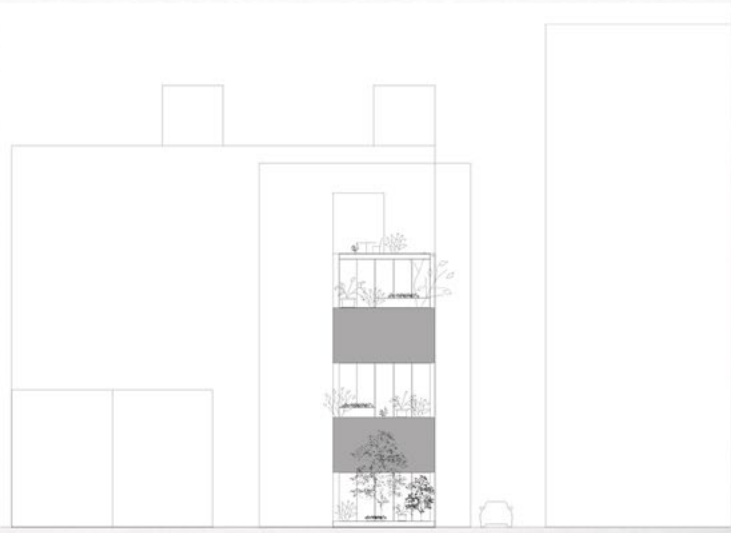




Spaces



Site plan



Street elevation



Maquette



Street view



# Educational Complex

Nakisa Dehpanah

The project is an educational complex for girls from 5 to 18 years old with 10000 m<sup>2</sup> area. It includes a kindergarten, an elementary school and a high school as well as some other ancillary spaces. The main concept of this complex is teaching students how to be respectful to nature and make them responsible for maintaining nature for future generations, and also teach them lessons about life by watching the changing nature.

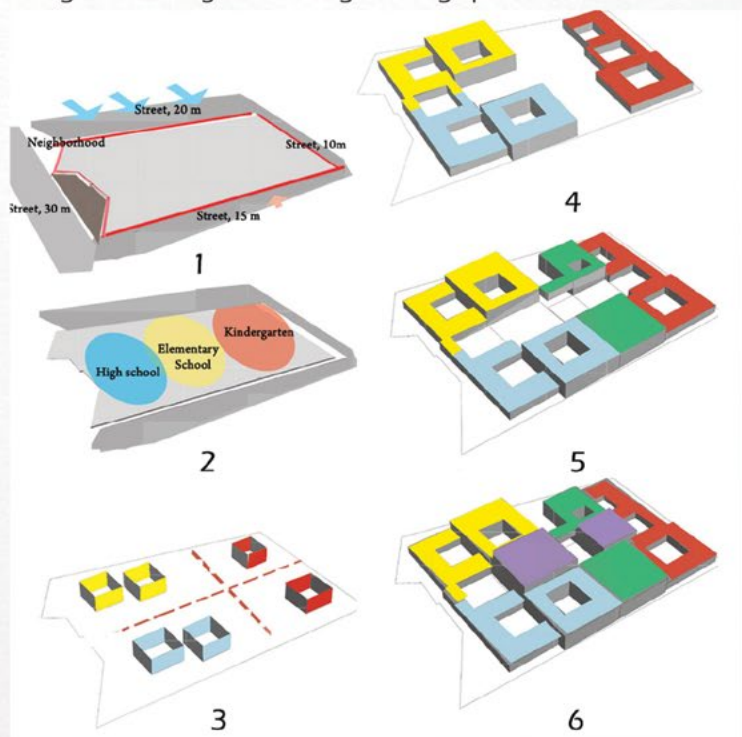
The most challenging fact about designing this complex was the circumstance of the users. First, privacy requirements for girls older than -9 years- old, which was met by the idea of internal courtyards. Second, that girls of different ages and different needs are accommodated in one complex, to which, again, courtyards were found to be the best answer: each courtyard houses students of a specific age range.

Needless to say, colours and forms play a prevailing role in education quality especially for younger ones. Each level have a different character including different colour schemes, forms and vegetation. The colour for the kindergarten is red, while the elementary school's is yellow and the high school's is blue. This colours are used in both external and internal surfaces. South-facing facades of each courtyard is covered with canopies in order to control incoming sunlight to classrooms during the day. As mentioned earlier, nature is the most important consideration of this project. In this regard, trees and vegetation of the yards are significant features of each courtyard and each space. For kindergarten children I consider some planting and gardening events, so short fruit trees are one part of the vegetation in the kindergarten as well as some vegetables planted by children. In other part of the complex, the four courtyards of two other schools remind us of four seasons. For example, in spring yard, I proposed some evergreen trees like pine trees. Furthermore, furniture design in response to children's varying needs and sizes is another consideration for this project.

## Design Process

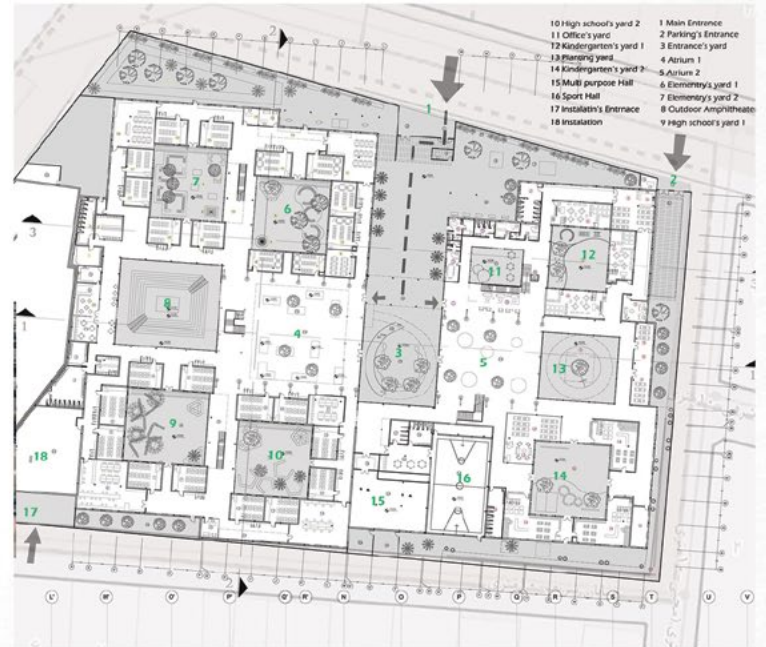
The site of the project is surrounded by 4 streets. I considered wider street at the north of the site as the main accessibility to the complex in order to prevent traffics. Three main parts of the complex are set as you see in the diagram. the reason of this arrangement is that the east part of the site is closer to the residential region so it is calmer, however, the west part is near a busy street. in first step, I make some critical decisions, first according to the Islamic culture of the country I designed some internal courts providing girls students more secure and vivid spaces with different features.

So, I started my design from negative spaces because I chose them as the main attribute of my building, a complex with diverse internal courts. In the second part, after determining the events which will happen in each court, I continued my work with designing spaces around each court, each two court appertain to one level of education. Then, I added other complement spaces like administrative building and sport halls which are generally shared by different levels in intersection parts. In final step, I designed two big atrium as gathering spaces for students which





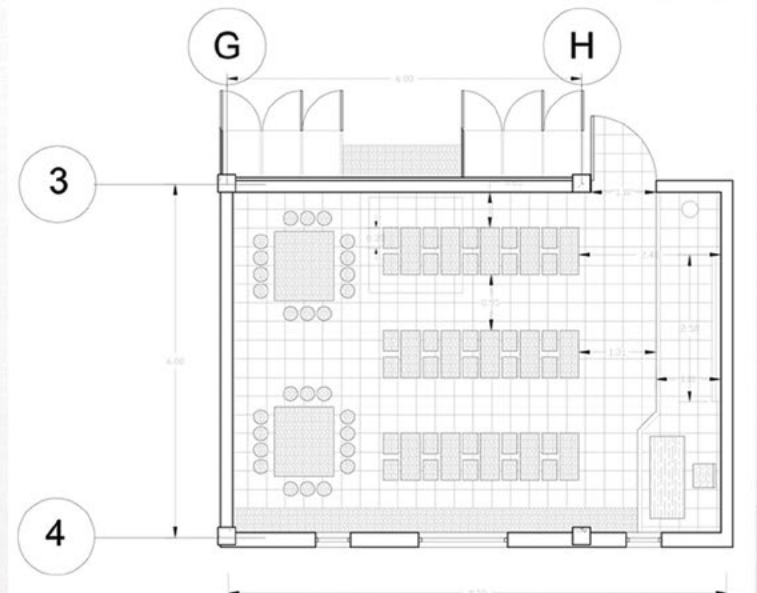
- Elementary school
- Kindergatden
- High school
- Public parts
- Office
- Instalation



First floor plan



Bird-eye view



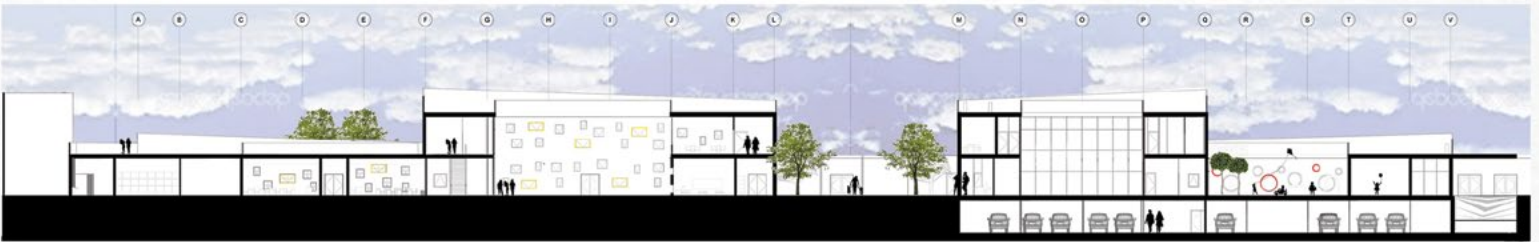
Classroom for Children from 7 to 9 years old



North elevation



Section 1-1



Section 3-3



Southern front of the second yard of highschool



Entrance yard with spiral slide from first floor



second yard of the kindergarten



Second yard of the elementary school



Typical classroom of the kindergarten



W.c. of the kindergarten

# Evin Residential Complex

Sajjad Mortazavee

The core design idea was shaping the appropriately scaled neighbourhood units, making interconnections between them. The attempt was for every unit to be defined by its attachment to a neighbourhood centre, and for every main space to sit near this centre, and at the same time to create bonds between units and between each unit and with the entire complex as a whole. Having a long history in traditional Iranian architecture, the central organisation of spaces was seen an appropriate choice. The accessibility to housing units by these central spaces, and having views to neighbourhood centres from inside units were of priority in designing units, and the area of neighbourhood centres was the outcome of a balancing between built and open spaces, as well as an attempt to shape social behaviour of residents.

In general, creating a safe, calm and reclusive space for families in place where no one else passes by, and creating a sense of belonging to the neighbourhood were among main aims of neighbourhood centres' design.

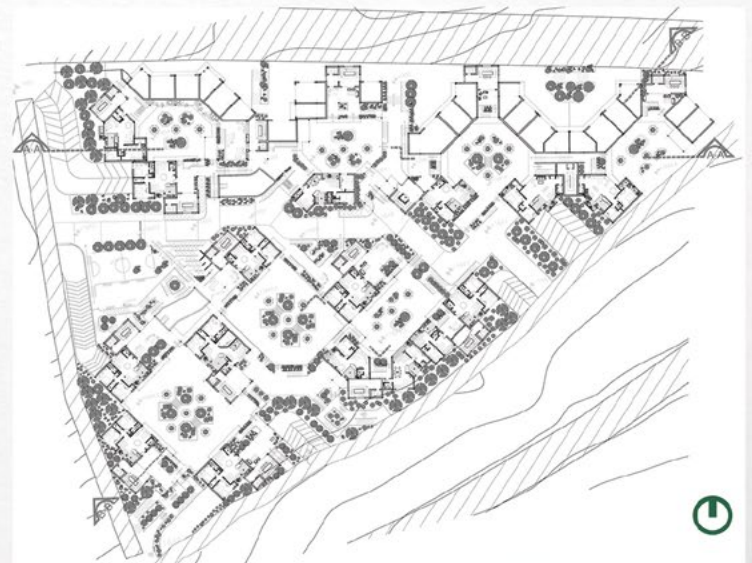
Inside each unit there is a balcony as subjective centre. How important any other space is depends on how they are connected to this balcony. Most of these balconies face the neighbourhood centre.

Retail and sport spaces, as well as the internal green path connect other components. Also the design of ground floors as pilotis enhances connectivity, and visual continuity for outsiders, and creates more green spaces, shaping the overall character of the complex.

The design was an exercise in paying attention to humans and their mental needs, as well as their social and individual behaviour besides more basic needs.



Site plan

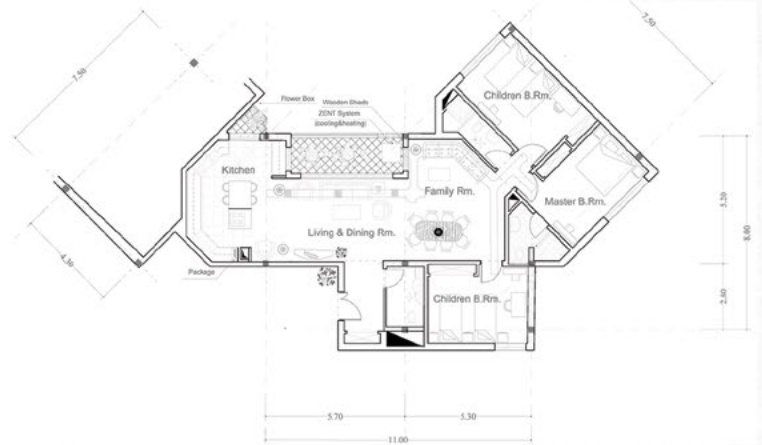
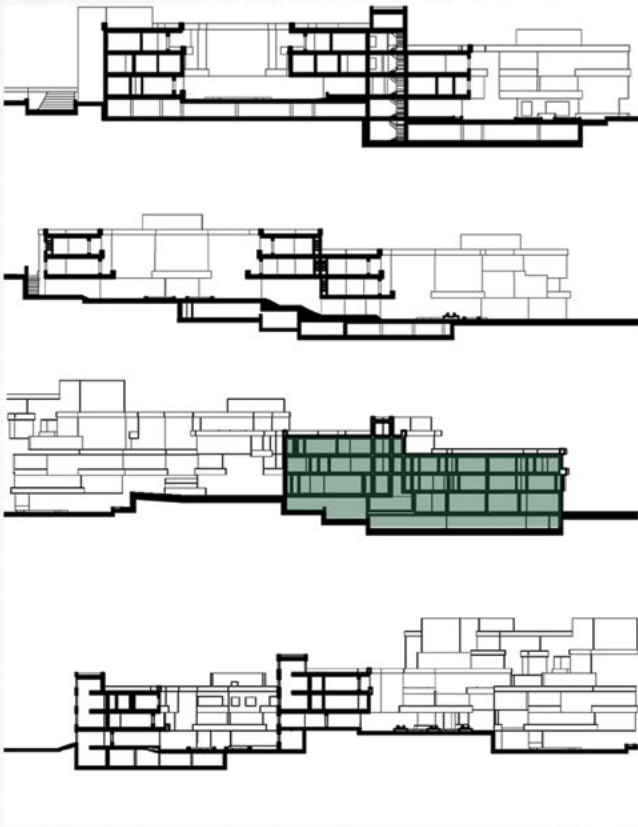


First floor plan

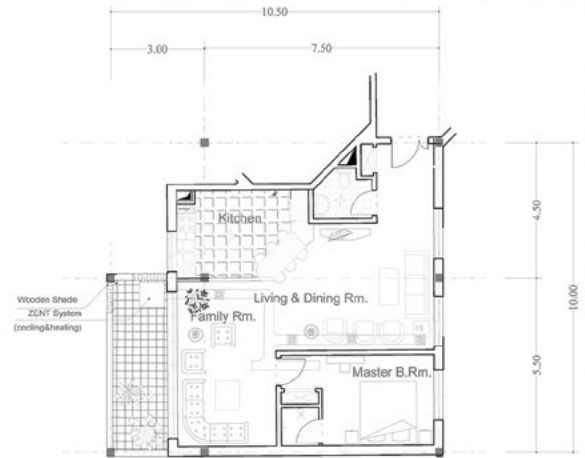


Bird-eye view from western side





Three bedroom unit plan



One bedroom unit plan



Section 1



Isometric view/Interiors



Isometric view/Interiors



Living room perspective



Living room view





**School of Architecture**  
Faculty of Architecture and Urbanism  
In Collaboration with Faculty Scientific Association  
**Shahid Beheshti University**