

ROADS

- High way
- Main road-blvd



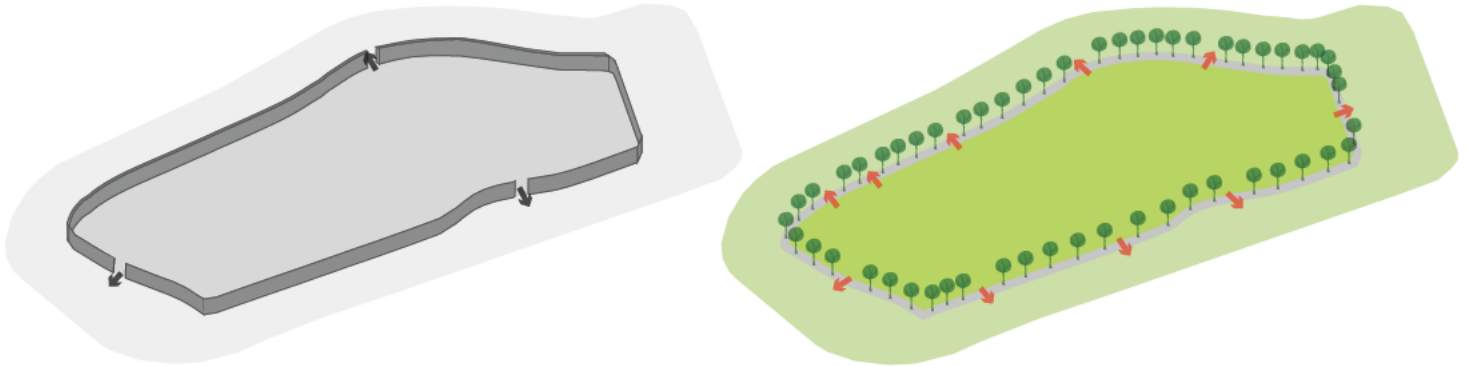
MORPHOLOGY & TYPOLOGY



THE IDEA OF CONTINUITY

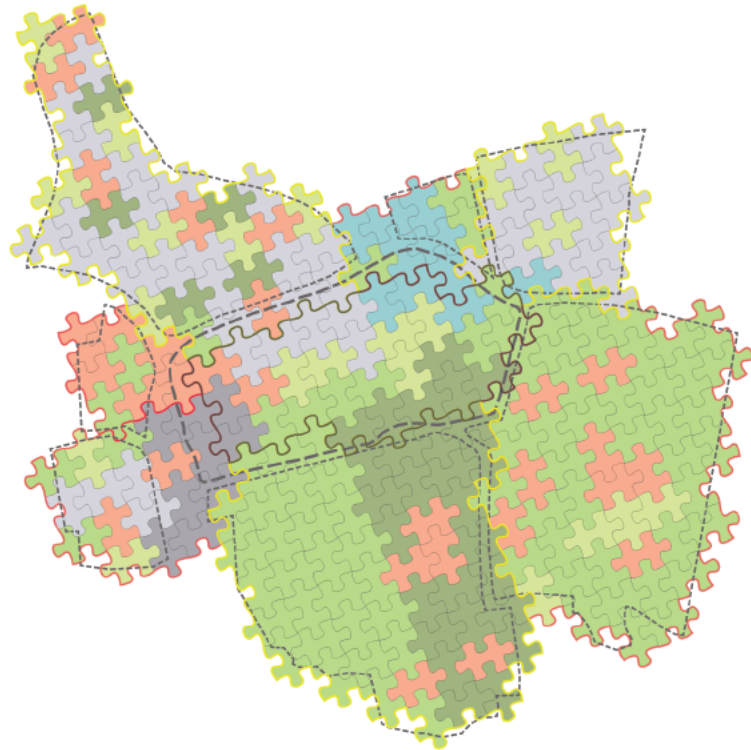
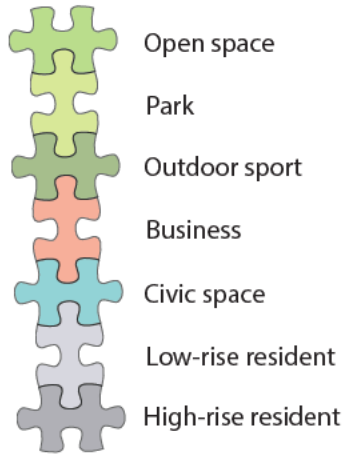
RECLAIMING THE SITE AND NEIGHBORHOODS

BREAKING THE WALLS, RECLAIMING THE NEIGHBBORHOODS



From north and west the Expo site has been cut from the rest of the city with highways. In the southern and eastern parts also gated areas have enclosed it, the same as the north-east front. What if the walls fall down? Not only the walls of the site but also the walls of surrounding gated functions. Breaking the walls is the first step to reclaim the site and neighborhoods. The continuity of public functions to the site and on the other hand the flow of the green spaces to the fabric. Walls can transform to an invisible and transparent barrier.

PENETRATION



The Expo site is surrounded by different activities. The idea of continuity allows them to cross the borders and penetrate to the site. In other word with consideration of the neighborhoods' effect, the Expo site is assumed as the transition hub between activities.

This altitude leads to a site full of activities which are not connected to each other before the removal of the borders.

THIRD PHASE: MASTER PLAN

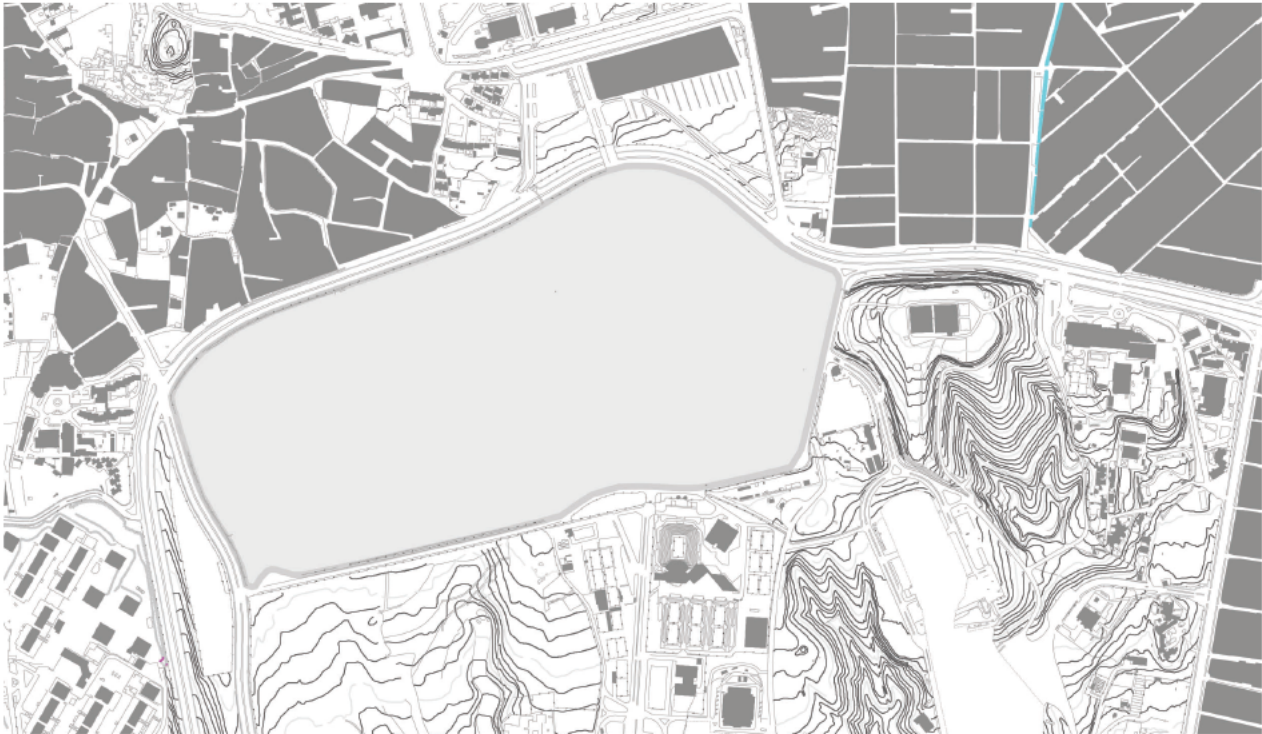
ANALYSES IN THE SITE SCALE

- Analyses about main infrastructures, rivers, land use, typology and morphology of surroundings
- Site analyses
- Master plan concepts



MASTER PLAN CONCEPTS

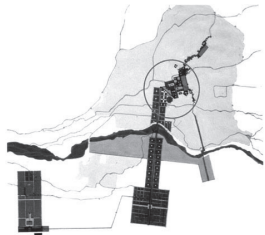
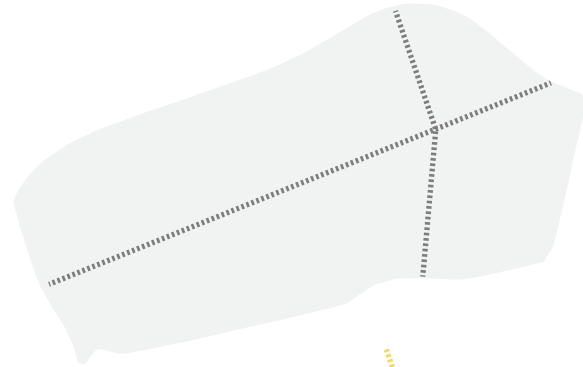
FORMER-EXPO SITE



CONCEPTS FOR THE AXES



City of Yazd



City of Isfahan



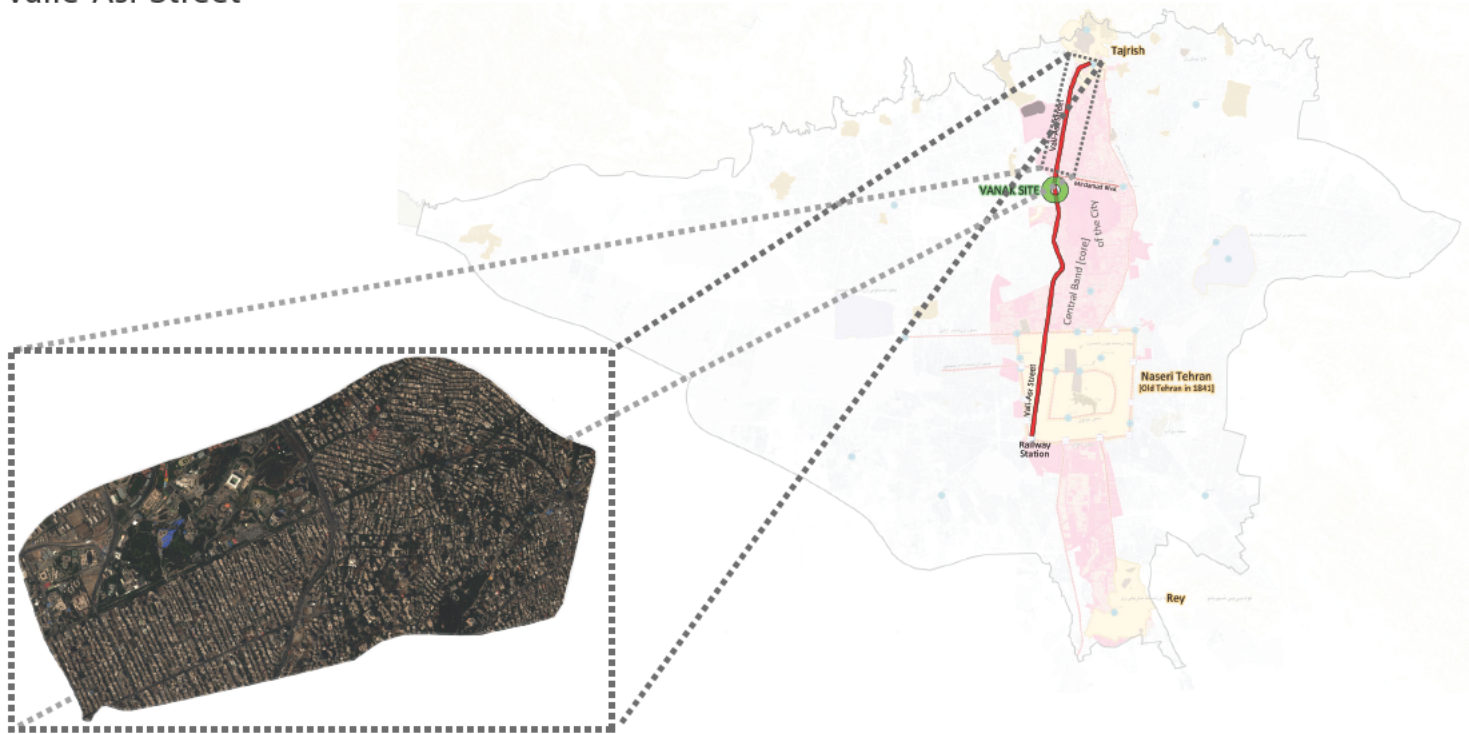
Hamedan city



In the original core of Iranian cities, two different typologies of city axes can be seen. In the first one "crossing axis" has formed main city infrastructure, other streets branched according to it and other geographic factors. This typology formed most of the Iranian cities and it has different characteristics from Roman Cartesian axis. "Radial" type was less popular in Iran which rings of street have envired the important city elements. These two types have been selected as a concept for the expo site axes.

TEHRAN'S URBAN FABRIC AS A TAPESTRY DECORATION

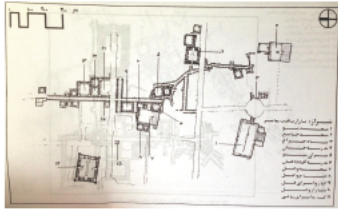
Valie-Asr Street



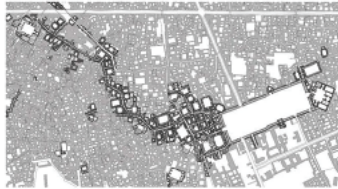
In the urban pattern of the city of Tehran, one of the most important city axis is Valie-asr street which also has historical character. It is the longest street in the Tehran which in one hand connects northern part of the city to the south and on the other hand is one of the most important shopping zones in Tehran; also it contains lots of day and night life activities.

To have the idea of Tehran's urban fabric as a tapestry decoration for the Former- Expo site axes, first part of this street from Tajrish square to Vanak square has been selected.

BAZAAR



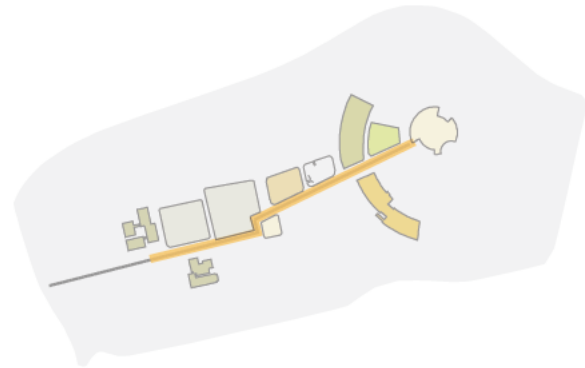
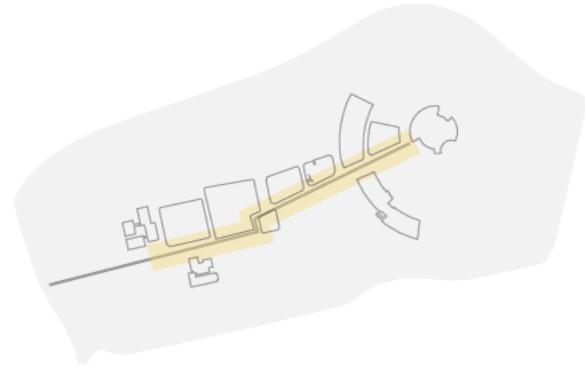
City of Yazd



City of Isfahan



City of Tehran



In the all Old Iranian cities, Bazaar was the main city element. This commercial path had a great potential to integrate different functions beyond it. As a concept it is considered to create an active commercial path inside the Former-Expo site and common element between different areas.

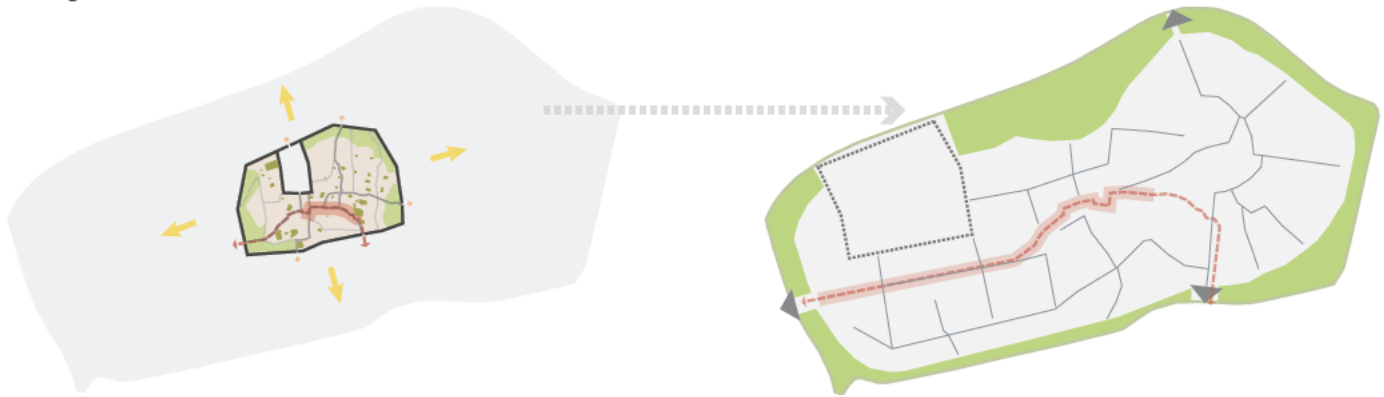


GATES AND CONNECTION

→ Fabric expansion

▶ Existing gate

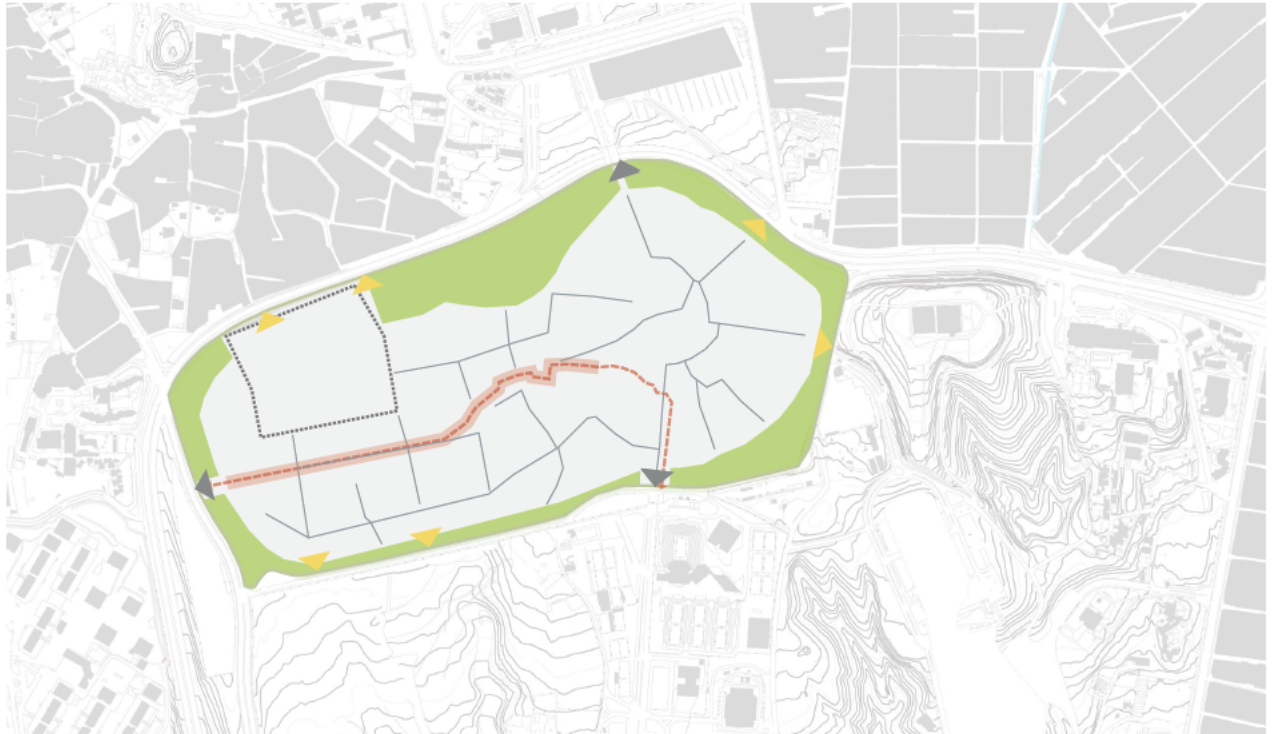
▶ New gate



Applying the adjustment of old town in Expo site leads to some results such as:

- Providing new gates to increase the connection with surroundings.
- The green which enclosed inside the walls will be preserved and make connection with neighborhoods.

SPATIAL ORGANIZATION OF THE NEW MASTER PLAN



According to all concepts for the Expo site, spatial organization of new master plan is presented.

New gates and connections between them will form new zoning.

This zoning will include different functions related to surrounding fabric to provide the idea of continuity.

Similar to Old Iranian cities, the main axis is the spine of the whole site and play as connector element with the especial character of commerce.

FROM CONCEPTS TO THE DESIGNING PROCESS

SERVING SPACES AND THE CITY

Spot and flows

..... Public open spaces

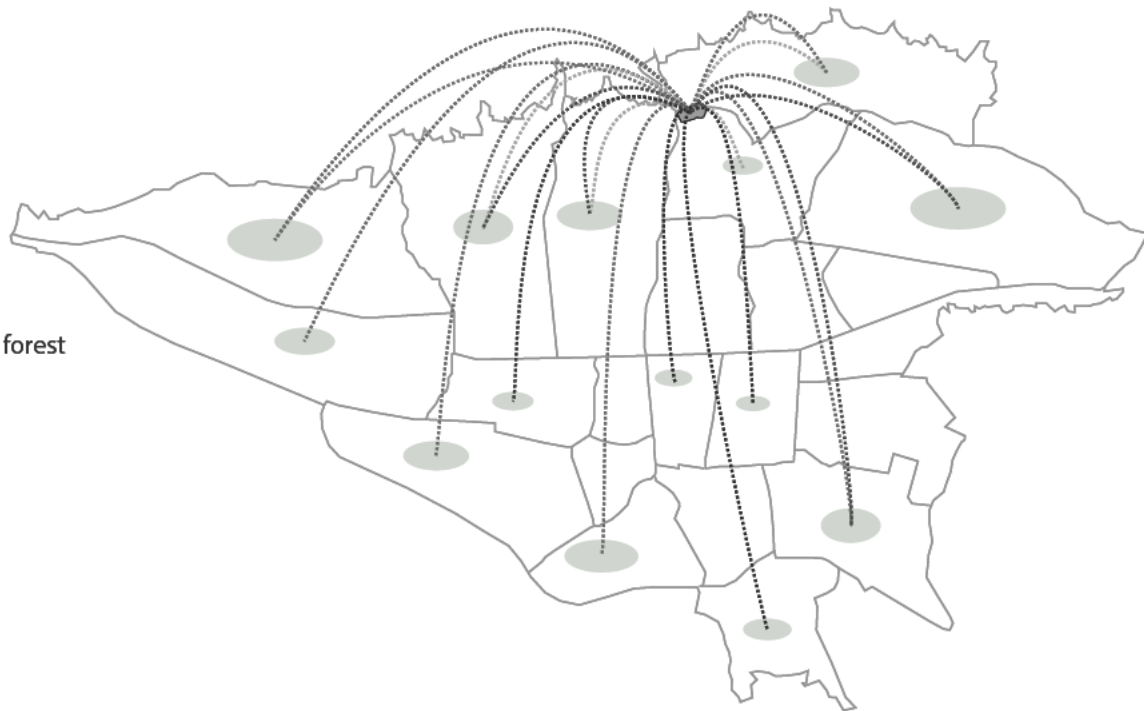
..... Recreation services

..... Fruit market

..... Green space

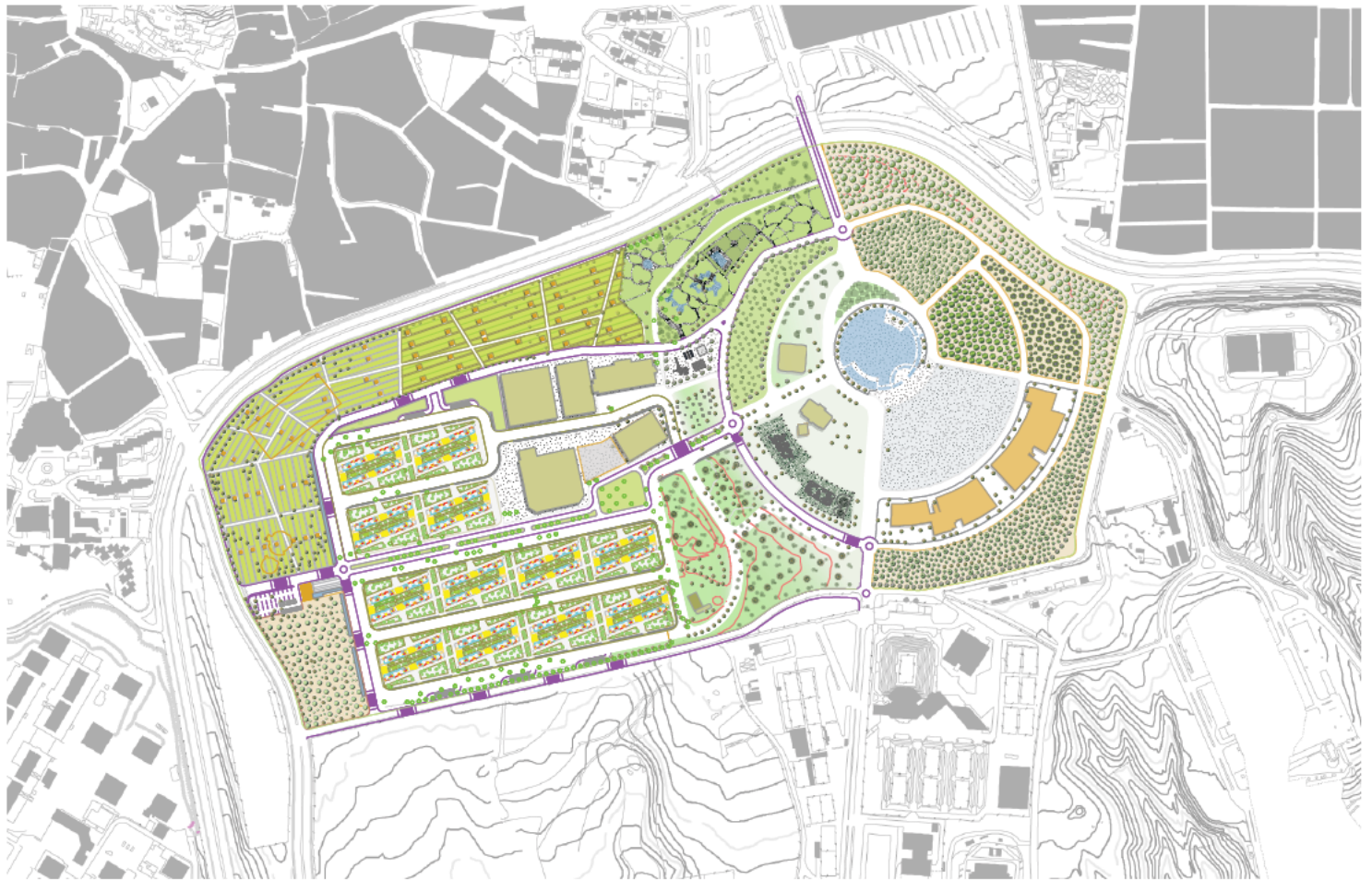
..... Inner-city park and forest

..... Culture center

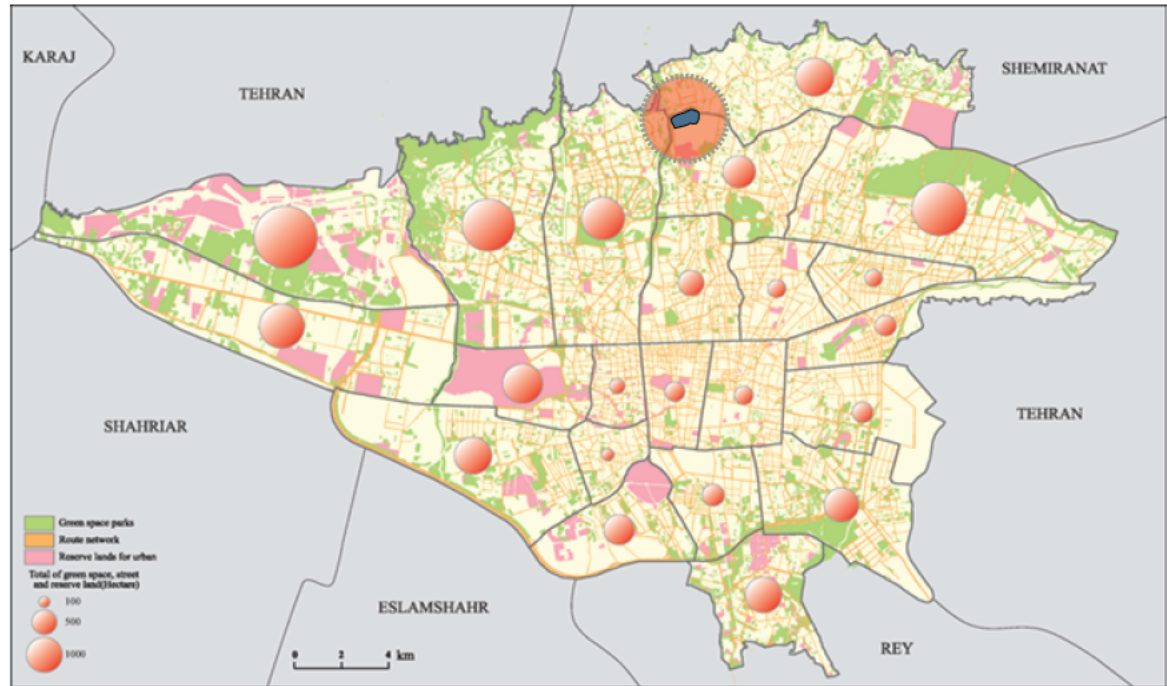


The survey of the city flows from the location of the site to important serving point of the city has been classified to six categories. These categories have selected by the analysis of absence of access to main city spots from the site. Public open spaces, recreational services, vegetable and fruit markets, green space, inner city park and culture centers are the selected main spots which their access need to be improved.

In the following new facilities of the site will be presented which are going to serve the city as a new spot for these categories.



PUBLIC SPACE FOR GATHERING AND EVENTS



Situation and degree of public open spaces in the areas (2006)

The figure shows the sprawl of public open spaces in the city of Tehran. As it is shown in the district 3 and the site surroundings the area of the open spaces is not enough. Tehran as a large metropolitan has been always suffered from lack of open spaces during the events or other reasons like national ceremonies. As an example during the gathering of the people for after parties of elections or Iran's national football team winning, the gatherings always took place in the city streets and squares because of having no particular space for such events.



Election after parties
in Tehran (2009)



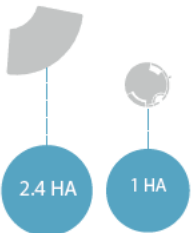
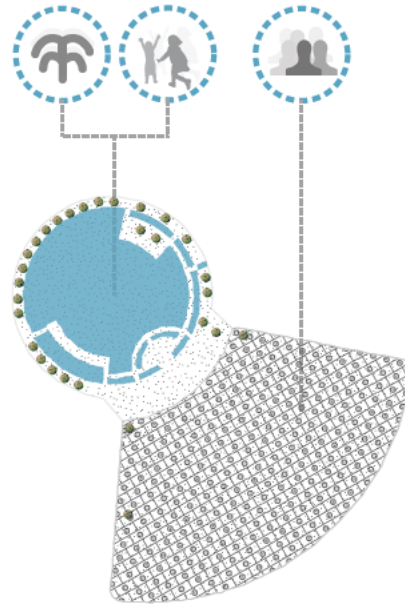
Iran's national
football team
winning (2013)



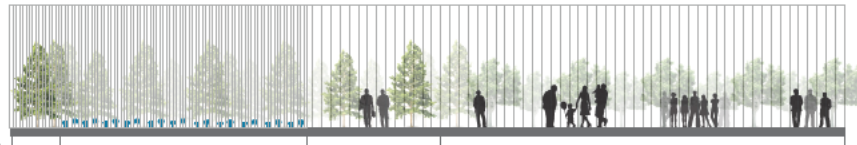
To have a new public space, in the core of East side of the site a ground fountain has designed with a linear green in its surrounding.

Because of the centric location of this part a gathering space is considered for the site and its neighborhoods. In special events and gatherings which more area is needed, the water can go down and the space of fountain can be added to this part to provide a considerable area for the local events.

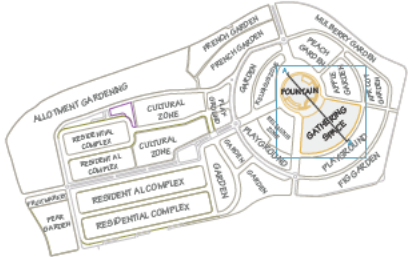
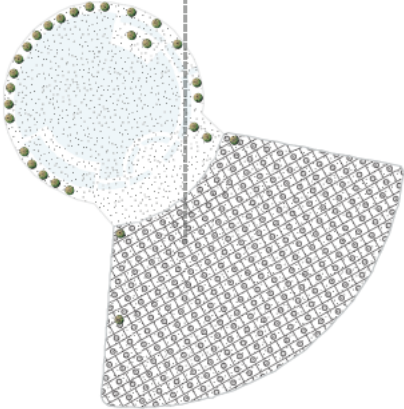
FOUNTAIN



SECTION A



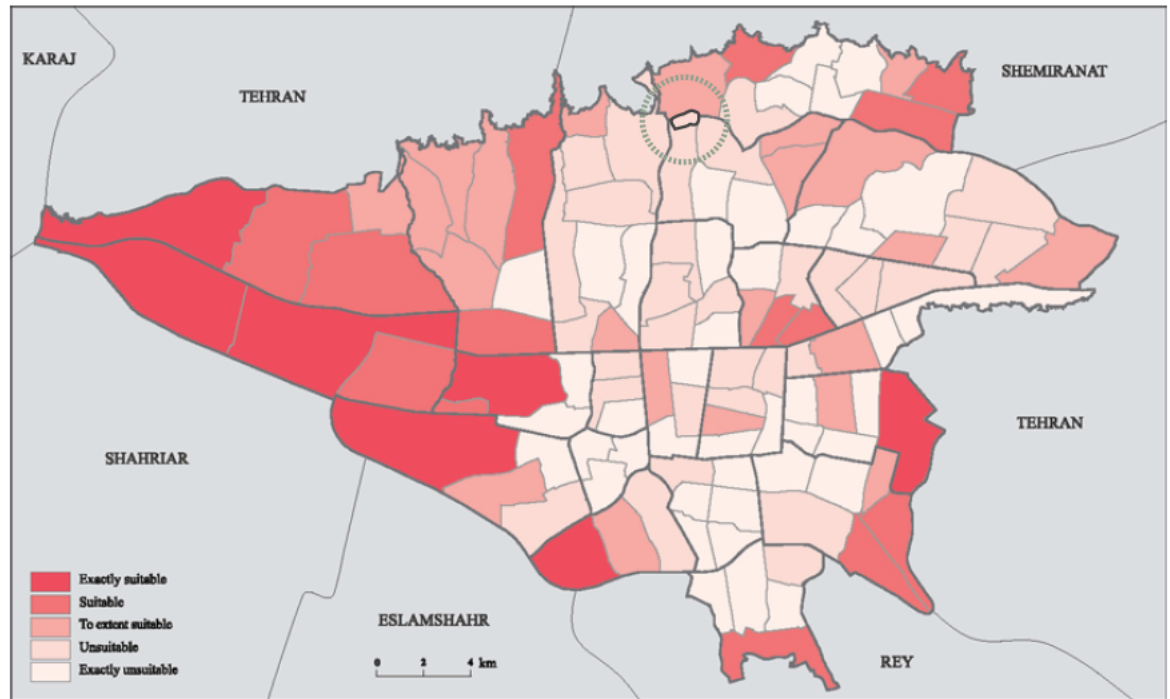
GATHERING SPACE



SECTION A



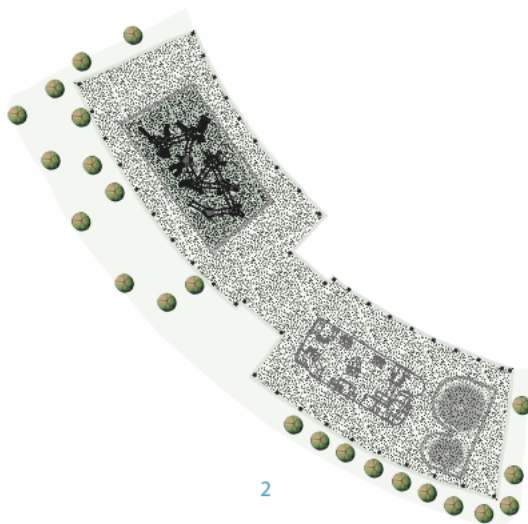
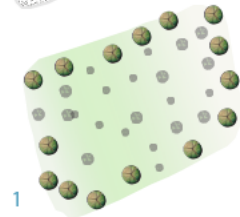
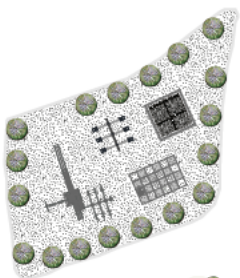
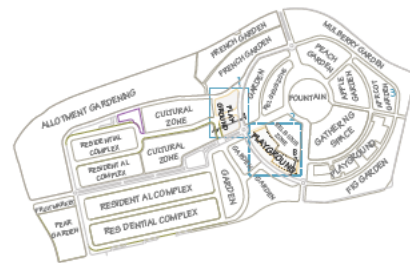
PLAYGROUND



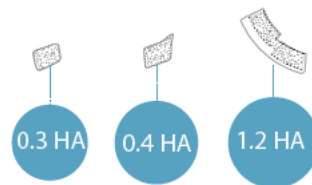
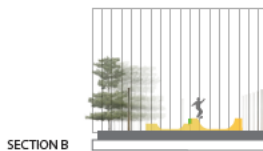
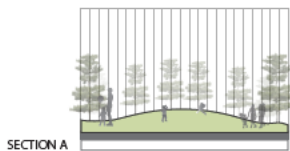
The quality of access to recreational services (2006)

As the district of the site has a large population of young families with children and also because of the site itself which is going to host young generations, area of 2.5 hectares is contemplated as playground with different qualities. Type 1 is considered for kids which includes playground instruments.

Type 2 in the former Expo site was one of the exhibitions which completely will be removed and just the columns will remain to keep the sense of space. This area is considered for outdoor sports and has an area for playground installations and also a track for skating.



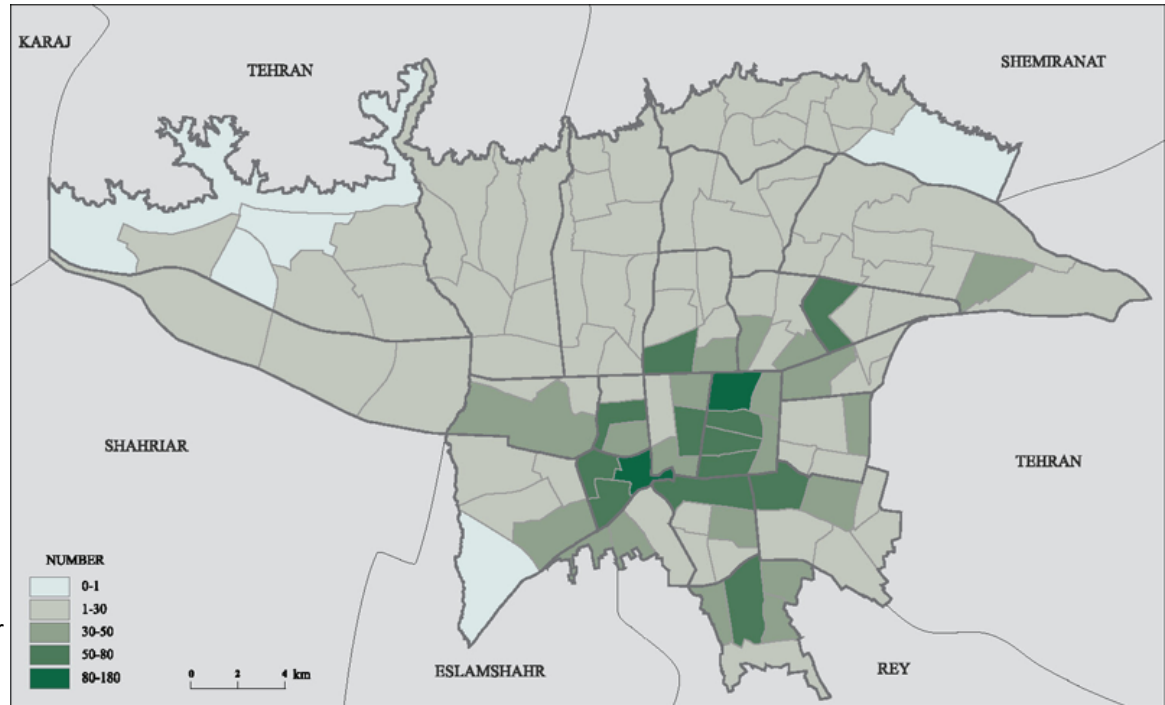
SC:1/2500





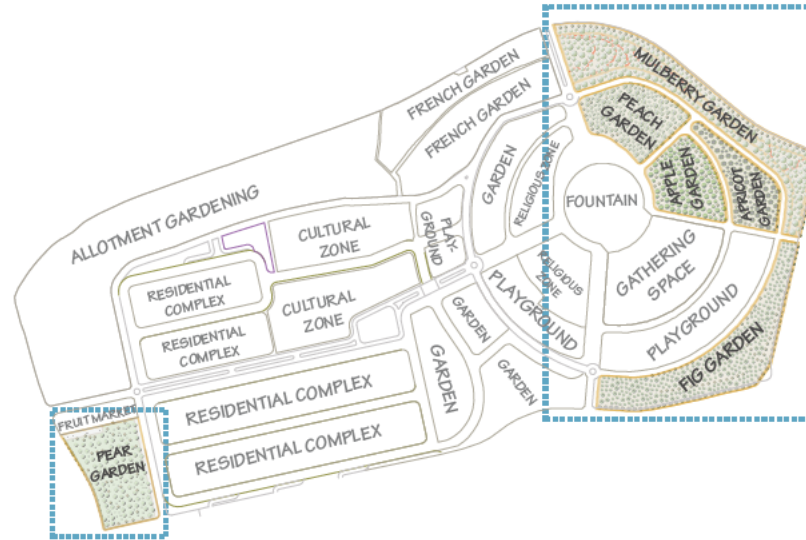
RELIGIOUS CENTER

Distribution of
Mosques and other
religious centers
(1996)



Religion is one of the main factors in Persian life style and plays an important role also in its culture and architecture. Related to that, there are about 2000 mosques in the city of Tehran to host people for praying every day. In the upper part of the site, one of the former Expo buildings will change to a new Islamic center for the area and next to it, the mosque of former Expo site will be kept in order these two center together provide a religious zone for the site and its neighborhoods. The area between these two centers considered to host outdoor Islamic events.

FRUIT FARM



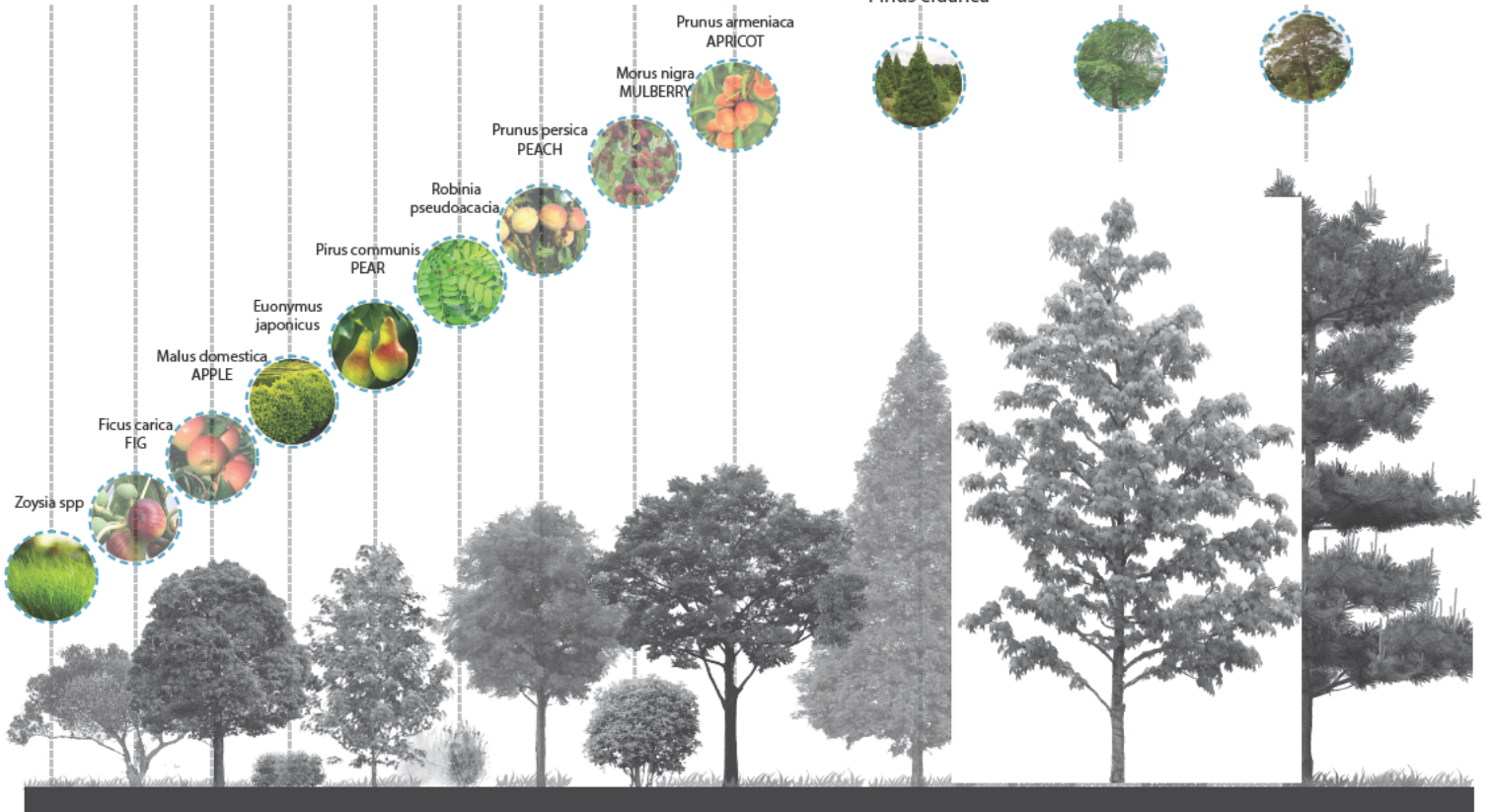
The idea of having farm as one of the strategies to preserving the area is paralleled with the idea of expansion of the green and its improvement plus as a new concept in Tehran urbanization. In the eastern part of the site six zones have been considered as farms for cultivation of fruits. These gardens will be controlled by the site residence and contains gardens for apple, peach, apricot and fig and an another area in the west of the site and close to the fruit market specified for farming pear trees.

These type of fruit trees are the most compatible kind of trees with Tehran ecology and climate. The products of these farms will be sold in the new market inside the site to provide a better access to the market for its residence and the neighbourhood.

FORMER TREES

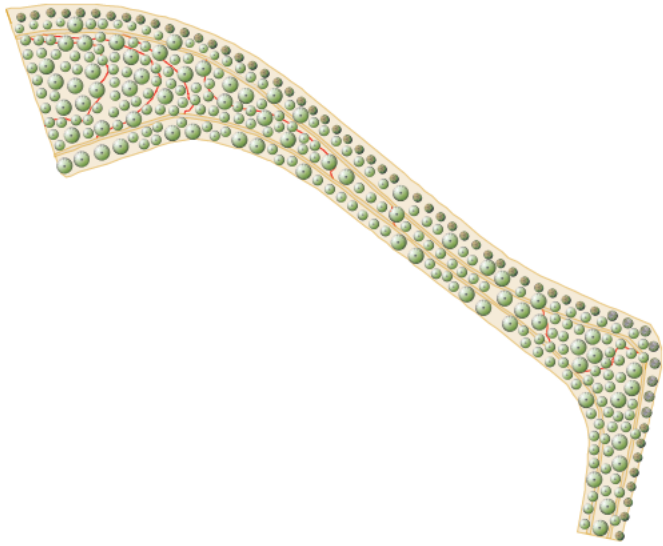
BUSHES

FARM TREES





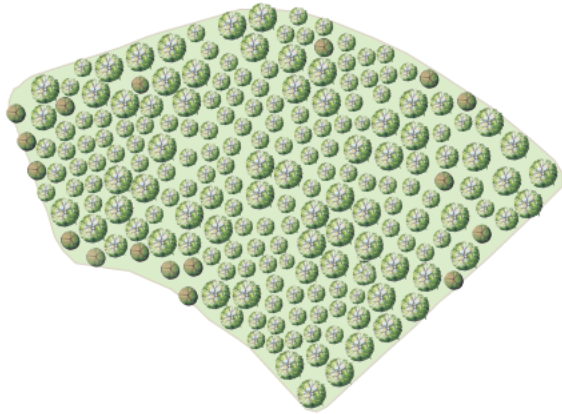
MULBERRY

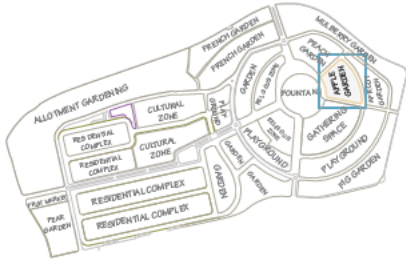


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3.1 HA

PEACH

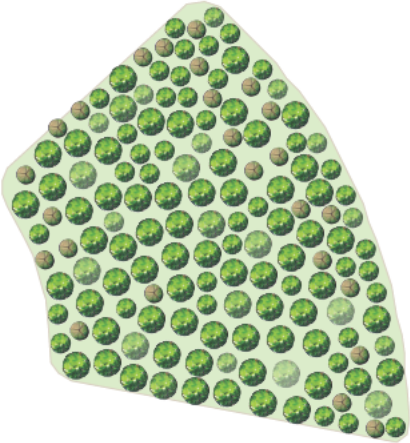




APPLE

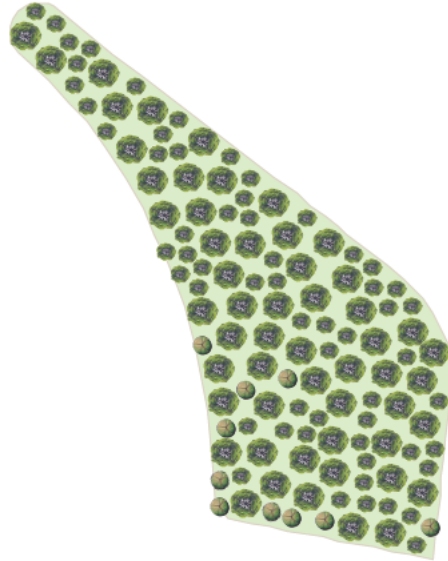
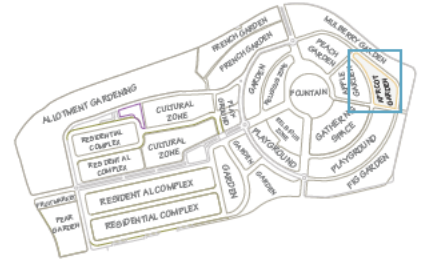
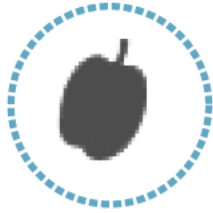


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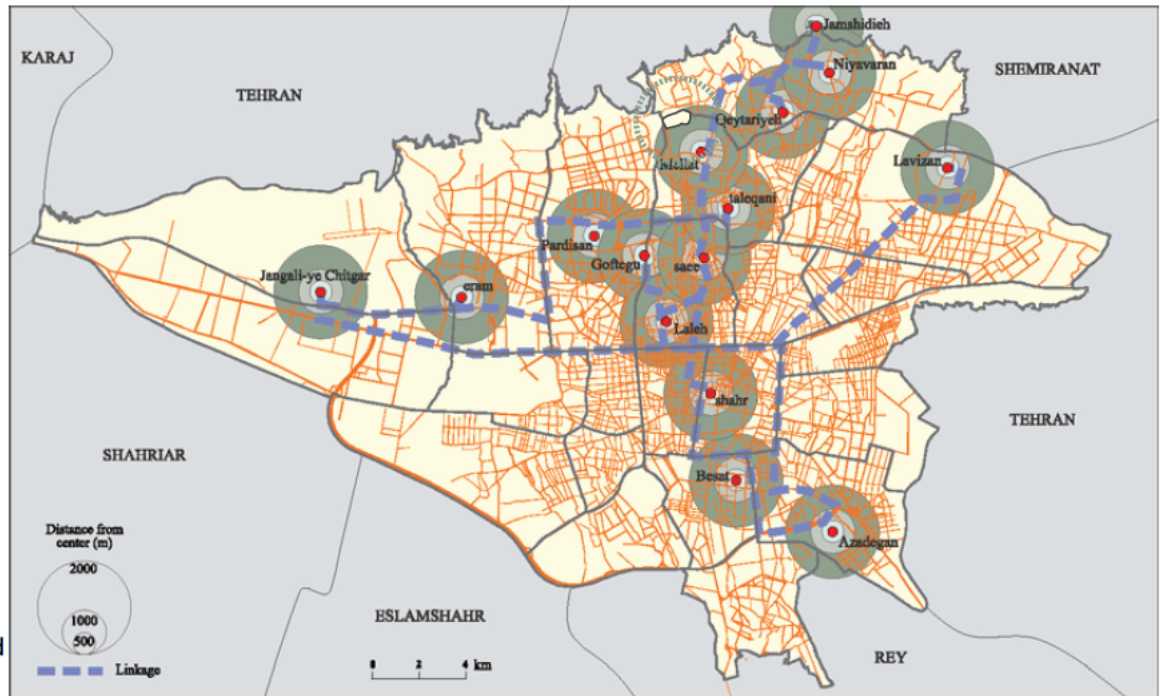


1.2 HA

APRICOT



GARDENS

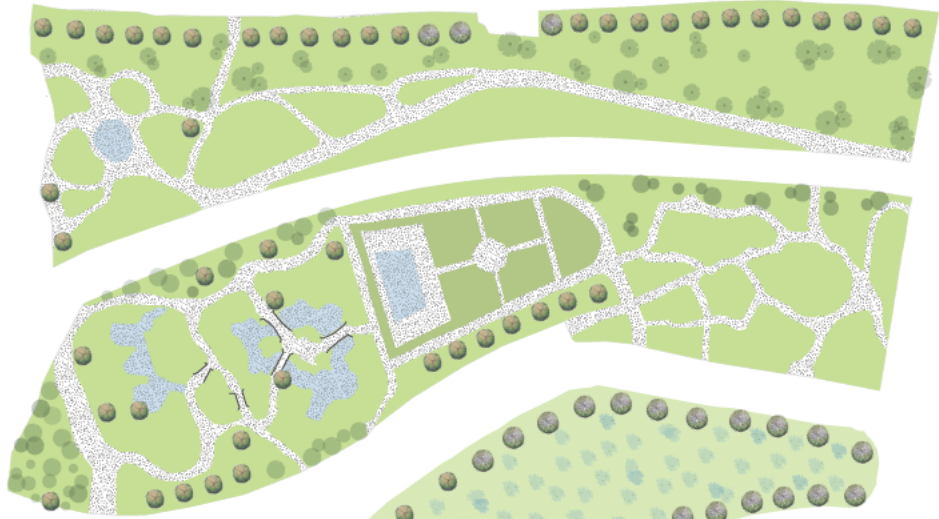


Situation and dispersion of inner-city parks and forests (2006)

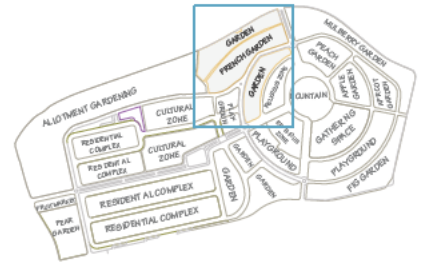
The distribution of green spaces and parks in Tehran which has been shown above, is settled more in central district.

To have the idea of green continuity and in between of different function zones, various types of gardens are designed to improve the access to the green spaces. The quality of two gardens which are remained from the former Expo site and one of them has the character of French gardening style is improved.

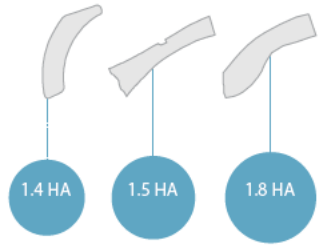
FORMER GARDENS



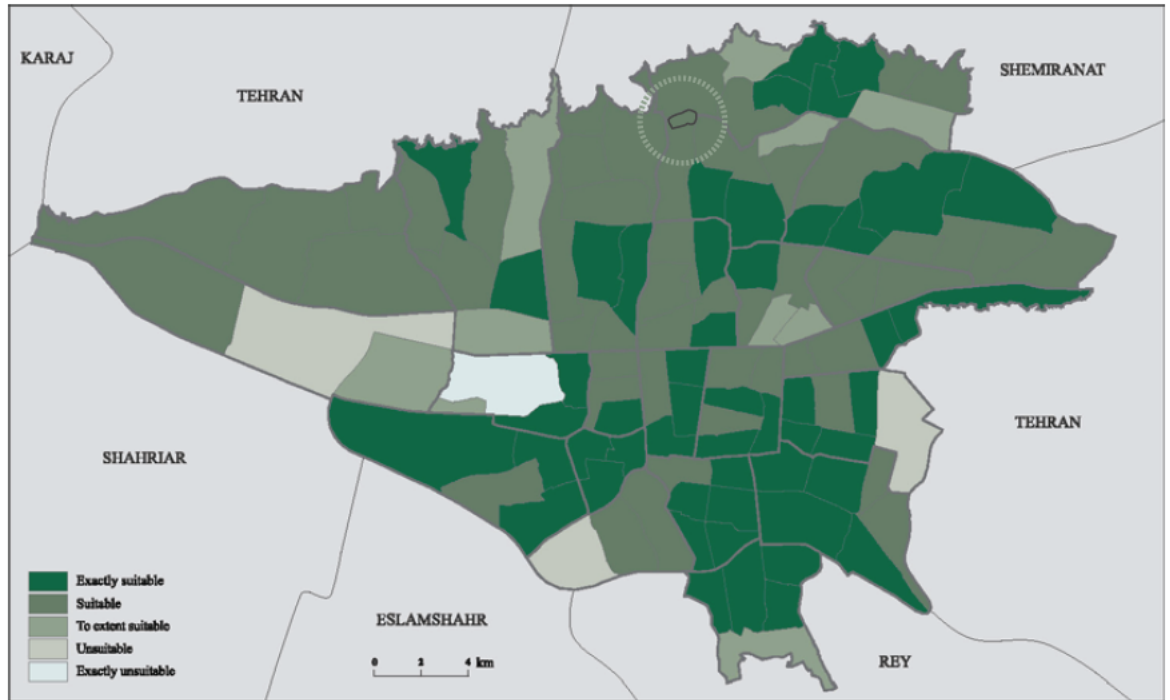
NEW GARDEN



SC:1/2500



PARKS

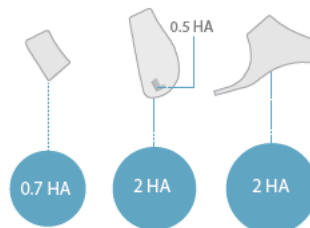


The quality of access to green spaces (2006)

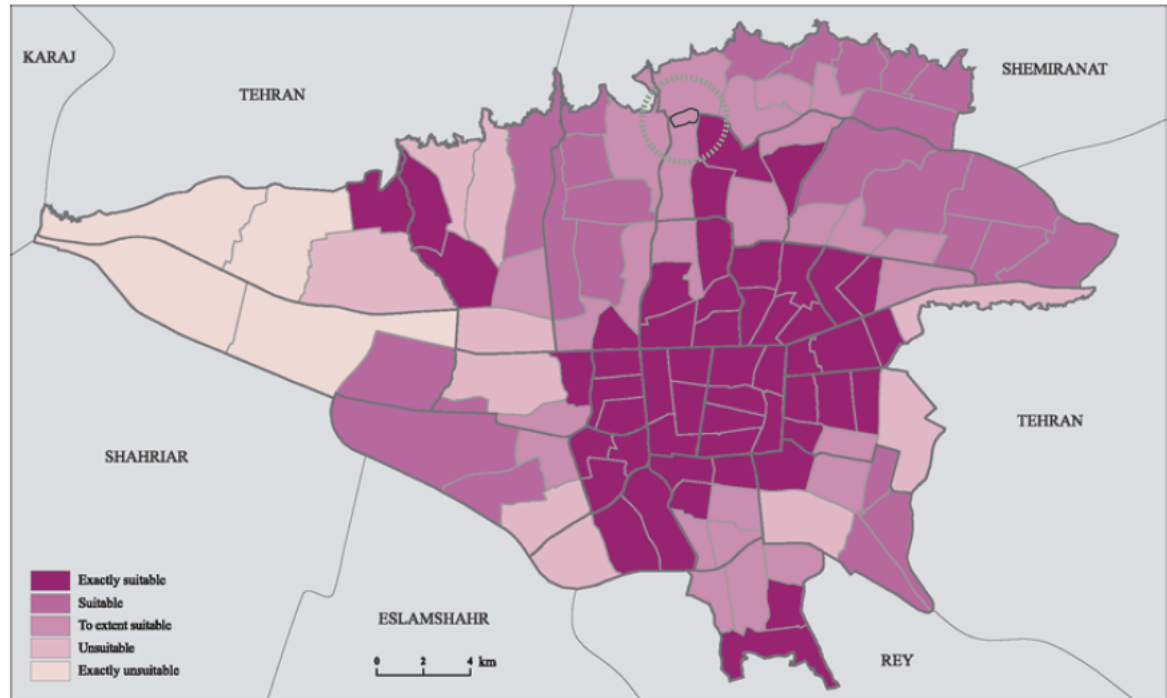
Inner city parks in Tehran have different quality and character which host different type of people and events. To present a new green space in this area , the new gardens are going to host family gathering and picnics. These type of gardens contain family picnic facilities and also a restaurant



SECTION A



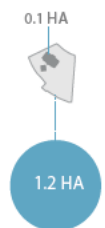
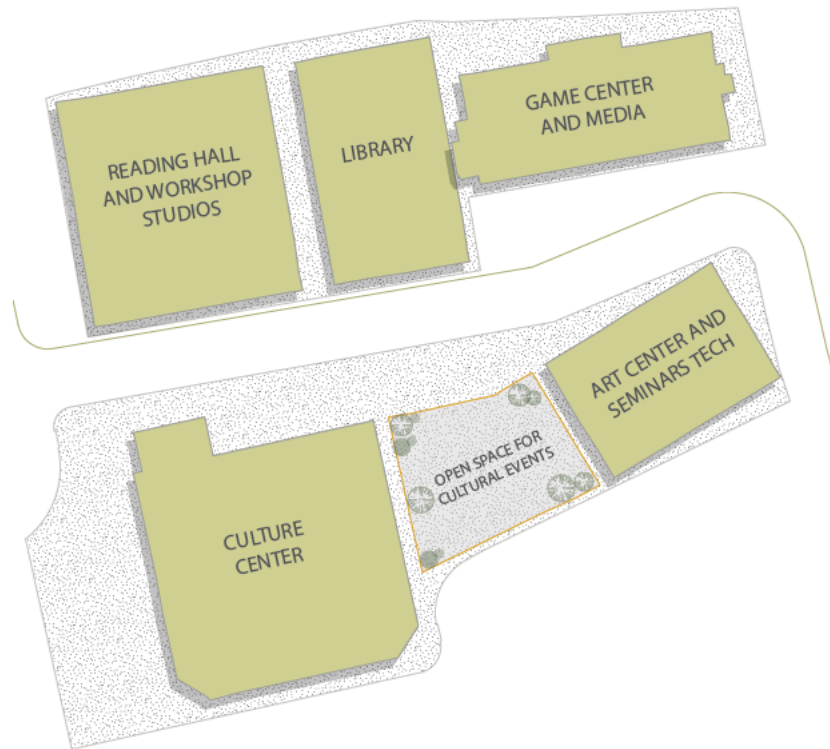
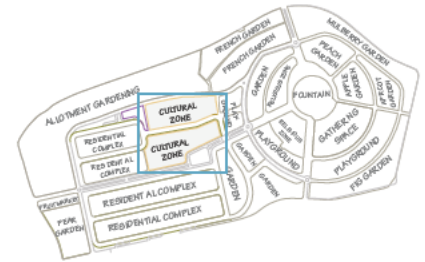
CULTURAL ZONE AND CIVIC CENTERS



The quality of access to cultural services (2006)

This part of the site contains all the almost new buildings which constructed recently with the good civic facilities. The potentials of the each building have been analyzed separately and according to the function programming of the site new functions suggested to provide a new cultural zone for the area although the position of the site for accessing to cultural centers is acceptable but this spot can bring about a new possibility to achieve richness for the district.

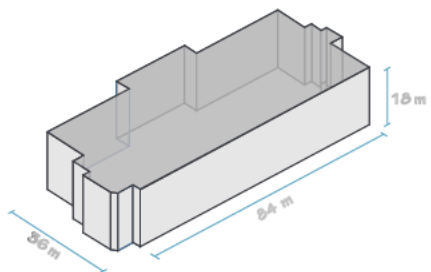
BUILDING FUNCTIONS



GAME CENTER AND MEDIA TECH



SC:1/2500

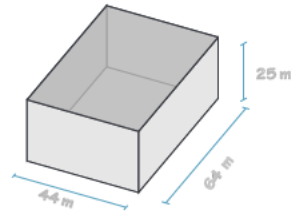
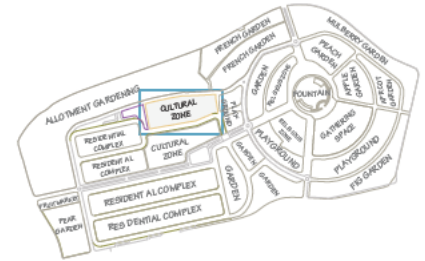


3024 M²





ART CENTER AND SEMINARS



ALLOTMENT GARDENING

In the first phases of analysis, one of the main important problems of the former Expo site was its disconnection with surrounding and isolated functioning. To increase the quality of the connection and next to the northern and eastern highway an area of 8.5 Hectares specified to use as an allotment gardening area for the site. This area supposed to be as a buffer between highway and residential complex.

Having the idea of allotment in city of Tehran is quite new which during recent years has been examined in another district of the Tehran. The municipality of Tehran used this solution to reduce the shortage of access to the green especially for the people of residential complexes which are far from agricultural borders of the city and request to have an small area for their vegetable cultivation. All the product of this area and farms can purchase in the fruit market of the site.

In the new master plan of Tehran in the west side of this area has been considered for a retirement house which to start constructing in the future some part of the allotments can be removed to provide needed area.



BOTANY



Zea mays subsp. *mays*
SWEET CORN



Daucus carota
CARROT



Lycopersicon esculentum
TOMATO



Solanum melongena
EGGPLANT



Daucus carota
CARROT



Cucurbita maxima
PUMPKIN

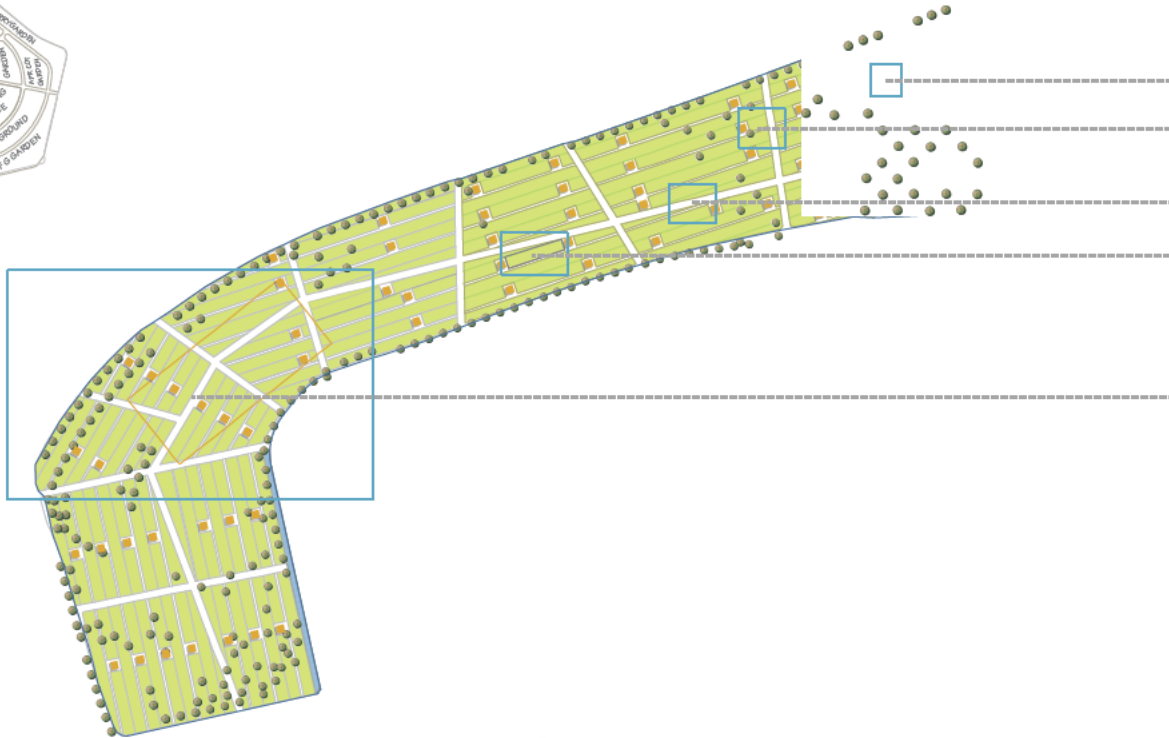
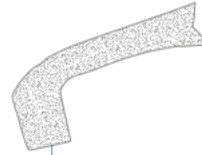
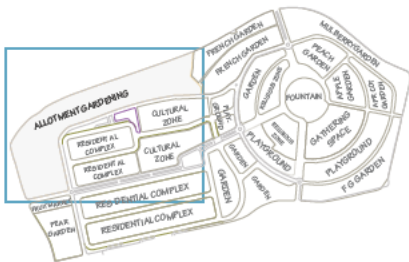


Helianthus annuus
SUNFLOWER



Capsicum annum
BELL PEPPER

ALLOTMENT GARDENING



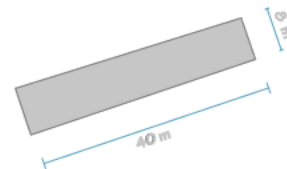
STORAGE



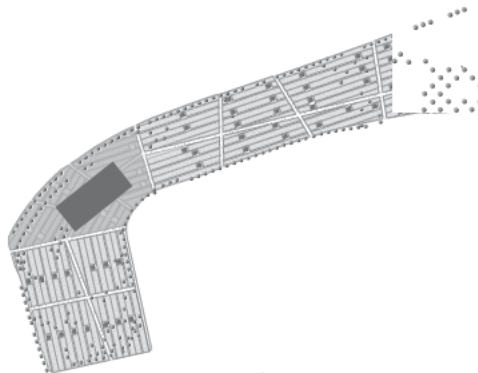
PRIVATE ROAD $W = 1.5 \text{ m}$

PUBLIC ROAD $W = 5 \text{ m}$

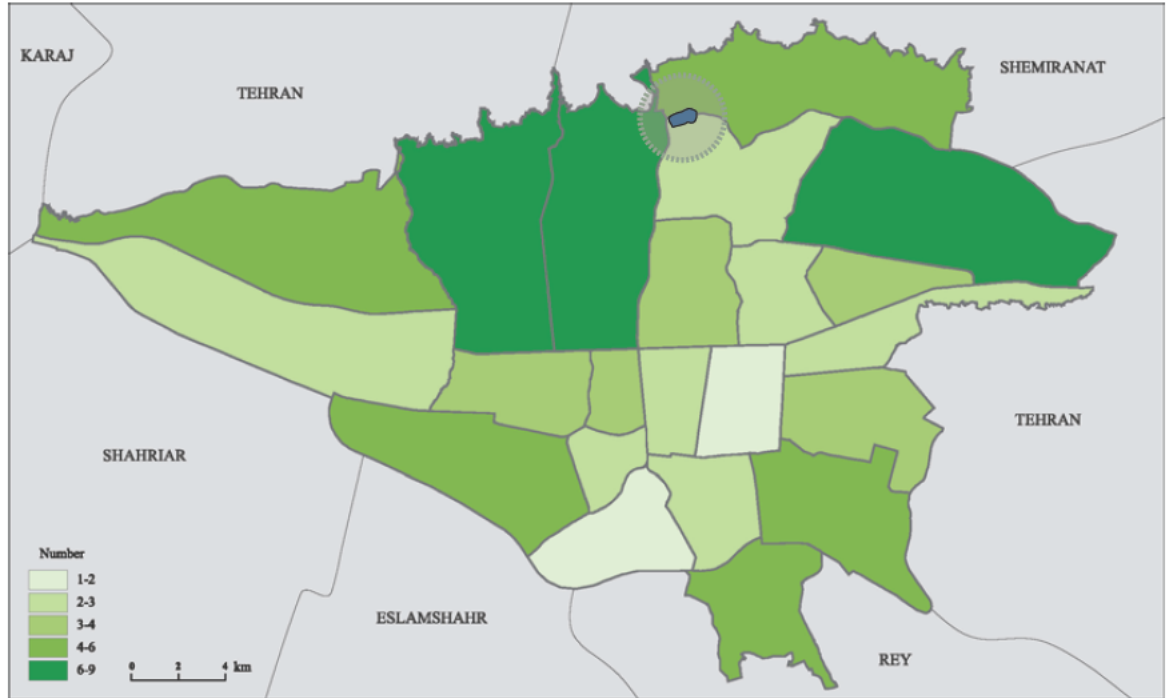
ALLOTMENT



RETIREMENT HOUSE
FUTURE DEVELOPMENT

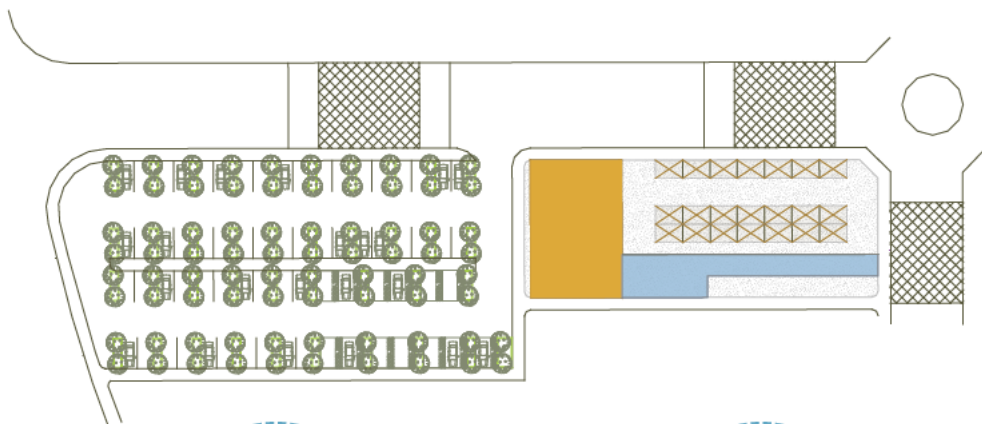
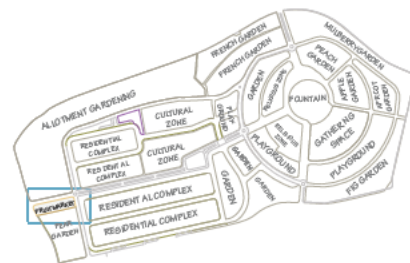


FRUIT MARKET



Number of fruits and vegetable markets (2006)

It is important in Persian life style to provide fresh fruits and vegetables daily therefore a large amount of internal trips in the city is for the shopping and as it is shown, the district three and the site has not an acceptable access to the fruit markets. Having a new market inside the area improves this weakness also on the other hand; all the products which come from the farms and gardens or the allotment of the site can be presented in this area which includes a permanent market and also an area for temporary weekly markets. This part of the site gets the access directly from Yadegar highway and users have the possibility to park the cars in the parking area next to the market.



SC:1/1250

330 M²

0.4 HA

DESIGNING PROCESS OF BUILT UP AREAS

ANALYSES OF TEHRAN GRIDS, TYPES AND DEMOGRAPHICS STUDIES OF THE CITY

TEHRAN GRIDS TYPO-MORPHOLOGY ANALYSES

Morphology of roads



Linear



Irregular



Grid and
linear



Grid and
irregular

Prevalent Azimuth



Area



Necessity of different analyses for designing the master plan regards to sustainability and climatic approaches are apparent. These analyses are related to the morphology of blocks in the city and demonstrate their orientation and azimuth. These indicators are effective for planning related to the sustainability.



76 HA



82 HA



109 HA



78 HA



96 HA



85 HA



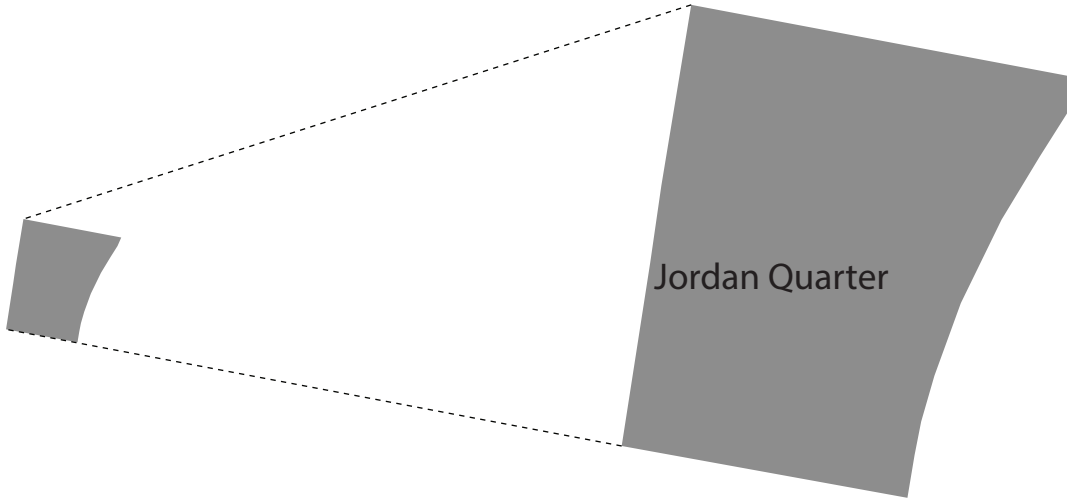
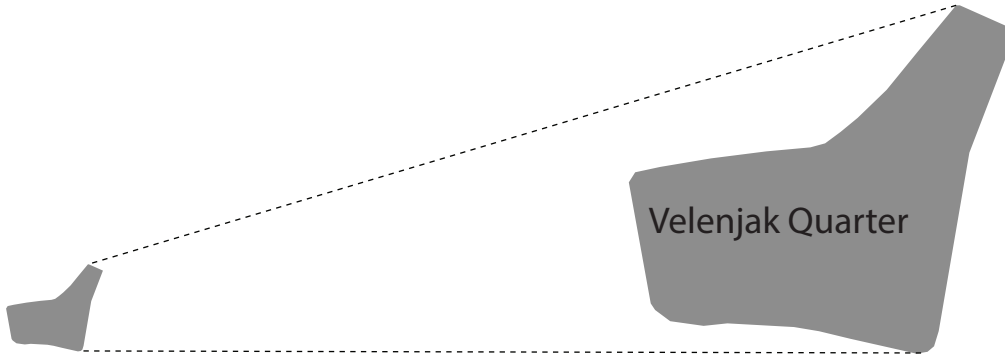
39 HA

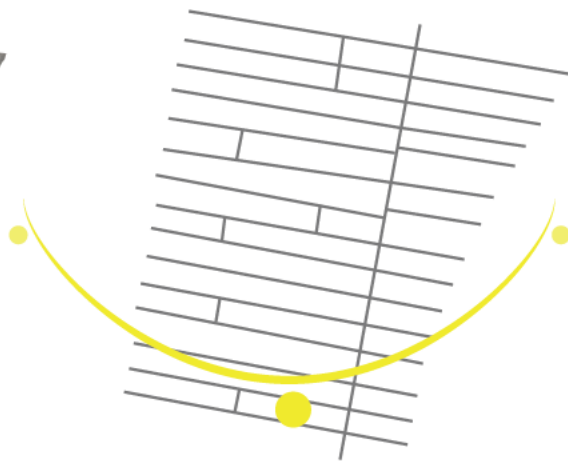


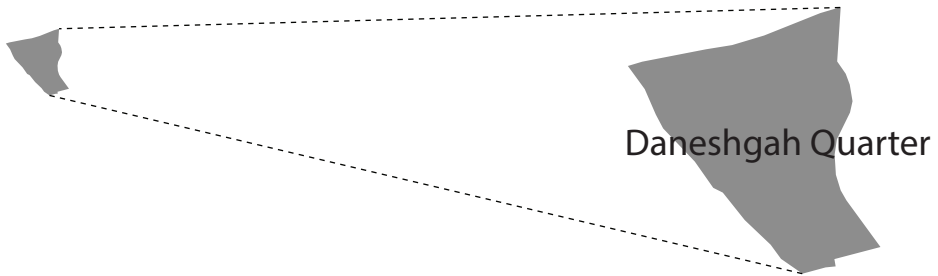
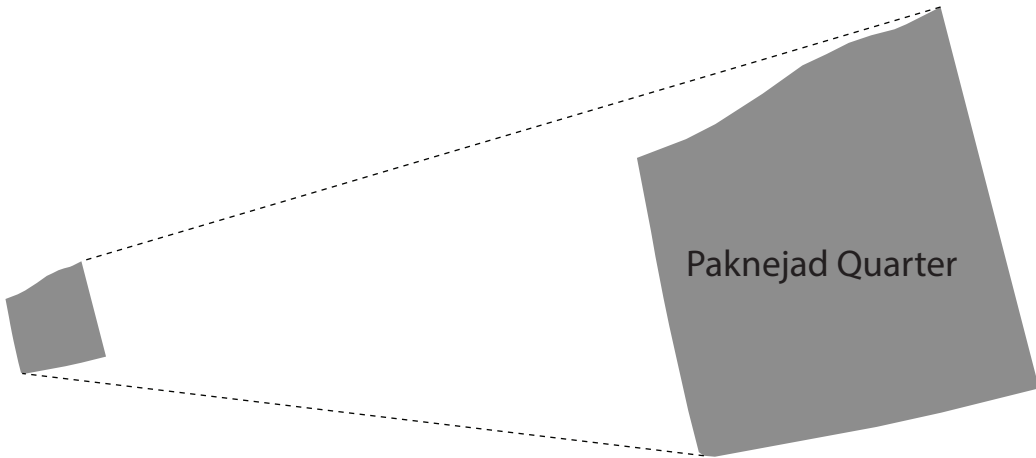
71 HA

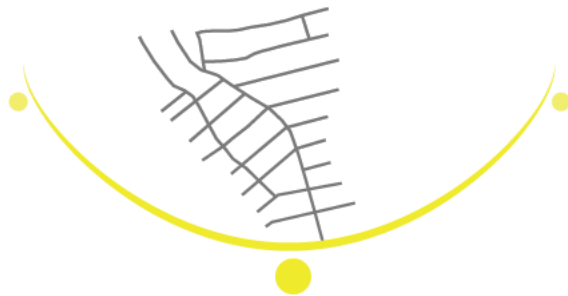
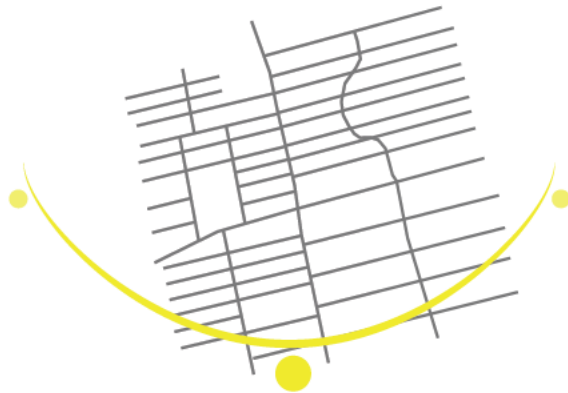
The process starts from different blocks in upper part of the city. The aim is to find out the most efficient and qualified type of grid to use in the Former-Expo site. Not only the grids but also the formations of blocks are studied to reach the aim. The most important factor in these analyses is the azimuth of grids.

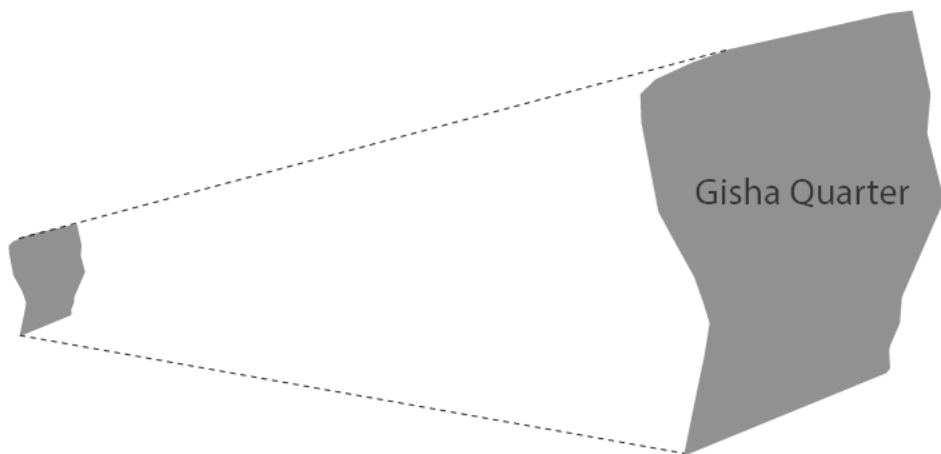
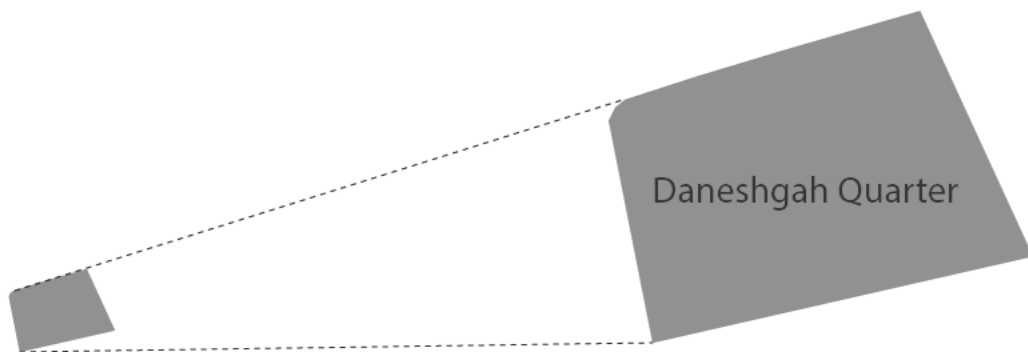
AREAS

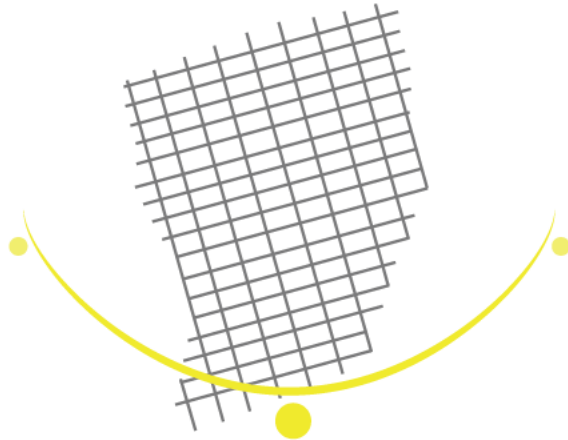


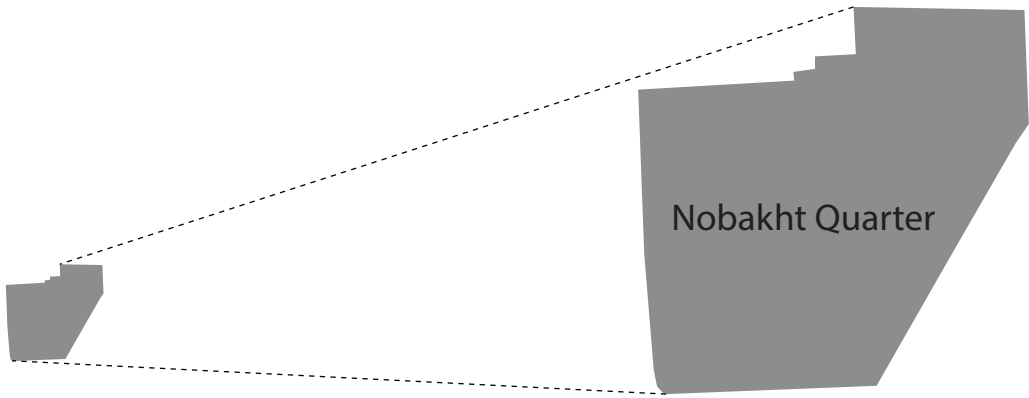




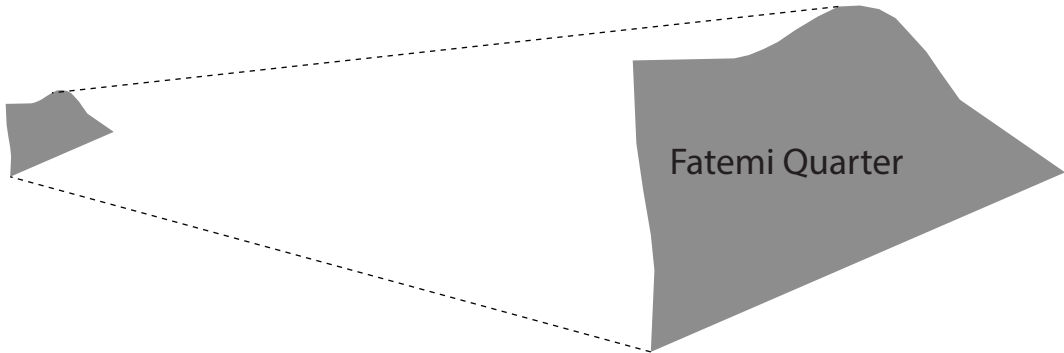




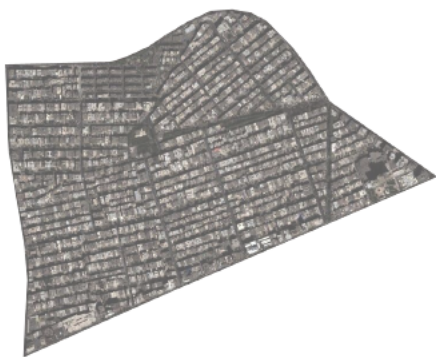
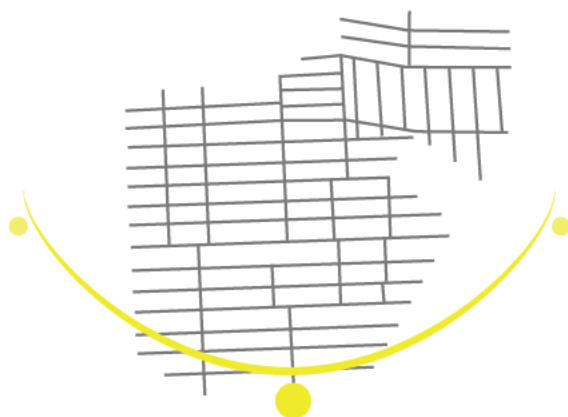




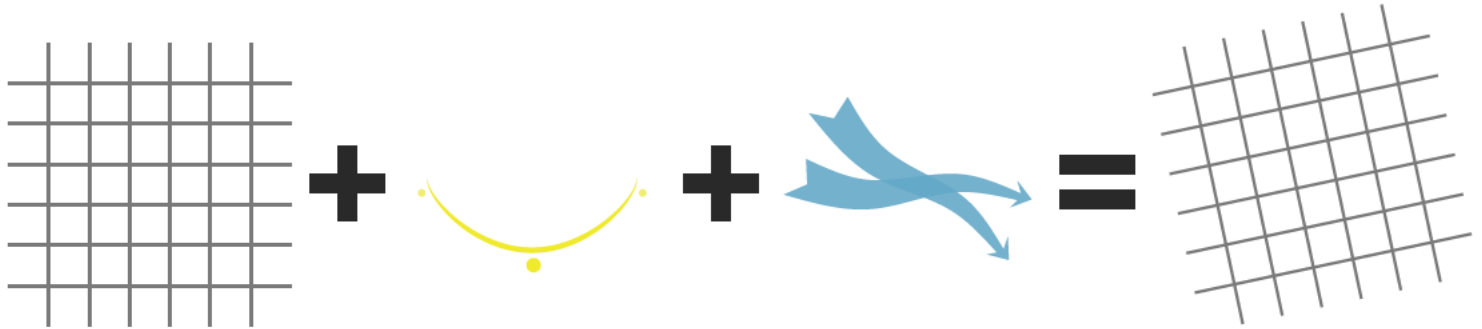
Nobakht Quarter



Fatemi Quarter



GRID DIRECTION



Regards to sun direction and wind chart of the city the best azimuth for the grid is between 165 and 170. Because of the efficiency, these patterns can be found in different parts of the city. Higher daylight factor and better wind circulation are the advantages.

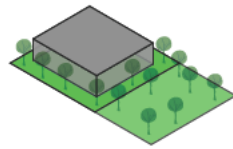
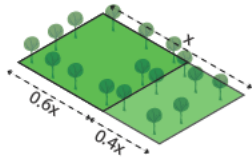
BUILDING FOOTPRINTS IN TEHRAN

Footprint limit

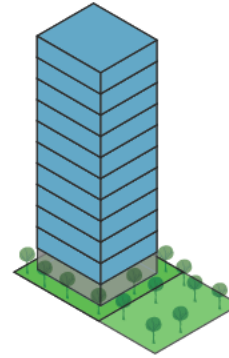
Built up footprint

FAR

Type 1

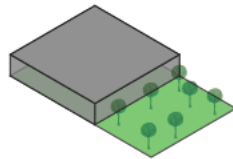
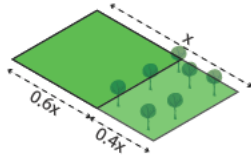


30%

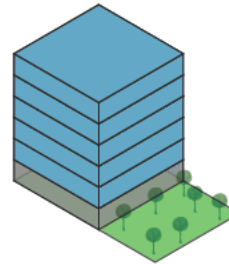


FAR= 3+ parking

Type 2



60%



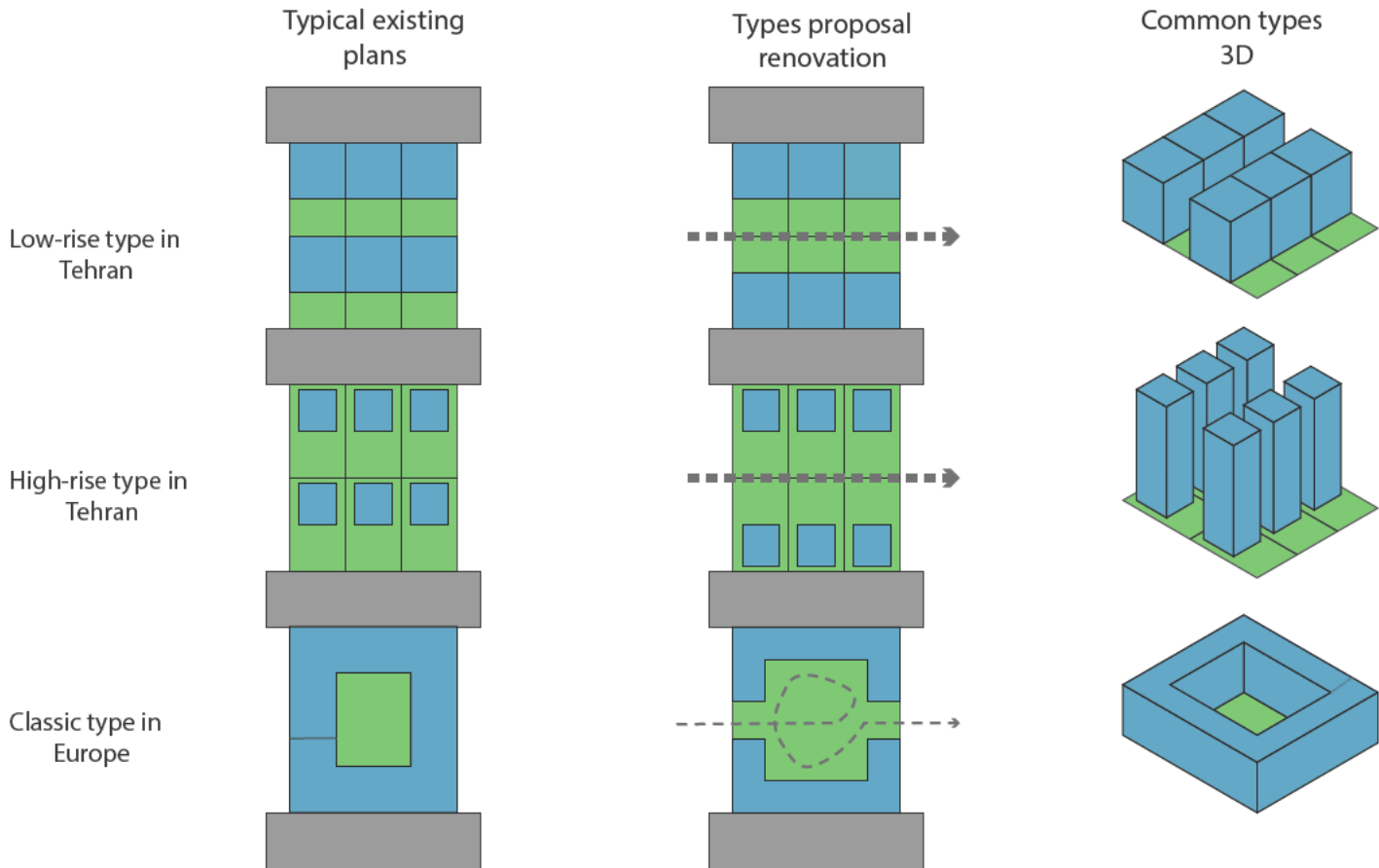
FAR= 3+ parking

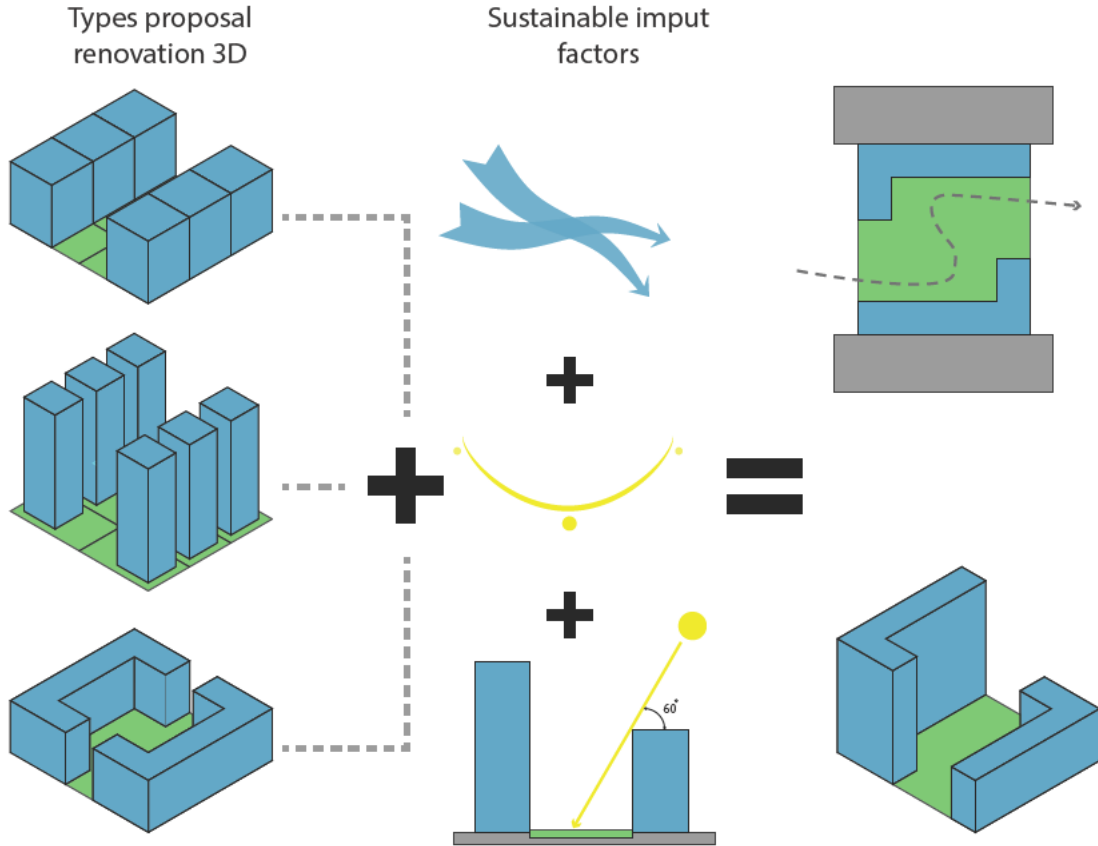
In residential buildings two types are more common. In general the limited area for footprint is 60% of lot.

Type 1: This type is for the lands which have more trees inside. Footprint is 30% of area and FAR is 3 without ground floor. This type is known as garden-tower.

Type 2: In the second type the building footprint is 60% of area. Floor area ratio is 3 which means 5 floors above ground floor. Unlike European countries ground floor is not counted in the FAR and it must be used only for parking and lobby.

BLOCKS TYPOLOGIES





One of the problematic points of the grids in Tehran is the size of the lots. Their width and length are varying even between two neighbourhoods lots. Generally in Tehran there are two rows of lots between each two roads. But the buildings must be built on the northern part of each lot. In southern row of buildings, shifting the footprint to the lower part will provide a common garden which is more useful. Combination of types in Tehran and European classic type form a new type for Tehran. This type is compatible with wind circulation and shadowing issues.

GREEN TYPOLOGIES

Public



Semi-private



Private

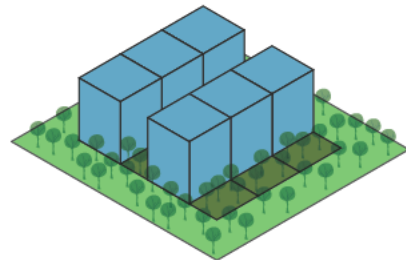
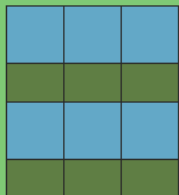


Typical existing plans

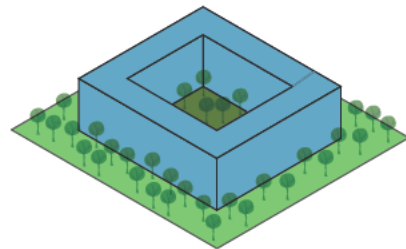
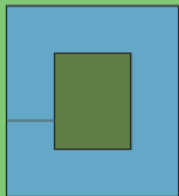
Types proposal renovation

Common types 3D

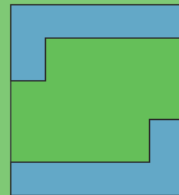
Classic type in Tehran



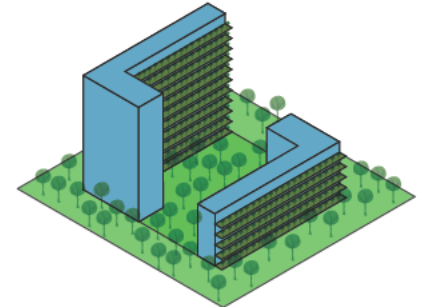
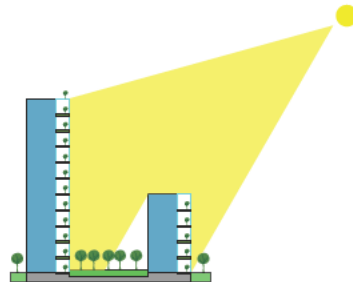
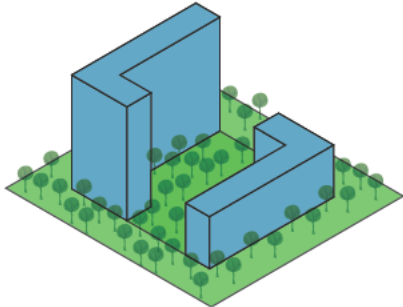
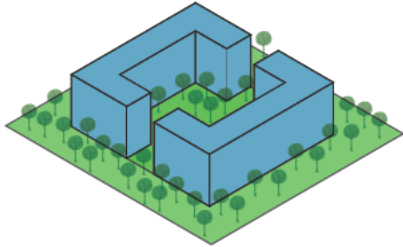
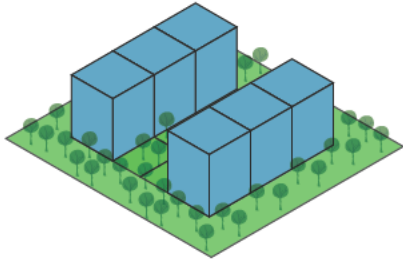
Classic type in Europe



Proposal type



Types proposal
renovation 3D



In common types of Tehran and classic type of European cities there are two kinds of open spaces. One is public which is surrounding the blocks and other one is private which is inside the lots.

In the proposal type the private green spaces transform to semi-private which can be used by the entire block residences, but still there is the absence of private greenery.

Private gardens added to the facade to provide these spaces in the southern part of each building. People can use this small garden separated from others.

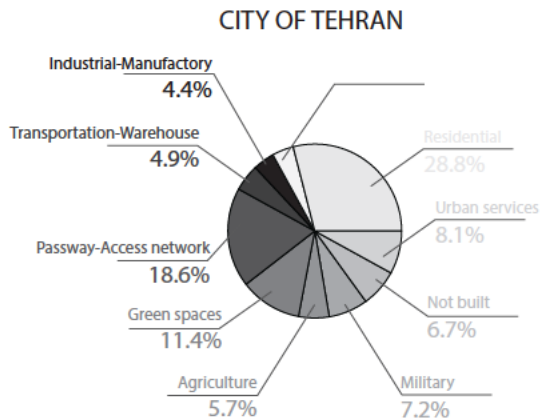
With additional gardens, three kinds of greenery work together; Public space, Semi-private and Private.

DATA ANALYSES FROM MUNICIPALITY

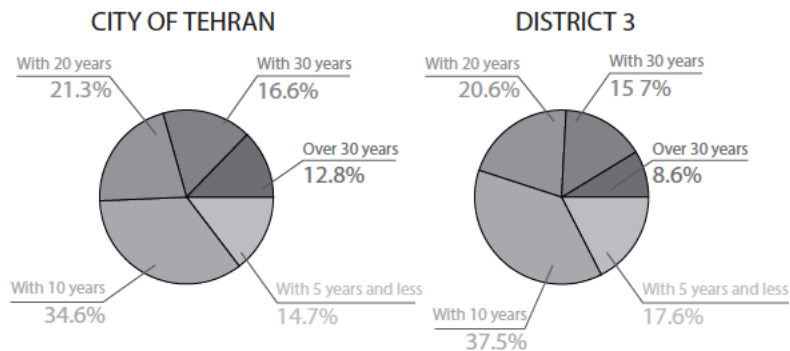


Demographic studies are necessary for designing the residential, commercial and offices. These diagrams and charts are elaborated from the statistic data of the Tehran municipality. City of Tehran has 22 districts and each one has some zones.

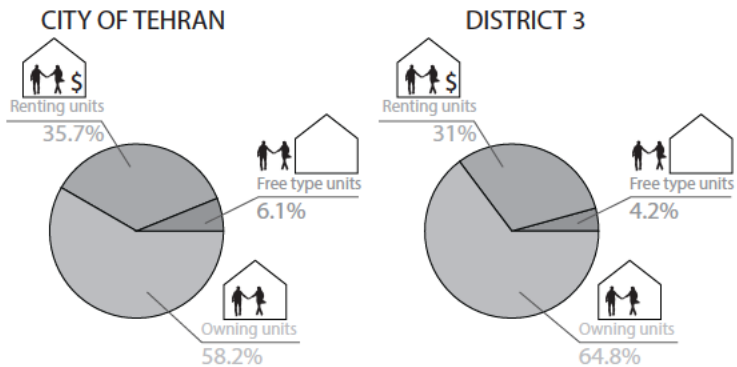
**PROPORTION OF
MAIN LAND USE
(2006)**



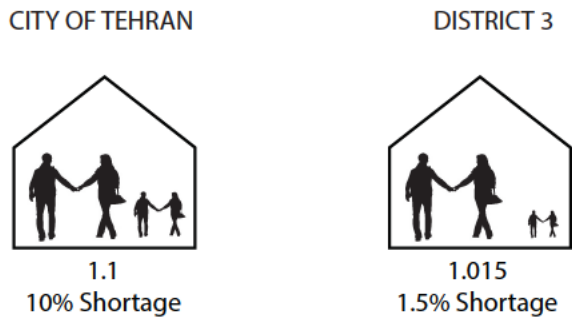
**BUILDING AGE
(2006)**



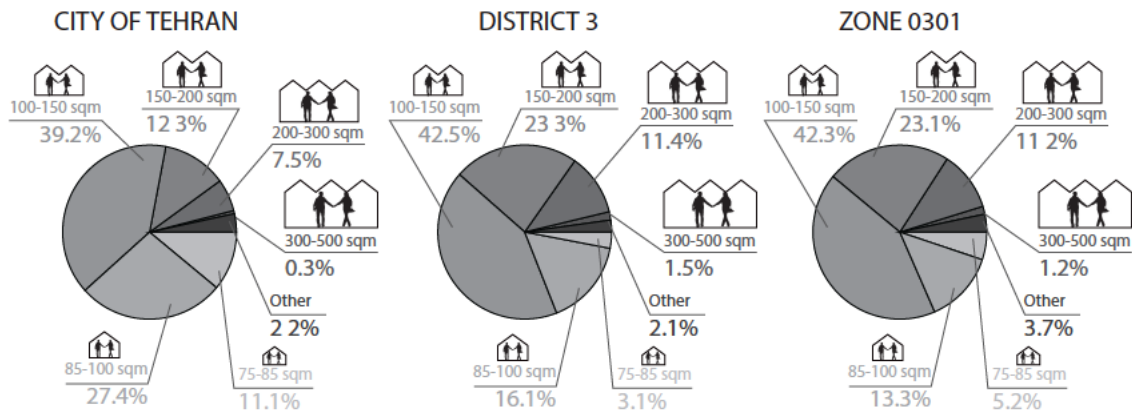
PROPERTY OWNERSHIP
(2006)



AVERAGE RESIDENTIAL
DENSITY PER UNITS
(2006)



AVERAGE FLOOR AREA
OF RESIDENTIAL UNITS
(2006)



AVERAGE FLOOR AREA
OF NEWLY BUILT UNITS
(2008)



125 sqm

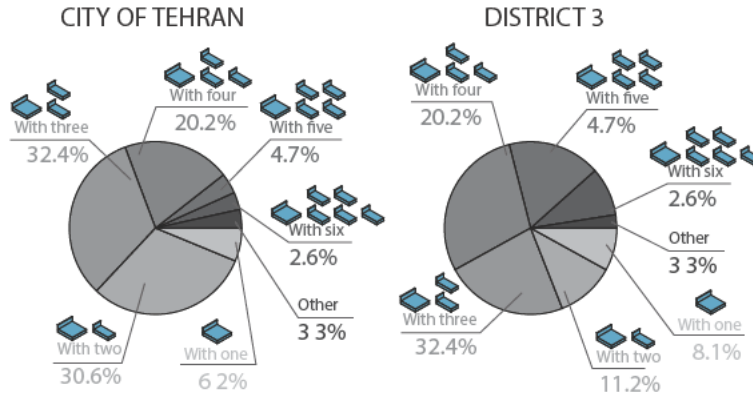


150 sqm



154 sqm

NUMBER OF ROOMS
PER HOUSEHOLD
(2006)



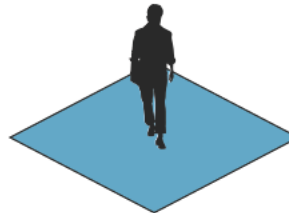
FLOOR AREA PER CAPITA
(2006)

CITY OF TEHRAN



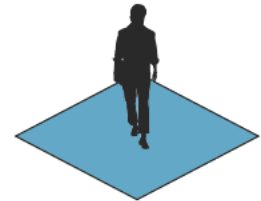
24.5 sqm

DISTRICT 3



44.5 sqm

ZONE 0301



38 sqm

AVERAGE NUMBER OF
HOUSEHOLD MEMBERS
(2006)

COUNTRY



4.3 Persons

PROVINCE OF TEHRAN



3.6 Persons

CITY OF TEHRAN



3.4 Persons

DISTRICT 3



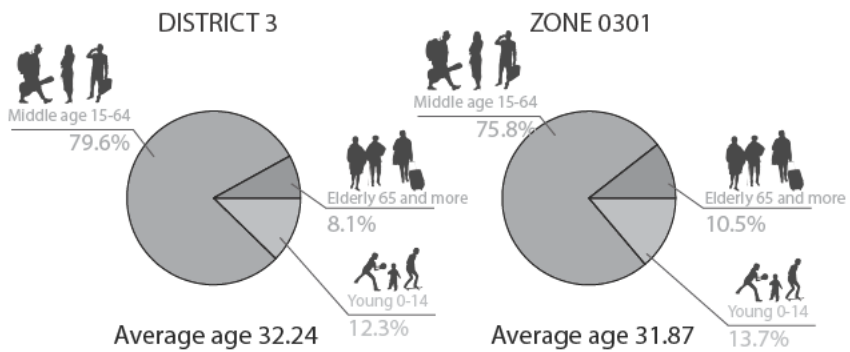
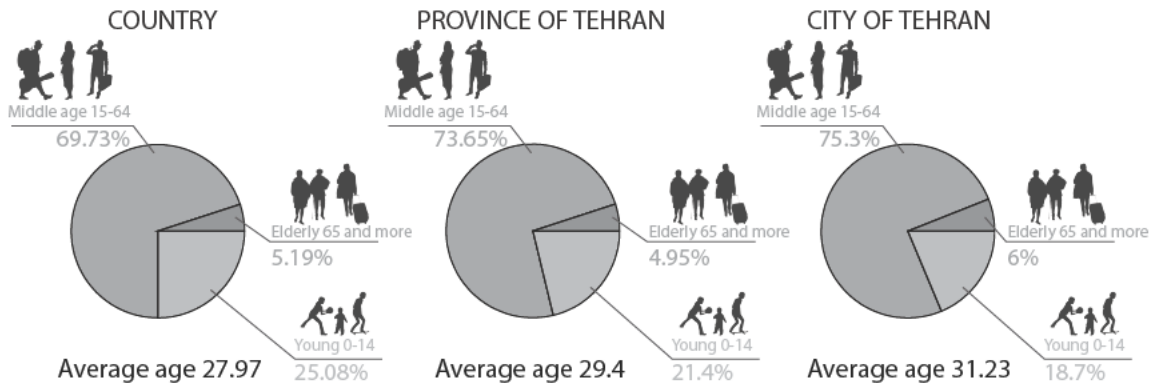
3.3 Persons

ZONE 0301

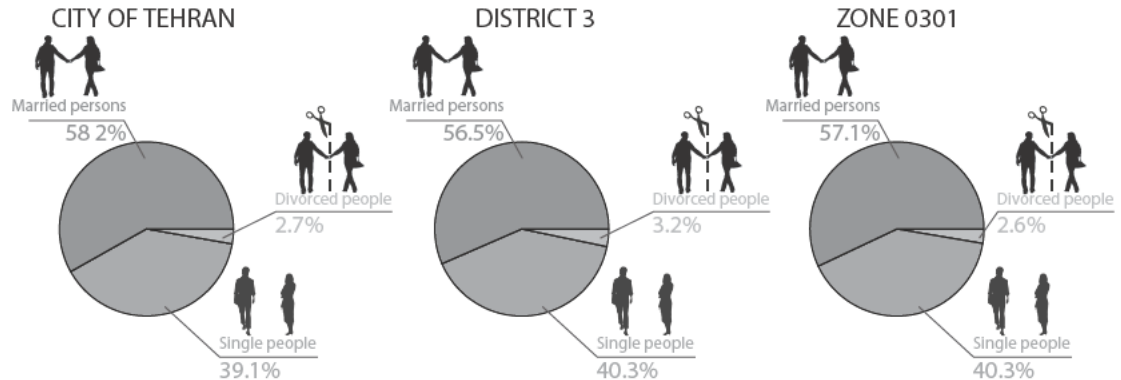


3.5 Persons

**MAJOR AGE GROUPS
AND AVERAGE AGE
(2006)**



POPULATION DISTRIBUTION
BASED ON MARITAL
(2006)



Demographic graphs show that there is huge shortage of small residence in Tehran. As it is obvious even in the average floor area of residential units there is no statistics about the units less than 75 sqm. Also the average floor area of newly built units in district 3 is 25 sqm more than the city average the same as floor area per capita. Average number of household members in district 3 is lower than the city and country.

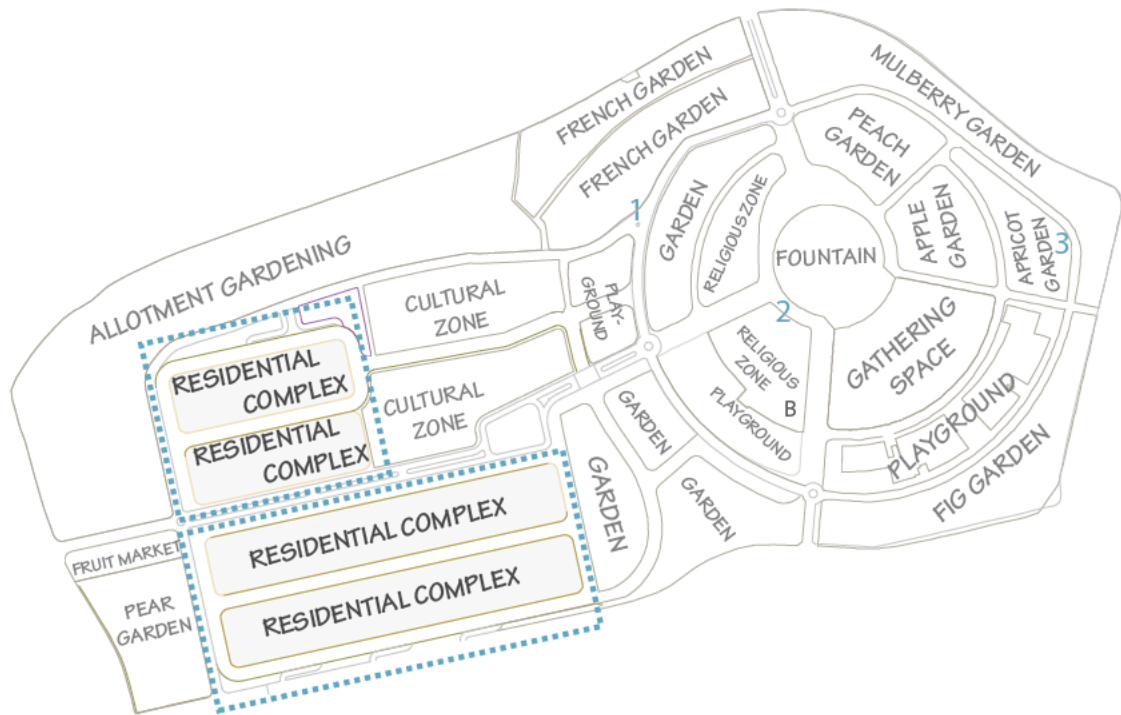
Major age groups chart shows the high percentage of middle age people and population distribution based on marital shows the massive number of single persons.

In general all these demographic studies show the absence of small housing which are also affordable for the single people or young couples.

Due to these numbers and charts the lack of small housing is obvious and the necessity of this type is highlighted. So that in the residential part the intention of designing process is mainly to provide SOHOs, small apartments, and medium scale apartments. The target for design will be young population of the city which are either single or married.

With this attitude new kind of urban life style will be added to the city; the living zone for the people who have more social interaction and need a place for living and working.

DESIGNING OF BLOCKS AND PLANS



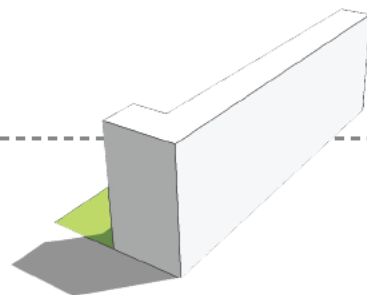
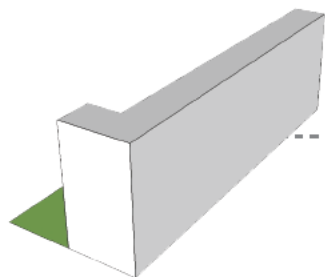
6.9 HA

BLOCKS FORMATION

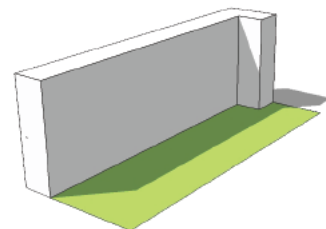
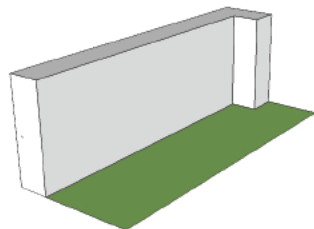
Southern part of block

Consideration of shading

South-West view



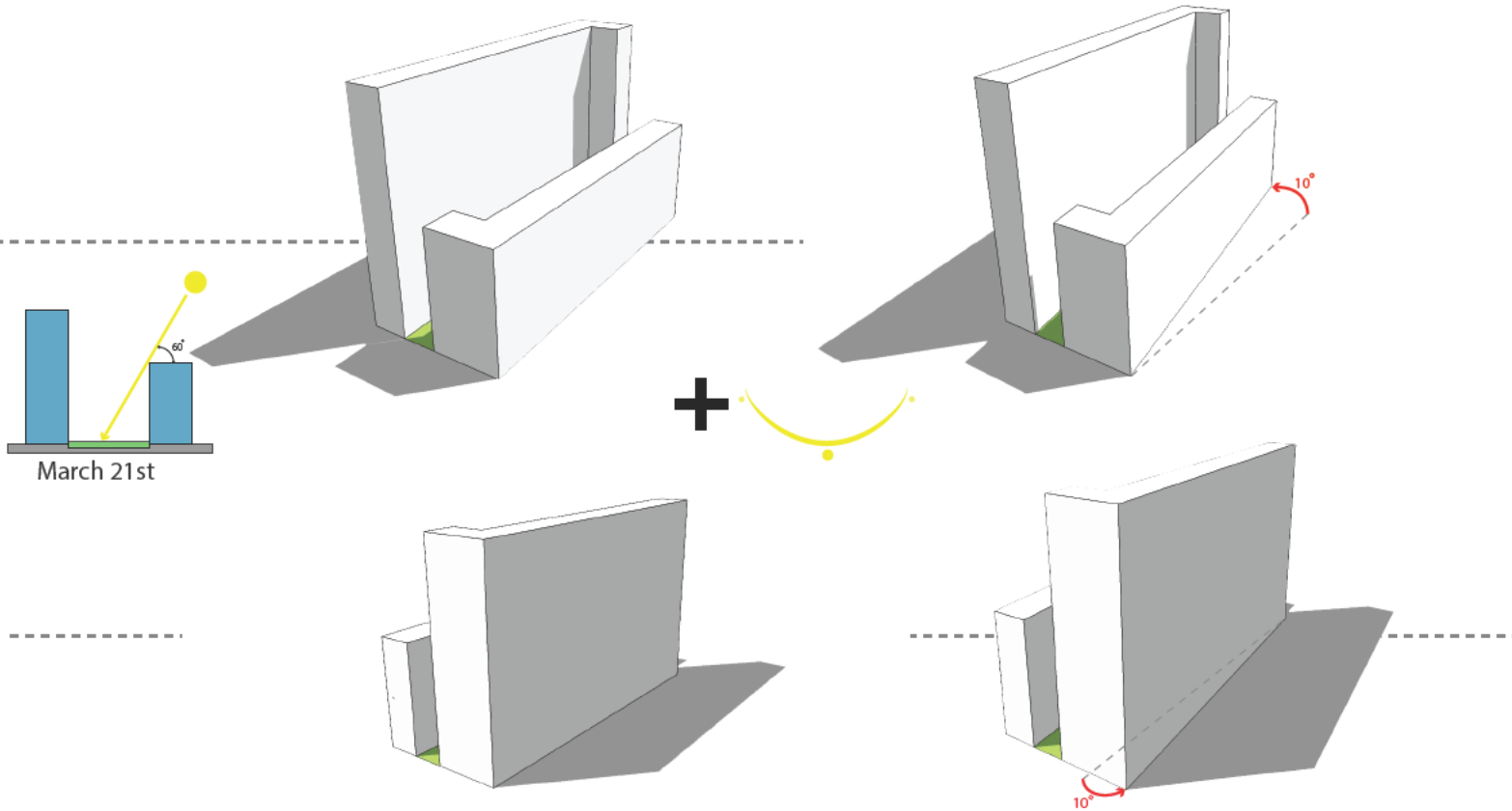
North-East



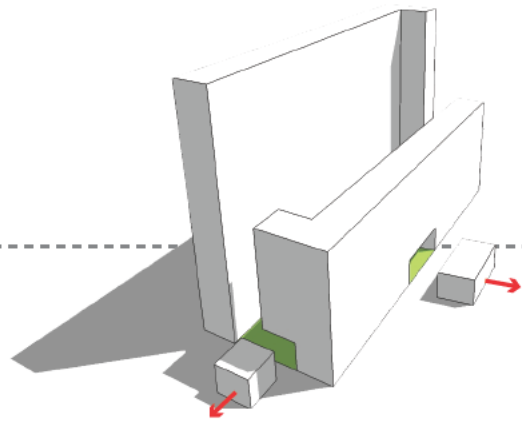
Northern part of block

Decreasing the azimuth

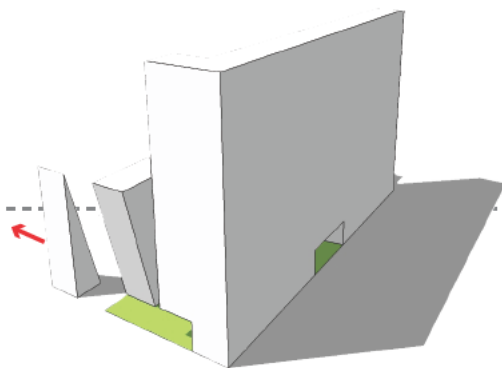
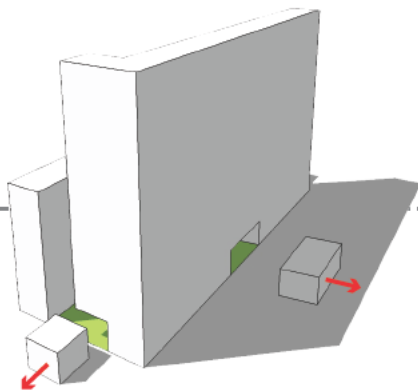
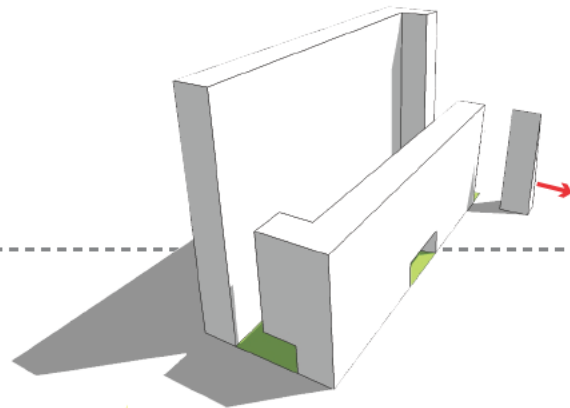
To have more direct sun light in facade that faces to North-West



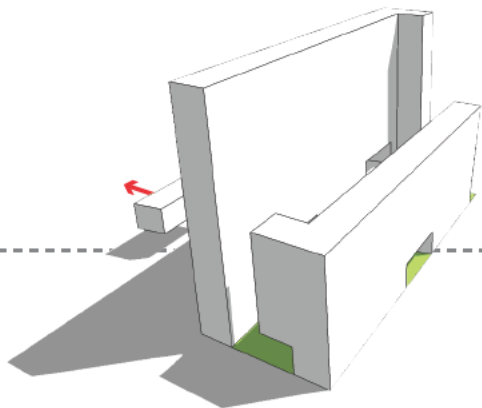
Removing parts of ground floor
for permeability of site and footprint decrease



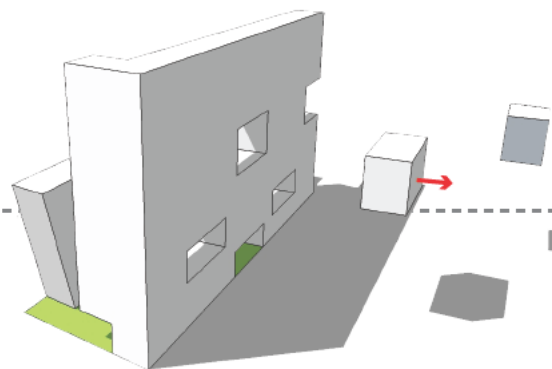
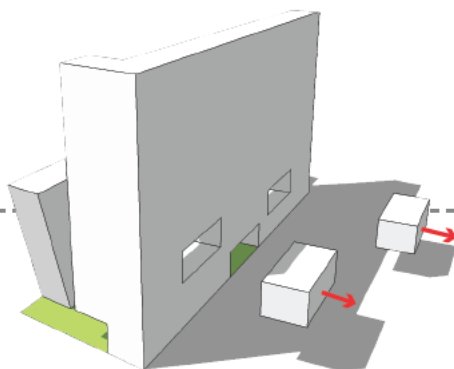
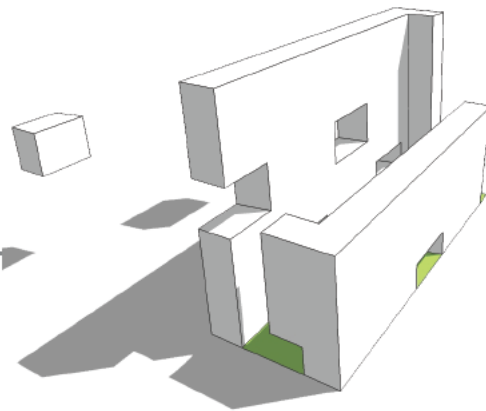
Removing parts of southern block
To have more sun light inside the court



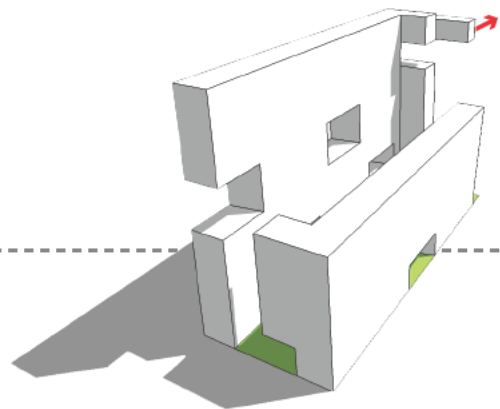
Removing parts of northern block
For avoiding a solid surface and adding public space



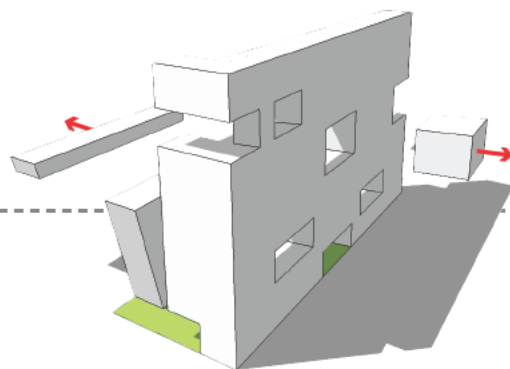
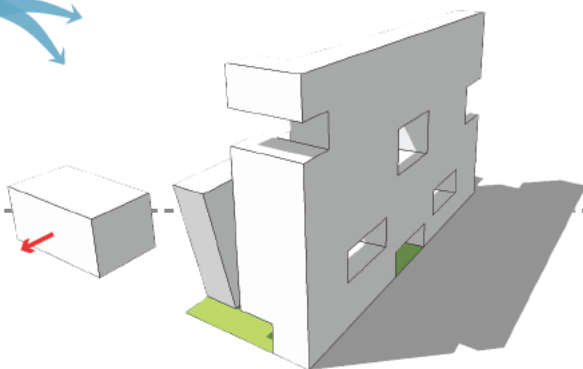
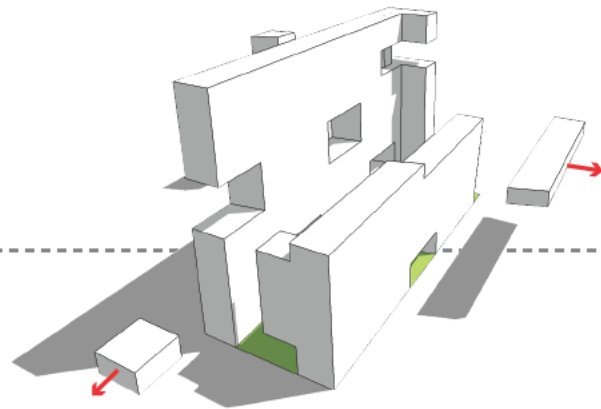
Removing parts of northern block
To provide better view and adding public space



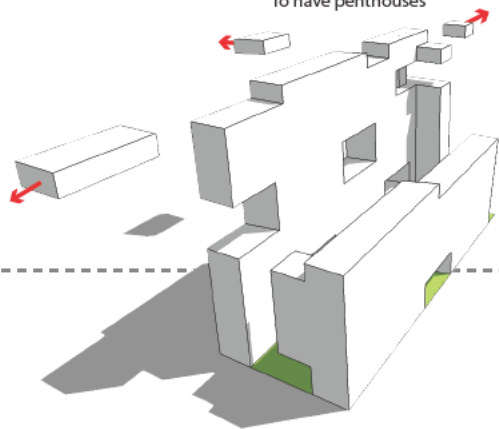
Removing parts of northern block
For having better circulation of the prevalent wind and more public space



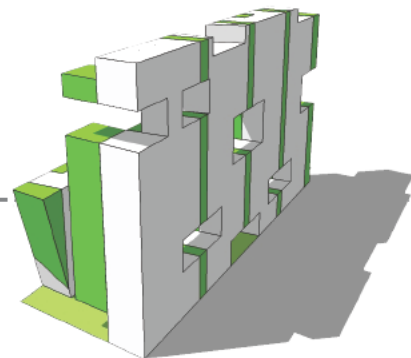
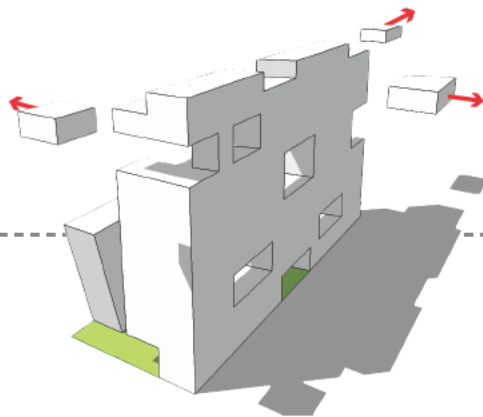
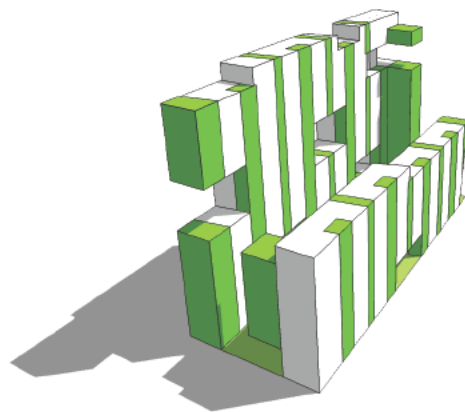
Cutting part of blocks
For public space



Removing parts of last floor
To have penthouses

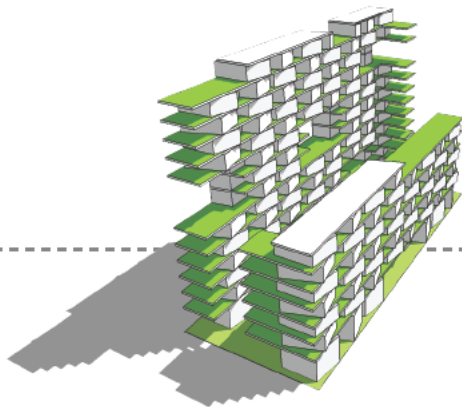


Adding green shafts



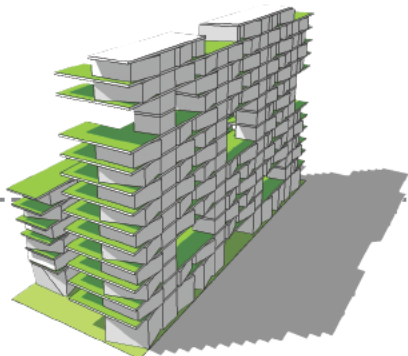
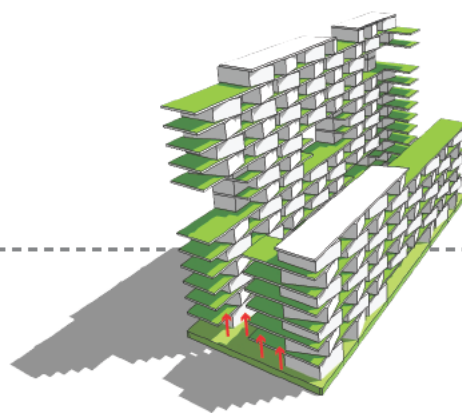
Manipulating the facade

To have more privacy and avoiding monotony

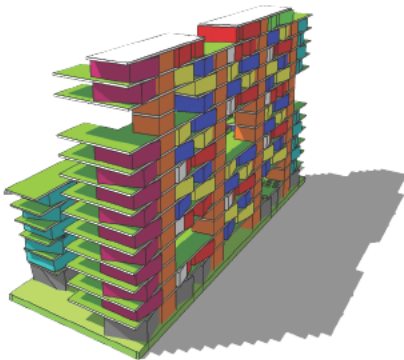
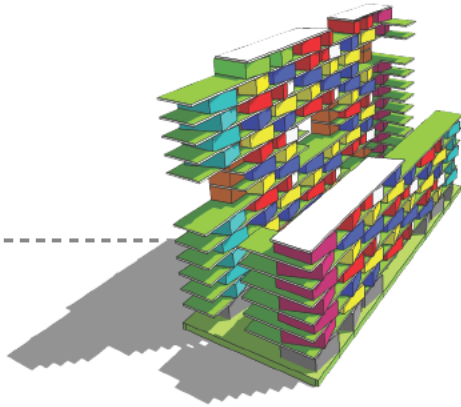


Lifting up the court

To disconnect from active ground and having more privacy



Creating different types
To add diversity in living spaces



The process of designing the blocks begin from the smallest parts of it which are units, regards to studies about the morphology of different types in Tehran and European classic type.

Dimensions of each block are 80 meters in West-East and 31 meters in North-South directions. Inner court is 63*15 meters and shadowing factor is considered in this width.

This orientation is providing more sun light and saving more energy. To have more direct sun light in facade that faces to North-West

To have more direct sun light in the facade that faced to North-West the block is rotated by 10 degrees counter clockwise. Regards to this rotation inner court are become 77*15 meters.

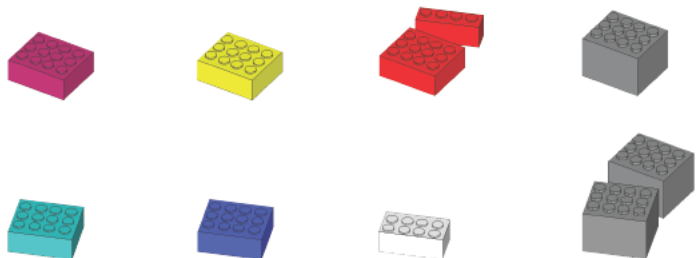
In general ground floors are occupied by offices but in bazaar axis most of them change to commerce. Private yards are mostly in southern parts to use the advantage of direct sun light.

To have more privacy the faces are manipulated. These shifts made by rotating the units in 10 and -10 degrees. Also this action avoids the monotony of facades.

Finally the diversity of units are provided to have variety in living space.

DIVERSITY IN TYPES

Diversity



Type of the residence



Number of bedrooms

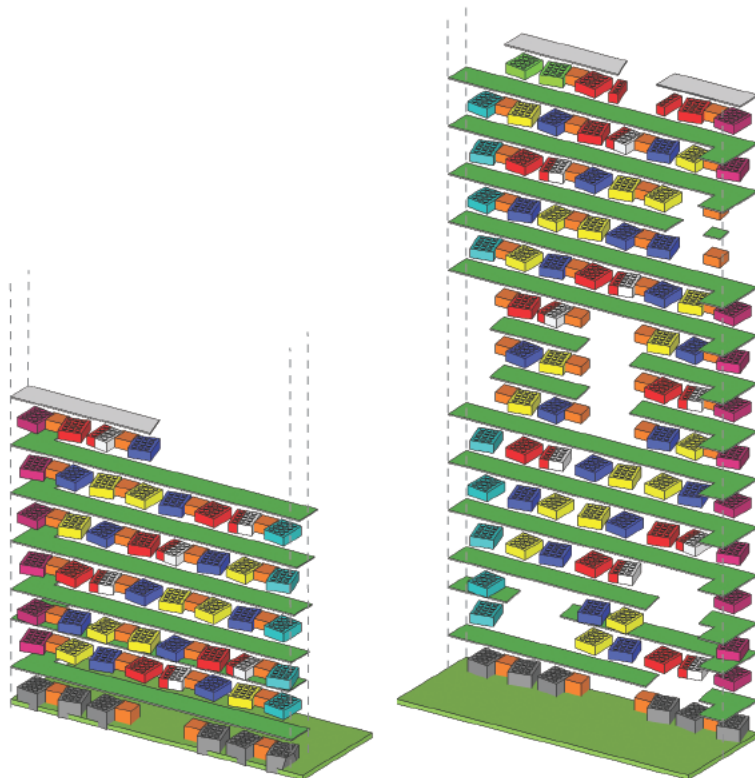


Area

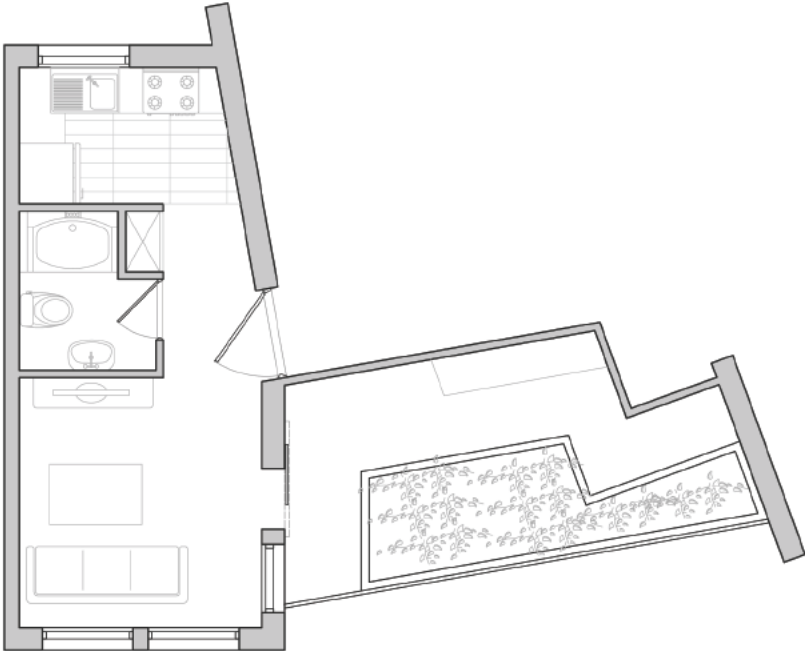


Southern part of block

Northern part of block



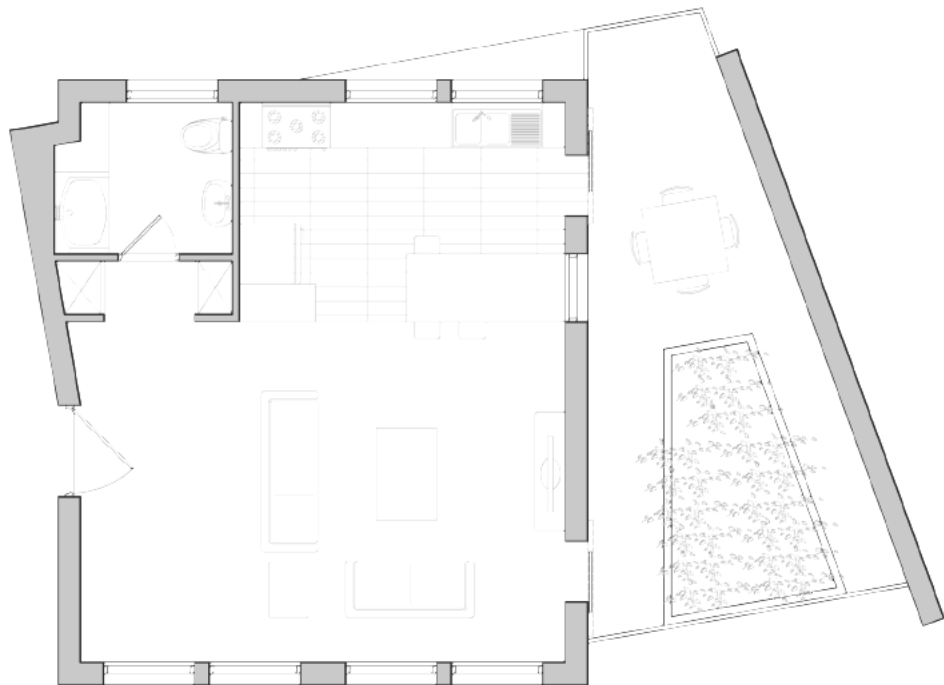
TYPE ONE



SCALE: 1/100



TYPE TWO



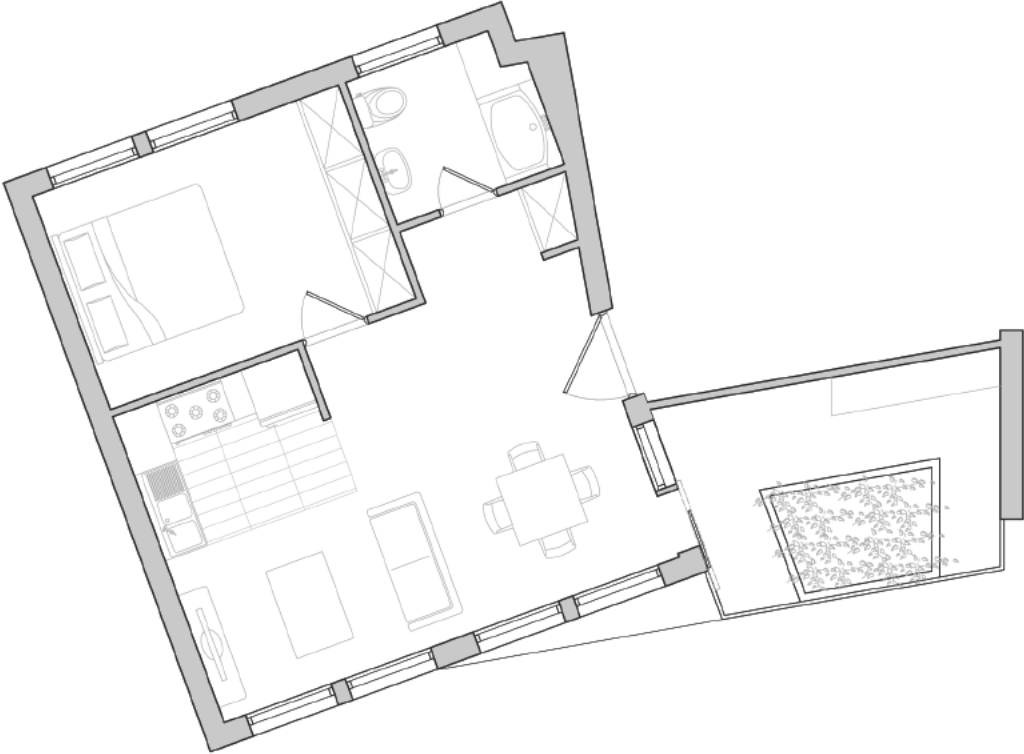
SCALE: 1/100



TYPE THREE



54 sqm + 12 sqm



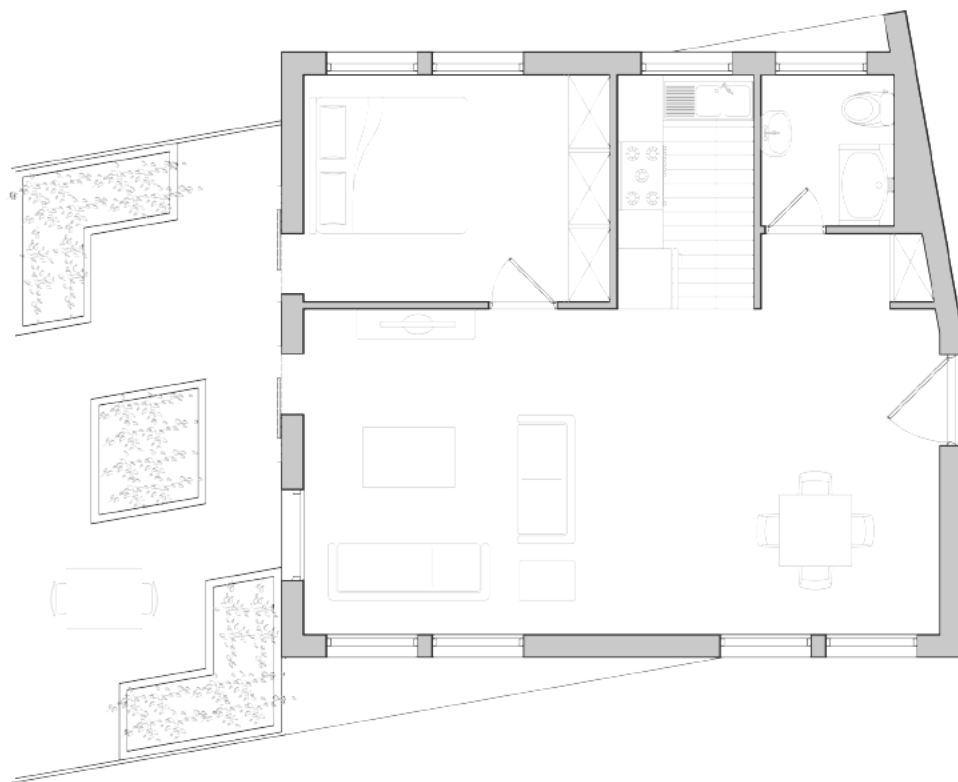
SCALE: 1/100



TYPE FOUR



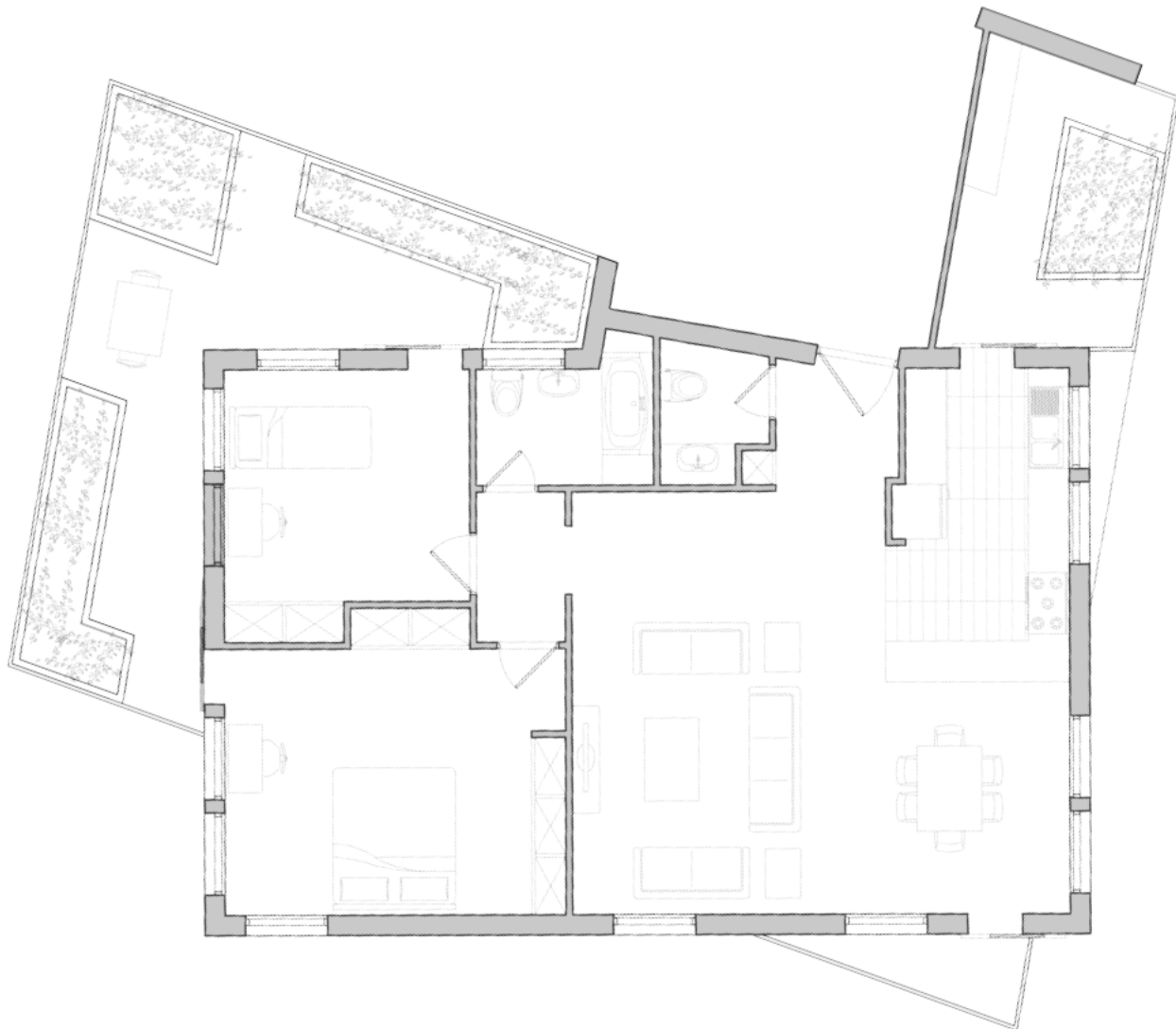
SCALE: 1/100



TYPE FIVE



SCALE: 1/100



TYPE SIX

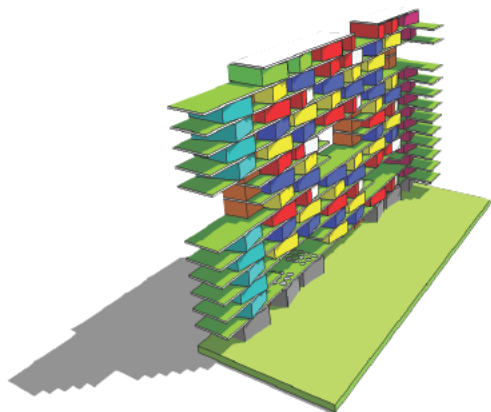


SCALE: 1/100

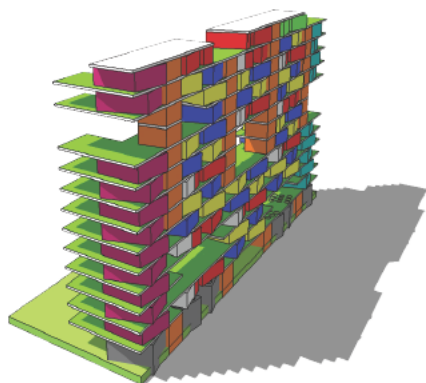


QUANTITY OF EACH UNIT

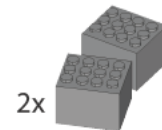
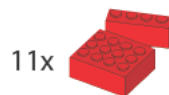
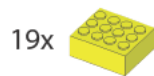
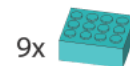
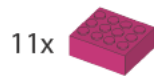
Northern part of the block



North-East view



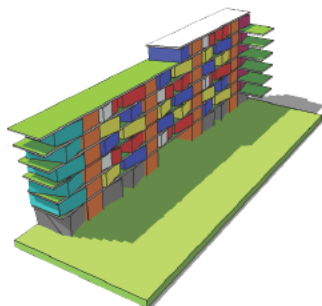
South-West view



QUANTITY OF EACH UNIT

Southern part of the block

North-East view



South-West view

