



SAPIENZA
UNIVERSITÀ DI ROMA



UNIVERSITY DI ROMA
SAPIENZA

FACULTY OF ARCHITECTURE
ARCHITECTURE CONSERVATION
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**TRANSFORMATION OF EXISTING HOUSING UNITS
REGARDING TO COVID-19 PANDEMIC**

MSc THESIS

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1840810

HISTORY AND LOCATION

The Bosphorus became a gateway for major migrations from East to West, and over time many small villages were born along the coast. These settlements, which started with religious influences during the Byzantine period, started to develop in a way to meet the need of summer resorts with the arrival of the Turks. During this period, the first Bosphorus villages established on both sides are on the European side; Tophane, Fındıklı, Beşiktaş, Ortaköy, Kuruçeşme, Arnavutköy, Bebek, Rumelihisarı, Baltalımanı, İstinye, Tarabya, Kireçburnu, Büyükdere, Sarıyer, Rumeli Kavağı, on the Asian side; Anadolukavağı, Çubuklu, Kanlıca, Anadoluhisarı, Kandilli, Vanıköy, Kuleli, Çengelköy, Beylerbeyi, Üsküdar.

The Bosphorus becoming an important and sought-after place coincides with the Ottoman period. On the European side, Salıpazarı, Dolmabahçe, Yıldız, Boyacıköy, Emirgan, Yeniköy, Kefeliköy, Büyükdere, Yenimahalle, and on the Asian side, Beykoz, Sultaniye, Paşabahçe, Kuzguncuk and Paşa Harbor were developed in this period.



The location of Kuzguncuk on the Bosphorus, located on the Anatolian side of Istanbul



ANALYSIS OF CHANGE IN TIME

ON THE URBAN TEXTURE

1821

Settlement has begun along the coastline.

drawn using Plan de Constantinople by F. Fried

1882

Settlement has begun towards the inside of the valley

drawn using 1882 map of Istanbul/Constantinoble by C.Stolpe

1930

The settlement into the valley.

drawn using Plan d'assurances Kuzguncuk by J. Pervititch.

2002

The settlement into the valley and towards the slopes continued to expand.

drawn using satellite photo of the year 2002

SOLID - VOID

ENVIRONMENTAL RELATIONS

It has developed in a northwest-southeast direction in a valley that was formerly the bed of Kuzguncuk Stream, which opens to Kuzguncuk Bosphorus, located between Paşalimanı and Beylerbeyi on the Anatolian side of Istanbul.

The settlement is bordered by Beylerbeyi Military Field, Fethi Pasha Grove and the sea.

Transportation to Kuzguncuk is provided **by sea and road**. Kuzguncuk pier was built after the fire of 1864. Today, Kuzguncuk Pier can be reached by Beşiktaş and Bosphorus Line voyages. The ease of access to the European side of Istanbul can be mentioned due to its positional proximity to the Bosphorus Bridge.

SPATIAL FEATURES

Kuzguncuk is one of the settlements in Istanbul that **still carries the characteristics of traditional Bosphorus villages** in terms of both socio-cultural and spatial texture characteristics.

The general settlement texture of the district shows **a residential structure, apart from the daily trade and service functions** developed around Iskele Square and on Icadiye Street. **The existing green areas limit the settlement on both sides.**

Another feature that distinguishes Kuzguncuk from other Bosphorus villages is that **its connection to the sea cannot be established only with Pier Square.**

In terms of Kuzguncuk residential texture, it still gives a different impression from the metropolitan view of Istanbul with its stairways, road and building silhouettes. **The buildings are generally two or three floors and their narrow facades attract attention with their balconies and bay windows. Parcels are kept small.** Another feature perceived in the building texture is the color of the structures. In building color, pastel tones are generally preferred to create contrast. The perceived third-order feature is the material used in buildings. There are basically two types of materials, **wood and masonry**. Especially in Turkish and Armenian architecture, wood is predominant, and the use of stone is seen in Jewish architecture. In addition, the use of brick and concrete materials has become widespread, especially in the last 20 years. (Özbek, 1998)

NATURAL FEATURES

There are no wide plains along the shores and therefore no large residential areas in the Bosphorus. The Bosphorus villages along both sides have revealed **a linear settlement layout bordered by the hills in the back and the sea in the front**. The narrow and curved roads in the settlement and the streets with stairs seen in places where the slope is more exhibit the characteristic structure of the Bosphorus, which develops depending on the topography.



Aerial photo showing the natural boundaries surrounding Kuzguncuk



Unique buildings of Kuzguncuk

SETTLEMENT VERTICAL TO THE SEA

RESTRICTED ON THREE SIDES (LIMITED ON TWO SIDES TO THE HILL AND THE SEA IN FRONT)

THERE ARE SPECIAL PROPERTY VILLAS THROUGH THE SEA CONNECTION

THE ONLY PUBLIC OPEN SEA CONNECTION AREA IS THE PIER.

TRADITIONAL BOSPHORUS VILLAGE

RESIDENTIAL BUILDINGS IN GENERAL, ALSO DAILY TRADE AND SERVICE FUNCTIONS

TWO-THREE FLOORS + NARROW FACADES + BALCONIES + BAY WINDOWS ---> TRADITIONAL STRUCTURES IN THE AREA

GENERALLY WOOD AND MASONRY



Kuzguncuk Pier, which is the only public connection of Kuzguncuk with the Bosphorus

SOCIAL FEATURES

Kuzguncuk is the first Jewish settlement area in the Asian part of Istanbul.

The Muslim, Greek, Armenian, Jewish and Turkish population lived together in Kuzguncuk.

Over time, non-Muslims started to leave the village for some political reasons. Most of them abroad, some to different parts of Istanbul; Turkish families migrated to the vacant places. The departure of the traditional residents from the village has also damaged the settlement texture; houses were changed hands, and many of them were renovated inside and outside that destroyed the original texture (Yalçın, 1999).

Every nation has come to live their own religion freely.

While the high income group mostly chooses a place in the mansions in the coastal area, there is a middle income group in the inner part of the district.

Due to this dual structure, a social disconnect still continues among the residents of the neighborhood today (Bektaş, 1996).

In the 20th and 21st centuries, it started to be preferred by architects, artists and writers. The demand of investors or other groups in the field has increased. The prices of the houses in Kuzguncuk have also started to increase.

Today, in Kuzguncuk, the feature of being a neighborhood and a neighborhood is still partially maintained. Kuzguncuk residents are effective in protecting their special tissue by protecting the environment they live in. The residents of the neighborhood have struggled for the continuity of the natural and historical texture of the district for years.

Özbek, R., 1998, Modern ve geleneksel yerleşimlerde konut ve yakın çevresindeki kullanıcı memnuniyetinin Ataşehir ve Kuzguncuk örneklerinde değerlendirilmesi, Yüksek Lisans Tezi, İTÜ Fen Bilimleri Enstitüsü.

Bektaş, C., 1996 Hoşgörünün Öteki Adı: Kuzguncuk, Tasarım Yayın Grubu, İstanbul.

Toprak, İlgı & Ünlü, Alper. (2015). A diachronic approach on heterochronic urban space. A/Z ITU Journal of the Faculty of Architecture. 12. 159-173.



Streets of Kuzguncuk



Bosphorus view from Kuzguncuk Hills

TYPE OF CONSTRUCTIONS

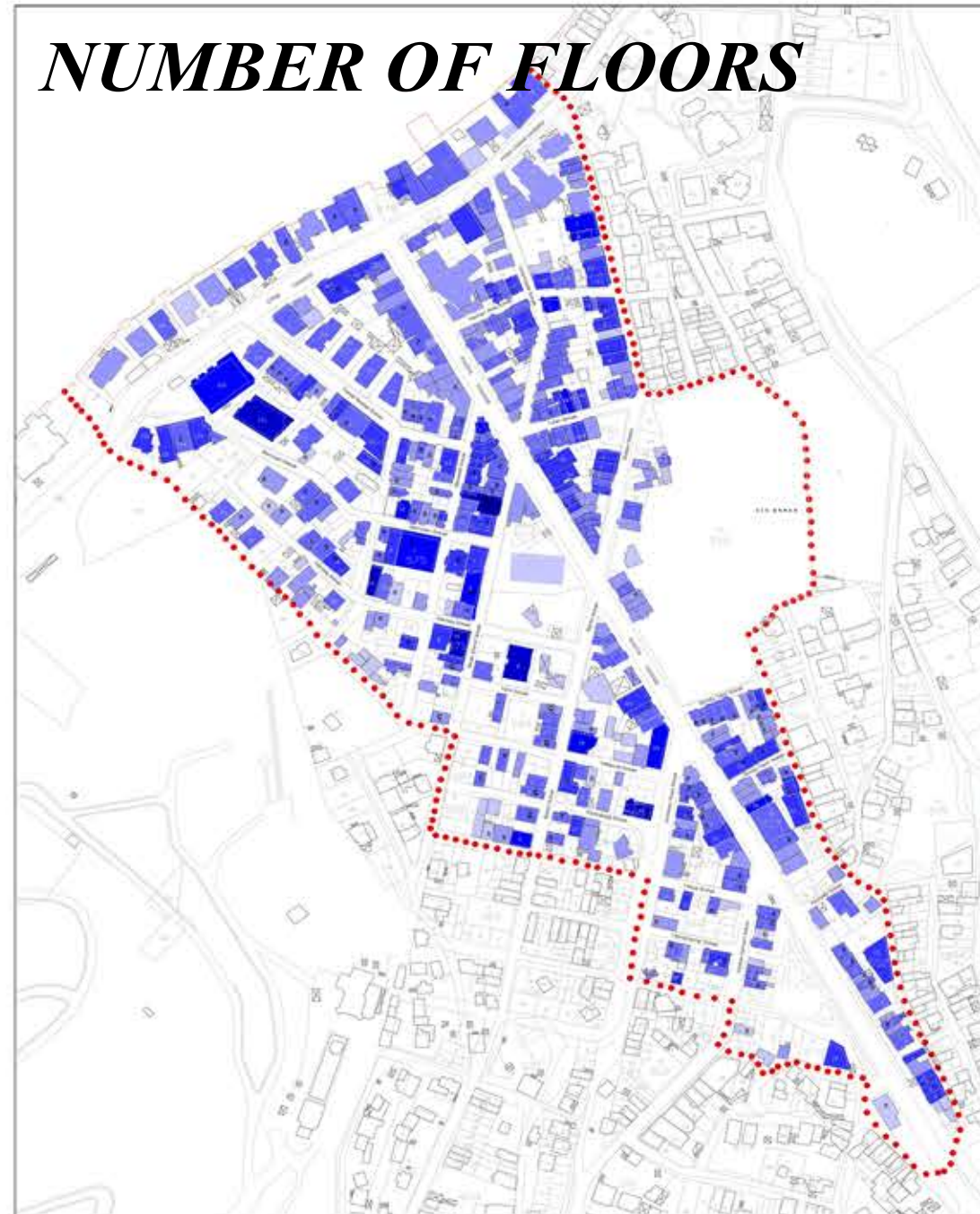


LEGEND

- PLANNING BORDER
- REINFORCED CONCRETE CONSTRUCTION
- MASONRY CONSTRUCTION
- WOODEN CONSTRUCTION

Wooden structures and even masonry structures, which are encountered in the area where the majority of reinforced concrete buildings are formed, cause *diversity in the area together with all other physical and environmental conditions*. The masonry structures, which we come across closer to the Bosphorus, show themselves in places along Icadiye Avenue

NUMBER OF FLOORS



LEGEND

- PLANNING BORDER
- 1 FLOOR
- GF+1
- GF+2
- GF+3
- GF+4
- GF+5
- GF+6

One of the analyzes made to determine the current situation in the study area is for the number of floors. This situation is another important criterion for the diversification of the urban fabric. *In general, there are buildings up to 7 floors in the area where 2-storey and 3-storey buildings are predominant. Even if buildings with more than 4 floors are very sparse, they are not suitable for textural quality*. In areas close to the Bosphorus, where masonry houses are also concentrated, there are mostly 2 and 3-storey buildings. *It can be considered an advantage in terms of combating Covid-19*. High-rise buildings are reinforced concrete buildings that were built later. As a result of urban texture, the common use of area is residential or rarely commercial

ROADS



LEGEND

- PLANNING BORDER
- VEHICLE ROADS
- CULDE-SAC
- SIDEWALK
- ROADS WITH STAIRS
- FLOW DIRECTION
- CAR-PARK

When the pedestrian-vehicle relations were investigated, it was found that all roads were used by vehicles, except the streets with stairs. (The only street without stairs is the Behlül Street. The reason why this street is not used as a vehicle road is that it is not wide enough for vehicles.) At the same time, *many culde-sacs* were identified in the study area. *Vehicle roads are usually bi-directional*.

CONDITION OF THE BUILDINGS



LEGEND

- PLANNING BORDER
- GOOD OR VERY GOOD
- MEDIUM
- BAD OR RUINED

In the area where *all kinds of buildings are located, from the ruin to the buildings in very good condition*, Presence of the buildings in middle condition are widely observed. The ones that correspond to the few buildings in very good condition are the mansions and the buildings that were later restored.



GREEN AREAS



LEGEND

- PLANNING BORDER
- GREEN AREAS
- TREES

FUNCTIONS



LEGEND

- PLANNING BORDER
- COMMERCIAL
- RESIDENTIAL
- WATERFRONT RESIDENCES
- RELIGIOUS
- VEHICLE ROADS
- STREETS WITH STAIRS
- REGISTERED STRUCTURES
- FOCAL POINT
- REFERENCE POINT

REFERENCE POINTS



Kuzguncuk Square



Kuzguncuk Pier



Surp Krikor
Lusarovic Church



Beth Yaakov
Synagogue



Ayios Panteleimon
Church

Çarşı Street and İcadiye Street are considered as two important arteries in providing environmental and intra-district connections in Kuzguncuk

The stairways and streets that make up the Kuzguncuk residential texture are among the image elements of the district. It has been determined that, due to the increasing slope between İcadiye Avenue and Fethi Pasha .Grove, *many connections were formed by stairs*

The north of Kuzguncuk district is bordered by the Bosphorus. *The Kuzguncuk Garden and Fethi Pasha Grove, which is located on the border of the study area, are considered as the most prominent natural restraints*

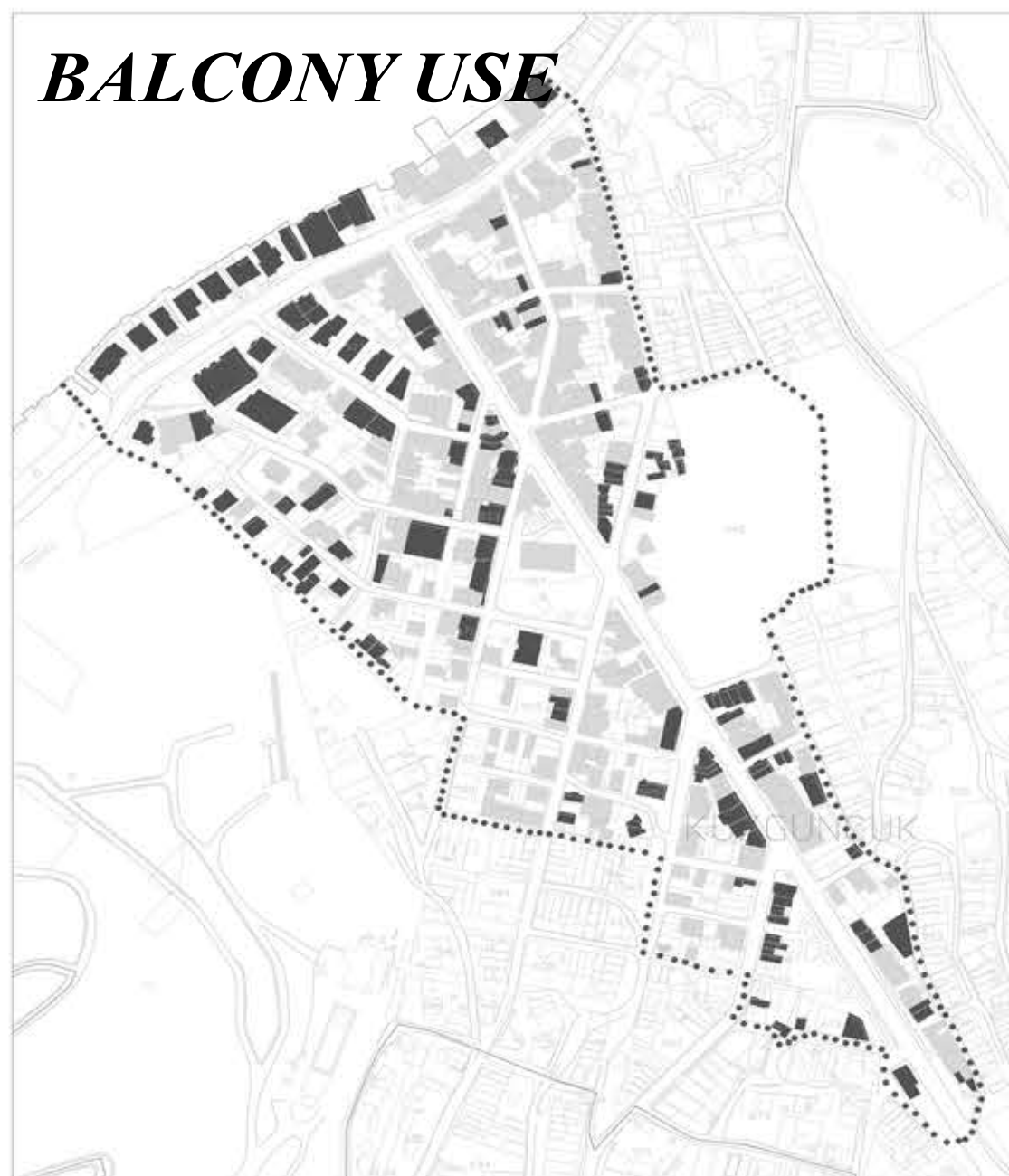
Level differences that arise depending on the topographic structure of the district is another limiting element

Çarşı Street, which separates Kuzguncuk from the coast, is one of the artificial borders. İcadiye Caddesi, located on the old streambed, is an important part of Kuzguncuk identity as an artificial border

The commercial district of the district is partly located to the east of Kuzguncuk Square, densely around the intersection point of Çarşı and İcadiye Caddesi and along İcadiye Caddesi

The density of the registered buildings in the settlement increases as they approach the coast

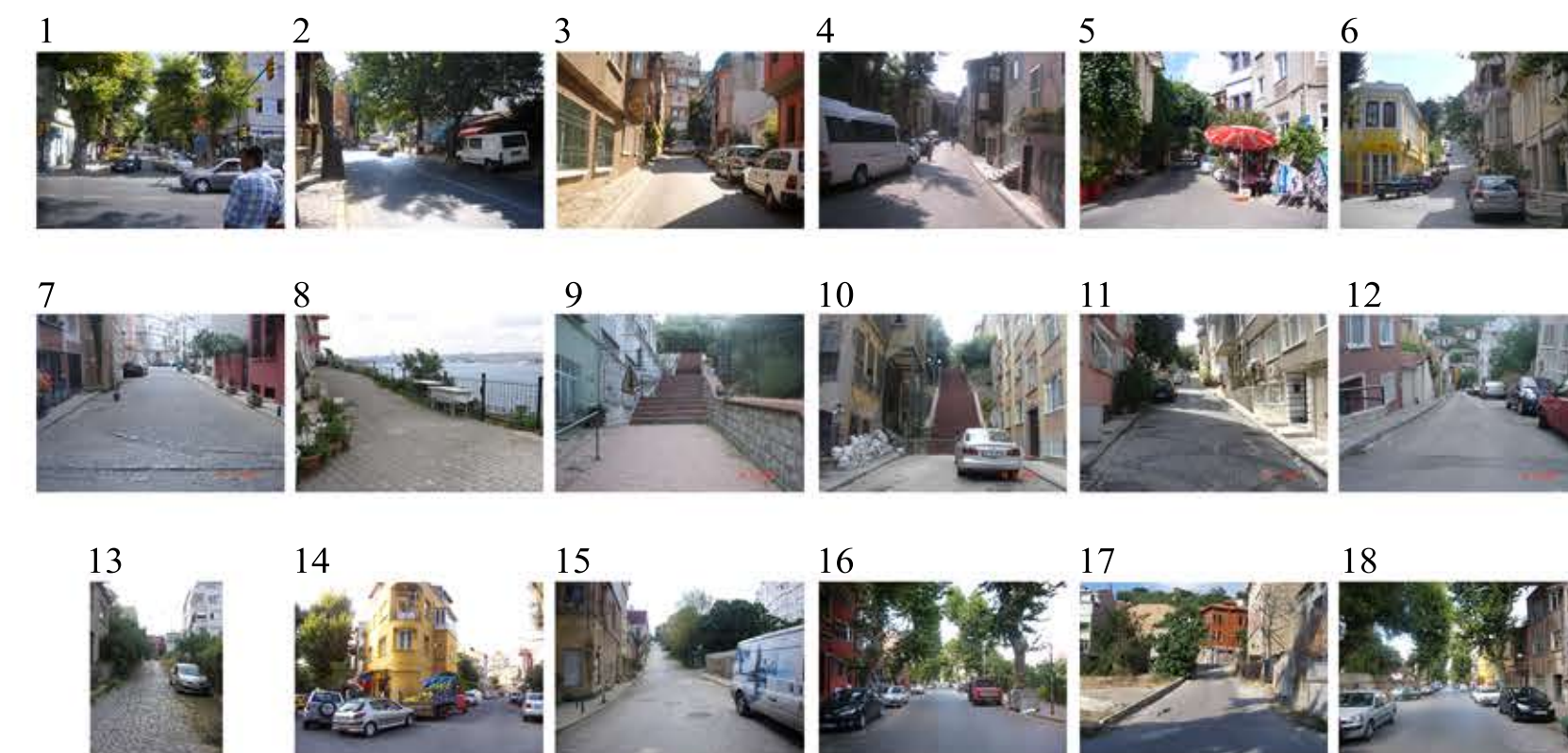
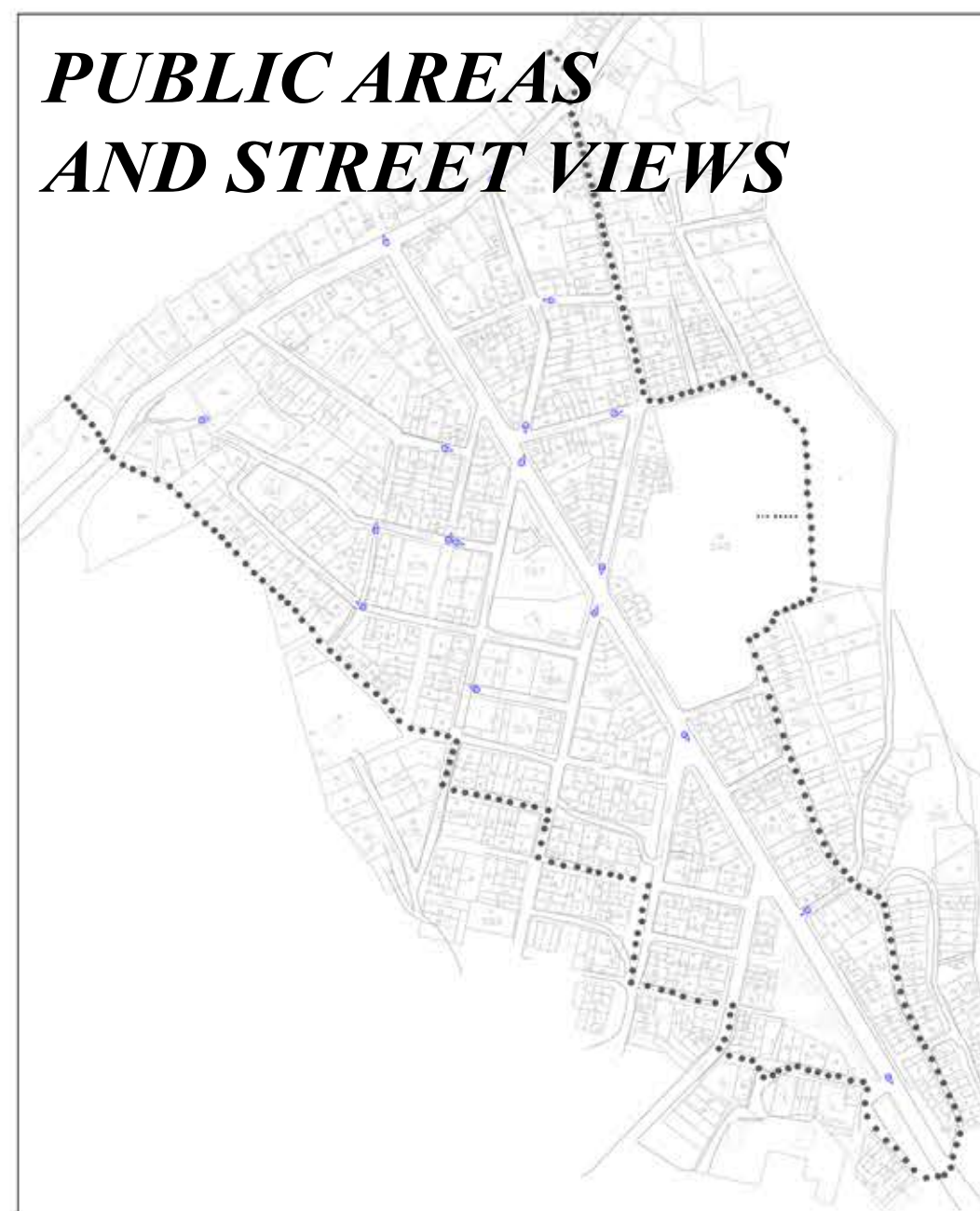
BALCONY USE



LEGEND

- BUILDINGS WITH SUFFICIENT OPEN AREA OR A BALCONY

PUBLIC AREAS AND STREET VIEWS

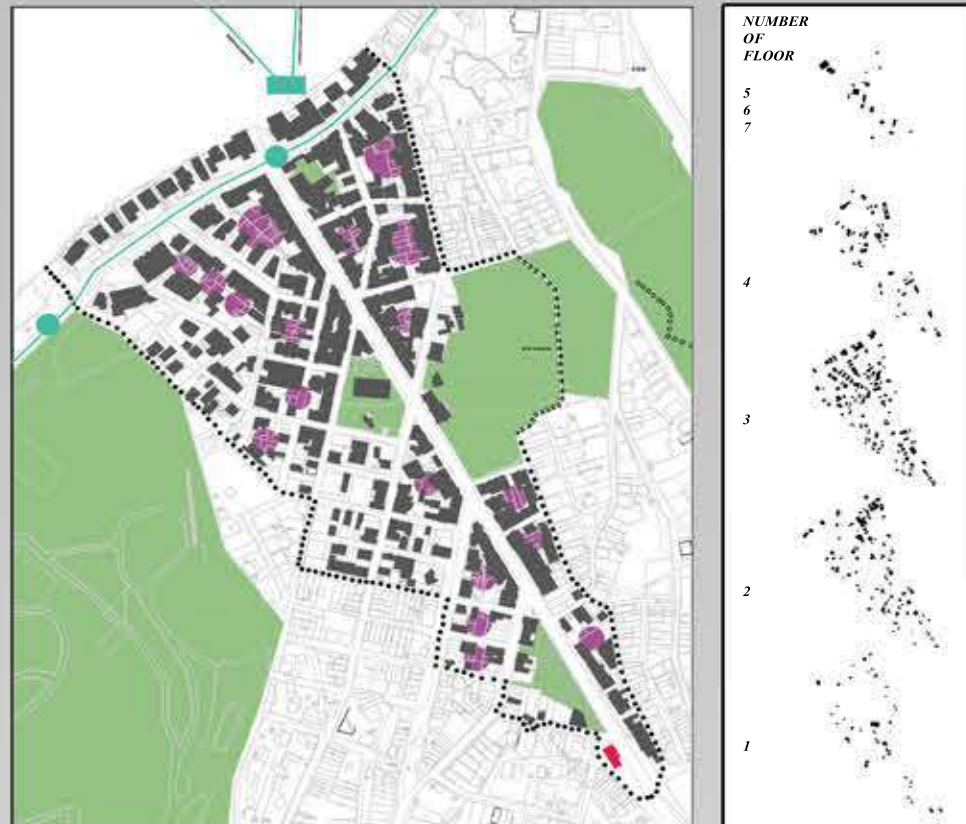


LEGEND

- PLANNING BORDER
- STREETS PUBLIC AREAS



SWOT ANALYSIS OF THE AREA EXAMINING THE COVID-19 ISSUE



- Existence of open courtyards
- Existence of green spaces
- Presence of local health service
- Easy to access by sea and roadway:
- Sea access and pier
- Roadway transport axis and bus stops

The number of floors is generally low. This causes less interaction in common areas and can be considered a powerful feature as it will reduce disease spread.

STRENGTHS



WEAKNESSES



Sea public transportation can be further intensified, because sea transportation is the most important transportation route that can be preferred in case of a pandemic like COVID-19 in terms of both social distance and open air.



Kuzguncuk Bostanı (Kuzguncuk garden) is mostly used for plantation, it has the potential for public use (agriculture or other activities).



The district has an important potential in meeting the need for green space that respects social distance.

Kuzguncuk Park has the potential for COVID-19 compliant use.

OPPORTUNITIES



THREATS



The buildings generally have narrow facades and bay windows, there is a lack of balconies for some buildings



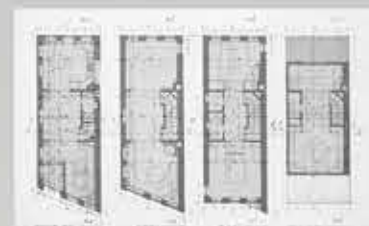
There is no segregation system for normal and medical waste



Security problems (homeless, drunk people etc.)



Lack of urban furniture throughout the neighborhood



Traditional building types which are not suitable for emergency situations like COVID-19 lockdown. (The people whose work is the largest part of their daily life, expect a workspace of functional size and sufficient for their personal needs from the 'New Normal'). In addition, these buildings do not have separate rooms suitable for self-isolation.

Inadequate park and seaside arrangements

Parking problem on both sides of the road

The sidewalks are insufficient. Pedestrian circulation is not very efficient.



Possibility of damage to the façade of buildings considered as cultural assets.



Failure to comply with the construction rules may damage the Bosphorus silhouette and cultural heritage.



The restaurants and shops that offer food and shopping services on Icadiye Street cause the crowd. This situation is disadvantageous in case of a possible pandemic like COVID-19.



Due to the fact that the neighborhood is a center of attraction and the easy access to here, the density of local tourists can be a disadvantage in terms of the pandemic. At the same time, the problem of parking space may increase even more, especially during weekends.

Determination of the problem in the urban scale because of pandemic

Covid-19

Covid-19 pandemic kept millions of people quarantined.

Especially in high-density areas, we realized the lack of some required elements in an epidemic like covid 19.

- Self-sufficient neighborhoods - Food production

An urban system can be created in which cities are divided into autonomous "Units". Thus, each neighborhood or small region can have self-sufficient services and facilities that can make their own production. Self-sufficient neighborhoods An urban system can be created in which cities are divided into autonomous "Units". Thus, each neighborhood or small region can have self-sufficient services and facilities that can make their own production.

each urban block or neighborhood should have its own shops, gymnasiums, etc. The goal is to be as autonomous as possible during the lockdown.

- Outdoor life - Rooftop open/common area - Walkways

There is a need for elements that encourage outdoor life such as public spaces, parks, playgrounds, etc.

- Sea transportation

The sea is one of those places where patients can be safely transported and treated with fresh air.

- The square

The concept of public space is in the process of renegotiation.

The fact that people are no longer active in a place other than their home, takes away the meaning of old collective space.

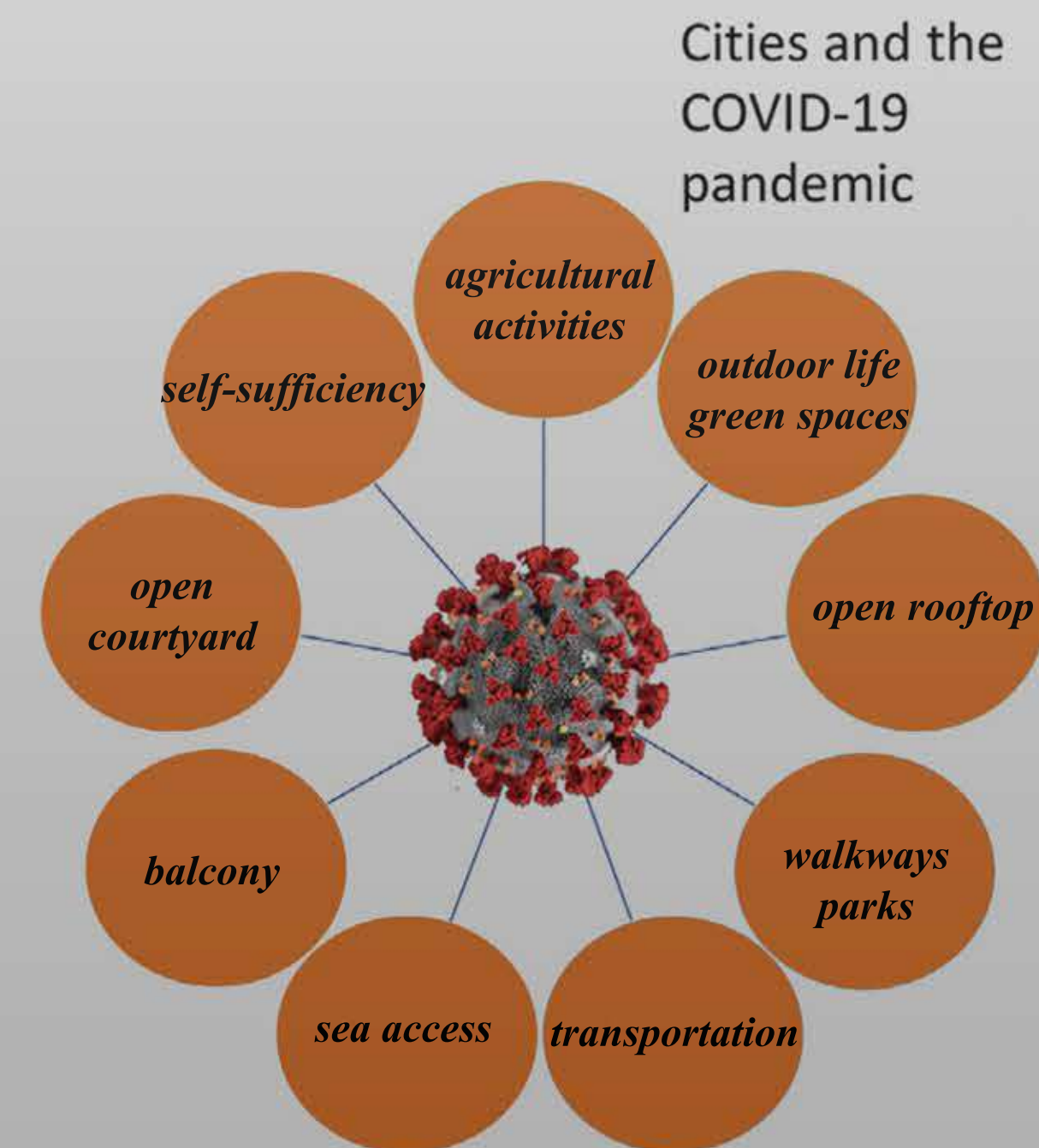
- Transportation

Intercity / urban movement of population and transportation infrastructure are considered to be one of the factors that cause the spread of infectious diseases.

1- Movement restrictions are necessary to control the spread of the virus. These are necessary for prevention to restrict travel to / from high risk cities.

2- It was argued that in the early stages of the pandemic, the use of public transport decreased significantly and people switch to other methods such as cycling, walking and private vehicle use. Accordingly, public transport systems should be reorganized to avoid relying more on private vehicles, and measures should be taken to minimize potential health risks in order to regain public trust by meeting the safety needs of users.

Sharifi, Ayyoob & Khavarian-Garmsir, Amir Reza. (2020). The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. Science of The Total Environment. 749. 142391. 10.1016/j.scitotenv.2020.142391.





PRINCIPLES OF DESIGNING SUITABLE FOR COVID19

- INCREASING ROADS
SUITABLE FOR
PEDESTRIAN USE
AND IMPROVING ITS
INTEGRATION WITH
SQUARES

- USING THE LAST
EMPTY LAND IN THE
URBAN TEXTURE
FOR AGRICULTURAL
PRODUCTION
(KUZGUNCUK
GARDEN)

- SELF-SUFFICIENCY

- PROTECTING AND
ENRICHING THE
FREQUENTLY
FOREST GREEN
AREA

- PLAYGROUND
FOR CHILDREN

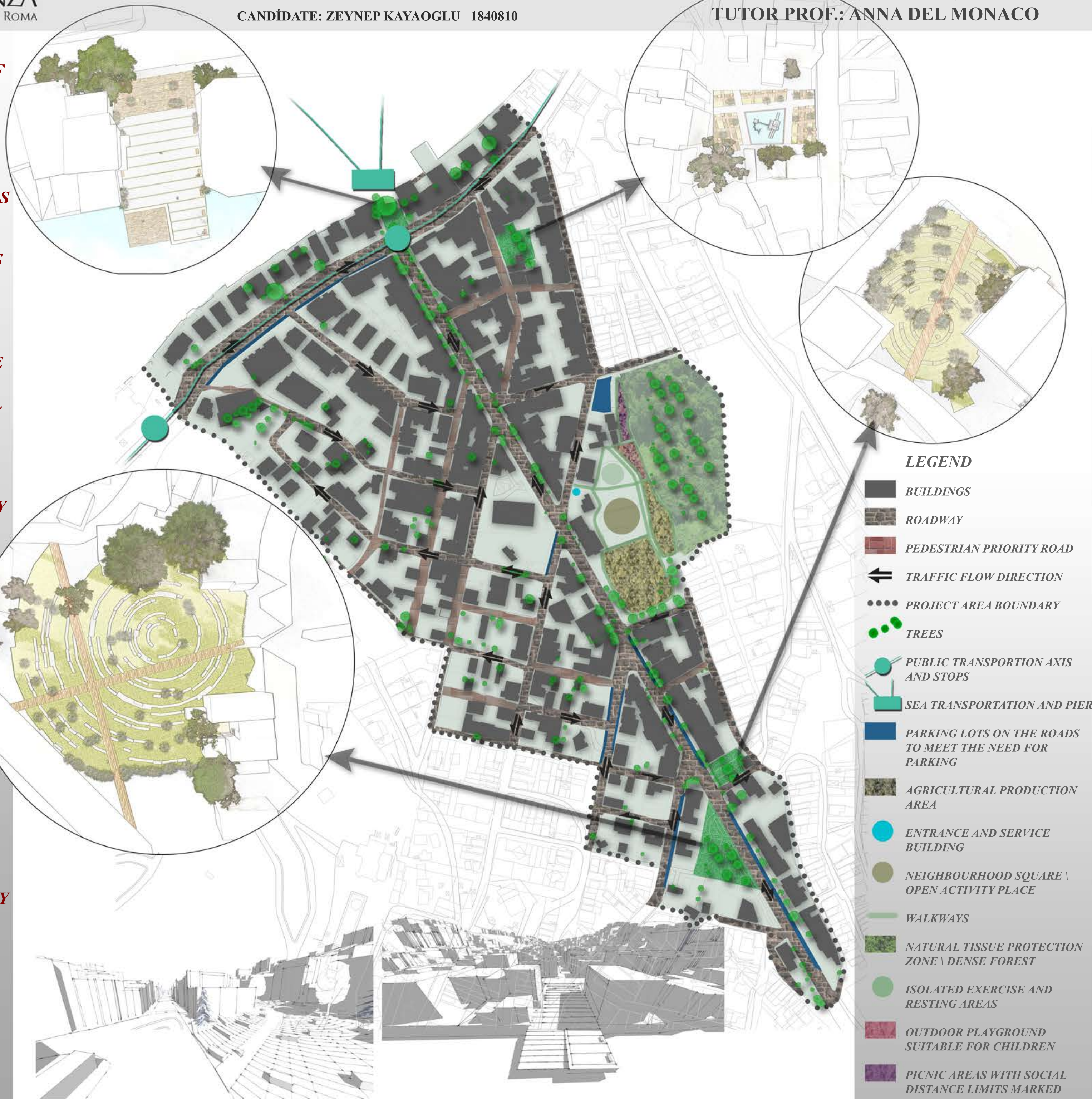
- ACTIVE SEA
TRANSPORTATION

- NON-DAMAGING
MATERIAL FOR
NATURE/
SUSTAINABILITY

- ISOLATED ACTIVITY
AND OPEN PICNIC
AREAS

- OPEN WALKING
ROUTES

- SIMPLICITY

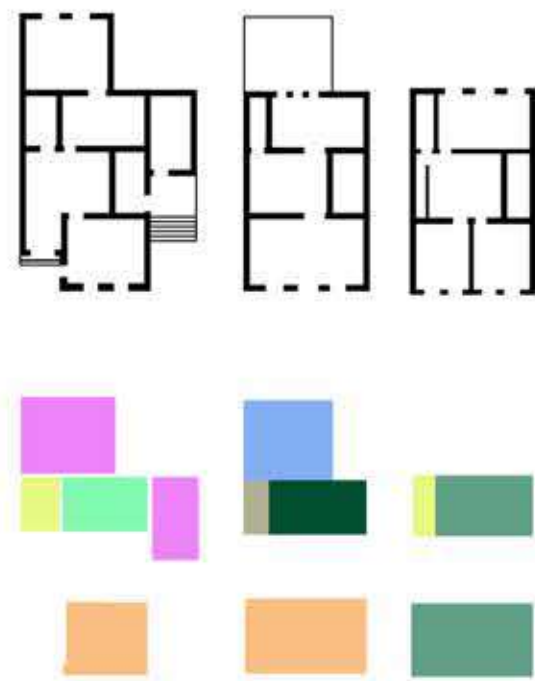




DIFFERENT TYPOLOGIES OF ROW, RESIDENTIAL, 2 / 3 STOREY BUILDINGS WITH TRADITIONAL BAY WINDOWS AND BALCONIES

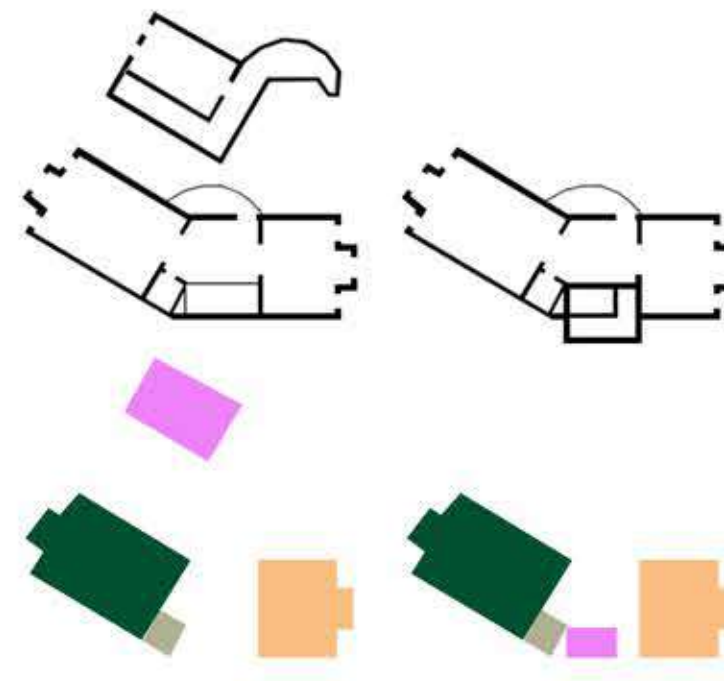
1

TAHTALI BOSTAN STREET
3 FLOORS



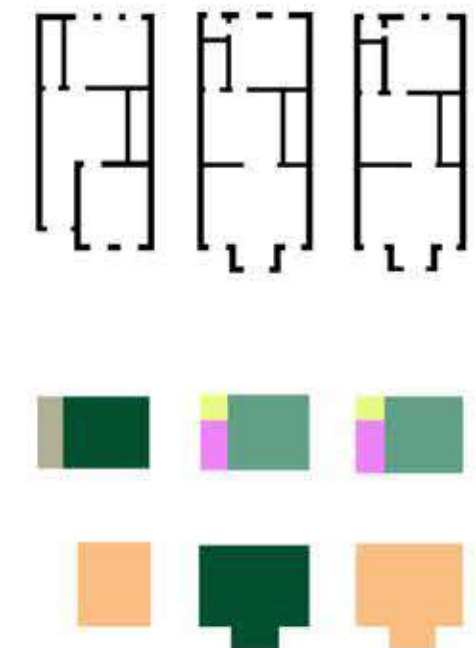
2

BEREKETLI STREET
3 FLOORS



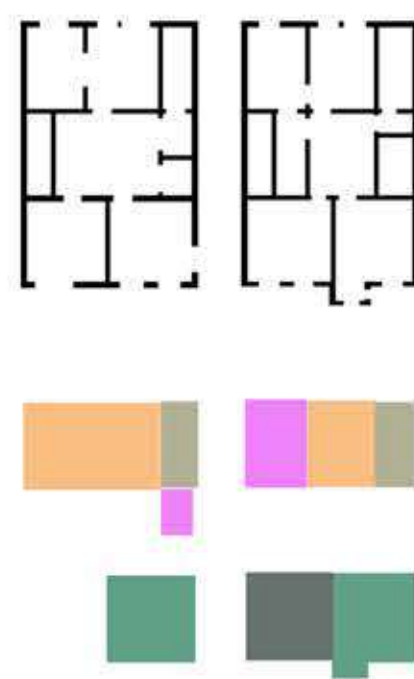
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BEREKETLI STREET
3 FLOORS



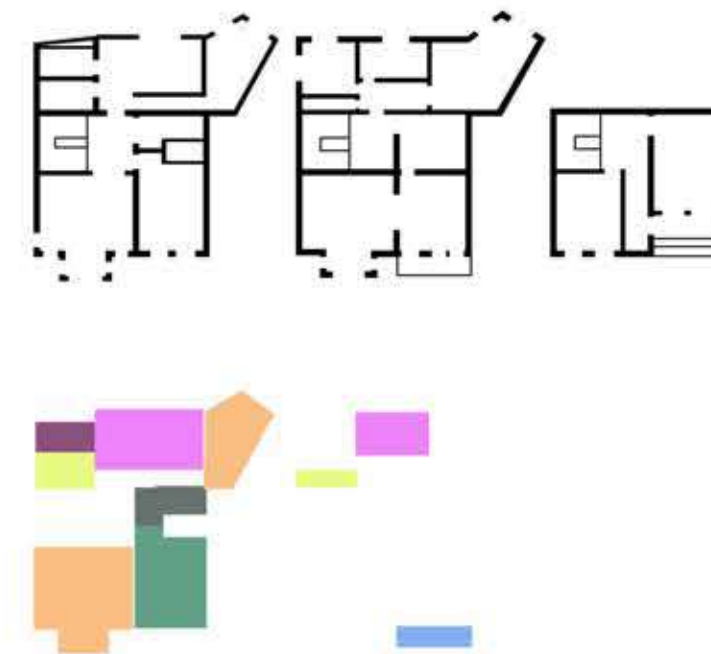
4

PERIHAN ABLA STREET
2 FLOORS



5

ICADIYE STREET
3 FLOORS



- KITCHEN
- READING ROOM
- WC
- LIVING ROM
- BEDROOM AND SITTING ROOM
- BATHROOM AND WC
- BEDROOM
- BATHROOM
- TRUNK ROOM
- KITCHEN AND SITTING ROOM
- TERRACE OR BALCONY
- ANTEROOM



DIFFERENT TYPOLOGIES OF ROW, RESIDENTIAL, 2 / 3 STOREY BUILDINGS WITH TRADITIONAL BAY WINDOWS AND BALCONIES

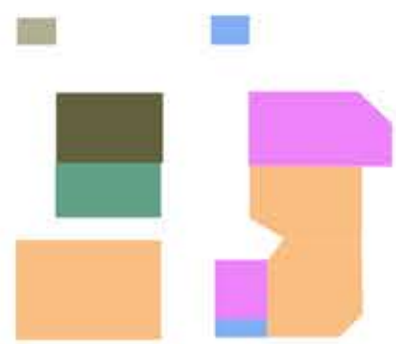
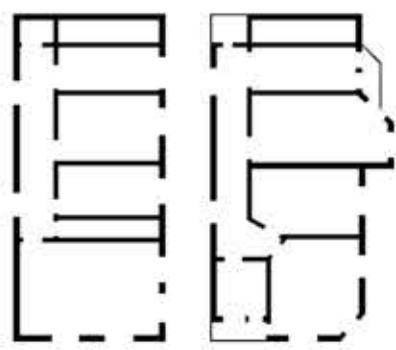


- KITCHEN
- READING ROOM
- WC
- LIVING ROOM
- BEDROOM AND SITTING ROOM
- BATHROOM AND WC
- BEDROOM
- BATHROOM
- TRUNK ROOM
- KITCHEN AND SITTING ROOM
- TERRACE OR BALCONY
- ANTEROOM

1

PERIHAN ABLA STREET

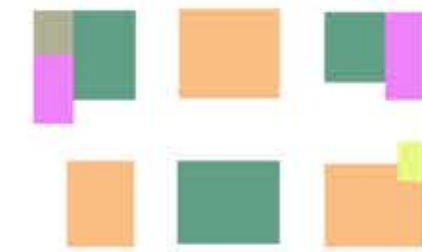
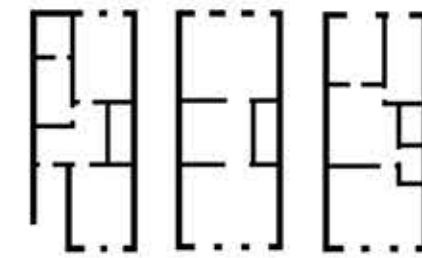
3 FLOORS



2

TAHTALI BOSTAN STREET

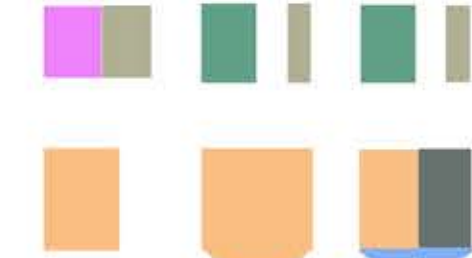
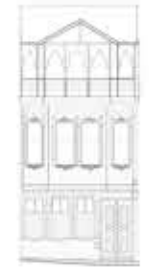
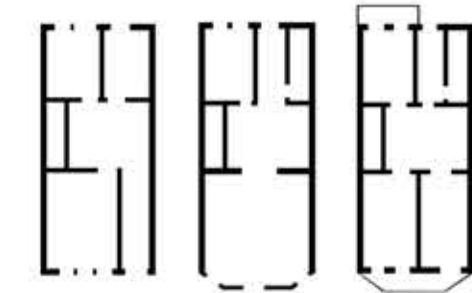
3 FLOORS



3

SIMITCI TAHIR STREET

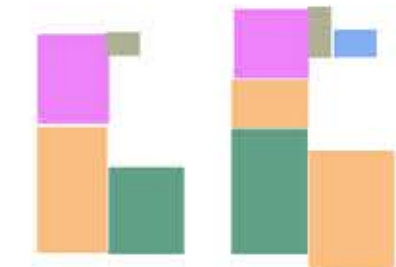
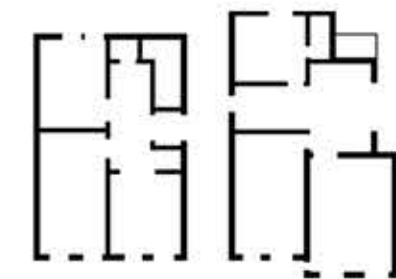
3 FLOORS



4

URYANIZADE STREET

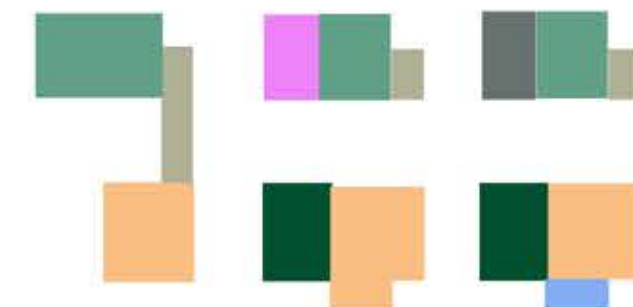
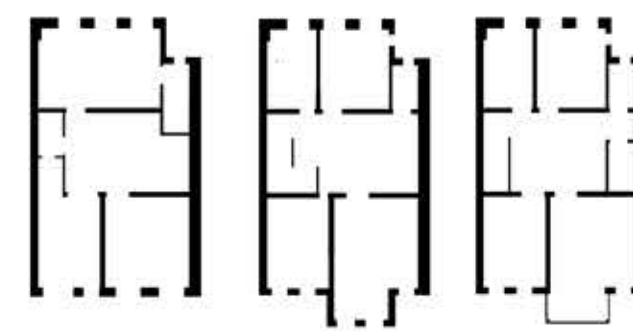
2 FLOORS



5

PERIHAN ABLA STREET

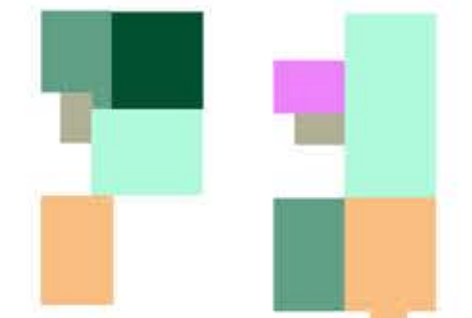
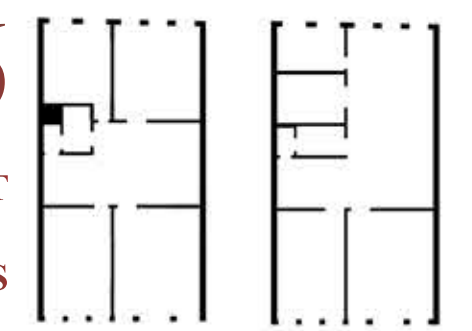
3 FLOORS



6

ICADIYE STREET

3 FLOORS

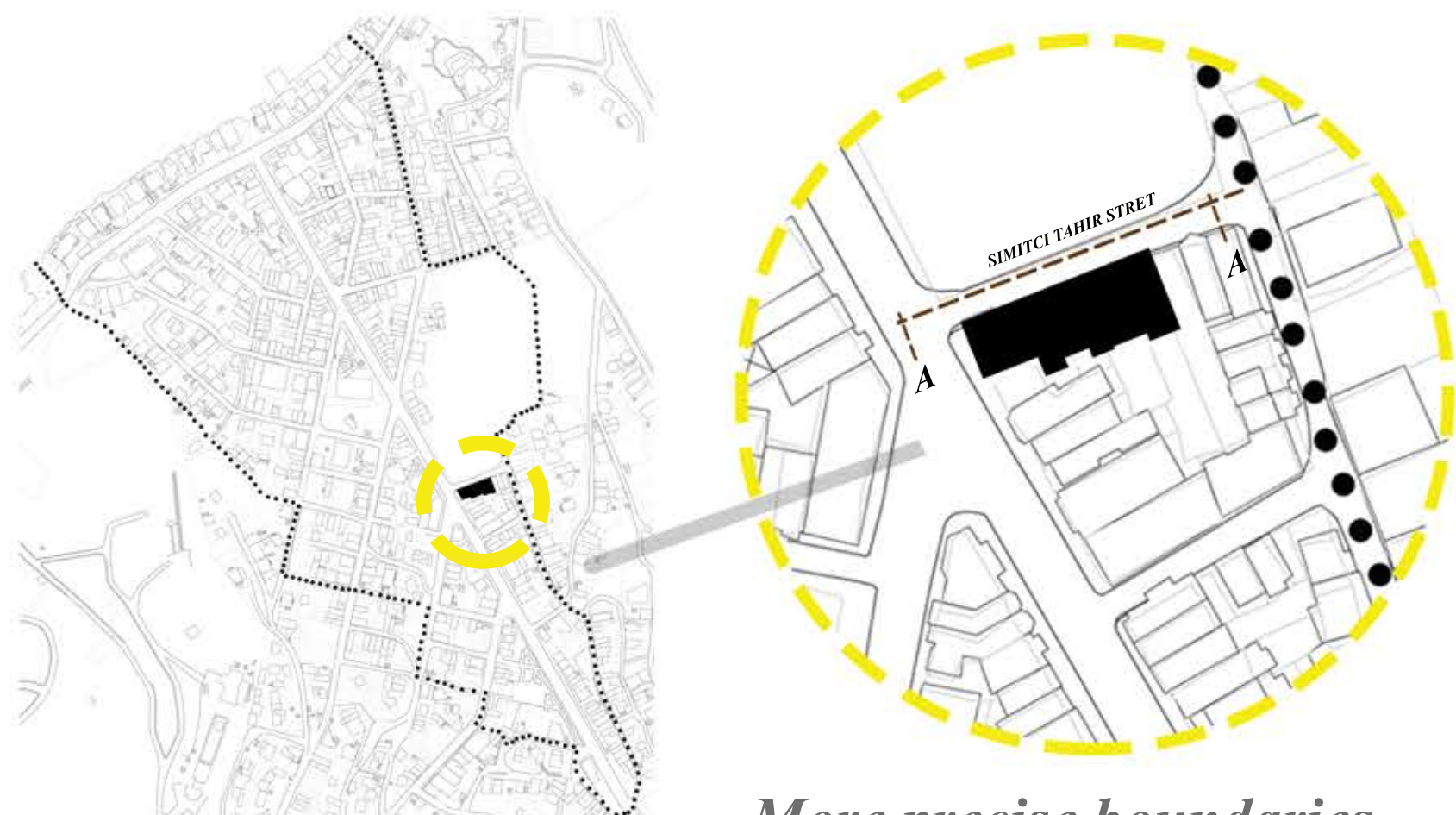




CASE STUDY

HOUSING TYPOLOGY TRANSFORMED FOR THE NEW NORMAL DUE TO COVID-19

EXISTING SITUATION



More precise boundaries

Traditional

Less time at home

No online working or Homeschooling

Less space needed

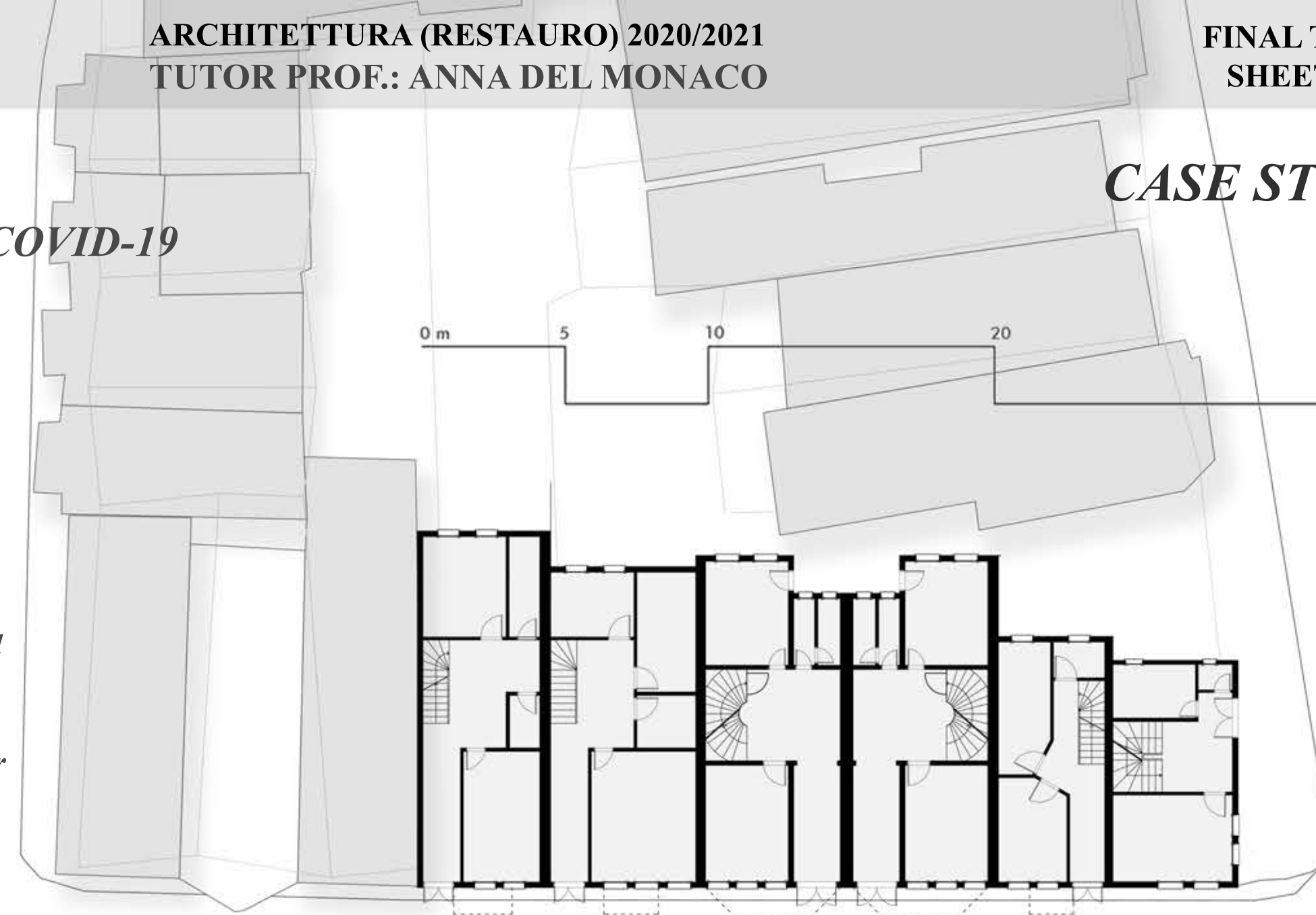
Less and shorter activities at home

The classic residential planning was not Pandemic ready to safeguard several user groups belonging to different age-groups living together.

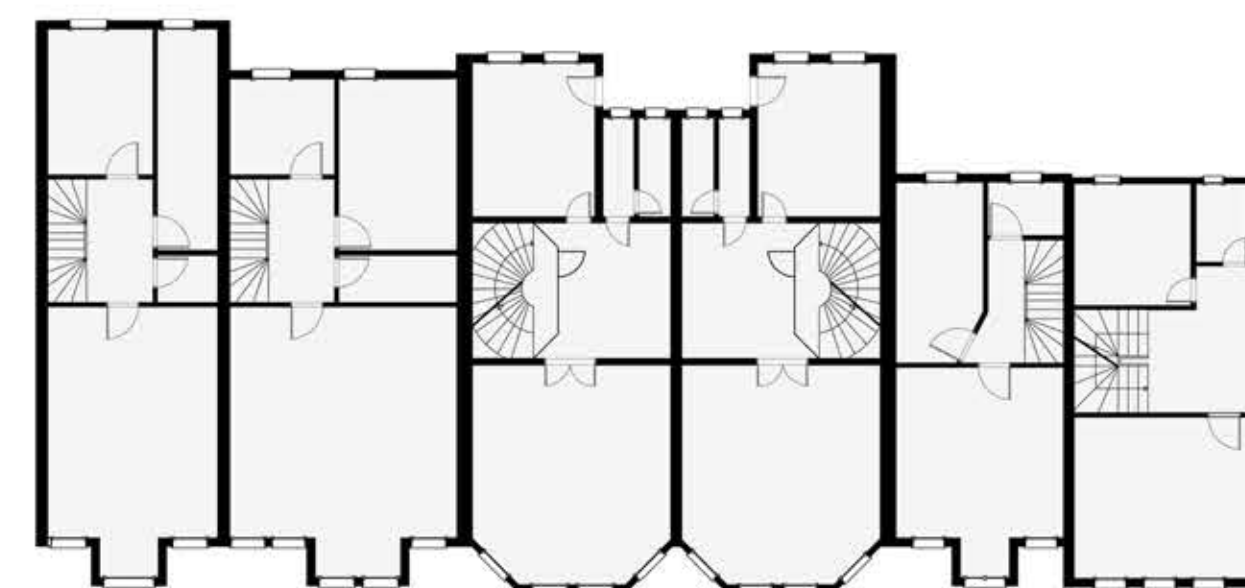
*Traditional masonry structures are **not** suitable for flexible use. Functions are strictly separated. However, during the lockdown period of the pandemic, each family member is at home at the same time. **Space needs** for many activities occur. Therefore, the need for **more flexible space and portable furniture** arises.*



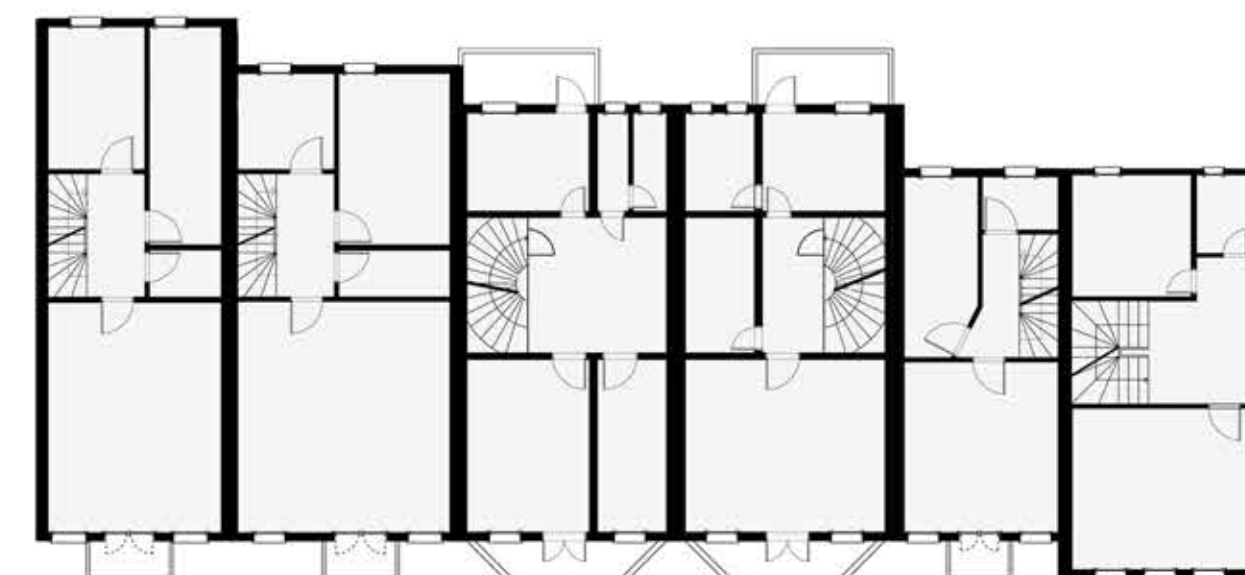
SIMITCI TAHIR STREET
SILHOUETTE A-A



GROUND FLOOR PLAN

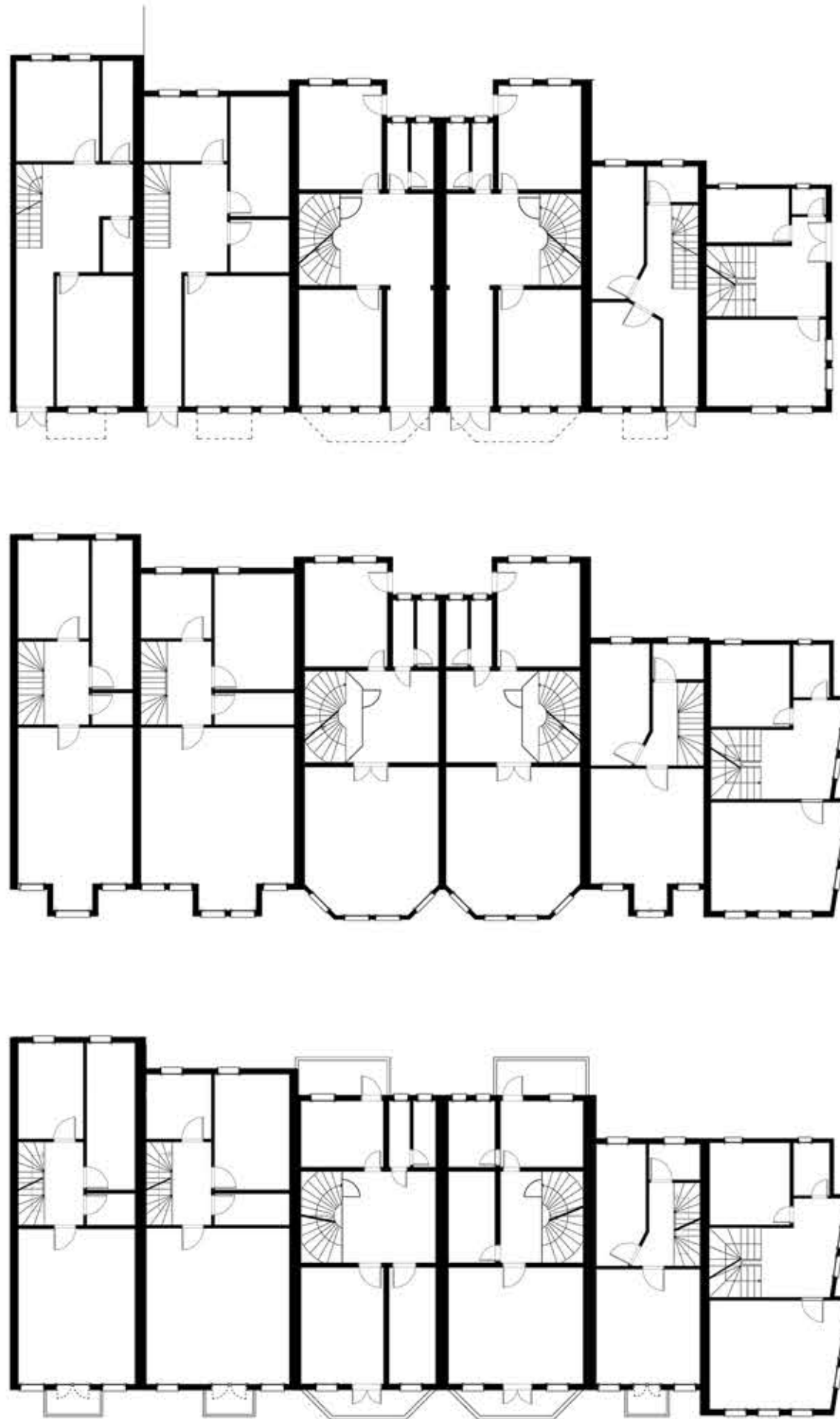


FIRST FLOOR PLAN



SECOND FLOOR PLAN

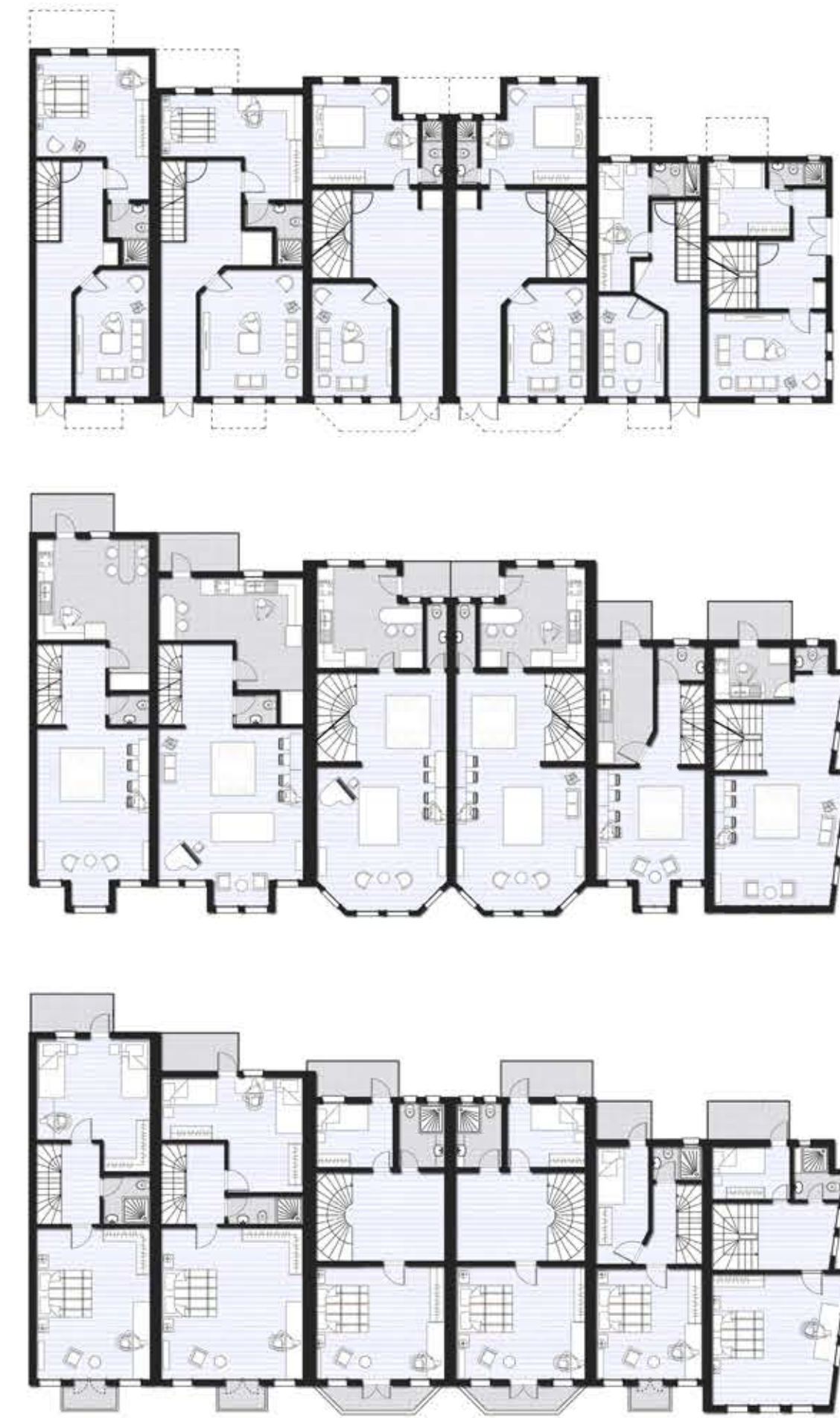
EXISTING SITUATION



TRANSFORMATIONS REQUIRED FOR ORGANISING ACCORDING TO COVID-19 PRINCIPLES



PROPOSAL



ADVANTAGES AND GOALS

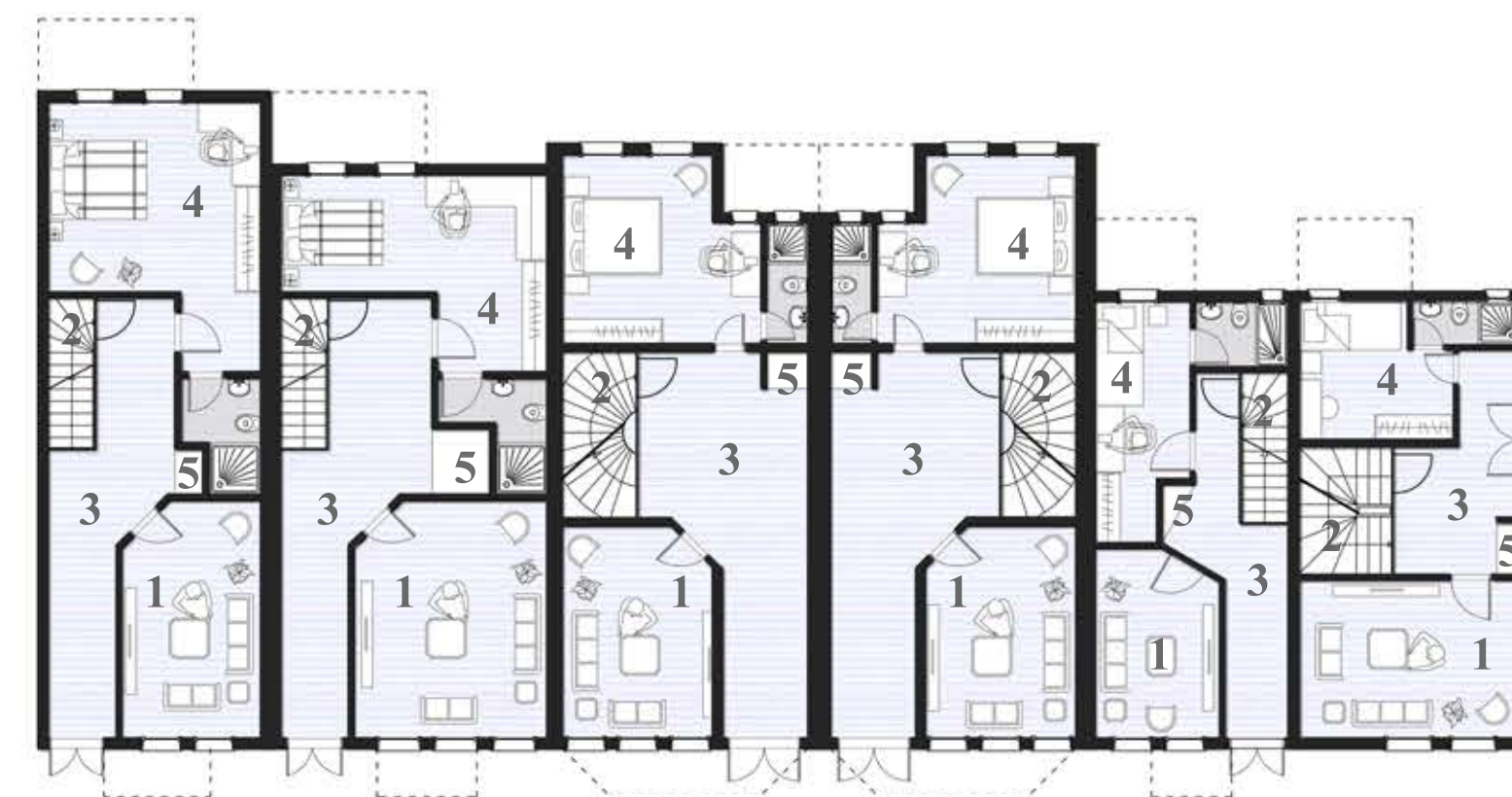
- Obtaining an ideal quarantine room
- This quarantine room is connected with the entrance foyer
- No contact of the infected person with any place other than the entry foyer
- To install a sanitising system in the entry foyer and the quarantine room, which are two places where the infected person comes into contact
- Organizing a temporary storage area and sanitising area at the entrance
- Special selection of the material to be used in this temporary storage area
- To ensure that the quarantine room, which should be located on the ground floor, is easy to connect with the outside and suitable for stretcher use
- Organizing the entry foyer as a separation area
- Using a metal balcony extension to meet the open space requirement in the pandemic
- Creating a special core space on the first floor
- This core space is flexible, suitable for long-term use and suitable for use together
- Use of portable items
- Creating spaces for all needs





HOUSING TYPOLOGY TRANSFORMED FOR THE NEW NORMAL DUE TO COVID-19

INTERVENTION PROPOSAL





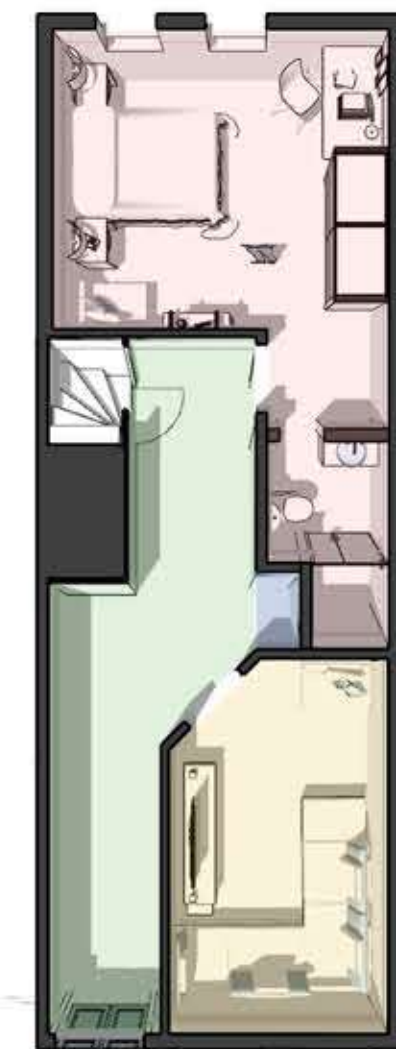
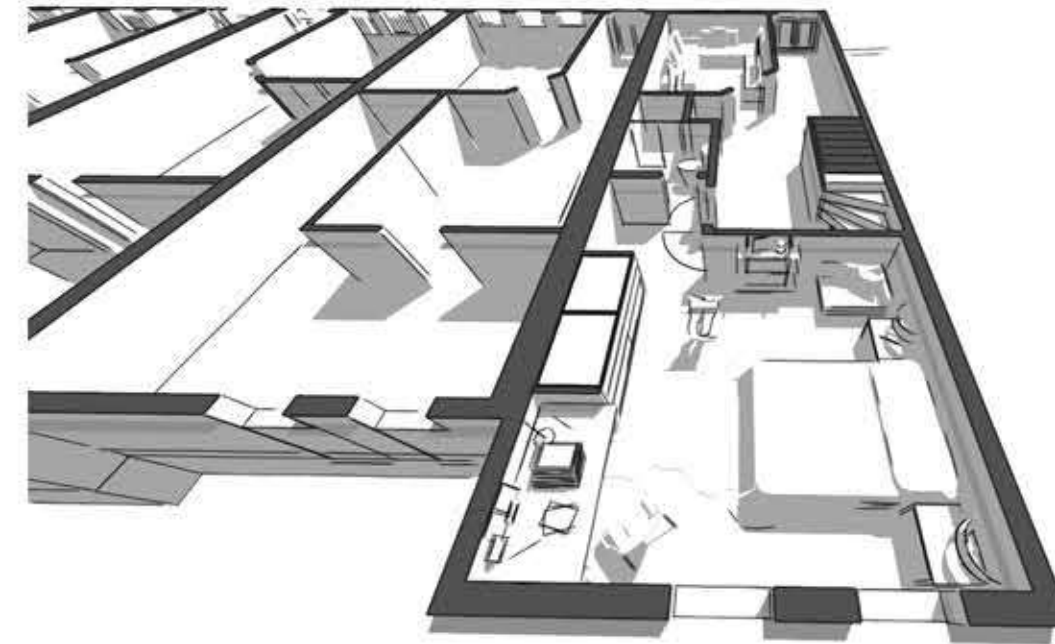
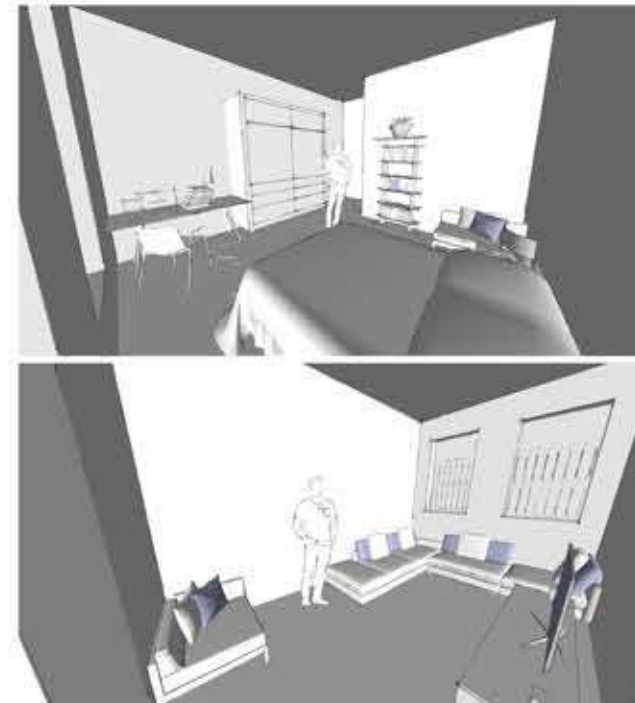
DETAILS AND PRINCIPLES



BEDROOM THAT CAN BE USED AS AN QUARANTINE ROOM

Bedroom with access only from foyer with immediate access from the outside and secluded from the rest.

In the **quarantine bedroom**, it should have **its own wc, working area, hobby area**. It will be beneficial for the human psychology that goes through the whole process inside.



MORE FLEXIBLE

MORE PORTABLE ITEMS

MORE HYGIENIC LIFE

MORE STORAGE NEEDS

PROVIDING A SPACE FOR EACH ACTIVITY AND INDIVIDUAL

SPENDING MORE TIME AT HOME

MORE ACTIVITIES AT HOME

DISTANCE LEARNING

REMOTE ONLINE WORKING

COPPER MATERIAL

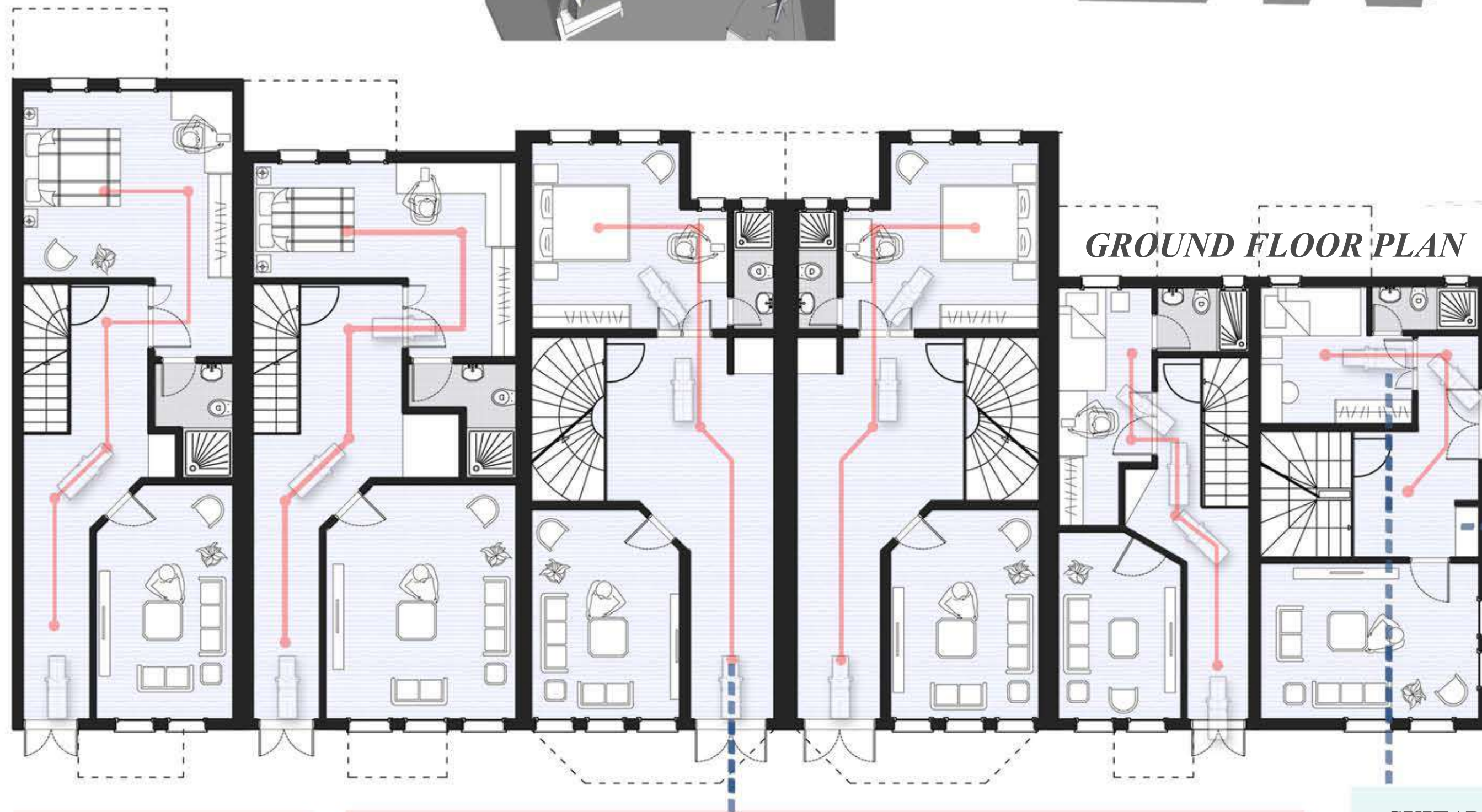
Copper can be used for short term storage decks.
Coronavirus last least on copper four hours than any other material surfaces.
Copper is known for antibacterial, antiviral and anti-fungal properties.



ENTRY FOYER

acts as a sanitizing station
icludes storage for things brought from outside.

The entrance foyer is a **decomposition area** for infected people and others. It is also the place where the person under quarantine is the only contact and provides that person's connection with the outside.



SANITISING AND STORAGE NICHES IN ENTRANCE FOYER

The niches holds the sanitised storage deck

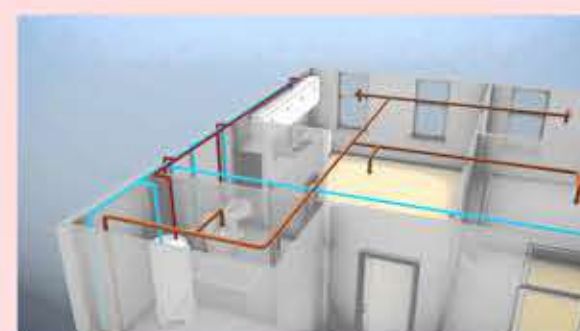
It is necessary for disinfection and short-term storage of products coming from outside before they come into contact with the inside. That acts as a sanitising station.

The stairs have doors on the ground floor. This is to cut off the air circulation with other floors if necessary.

SOCIAL DISTANCING AND SANITATION

in residential design can cut short the spread cycle.

SANITATION



A series of sprinklers with support of sanitizing fluid through the duct in the entrance foyer and the quarantine room for effective disinfection.

Entry foyer and quarantine bedroom are two places where the infected person gets in touch with. Therefore, it would be correct to establish a **sanitation system** in these places. (a series of sprinkler with support of sanitizing fluid through the duct for effective disinfection.)

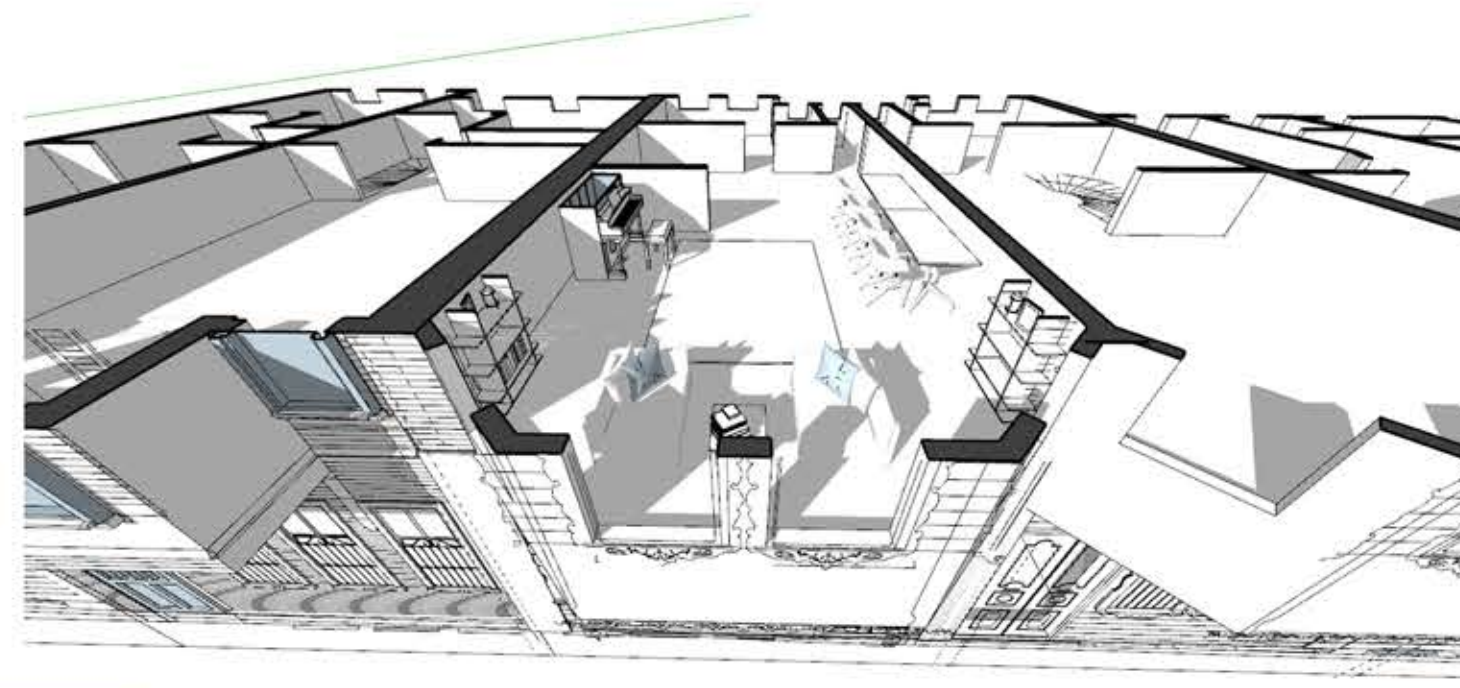
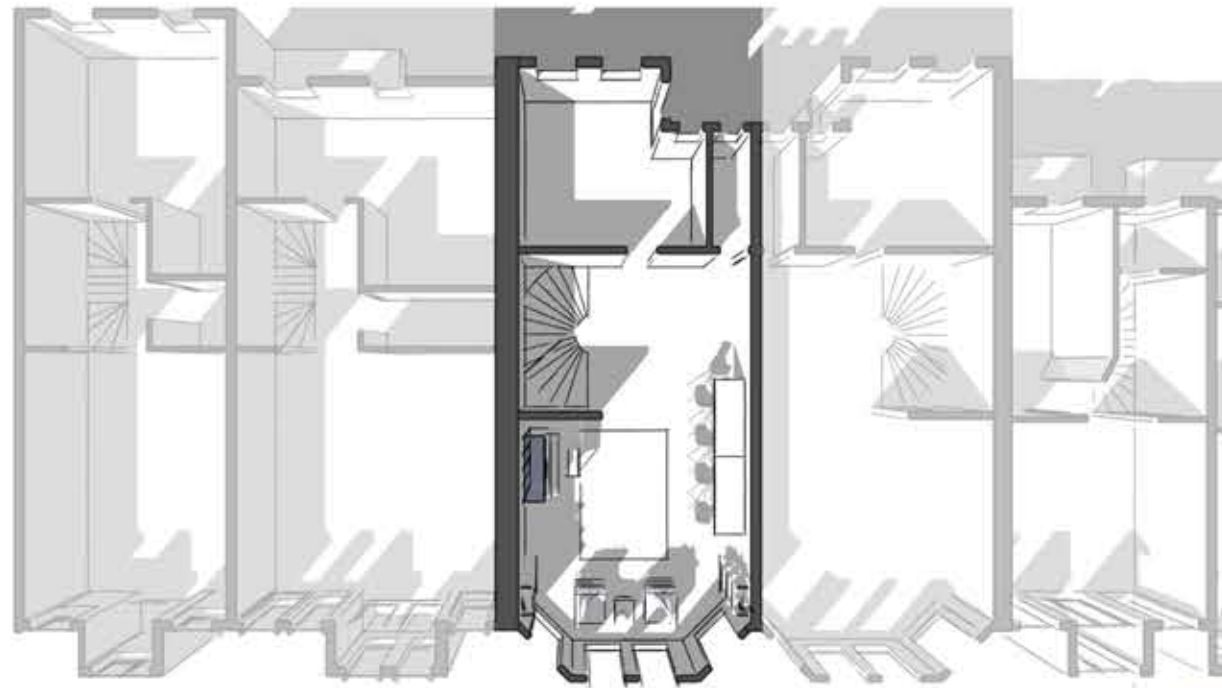


SUITABILITY FOR STRETCHER USE

Location of the quarantine room provides free motion of stretcher support

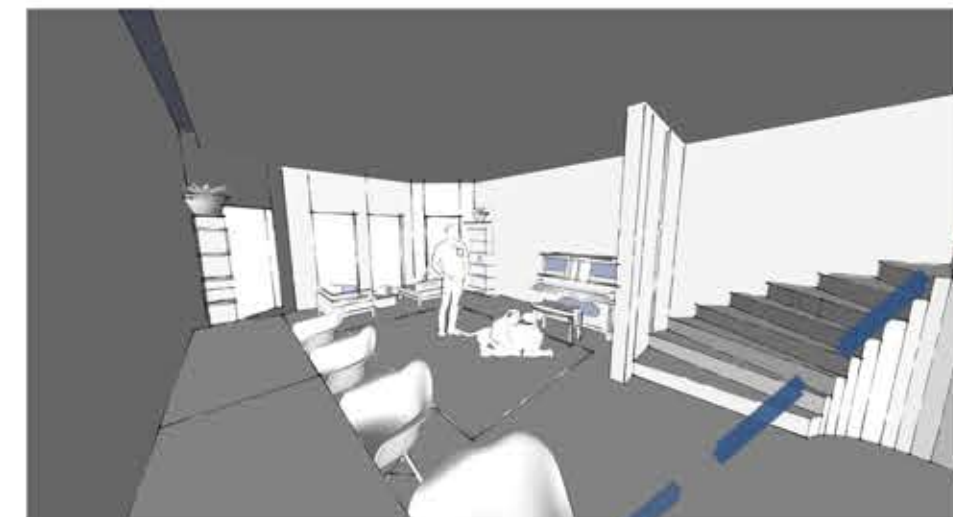
For the patient in the quarantine bedroom, it is important that the entrance to the room is suitable for use of the **stretcher**. It can be vital in some cases for the patient.





DETAILS AND PRINCIPLES

It is essential to preserve the facade features of these traditional buildings that bear cultural value.



BALCONY EXTENSION



1. Metal railings.

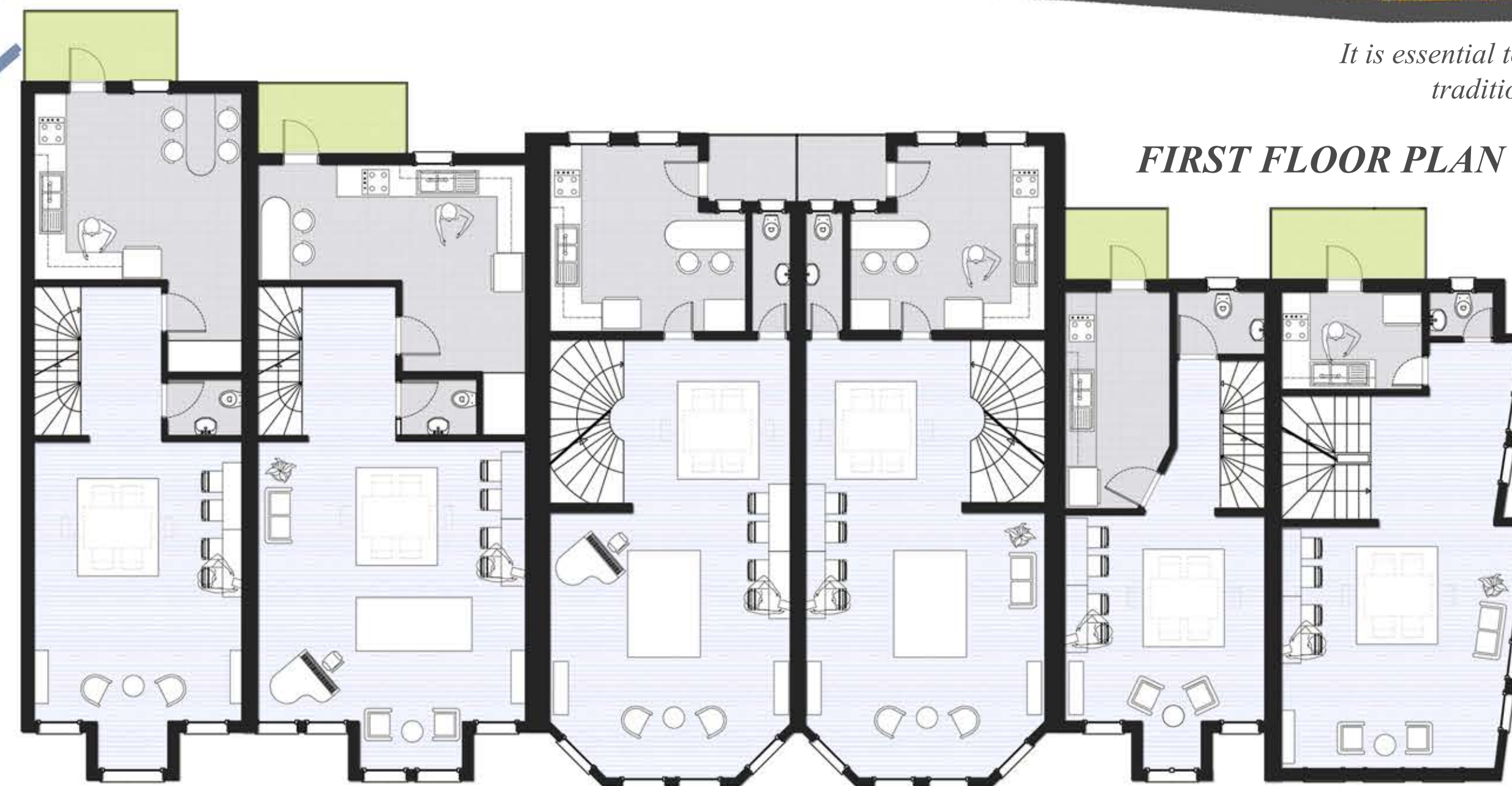
2. The floor, is a metal construction consisting of four parts which are connected together by a rotating axis, that allows the parts to fold.

3. The railings fold together with the metal floor.

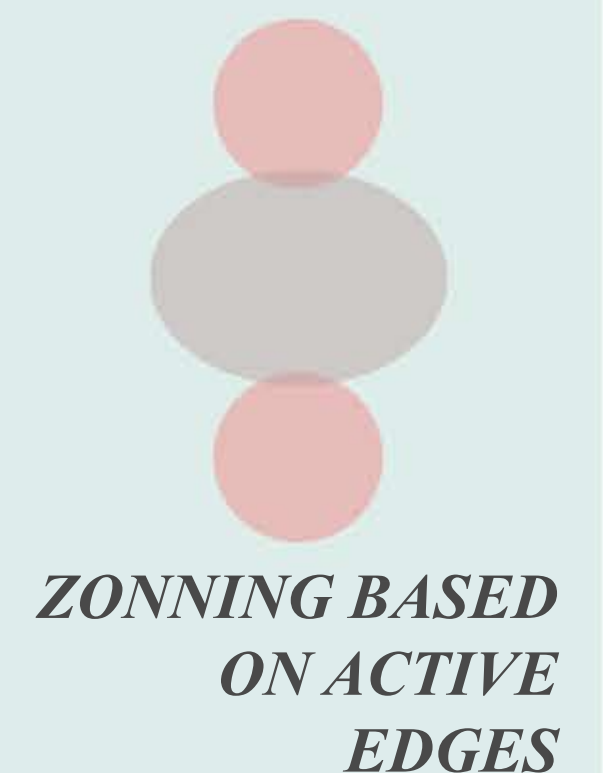
4. The metal legs, also fold, making the whole construction easy to store and reuse when necessary.

scaffolding

Disassembly and storage process



FIRST FLOOR PLAN



ZONNING BASED ON ACTIVE EDGES

where the main units are in the edges leads in the creation of central common space

DINNING AS A CENTRAL CORE

Dividable dinning table gives the flexibility of moving it to the edge, creating a large central comon space supporting activities like home schooling, children play, yoga or workout.



CORE SPACE provides a *flexible space* for children and working / non-working parents who are at home at the same time during the lockdown process. Portable items will be useful in this aspect. Portable and modular dining table will serve as eating in this area when needed. Other times, the modular parts are separated, creating a work or homeschooling space on the edge. This central common area is used for activities such as workout, children playground etc.

WORKSPACE

The user, whose work is the largest part of their daily life, expects a workspace of functional size and sufficient for their personal needs from The New Normal.



MAXIMUM WALKABILITY

IN LIMITED SPACE DURING A LOCK DOWN