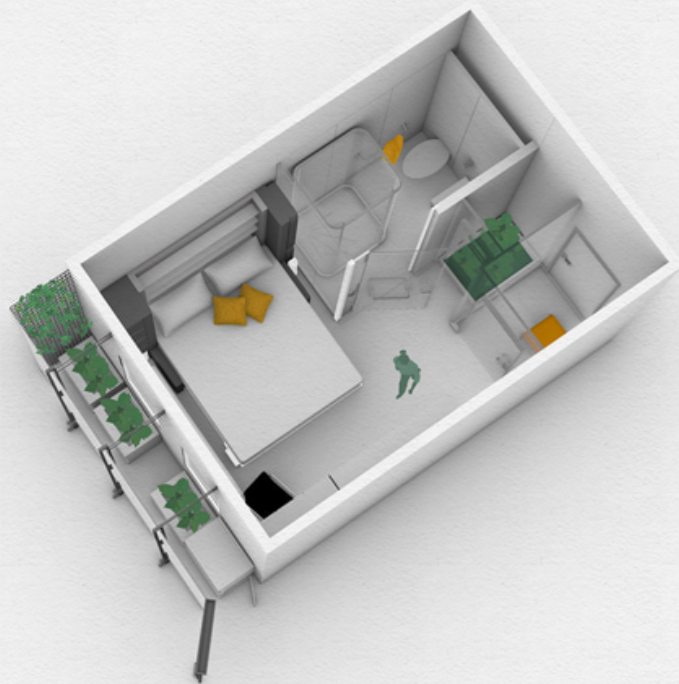


# Quarantine Pod Design

by Negar Soleimanpour, Fatemeh Heidari, Bahar Saebi safe

Forming a pod means total honesty on each family's part to take care of each other, considering the infected and the healthy in the family. "It's almost like an algorithm of adding space and time and preventing something from encountering us."



## Project necessity

### WHY?

Check Available Informations.

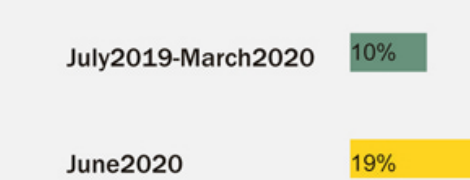
Quarantine alone reduces:

- New infections 44-96%
- Deaths 31-76%
- Viral reproduction 37-88%

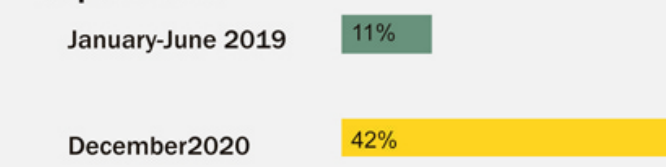
Greater reductions in infection if combined with:

- Social distancing
- Quarantining always lowered costs during outbreaks.

UK adults reporting symptoms of depression



US adults reporting symptoms of anxiety or depression



### HOW?

The process:

Paying attention to the needs of quarantined people and providing the required facilities.

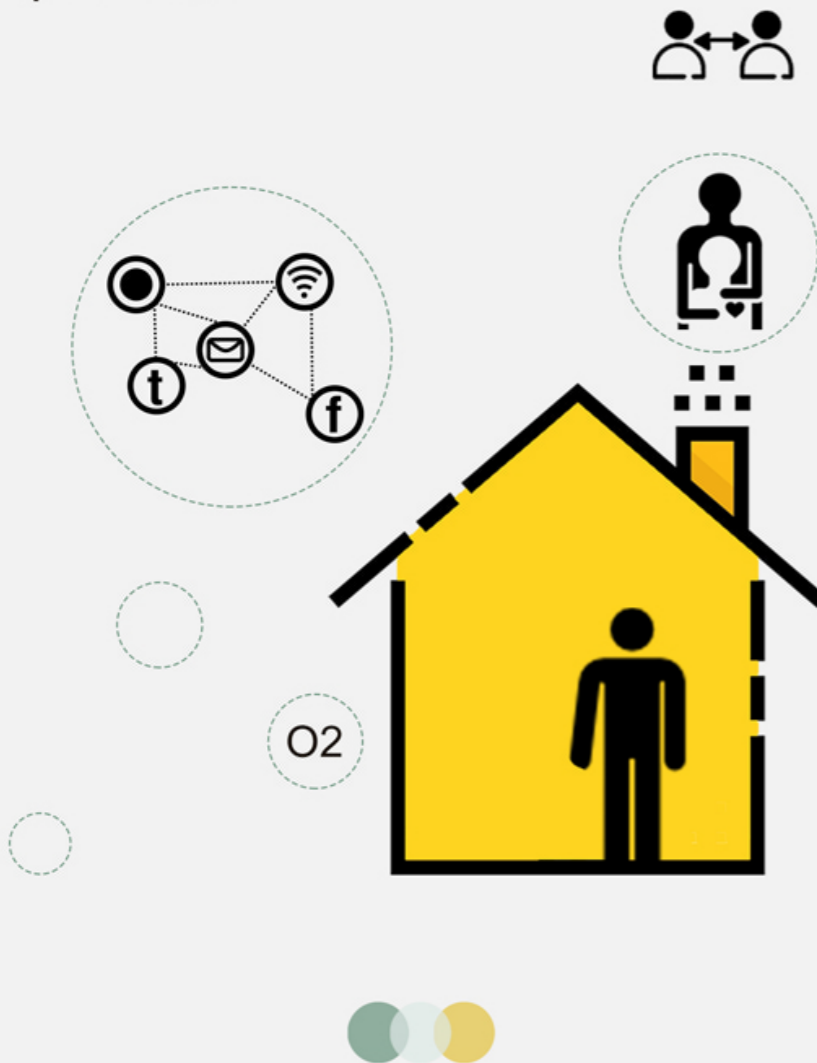
Use of appropriate materials and elements.

Requirements: considering the mental and physical condition of people as well as their health.

### WHAT?

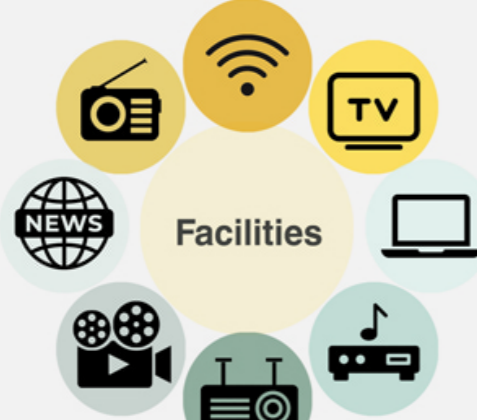
The Result:

The result was the design of a quarantine facility suitable for people who needed to improve their physical and mental condition. They are connected to the outside world and have access to all the media and facilities they need. It was possible to visit family or doctor by designing an airlock space. It is designed with materials that low construction time, light, portable and removable, which also requires low manpower. Even details such as the use of plants to produce oxygen have been used. And in general, we have tried to meet all the requirements.



### Facilities & Activities

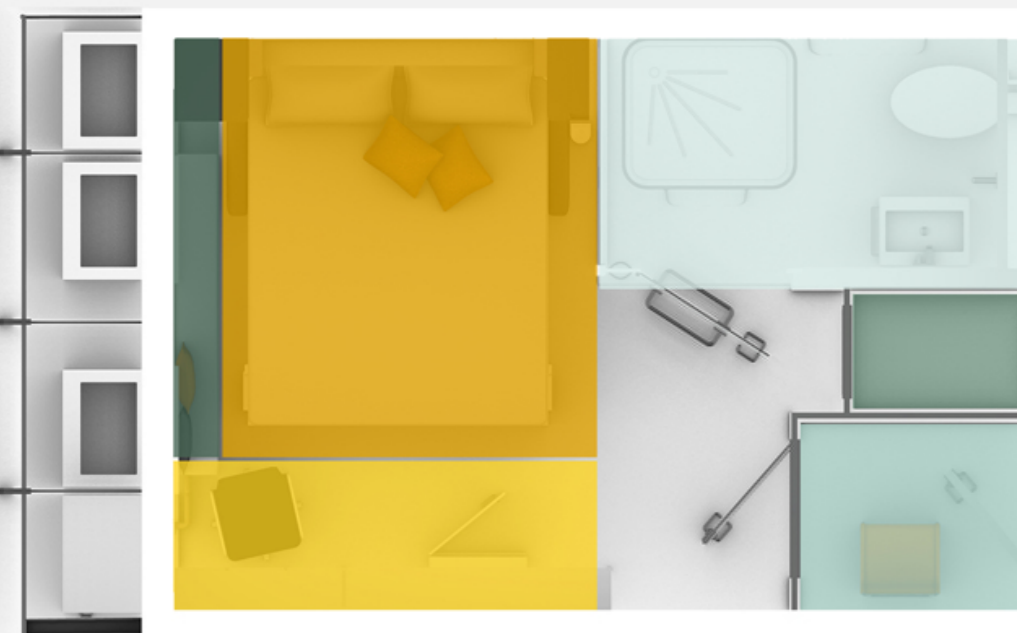
Due to the boring sense of being in quarantine pod, we decided to facilitate the room with a lot of entertaining options which affects patients spirit directly. As you see access to the laptop, television, music box, internet, news and etc. is prepared.



Some activities such as watching tv, reading, playing game and exercising are planned to be available. And also due to the lethargy and narcosis feelings which patient scrimmage with during the quarantine, we had to consider some carefree and uplifting activities such as breeding and watching the plants spotted in front of the window. One of the benefits of raising or taking care of plants is the positive feeling they give to the person. These patients experience a high level of hopelessness which directly affects their attitude to being recovered so watching the growth and floriferous of an alive creature all the day probably would heighten the life expectancy level.



## Key plan



- Living & Sleeping area
- Entrance & Emergency area
- TV & Desk area
- Patio area
- Bath area
- Bench area

## Plan Designing Aims

As we were asked to redesign an existing bedroom suite to be transformed into a quarantine pod with high changeability limitations in locating doors, windows and also dimensions, we decided to design a unit equipped with all necessary facilities which a person who's suspected to infection could use.

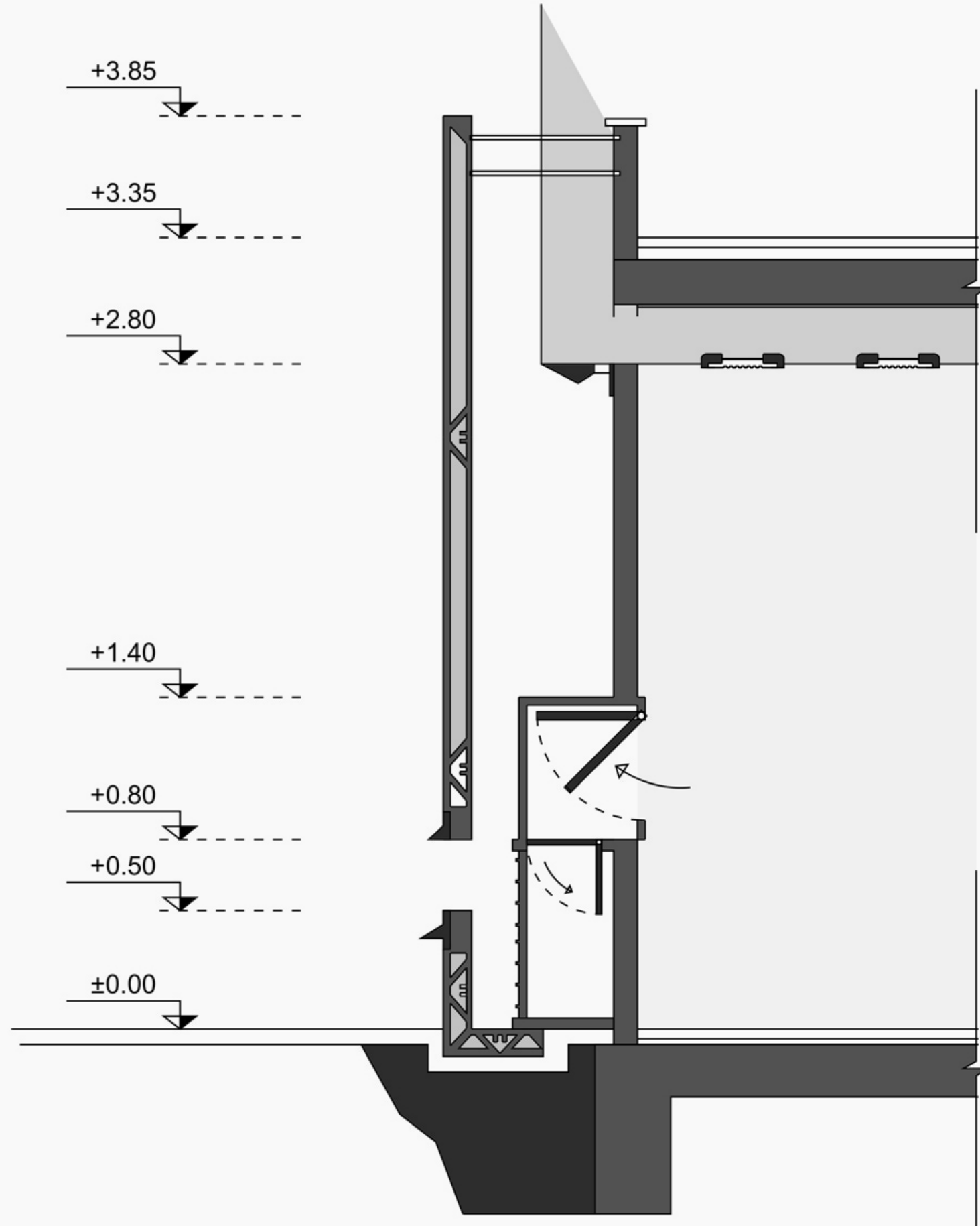
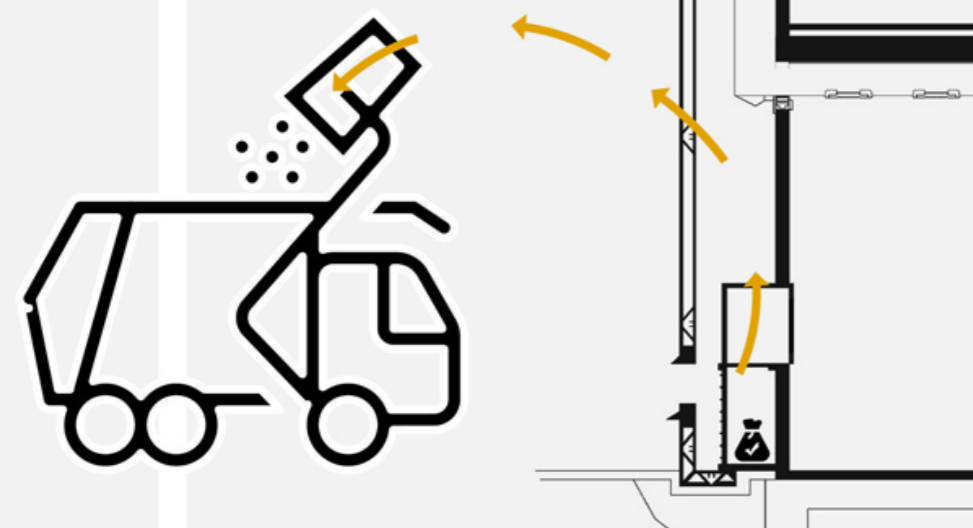
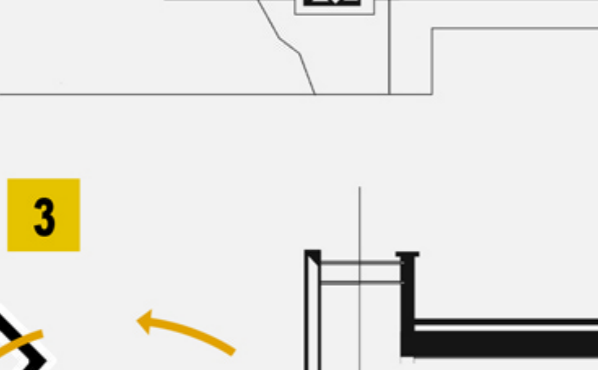
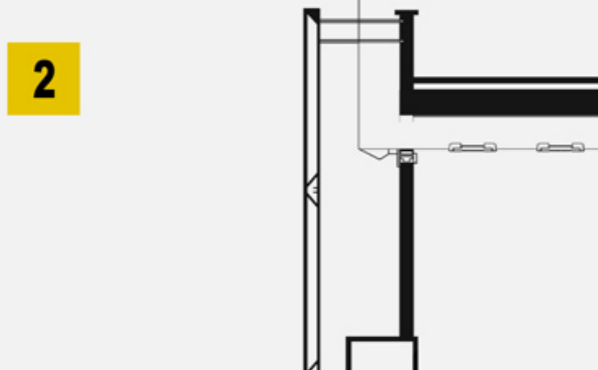
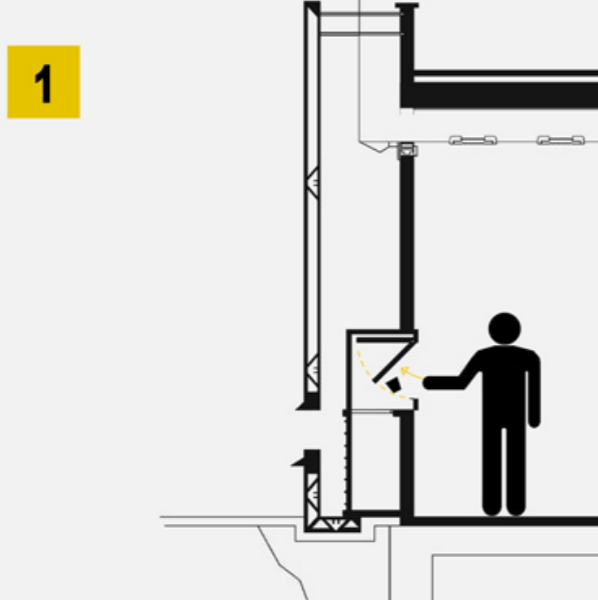
- Medical assistance & health monitoring
- Infection prevention
- communicating family members
- Diverse entertainments
- provision of food, water, and hygiene facilities

## Architectural plan



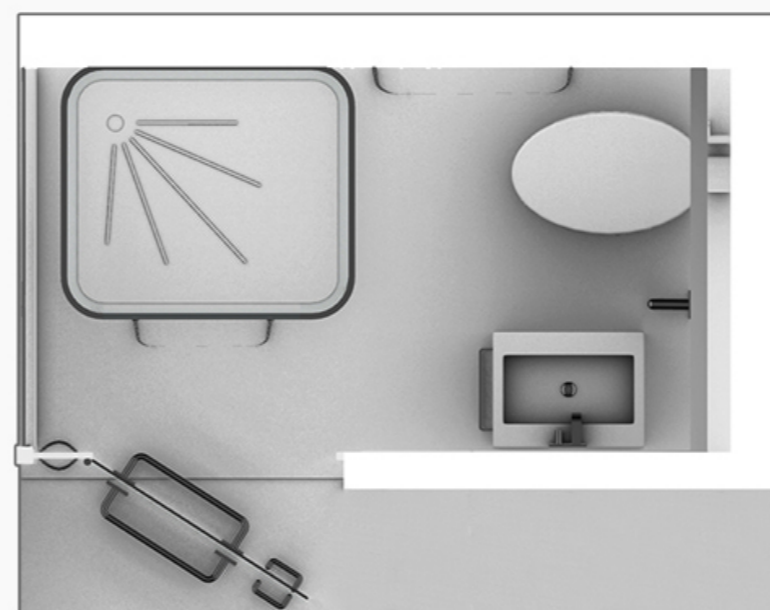
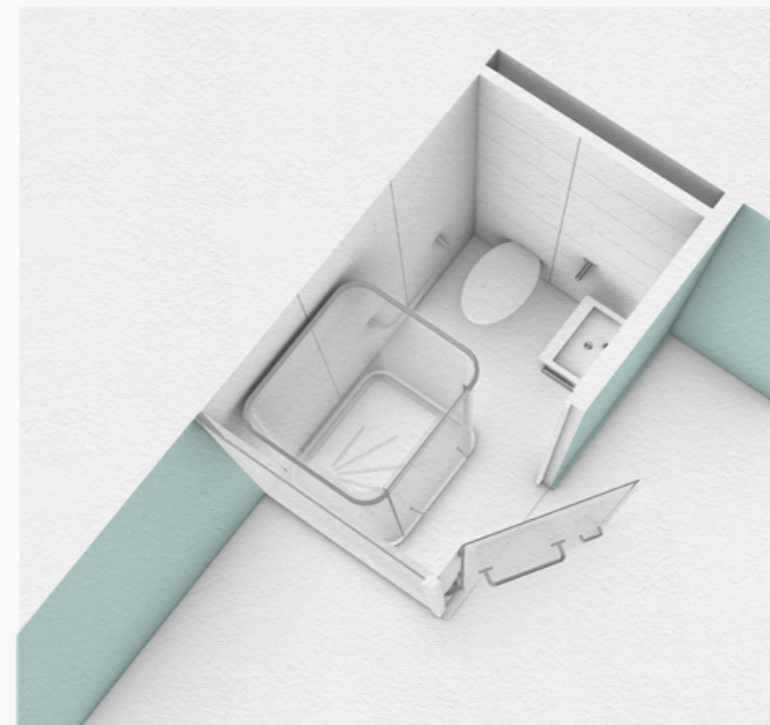
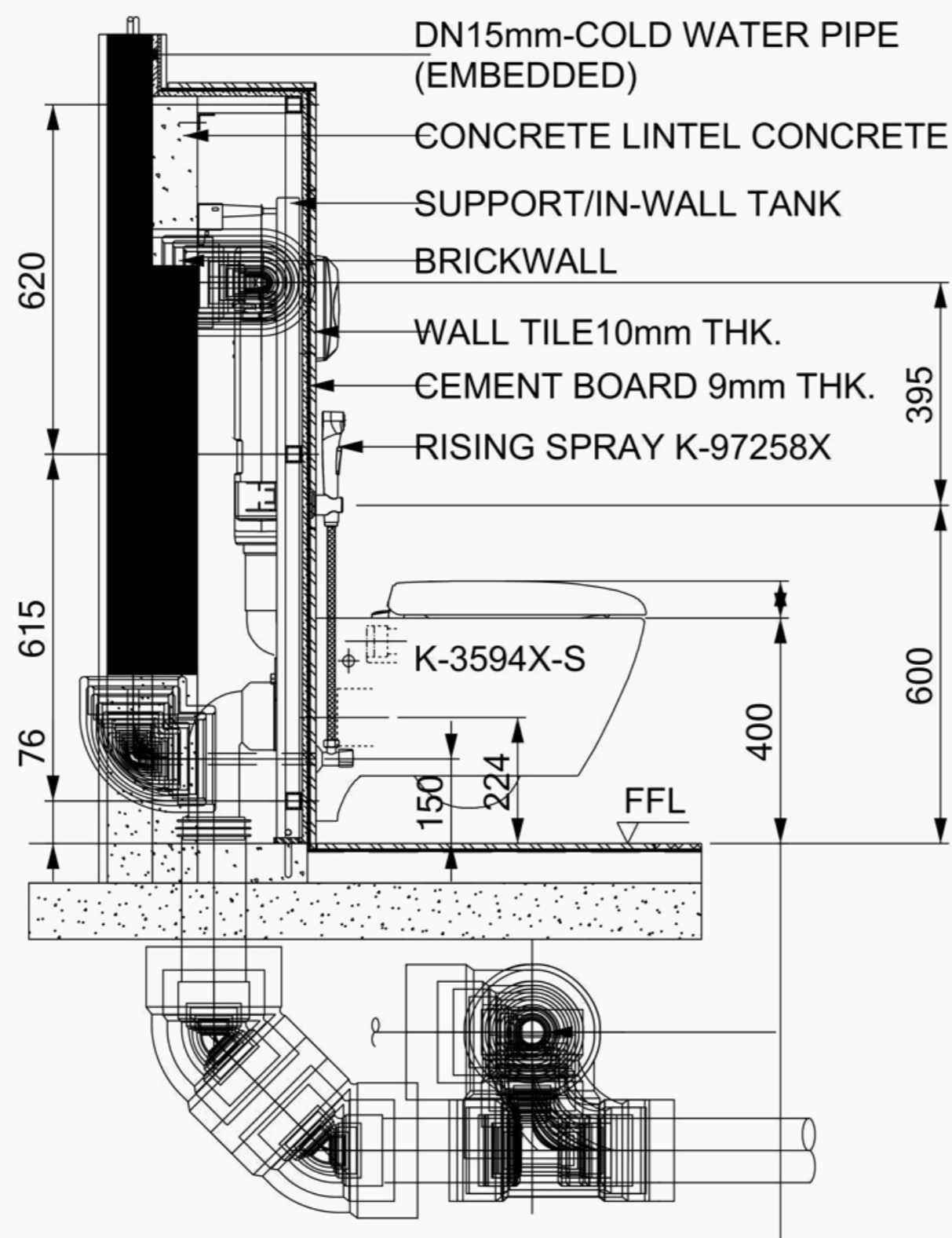
## Infection prevention and control

one of the most important points in the infection prevention, is the waste management which may cause dangerous situations for other people who are in close contact with, so due to the World Health Organization (WHO) warnings we decided to design a completely automatic garbage system which is eventually emptied into a pit outdoors. And this pit stores the infected garbage for 72 hours out of the way and after 3 days it can be disposed with the general household waste.



This Automatic garbage system has 3 divided and isolated containers which lock after each garbage gaining. The process is like a domino. As the patient puts the garbage into the storage, the door locks and then the other door which is located under the storage opens and evacuates the garbage into the next storage. This door would be openable only every 72 hours. At the last storage the door would be openable every time that the garbage sweepers come to transfer. This garbage is no more infected so there would be no concern about the sweeper's infection.

## Bathroom Design



## Sofa Bed

Designing sofa beds which are completely compatible with the room dimensions was the most wisely decision that we made. due to this decision, we were not limited to the dimensions for facilitating the room. the weight of this dynamic bed is transferred is beared by a jack which is available and reachable all over th world these days. during the night patient can use the bed and during the day he /she can use the sofa for resting, watching tv and even reading . also the free area in front of the sofa is usable during the time that bed is standd upward.



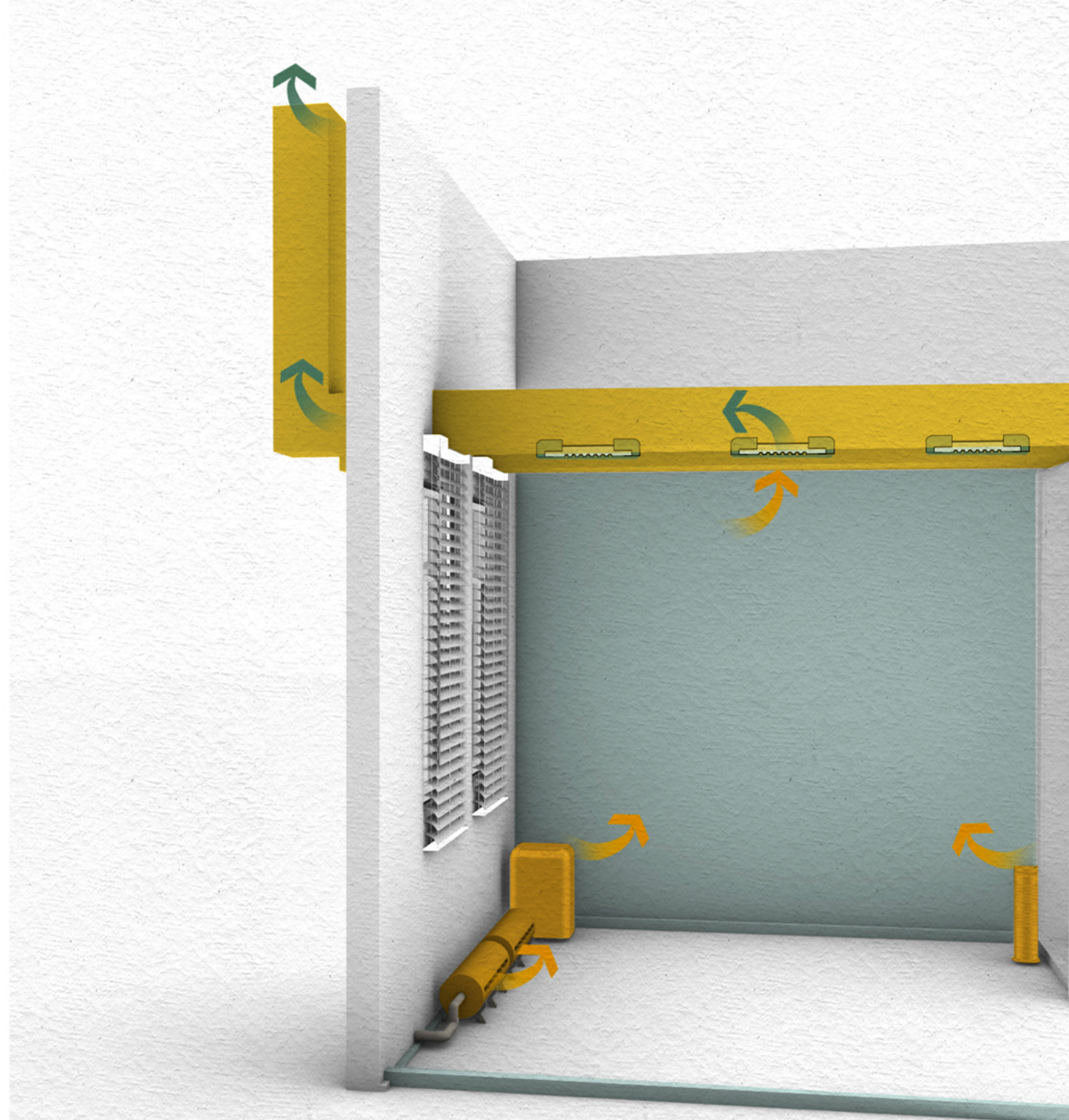
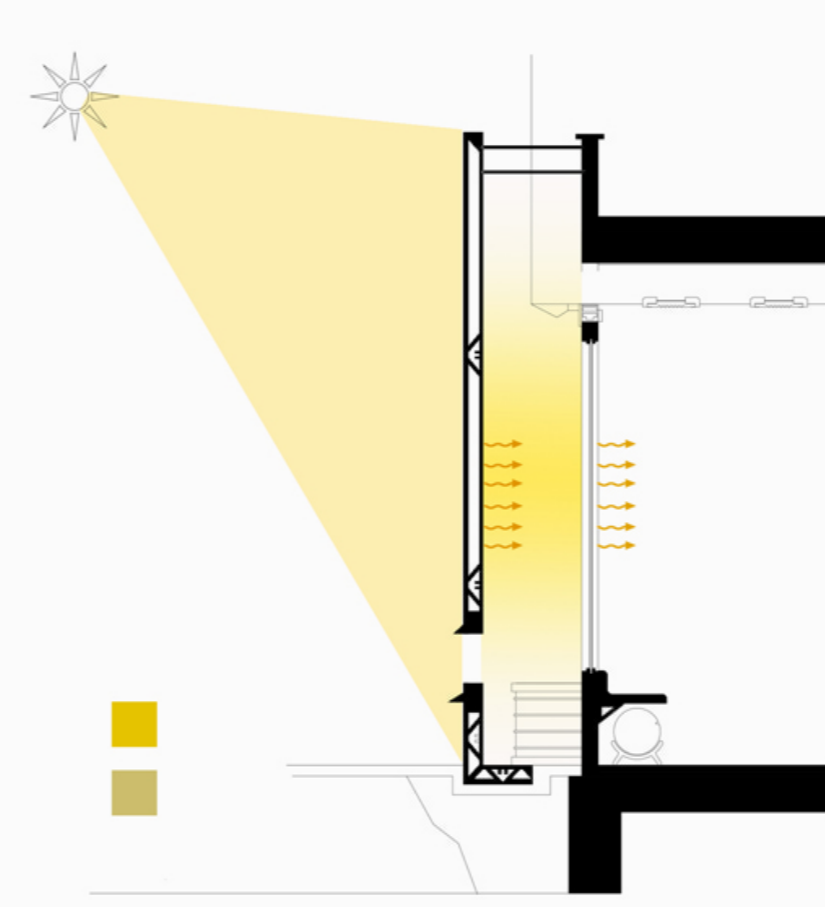
## Living & Sleeping Area



## Air ventilation and filtration systems

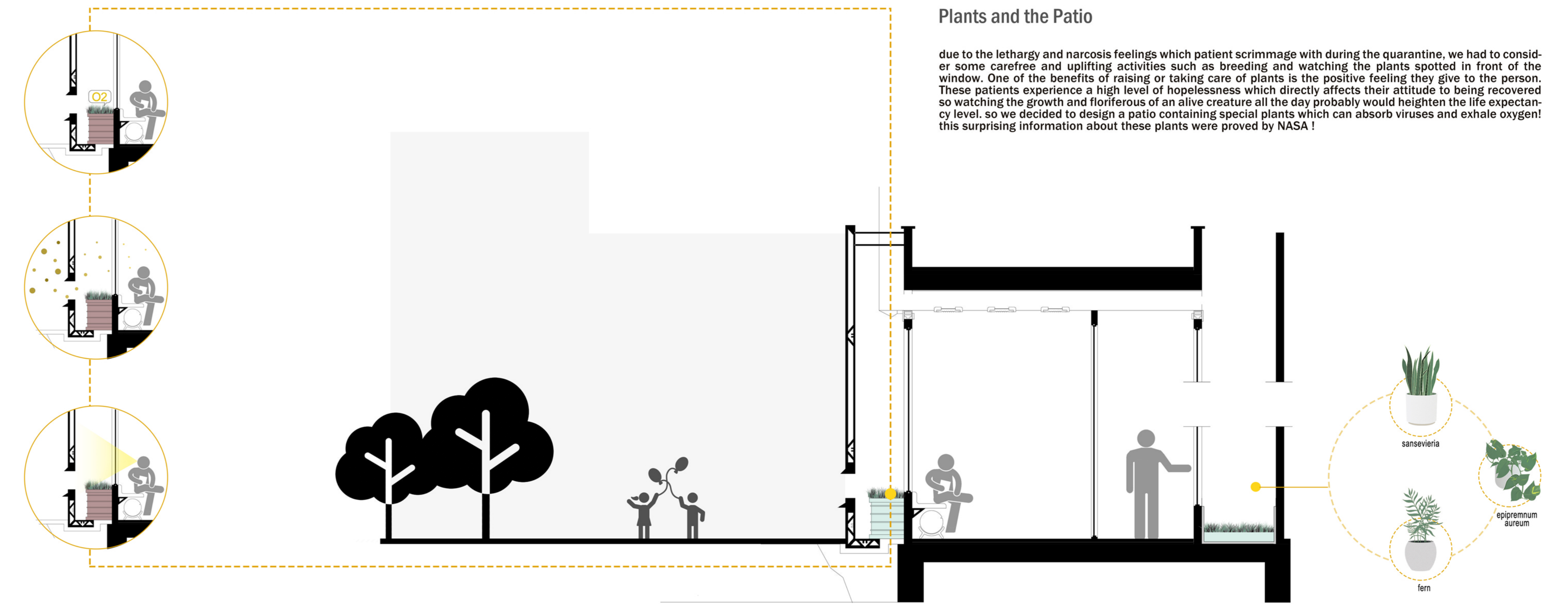
As World Health Organization(WHO) previously announced, the suspected patients should not breath in stagnant air which causes the viruses to spread and become more dangerous to the patient. So we tried to use both artificial and natural air conditioning which drives to the highest level of air ventilation.

One other important point in preventing the spread of corona viruses is the two sided air filtration. The first side which filters the air coming to the room is essential for patient who needs fresh and healthy air and the second side is designed due to the recent given information from World Health Organization (WHO) which demonstrates the possibility of infection for whom are exposed to virus-infected air outdoors. So we had to think of measures to prevent the spreading of this infected air. finally we designed a two layered elevation with a planted gap between, which has an opening on itself that conducts the infected air to the top of the roof.



## Plants and the Patio

due to the lethargy and narcosis feelings which patient scrimmage with during the quarantine, we had to consider some carefree and uplifting activities such as breeding and watching the plants spotted in front of the window. One of the benefits of raising or taking care of plants is the positive feeling they give to the person. These patients experience a high level of hopelessness which directly affects their attitude to being recovered so watching the growth and floriferous of an alive creature all the day probably would heighten the life expectancy level. so we decided to design a patio containing special plants which can absorb viruses and exhale oxygen! this surprising information about these plants were proved by NASA!



# Quarantine Pod Design

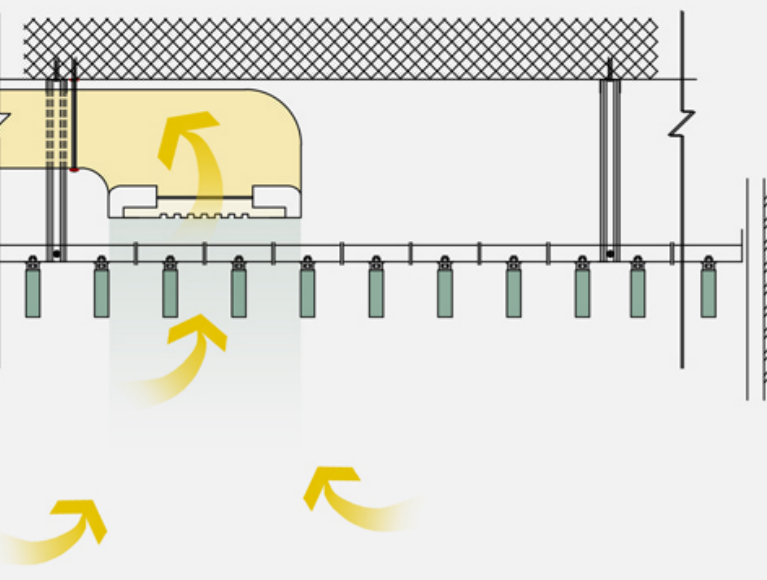
by Negar Soleimanpour, Fatemeh Heidari, Bahar Saebi safa

## false ceiling of wooden louvers

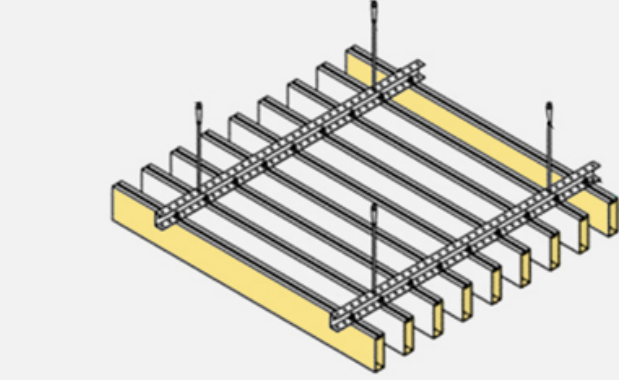
Due to the use of ducts to pass air, we used a false ceiling in the form of wooden louvers:

The installation of these roofs is very simple and fast.

To install a wooden Louvre false ceiling, you must first install the carriers holding the wooden Louvre blades, which are usually made of galvanized material and are installed directly on the roof. Then the studs, which are usually made of galvanized, iron are installed. After installing the main carriers and holders, the wooden blades of the Louvre are installed.



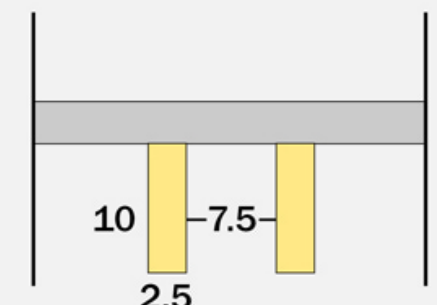
Infrastructure is one of the most important parts of the installation. In fact, these structures are the connection between the main roof and the false roof and are usually executed in two lines perpendicular to each other.



Advantages of using Thermowood in wooden Louvre false ceilings:

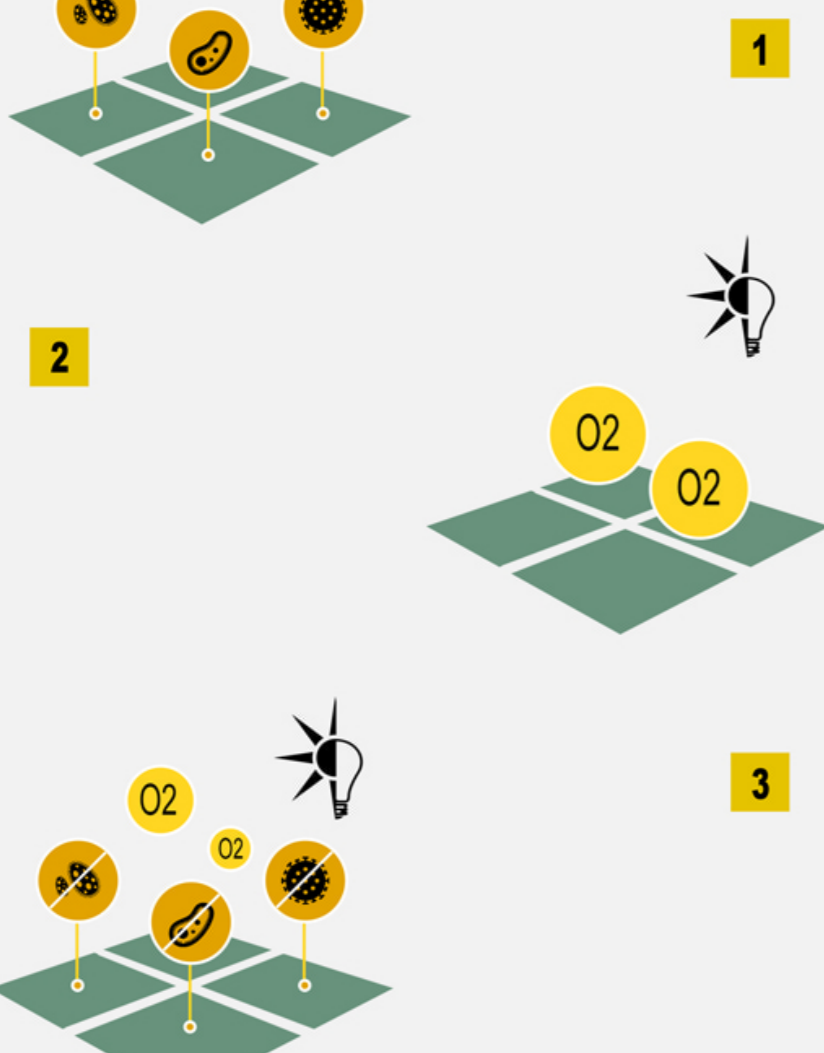
- Eco-friendly,
- Moisture and sound insulation
- Resistant to decay and all kinds of insects and environmental factors
- It is very resistant to abrasion and discoloration.
- Easy to clean
- Comfortable maintenance
- Ability to cut to desired dimensions and shapes
- Thermal insulation
- Layer covering building facilities and equipment
- Low cost to repair
- light
- Revive the sense of intimacy in space
- recyclable

We used wooden louvers with a size of 10 x 2.5 cm. And then we placed them at a distance of 7.5 cm from each other.



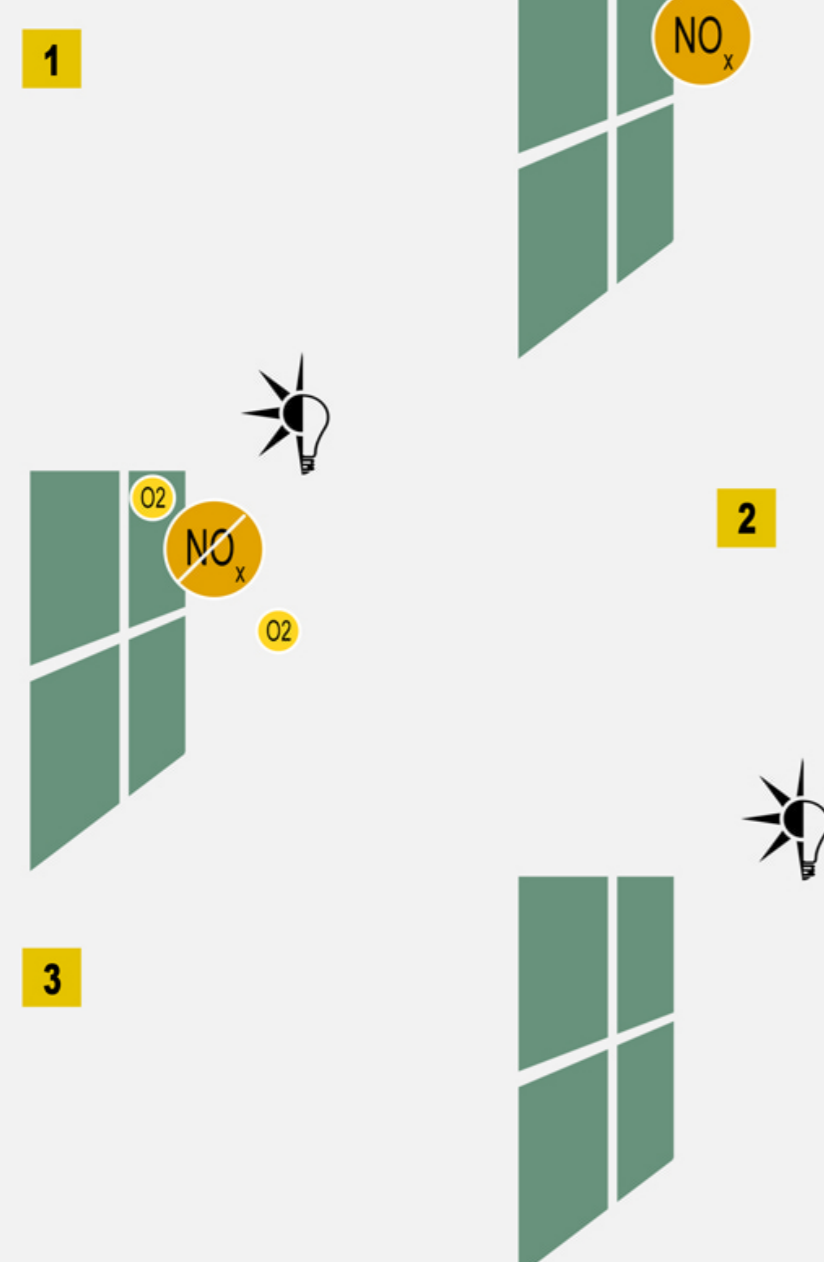
## Hytect technology

Hytect is a surface coating that AGROB BUCHTAL applies to ceramic tiles, permanently burning it into the ceramic surface at high temperatures. All of the beneficial properties of Hytect surface coating last for the entire life cycle of the tiles and can be used in a wide variety of areas.



## Protect against bacteria

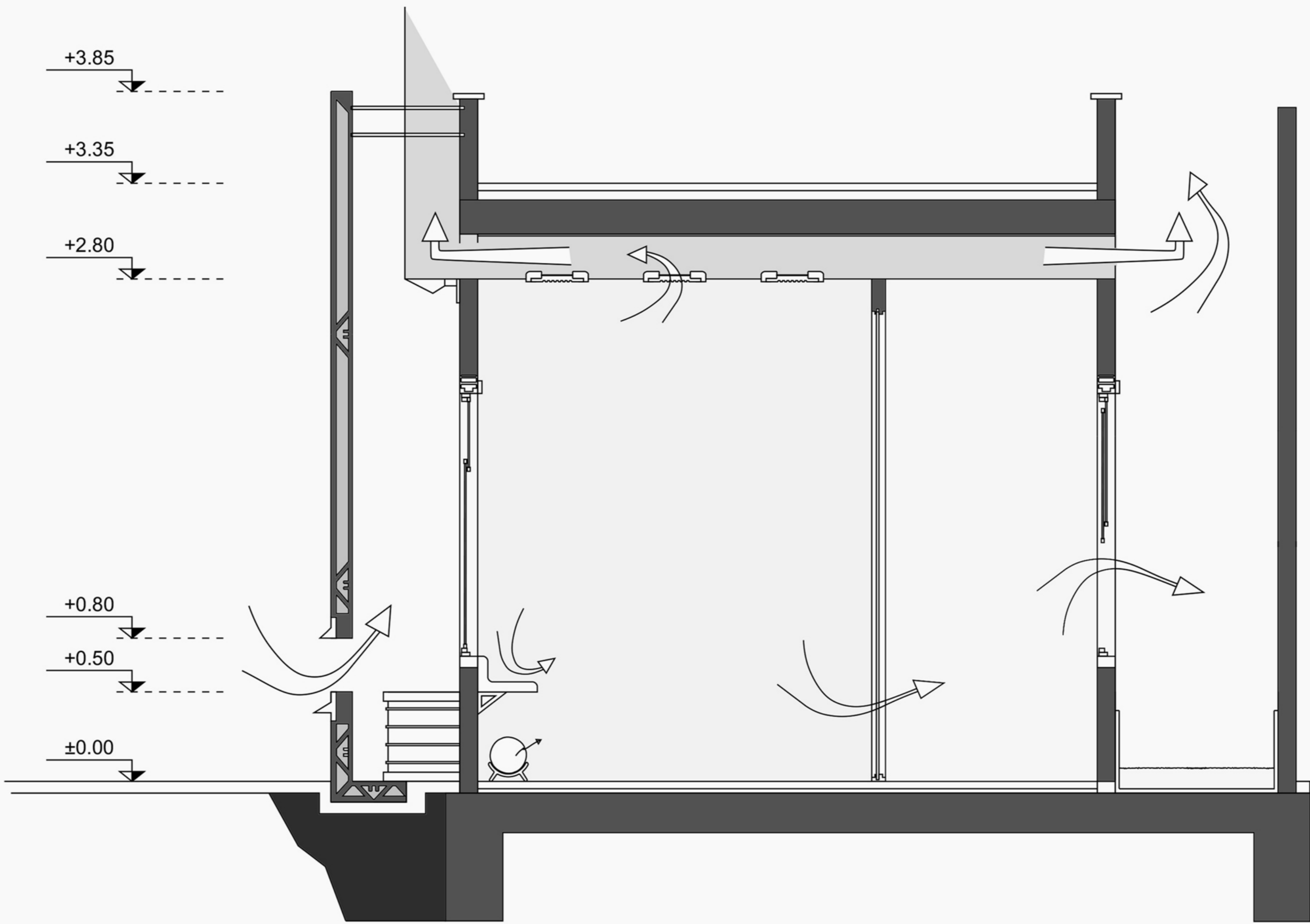
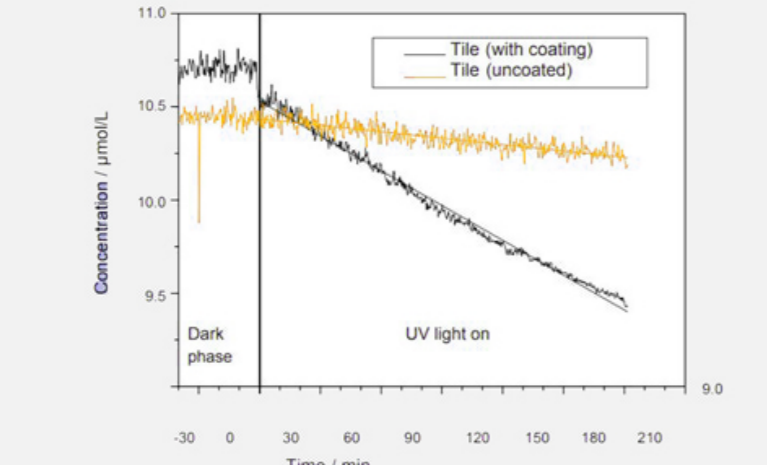
The antibacterial effect of the surface kills bacteria, mould and germs. Oxygen is activated when Hytect interacts with light, which breaks down the microorganisms. This not only happens with bacteria, mould and algae indoors but also with algae and moss outside



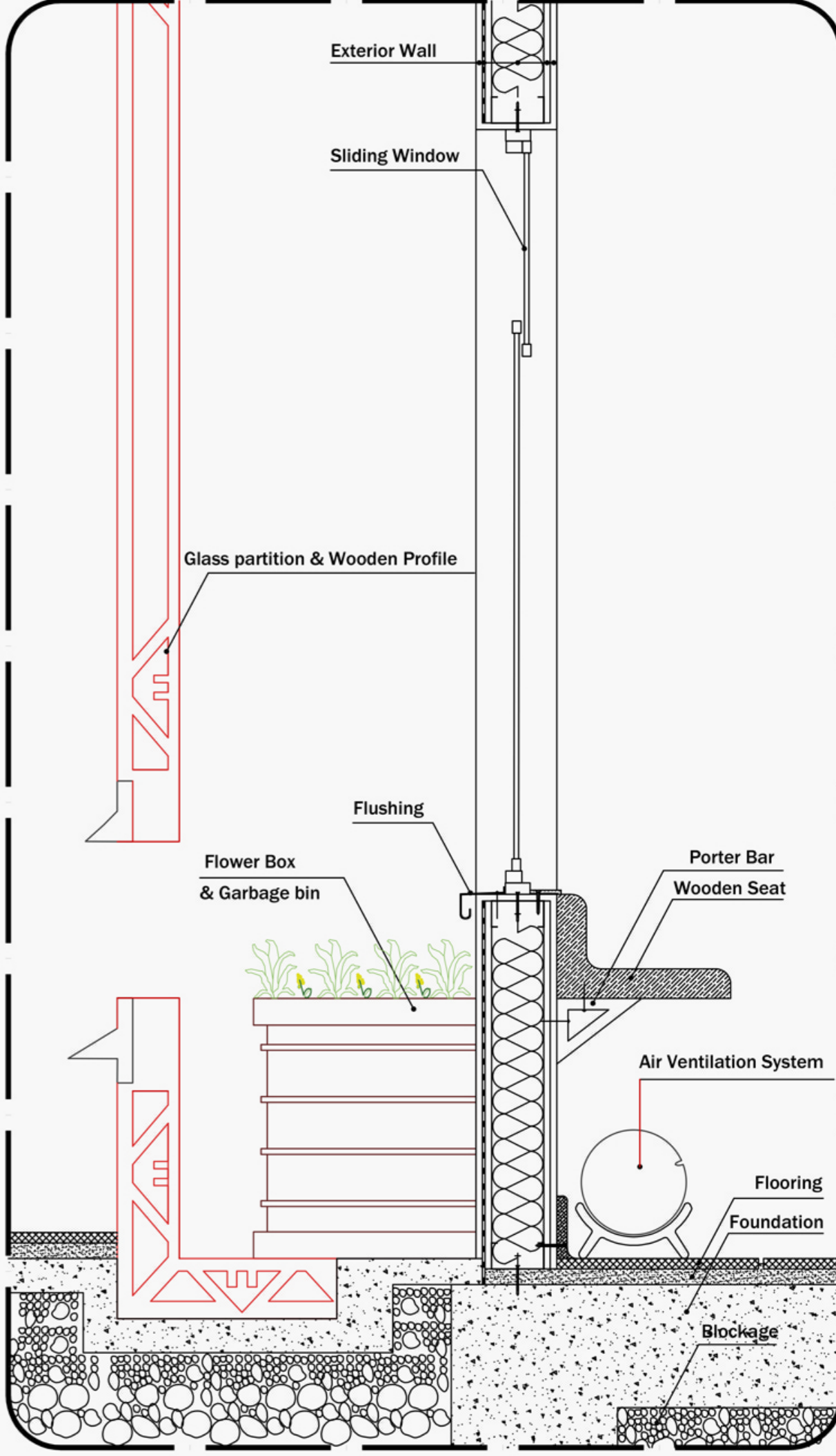
## Improve Indoor & Outdoor climate

Hytect activates an air-purification process during which pollutants such as formaldehydes are neutralised. Tiles already represent a pleasant floor and wall covering as they do not emit any vapours. This has a positive impact in modern buildings in particular which are practically air-tight thanks to insulation.

Hytect facades neutralise pollutants such as NOx or formaldehyde over the entire life cycle of AGROB BUCHTAL ceramic tiles and actively ensure an improved outdoor air quality. A clean solution for cities and people.

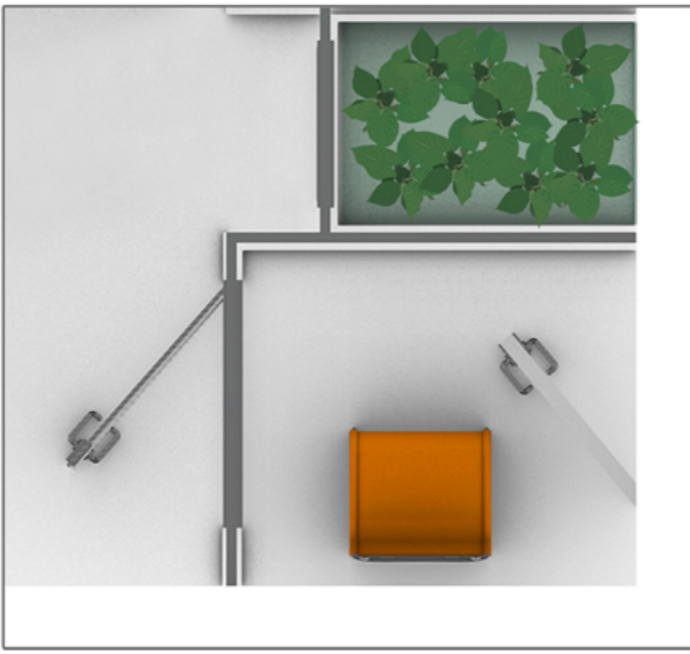


Technical Section

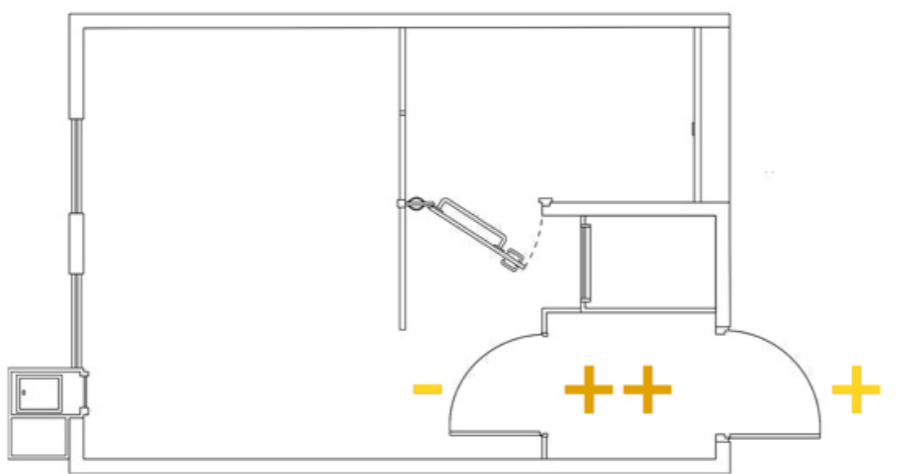


Wall Section  
SC:1/10

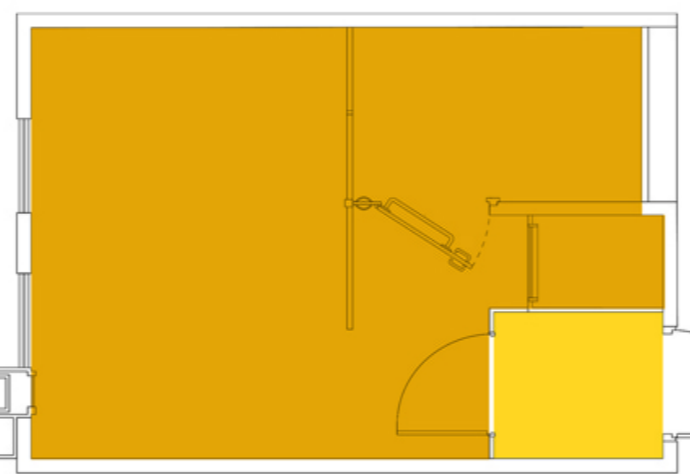
Being able to communicate family members who are outside the quarantine facilities.



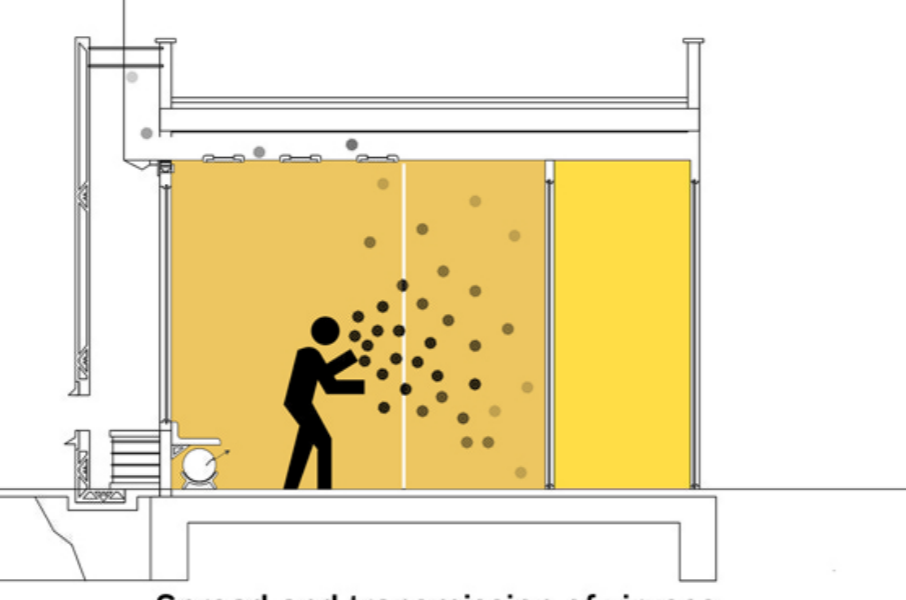
One of the solutions we made due to the contact limitations is the transparent protected area which is subjected to high pressure air. This area could be used by other family members who want to safely contact the patient or the medical team who want to collect the patient's symptoms also it could be used by a psychologist who would want to visit the patient and talk



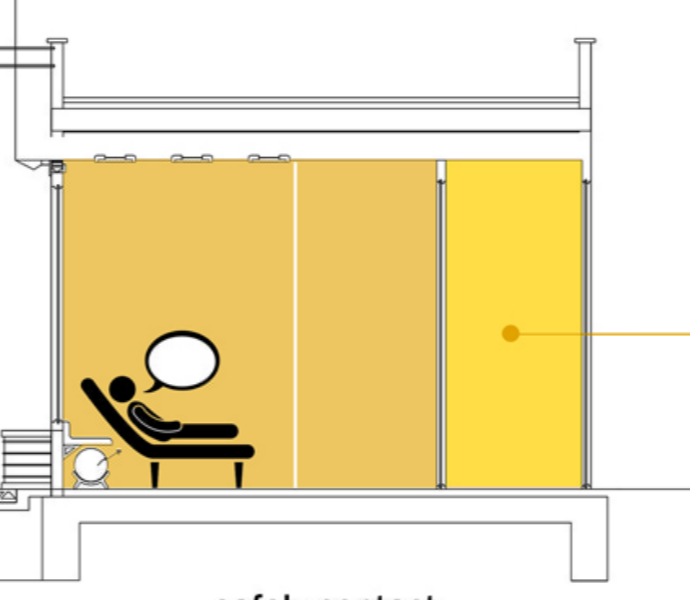
Create pressure



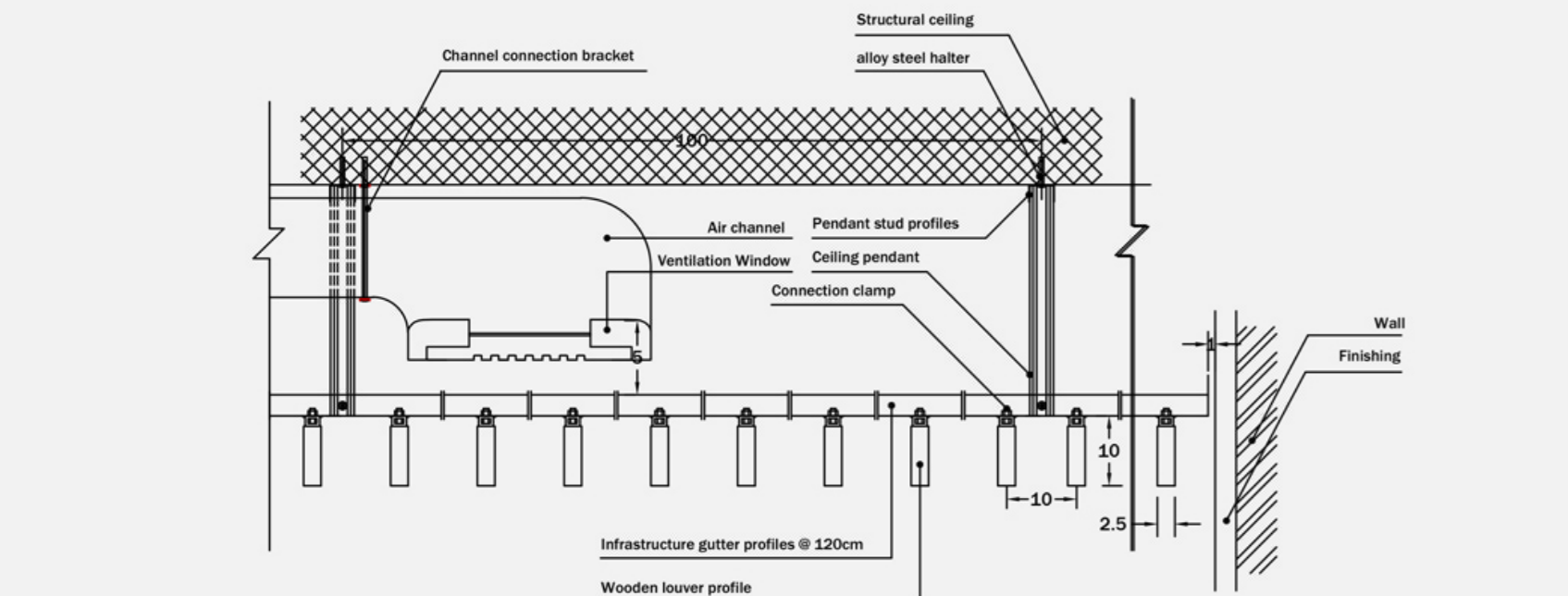
Separating healthy and unhealthy spaces



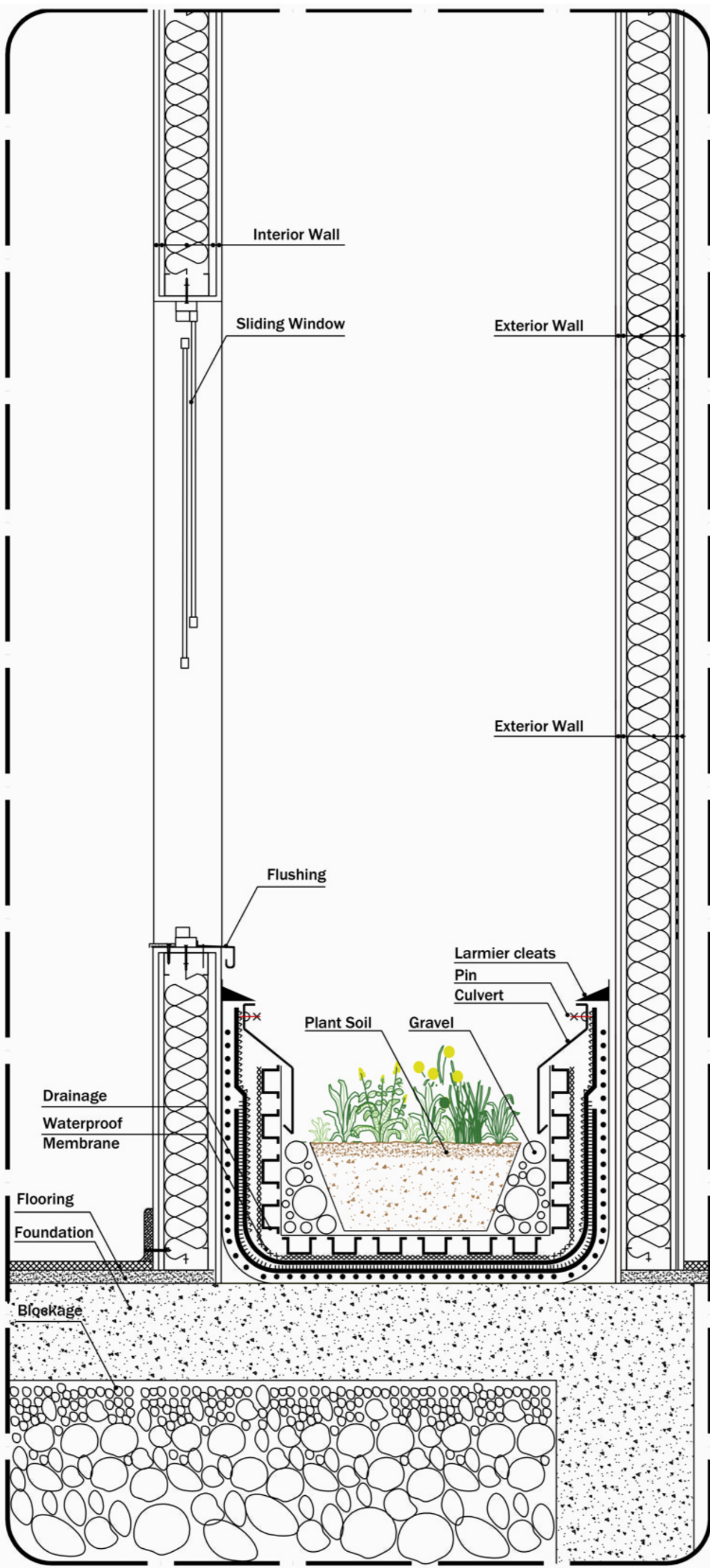
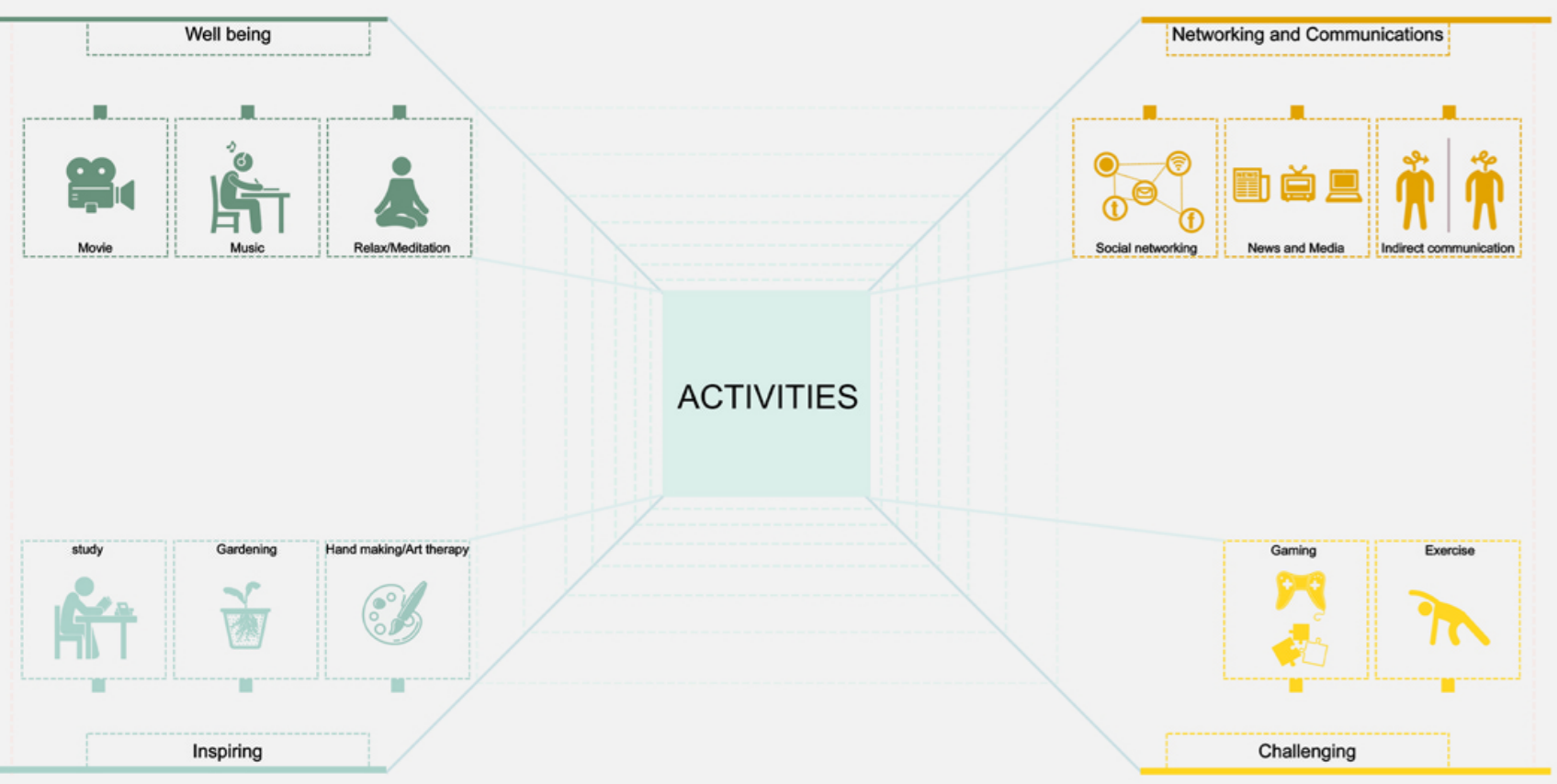
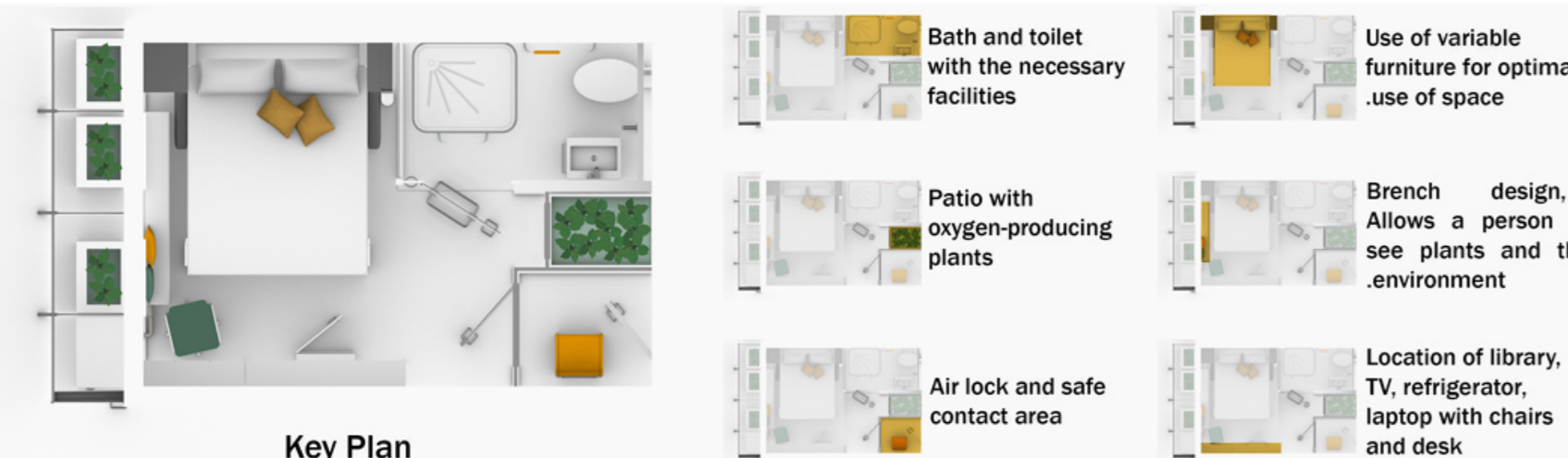
Spread and transmission of viruses



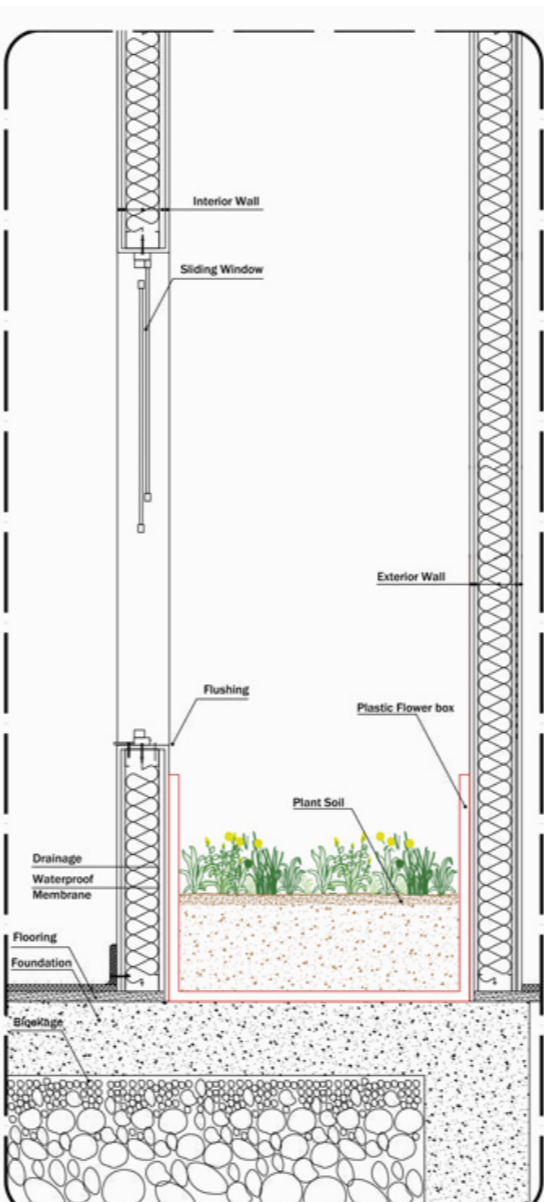
safely contact



False Ceiling Details  
SC:1/10



Wall Section  
SC:1/10

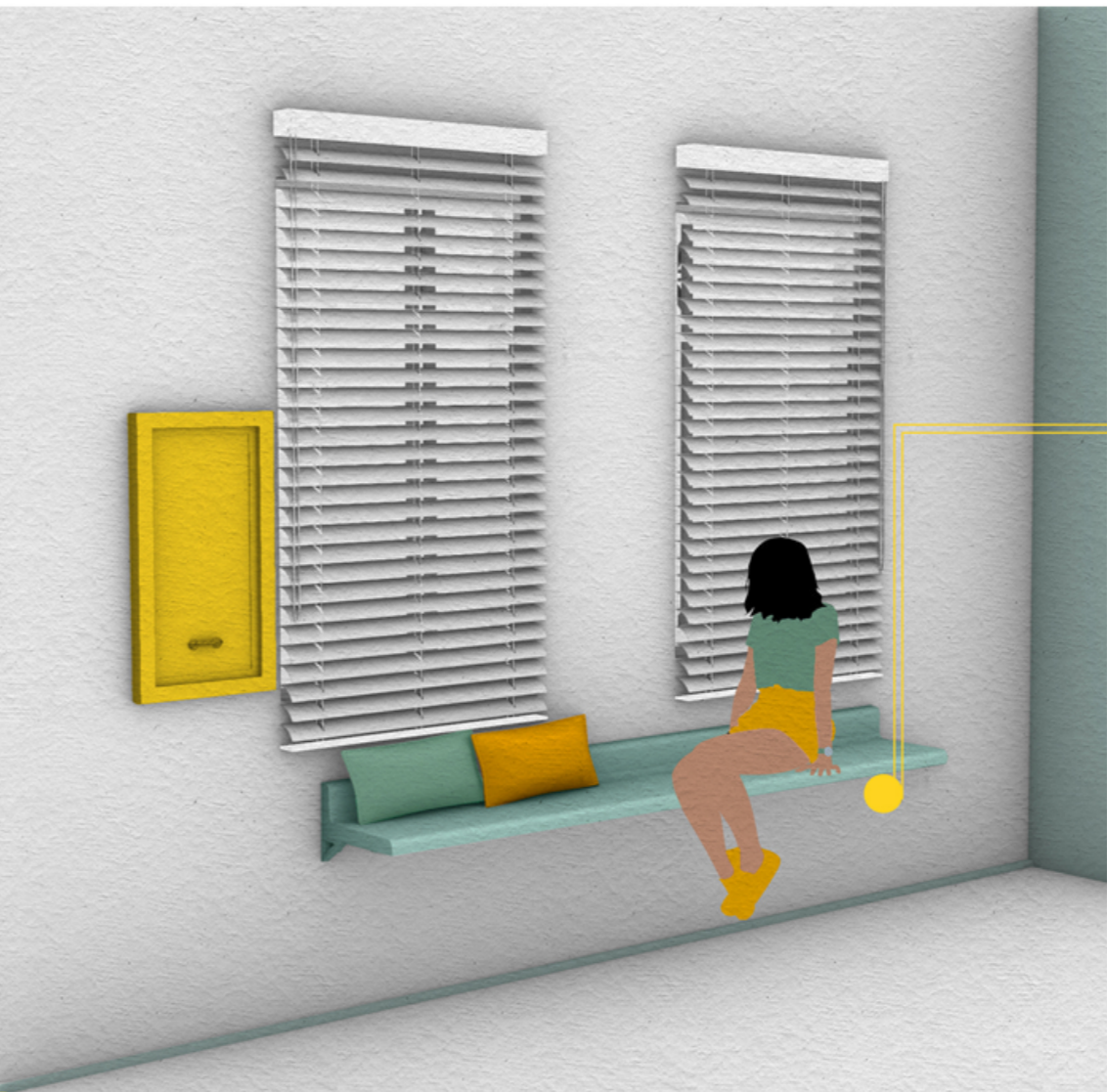


The second idea

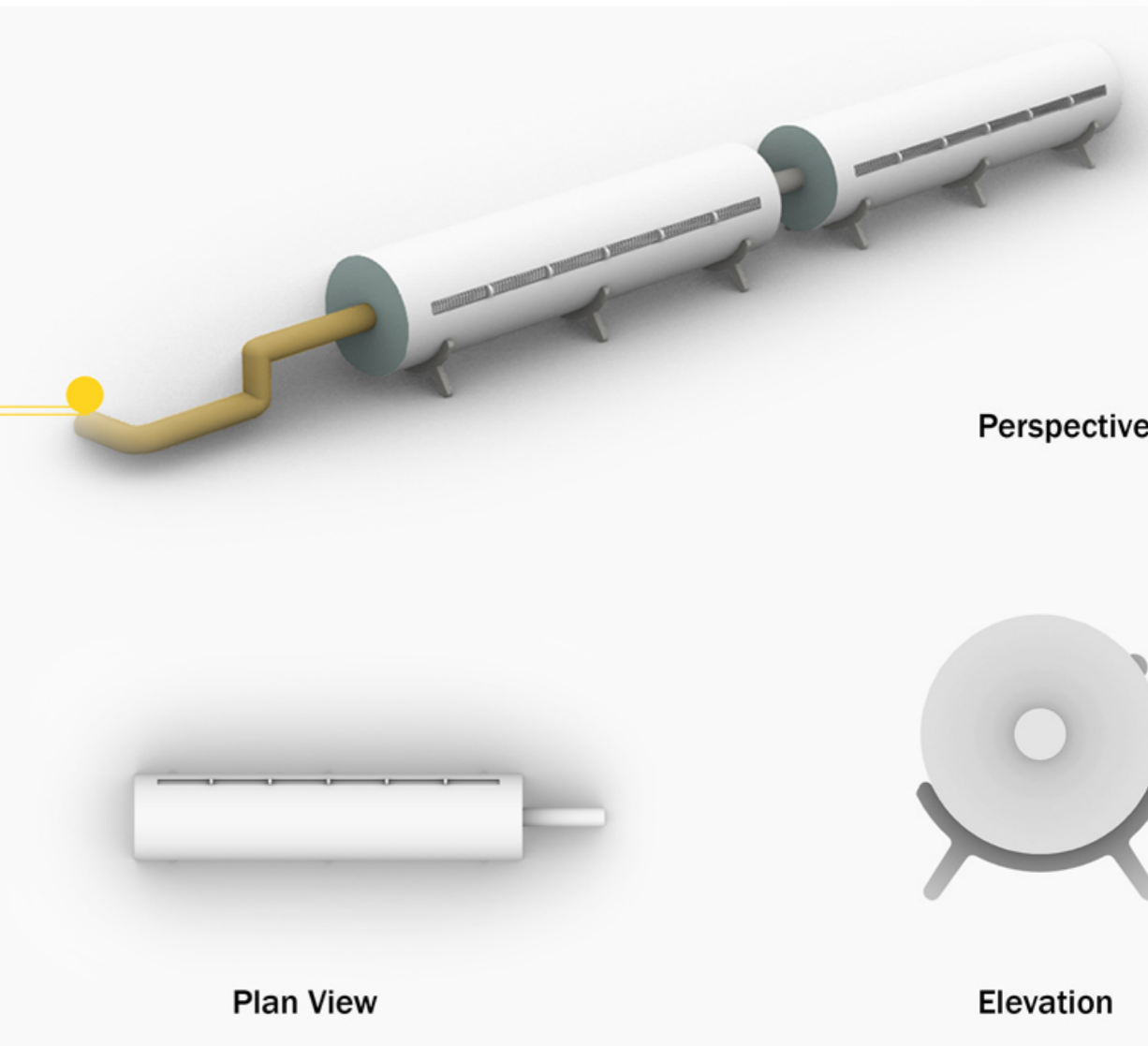
The first idea

As referred before, due to the patients mental needs we decided to design this patio as a practical response to the lethargy and narcosis feelings which patient scrimmage with during the quarantine period. This patio contains special plants which can absorb viruses and exhale oxygen.

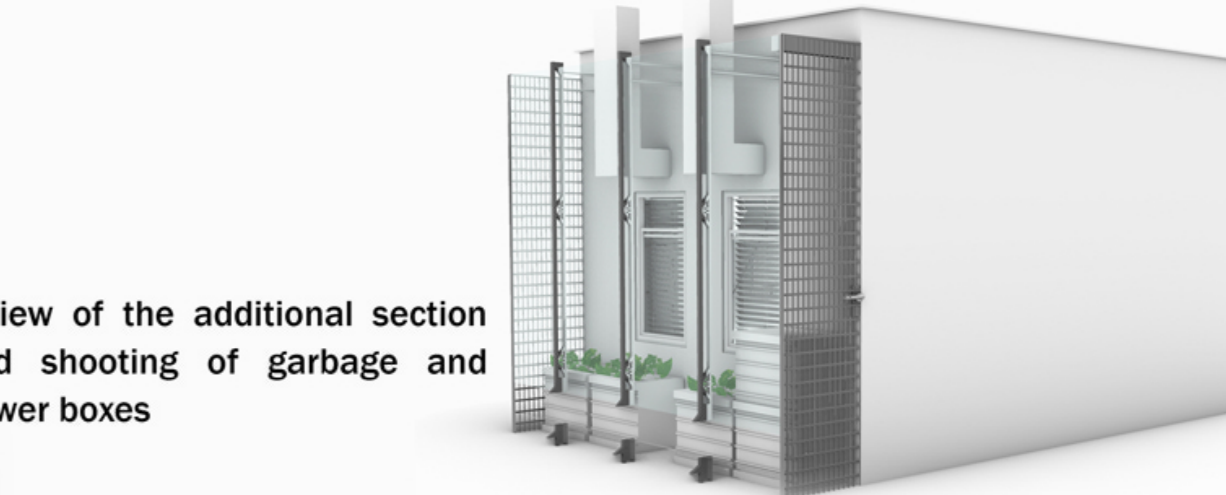
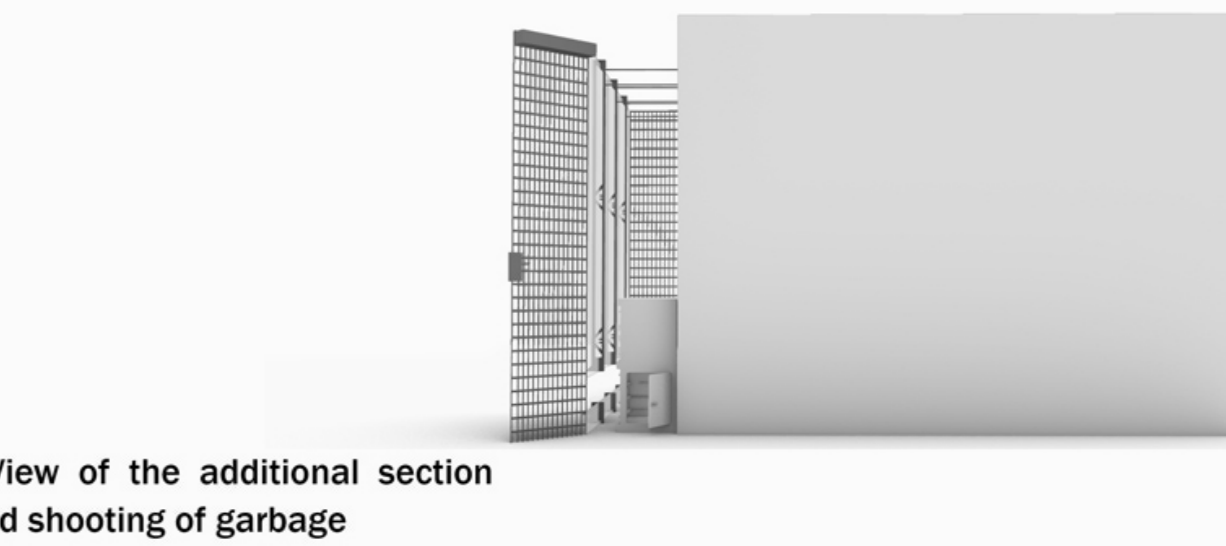
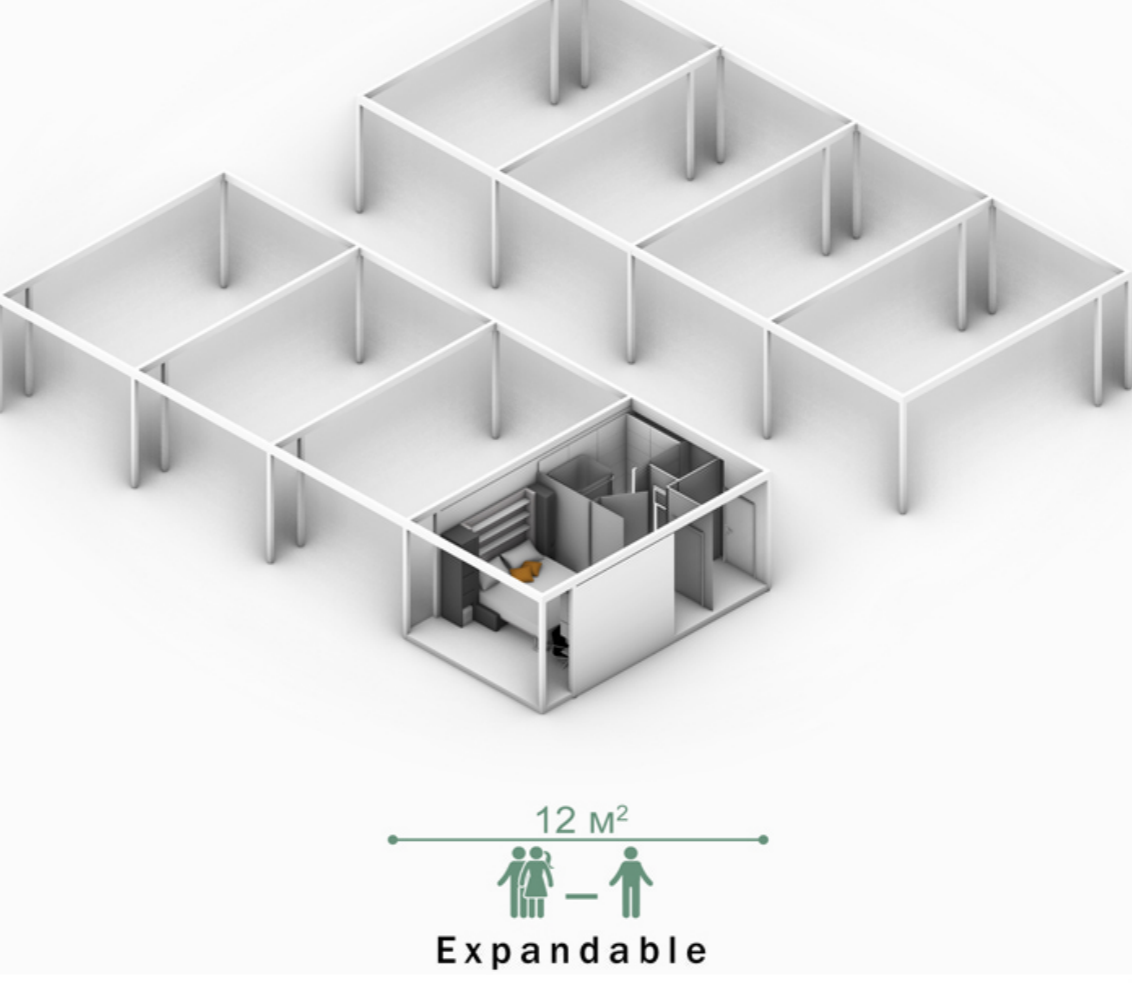
But there was a limitation which would maybe cast some doubts on the applicability of the layered structure in a short and limited time. Finally we decided to design 2 alternatives which perform both fast and slow construction in patio area. The first one is constructed as regular patios with layered materials including insulation and etc. and the other given alternative would be constructed in a fast way as like as other prefabricated structures.



The interior air ventilation is supported by oxygen generator and the filtration is done by HEPA filters which are placed under the couch, the best spot for completing the air circulation cycle.



Due to the designing requirements stating that we have to design a unit that is constructable in 3 main categories consisting residential, therapeutic and tourism hospitality, we decided to design an expandable unit which can be extended in emergency situations. This unit is executable at homes, hotels and hospitals which are willing to visit and care for covid19-infected patients.



## Antibacterial coating for glass

This product is an antibacterial and antifungal coating specially designed for glass substrates. The appearance of the paint is colorless and transparent, and the antibacterial function is realized on the basis of retaining the original color and style of the substrate. This product is an antibacterial and antifungal coating specially designed for glass substrates.

Water-based paint, safe and environmentally friendly, odorless, colorless and transparent appearance, does not affect the color appearance of the substrate; Excellent adhesion; The antibacterial effect is strong, and the antibacterial rate of large intestine, golden grape, Bai Nian, etc. is over 99%; Long-lasting efficacy, ultraviolet light irradiation for more than 100 hours, antibacterial does not decay; The method of use is flexible and can be cured at room temperature.

Depending on the characteristics of the substrate, the spraying method was selected.

In a normal temperature environment, the surface is dried for 20 minutes.

It can prevent the growth of a variety of bacteria. The appearance of the paint is colorless and transparent.

