

Spaces for Hope

In what ways can community spaces be used to foster preparedness among residents in anticipation of a predicted earthquake in Istanbul?

Explore Lab | Presentation Five | June 2024

Leyla van der Waarde

Problem Statement

“Experts are in no doubt
that the Bosphorus metropolis,
with its population of at least 16 million,
is facing a major earthquake.

The question is not if it will happen, but when?”

- Marco Bohnhoff, German Earthscientist (2023)

Problem Statement

“While the number of earthquakes has not increased, the numbers of disasters caused by earthquakes and the numbers of people affected by earthquakes have been steadily increasing.”

- *Jenny Chandler, AF8 Research Assistant (January, 2023)*

Problem Statement

“Earthquakes are a global phenomenon, occurring irregularly and varying in magnitude in various regions. The impact of earthquakes differs significantly on multiple scales”

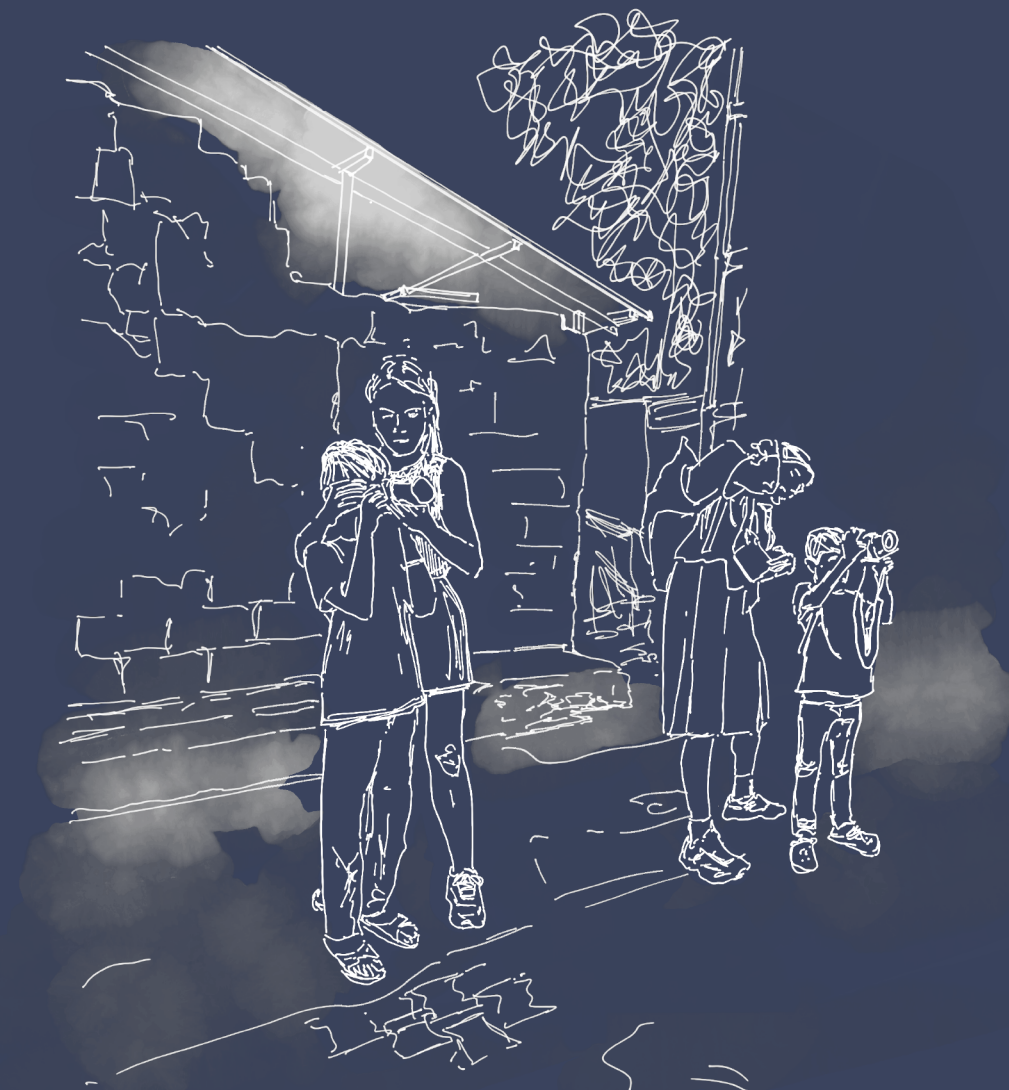
**“The result of earthquakes on cities,
is called a disaster”**

- UNISDR (2009)

Problem Statement

**“Design got us into this mess, so how can design help us
out of this mess?”**

-
van Manen, information designer “Design for Emergencies” (2023)



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Fascination

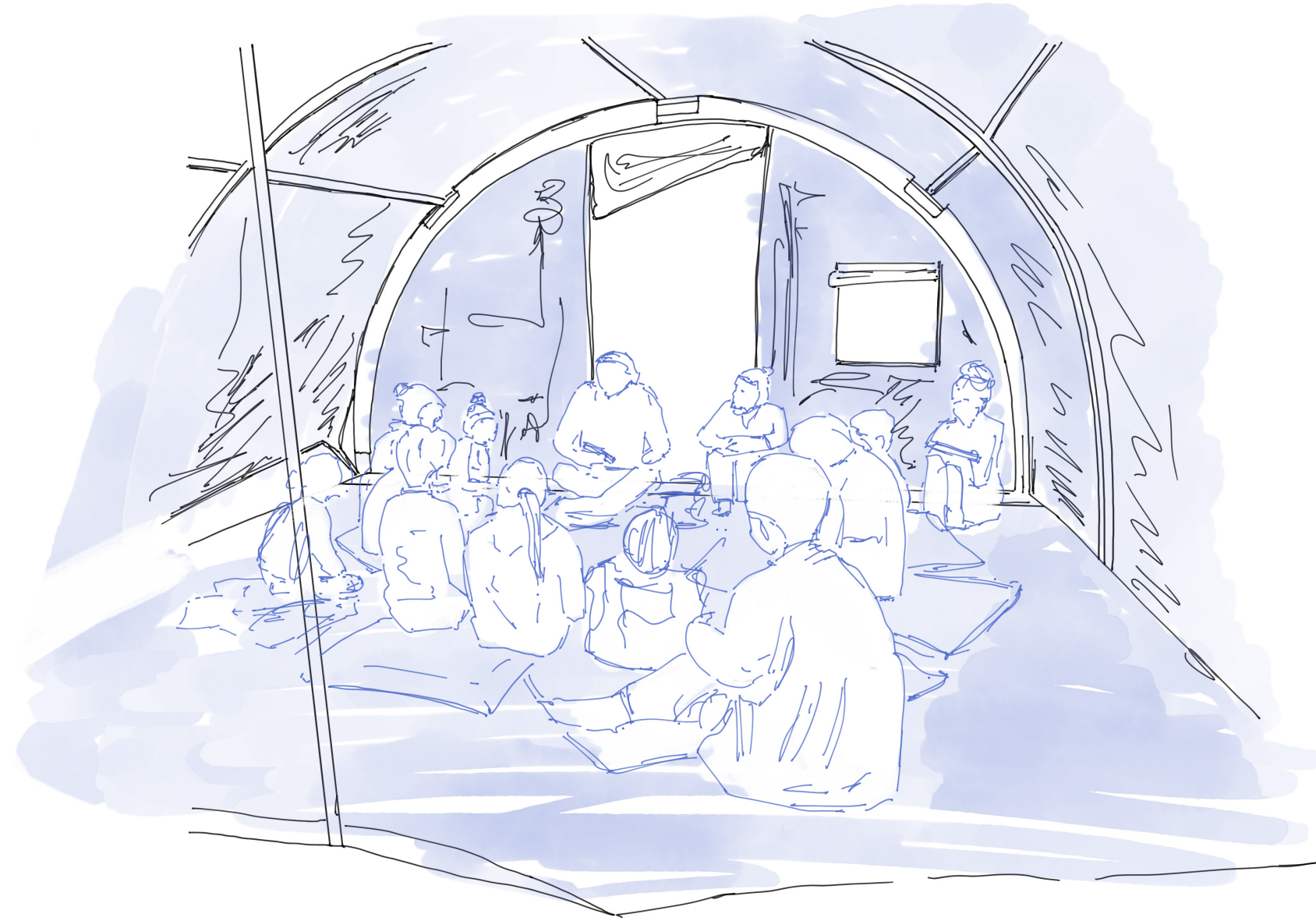


The Architectural Recovery Team documenting the destruction
in Antakya, Türkiye together with local children.

July 2023



Graduation Project



The Architectural Recovery Team observations, community coming together after Earthquake Kahramanmaraş.

July 2023

CONTENT

- (1) Introducing Kanarya's Kitchen
- (2) Earthquake preparedness
- (3) Healing after a disaster
- (4) Conclusions & reflections

Introducing: Bizim Mutfađımız

Design of Kanarya Community Kitchen

Istanbul, Türkiye



Photographs Istanbul, December 2023

Istanbul, Türkiye



Photographs Istanbul, September 2019

Istanbul, Türkiye



Küçükçekmece, Istanbul



Location Küçükçekmece, 2024



The neighbourhood: buildings



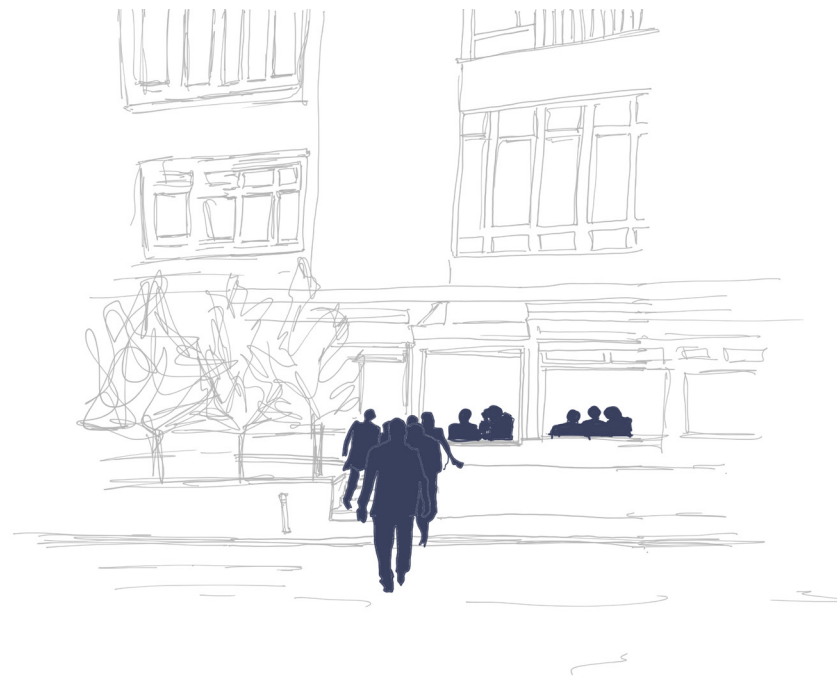
The neighbourhood: inhabitants

71.000 Residents

Migration Area - Most people have lived there 10-15 years

Most people coming from Syria, Afghanistan, Iraq and Iran

(Korkmaz, Mayor Kanarya, 2011)



Restaurant/Cafe where men were playing board games and drinking tea (December 2023)

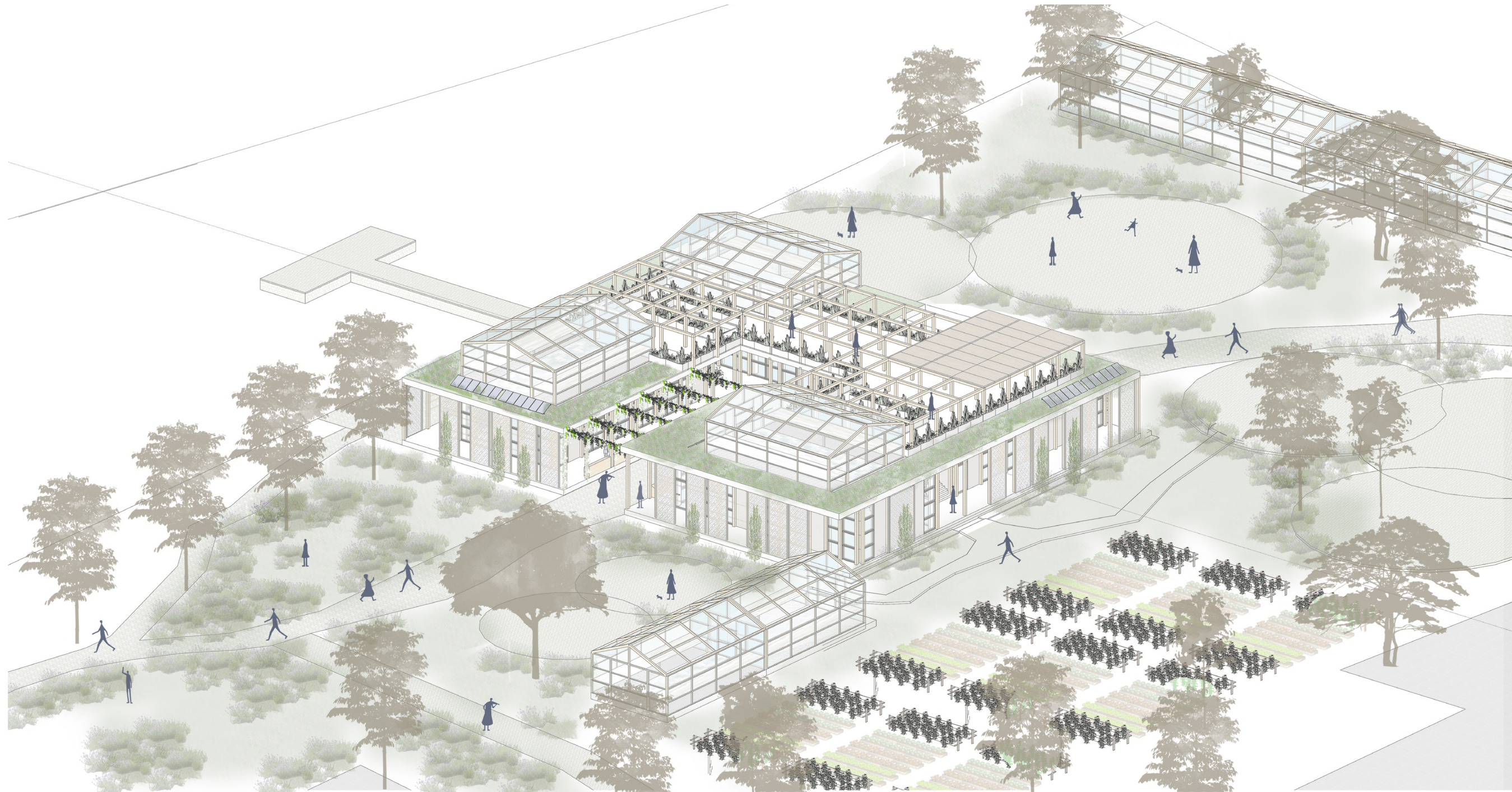


Children playing on the streets, while parents observe them from upstairs apartments (December 2023)



Women grocery shopping in outside markets (December 2023)

The neighbourhood: the new community



Marmaray Train Station



Kanarya waterside park



Gardens of Kanarya Community Centre



Spaces of Hope



Gardens of Kanarya Community Centre



Floorplan | Bizim Mutfağımız



Exhibition Area

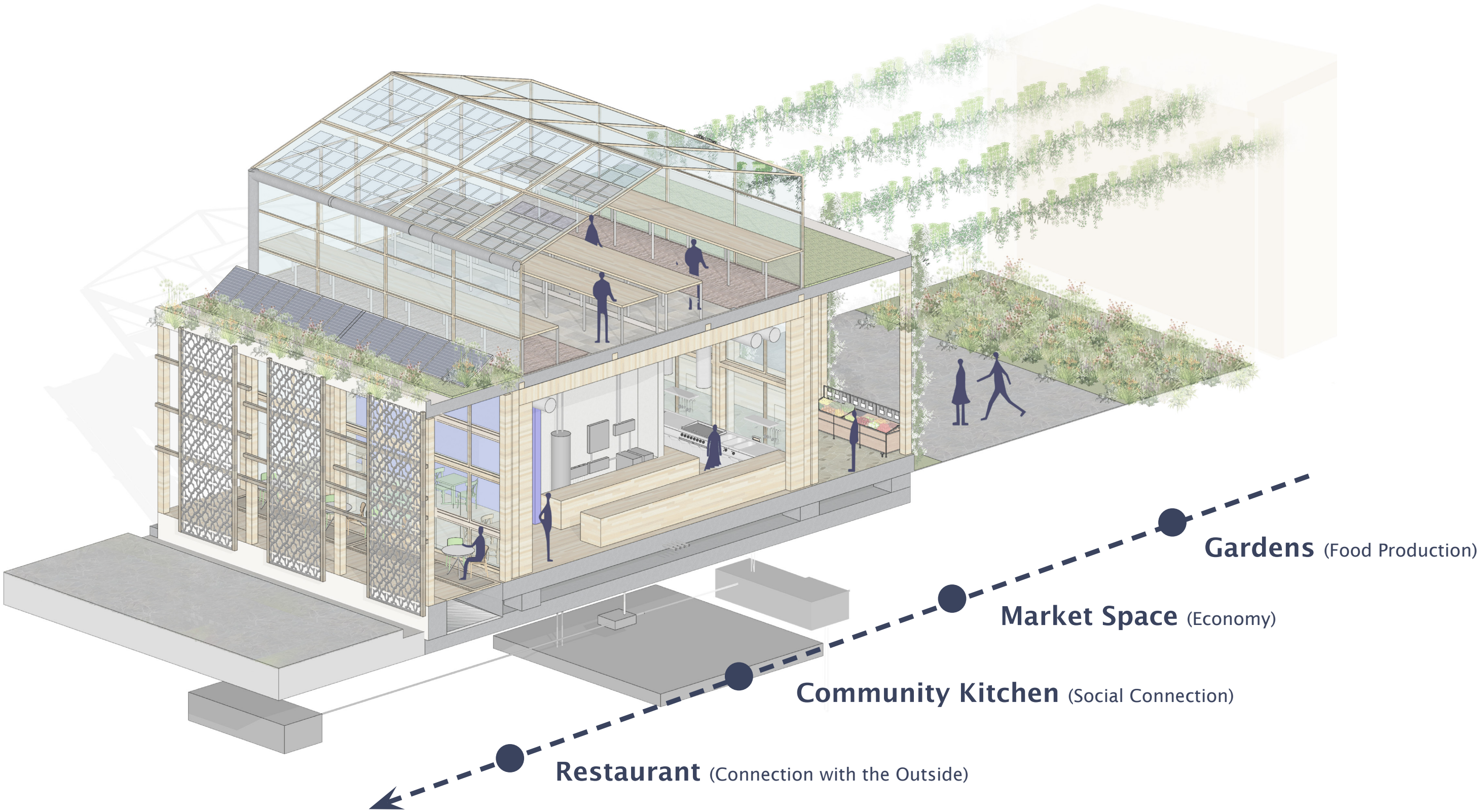


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Market

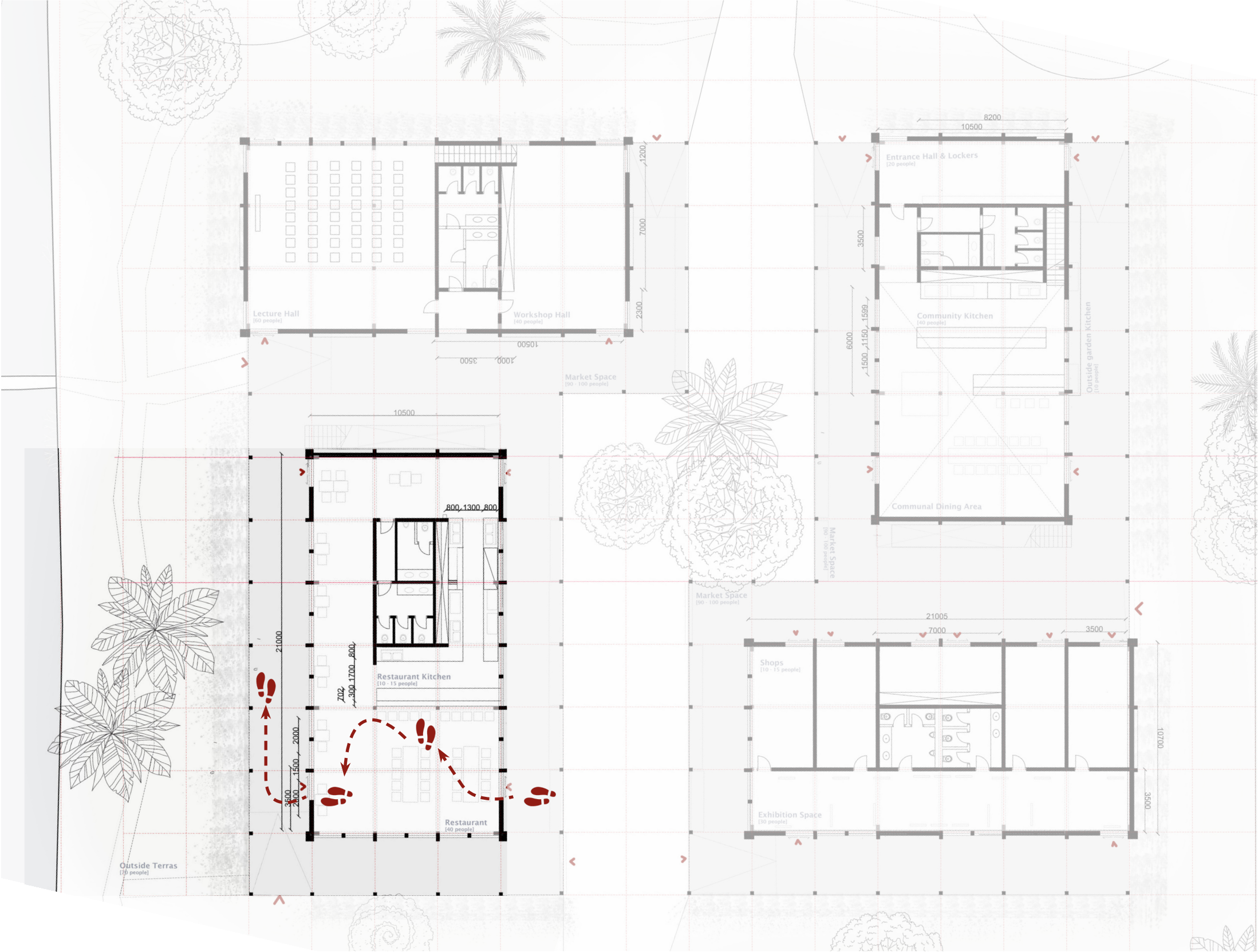


Market Space



Spaces of Hope

Floorplan | Bizim Mutfağımız



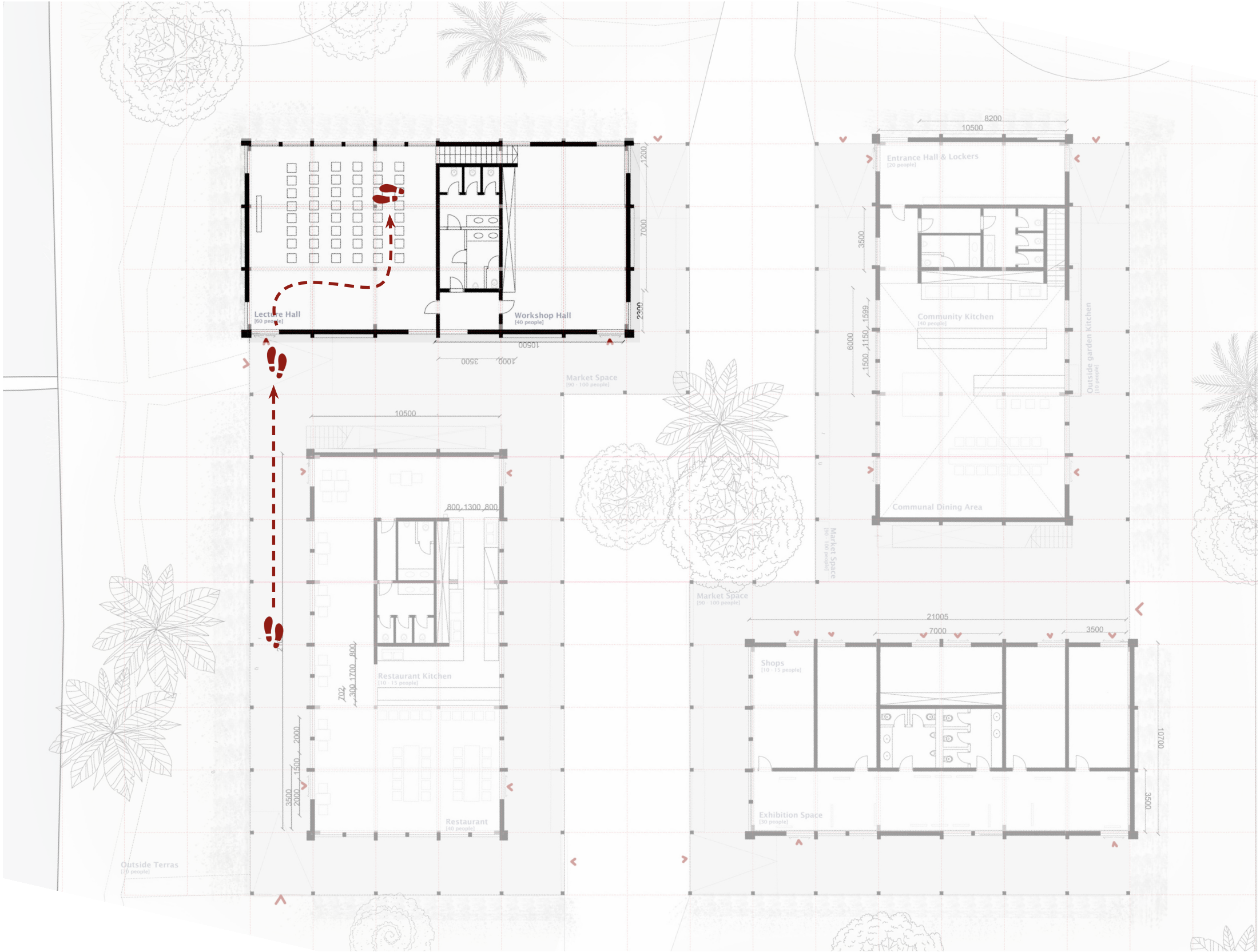
Restaurant & Terraces



View towards water



Floorplan | Bizim Mutfağımız

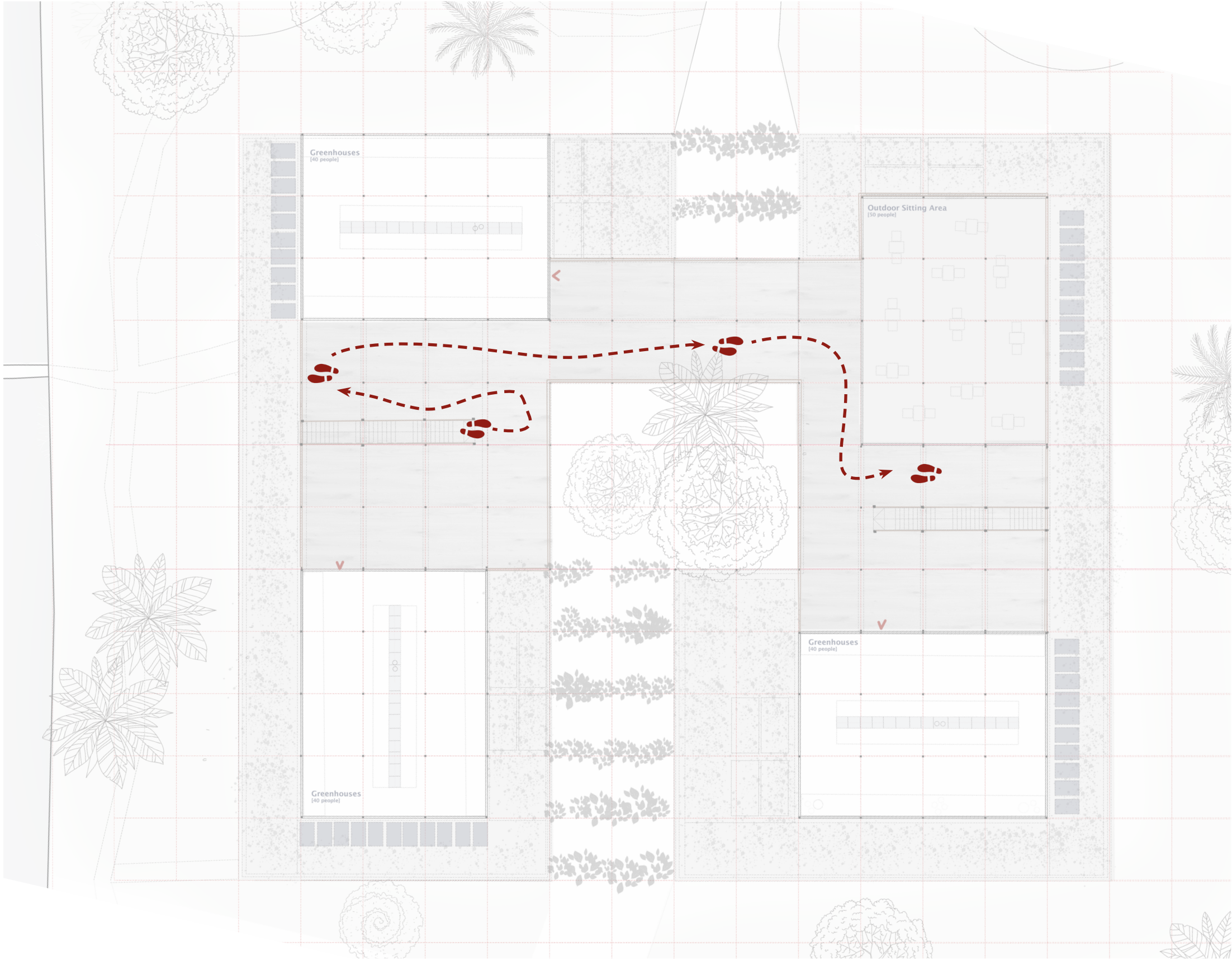


Lecture & Workshop Room



[illegible]

Floorplan | Bizim Mutfağımız



Roof Terrace



Entrance and exit way to community



Suddenly, the curtains start to move, and then the ground starts to shake
White light, dust and screams

...

The long predicted Earthquake has happened

The predicted Earthquake of Istanbul

Date: Unknown

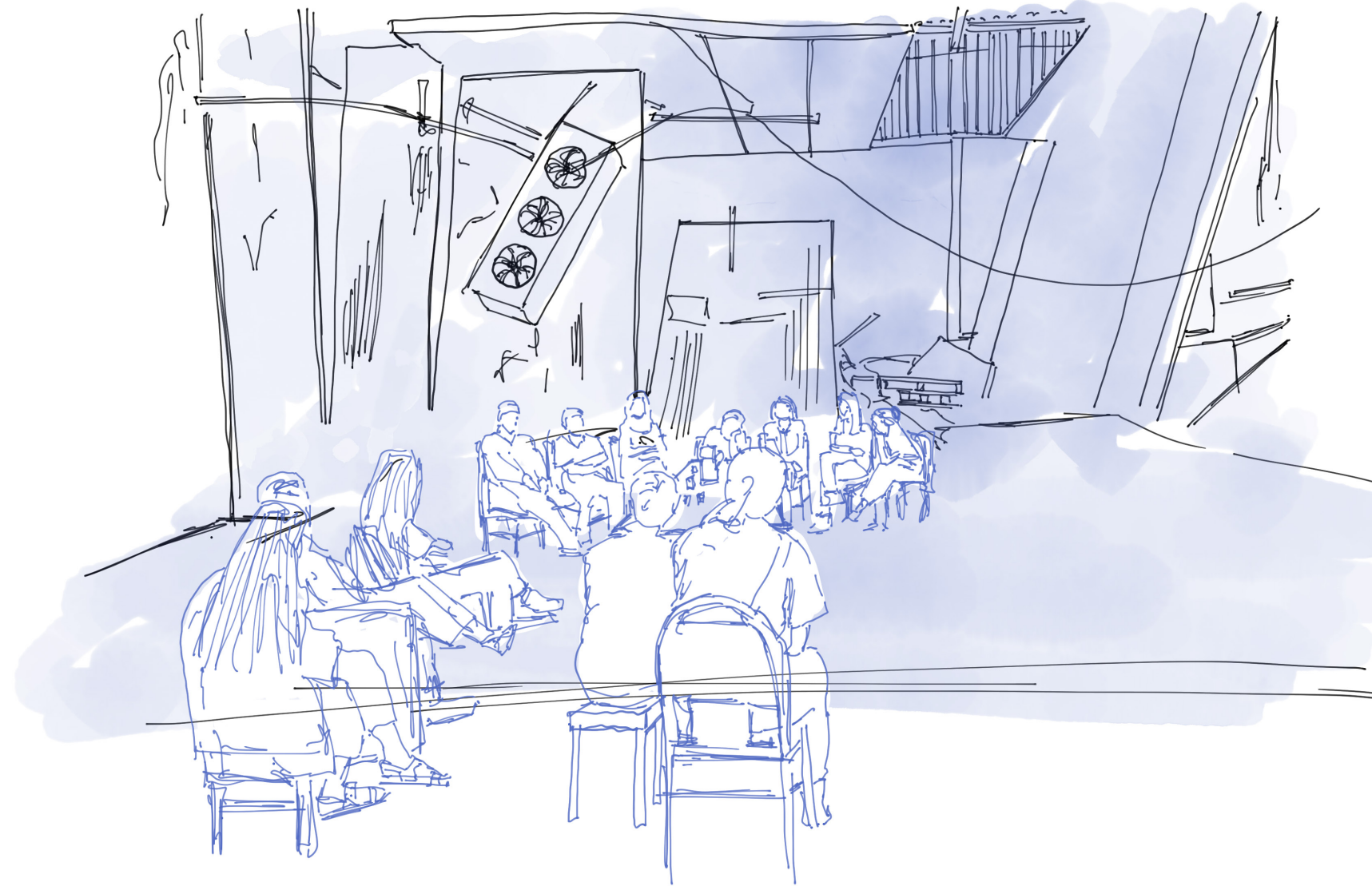


The Architectural Recovery Team documentation, destruction
in Antakya, after Earthquakes in February 2023.

July 2023

Lessons learned

Kahramanmaraş Earthquake



The Architectural Recovery Team observations, community coming together after Earthquake Kahramanmaraş.

July 2023



Research | Literature Research

In what ways can community spaces be used to foster preparedness among residents in anticipation of a predicted earthquake in Istanbul?



Research | Literature Research

In what ways can ⁽²⁾community spaces be used to foster ⁽¹⁾preparedness among residents in anticipation of a predicted earthquake in Istanbul?

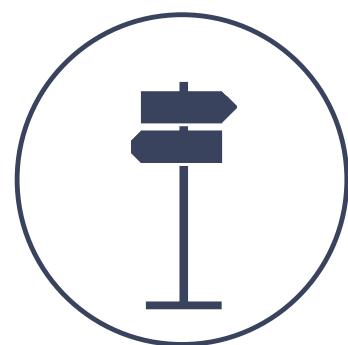
Part 1

- (1) How can communities and individuals prepare for a disaster caused by an earthquake?
- (2) How can (a community) space stimulate people and bring them together in order to take action before an earthquake?

Architectural Psychology

Architectural Psychology

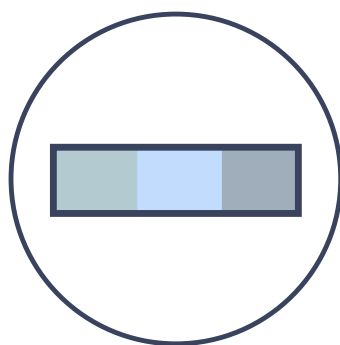
Architectural psychology explores the influence of architecture on the psychological well-being, experience and behavior of individuals. It investigates how lighting, colour, spatial layout, and materials influence occupants’ moods, productivity, and overall experience, but most importantly contribute to our memory.



Signs and clear
way finding



Contrast in buildings



Use of materials
lights and colours



Daily engagement
in space (e.g. workspaces)



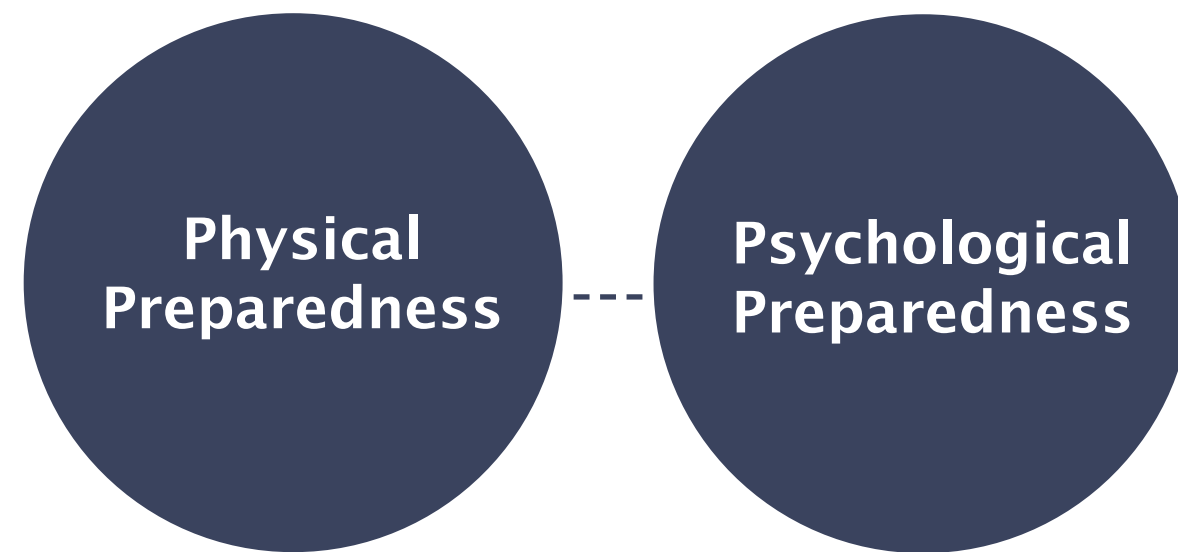
Place of belonging and
memories



Disaster Preparedness

Earthquake Preparedness

The knowledge and capacities developed by various entities, from governments, and communities to individuals, with the goal to define preparedness strategies which are designed to empower individuals to cope, adapt, anticipate, respond to, and recover from the impacts of likely disasters.



Research | Contextual Research

In what ways can community spaces be used to foster preparedness among residents in anticipation of a predicted earthquake in **Istanbul?**

(3) (4)

Part 2

(3) How has the municipality, together with AFAD, been preparing the city of Istanbul, and how far are the plans for urban transformation?

(4) Analysis of Istanbul, Küçükçekmece, Kanarya, based on the data provided by the Municipality to define weaker areas which will be affected the most during a magnitude 7.5 earthquake scenario at nighttime.



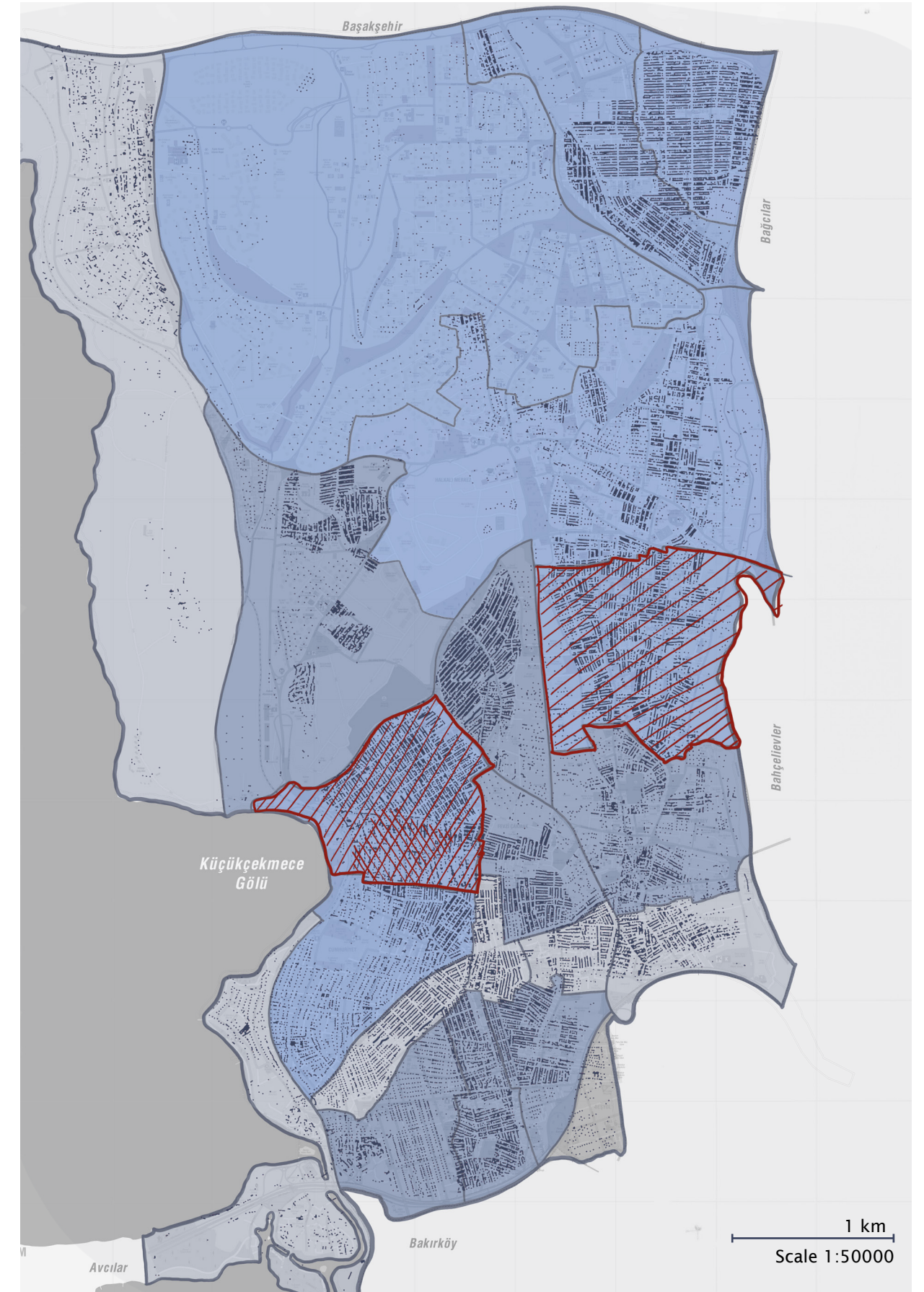
Why Küçükçekmece?

Küçükçekmece Predicted Damage Assessment

- Density
- Number of buildings
- Suitability map ground
- Disaster prediction map

*** Worst areas to live in: Kanarya (& İnönü) ***

Spaces of Hope



Why Kanarya?

(1) Building safety prediction

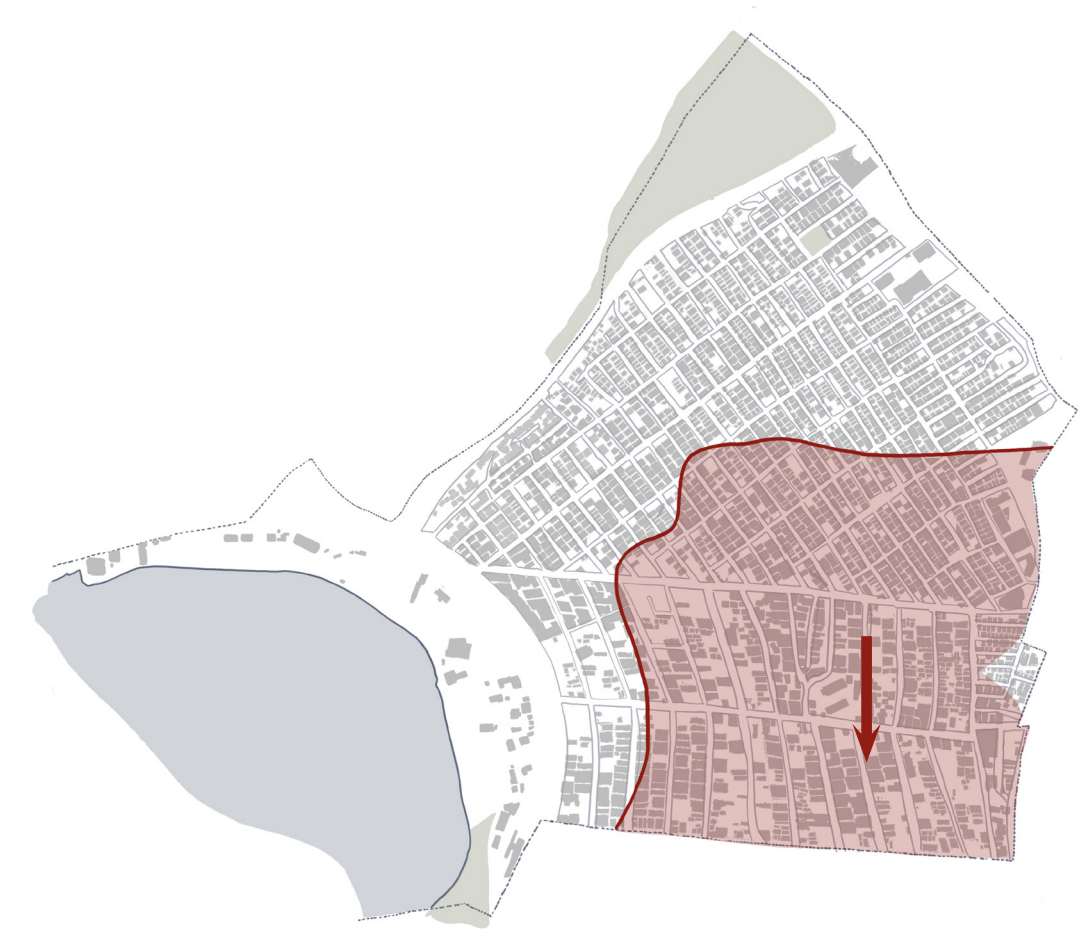
Buildings predicted to collapse during a predicted earthquake: **made out of concrete, built between 1960 - 2000, and higher than eight floors.**

* These factors are predictions from talks with Architects, Constructors and Urban Designers from the Urban Transformation office in Küçükçekmece.

(2) District suitability for settlement | 3%

 Unsuitable *

* Danger of landslides & no special measurements taken related to Earthquakes

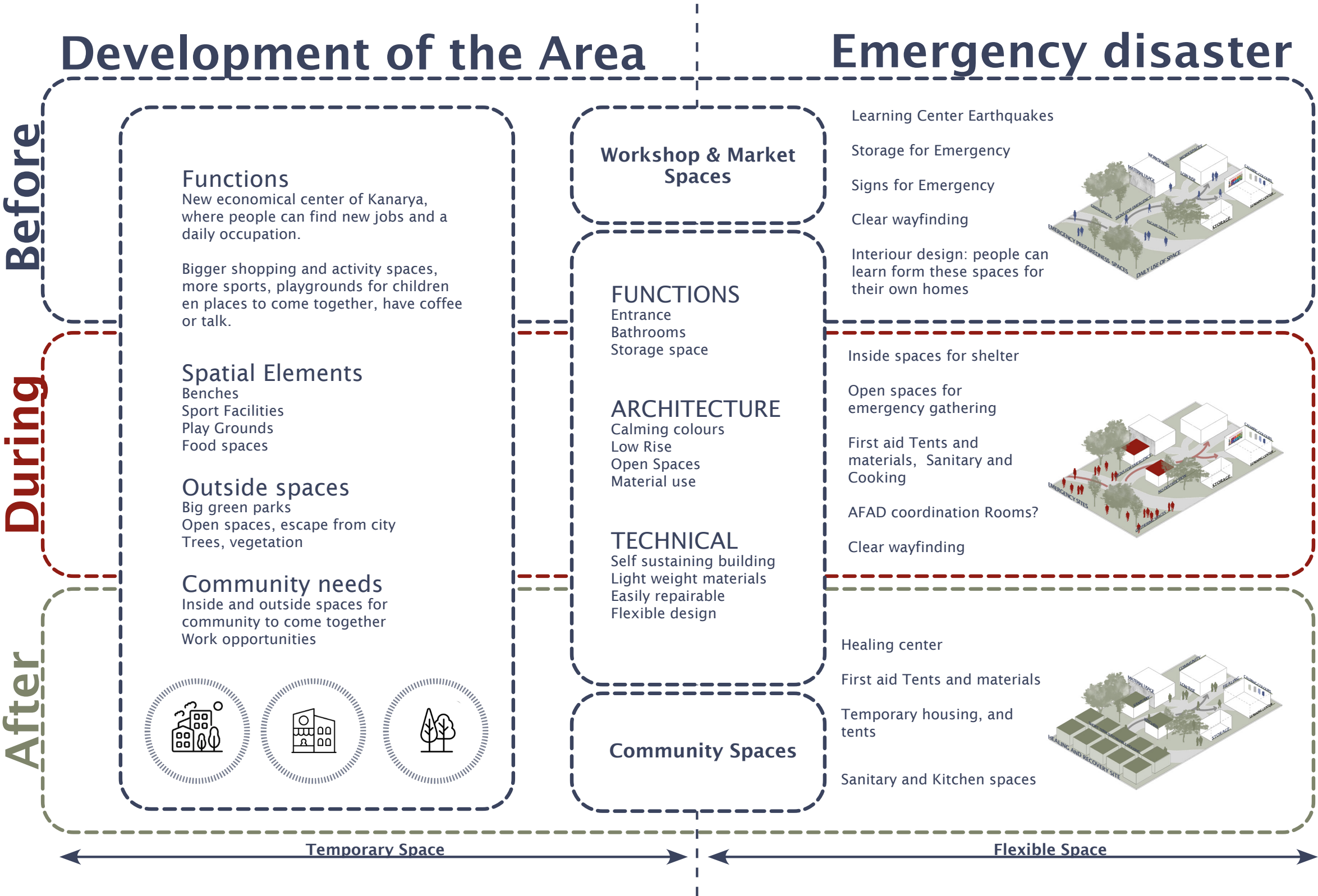


Disaster Scenario Kanarya, Küçükçekmece

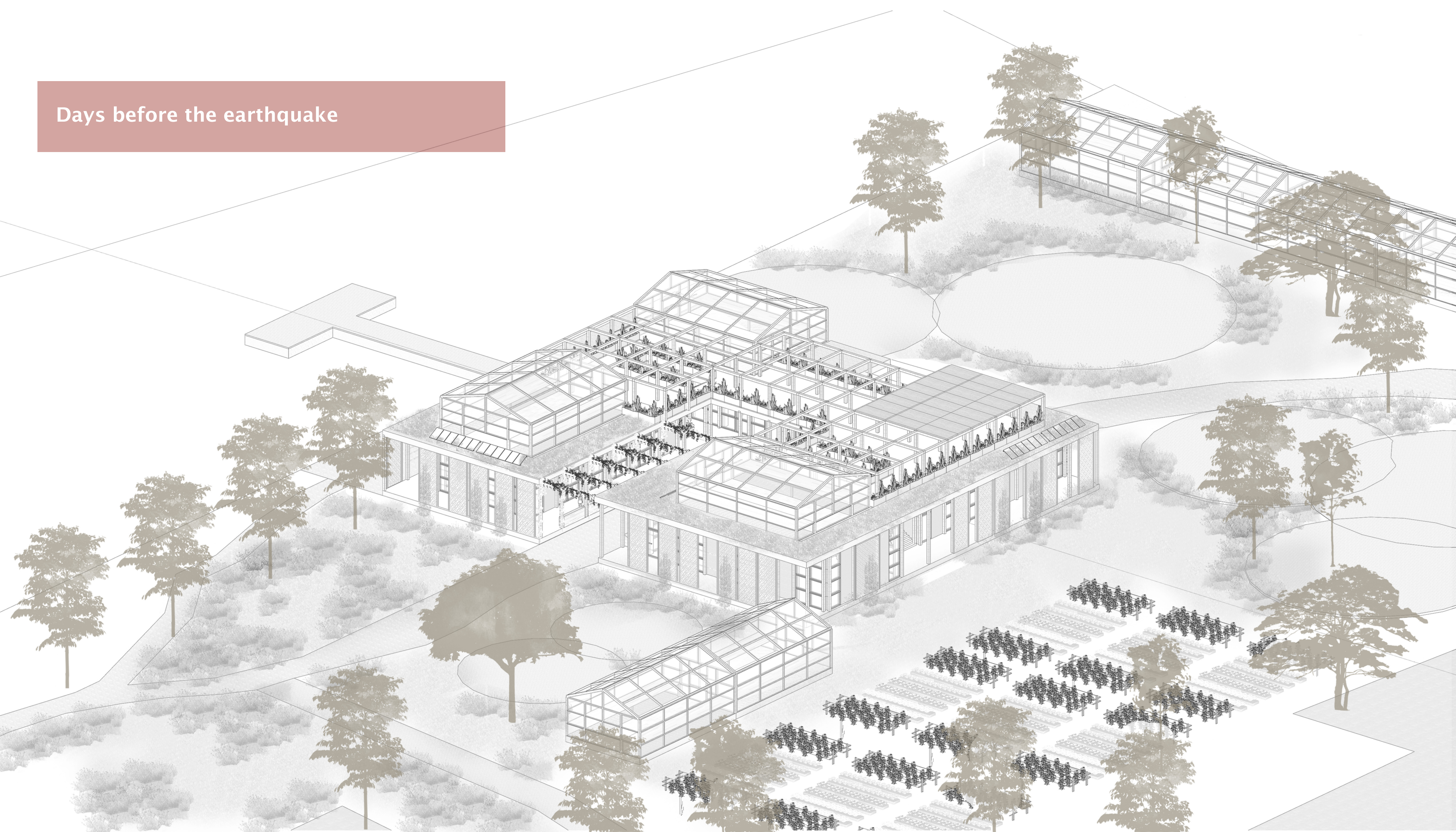
Spaces of Hope



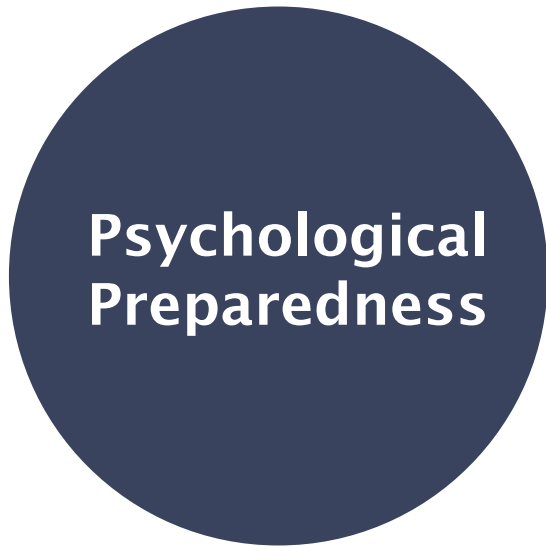
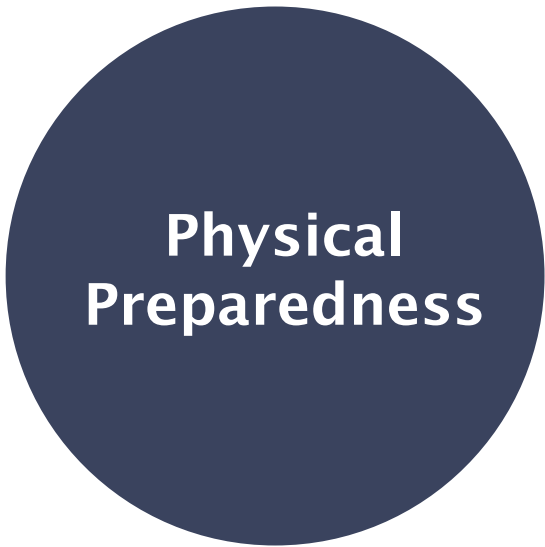
Research outcomes: program of requirements



Days before the earthquake

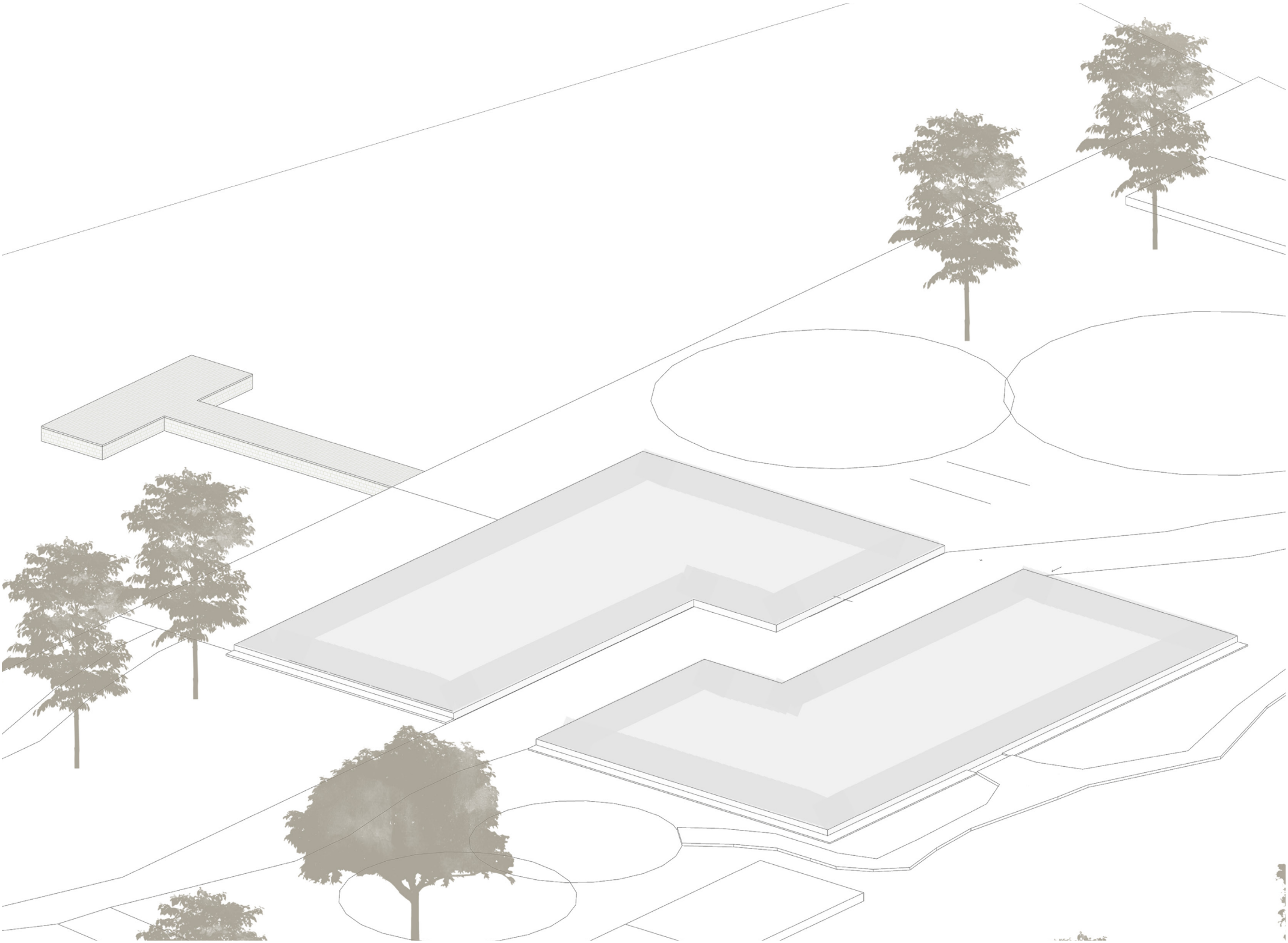


Preparedness in Kanarya





Preparedness in Kanarya



Conservative food



Tents & Shelters



First aid kits



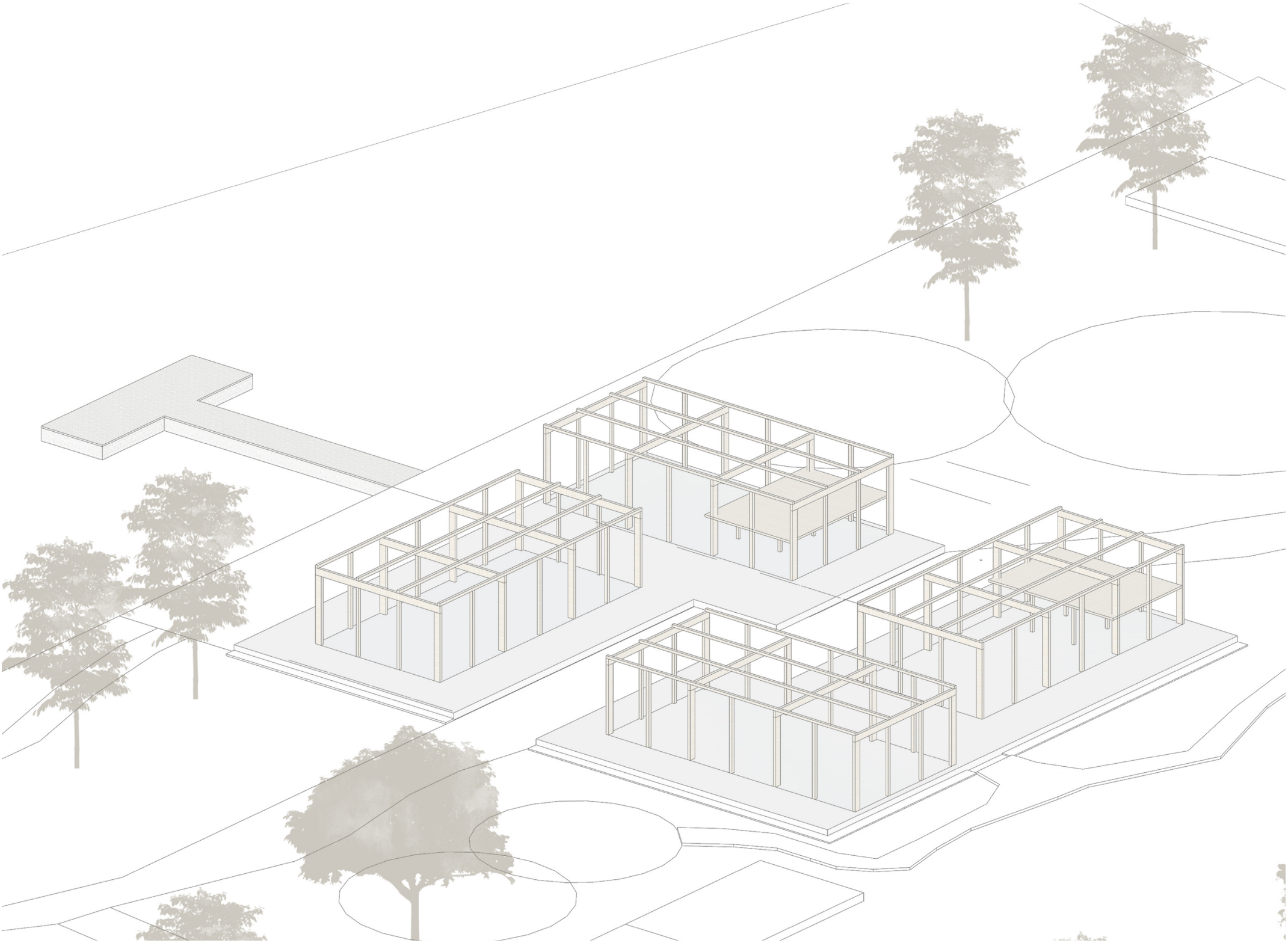
Rescue kits

Spaces of Hope



Preparedness in Kanarya

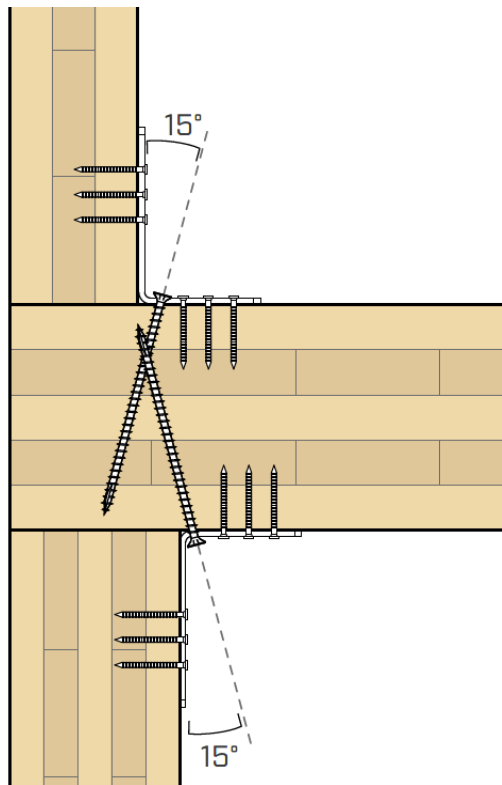
Technical
Preparedness



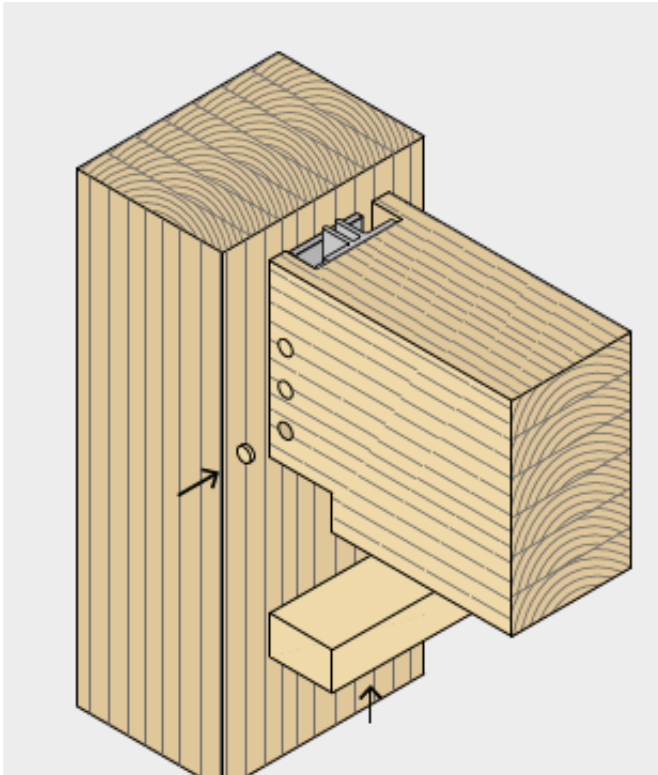
Spaces of Hope



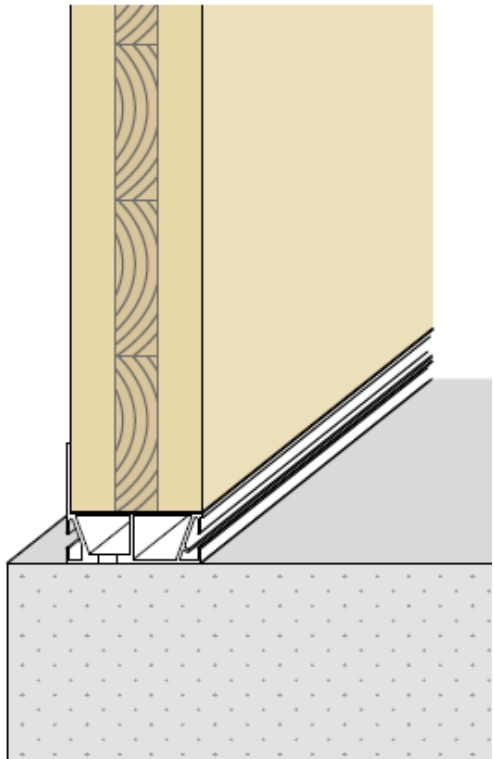
Preparedness in Kanarya



Connection Column - Floor
(Designed to have great stiffness, associated with a ductile failure.)

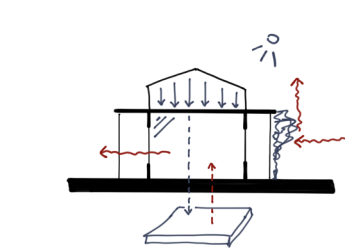
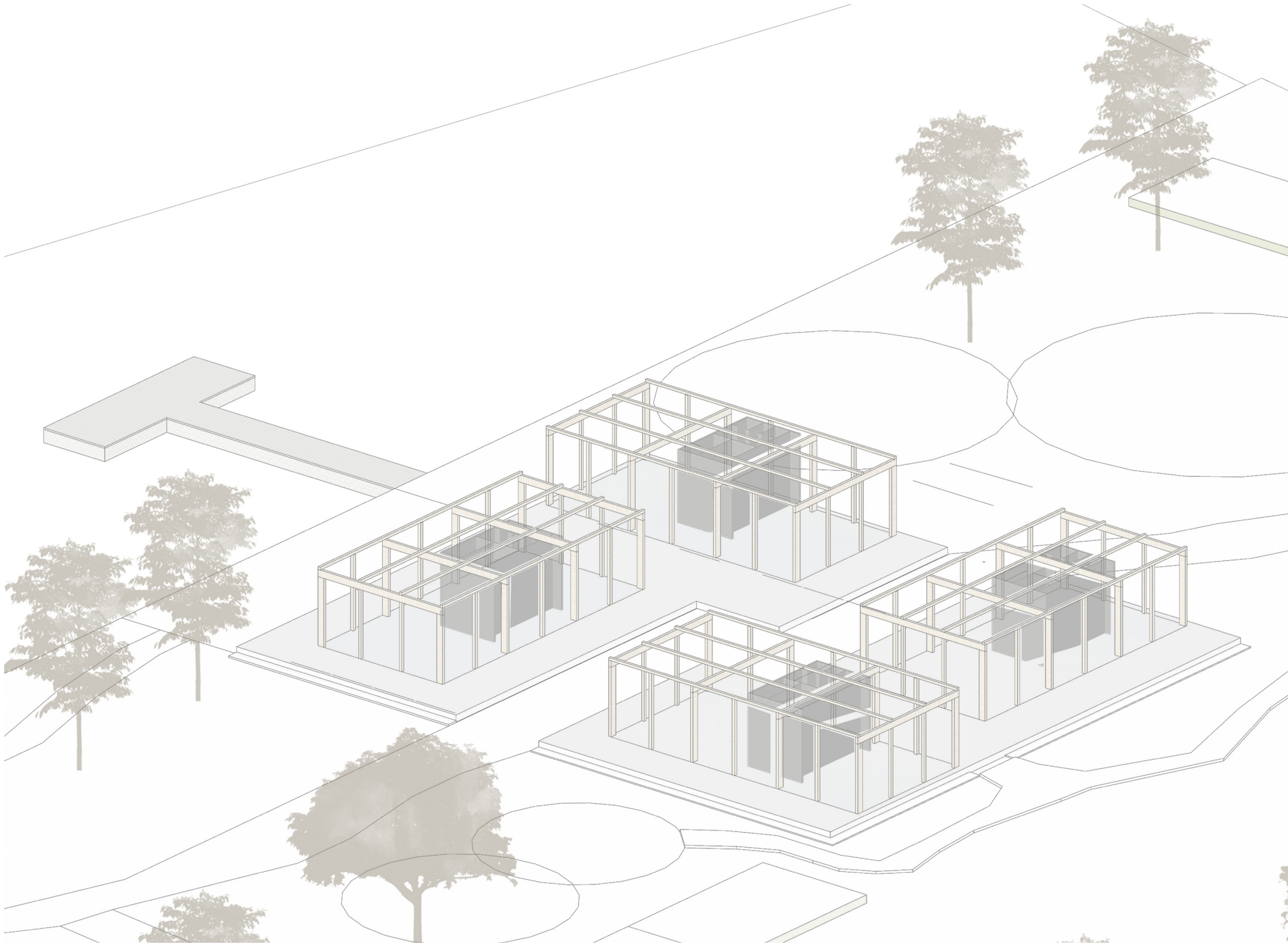


Connection Column - Beam
(Primary Structure - fully concealed connection)

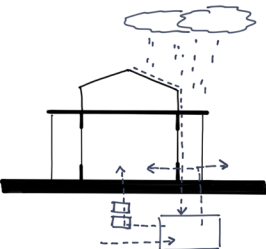


Connection Floor - Wall
(Primary Structure - transferring shear, tension and compression stresses to the foundation.)

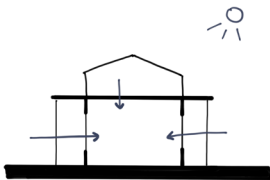
Preparedness in Kanarya



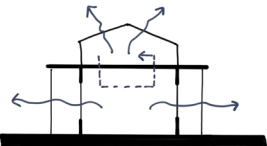
Heating and Cooling



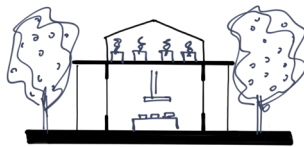
Water



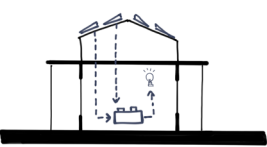
Light



Ventilation

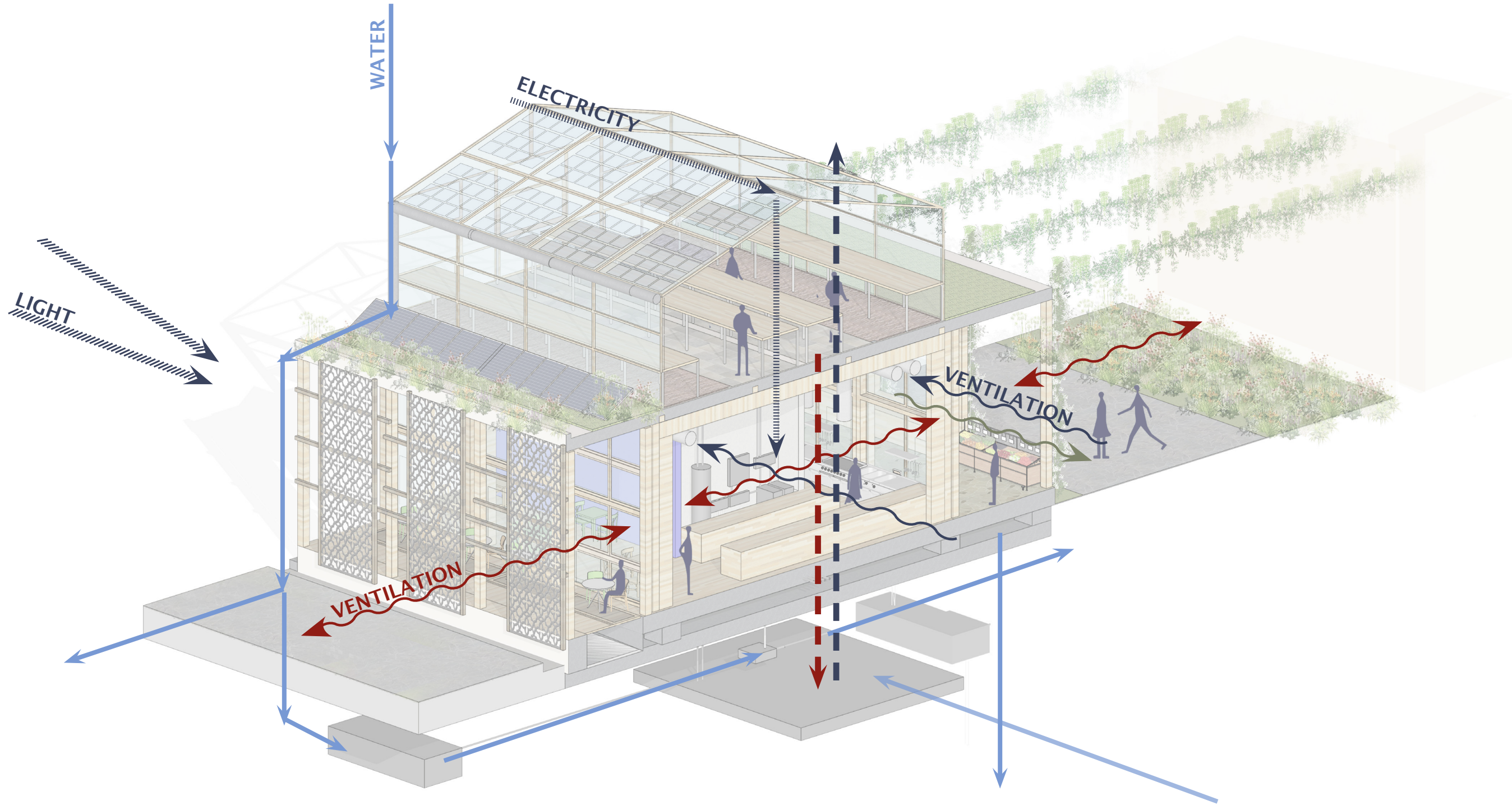


Food Growth

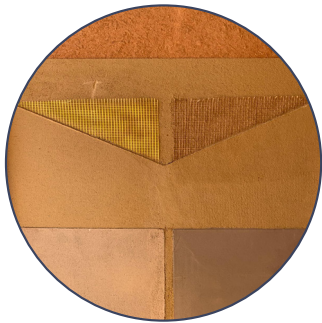


Electricity

Preparedness in Kanarya



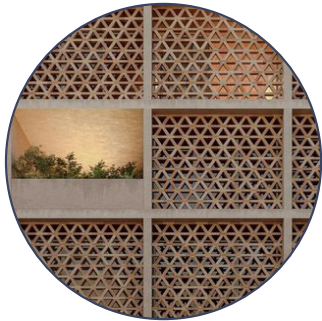
Preparedness in Kanarya



Ecological Materials | Facade & roof
Regional Soil, Clay and insulation materials



Wood | CLT construction
Imported from outside Turkiye (for now...)



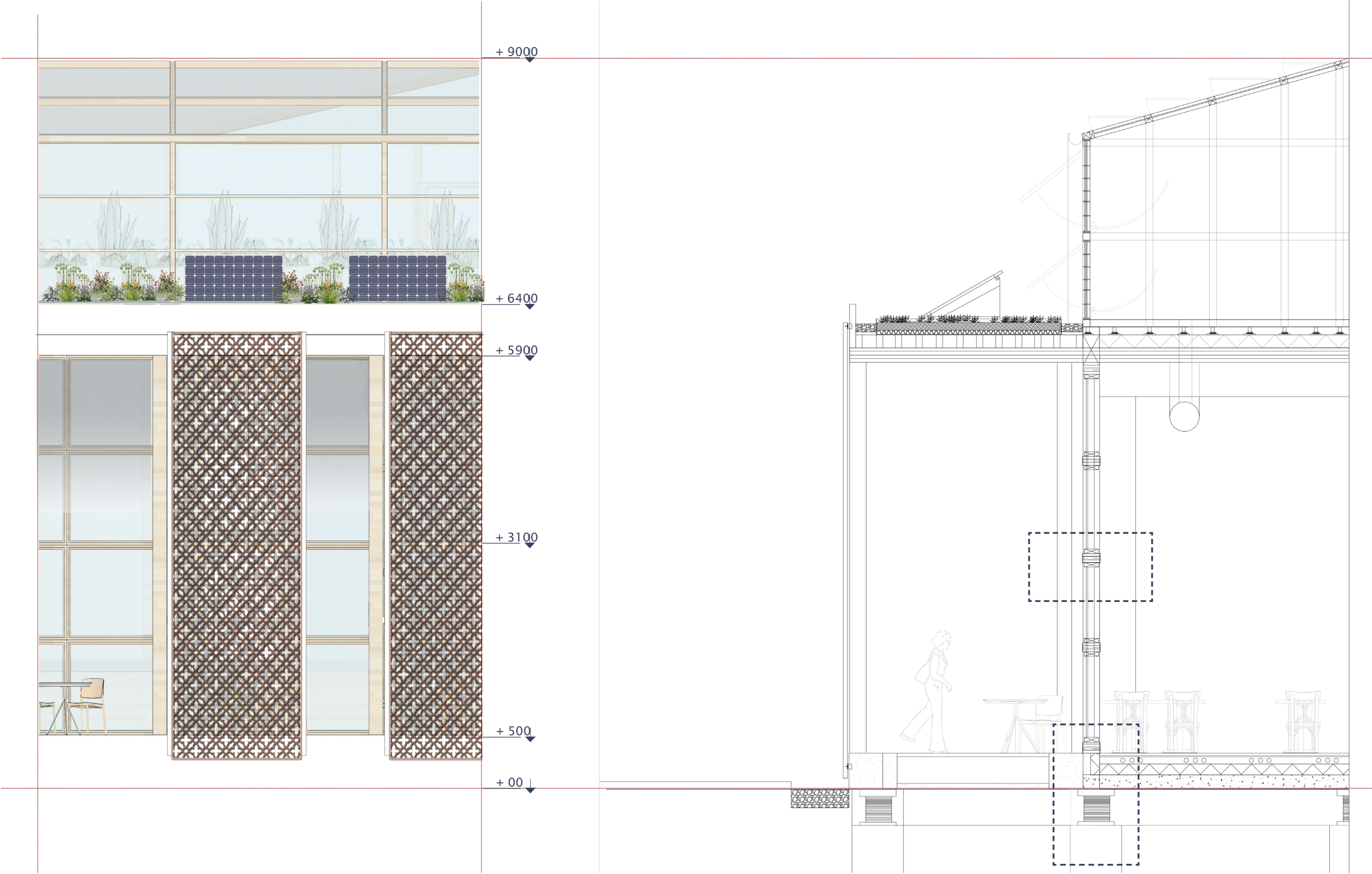
Sun Shading | Wooden Patterned Panels
Built on site through community?



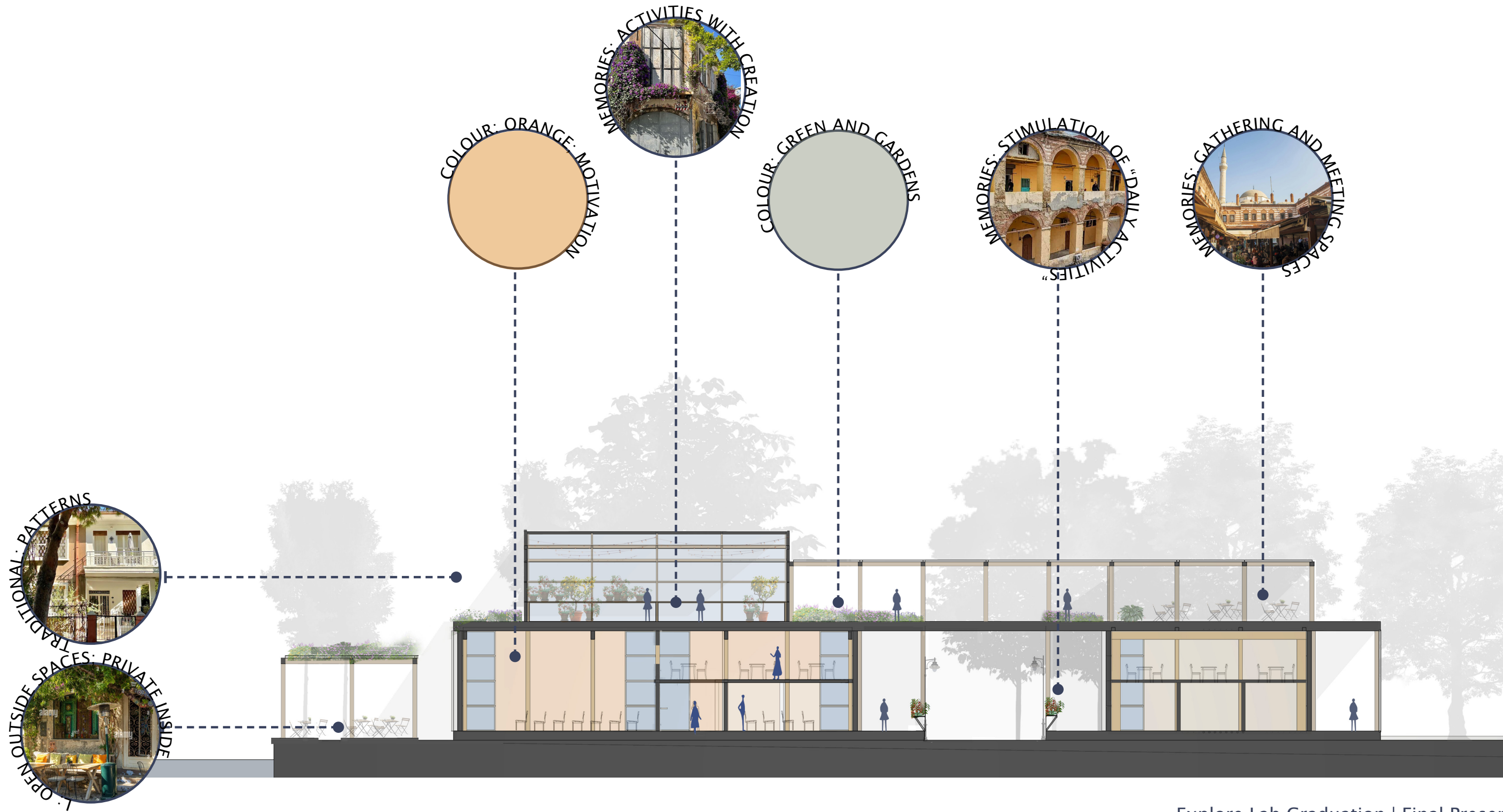
Green | Aluminium wiring for plant growth
Explore Lab Graduation | Final Presentation



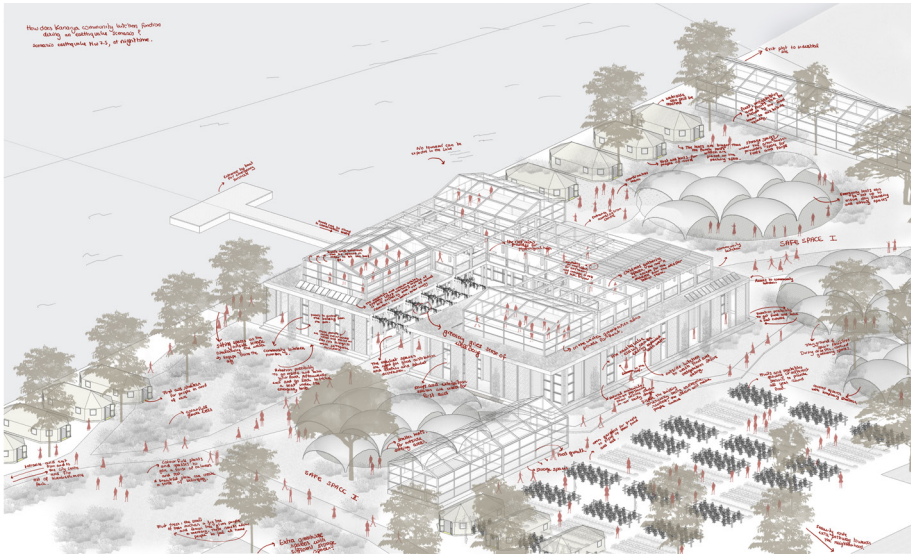
Preparedness in Kanarya



Preparedness in Kanarya



Preparedness in Kanarya

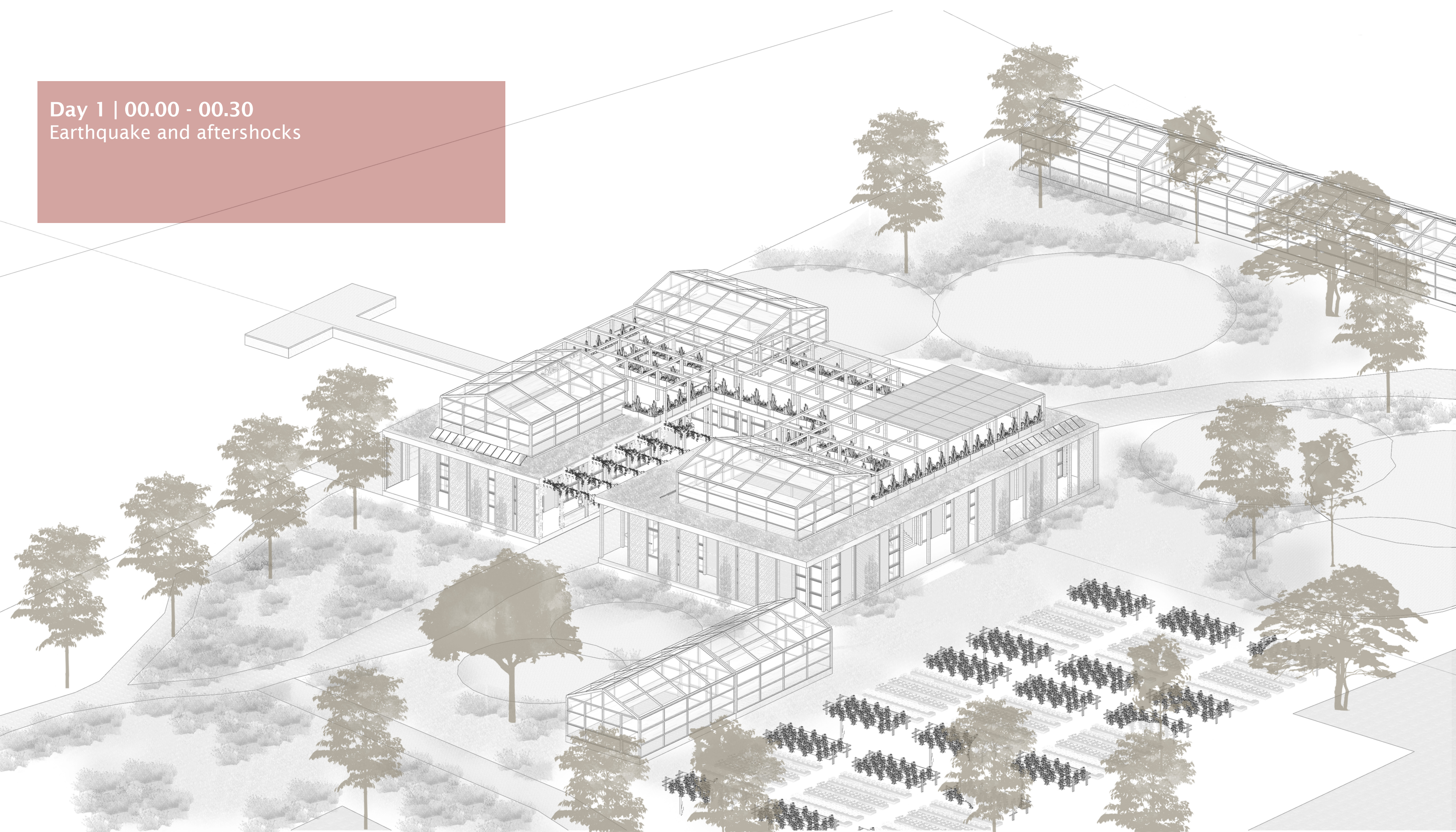


Earthquake Scenario Booklet Küçükçekmece District (To be used in preparation, during and after an earthquake)

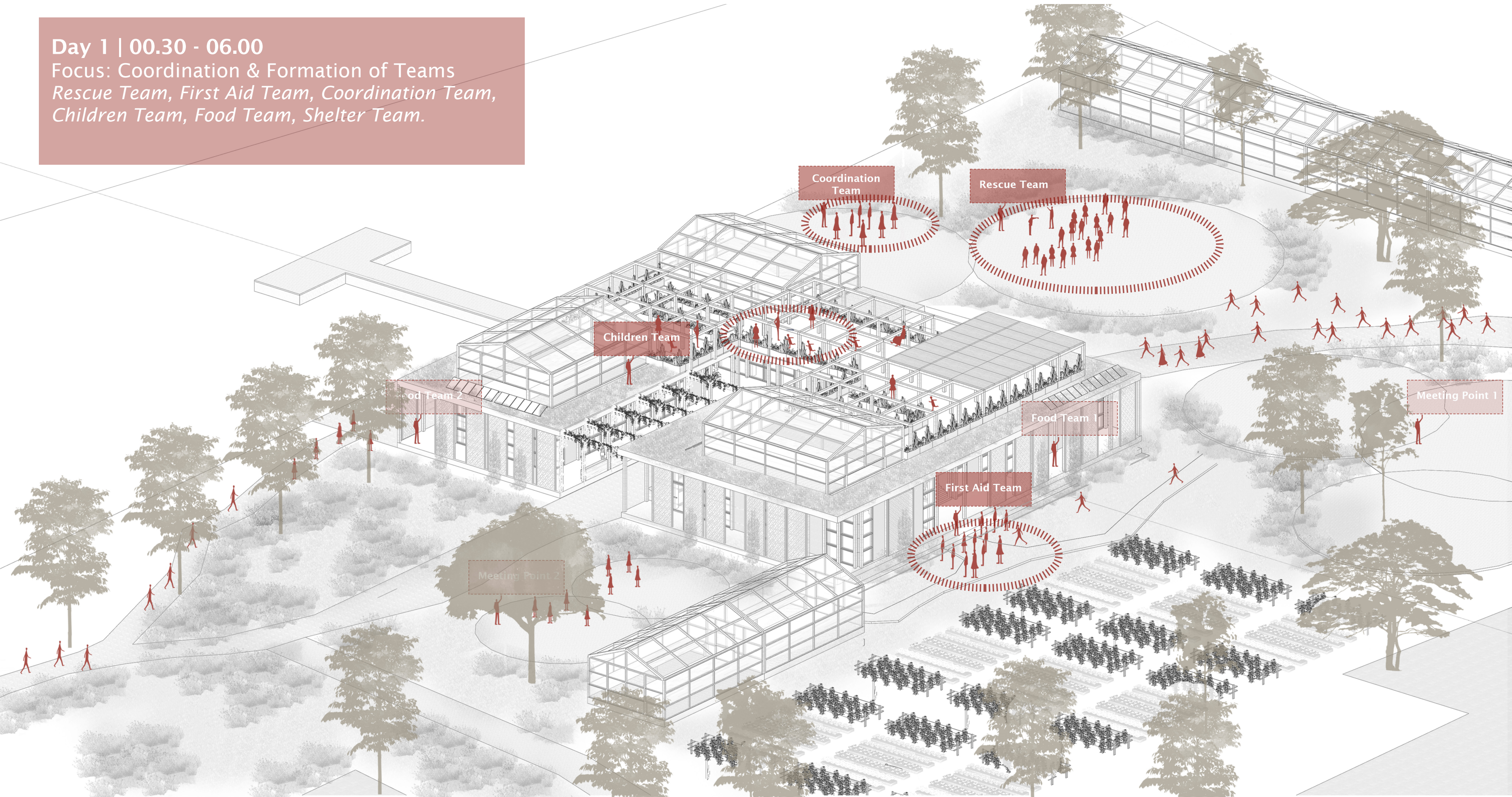
Bizim Mutfağımız

Manual for Disaster Preparedness Of Kanarya Community Kitchen

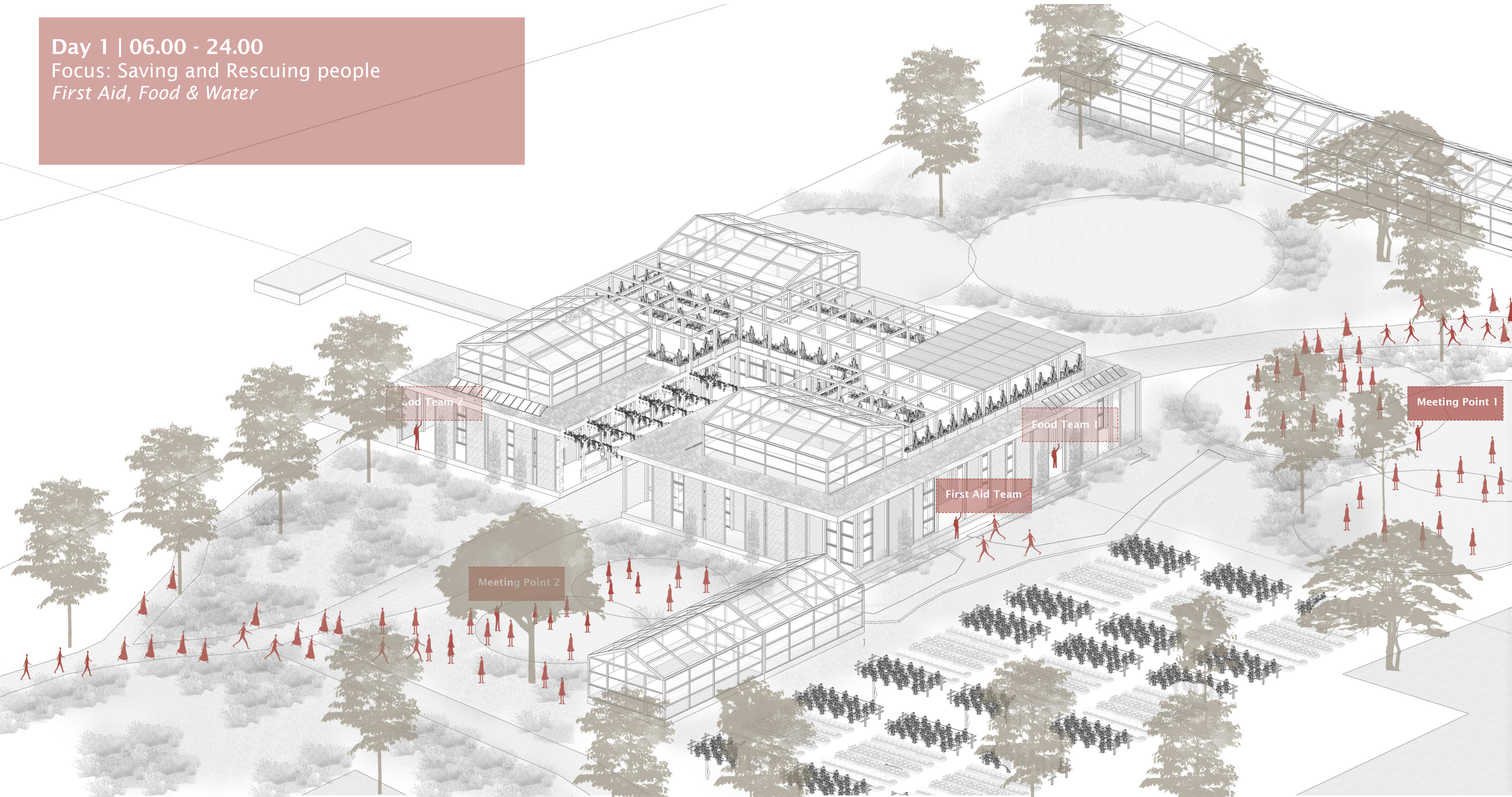
Day 1 | 00.00 - 00.30
Earthquake and aftershocks



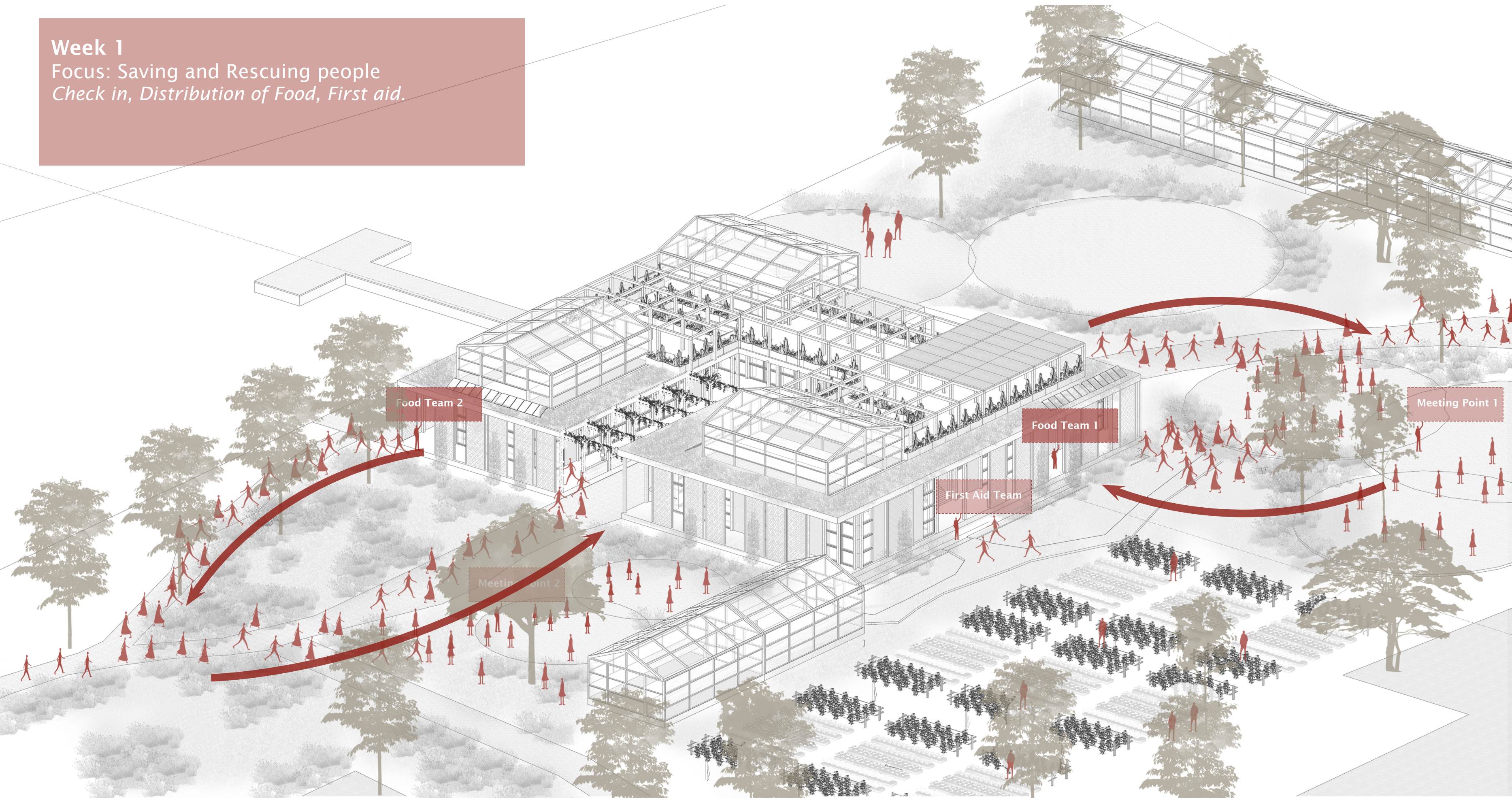
Day 1 | 00.30 - 06.00
Focus: Coordination & Formation of Teams
*Rescue Team, First Aid Team, Coordination Team,
Children Team, Food Team, Shelter Team.*



Day 1 | 06.00 - 24.00
Focus: Saving and Rescuing people
First Aid, Food & Water



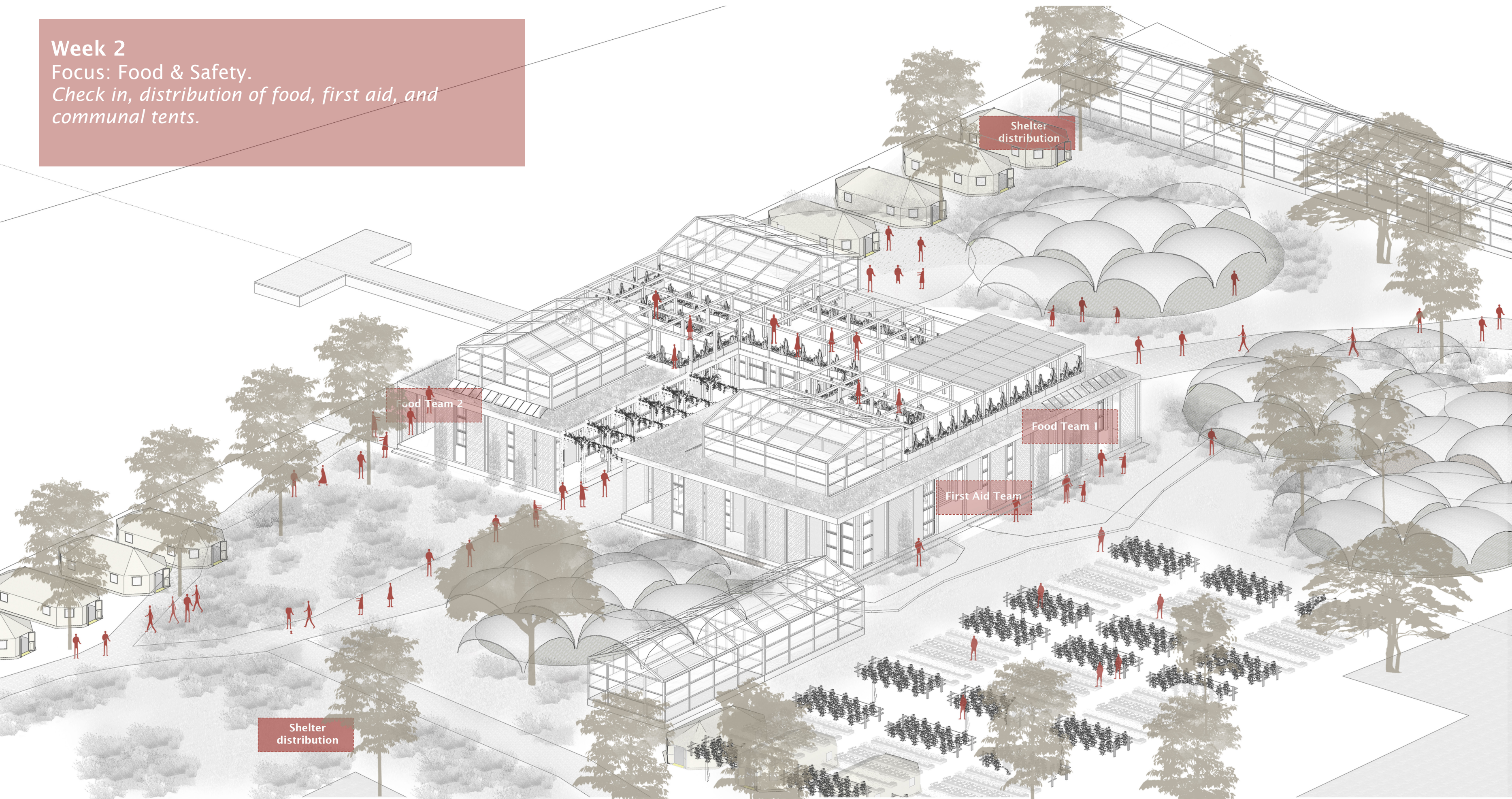
Week 1
Focus: Saving and Rescuing people
Check in, Distribution of Food, First aid.



Week 2

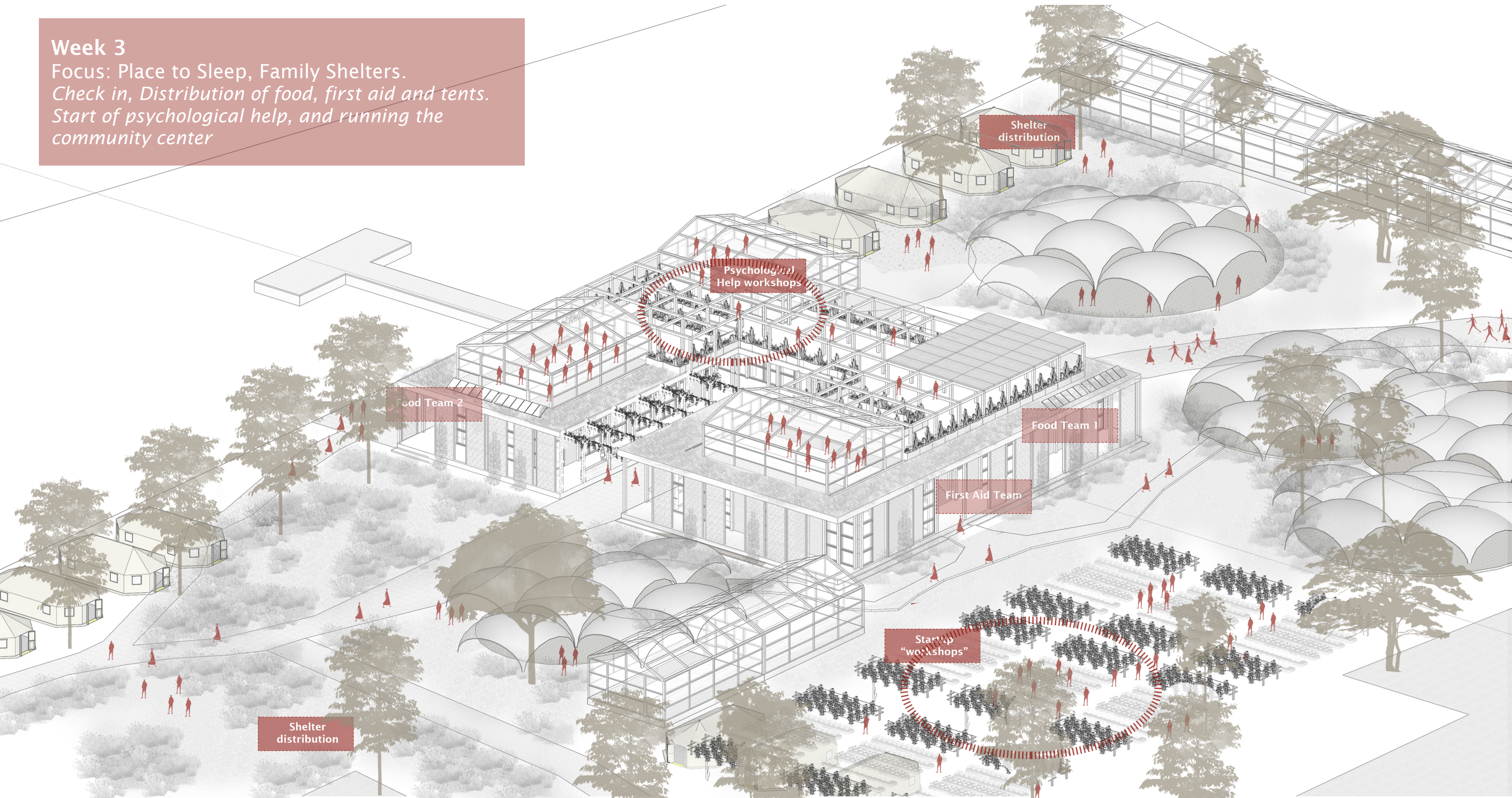
Focus: Food & Safety.

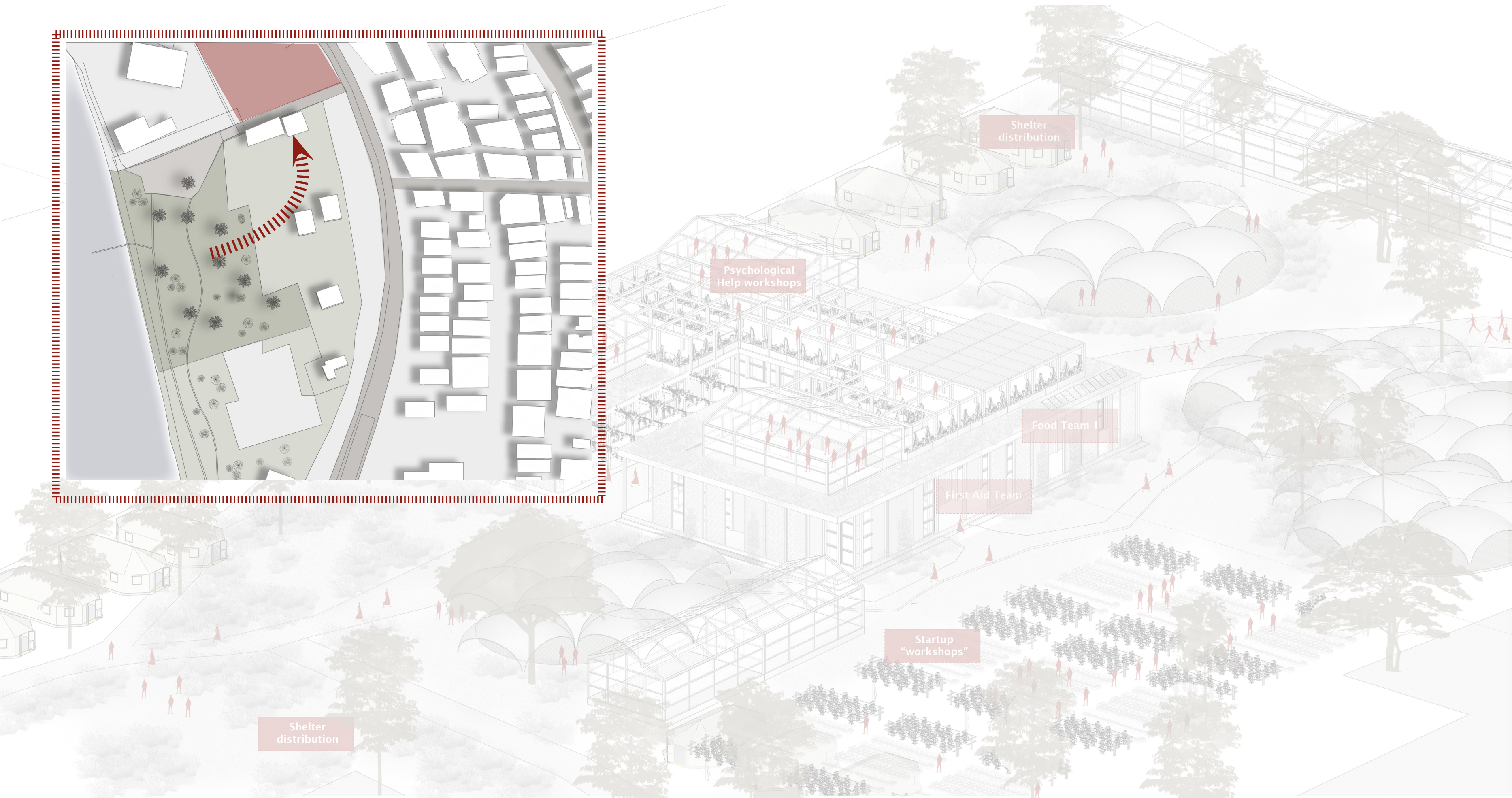
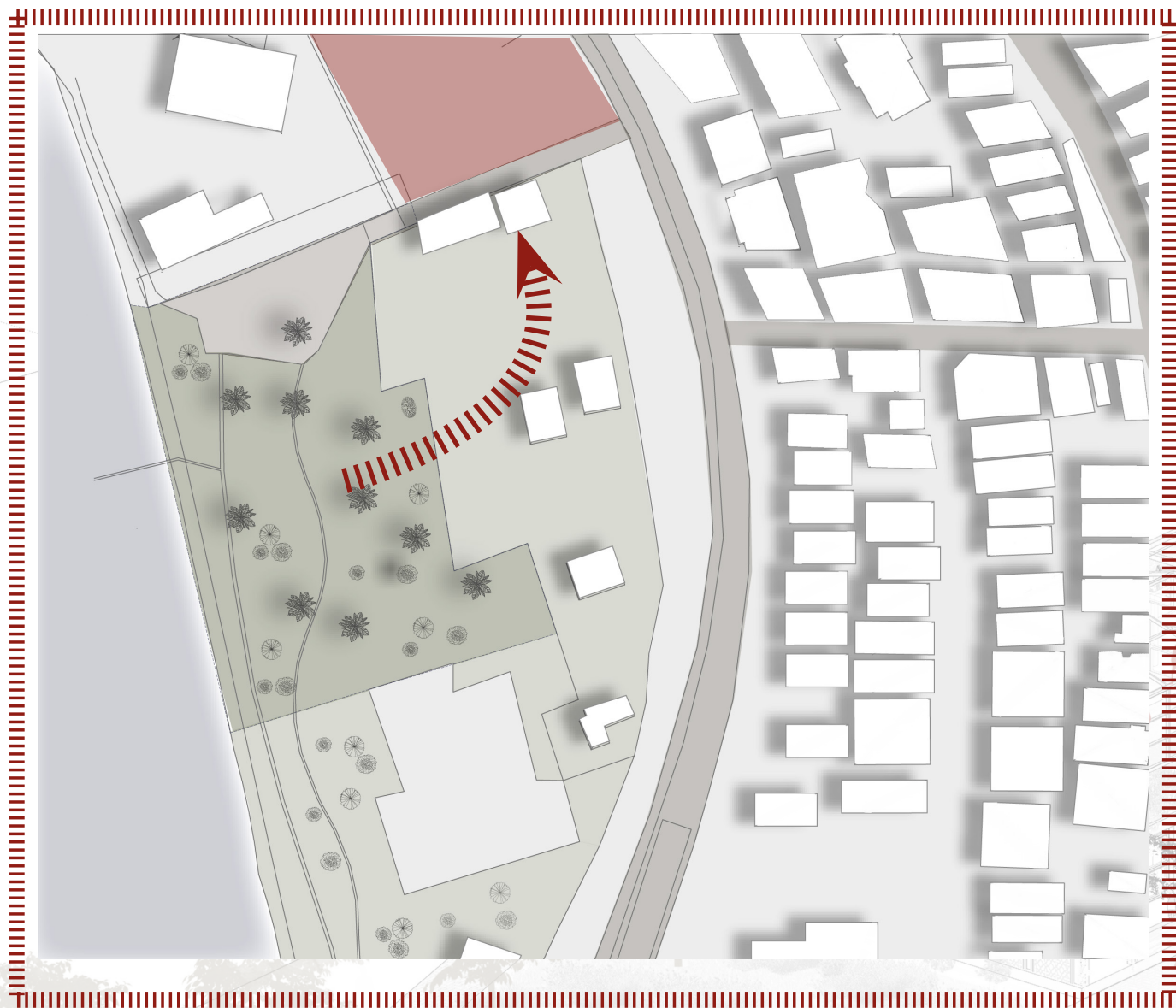
Check in, distribution of food, first aid, and communal tents.



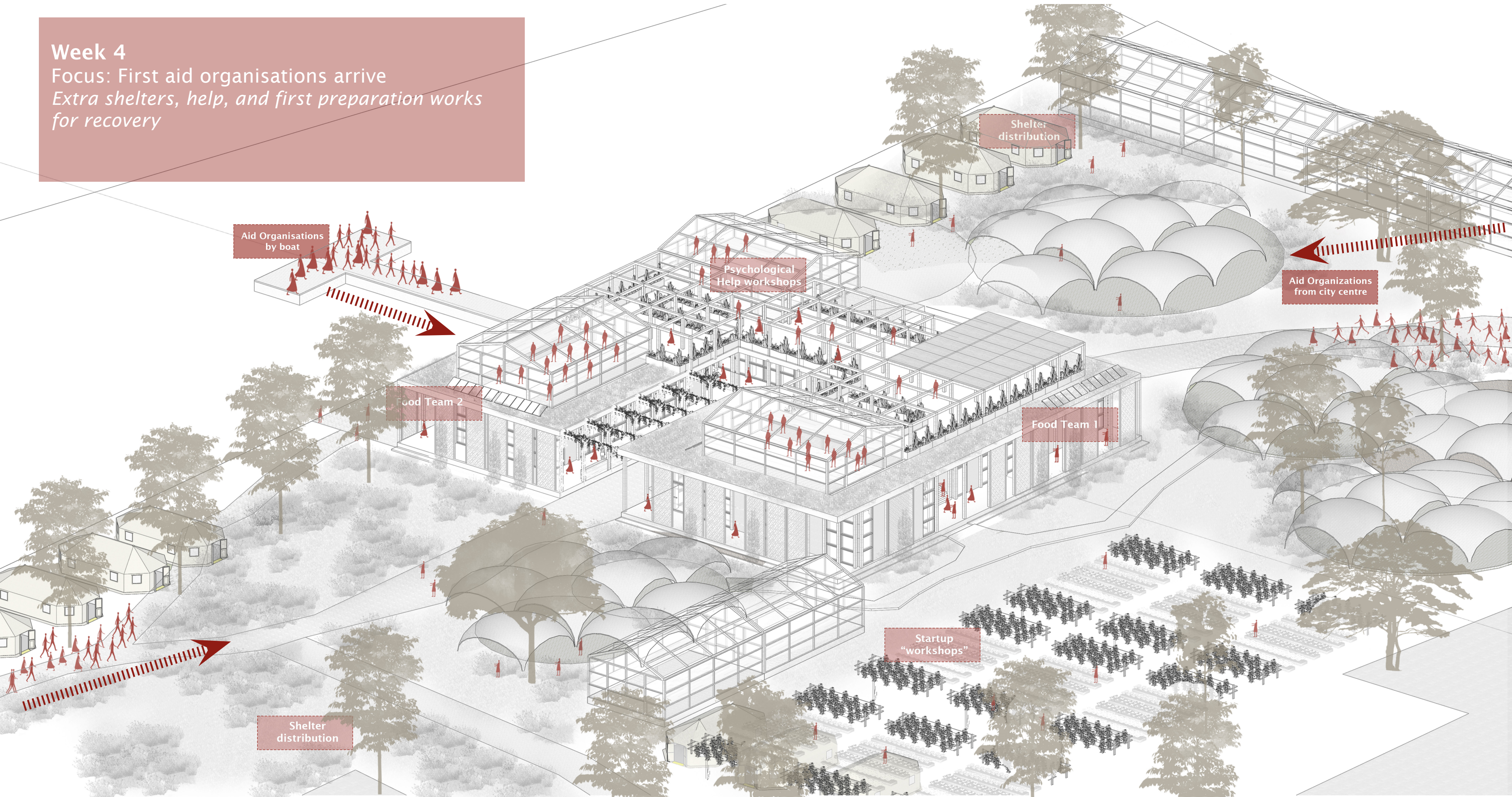
Week 3

Focus: Place to Sleep, Family Shelters.
*Check in, Distribution of food, first aid and tents.
Start of psychological help, and running the
community center*





Week 4
Focus: First aid organisations arrive
Extra shelters, help, and first preparation works for recovery



Disaster Scenario Kanarya, Küçükçekmece

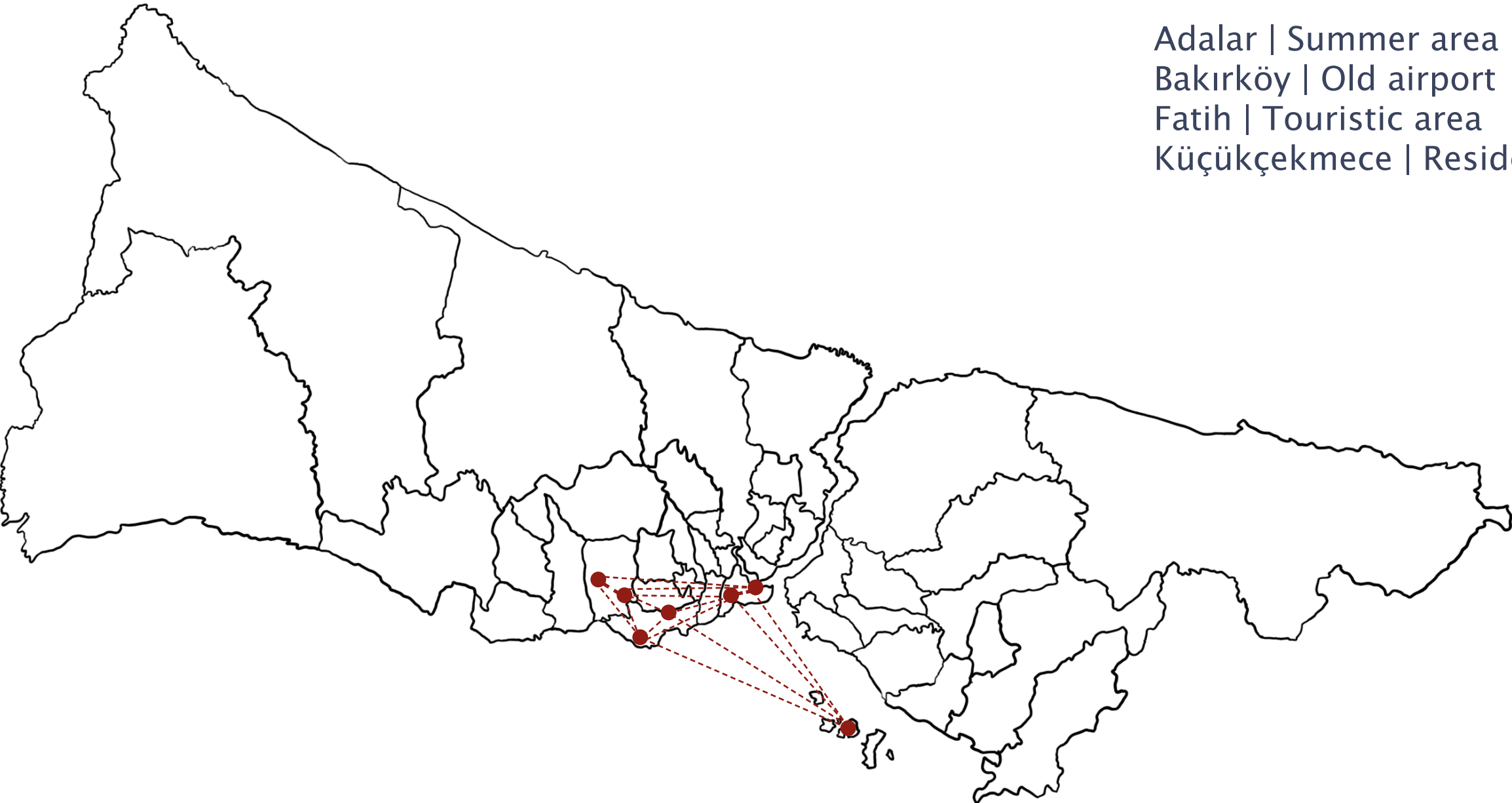


Spaces of Hope

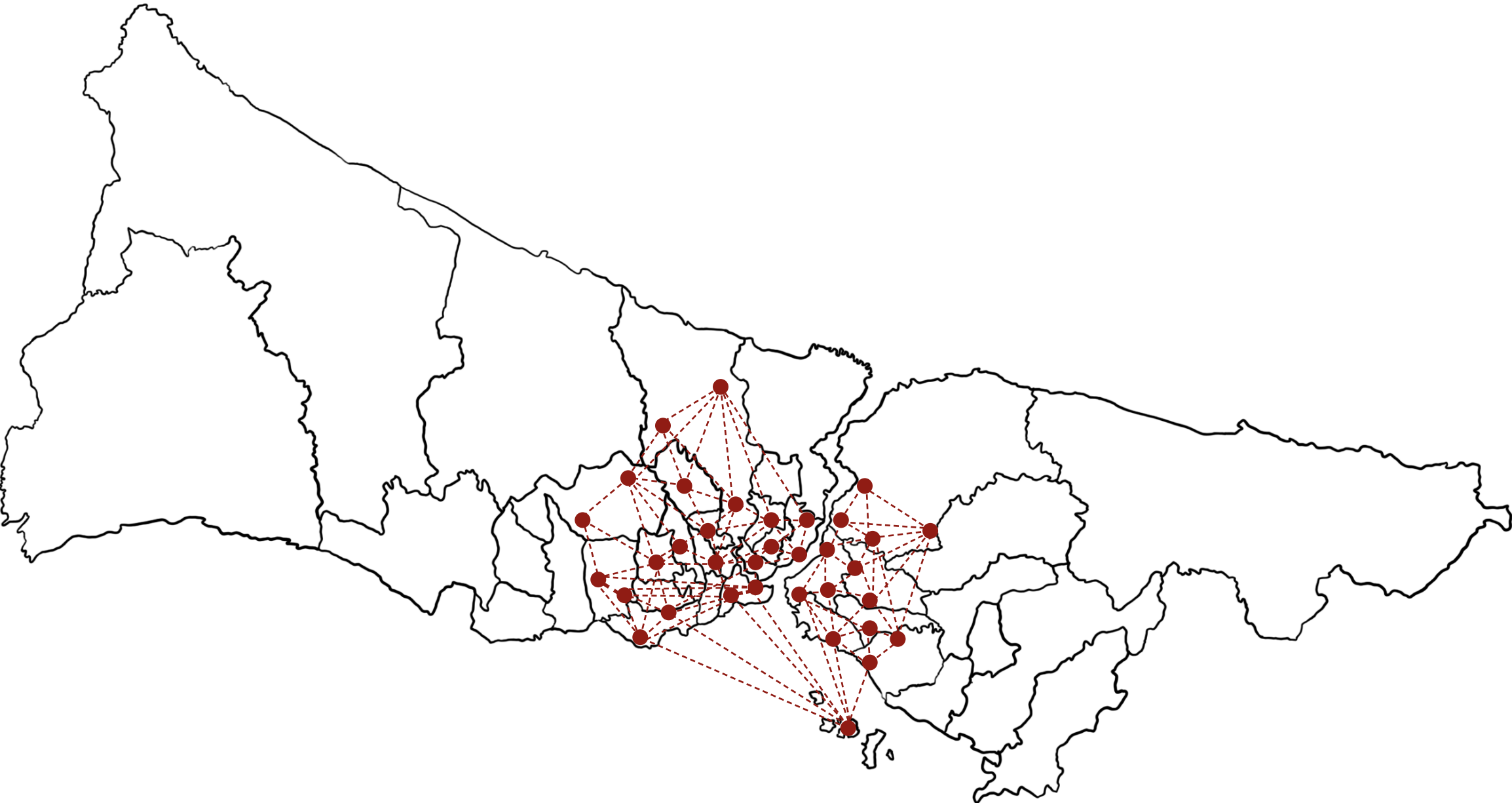


Disaster Scenario Istanbul

- Adalar | Summer area
- Bakırköy | Old airport
- Fatih | Touristic area
- Küçükçekmece | Residential



Disaster Scenario Istanbul

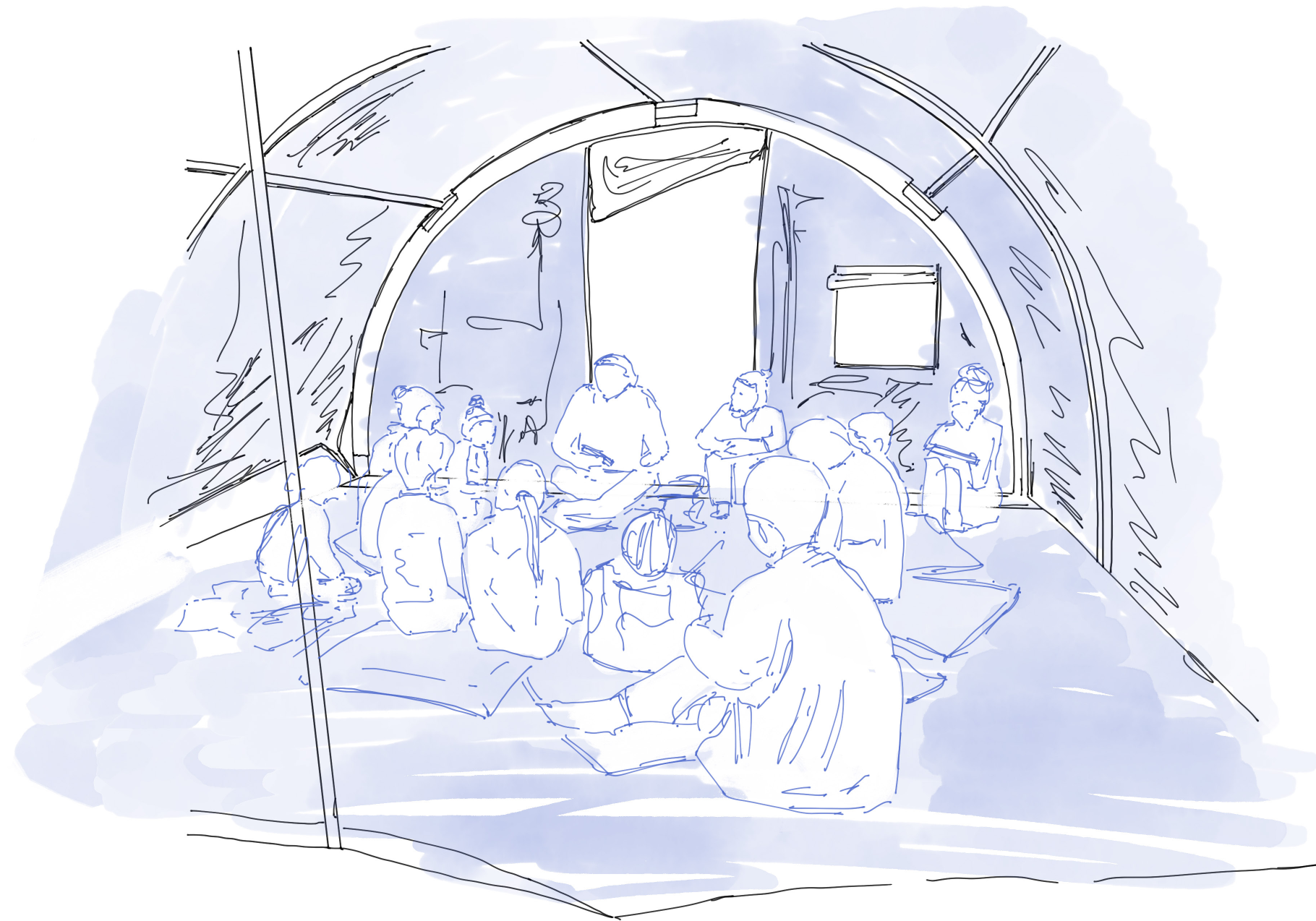


Spaces of Hope

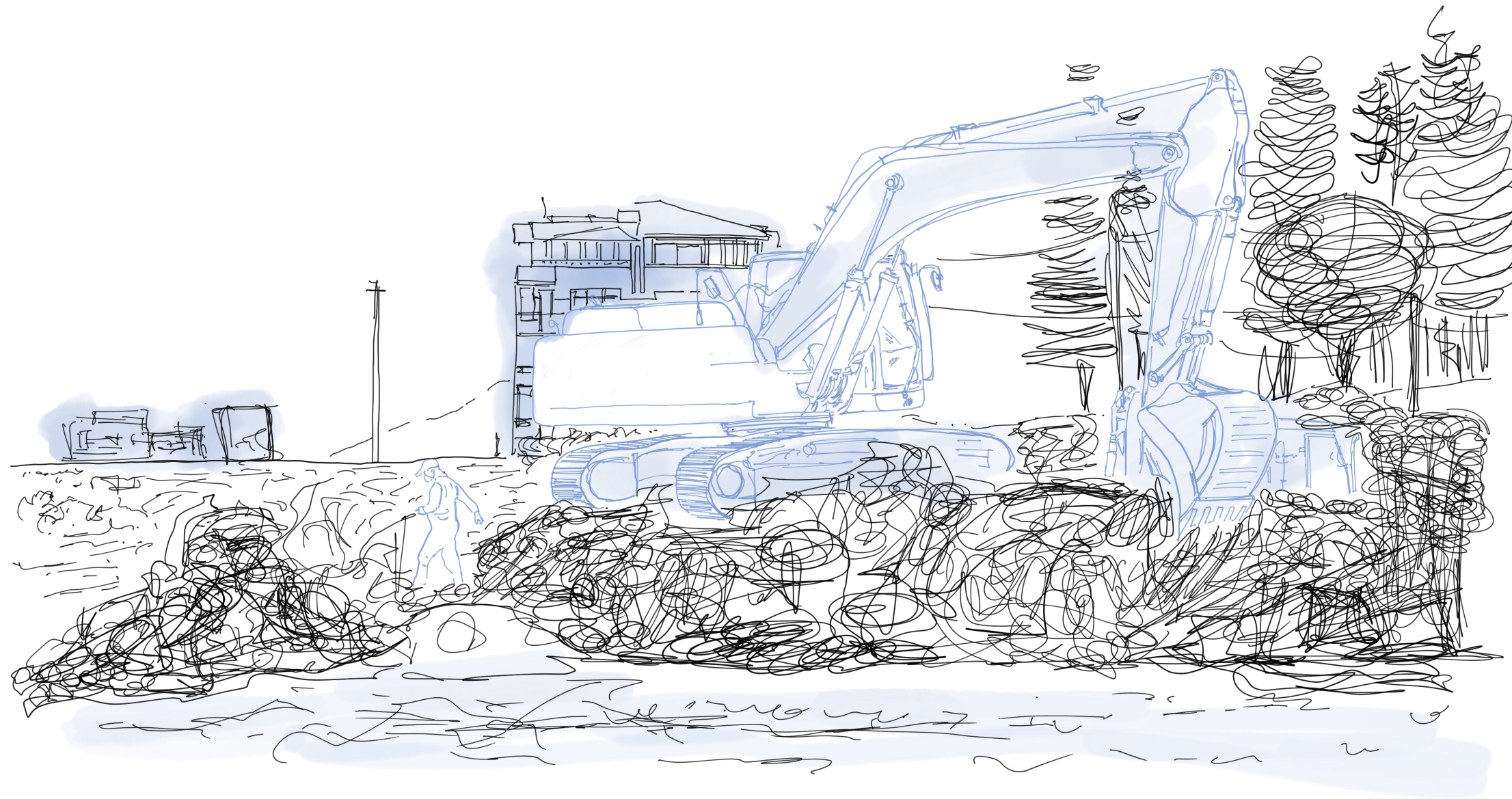


Healing the community, the city and the building

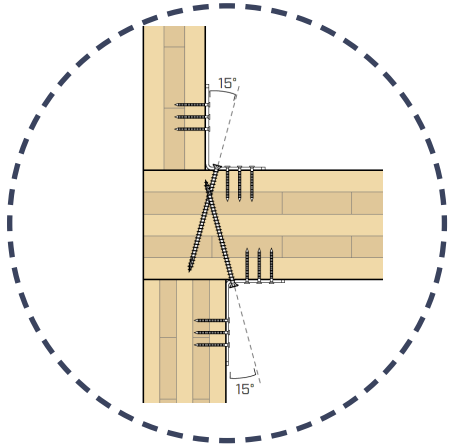
Healing the community



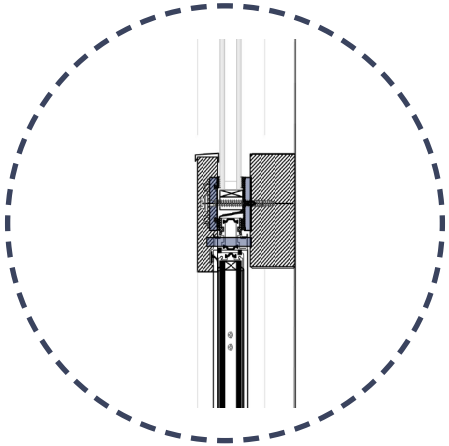
Healing the city



Healing the building



Strengthening construction Bracketing



Restoring windows & checking foundation



Emptying Sewage & Water system



Replanting gardens & cleaning outside spaces



Restoring old functions of the building



Refilling storage spaces

To conclude

Conclusion

In what ways can community spaces be used to foster preparedness among residents in anticipation of a predicted earthquake in Istanbul?



Reflection

Main Goal

My design focuses on creating a community space in Kanarya, Istanbul, with two main goals. The primary goal is to establish a safe space that provides all the necessary tools which are needed after an earthquake disaster. The residents of the neighborhood can come together in the self-sustaining building, which serves as a gathering point (based on the AFAD designated areas) after a disaster to have a safe space, away from the probably destroyed city. Later the building will facilitate the community with its “healing” character and give the community the space to recover after a disaster.

The second goal is to use the proposed building before a disaster occurs. The reasoning behind that is so that communities can get familiar with the facilities, and create memories and a sense of belonging to the place. The building design, of a community Kitchen, in the neighborhood Kanarya, (before the disaster) not only develops the daily life of residents but also contributes to the overall development of the area, creating employment opportunities and facilities to attract people from outside. The community kitchen aims to provide inhabitants with a daily goal that aligns with the community’s needs.

With these requirements, the community kitchen in Kanarya will include a market area and workshop spaces. Here, residents can grow food, cook together, start small crafting projects, such as knitting, and have the opportunity to sell their creations, which aims to provide economic growth within the Many design decisions made

during the design process were primarily based on the experience of people after the earthquakes on the 6th of February 2023 in Kahramanmaraş. This knowledge was mainly conducted during my work for the Architectural Recovery Team, a foundation created with fellow students to reconstruct long-term housing after the disaster. Besides that, my design decisions were based on the research conducted about disaster preparedness and the psychological influences of space to create a resilient city.

My Research

During my graduation project, for the architecture track, I have tried to combine different aspects of the design on different scales, also connecting the urban plan, the landscape plan together with the more technical aspects of design for a earthquake prone region. During my studies I have encountered many different courses related to the topics looking at buildings in extreme conditions, from an engineering point of view, or looking at the social impact a neighborhood has on the residents. To combine these two topics, I have developed an interest in the relationship between the built environment and its impact on individual or community psychology.

The project, is currently centered in Istanbul, as mentioned before, however, this topic can also be analyzed in different areas, cities or countries. The broader scope of my project address people losing their houses and neighborhoods, but also their memories of their homesnt areas, cities or countries. The broader scope of my projet.

Address people losing their houses and neighborhoods, but also their memories of their homes resulting from natural disasters, and hopes to create safe spaces for those who are displaced, by preparing in advance for these disasters.

Design Progress

In the societal and professional context, the relevance of my graduation work becomes evident when looking at the frequency of global natural disasters. As architects, or designers, it is our role to empathize and understand the needs of affected communities, and play a role in creating solution which aim to create safety and resilient cities. The academic value of my graduation project lies in its approach to addressing real-life challenges faced by communities in the aftermath of disasters. By focusing on the often-overlooked aspect of disaster preparedness, my project fills a gap in the existing urban transformation plan of Istanbul and the process of preparing for the predicted earthquake in Istanbul, by relating it to existing literature. Ethically, the project focuses on individual communities and individuals in the big city of Istanbul, leaving the questions of politics and the economic situation of Türkiye behind, which is often the main cause of disasters, and only focusing on the well-being and safety of people. While within the scope of the master’s graduation, it has been good to leave these two factors out, it is necessary to look into the economic situation (affordability) and the political situation of the area before implementing a project such as a

On a personal level, my work connects with the work I am doing next to my studies, the reconstruction of Antakya, Türkiye. This experience provides insights into the daily challenges faced by those affected by disasters and the role I can play in this recovery process.

Due to the work balance of combining this foundation and my graduation, a different vision was formed at certain points of my graduation. Difficulties were that next to my graduation topic I am working on the recovery of Antakya. Both topics are very current and need action. However, keeping in mind that the graduation project is a master’s thesis, I have encountered some difficulties in sometimes leaving the pragmatic and practical way of thinking to come to an innovative design and thinking out of the box. Reflecting, more time in the design process would have let me experiment more with the architectural compositions and the space around of my building.

Looking at the positive aspect of having very similar projects to work on, is that throughout the year I could easily reach out to experts from the field to introduce my research and pitch my design. From introducing my research to the Turkish Head Architect of the new master plan of Antakya, Bunjamin Derman, to the architects and Urban planners who work at Foster and Partners to redesign a part of Antakya, or are involved with environmental psychology in a post-disaster setting, who Besides that, I have been working together with companies such as Rothoblaas and Derix, who’s expertise in CLT and seismic regions have helped me to introduce these materials during my graduation.

What is Next?



Thank you
