

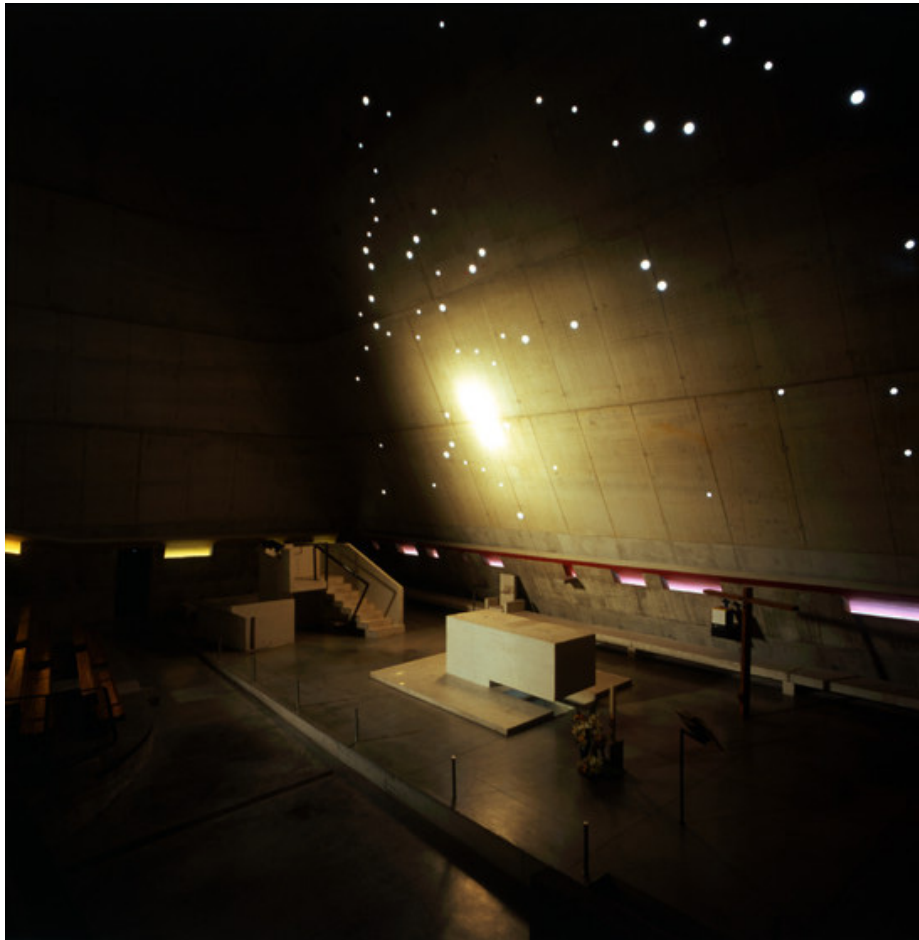
# A Monastic Passage in the Landscape



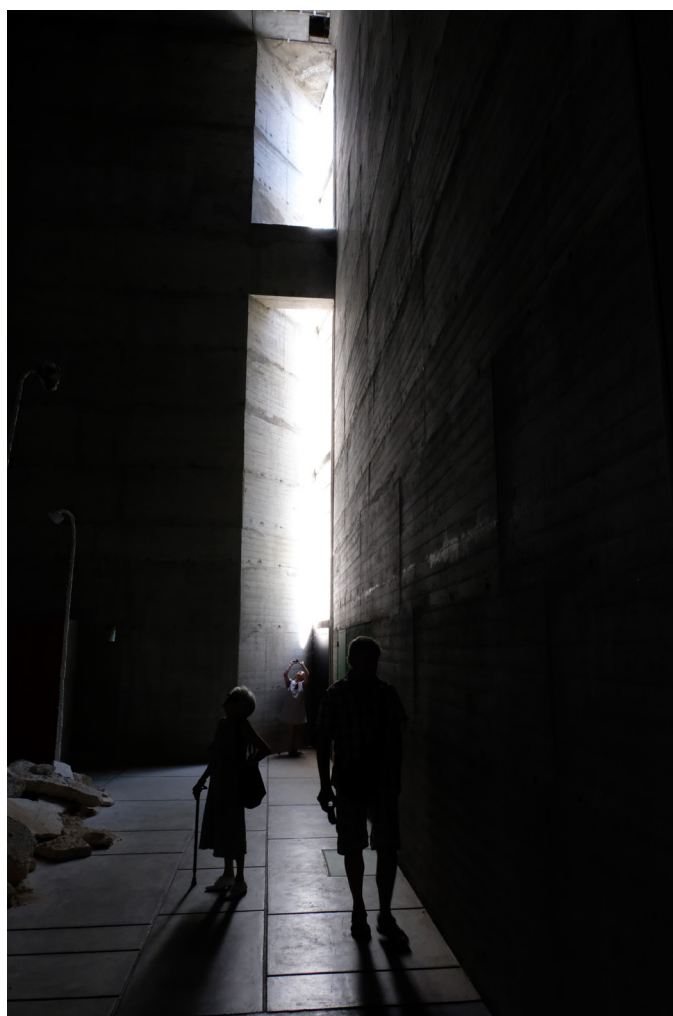


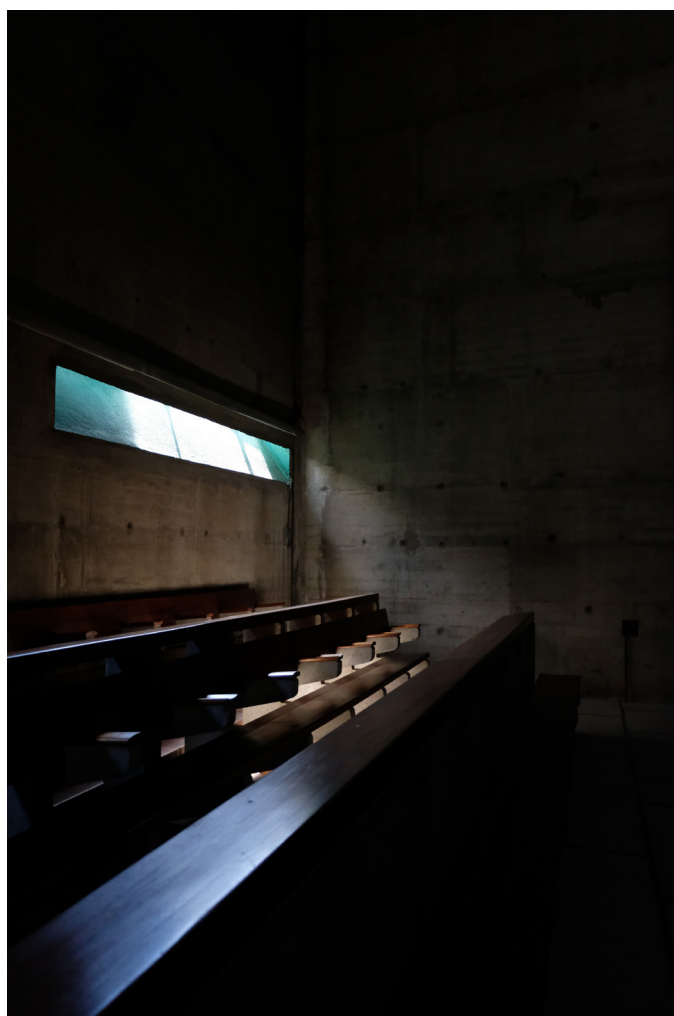


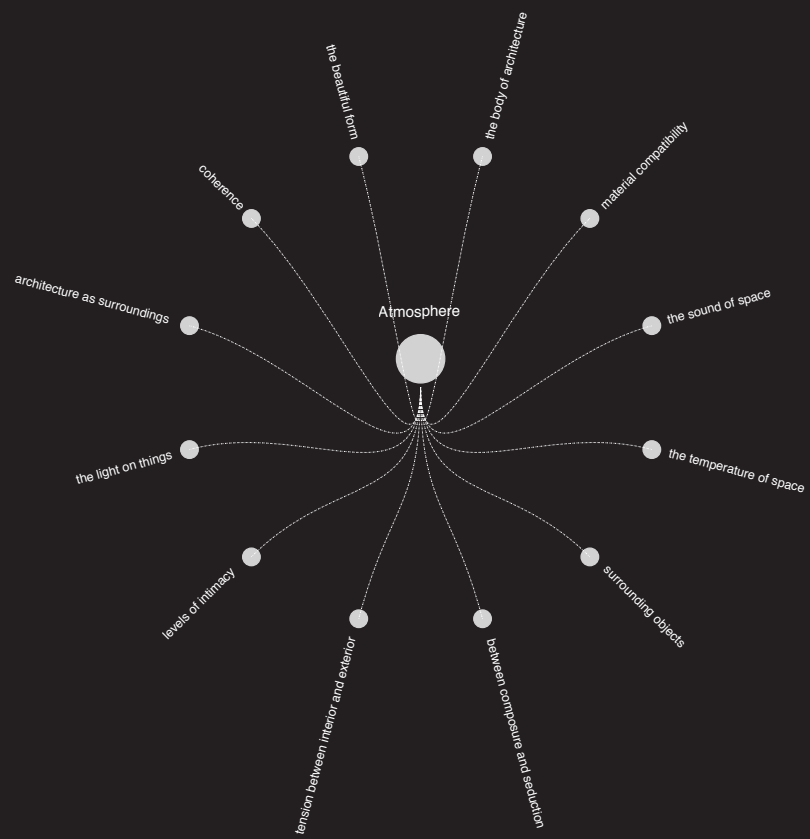
## Personal Interests : Sacred Spaces











# Project / Research Overview

Sacred Spaces - Atmosphere

Creation of Emotional /  
Contemplative Spaces



Design

Death as a Theme

A Space to Contemplate Death

Landscape

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How can we make  
atmosphere in architecture  
more approachable?



Research

Foundation Models (AI)

# Research

How can we 'process' architecture atmospheres so that it is more approachable?

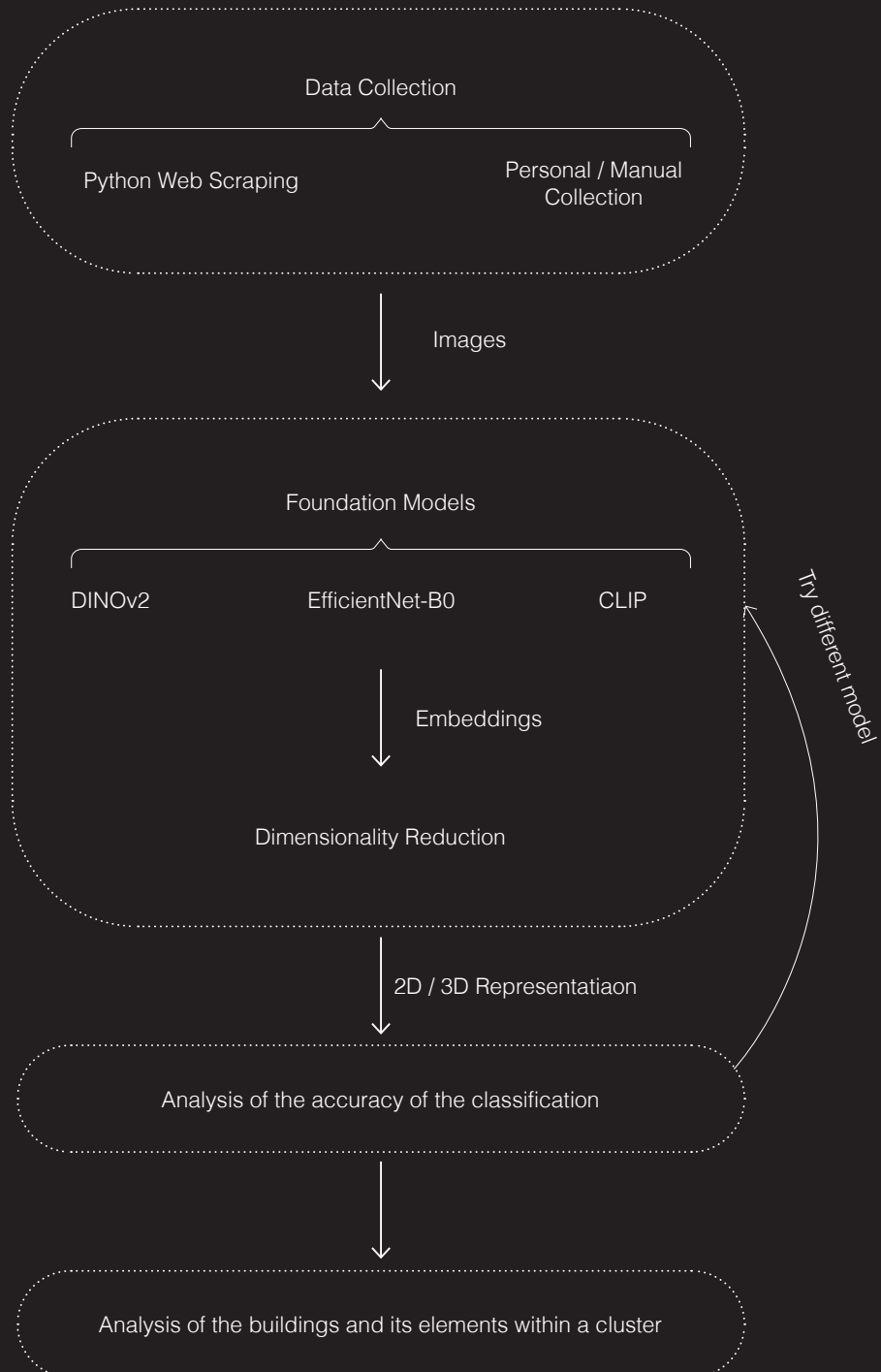
Atmospheres is the emergent quality of various elements in the building that we perceive (measurable)

This process of recognising implicit and abstract concepts out of measurable input is something that foundation models (AI models) do well at scale

The visualised output of foundation models can be used to navigate the theme of atmospheres

This can be used to evaluate AI tools



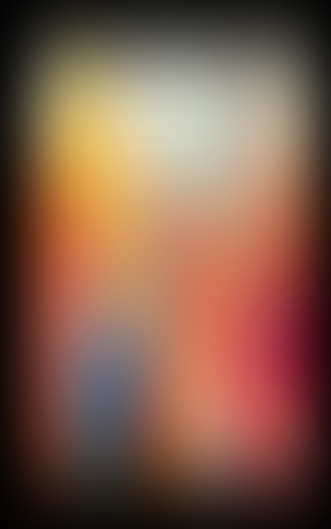


## From image to embedding

A vector embedding from a foundation model contains all the features that the foundation model detects in an image.

such as “How much of the image is blue?”  
“How round is the subject of the image?”, etc

vector format: (0.871236, 0.615235, 0.135234...

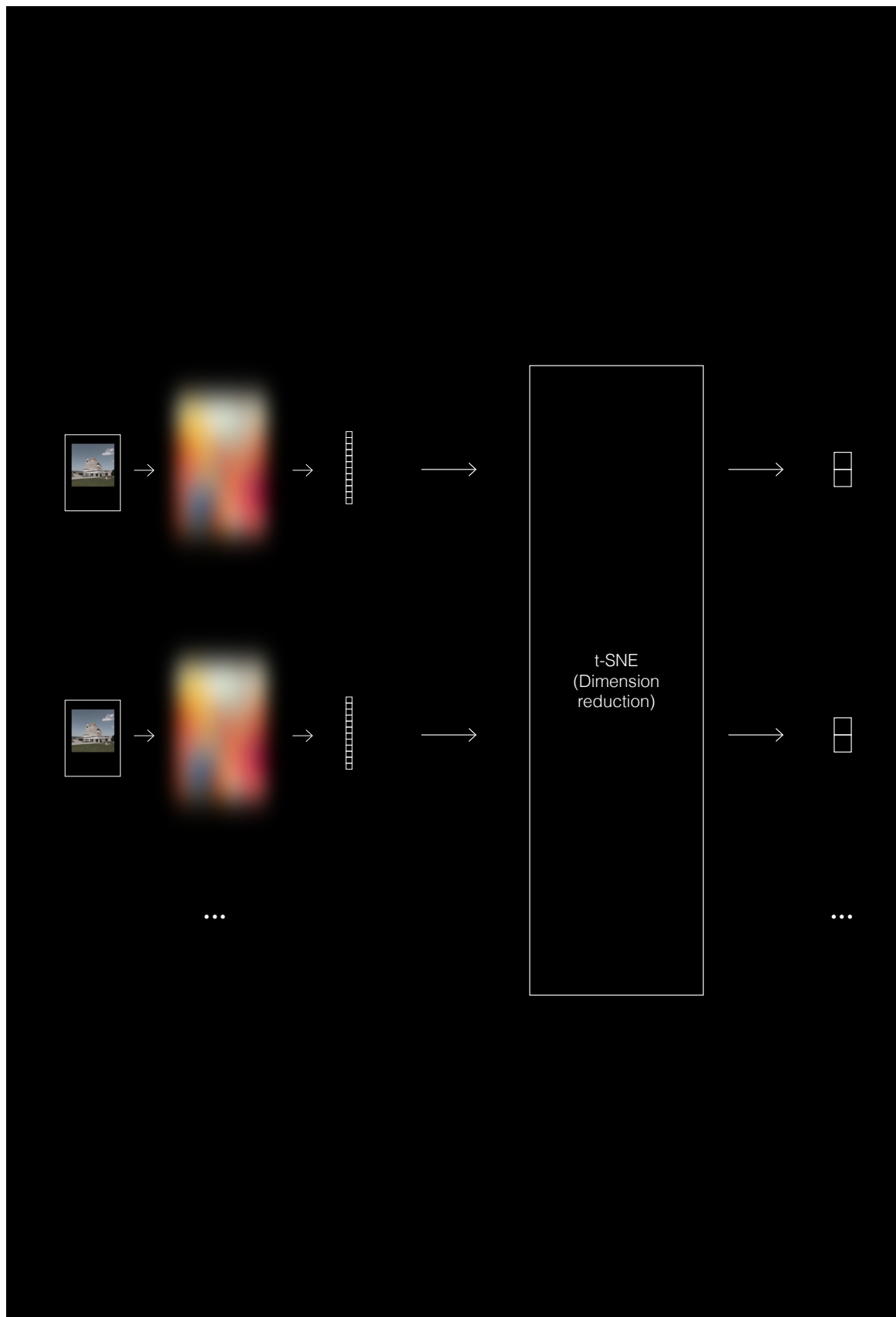


Image

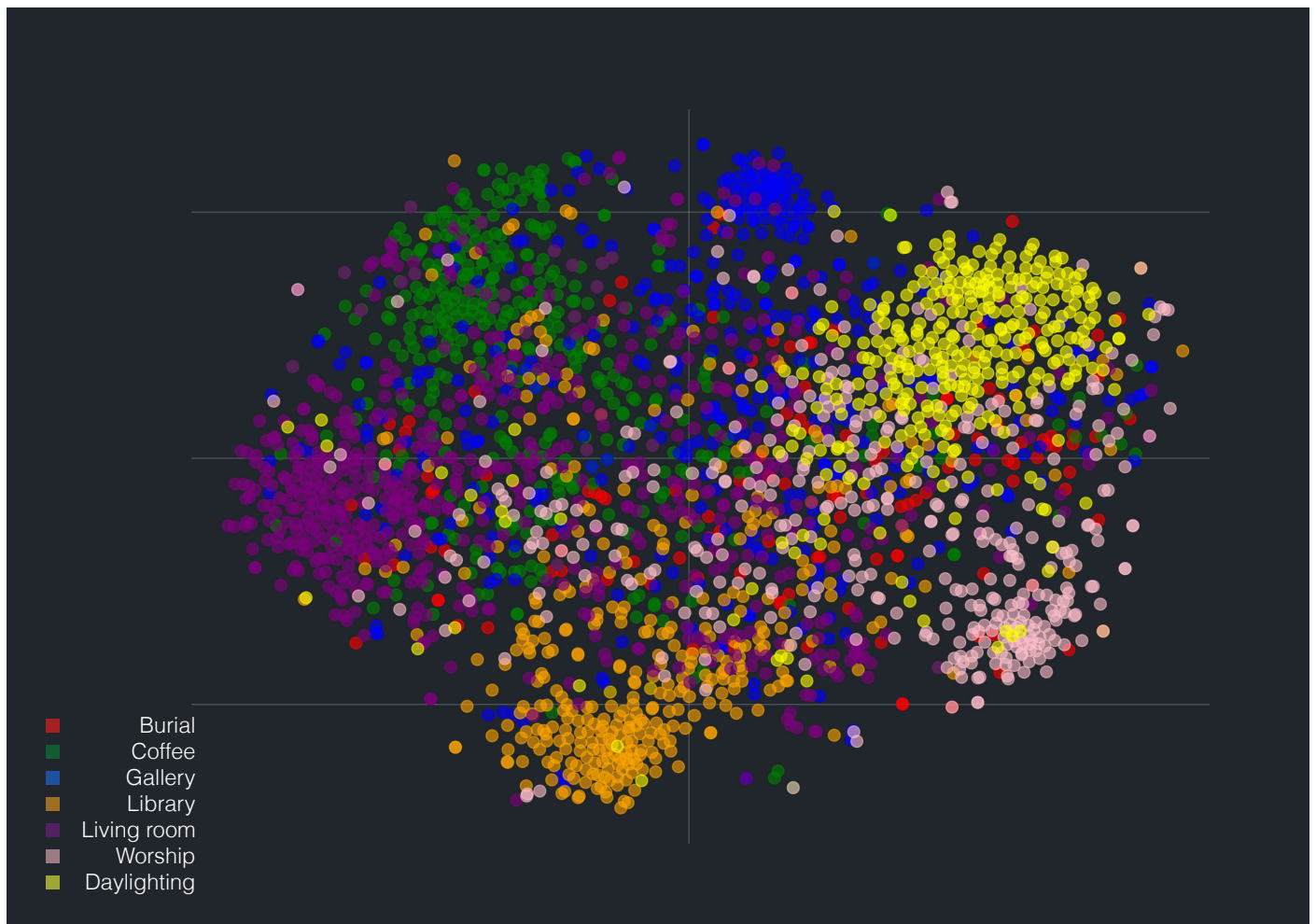
Model

Vector Embedding

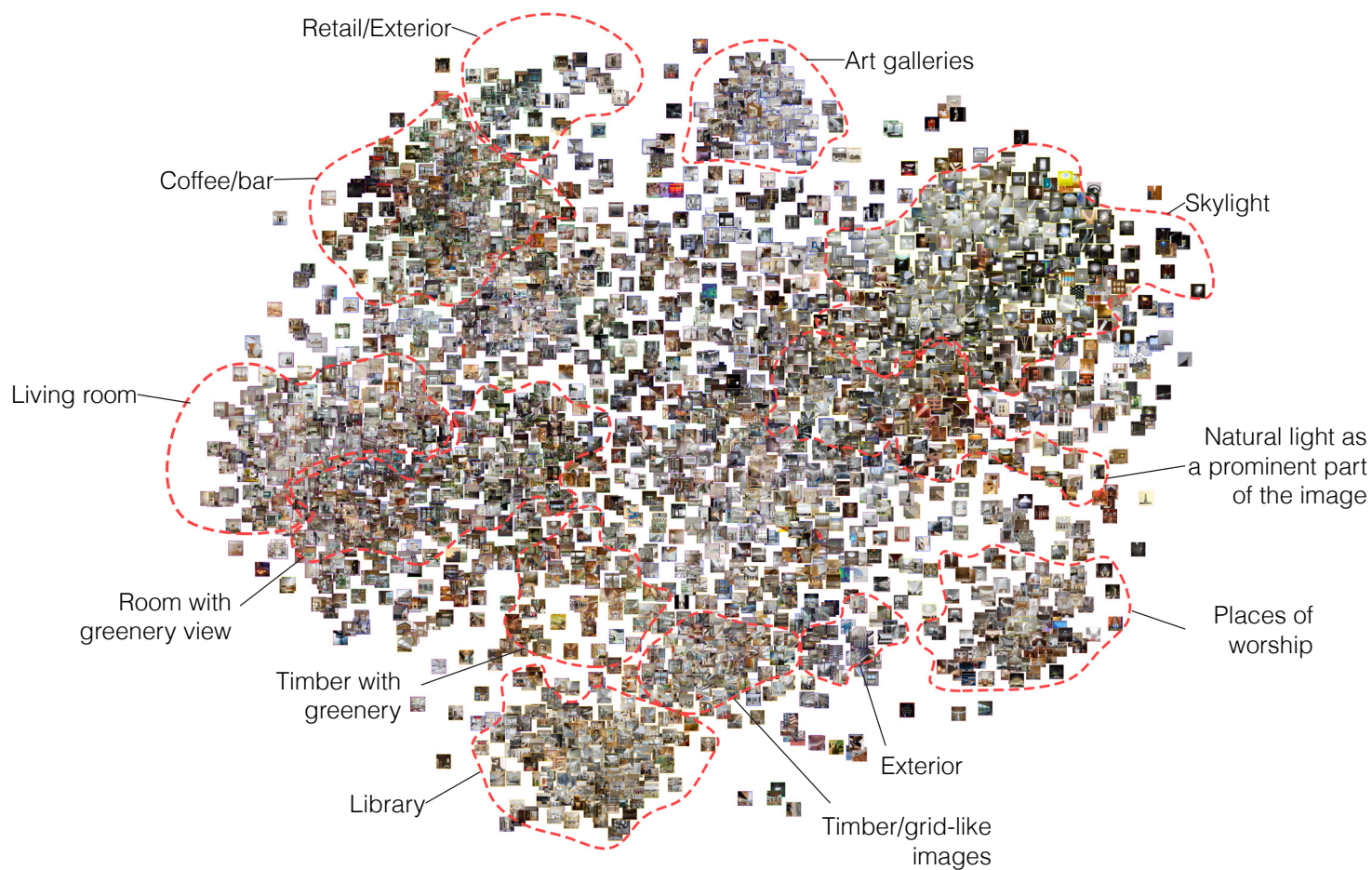
## From embedding to coordinates



## Coordinates plotted in a 2D plot

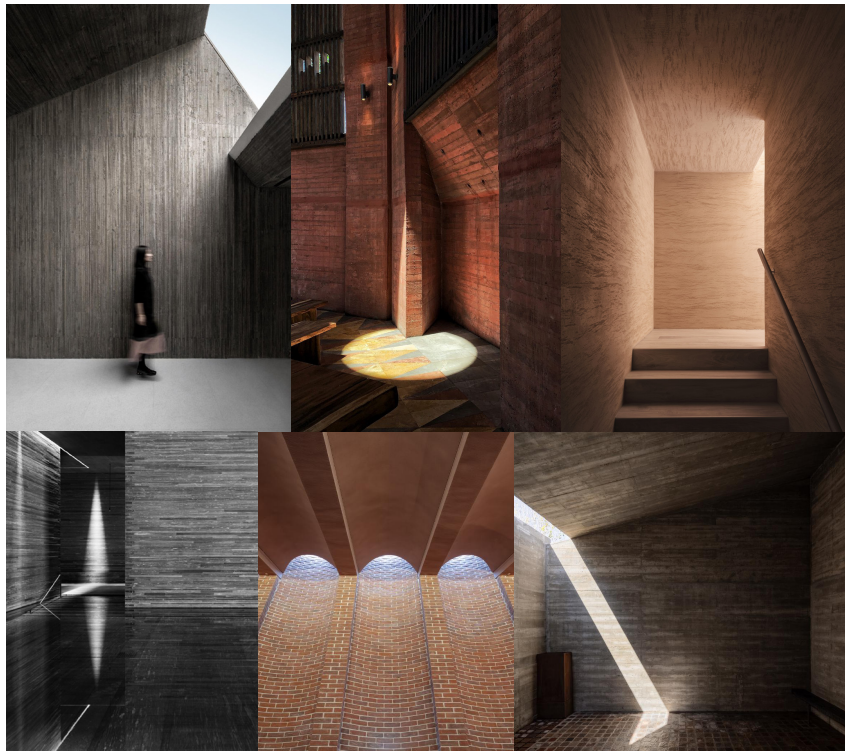
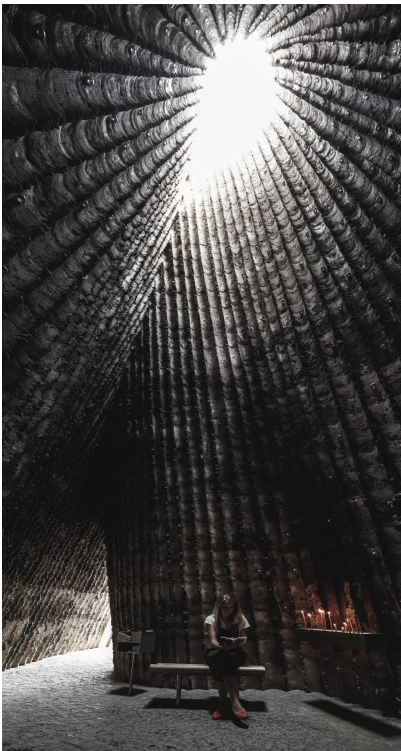


## 2D positions on plot showing semantic meaning

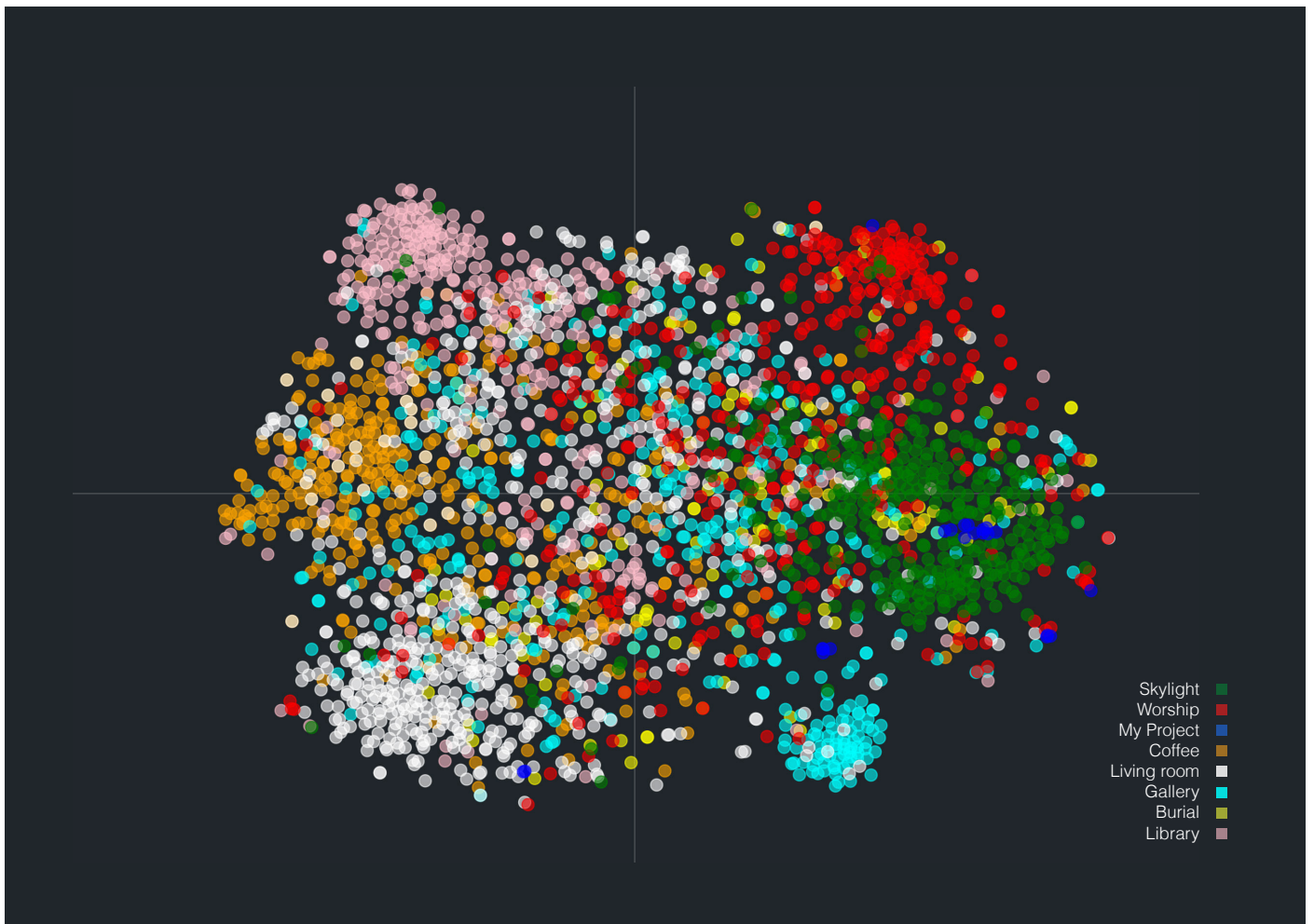




## Use case 1: Precedent Finding



## Use case 2: Evaluating My Project



# Design Brief

A space that would allow for the user to approach death in a more direct way.

The design is intended for patients with terminal illness that chooses the option of withdrawing from routine life and society in order to contemplate and process the impossible concept of death.

The design aims to serve as a liminal space (a space of transition) between this realm and the next, focused on the theme of coming to terms with mortality (and the typical palliative care).



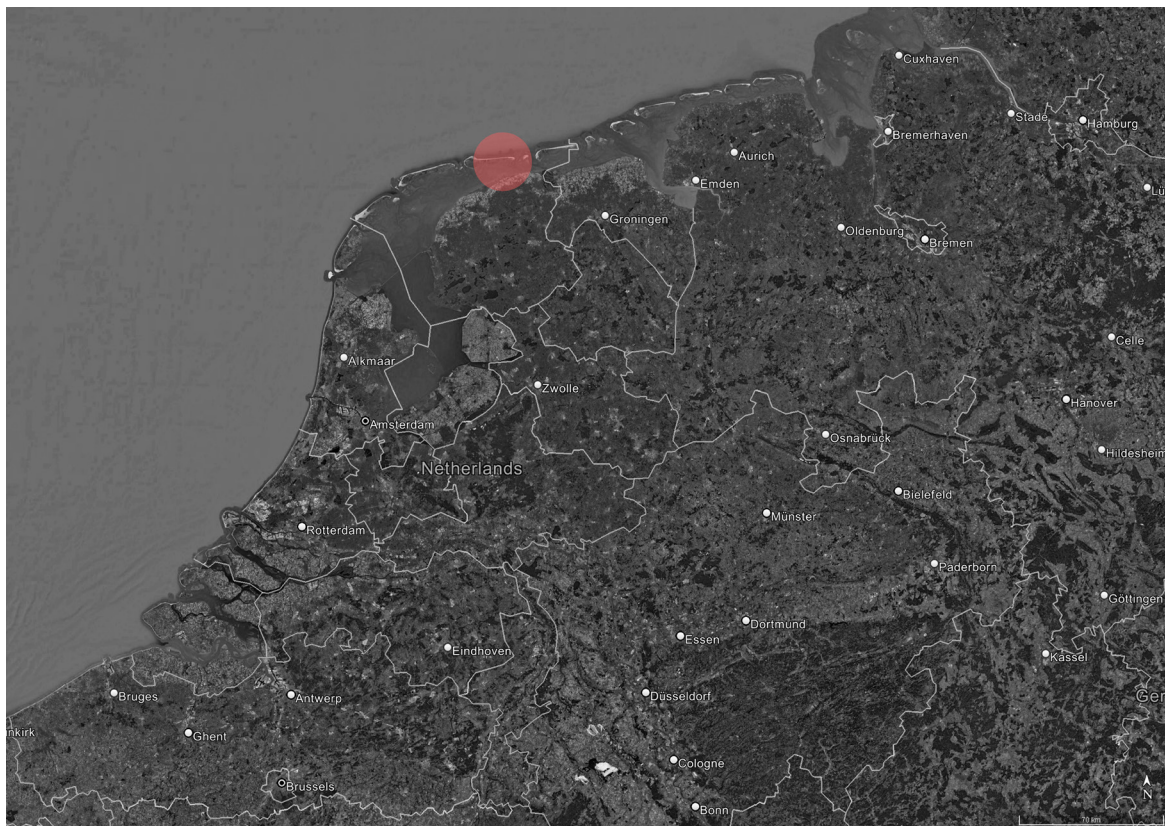
# Elizabeth Kübler Ross

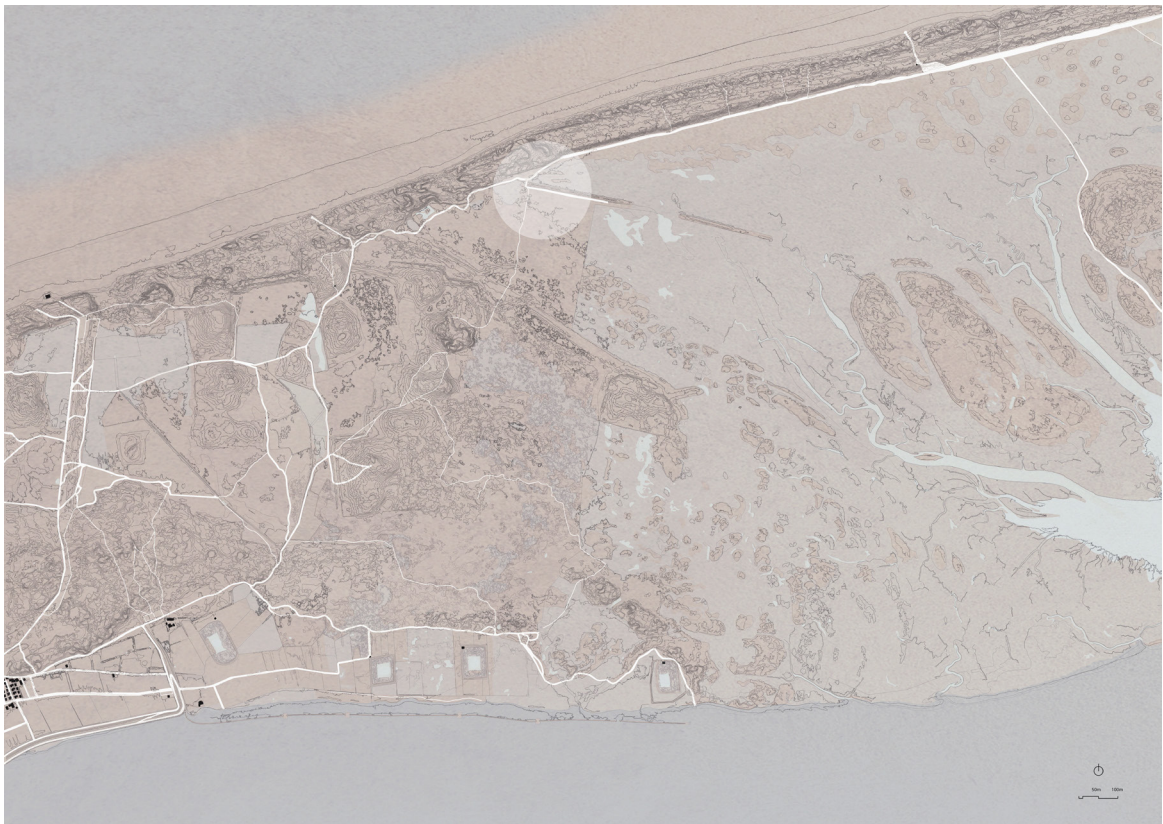
## On Death and Dying



- Denial and Isolation
- Anger
- Bargaining
- Depression
- Acceptance

## Site - Terschelling







## Site Photos













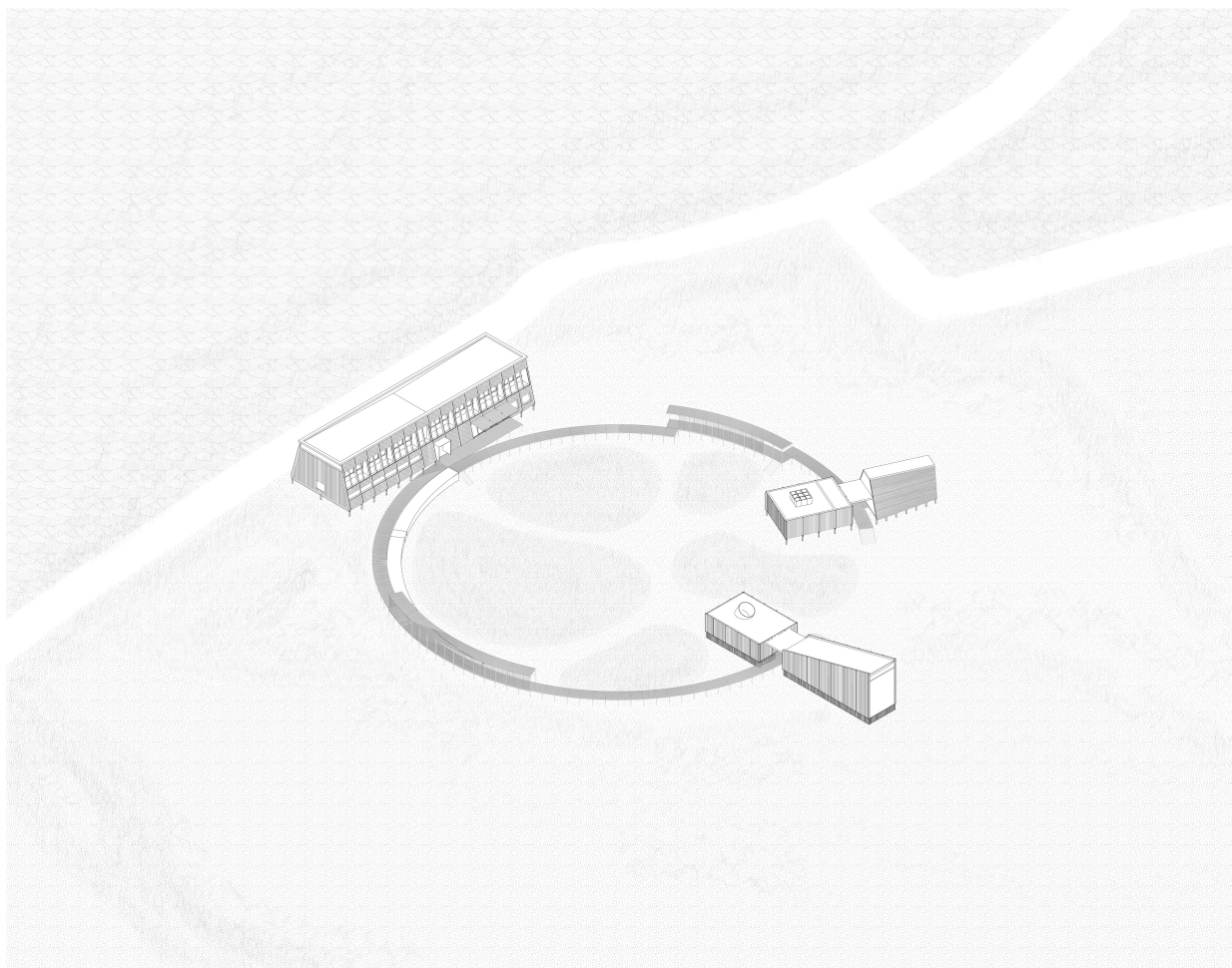
## Site Model 1:500



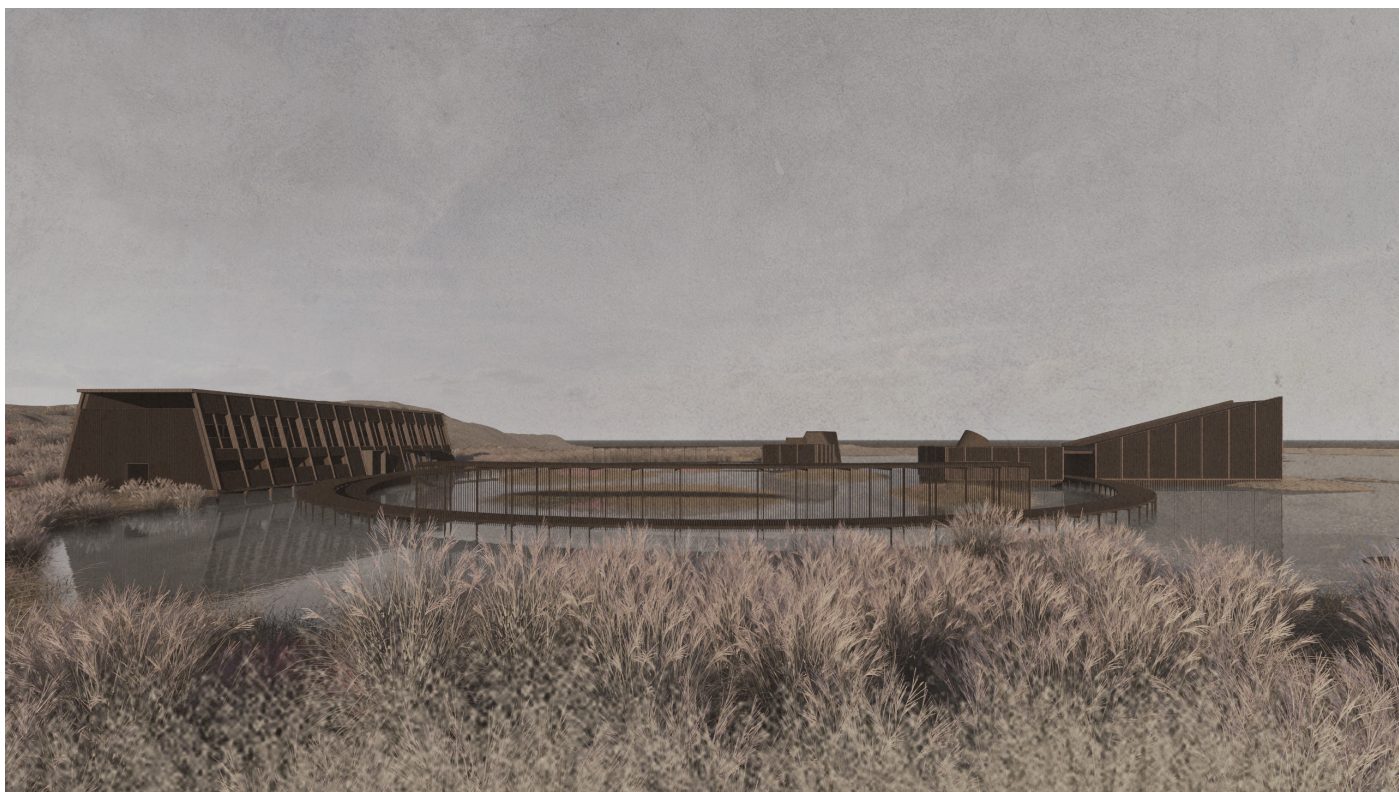


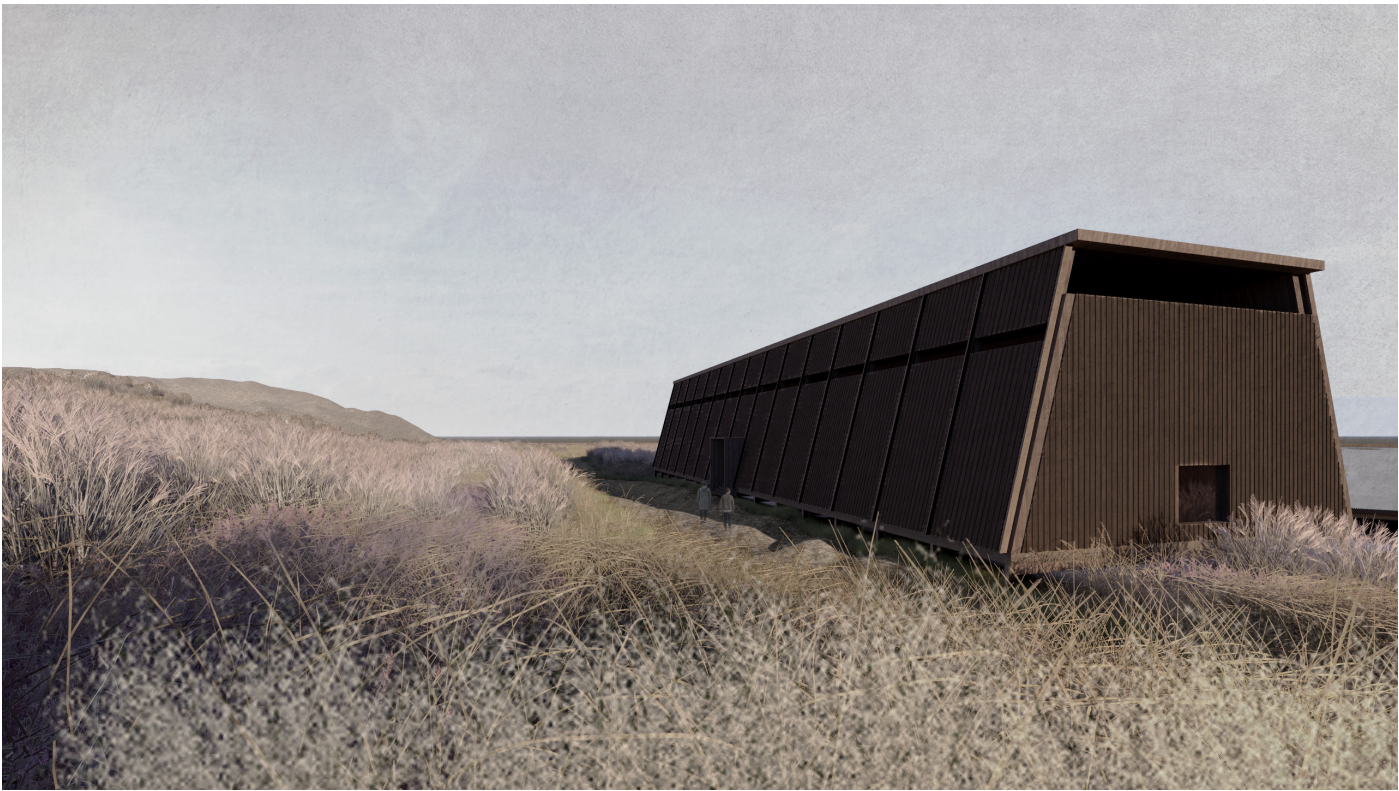
# Site Plan





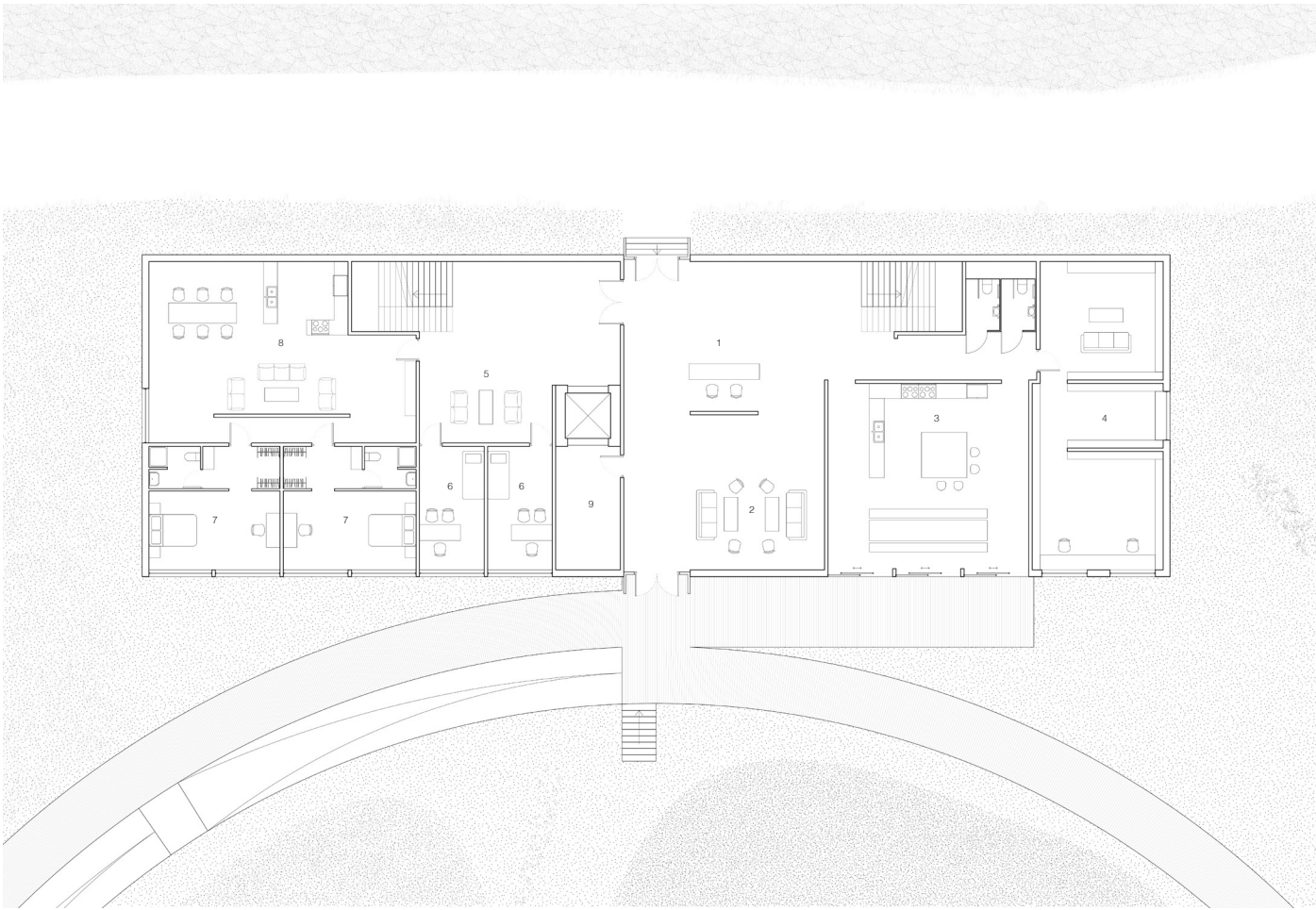






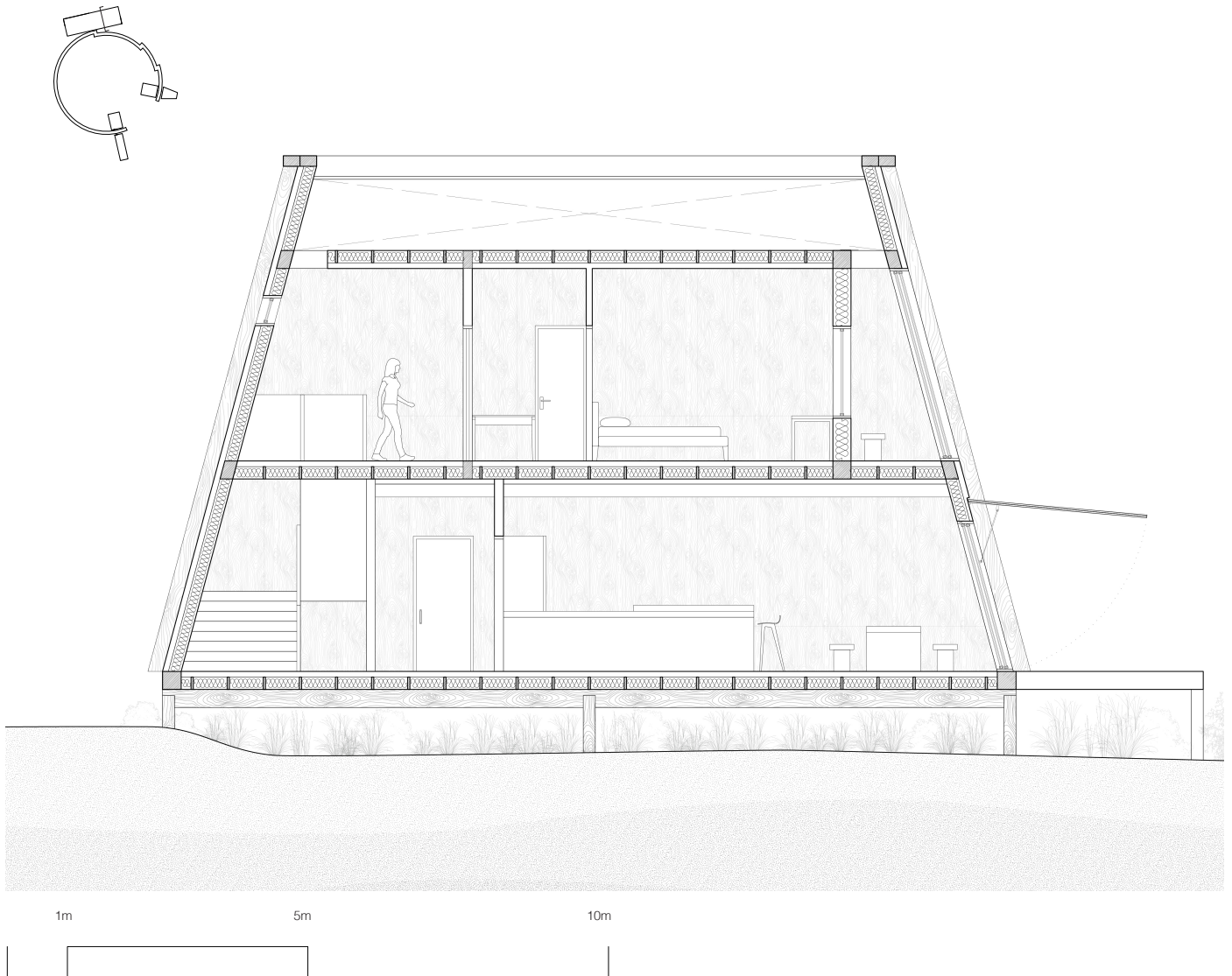


# GF Plan

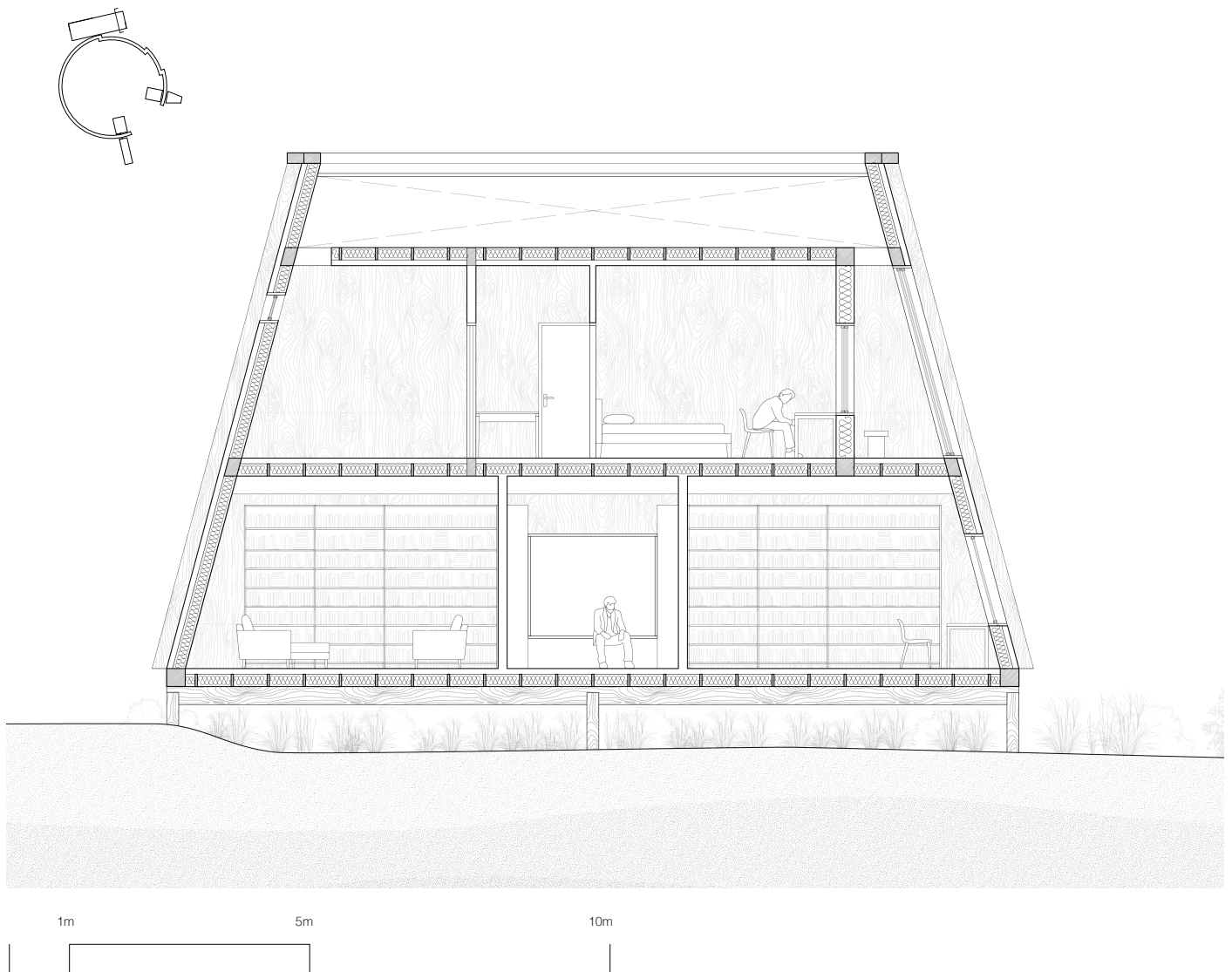


- 1. Reception
- 2. Social Area
- 3. Kitchen / Dining Area
- 4. Library
- 5. Waiting Area
- 6. Medical Consultation Room
- 7. Staff Bedroom
- 8. Staff Living Area
- 9. Plant Room
- 10. Guest Bedroom

# Main Building Short Section



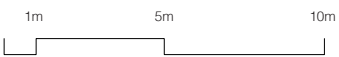
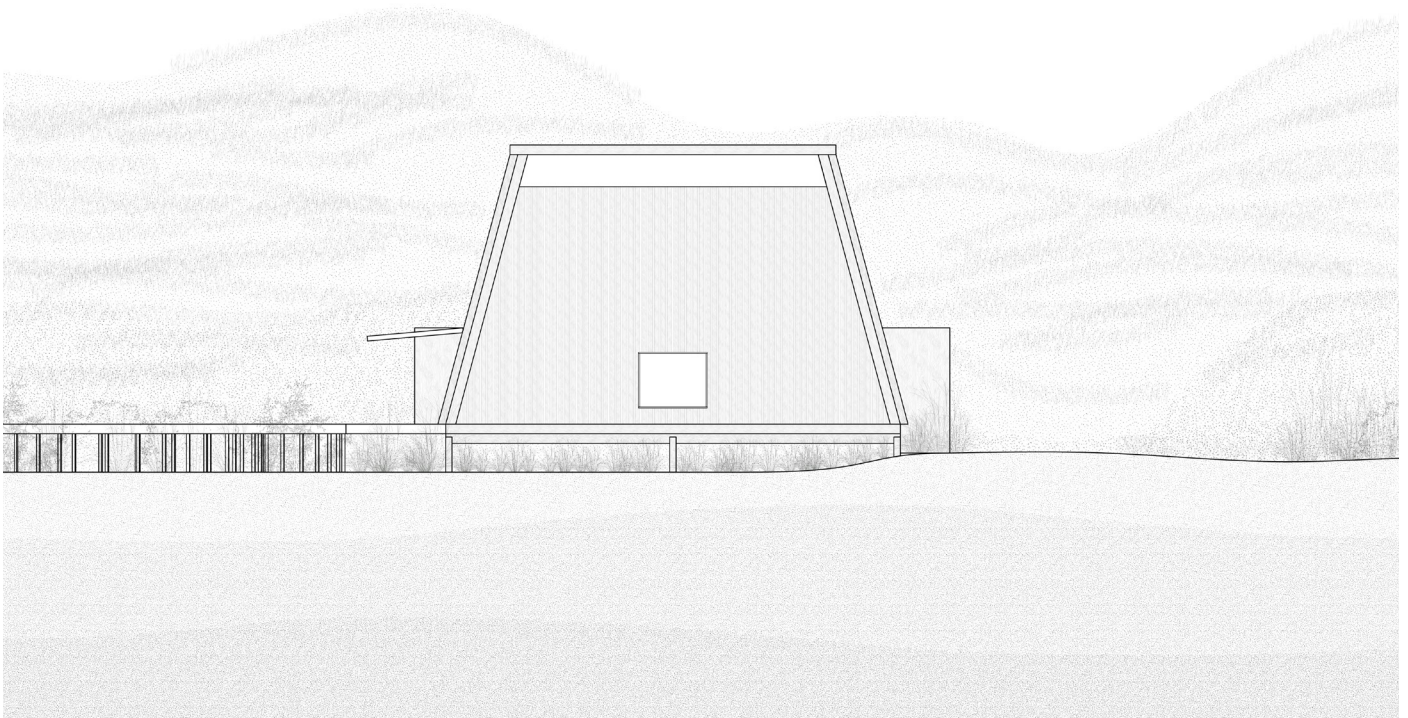
# Main Building Short Section



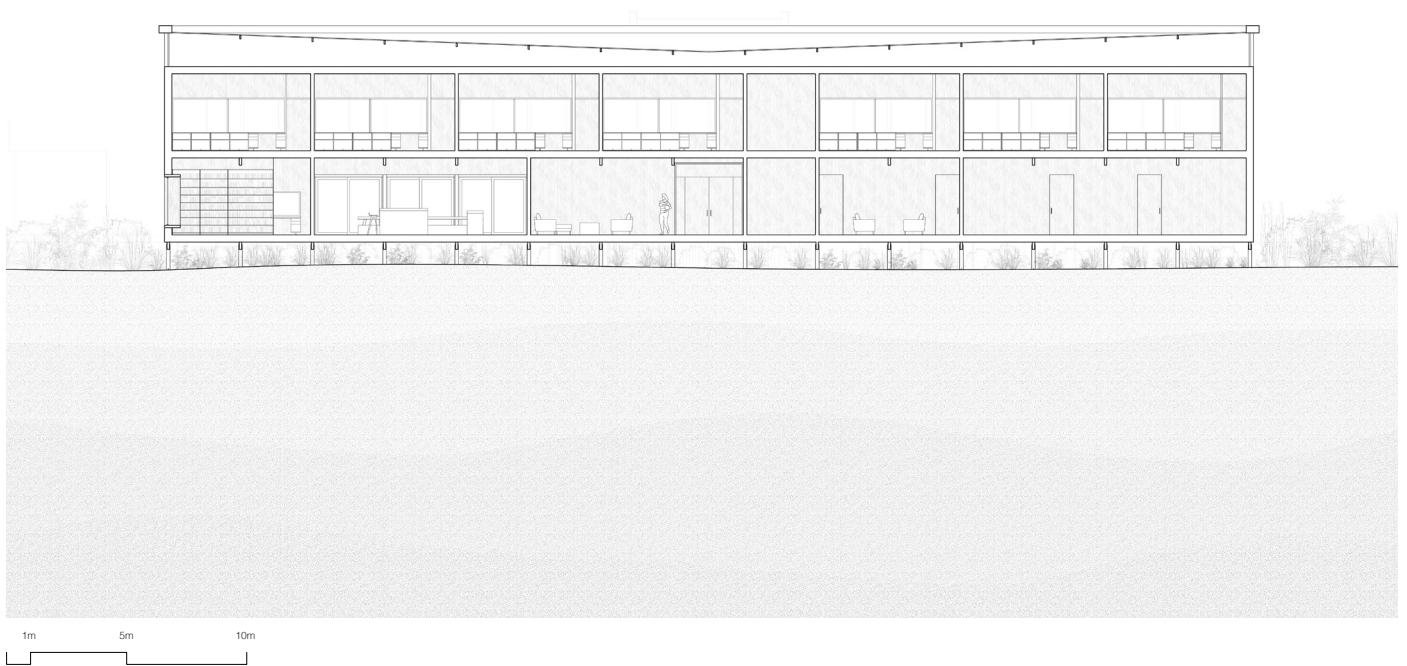




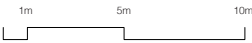
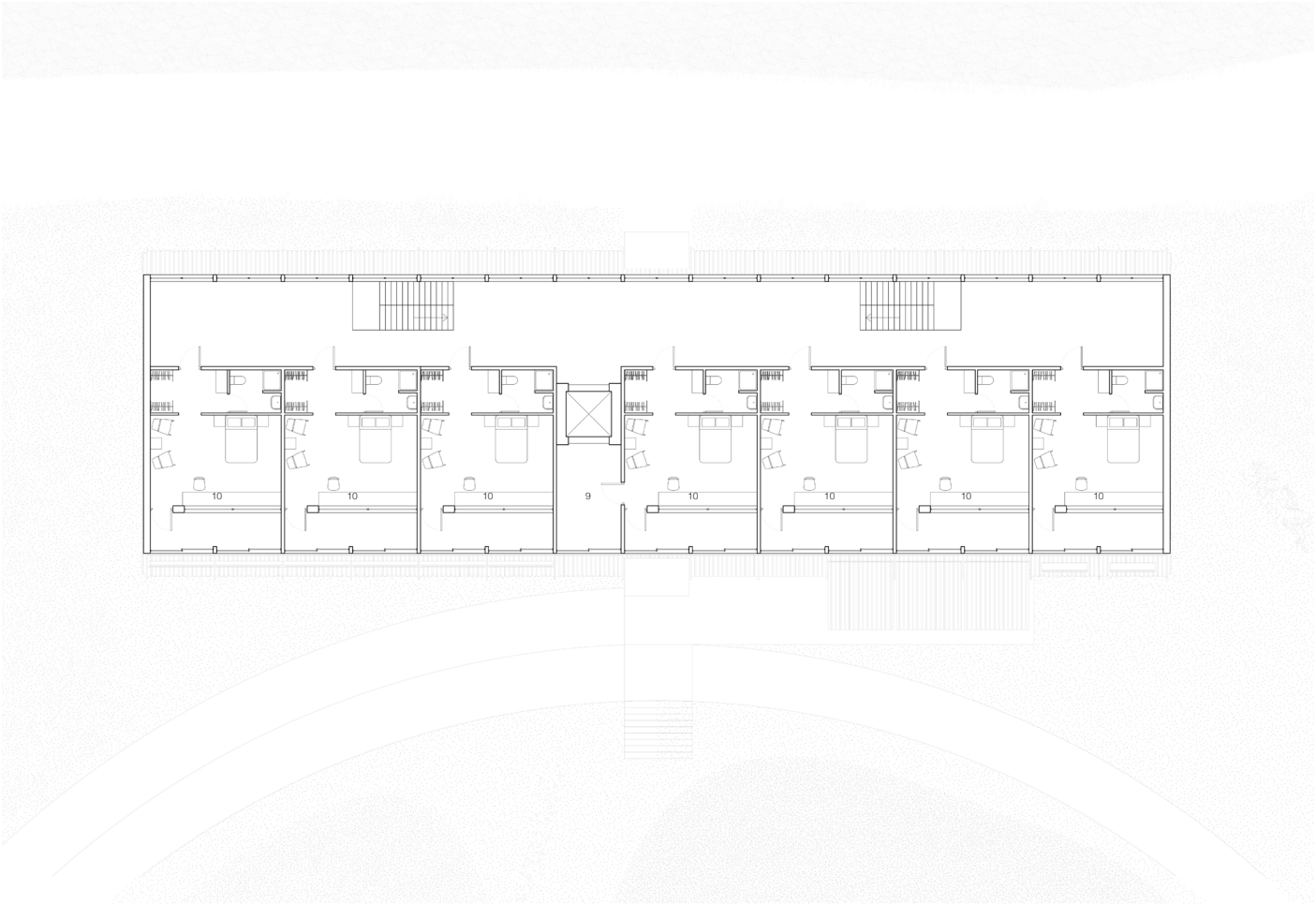
# Main Building Short Elevation



# Main Building Long Section



1F Plan



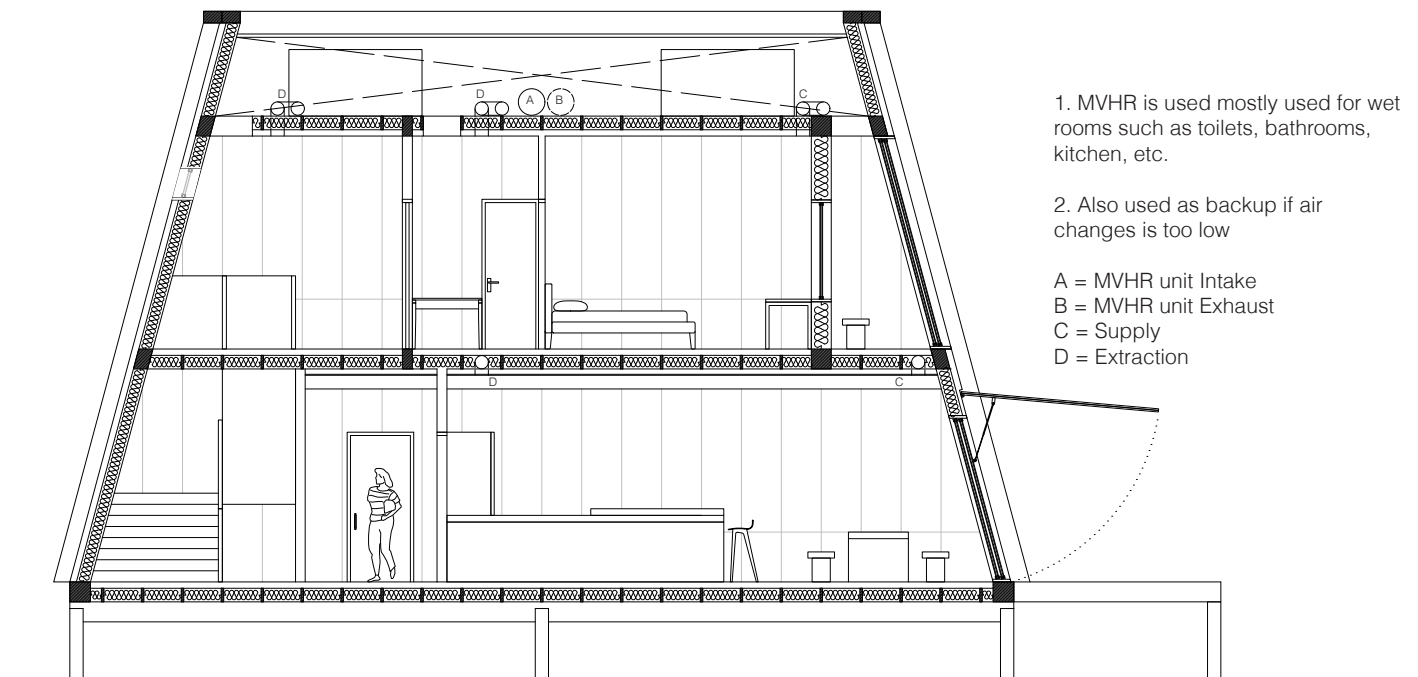
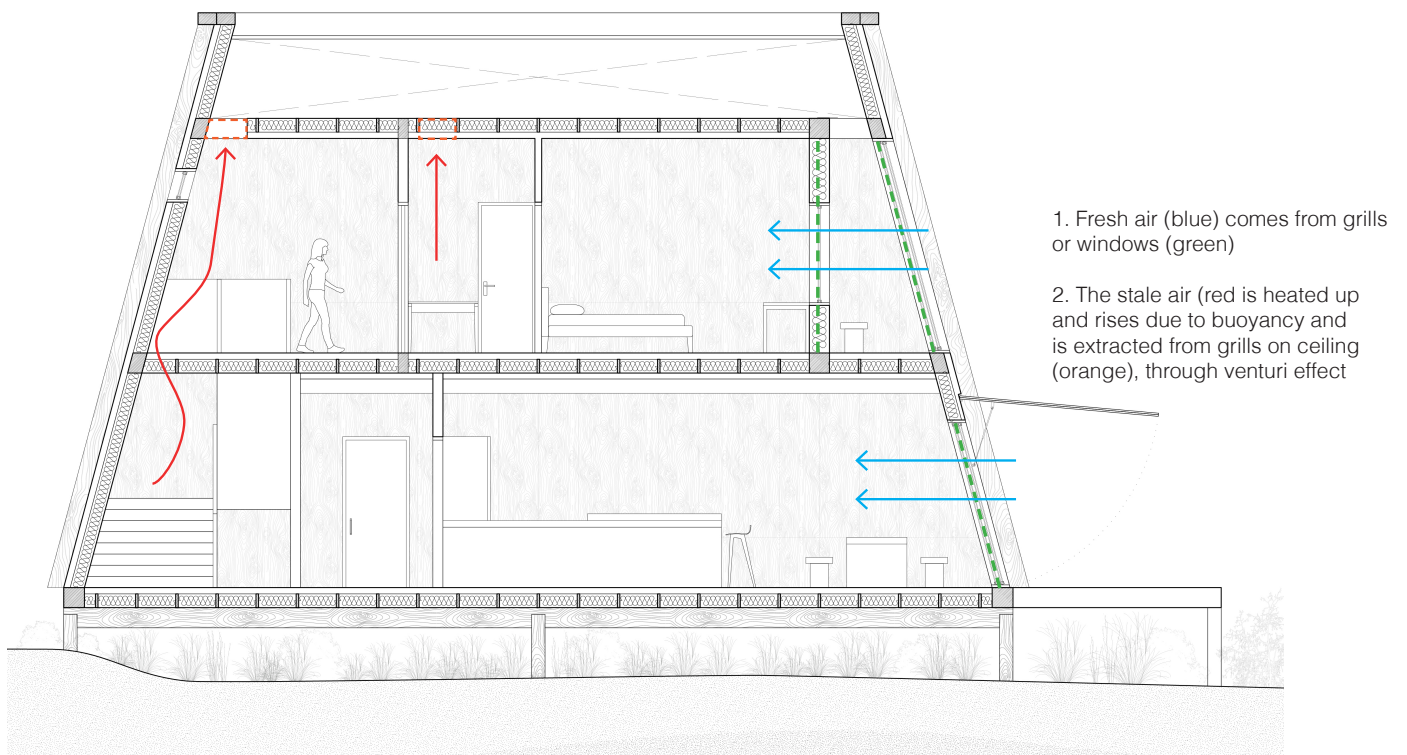
- 1. Reception
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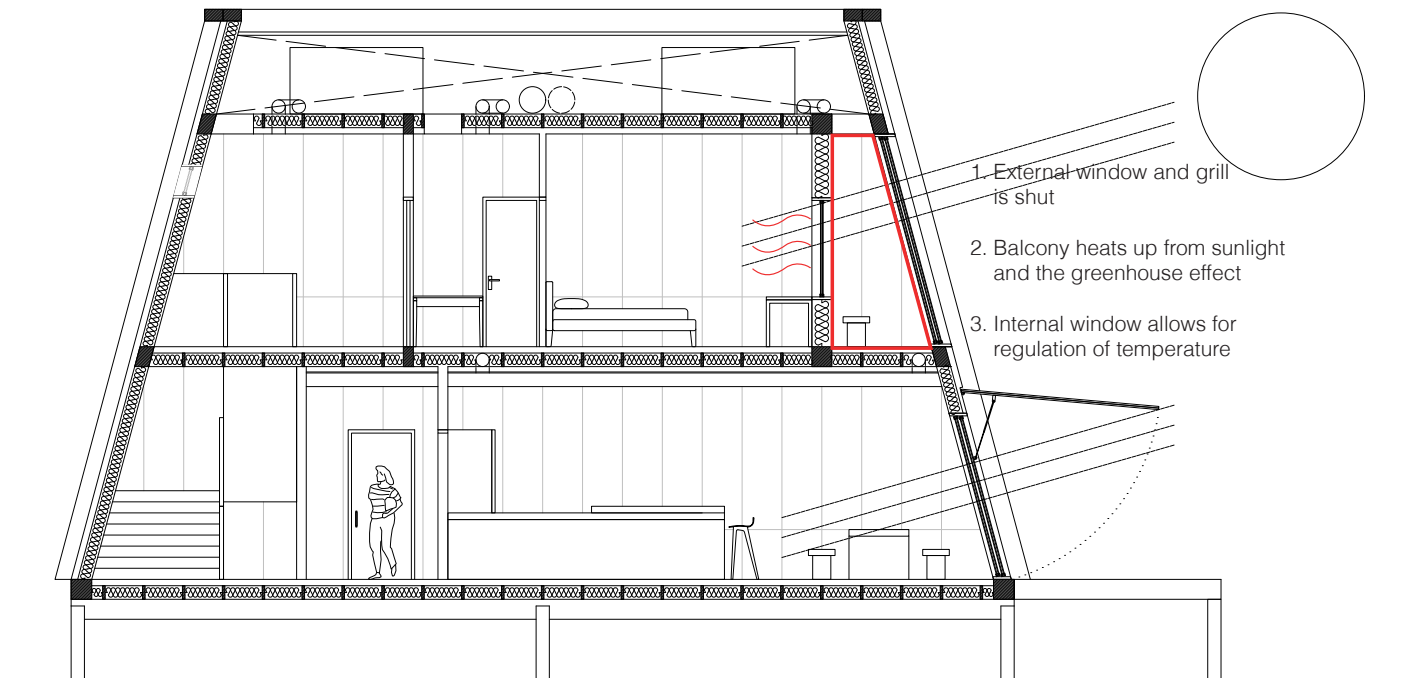




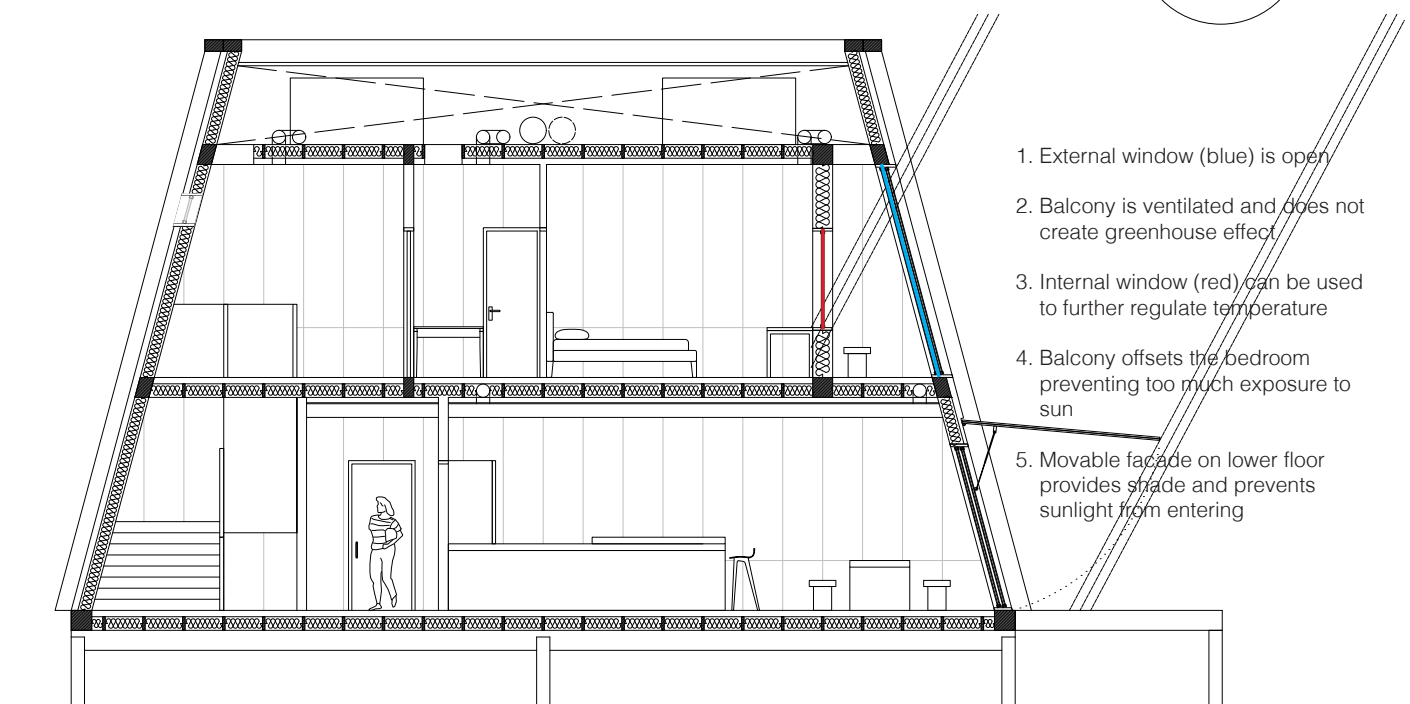
# Ventilation

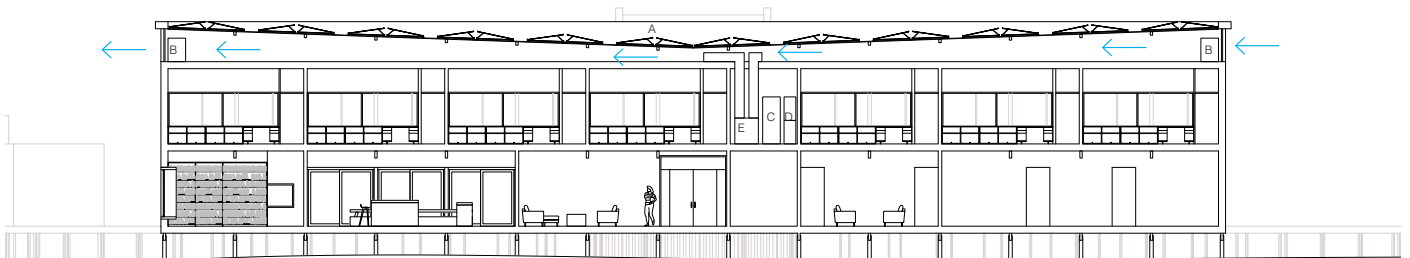


## Shading (Winter)



## Shading (Summer)





The prevailing wind comes from the west (right side of this drawing)

The roof has a sloped shape to create the venturi effect and aid with natural ventilation

A. With solar panels being more advanced and can function without direct sunlight, it is more efficient to lay it out with a 10 degree incline

B. Air source heat pump out-door units placed on the roof

C. Indoor unit to convert heat from the airtsource heat pump into underfloor heating

D. Solar panel batteries to help with electricity in shoulder months

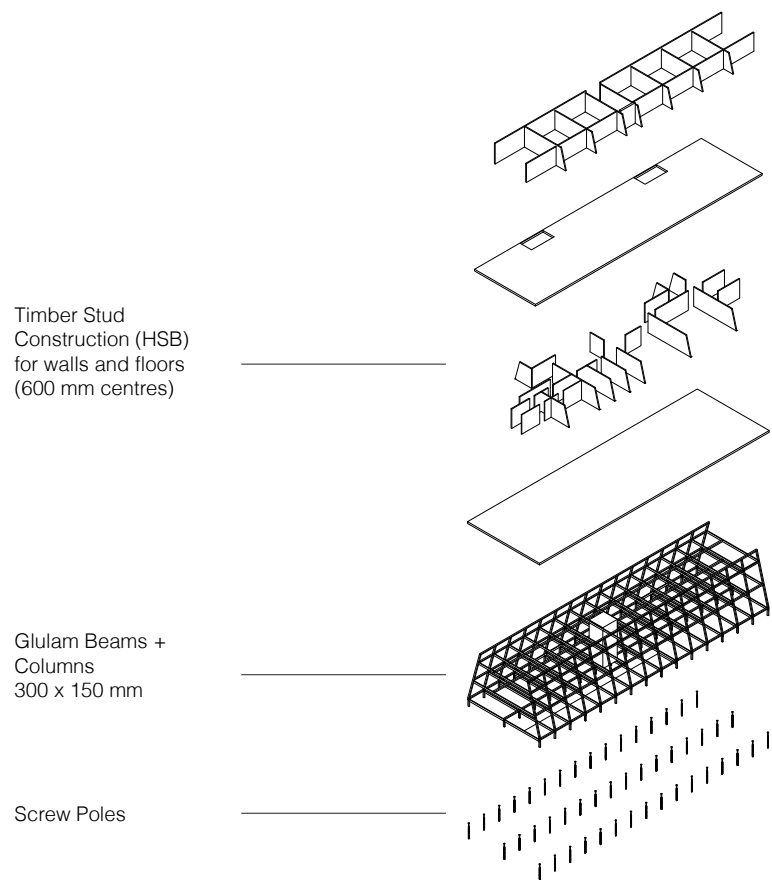
E. MVHR unit with the intake facing against the direction of the prevailing wind and exhaust facing the other way

# Main Building Long Elevation Facing North

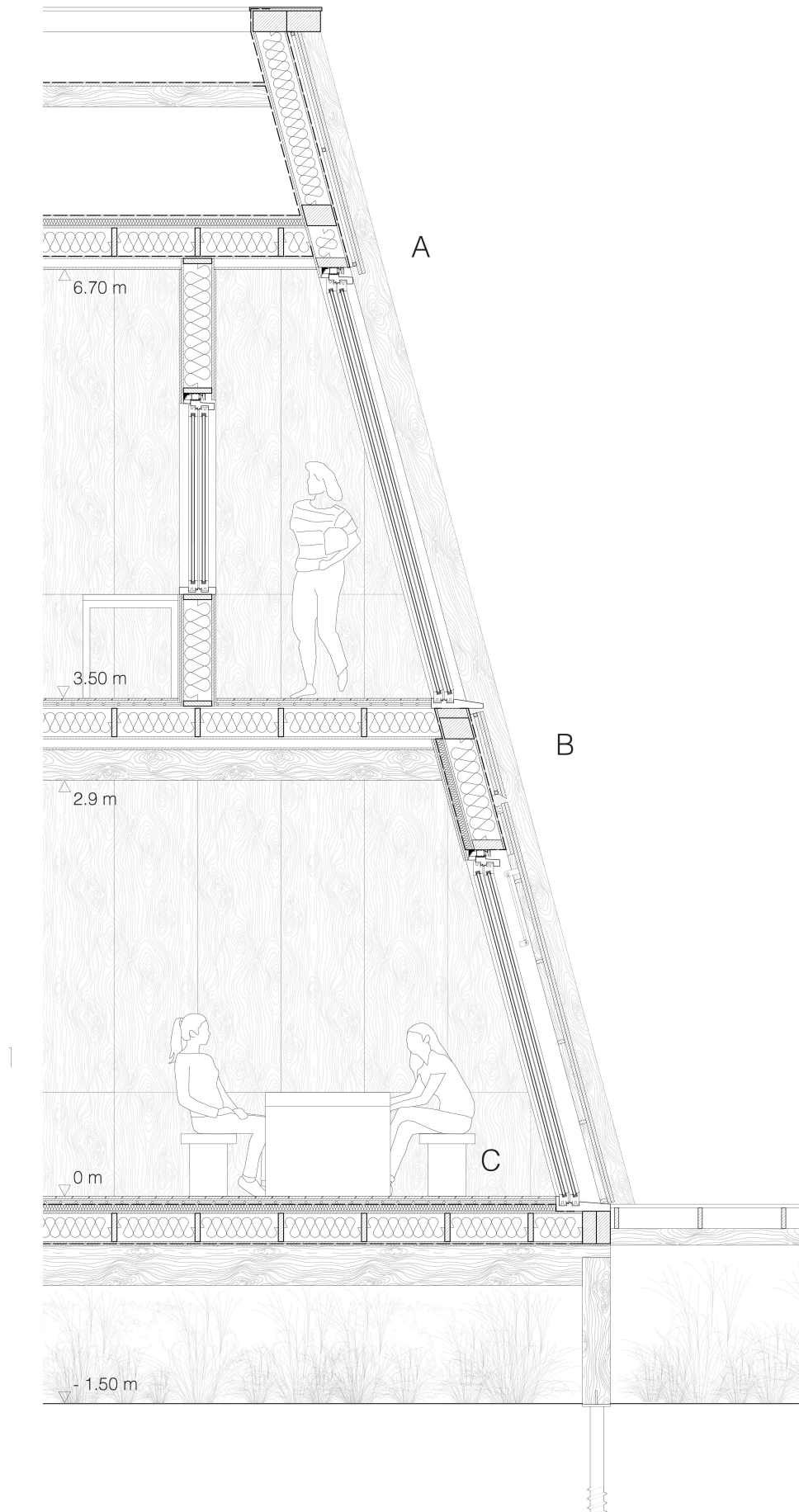




# Structural Overview



# Main Building Detail Section



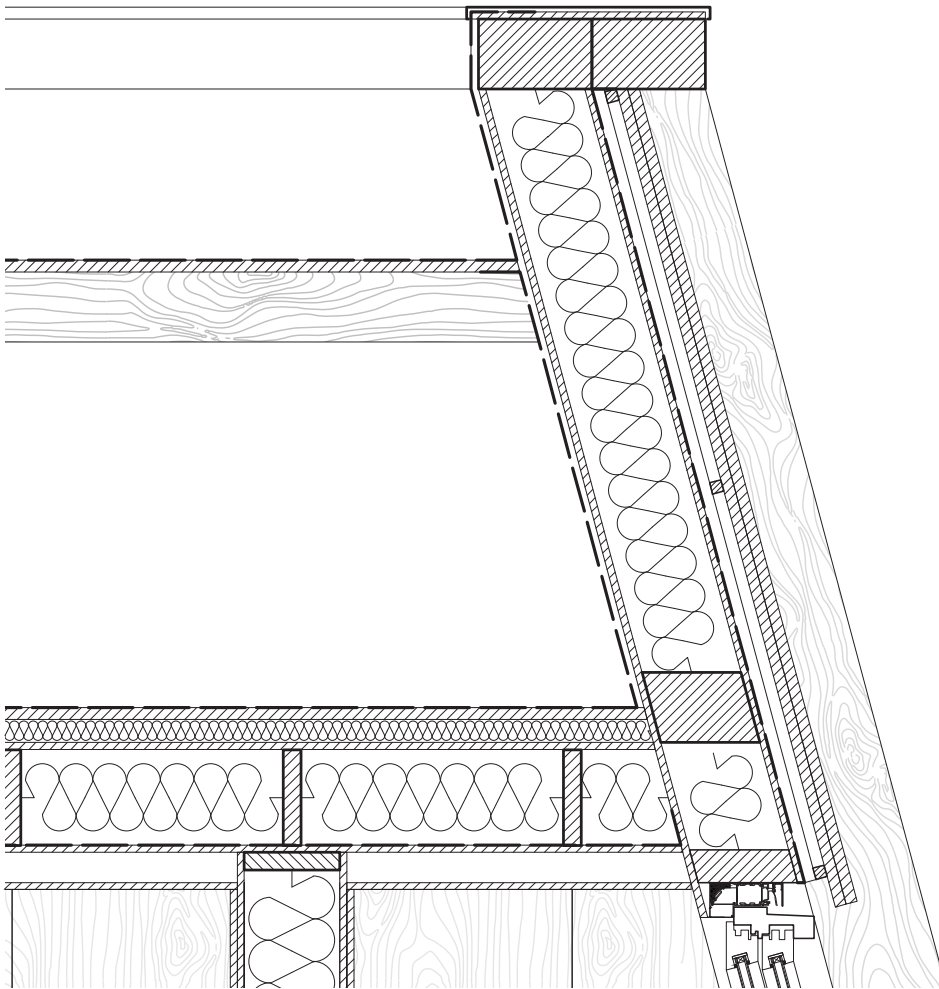
# Main Building Facade



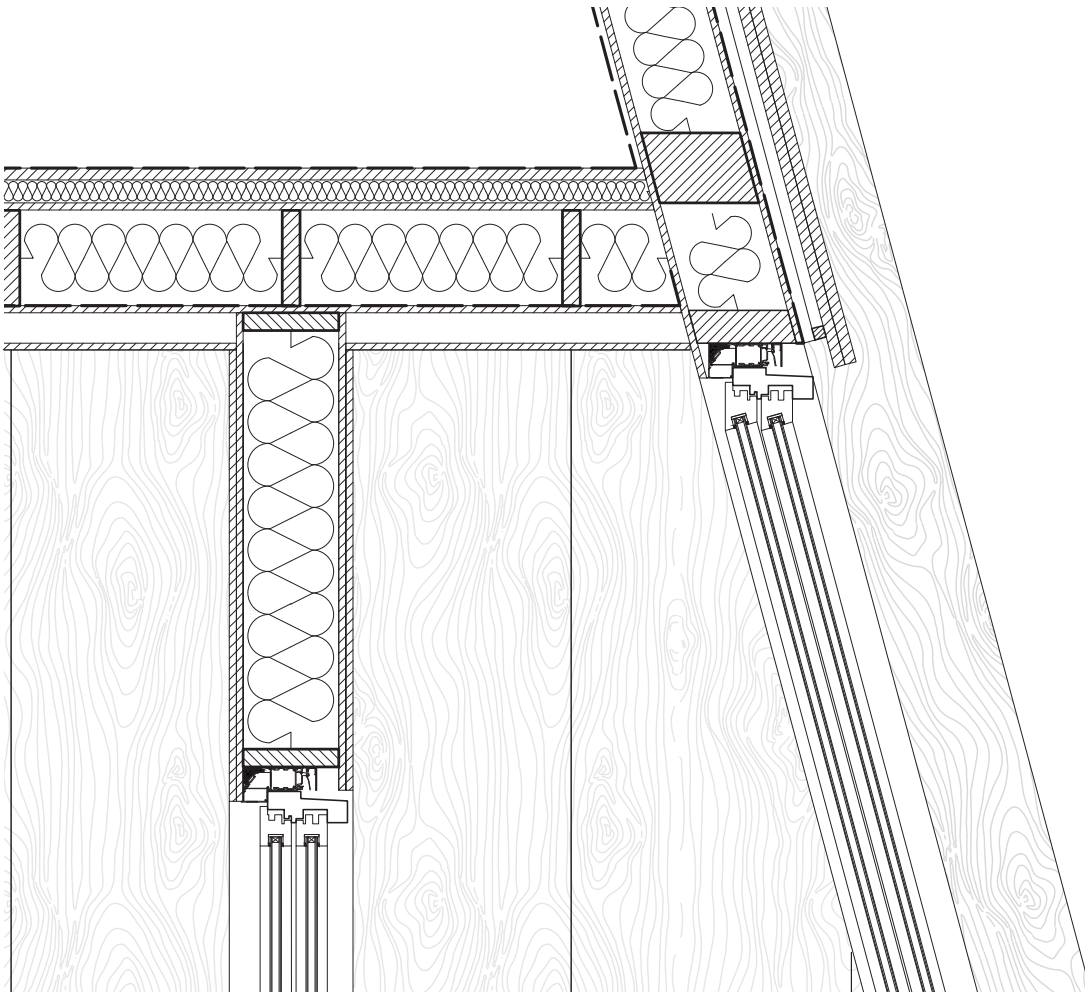
Thermo Essen  
- Cladding

Ekki Timber  
- Wet parts

# Main Building Detail A

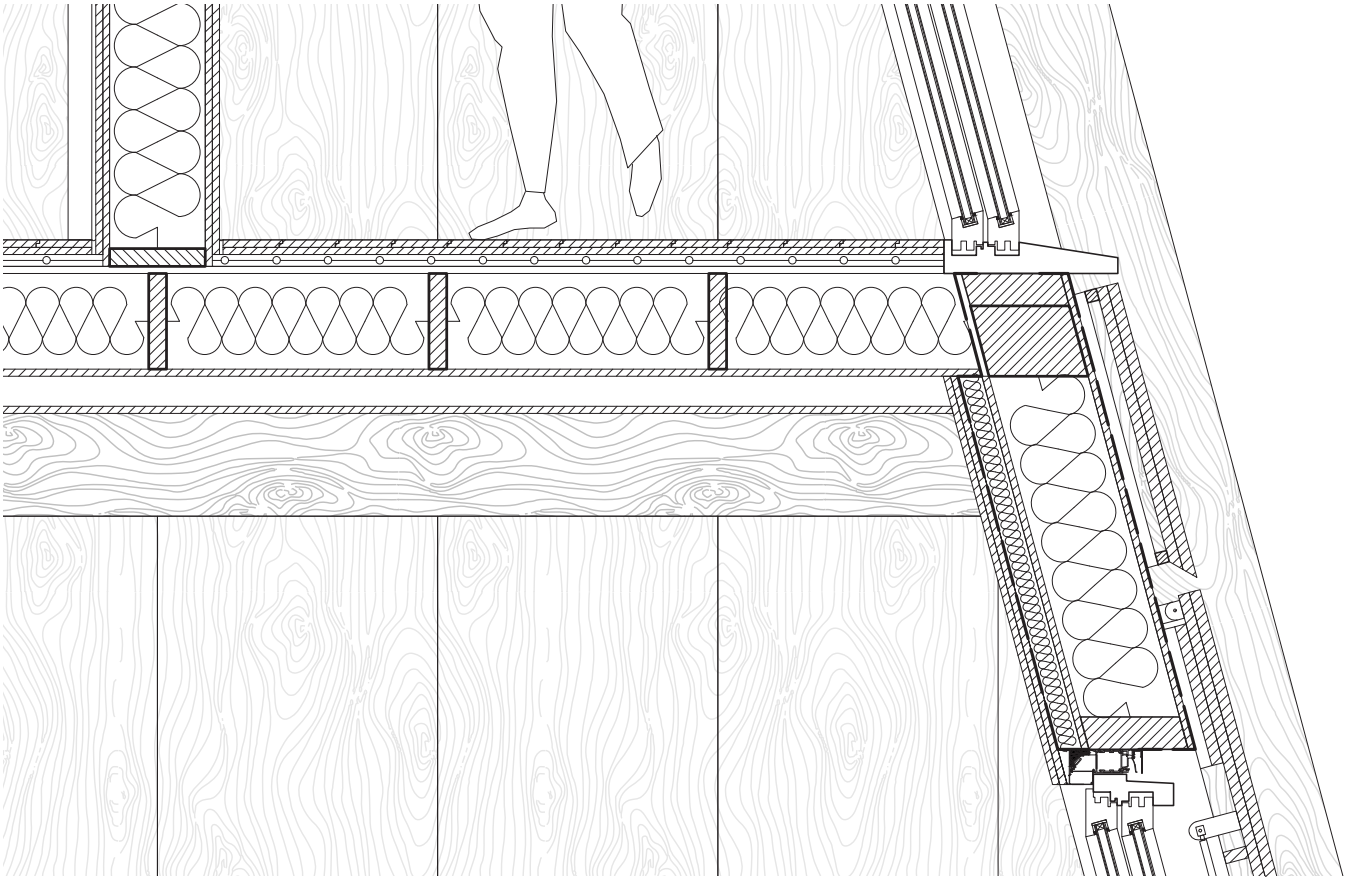


# Main Building Detail A

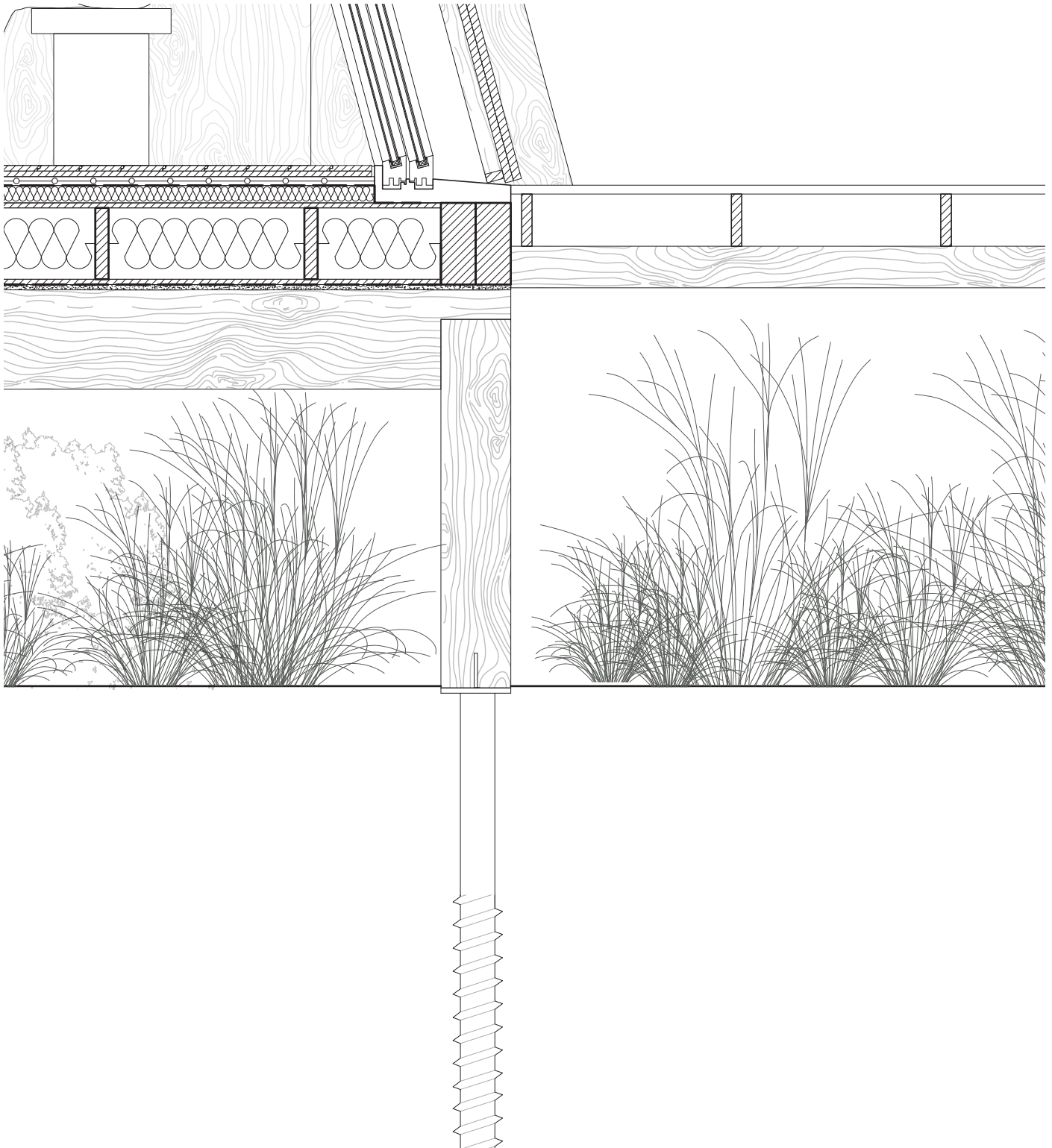




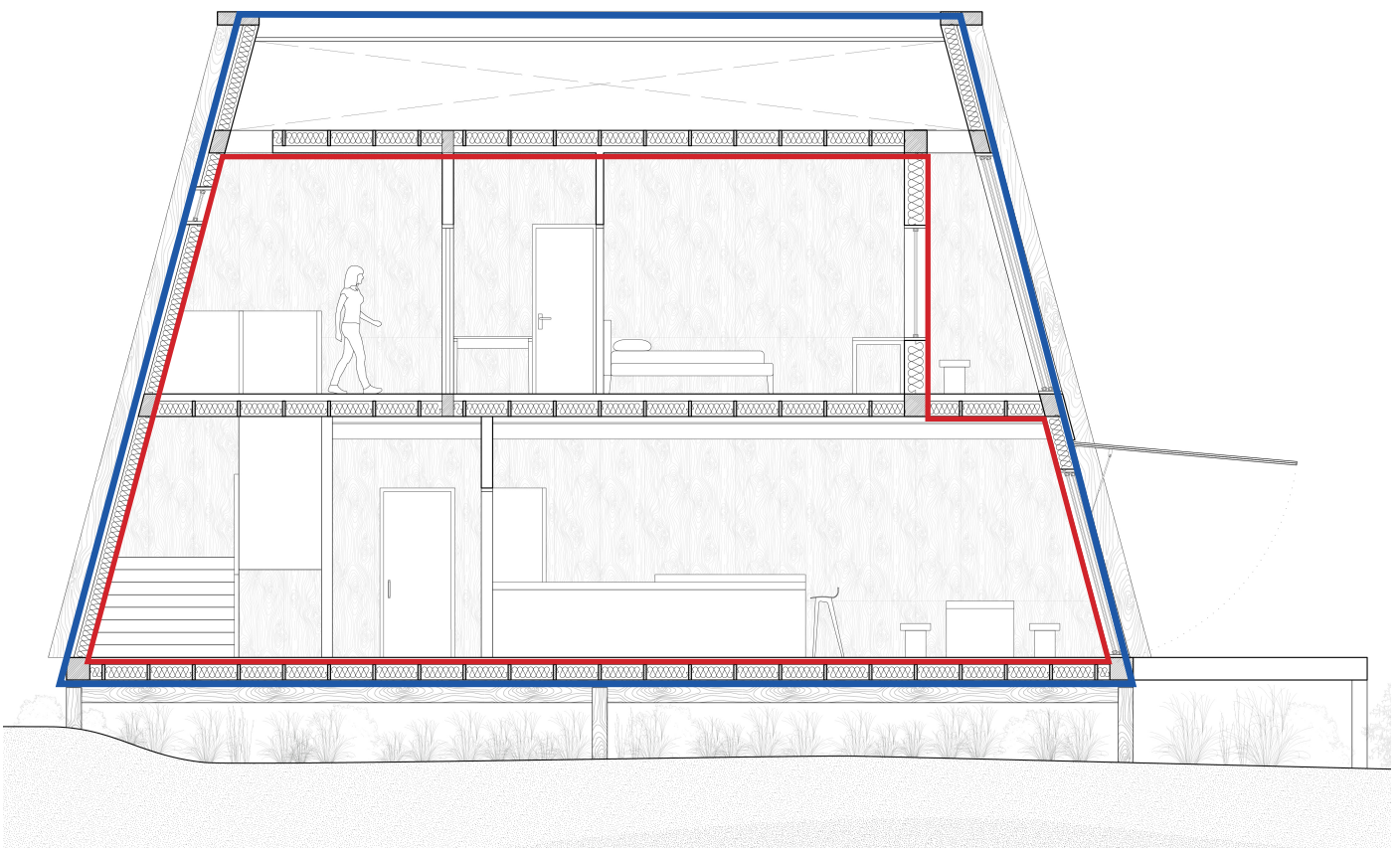
## Main Building Detail B



# Main Building Detail C

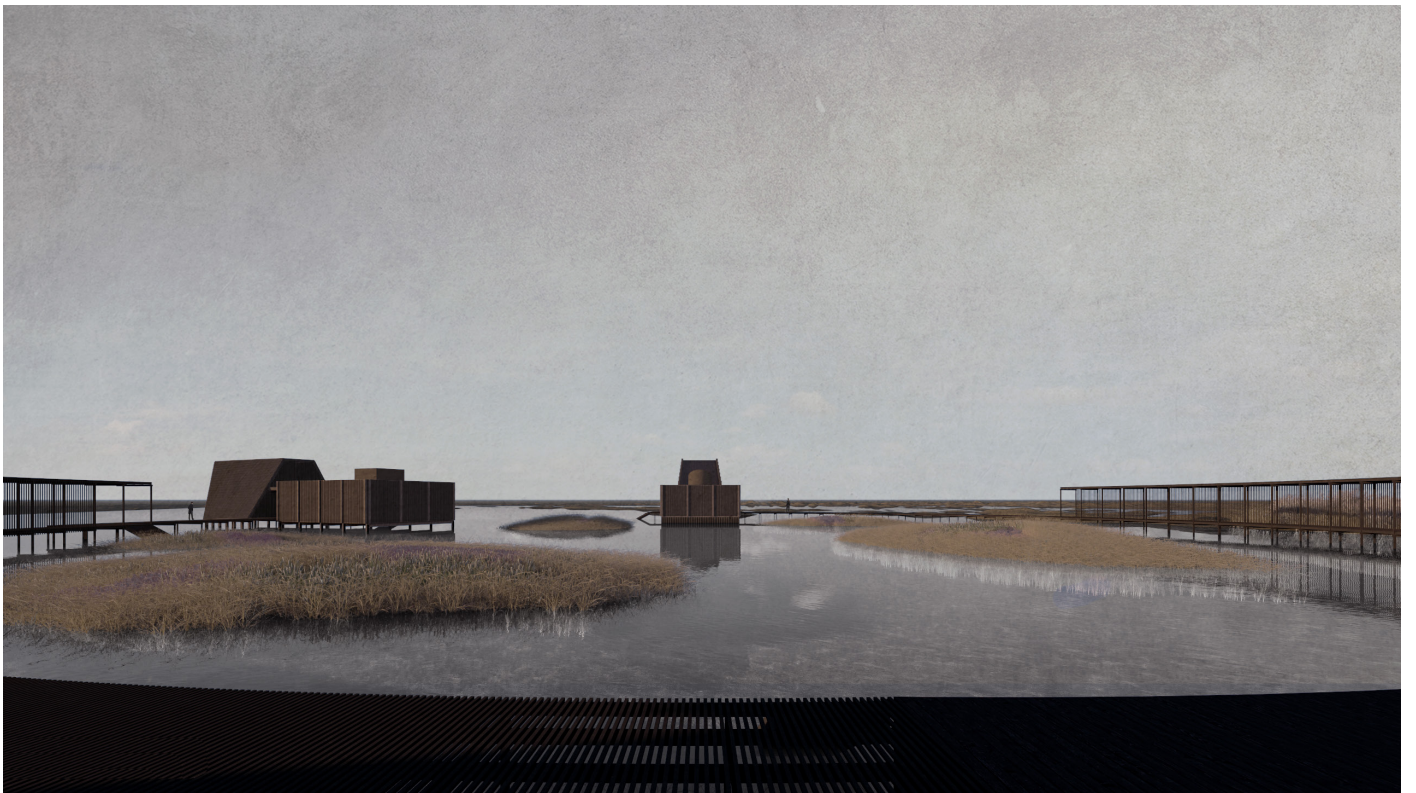


## Outer and Inner Skin

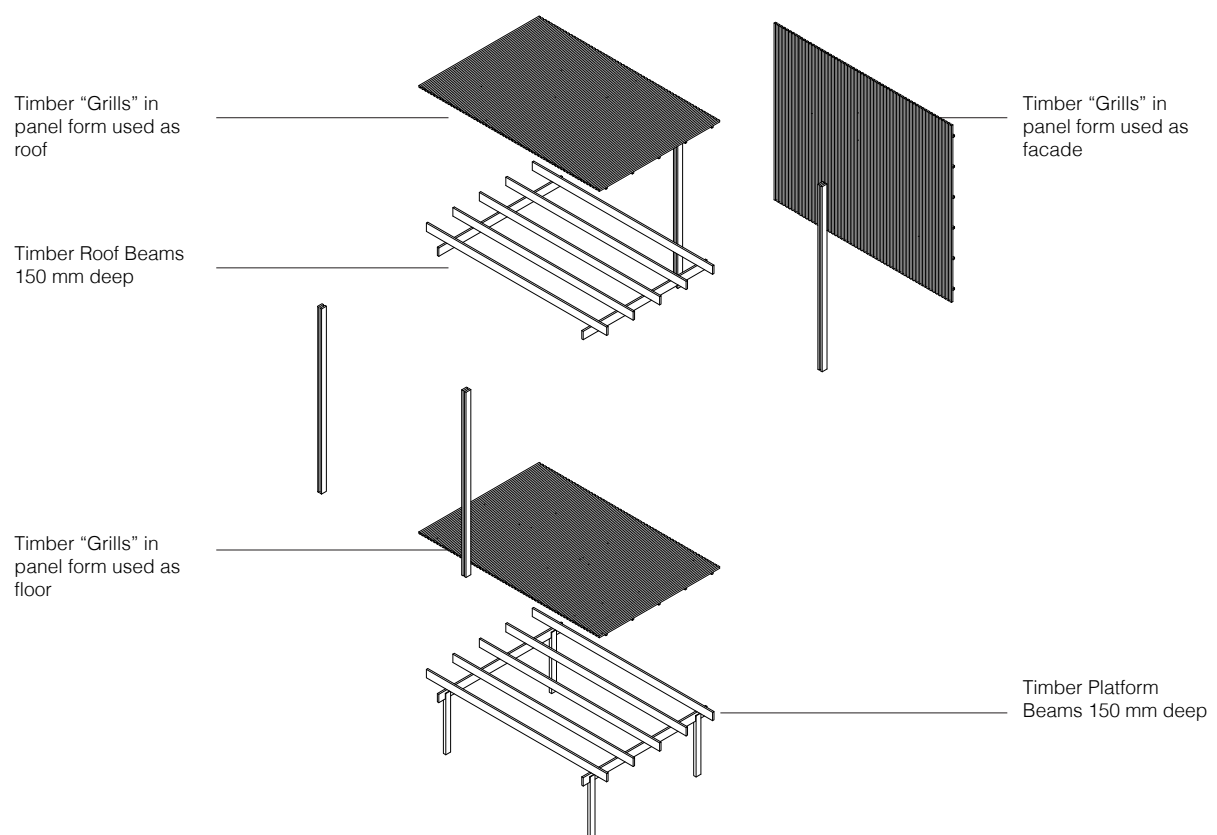


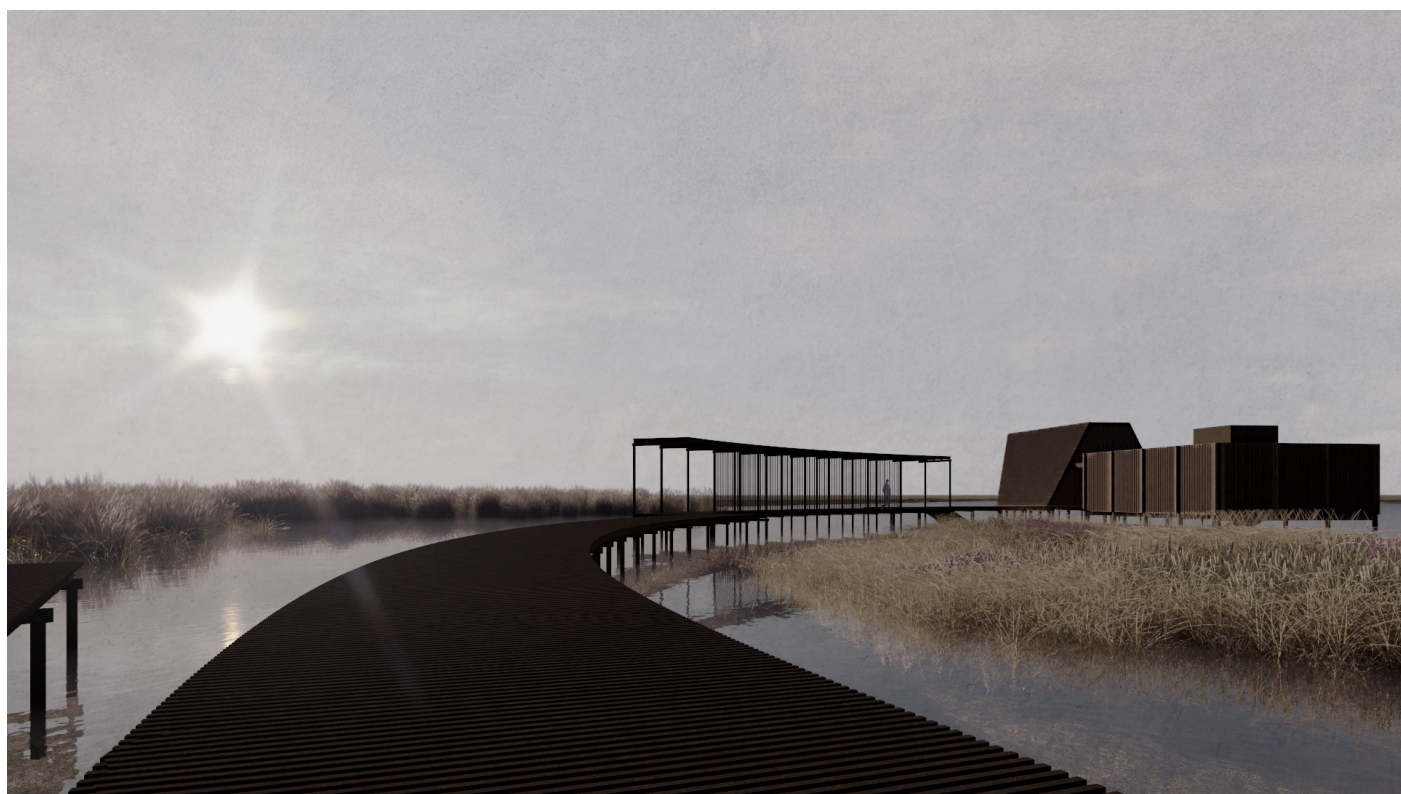






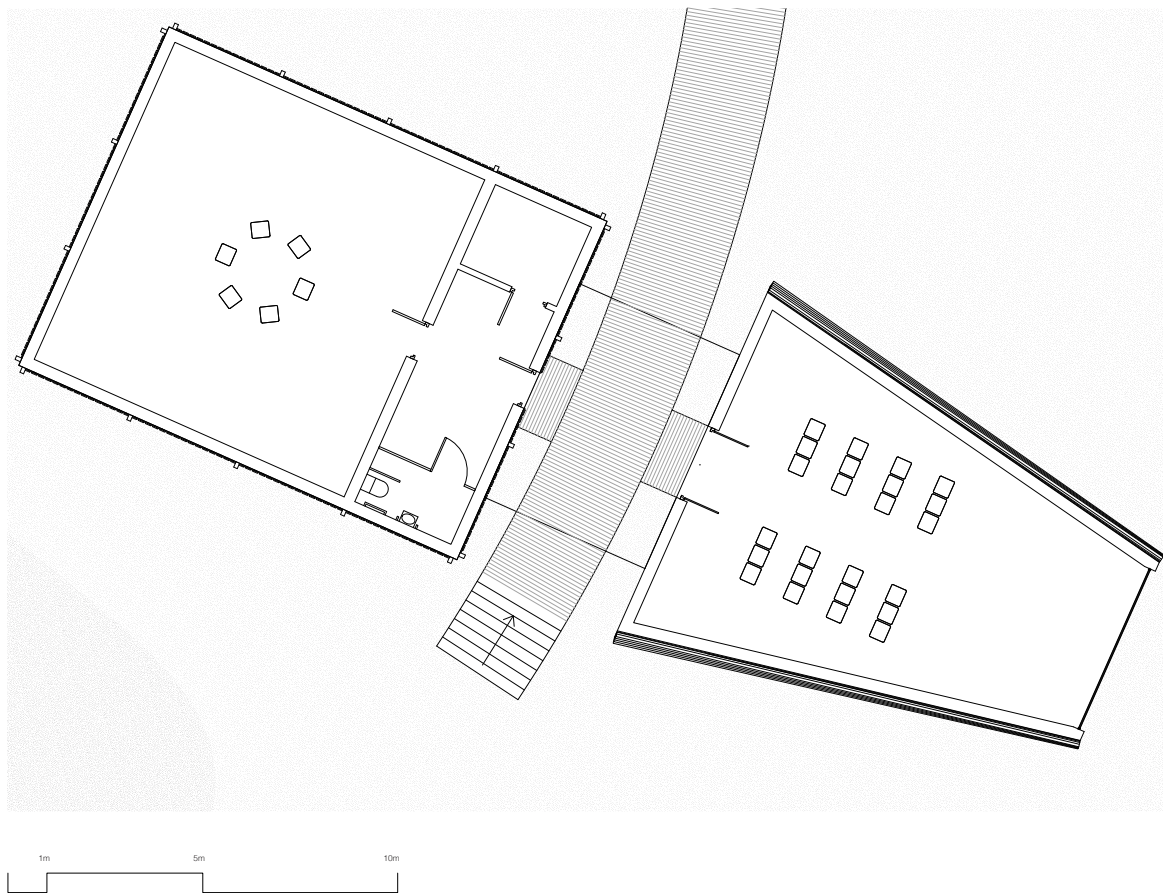
# Platform structure overview



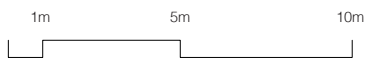
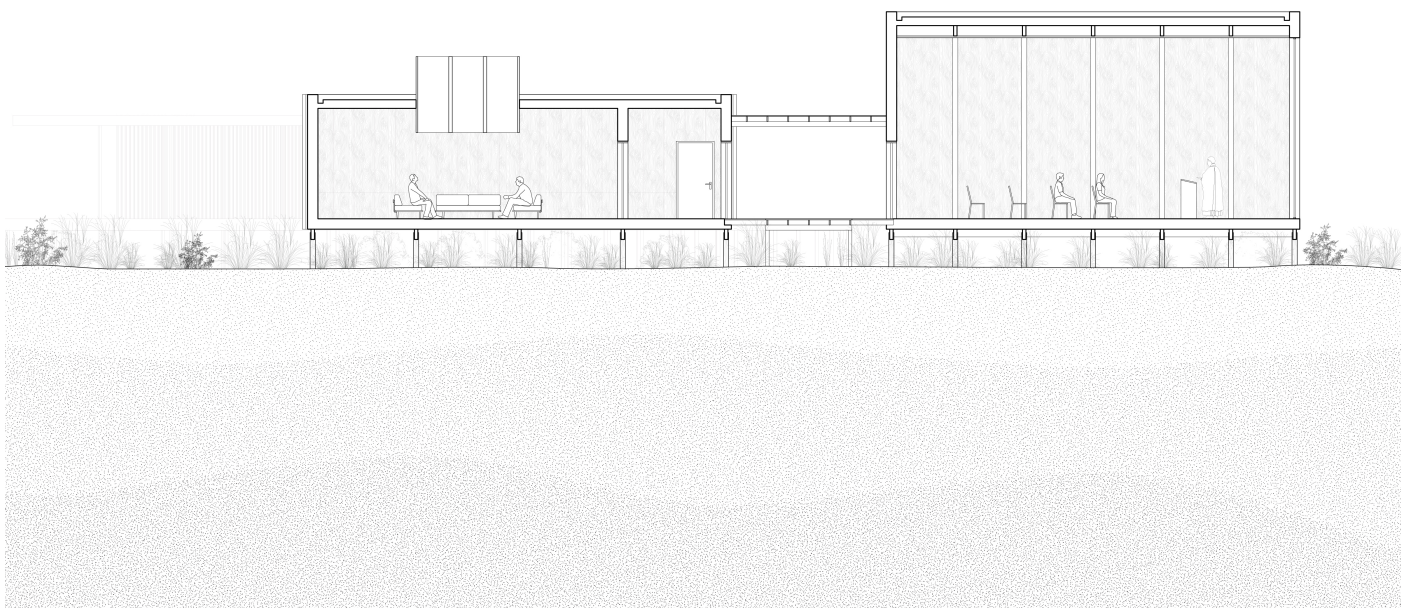
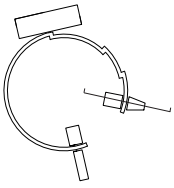




# Chapel Space Plan



# Chapel Space Section

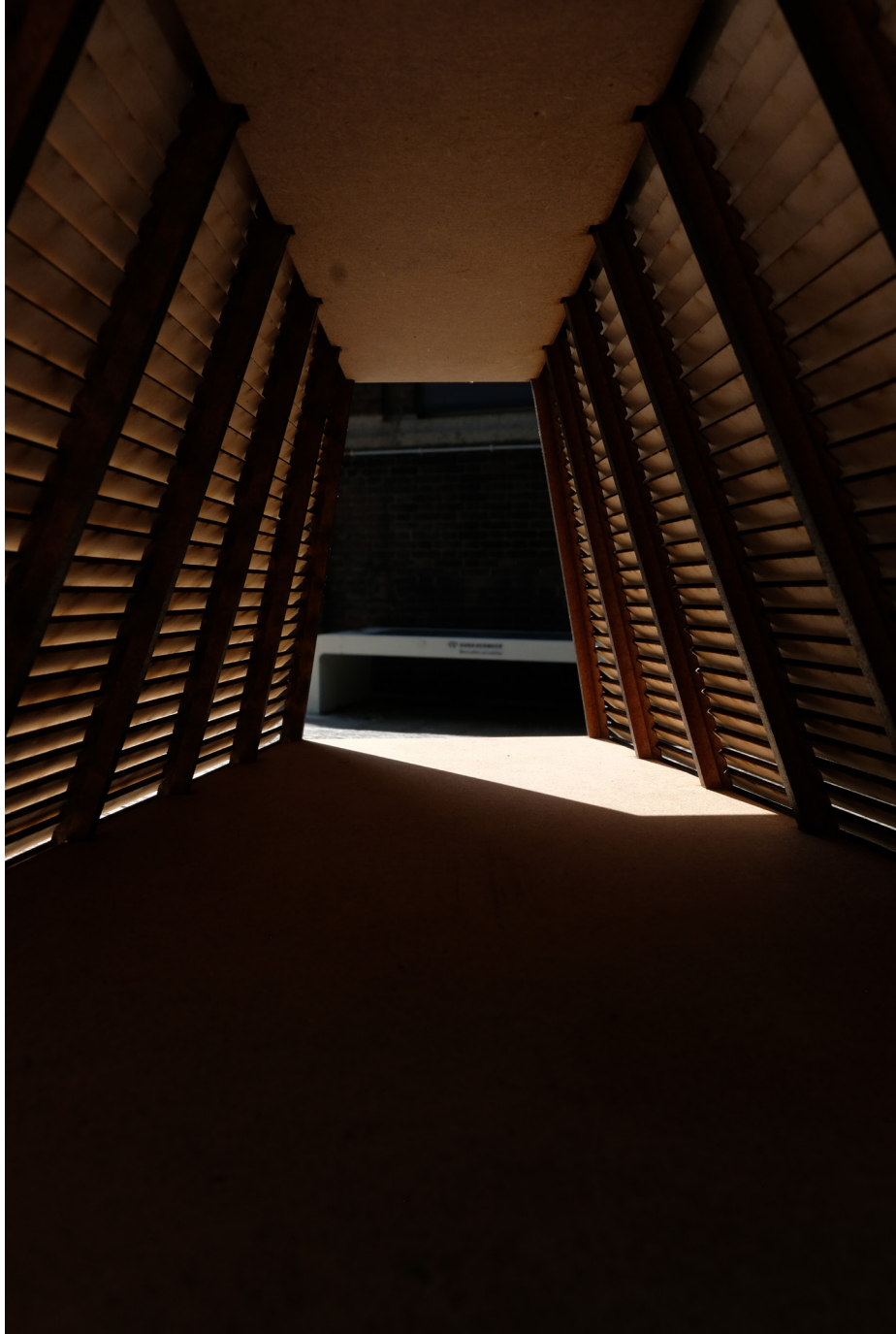


## Chapel Space Perspective

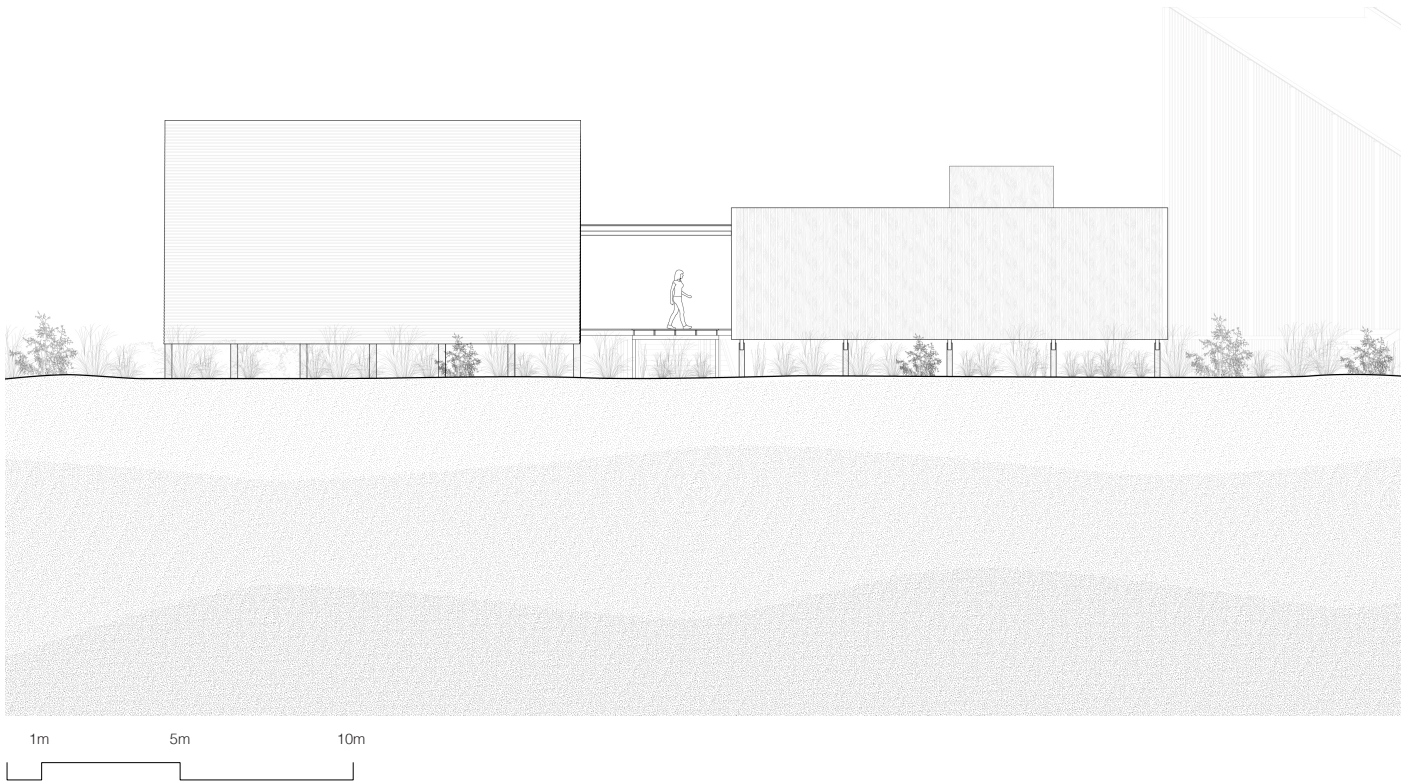








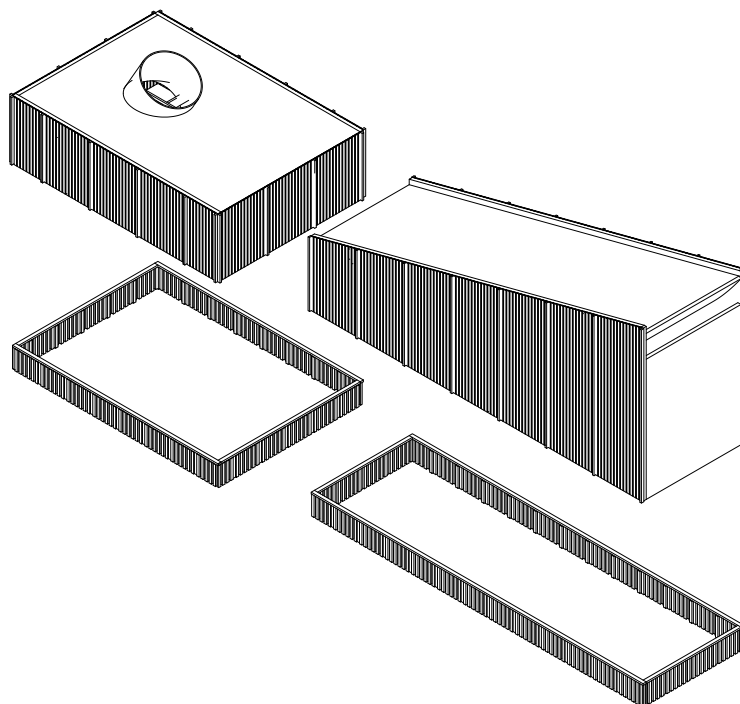
# Chapel Space Elevation



# Meditation Space Model

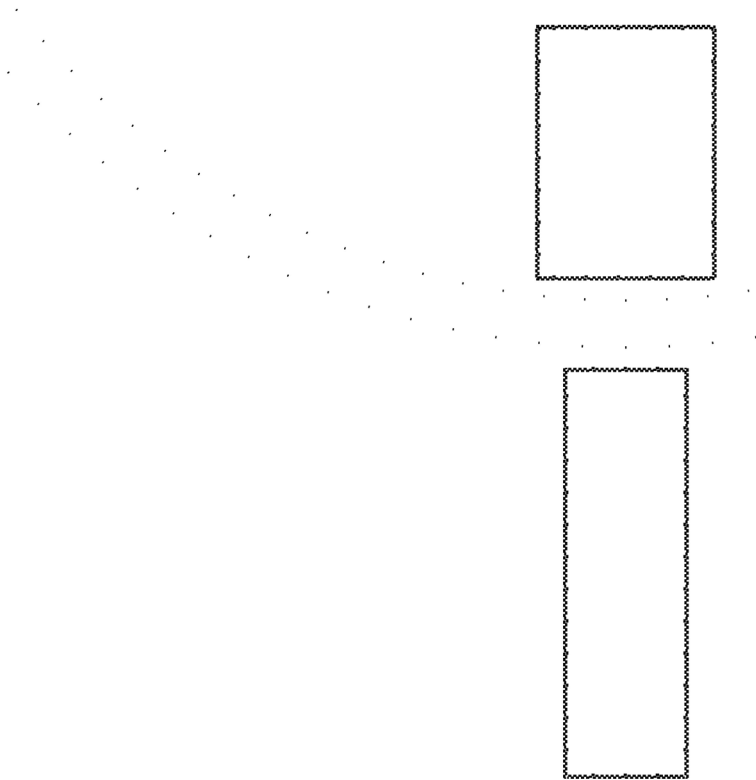


# Meditation Space Plinth Footprint

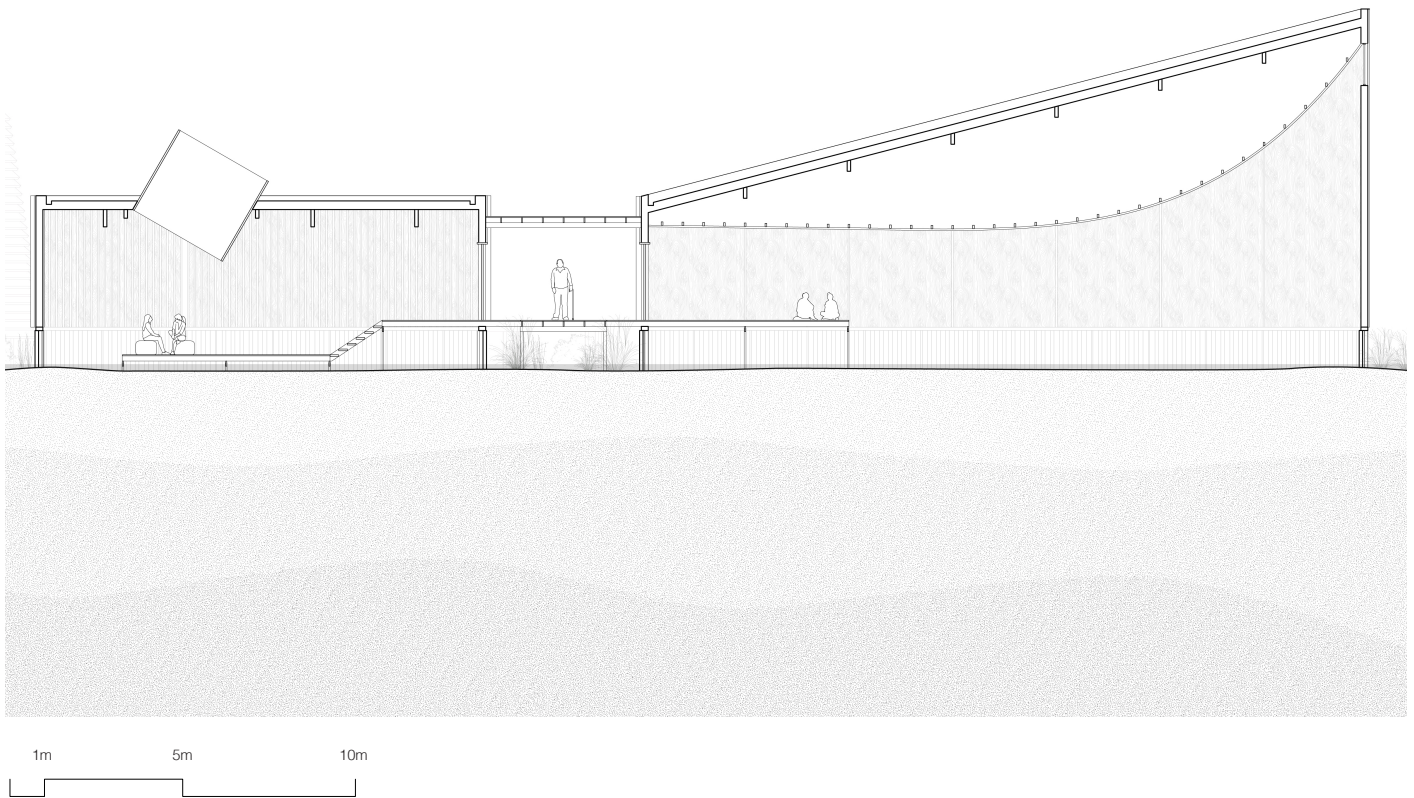
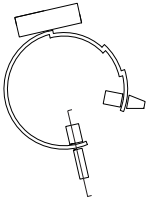


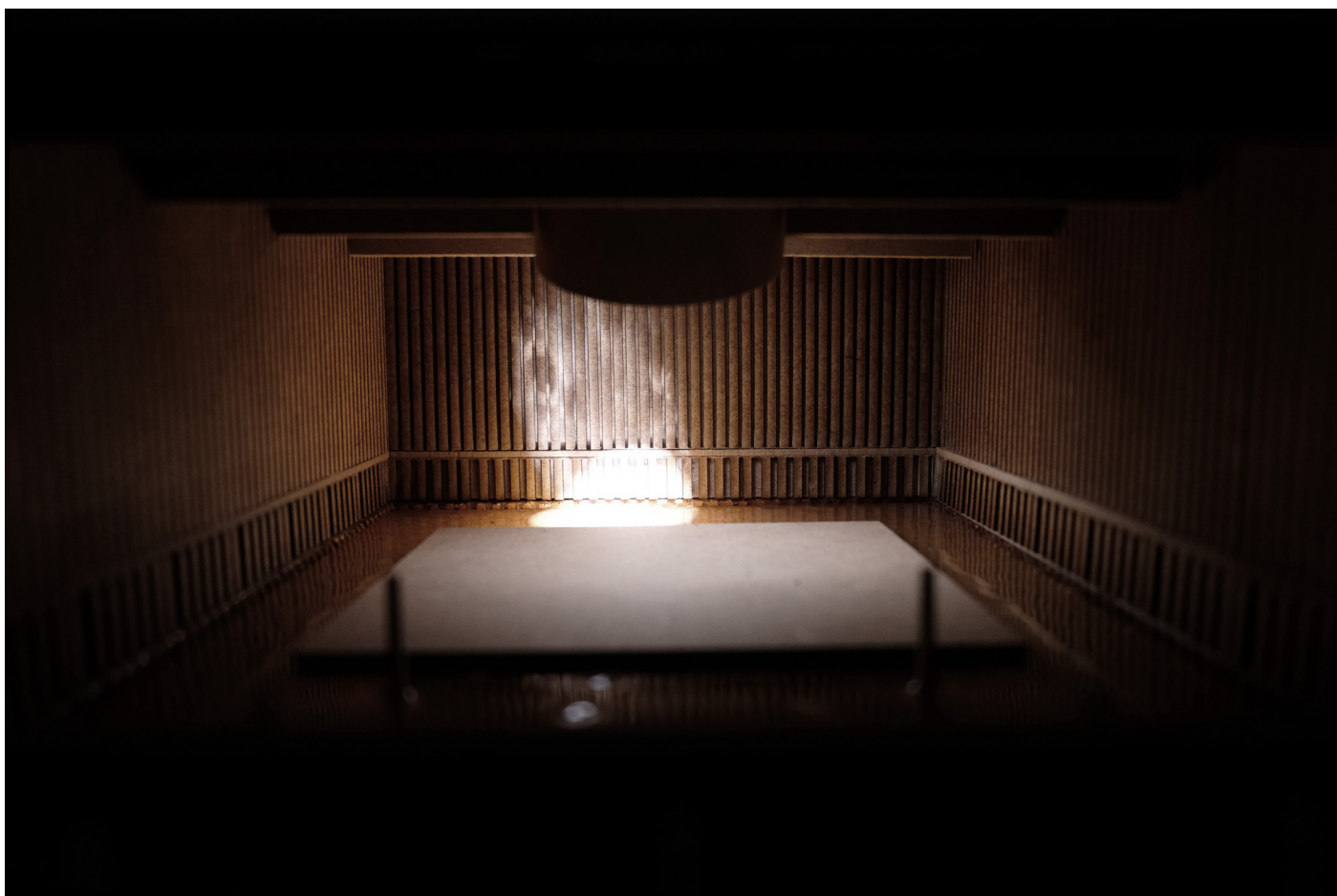


# Meditation Space Footprint

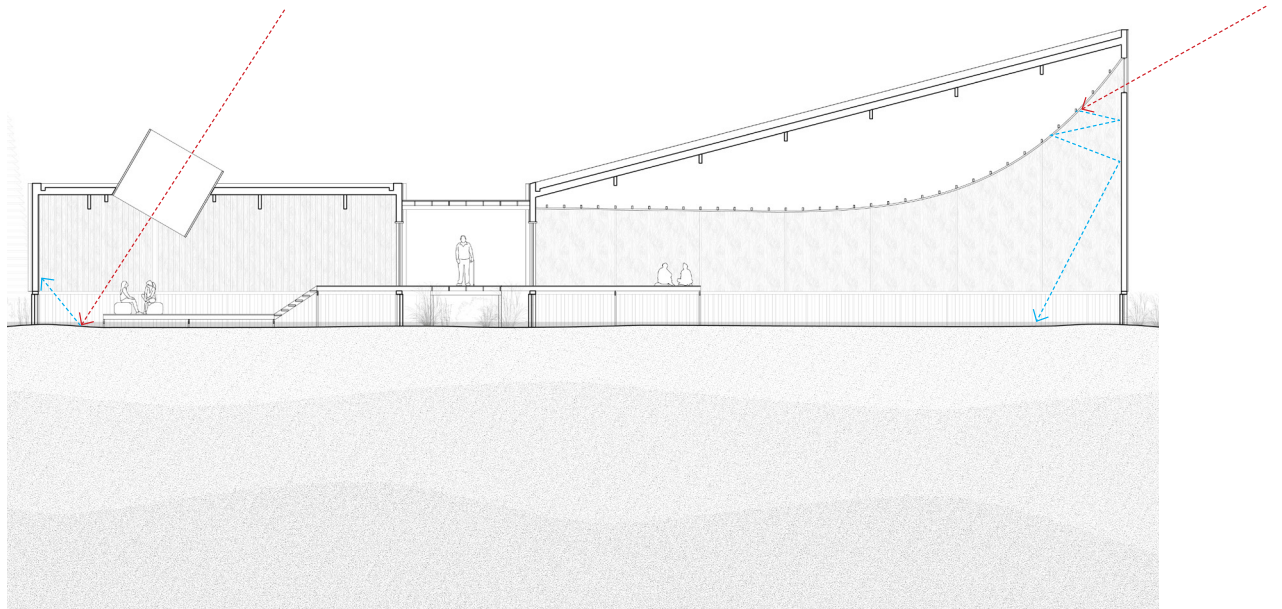


# Meditation Space Section



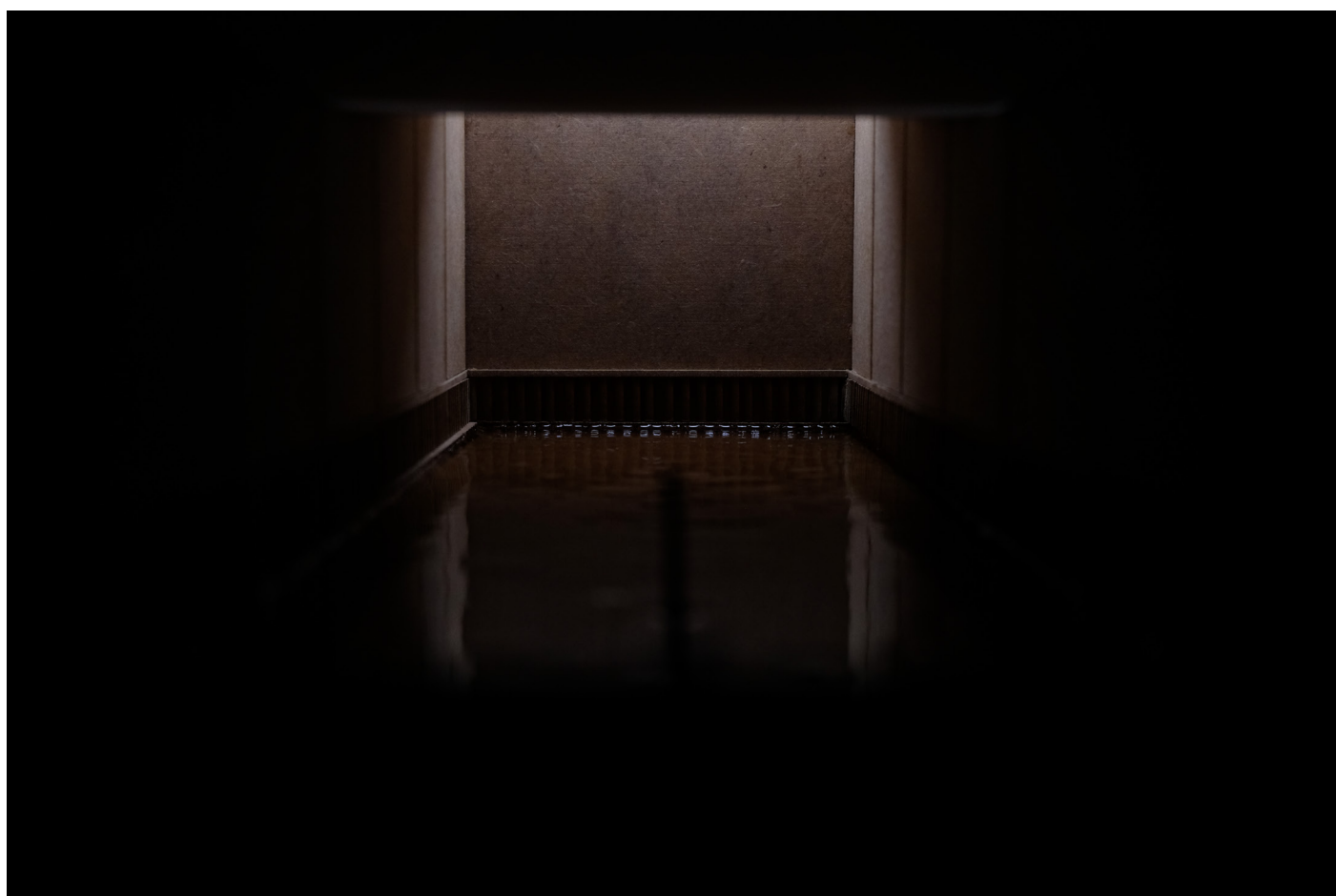


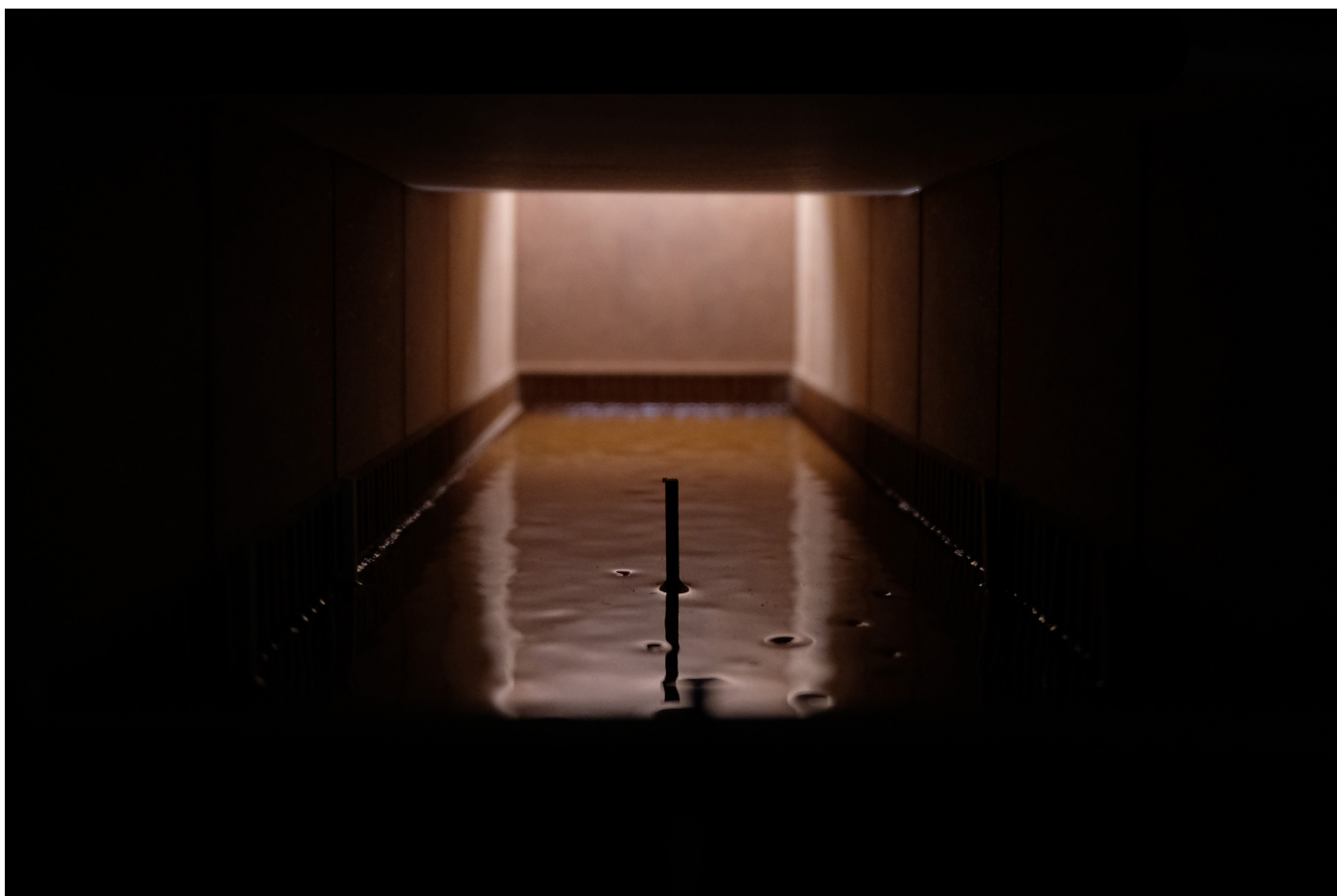
# Sunlight vs Daylight



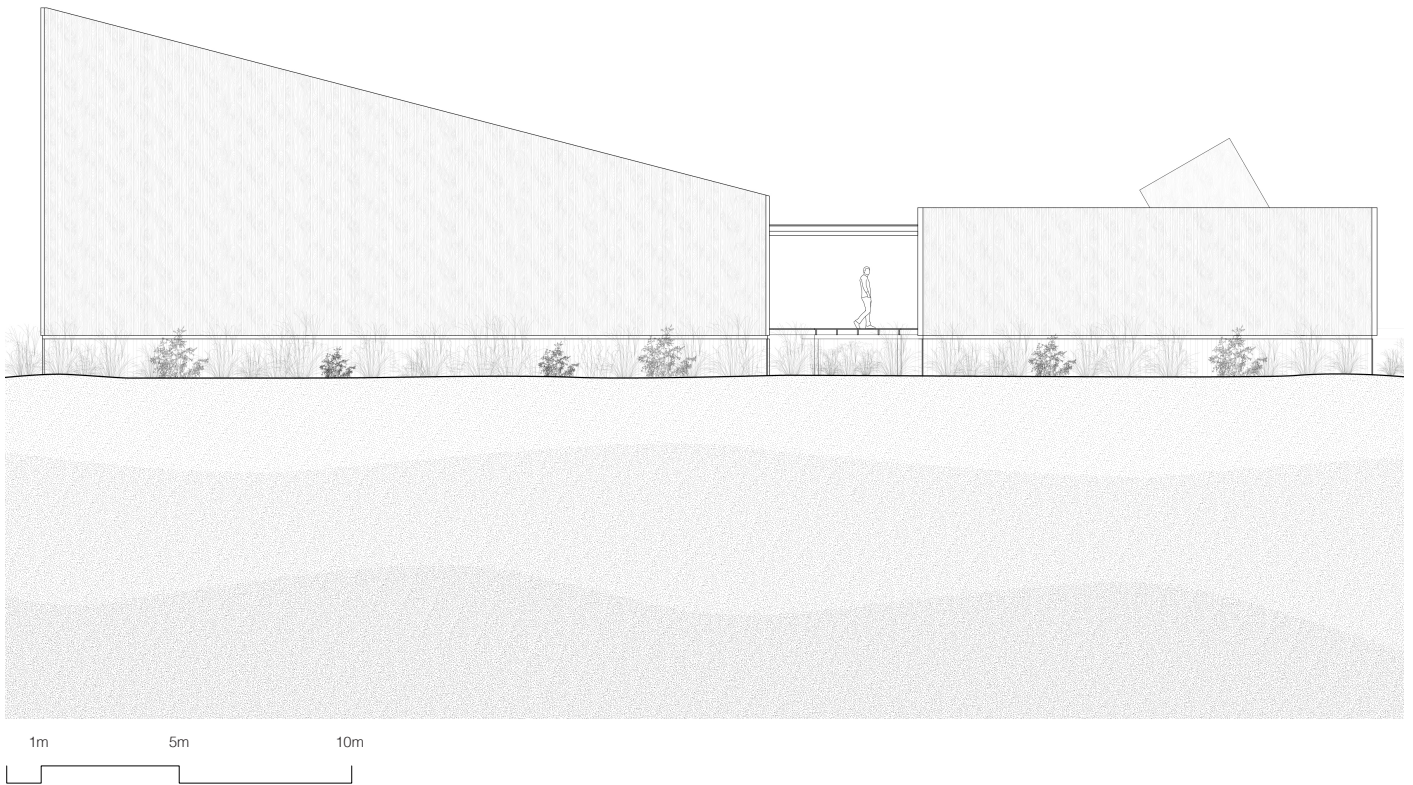
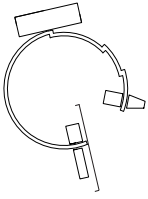








# Meditation Space Elevation







# Reflection

## How and Why?

In my research, I explored how AI foundation models might be used in architecture. The outcome of my research is a 2D scatter plot of 2500 architectural images, arranged based on the vector embeddings (created by the foundation model), which is based on the atmosphere of the space in the image.

With the ability of creating a 2D scatter plot that clusters images based on atmospheres, I wanted to make use of this in an architectural design process.

Specifically I had an interest in designing something that is related to sacred spaces. I always wondered whether (for example) a church spatially feels sacred, mostly because of religion, or because of its architecture. Is there such thing as 'sacred architecture'? Would a church feel like a sacred space when religion and beliefs are not projected onto it?

This led to my design brief: 'A Monastic Passage in the Landscape', which is a space people with a terminal illness diagnosis can visit in order to reflect on mortality. This brief, with the theme of facing mortality, allows me to explore the possibilities and atmospheres that architecture can create when its aim is to address the transcendent and sublime.

Relating to the research, with the 2D scatter plot that clusters images based on atmospheres, the idea is to follow the method of putting in images of the design project into the scatter plot (through the foundation model) to see in where the design would land in the plot. From the position in the plot, I hoped to more accurately evaluate and control the resulting atmosphere in my design project.

## Did my approach work?

I have captured my design project in an image and put it in the foundation model and the design falls within the cluster of atmosphere I would like it to be in, however it is not as accurate as I would like it to be, as I can see other clusters of images in the plot which I think would be more appropriate for my design to be close to. Seeing where my project landed on the scatter plot provided a new way for me to evaluate the atmosphere of my design, which I see as a promising outcome for my method. However, there are also limitations.

I thought that I was going to be able to refer back to the method more often in the design process. However, the foundation model works best with 'finished' images. Therefore if it were to be used more extensively, the design process has to be highly architecture rendering-based, instead of the sketching and drawing-based that I am used to. This is a limitation for myself (working alone), however I can imagine in a large design firm where the production of images are more streamlined and fast, this could be a relevant way of evaluating design.

Mentor feedback and how does it translates to the project?

My mentors in all aspects of this projects have given me useful and relevant advice for each respective aspect of the project.

From the architecture mentor, the insights my mentor have given me consistently provided me a new angle that I previously have not taken into account for, but is also relevant and consistent to my design aim. I think this had led me to creating a much more sensitive and considered design in the way I express my architecture and intervene in the site I chose. From building technology, I was also able to find more appropriate solutions in terms of construction method, climate method and detailing that is in line with the architectural intent. Finally from the research mentors, the guidance in the technical computer science concepts and the architecture-centric approach during the research allowed me to have the research outcome to be relevant to my interest of the intangible qualities in architecture.

I see all of the aspect of the projects as something that is working on a common goal of bringing the design to be able to address the transcendence. However, because of the limitations and the time it would take for consistent evaluation using my method, it would need more time and resources for the effects of the research on the design to be even more visible.

How have you learned from your work?

Working with this process also allowed for the reflection on whether I should be changing my design in order to change the position of where it lands on the graph, or if this should be seen as proof as a limitation to foundation models for this purpose. For the moment, my opinion is that the foundation models are promising, but would need more data and more optimisation to be as accurate and sensitive as a human architect. I think there are nuances in the design that is not as obviously detectable by the model yet.

How did your research influence your design/recommendations and how did the design/recommendations influence your research?

Other than creating the 2D scatter plot in order to measure the atmosphere of the spaces of my design, I have also used it as a tool to find inspiration for the project. Some of the inspiration that I have found through this method have been useful, and something that I have not seen and would not have found through my usual way of finding inspiration (looking at architects that I know and looking at the projects that they have done). One of the references that I found from my method (the Cafube funeral home is even still relevant to the current iteration of my design, which involved creating spaces that is lit using indirect natural light.

How do you assess the value of your way of working?

I think working with this method of referring back to the scatter plot has value as there are currently no clear way of measuring atmospheres when designing. Even though this method has flaws and is new, it acts as a starting point for a systematic approach to architecture atmosphere. It gives us the medium to measure and interact with this property of architecture.

How do you assess the value of the transferability of your project results?

The method of using foundation models in order to classify images was designed to become a general process. Therefore it is easily transferable to different aspects of architecture or even other fields. One other use case is using foundation models to evaluate the similarity of the urban condition of a site. This can be done by collecting photographs of various location around a project site, and then doing the same process with the collected images to see which location are most similar in terms of urban conditions.

How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

From this graduation project I gained my own conclusion regarding the ability of artificial intelligence in architecture. I think with my graduation, I was able to be honest in trying to use artificial intelligence in the design process. While the outcome is promising, I think it also gave me the realisation that there are so many different aspects of designing that cannot simply be solved or replaced by artificial intelligence for the moment. Through this project I learned that what we value in architecture is the human quality in the process, consideration, and the design itself. This 'human quality' requirement could be seen as a action of self-preservation, however as I have experienced in this project, despite achieving a lot of impressive things, there are still aspects that require a human





