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MASTER THESIS

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GROUNDLED SOUND

RETHINKING THE CONTEMPORARY CONCERT
HALL THROUGH ECOLOGICAL INTEGRATION AT
SJOBACKA TIPPEN



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“When you build, you know you are interfering into the environment in so many ways. Therefore every aspect of a building has to be meaningful.”

~ Dorte Mandrup

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ABSTRACT

This master's thesis addresses whether public architecture can transcend its traditional role as a static monument to become an active participant in a new reality defined by nature, user experience, and sustainability. Historically, the design of public buildings has been driven by a desire to create visually striking icons, frequently emphasizing the importance of their expression while giving limited consideration to their broader ecological context.

This project challenges environmental isolation by re-evaluating the traditional concert hall, a typology typically characterized by its monumental detachment, by proposing instead a "Grounded Sound" that operates as an adaptive design situated in a natural environment. Based on the artificial landscape of Sjöbacka Tippen, a site defined by demolition waste, water, and low biodiversity, the research explores both land regeneration strategies and architecture that intends to shift from being a static, isolated element toward becoming an ecologically integrated design embedded within its terrain.

The methodology follows a three-stage approach. The first stage restores the site's topography through regenerative strategies, transforming the artificial industrial ground into an ecological foundation that supports natural habitats and enhances biodiversity. The second stage introduces a responsive architectural system in which the building envelope serves as an adaptive interface, adjusting to the surrounding landscape and blurring the boundary between architecture and nature. The final stage develops the detailed design of the concert hall, which integrates aesthetic quality with the recovering ecosystem and technical and acoustic excellence.

As a result, this concept demonstrates a shift in focus towards a more modest approach, illustrating how concert hall design can serve as a tool for ecological stabilization rather than disruption. By incorporating nature-oriented design and technical rigor, the resulting proposal proves that the primary function of a music hall can be enhanced through its relationship with the environment. Ultimately, the work suggests that the future of public architecture lies in its ability to foster a deeper, more balanced connection between humans and ecosystems, proving that sustainability and cultural excellence are not mutually exclusive but, in fact, deeply interdependent.

KEY WORDS: HARMONY; NATURE; REGENERATION; ADAPTABILITY; SUSTAINABILITY

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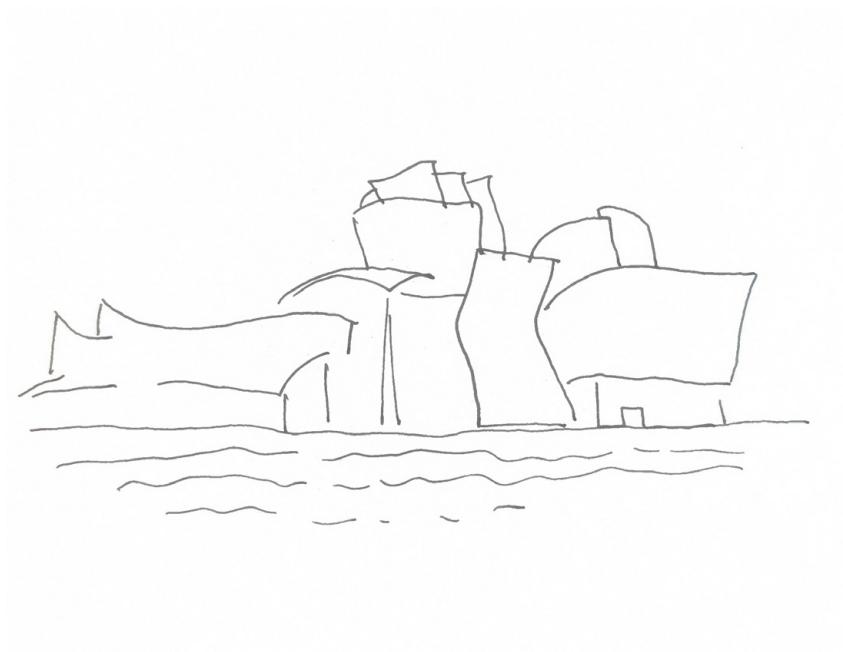


Fig. 01. Guggenheim Bilbao | sketch by Aleksandra Bator

INTRODUCTION

BACKGROUND & DISCOURSE

While architecture is rooted in honored traditions, it often struggles to account for the environmental aspects of its heritage. Although the industry is shifting toward sustainability, this transition is currently applied only to residential design, failing to address the impact on cultural buildings.

THE BILBAO EFFECT

Public architecture continues to be criticized as one of the most unsustainable sectors of design, largely because these buildings are expected to be "screaming monuments" rather than humble, integrated structures. It is closely related to an urge of creating so-called "Bilbao Effect".

The "Bilbao Effect" (also known as the "Guggenheim Effect") is a phenomenon in which a city undergoes a massive economic and cultural transformation through the construction of a single iconic piece of architecture. Witold Rybczynski, a Canadian architect, in his article "The Bilbao effect." expresses a deep skepticism toward this trend, arguing that the high-pressure context of public competitions often encourages vividness over careful, functional thought.

Witold Rybczynski illustrates the tension in architectural competitions by contrasting the approaches of Robert Venturi and Rafael Viñoly for the Philadelphia Concert Hall. Venturi's initial proposal was defined by its site-sensitivity, featuring a modest exterior that prioritized a high-quality performance space over outdoor appearance. However, as the trend for "trophy buildings", the city rejected this modest approach in favor of Viñoly's design. This shift saw the budget skyrocket from \$60 million to \$265 million. While Viñoly delivered the required "wow factor," the resulting structure was an expressive, almost alien form that disregarded its urban context in favor of pure architectural iconicity. (Rybczynski, 2002).

UNSUSTAINABLE ASPECTS

While new modern, public buildings can incorporate sustainable designs, a significant part of the sector relies on aging, inefficient, and carbon-intensive infrastructure and on old practices. Public industry still lags in adopting the circular economy rather than the linear economy. Its biggest challenge is low energy efficiency, which led to almost 28% of generated energy-related CO2 emissions in 2018. (Foster, G., & Kreinin, J., 2020). The design should be checked through LCA calculations, aiming for the lowest possible CO2 emissions and potential assessment of energy usage during its lifespan.

WHITE ELEPHANTS

This term refers to public infrastructure for which the cost of maintenance exceeds its social or economic value. These structures represent a specific form of inefficient design that becomes politically attractive when leaders struggle to make promises. Because these "monuments" are so expensive, they allow politicians to signal a commitment, effectively using architectural iconicity as a tool for political consolidation rather than public utility. (Robinson, J. A., & Torvik, R., 2005)

RELEVANCE FOR THE PROFESSION

There is an urgent need for a new cultural design language that exemplifies an Anthropocentric approach in which architecture serves people, context, and nature rather than mere 'iconicity.' In a broader sense, it could serve as a model global example for navigating complex design challenges, asking the right questions, and adapting to our shifting reality. I have chosen to tackle this challenge by proving that thoughtful, integrated design offers far more ecological and contextual value than a traditionally 'iconic.'

AIM

This thesis aims to rethink the concert hall typology and integrate it into the natural landscape. The project challenges the monumentality and environmental isolation of the contemporary concert hall.

Design, located on the artificial landscape of Sjöbacka Tippen, explores the typology of a concert hall as more than just a compact building for music events. It integrates with nature, enhances human-nature interaction, provides spaces for the local community, and demonstrates its flexibility in transformation over time. Instead of an iconic, isolated, and static monument, it will operate as an adaptive design embedded in a landscape.

Through ecological stabilization strategies and a design that promotes modularity, local materiality, and adaptability, the project proposes a concert hall typology grounded in humility and ecological integration. It will respect local context through an architecture that prioritizes local culture over tourism and iconicity.

RESEARCH QUESTION

HOW CAN THE CONTEMPORARY CONCERT HALL EVOLVE
FROM ENVIRONMENTAL ISOLATION AND MONUMENTALITY
TOWARD GREATER ECOLOGICAL INTEGRATION?

Sub-question:

How can adaptable design challenge the building's static performance
through modular solutions and building-lifespan strategies?

Sub-questions 2':

Can the design:

- Incorporate community spaces?
- Have low CO2 footprint?
- Consider the use of locally sourced materials?
- Integrate nature into the spaces?

DELIMITATIONS

The thesis is about:

- + concert hall design
- + nature-respecting design
- + regenerative landscape strategies
- + materiality
- + beautiful architecture
- + functionality
- + spaces for local community
- + detailed technological solutions

The thesis is not about:

- economy
- urban planning
- insitutions

GLOSSARY

THE BILBAO EFFECT

The term for the phenomenon where the city attempts to trigger economic values through the iconic and highly expensive building. (Rybczynski, 2002)

WHITE ELEPHANTS

Public design, where the cost of maintenance exceeds the social and economic values, is often used for political rather than social benefits (Robinson, 2005)

SHOEBOX HALL

Traditional rectangular concert hall layout, known for its excellent acoustics. (Koutsampari, M. (n.d.)

CLT (CROSS-LAMINATED TIMBER)

a structural engineered wood, formed by bonding at least three layers of kiln-dried, solid-sawn lumber with adhesives, oriented perpendicular to 90 degrees. (Cross-laminated timber. (2024)

GLU-LAM

a structural engineered wood formed by bonding layers of lumber together with adhesives. Wood grain on each layer runs parallel to the length, ensuring high strength and durability. (Glued laminated timber. (2024)

NFA (NET FLOOR AREA)

it is a usable floor space within the building, measured between internal surfaces. (Andrew. (2025)

GFA (GROSS FLOOR AREA)

it is the total interior floor space of a building, calculated by measuring from the outside face of the exterior walls. (Floor area. (n.d.)

DOUGHNUT ECONOMICS

An economic model developed by Kate Raworth that redefines economic success not as endless GDP growth, but as ensuring human well-being without exceeding the planet's ecological limits. (Doughnut Economics Action Lab. (n.d.)

PLANETARY BOUNDRIES

A concept that defines nine critical Earth-system limits that must not be crossed to keep the planet stable and resilient. (Stockholm Resilience Center. (n.d.)

SUSTAINABLE DEVELOPMENT

It is development that answers the present needs without negatively influencing the abilities of future generations to meet their needs. (KTH Royal Institute of Technology. (2024)

PHYTOREMEDIATION TECHNOLOGIES

Technologies that use living organisms - plants - in order to get rid of contaminated soil, air, and water (Phytoremediation. (n.d.)

DECOMPACTION

The process that involves the removal of compacted soil through a variety of methods, such as hand digging and excavators. It reconstructs porous permeable soil and recovers physical properties as well as influences the presence of vegetation. (Abbot, D. (2022).

REWILDING

Strategies focused on regenerating ecosystems rather than managing static landscapes through a transformative approach that prioritizes biodiversity. It involves reorganizing and regenerating degraded landscapes with higher considerations. (du Toit, J. T., & Pettorelli, N., 2019).

SOIL REMEDIATION

A process in which the contaminated soil is cleaned and restored from pollutants and heavy metals. It is an essential element while working with environmental preservation and urban development. (Santos, M. (2025).

BUILDING ADAPTABILITY

A capacity of the design characterized by spatial and structural definition, to adjust to new user needs, technologies or environmental conditions. (Schmidt, R. (2010).



Fig. 02. Wild grass at Sjobacka Tippen

WHAT CAN A REDEFINITION OF THE CONTEMPORARY CONCERT HALL TOUCH UPON?

The concept of redefinition is multifaceted. The themes outlined below establish a framework of guiding principles that will inform the design proposal.

LOCAL INTEGRATION

Contemporary concert halls are often isolated from their surroundings, explicitly designed to stand out. While this approach is understandable as a way to attract an audience, these buildings often fall short in terms of functionality. Too often, architects prioritize striking iconicity over local context, materiality, and the practical use of space.

Redefinition: Having that in mind, the new proposal would show local integration, while not only creating reasonable spaces for the audience but also providing spaces for communities and nature.

SUSTAINABILITY

It is widely argued that large public buildings are among the least sustainable architectural typologies. Their vast spatial volumes and functional requirements drive high energy consumption, posing significant environmental challenges. Furthermore, their urban placement is increasingly questioned. While a central location prioritizes convenience for events, an alternative approach advocates for nature-integrated sites. By embedding the architecture into the landscape rather than treating it as a standalone object, these spaces invite visitors to pause and reflect.

Redefinition: A new design could rethink space types, and suggest the design in nature, integrated and open to greenery. The building becomes not only a place for performances, but

a place of contemplation, journey, and mental preparation for the final events.

LOCAL MATERIALITY

To accommodate vast spatial spans and achieve optimal acoustic requirements, contemporary concert halls frequently rely on heavy structural materials like concrete and steel.

Redefinition: While keeping this principle, reminding structure can consider locally sourced materials such as wood, CLT, GLULAM, stone, slate, and steel. This will ensure integrity with the space, local Swedish context and the surroundings.

FUNCTIONALITY

In a typical concert hall, the layout functions as a highly compressed volume, where all supporting spaces are tightly clustered around the central performance core.

Redefinition: A new design could consider scattering such spaces around, making a modular design, while solving energy needs.

ADAPTABILITY

The adaptability of such public buildings is very questionable, and it's hardly possible to transform public buildings into any other typology.

Redefinition: A new design could propose different functions and plan for adaptability - showcasing building lifespan scenario - including its afterlife where perhaps nature dominates.

THE INTERVIEW - USER'S PERSPECTIVE

In order to better understand user needs I conducted an interview with musicians from Academy of Music. K. Lipinski. Questions had many layers, especially tackling subjects like aesthetics and functionality of music space. This served as a source of reference while creating the design.

HOW DOES THE PRESENCE OF NATURAL MATERIALS (E.G., RAW WOOD, STONE) AFFECT YOUR SOUND EXPERIENCE WHILE PLAYING?

~ Raw wood has a very good effect on sound propagation, especially with stringed instruments. I've never played in a hall with raw stone.

DOES THE VIEW OF NATURE (E.G., THROUGH GLASS) DURING REHEARSALS OR A CONCERT HELP YOU INTERPRET THE MUSIC, OR IS IT DISTRACTING?

~ It's certainly soothing when working on a piece, but it can be distracting at a concert. It's best when the view is out of my sight, like behind me when I'm on stage. Natural light is a welcome change from most venues.

WHAT ELEMENTS OF THE "BACKSTAGE" (DRESSING ROOMS, REST AREAS) ARE MOST OFTEN NEGLECTED IN MODERN PHILHARMONIC HALLS, BUT WHICH INFLUENCE YOUR WELL-BEING BEFORE ENTERING THE STAGE?

~ Dressing rooms without windows. The very concept of a modern building without windows is very exhausting (e.g., the Szczecin Philharmonic). Coming out of rehearsal, one is twice as exhausted because one loses track of time.

~ Exercise rooms are often lacking. They are replaced by multi-person dressing rooms that lack acoustics suitable for exercise, and the lighting is often insufficient for organizing a workstation.

HOW DOES THE ROOM LAYOUT AFFECT YOUR COMMUNICATION WITH THE AUDIENCE?

~ I don't like a venue where the audience is behind me because I feel like I'm being watched from a position that's a

backstage area, at least mentally. The second aspect is that I'm directing the sound in a specific direction, and in that case, it's beyond my capabilities.

WHAT INTERIOR COLOR SCHEME HELPS YOU FOCUS? WHICH ONE SUITS YOU BEST? (E.G., DARK, ENVELOPING COLORS VS. LIGHT, STARK SPACES VS. COZY, WOODEN ONES).

~ Dark, wooden, cozy colors

YOUR PREFERENCES AND FEELINGS IN YOUR OWN WORDS.

~ Concert halls can be spectacular and captivating when they are not only beautiful but also functional. Stage facilities, access to light, and a building's functionality are just as important as acoustics and beauty. For example, the lack of windows in the Szczecin Philharmonic should disqualify it from the design competition, as access to light is a basic need, and musicians often spend all day in their workspace.

CONCLUSION

Professional music spaces must prioritize performer well-being through natural light in backstage areas and raw wood interiors for the best acoustics and focus. Windowless dressing rooms should be avoided, ensuring the environment functions as a healthy, long-term workspace. The musicians prefer a traditional shoebox-like concert hall where the audience is located in front of them - otherwise it is uncomfortable when being observed from behind and directing the sound towards. They prefer a wooden, cozy, dark aesthetic, as it provides better acoustic performance and doesn't visually disturb.

***“Concert halls can be spectacular and
captivating when they are not only beautiful but also functional.
Stage facilities, access to light, and the functionality of a building
are just as important as acoustics and beauty”***

~ Dominika Cecot
musician, Academy of Music. K. Lipinski.

THEORY

SUSTAINABILITY

DOUGHNUT ECONOMICS

It is an economic model developed by Kate Raworth that redefines economy with two boundaries. The inner boundary, the social foundation, represents the basic needs every person should have, such as food, water, healthcare, education, housing, and equality. Falling below this means people lack essential resources. The outer boundary - ecological ceiling - shows Earth's environmental limits, ensuring humanity does not collectively overshoot critical planetary boundaries that maintain life-supporting systems. (Doughnut Economics Action Lab. (n.d.))

THE DOUGHNUT FOR URBAN DEVELOPMENT

developed by Home.Earth, in collaboration with Kate Raworth and a group of scientists, it is an approach inspired by Doughnut Economics and adapted to guide how cities and built environments are planned, designed, and managed. It seeks to ensure that urban development supports human well-being while staying within planetary boundaries. The framework balances two conditions: meeting essential social needs and protecting ecological systems. At its core, the model maps development decisions into the "safe and just space" between the social foundation and the ecological ceiling. (Home.Earth. (n.d.))

THE PLANETARY BOUNDARIES CONCEPT

developed by Johan Rockstrom, defines nine critical Earth-system limits that must not be crossed to keep the planet stable and resilient. These include climate change, biodiversity loss, nitrogen and phosphorus cycles, land-use change, freshwater use, ocean acidification, air pollution, ozone depletion, and chemical pollution. Crossing these boundaries risks destabilizing ecosystems and threatening human well-being. (Stockholm Resilience Centre. (n.d.))

SDGs

The Sustainable Development Goals (SDGs) - 17 goals set by the United Nations in 2015 to achieve a sustainable, equitable, and prosperous world by 2030. Their aim is to end poverty, protect the environment, and promote well-being for all. The goals tackle social issues (health, education, equality), environmental protection (climate action, clean energy, life on land and water), and economic development (sustainable growth, decent work, innovation). They are interconnected and rely on global cooperation to ensure that progress benefits both people and the planet. (Weber, 2018)

DESIGN FOR ADAPTABILITY (DFA)

The concept that refers directly to the building lifecycle and its lifespan as the need for new functions emerges. It is an approach to building design that can be easily modified to respond to user's needs and future functions. (Askar, R. (2022).)

LANDSCAPE REGENERATION & CONCERT HALL

REGENERATIVE DEVELOPMENT AND DESIGN THEORY

An approach that seeks not only to minimise the harm and reverse the degeneration of the earth's natural systems, but also to design solutions that can co-evolve with the natural environment. It ensures mutual benefits for both humans and nature. The field of regenerative design redefines how specialists think about sustainable design in the built environment. It questions the practices and theories that treat sustainability as just about minimising environmental damage. (Mang, P., & Reed, B. (2024)

ECOLOGICAL DESIGN PRINCIPLES (EDP)

There are principles that integrate natural processes and sustainability to create landscapes and buildings. They aim to minimise environmental impact and provide regenerative benefits. It includes principles like: Solutions grow from place; Design with nature; Make nature visible; Ecological accounting informs design; Everyone is a designer. (Van der Ryn, S., & Cowan, S. (1996 / 2007)

SOCIO-ECOLOGICAL SYSTEMS (SES) AND "SENSE OF PLACE"

Concept of an emotional, symbolic, and functional relationships that people form with the environment, which are crucial drivers of human behaviour. It defines the process in which humans both actively shape ecosystems and are simultaneously highly dependent on them, as these ecosystems influence their well-being. (Masterson, 2019).

4 RETURNS FRAMEWORK (COMMONLAND)

A framework for holistic landscape restoration that tackles the four main losses associated with degraded landscapes: loss of hope, loss of social networks, biodiversity and economic value. It aims to regenerate spaces through the 4 returns concept: Return of inspiration, Social return, Natural return and Financial return. It proposes integrating stakeholders, local farmers, business owners and nature organisations to share experiences and perspectives, recognising shared

interest in the land. The framework guides stakeholders on the regenerative solutions of their landscape. (Commonland. (n.d.)

REWILDING

Strategies focused on regenerating ecosystems rather than managing static landscapes through a transformative approach that prioritises biodiversity. It involves reorganising and regenerating degraded landscapes with higher considerations. (du Toit, J. T., & Pettorelli, N., 2019).

SHOEBOX HALL

most common shape in the early 20th century and is considered to have excellent acoustical quality due to its geometry. It is defined as rectangular with parallel walls, a flat floor, a high ceiling, and lightweight seats. (Koutsampari, M. (n.d.)

FAN-SHAPED HALL

Popular shape in mid- 20' century. Characterized by large seating capacity and perfect sightlines. Due to lateral reflections, there is a lack of presence, envelopment, and warmth, which hinders good sound penetration. (Koutsampari, M. (n.d.)

REVERSE FAN-SHAPED HALL

Similar to a fan-shaped hall. Audience seating amphitheatrically. (Koutsampari, M. (n.d.)

VINEYARD TERRACED HALL

As the name suggests, the concert hall resembles vineyard spaces, with seating arranged in smaller groups, terraced towards the main stage. Seating capacity is larger than rectangular halls - 2000-2400 seats. It is characterized by good sightlines, which goes together with good direct sound. (Koutsampari, M. (n.d.)

METHODS

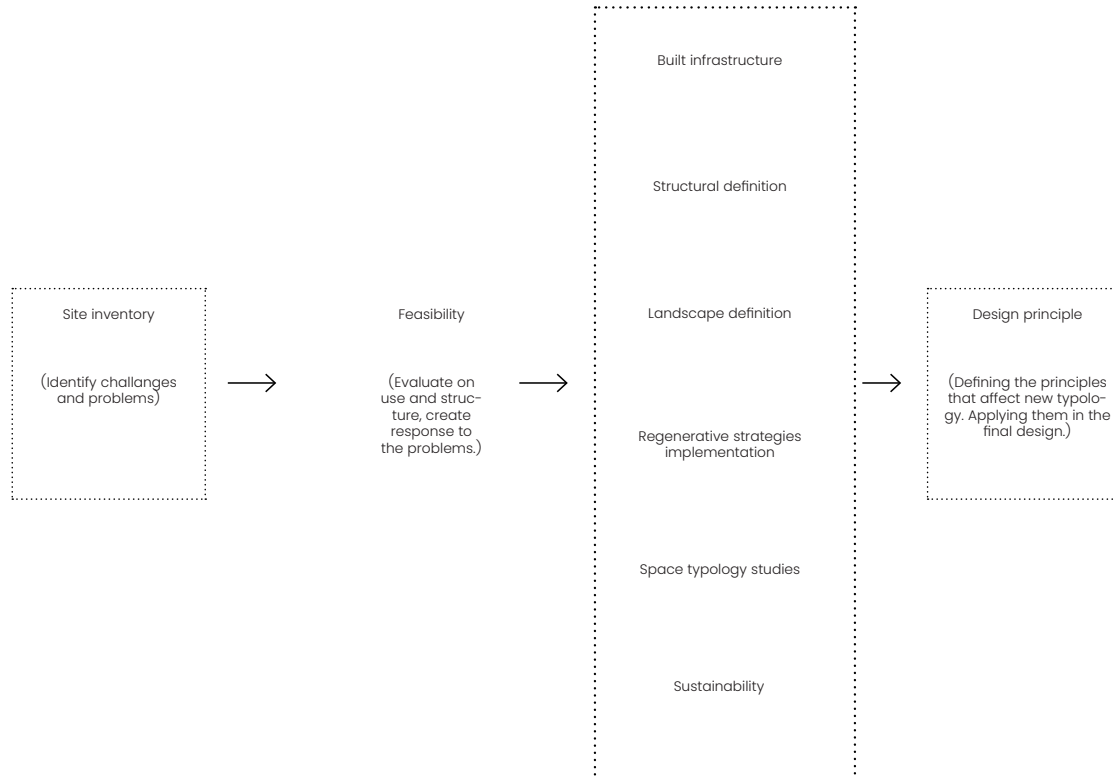


Fig. 03. Method diagram

The project applies a structured, linear process focused on translating analysis and research findings into design principles to ensure evidence-based design. It applies the **RESEARCH THROUGH DESIGN (RTD)** methodology, in which key methods include prototyping, mapping, research, and case study analysis. It uses design as a primary research tool to generate knowledge by exploring, modelling, testing, and validating solutions through hands-on design work. (Design Discipline. (2022, July 7))

The process begins with a comprehensive Inventory phase dedicated to identifying challenges and problems related to general building characteristics, landscape and site. This initial investigation lays the foundation for subsequent design decisions. The design process will employ iterative, evidence-based methods, significantly informed by research on the subject and user interviews. Analytical methods, such as visual and contextual analysis, will be used to ensure a cohesive design that corresponds to its surroundings. For digital production and graphical representation, parametric design will be a useful tool for optimising the workflow.

The design will be evaluated against multiple criteria, based on the "Doughnut for Urban Development" analysis and LCA calculations. The central goal is to evaluate the appropriate

use and structure, and to create solutions to the challenges of redefining the concert hall, which is more oriented towards nature. This evaluation is detailed across six critical parameters: built infrastructure, structural definition, landscape definition, space typology studies, and sustainability. The final phase involves defining the Design Principles that will influence the new typology. These principles are then applied directly to the final design to ensure an integrated design proposal.

TOOLS

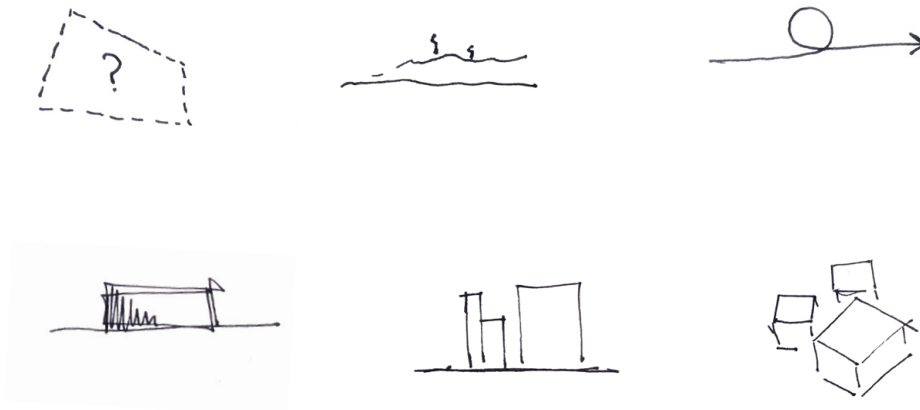


Fig. 04. Tools illustrated through sketches

SITE ANALYSIS

Studying the landscape and its cultural context reveals the character of the place, traditions, and the natural aspects. This understanding guides how the building can respond to the environmental and local context

SITE VISITS

Visiting the site allows to understand the terrain, atmosphere, and local architecture. Observing light, views, and sound outdoors is crucial when designing a hall situated within nature.

PHOTO DOCUMENTATION

Visual documentation captures the spirit of the landscape - its textures, seasonal changes, and spatial impressions. These images serve as references for materiality and architectural experience.

FILM AND SOUND RECORDING

Film and sound recordings capture the sensory qualities of the site - movement, light, wind, and the existing acoustic environment. This material becomes a tool for understanding atmosphere and natural behaviours, later supports the development of spatial and experiential concepts for the concert hall.

RESEARCH

Design decisions evolve through iterative testing. Each step provides feedback, spatial, and environmental decisions.

SKETCHING

Sketching becomes a fast way to explore different forms and expressions - architecture relationships, framing views, form, and acoustic geometry. It allows early concepts to emerge intuitively.

PROJECT REFERENCES

Studying existing concert halls and landscape architecture projects helps identify strategies for siting, materials, acoustics, and creating a meaningful dialogue between building and nature.

MODEL-MAKING

Model-making explores the concert hall's relationship to the natural landscape at different scales. It allows spatial ideas to be tested physically and helps imagine how the structure settles into the terrain.

AI SKETCHES

AI can help illustrate the desired design outcomes in the early stages, enabling easier decision-making and optimizing work. Faster-generated sketches will allow us to focus on the design,



SUSTAINABLE CITIES AND COMMUNITIES



RESPONSIBLE CONSUMPTION AND PRODUCTION



LIFE ON LAND

Fig. 05. SGS - Sustainable development goals

SUSTAINABLE DEVELOPMENT

The project of the new concert hall strives to fulfill both technical requirements and to examine and apply sustainable principles through a landscape-responsive, adaptive architecture, the implements local materiality, maintaining technical rigour simultaneously. It uses landscape regeneration strategies to establish the base for the building design. Following "The Global Goals for Sustainable Development" the design will aim to align with potentially 3 of them, as listed below:

SUSTAINABLE CITIES AND COMMUNITIES

Rapid growth of cities is a result of a growing population and increased migration, which has led to large metropolitan areas being exploited and becoming very often career destinations or ideal places to live. Due to this phenomenon, half of humanity now lives in cities, and projections now assume that two-thirds of the population (6.5 billion people) will live in urban areas by 2050. Cities should strive to become more sustainable by implementing green spaces and urban planning improvements. This thesis addresses the topic, as the design assumes close proximity to the city centre, promoting nature integration within the spaces. It is located only 20 minutes from the city centre of Göteborg, demonstrating a sustainable public design solution that can be implemented in the future. (United Nations Development Programme. (n.d.)

RESPONSIVE CONSUMPTION AND PRODUCTION

Responsible use of natural resources and waste management have become among the most important aspects of the building industry, as the building sector accounts for 30-40% of global

waste. (Zakrisson, A. (2024) This goal requires sustainable development to significantly reduce the ecological footprint and calls for more responsible use of goods and resources. The design will assume responsible construction through the use of local materials and modular systems that incorporate repetitive elements, which can be produced with less energy and later replaced or modified as needed. It enables the implementation of concepts such as design for disassembly and creates an opportunity to adapt the building to a different function in the future. (United Nations Development Programme. (n.d.)

LIFE ON LAND

Human existence is highly dependent on the earth, its climate, and its gifts, which are often taken for granted. Today, both biodiversity and nearly 7,000 animal species are at risk. We face deforestation of nearly 13 million hectares, driven by human activity. This calls for protective action for natural habitats and biodiversity, which are part of humanity's heritage. This principle calls for more regenerative designs, rewilding, and soil remediation. The design strives to suggest solutions that could be implemented on site, through biodiversity enhancements and many other practices. It is not only building design, but its integration with nature and humans, as they are highly interdependent. (United Nations Development Programme. (n.d.)



Fig. 06. Elbphilharmonie in Hamburg, Photographer: Aleksandra Bator



Fig. 07. Icejord center by Dorte Mandrup, Photographer: Adam Mørk



Fig. 08. Hamaren Park, by EFFEKT Arkitekter, Norway, photographer: Rasmus Hjortshøj



Fig. 09. Gellerup Park, by EFFEKT Arkitekter, Photographer: Rasmus Hjortshøj

REFERENCES

ELBPHILHARMONIE

REFERENCE: VISITED SITE

Architects: Herzog & de Meuron
Location: Hamburg, Germany
Area: 42000 m²
Year: 2016

The Elbphilharmonie is an example that serves both as a source of reference but also contrast to thesis's approach. It depicts an enormous building that includes a concert hall, a parking, a hotel, a kids' music school, and apartments. Even though the layout is based on a square outline, the interior resembles a labyrinth with diagonal stairs, numerous diagonal columns, and a vineyard-shaped concert hall. External expression is one of its kind but the interior functionality is questionable.

HAMAREN ACTIVITY PARK

INSPIRATION: NATURE EXPERIENCE

Architects: EFFEKT Arkitekter
Location: Hamaren, Norway
Area: 2.264 m²
Year: 2023

The treetop walkway offers a unique nature experience, leading visitors through the tree crowns at a height of 15 meters above the ground. It is one kilometer long and two meters high, constructed on pillars resembling tree trunks that almost seamlessly merge with the surroundings. At the end of the trail, architects designed a 360-degree viewpoint overlooking the fjord. The whole path is based on soft lines that follow the hill contours, reaching a level of 338 meters. (EFFEKT. (n.d.)

ICEFJORD CENTRE

INSPIRATION: SEAMLESS INTEGRATION WITHIN NATURE

Architects: Dorte Mandrup
Location: Greenland
Area: 900 m²
Year: 2021

Set on the edge of the UNESCO-protected Kangia Icefjord, Kangiata Illosua - the Ilulissat Icefjord Center - is seamlessly integrated into the Arctic landscape, providing a remarkable vantage point from which the visitor can understand the profound impacts of climate change on this irreplaceable environment. The Icefjord Center communicates the importance of ancient landscape and invites visitors to learn and understand ice sheet and its role in global ecosystem." The Icefjord Center levitates slightly over the terrain, creating a dynamic movement where you discover the Icefjord while moving through the center. The building forms a simple, yet poetic gesture that underlines the magnitude and beauty of its surroundings." (Archdaily (n.d).

GELLERUP PARK

INSPIRATION: LANDSCAPE REWILDING

Architects: EFFEKT Arkitekter
Location: Aarhus, Denmark
Area: 130.000 m²
Year: 2021

The transformation of the Gellerup neighborhood in Aarhus City is a great example of a rewilding intervention, in which the degraded landscape was enhanced by introducing water bodies, diverse biotopes, and plant species. The new green zone opens to its surroundings, creating an inviting space for everyone. Architects believe that the project will become a robust example of a long-lasting strategy for green spaces in Gellerup. It represents a concept of a wild, uncontrolled nature. (EFFEKT. (n.d.)

Dominant over the city
Beautiful
Questionable functionality
Concrete structure
Diagonal layouts



Fig. 10. Elbphilharmonie in Hamburg, Photographer: Aleksandra Bator

Low positioned
Beautiful
Well integrated with the landscape
Doesn't disturb natural soil
Functional
Use of steel and wood
Modular

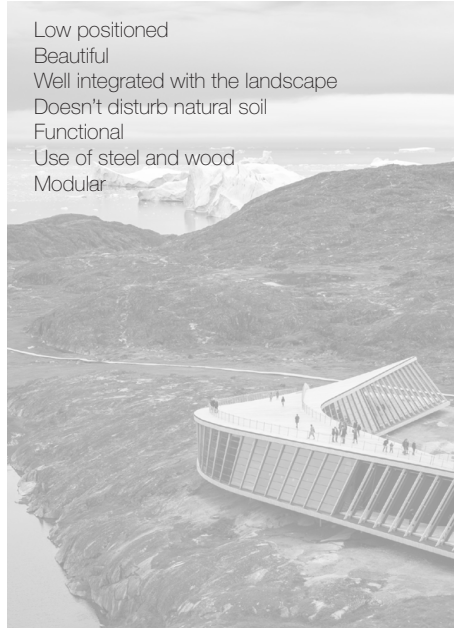


Fig. 11. Icejord centre by Dorte Mandrup, Photographer: Adam Mørk

The walk merges into its surrounding - on the human scale
Pillars the same size as tree's trunks
Unique nature experience

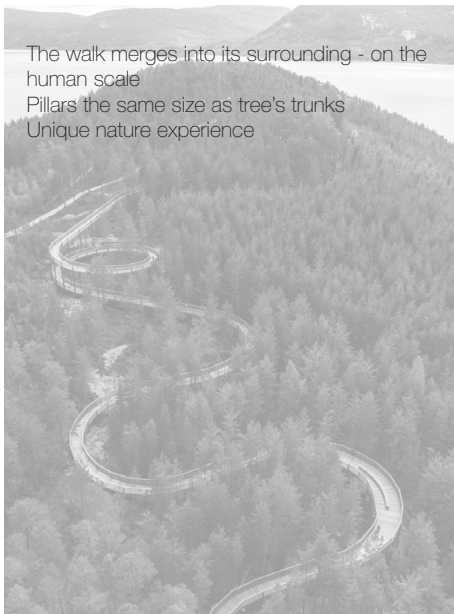


Fig. 12. Hamaren Park, by EFFEKT Arkitekter, Norway, photographer: Rasmus Hjortshøj

Regenerative landscape design
Introduction of water bodies in the city
Nature restoration

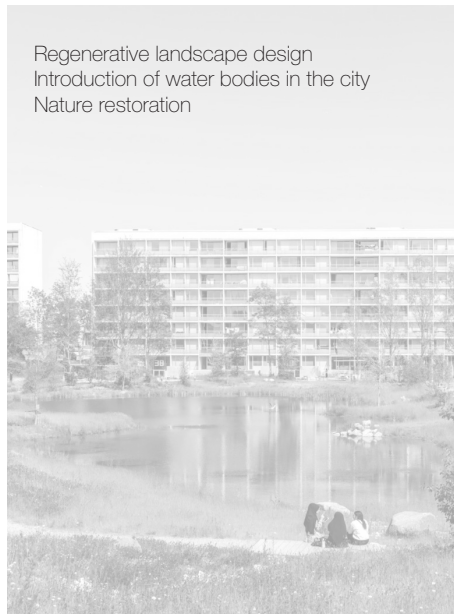


Fig. 13. Gellerup Park, by EFFEKT Arkitekter, Photographer: Rasmus Hjortshøj

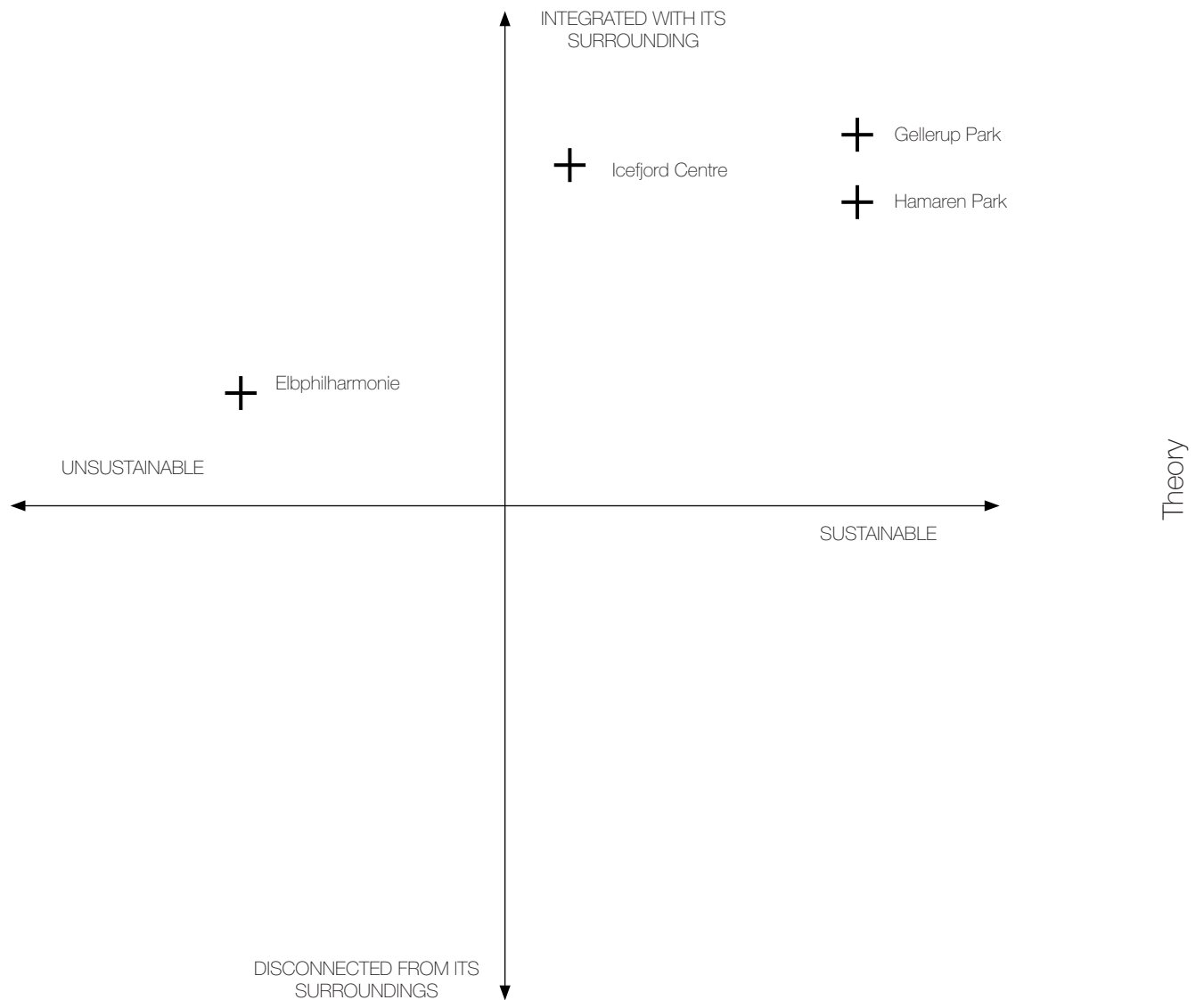


Fig. 14. Diagram that shows mapping of the references according to its sustainable and contextual value

SITE

LOCATION & CONTEXT

The project is designed at Sjöbacka, Tippen in Gothenburg, Sweden. It is located in the west waterfront, opening onto the wide sea horizon.

Sjöbacken was a shallow bay until 1966, when the City of Gothenburg began dumping demolition waste from Haga, rubble from the construction of the area at Frölunda Torg, and industrial waste. (Sjöbacken (n.d.)). Before, the area was filled with water. Initially, the bay was intended to be fully filled with waste with no canals adjacent to the site. Fortunately, the fisherman Eskil managed to secure a free waterway between Önnared and Fiskebäck through what is now called Eskil's canal. (Sjöbacken (n.d.))

Following the closure of the landfill in 1977, the canal remained biologically dead until the year 2000. Over the past two decades, the aquatic ecosystem has gradually regeneratec and now sustains mussels, benthic vegetation, and fish populations. A total of 900,000 cubic meters of construction waste was stored in the bay and later on covered with bark-mixed sludge. Today, the landfill is a large grassy area with wild bushes and a few trees. Its openess shines with special character and provides a huge space for local communities. This 191 000 m² land will be regenerated through natural enhancement strategies.



Gothenburg, Sweden

Site

Fig. 15. Map of Sweden.



+ biodiversity

Fig. 16. Diagram that shows the combination of elements desired in the project - site choice

SITE TYPOLOGY

Sjjobacka Tippen is a human-made artificial island created to store an excessive amount of demolition waste. Typical artificial island serves for infrastructure, residential housing, etc. Sjjobacka Island, however, is not used or planned to be exploited for any development. It is intensively used by local communities, though struggles with accessibility due to its bad ground quality. Due to its location and potential, it calls for a place where people could thrive, and new design should enhance existing place, not replace or remove them.

SITE CHOICE

As a general precondition, it was important that there is no intervention in a natural, virgin landscape that had not yet been touched by humans. The requirement was that the building has to be located on degraded terrain that requires intervention and regeneration. The second criteria was to find a site located at the intersection of different landscapes, characterized by water, grass, forest, and rocks, as these elements provide the greatest diversity of spaces and, consequently, a higher biodiversity rate, which will lay the foundation for further interventions and design choices.



Fig. 17. Location of the site - City of Göteborg

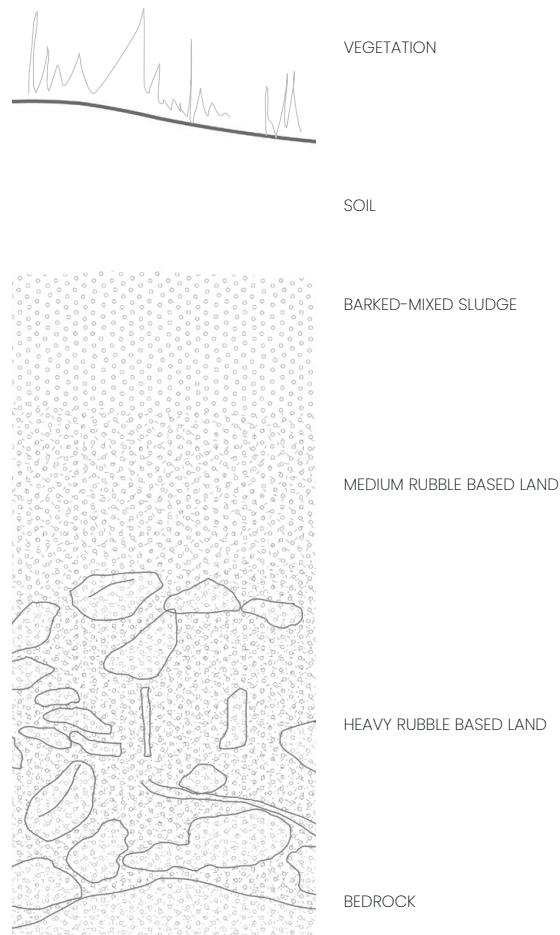


Fig. 18. Suspected ground layers at Sjobacka Tippen

SITE ANALYSIS - DEMOLITION WASTE BASED LAND

Site's ground is based on demolition waste, which is described in a local articles as rubble, paint, and covered with bark - mixed sludge. Based on the architecture in Haga in Goteborg, where the waste is coming from, it suggests the island is built of wood, concrete and stone piled in this water bay. (Sjobacken (n.d.)



Fig. 20. Wild grass at Sjobacka Tippen, photography by Aleksandra Bator



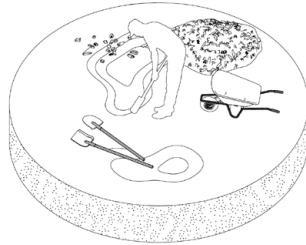
Fig. 21. Rocky landscape at Sjobacka Tippen, photography by Aleksandra Bator



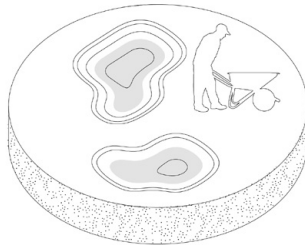
Fig. 22. Local houses at Sjobacka Tippen, photography by Aleksandra Bator



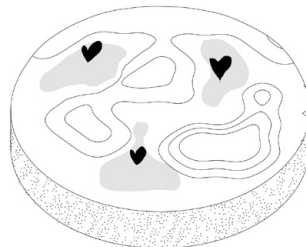
Fig. 23. Canals next to Sjobacka Tippen, photography by Aleksandra Bator



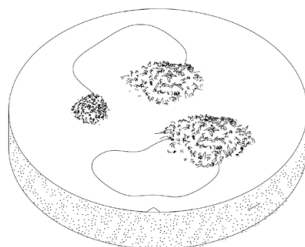
Native
planting



Water
features



Non-uniform
structure



"Bug hostels"
Demolition waste
utilization

Fig. 24. Biodiversity enhancement strategies - Degraded landscape, waste based land

LAND REGENERATION STRATEGIES

Transforming demolition-based land often requires implementing different strategies, including soil rehabilitation, phytoremediation (removal of heavy metals from soil), and native planting. The process could consider 4 stages: Assessment, Soil Regeneration and Remediation, Enhanced Biodiversity, and Long-term Management:

ASESSMENT AND PLANNING

This stage requires evaluating the existing wasteland before proceeding to the next stage. It includes evaluating soil contamination, soil type, and existing vegetation. (Landmarc. (n.d.).

SOIL REGENERATION AND REMEDIATION

This stage considers soil work which will enhance its qualities. It introduces:

- + Phytoremediation, which uses plants as a natural stabilizer and absorber
- + Decompaction, which assumes demolition waste partial removal to enhance infiltration.
- + Organic matter, by using compost, will enrich soil with nutrients and fertility. (United Nations Environment Program. (2024, May 23)
- + Soil nutrition with fungi: will increase resilience to pollutants.

ENHANCED BIODIVERSITY

These stage suggest practices that will enhance biodiversity through

- + Native planting: which suggests using local wildflowers, mixed with shrub and local tree types,s as it will provide both animal shelter and a place for them to thrive. (United Nations Environment Program. (2024, May 23).
- + Water features: introducing ponds, water bodies or rainwater retention, which will attract insects and birds (United Nations Environment Program). (2024, May 23).
- + Non-uniform Structure and land sharing: Creating Varying topography through hills and depressions, rather than keeping the site flat, will create different microspaces for different ecological niches.(Jager, H. (2018).
- + Demolition waste utilization: Instead of removing rubble, it is possible to create "bug hostels" which, thanks to its permability, can create homes for local animals and insects.
- + Invasive species removal: It is important to monitor species that can dominate the landscape, creating a hostile environment for other plants.

LONG-TERM MANAGEMENT

- + Low invasive management: No fertilizers and pesticides:
- + Rewilding: passive ecological integration that allows biodiversity to dominate the space and be self-sustaining without human intervention. (Kalliolevo, H. 2025).



THE DESIGN

This architectural line drawing illustrates a modern building with a prominent grid-like facade. The building features a series of balconies and a large, open courtyard area. In the foreground, there is a landscaped courtyard with tall grasses, shrubs, and several birds in flight. Three stylized human figures are shown: one walking on a path, one sitting on a bench, and one standing near the building. The overall style is minimalist and architectural, using fine lines to create a sense of depth and perspective.

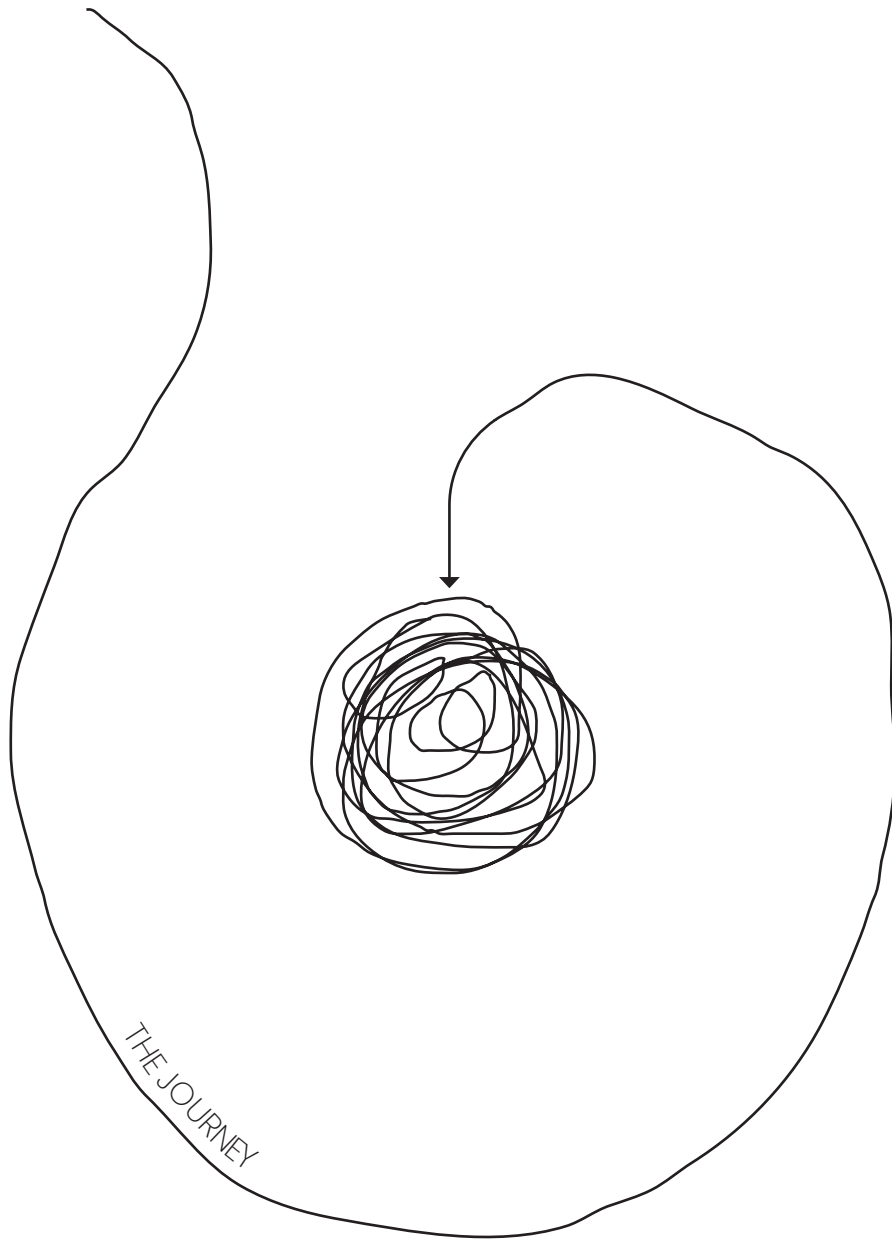


Fig. 25. Abstract conceptual diagram showcasing the experience of the building

DESIGN

CREATIVE APPROACH: CONCEPT

The building design is meant to be not only beautiful but also create emotional space where the visitor can reflect and reconnect with his soul before entering the main event. With this in mind, the building is designed to lead the person through the outer ring, surrounded by nature and wildness. While admiring, the visitor can prepare himself as he goes along different landscapes and types of nature: starting with grassland, through wetland, and ending in a hill-like space. It not only fosters greater mindfulness state but also shows how the building can harmonize with nature while remaining functional and beautiful. The visitor ends his journey entering the event concert hall where the main performance takes place.

STRATEGIC DESIGN

The design concept operates on 3 stages:

The first stage focuses on restoring the site's topography through regenerative practices. Because the current site is heavily artificial and lacks ecological vitality, the strategies will reshape the land to foster natural habitats. This phase transforms a barren industrial footprint into a foundation where nature can finally thrive.

The second stage introduces a responsive building system. Rather than being static and solid, the facade is designed as an interactive interface that adapts to its immediate context and nature. Depending on the specific landscape, the building envelope adjusts to invite, frame, or protect, blurring the border between architecture and nature.

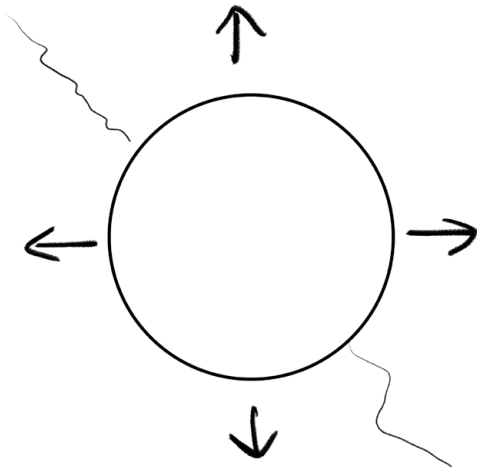
The final stage assumes a detailed architectural design of the concert hall. It will ensure that the structure is not just functional but also harmonizes with its surroundings. The design emphasizes aesthetic and site specificity, demonstrating that a world-class cultural space can coexist with a recovering ecosystem.

THE SHAPE

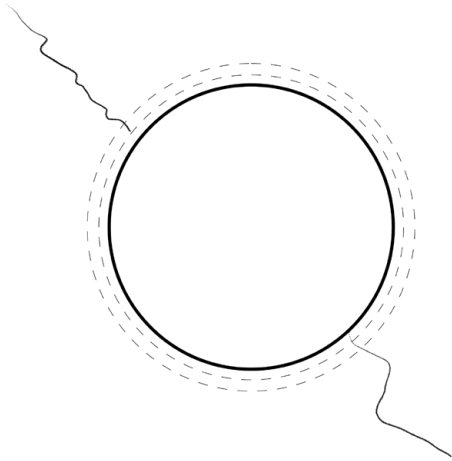
Form and Orientation: The building design is based on a circular shape, a form that provides both panoramic views of the surrounding landscape and is also easily accessible from all sides. By positioning the structure at the site's central point, the architecture doubles as a public viewing deck, inviting visitors to engage with the scenery from every angle.

The Approach: The main entrance is located to the north, leading from the local parking and bus stops. Hidden among the small hills, the building gradually reveals itself. From here, the visitor is open to discovering the full experience of space.

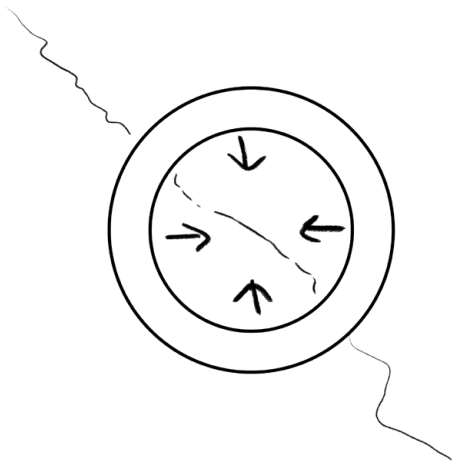
Spatial Composition: The design consists of two concentric circular volumes: The Inner Volume is a stone-covered concrete hall, with a concrete structure that ensures excellent building acoustics. The Outer Volume: Designed in wood, it acts as a protective "embrace" around the hall. This perimeter space functions as a light-filled circulation for the public while simultaneously serving as a highly effective sound buffer against the exterior environment. It is a modular system that gives huge flexibility. Compared with concrete structures, wooden structures can be easily adjusted, opened, or moved. The outer ring allows for more than just a journey through the structure, ensuring a profound experience in nature as it reaches far from the central point. Apart from nature as a core experience, it offers framed views of the main canals, enriching the walk.



1. Visual connection with all surrounding landscapes



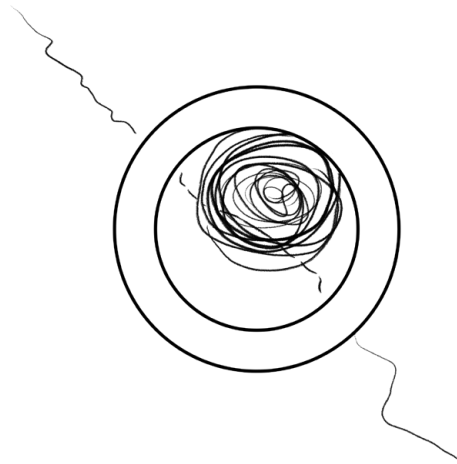
2. Creating volumetric interaction through modular expanding elements



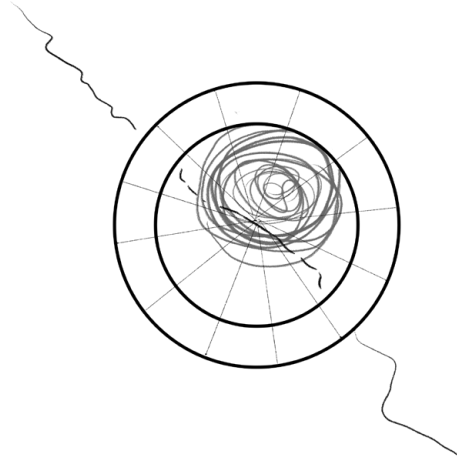
3. Opening the courtyard - green buffer

Fig. 26. Conceptual diagrams

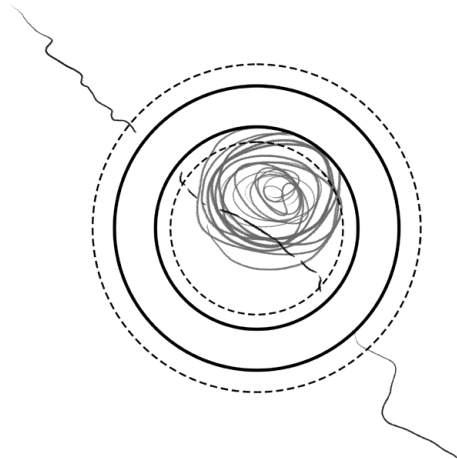
4. Placing concert hall - outer structure isolates acoustically



5. Applying modularity in the structure



6. Creating inner and outer decks for better experience



SITUATION PLAN

Site design considers low-intensive interventions, without heavy paving or road building. It considers the adaptive reuse of already existing asphalt surfaces and gravel roads. As the site is heavily used by local people, the main elements, such as the path along the waterfront edge, will be retained and enhanced. The building sits in the central area of the plot, which is currently inaccessible because it is overgrown with wild bushes and mud. The current appearance of the site looks very artificial and is intended to be changed.

To provide the best possible experience and introduce land regeneration strategies, the design will feature wetlands as a primary design strategy. Such water bodies can enhance biodiversity and human experience. The building located at the center opens onto both canals through a permeable structure, and thanks to its lift platform, it will create new viewpoints, encouraging local communities to visit, have a family picnic, or just have a conversation in nature with a beautiful view.





SITE PLAN 1:2000

Fig. 27. Situation Plan scale 1:2000

PROGRAM

The building is divided into two volumes, an outer and an inner circular shape, that share one facade. The inner cylinder houses the main concert hall, while the outer ring accommodates supporting functions, including rehearsal rooms, administration, restaurants, and sleeping units. What's more, it creates a place for an outdoor deck - the place where the journey through nature takes place, preparing the visitor for the main performance. This circular shape also creates an opportunity to use modular systems that can be multiplied, ensuring both easier construction and good plan layouts.

SEQUENCE OF SPACES

The building can be divided into 5 zones - private sleeping zone, public music zone, semi-private music zone, and community spaces. Each zone has a direct connection to nature, making the building unique in its expression and experience of the natural environment.

Public zone is located in the northern part of the volume, ensuring that all the dependent functions are closely located to each other - meaning the concert hall is adjacent to the lobby, foyer, and restaurant, as these places will be the most public. On the east side, a semi-private music zone is located, dedicated to small chamber halls, rehearsal rooms, and administration. Sleeping units and community spaces are located in the southwestern and northwestern parts.

The journey starts in the north-west part, where the main entrance is located, and leads through the foyer that opens onto the inner courtyard. Upon entering the building, eyes are drawn to the concert hall volume in the middle of the courtyard. The foyer accommodates functions such as an information desk, a wardrobe, and standing tables. After entering the space, the visitor can either walk directly to the event space or take a long journey through nature via the wooden outdoor deck. On the left side of the foyer, sleeping units are available to accommodate musicians who come for more than 1 performance. These can be adjusted as needed. Passing from the foyer towards the concert hall, there is a restaurant, a technical ventilation space, and toilets, which are adjacent to the lobby just in front of the concert hall. The lobby allows for a longer rest before, during, and after the performance. It accommodates two bars, seating spaces, and toilets on both sides. Next spaces accommodate the most important supporting functions such as rehearsal rooms, delivery, chamber halls, garderobes, and admin office. The journey ends up on the axial view that hits the outdoor deck. The community zone is intentionally separated and accessible only from the outside. It will accommodate functions such as a cafe and a gym/yoga room, both of which are rentable.

The inner volume houses the main function: the concert hall. When the visitor enters the room, the first thing that catches the eye is the view of nature through a large window on the opposite side of the axis. Through such an intervention, the design ensures a connection to the outdoor environment in almost every room of the building. The audience enters the seating area and walks downstairs. After the performance, there is an option to either exit by walking back up towards the lobby or through the corridor on the bottom level, which leads to the semi-circular stairs, directing the visitor back to the lobby. This space, thanks to the penetrated facade, provides a unique, mysterious experience, allowing for profound reflection afterward.

ROOF STRUCTURE

CONCERT HALL CHAMBER HALLS

SUPPORTING FUNCTIONS

NATURE - DECK WALK

PUBLIC ZONE | 1496m² CONCERT HALL | 1736m² SEMI PUBLIC | 268m² MUSIC ZONE | 925m² PRIVATE ZONE | 411m² COMMUNAL ZONE | 330m²

△ main entrance ▽ delivery ▲ community access ▨ technical ■ toilet

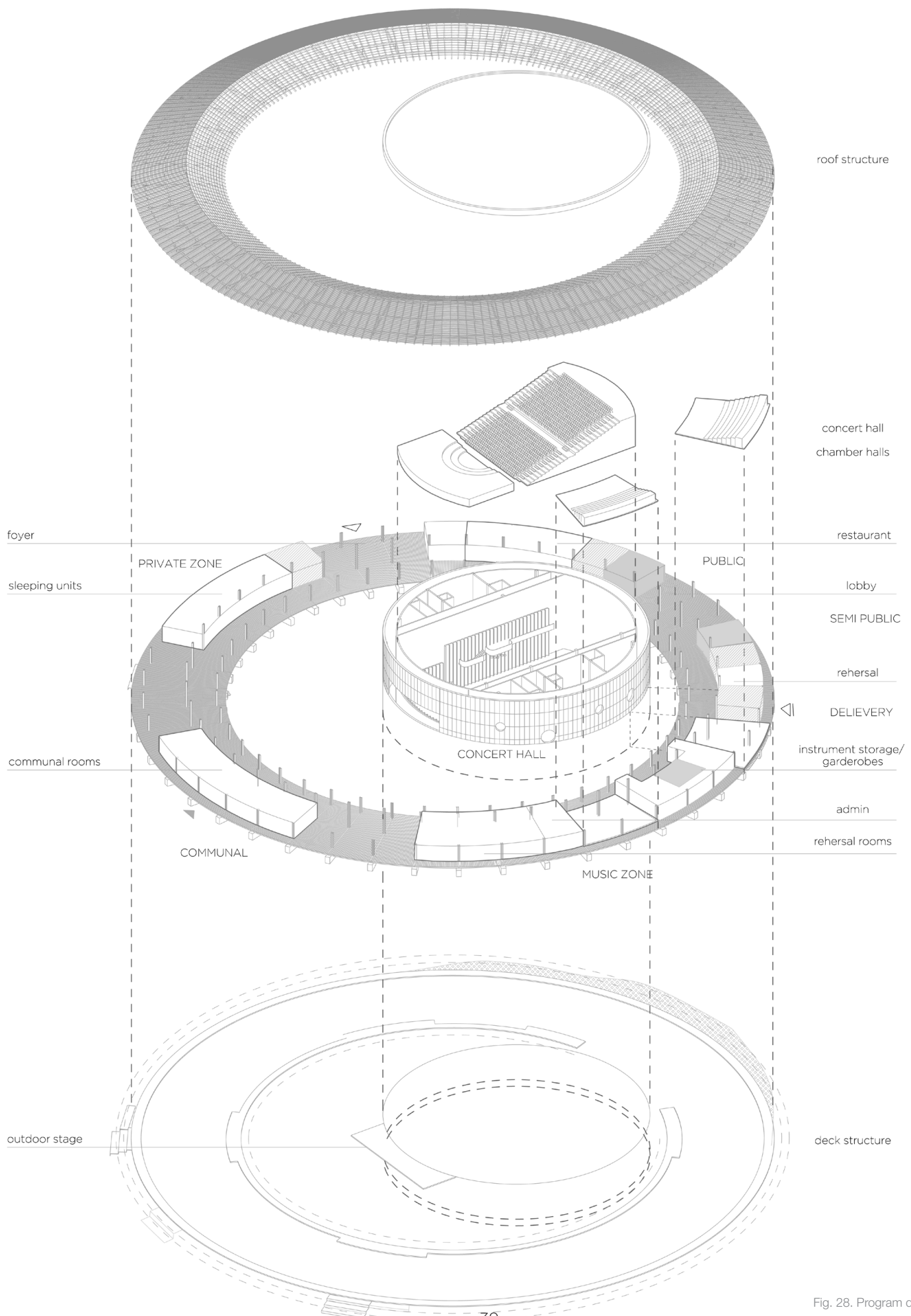
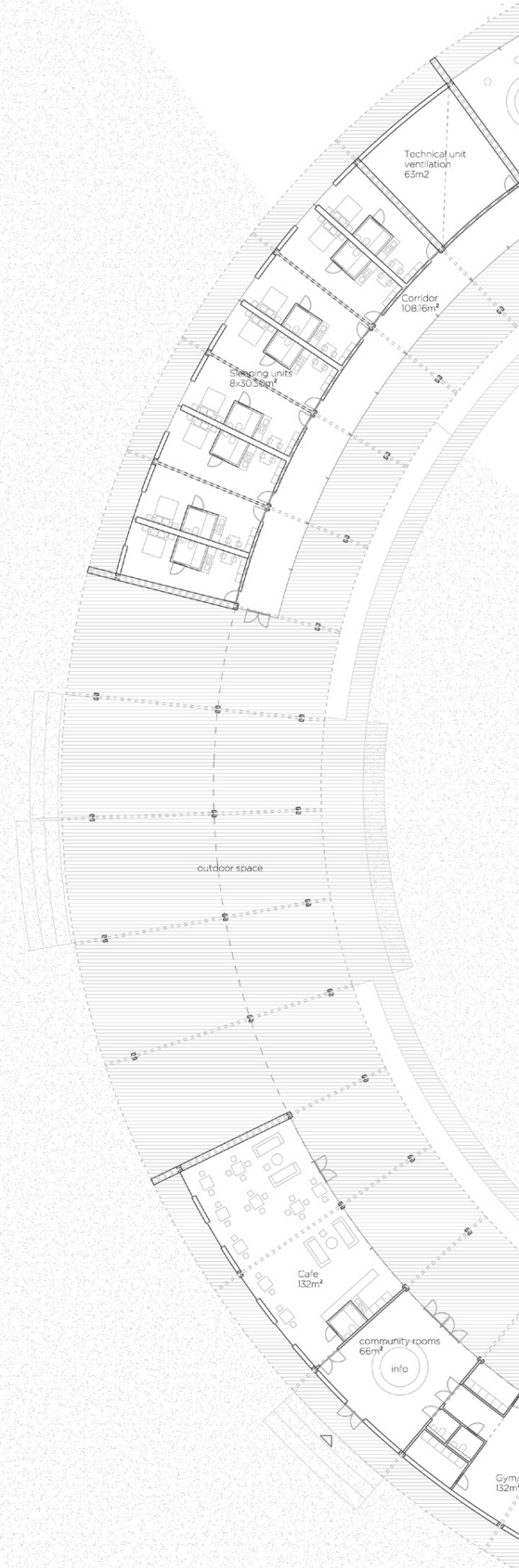
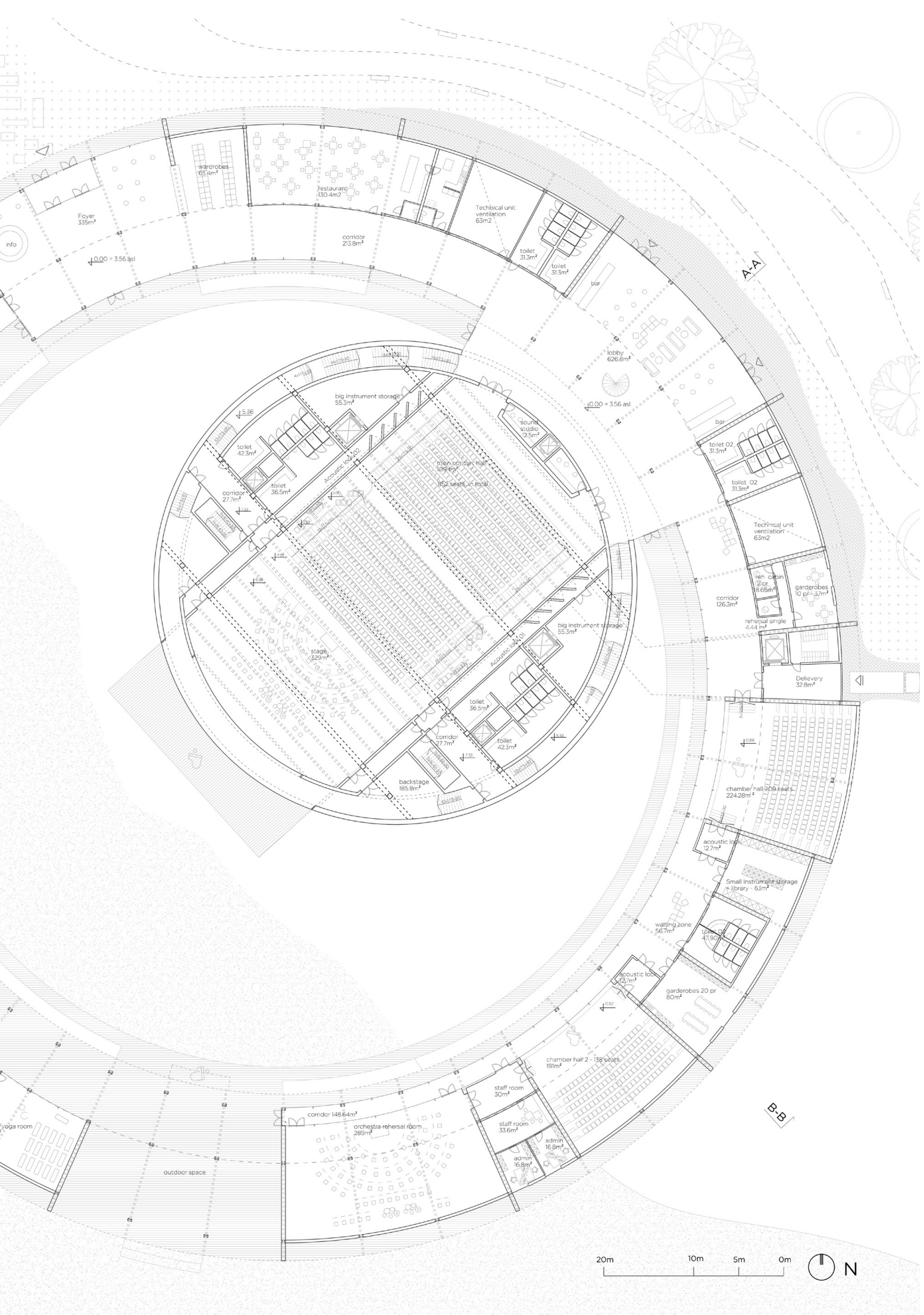


Fig. 28. Program diagram

FLOOR PLAN | 1:500

Fig. 29. Floor plan | 1:500





ACCESSIBILITY

To enhance accessibility, outer volume is connected with the concert hall through the lower level, accessible via elevator or circular staircases in the lobby. This lower floor is located at the same point as the main stage, enabling disabled to both attend the event but also play on the stage. This choice of making such floor, ensured about the design that addresses user's needs.

PROGRAM METRICS

The building has a total Floor Net floor area (NFA) of 5,170m². Total covered space is approximately 10,000 m², including outdoor seating and decks. The main hall size will be based on the target number of accommodated visitors of approximately 1000 per performance. That creates certain ranges in size - the main hall being 25x50m and min 12.5m tall. The design plans for rehearsal rooms and chamber halls of 190m² and 225m², accommodating up to 200 people, are a place for smaller performances.

PUBLIC ZONE: OUTER RING

Foyer	335,00m ²
Info/Cloak room	65,4m ²
Resturant	130,4m ²
Toilet 01 man	31,30m ²
Toilet 01 woman	31,30m ²
Lobby	422,80m ²
Toilet 02 man	31,30m ²
Toilet 02 woman	31,30m ²
Transfer space	204,00m ²
Corridor	213,80m ²
Technical unit	63,00m ²
Admin 01	18,00m ²
Admin 02	18,00m ²
Staff room	30,00m ²
TOTAL:	1496.60m²

CONCERT HALL: INNER CIRCLE

Sound studio	36,50m ²
Main concert hall	1094,00m ²
incl: stage: 329m ²	
Backstage	185.50m ²
Toilet man 03a	36.50m ²
Toilet woman 03a	42,30m ²
Toilet man 03b	36.50m ²
Toilet woman 03b	42,30m ²
Corridor	27,70m ²
Corridor	27,70m ²
Outer ring corridor	
Big instrument storage 01	55,30m ²
Big instrument storage 02	55,30m ²
Acoustic lock 01	42,70m ²
Acoustic lock 02	42,70m ²
Acoustic lock 03	5,80m ²
Acoustic lock 04	5,80m ²
TOTAL:	1736m²

SEMI PUBLIC ZONE: OUTER RING

Corridor	126,30m ²
Rehersal cabin 3pr:	13.15m ²
Rehersal cabin 2pr	8,65m ²
Rehersal cabin 2pr	8,65m ²
Rehersal cabin 1pr	4,44m ²
garderobes 20 pr	37,00m ²

garderobes 20 pr	37,00m ²
Delievery	32,80m ²

TOTAL: 268,00m²

MUSIC ZONE - OUTER RING

Chamber hall 01 209 seats	224,28m ²
Chakber hall 02 138 seats	191,0m ²
Acoustic lock	12,70m ²
Acoustic lock	12,70m ²
Waiting zone	56,70m ²
Toilet 04	47,90m ²
Garderobes 30pr	80,00m ²
Library+instrument storage	63,00m ²
Orchestra instrument storage	25,88m ²
Technical unit	63,00m ²
Corridor	148,64m ²

TOTAL: 925,8m²

PRIVATE - RESIDENTIAL ZONE

Sleeping cabin 01	30.30m ²
Sleeping cabin 02	30.30m ²
Sleeping cabin 03	30.30m ²
Sleeping cabin 04	30.30m ²
Sleeping cabin 05	30.30m ²
Sleeping cabin 06	30.30m ²
Sleeping cabin 07	30.30m ²
Sleeping cabin 08	30.30m ²
Sleeping cabin 09	30.30m ²
Sleeping cabin 10	30.30m ²
Corridor	108.16m ²

TOTAL: 411m²

COMUNAL SPACES:

Cafe	132m ²
Gym/Yoga	132m ²
Info point	66m ²

TOTAL: 333,2m²

TOTAL NFA :

OUTDOOR SPACE:

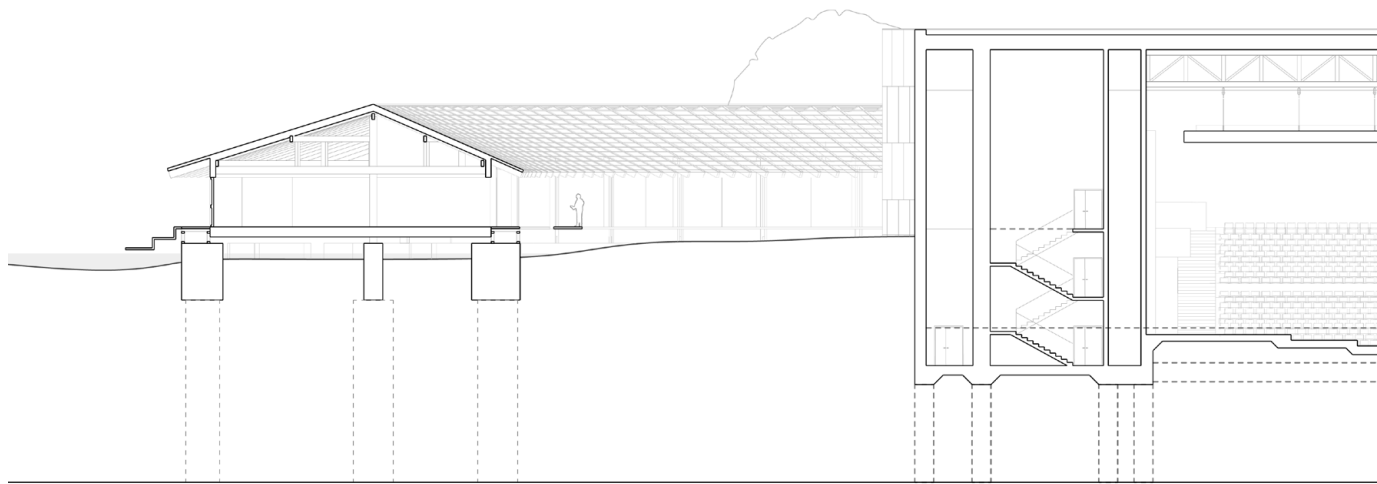
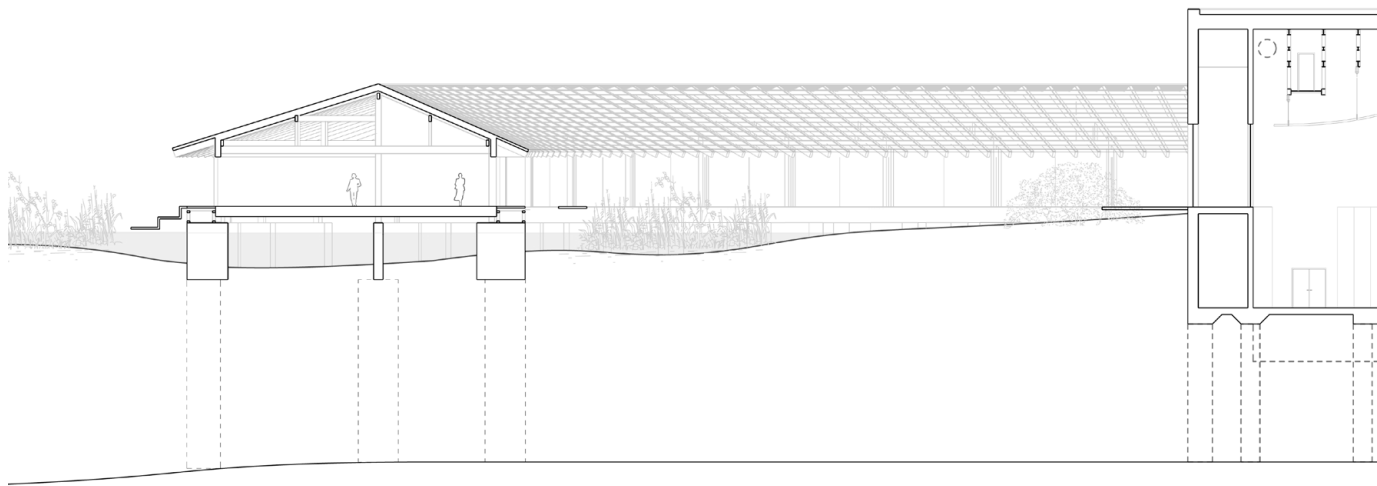
5,170.6m²

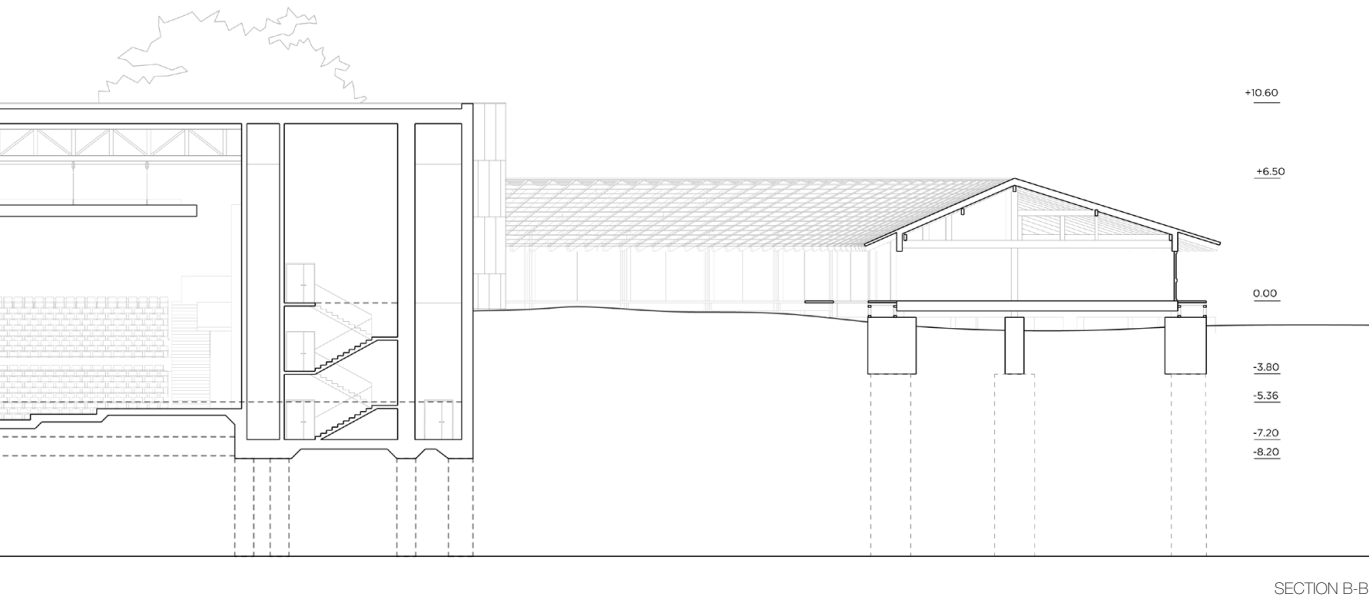
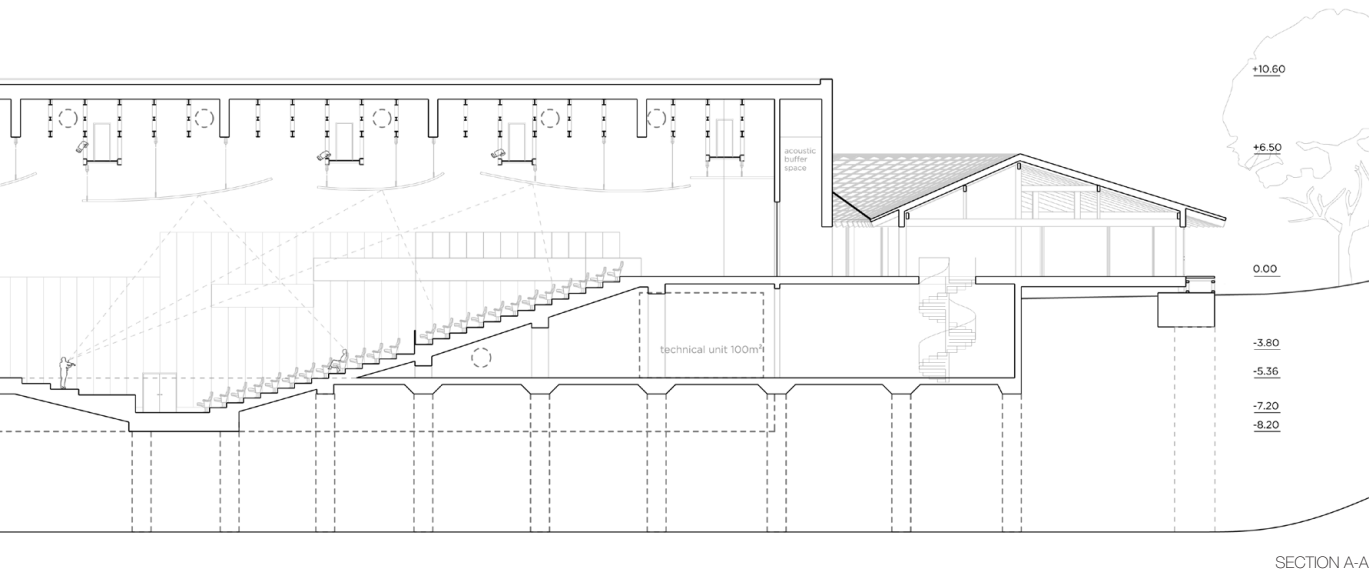
aprx. 5000m²



Fig. 30. Human perspective

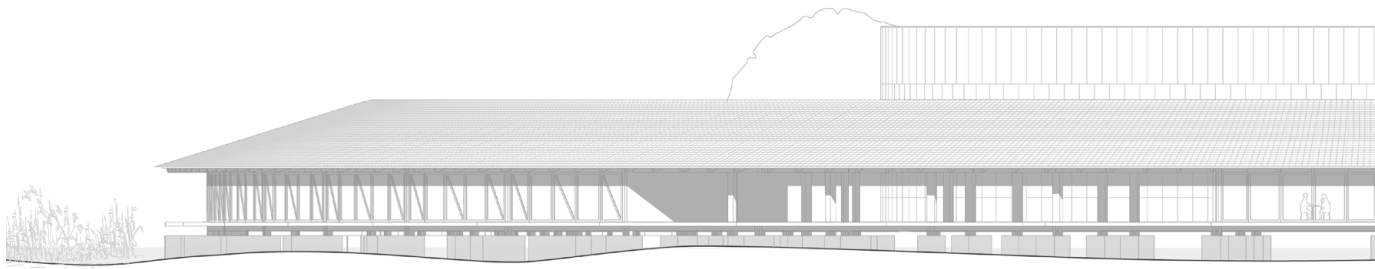
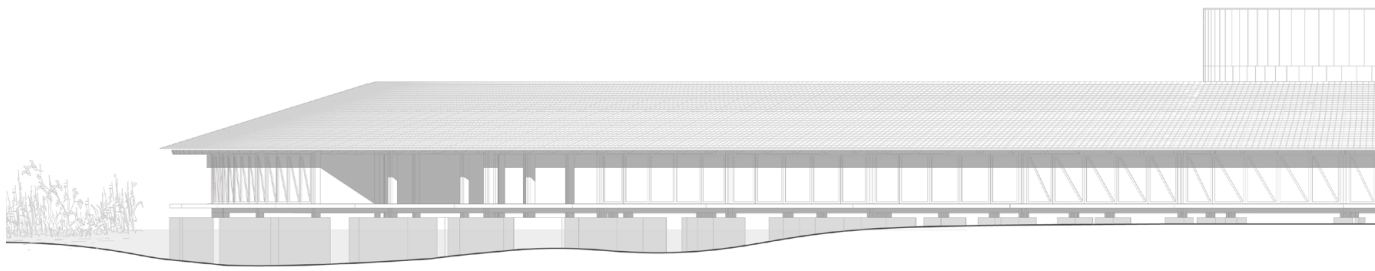


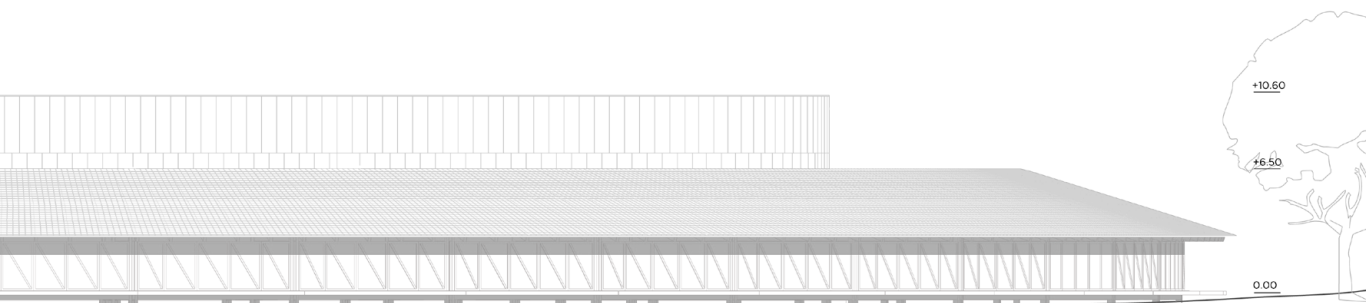




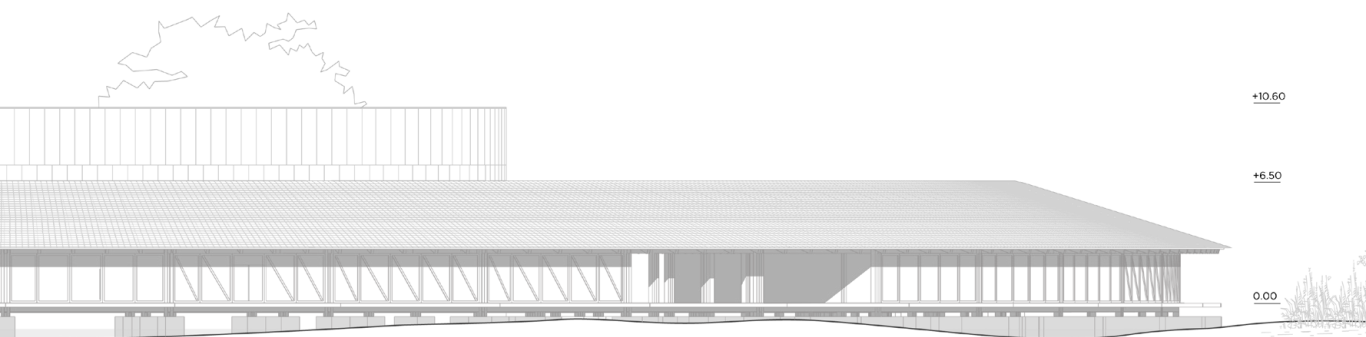
SECTIONS | 1:400

Fig. 31. Sections | scale 1:400





SOUTH ELEVATION



WEST ELEVATION

ELEVATIONS | 1:400

Fig. 32. Elevations | scale 1:400

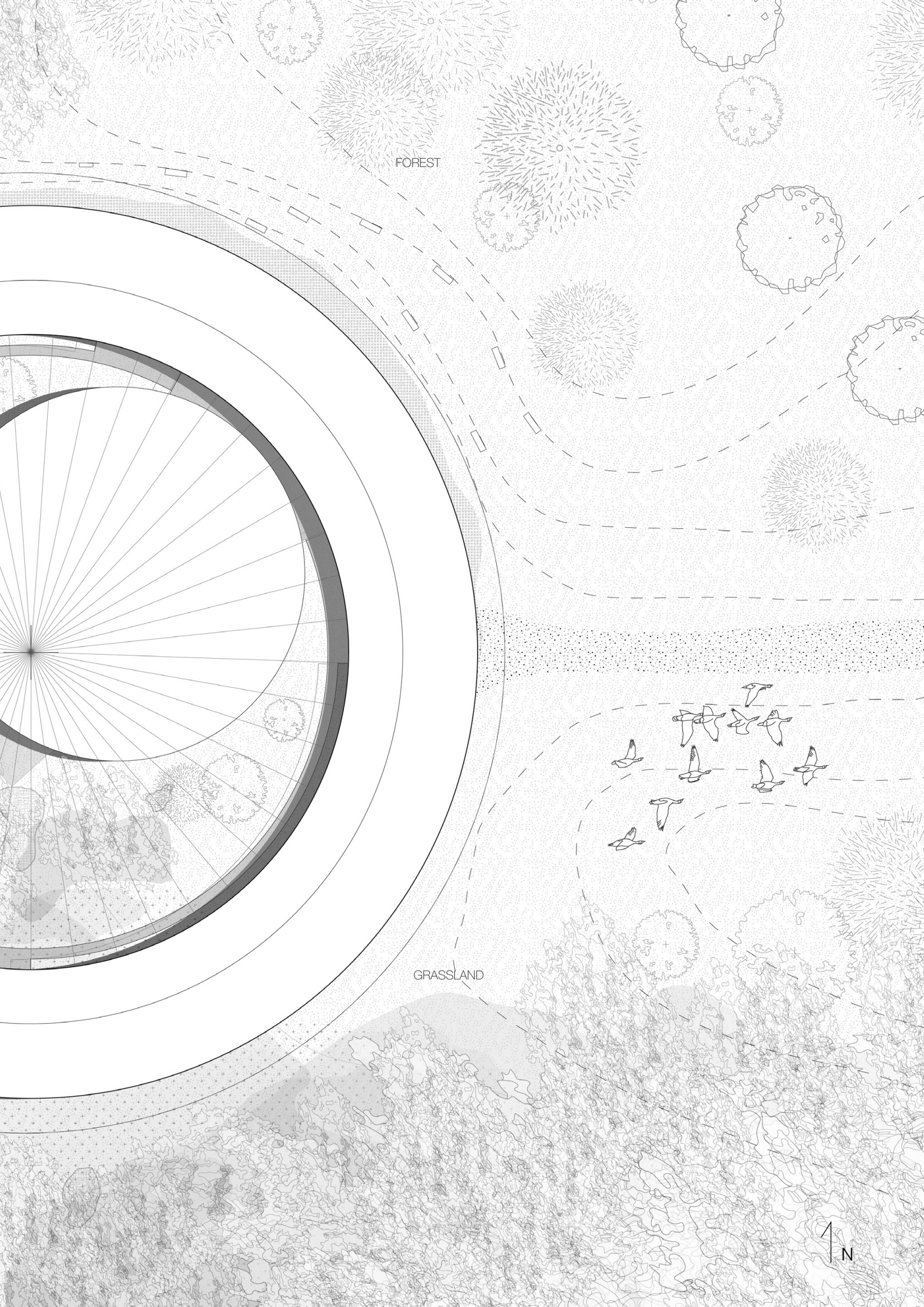


Fig. 33. Main concert hall - interior perspective





Fig. 34. Biotopes - landscape interpretation



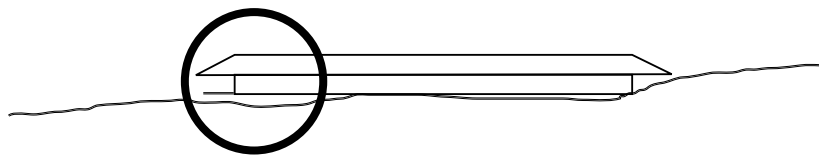
FOREST

GRASSLAND

↑
N



Fig. 35. Responsive building design - wetland landscape



BUILDING VS. WETLAND

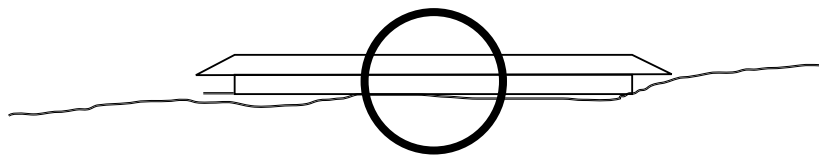
The design assumes a modular architecture that will enhance interaction between humans and nature. This establishes the fundamental basis for the modular design implemented throughout the project. As mentioned in site characteristics, it lies between 4 different elements - water, grass, forest, and the land itself is a degraded type of landscape. The regeneration assumes the introduction of a wetland and wildlife on the site. These elements ensured the diversity of spaces that can interact with the building.

Consequently, the design defines a series of spaces that connect the building, the hill, the grassland, and the wetland.

Modules located on wetlands are built with a base floor lifted 1 meter above the ground, allowing water to pass freely underneath the building. The wooden deck is designed with a modular pattern that can be repeated, expanded, and transformed to enhance interaction with the landscape. For example, it could consider wooden lower decks that bring visitors closer to nature. It can be developed further depending on the general local need.



Fig. 36. Responsive building design - grassland landscape

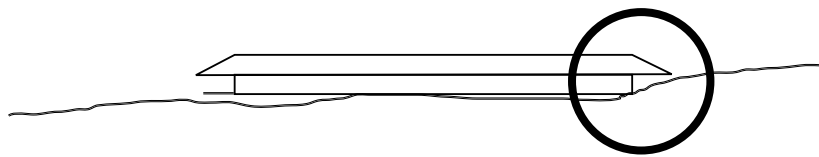


BUILDING VS. GRASSLAND

The moment when the building touches grassland seems to be the most accessible building section as it merges its base floor with the landscape almost seamlessly, making it more approachable. This creates an opportunity for people to enjoy the grassland and share spaces together with nature. Perhaps, the space could be a place for a local picnic and peaceful family time.



Fig. 37. Responsive building design - hill approach



BUILDING VS. HILL

In places where the building approaches the hill, the spaces become introverted, preventing the lobby from unnecessary noise and intruders, ensuring the best experience. In this section, the building sits directly on the ground and faces a beautiful hill that provides both seating spaces and privacy. It is meant to be a quiet pace, where people do not disturb ecosystems but rather gather to share the same experience: preparation for the main performance.



Fig. 38. Perspective inside the courtyard





Fig. 39. Joinery without adhesives

STRUCTURE

The project's structure is designed in both wood and concrete, with implementation based on space requirements and usage. The outer ring is made primarily out of a wooden glulam structure that supports a roof covered with skifter stone slate. Thanks to the circular shape, it was possible to provide a modular system that can be easily multiplied. This construction is based on concrete foundations embedded deeply in the ground, reaching the bedrock. As the ground is based on demolition waste, which is yet undocumented in terms of structural stability, it was necessary to assume a pile foundation

as the leading solution. The concert hall's load-bearing structure is designed in concrete, including columns, beams, and concrete exterior walls. This solution ensures stability and improves acoustic parameters. Internal walls of this part, are designed in CLT, including walls surrounding the main concert hall. These are also designed with special acoustic panels to control the sound inside the hall.

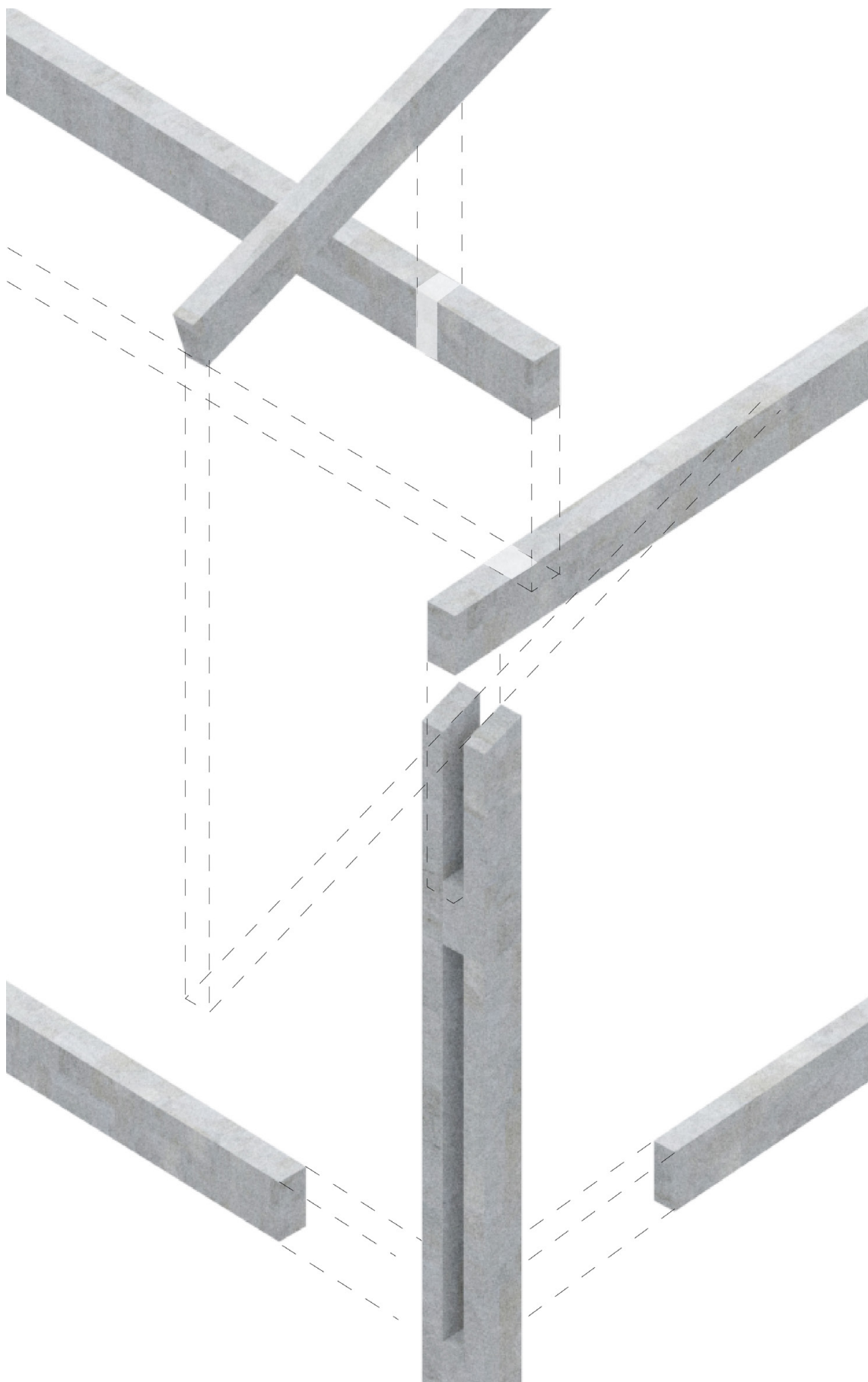


Fig. 40. Wood construction - assembly diagram

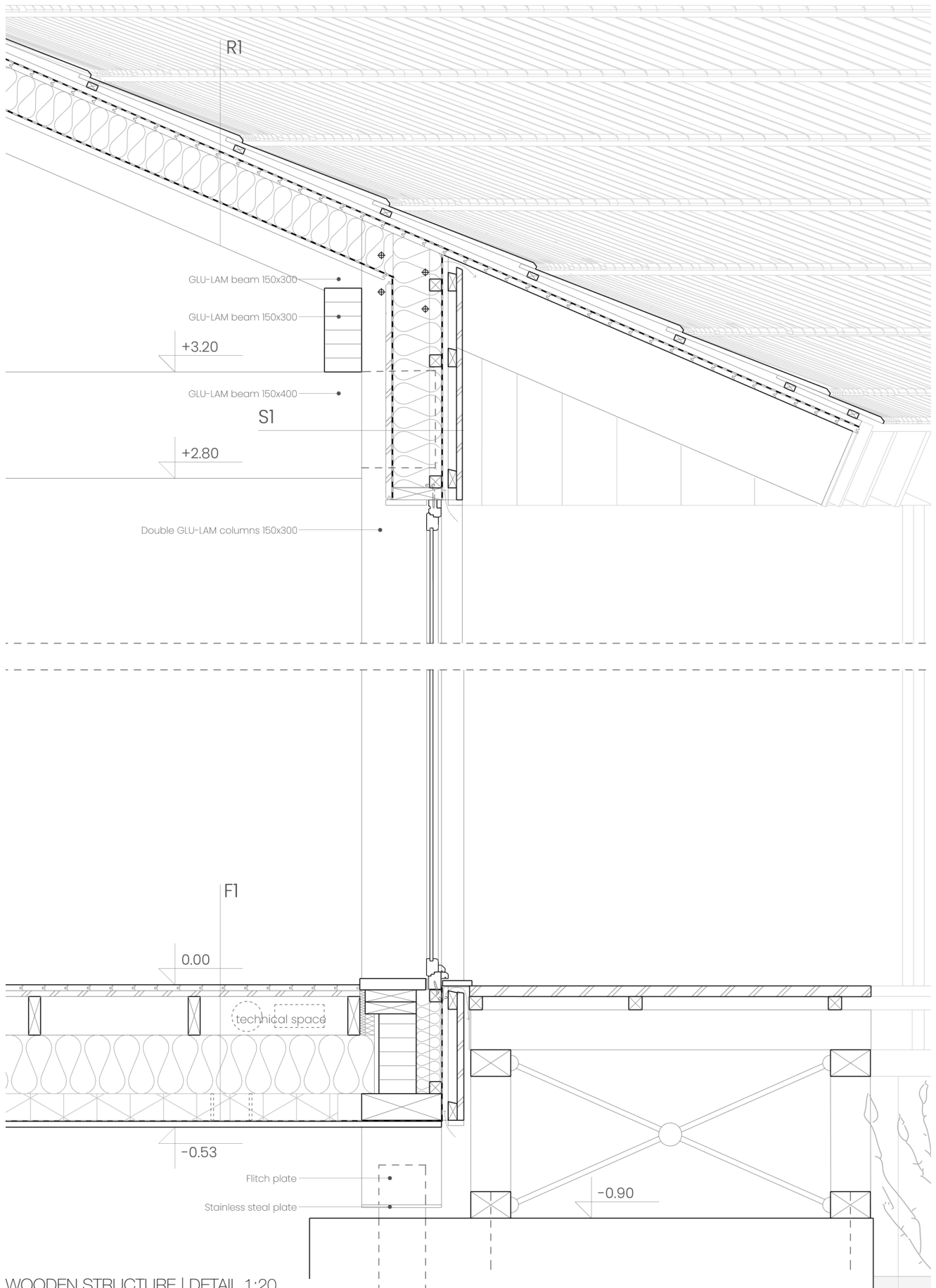
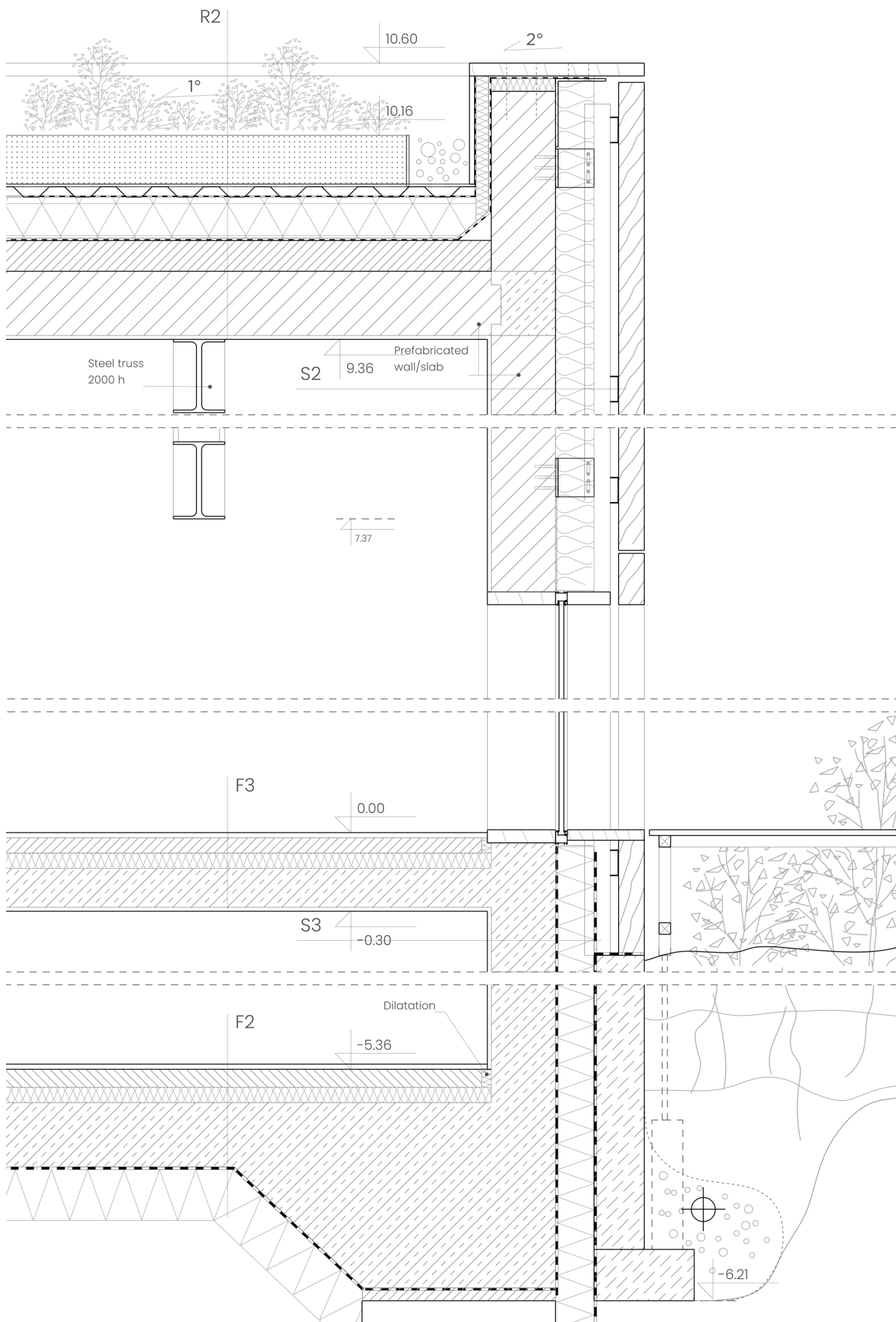


Fig. 41. Detail through wooden structure of the outer ring volume | scale 1:20



R1		F1		S1	
21	Skifter	22	Flooring	22	Interior finish
22	Roof beam	22	Os b	2	Vapor Control Layer (VCL)
22	Roof beam cross	145	Floor beams/ technical	182	Timber & Insulation
2	Water membrane	2	Wind membrane	2	Wind membrane
22	Decking	220	Glulam Beam/ Insulation	56	Timber Batens
300	Roof beam/ insulation	10	Xps	22	Exterior Cladding
2	Wind membrane	2	Water membrane		
22	Cover panels	22	Cover panels		

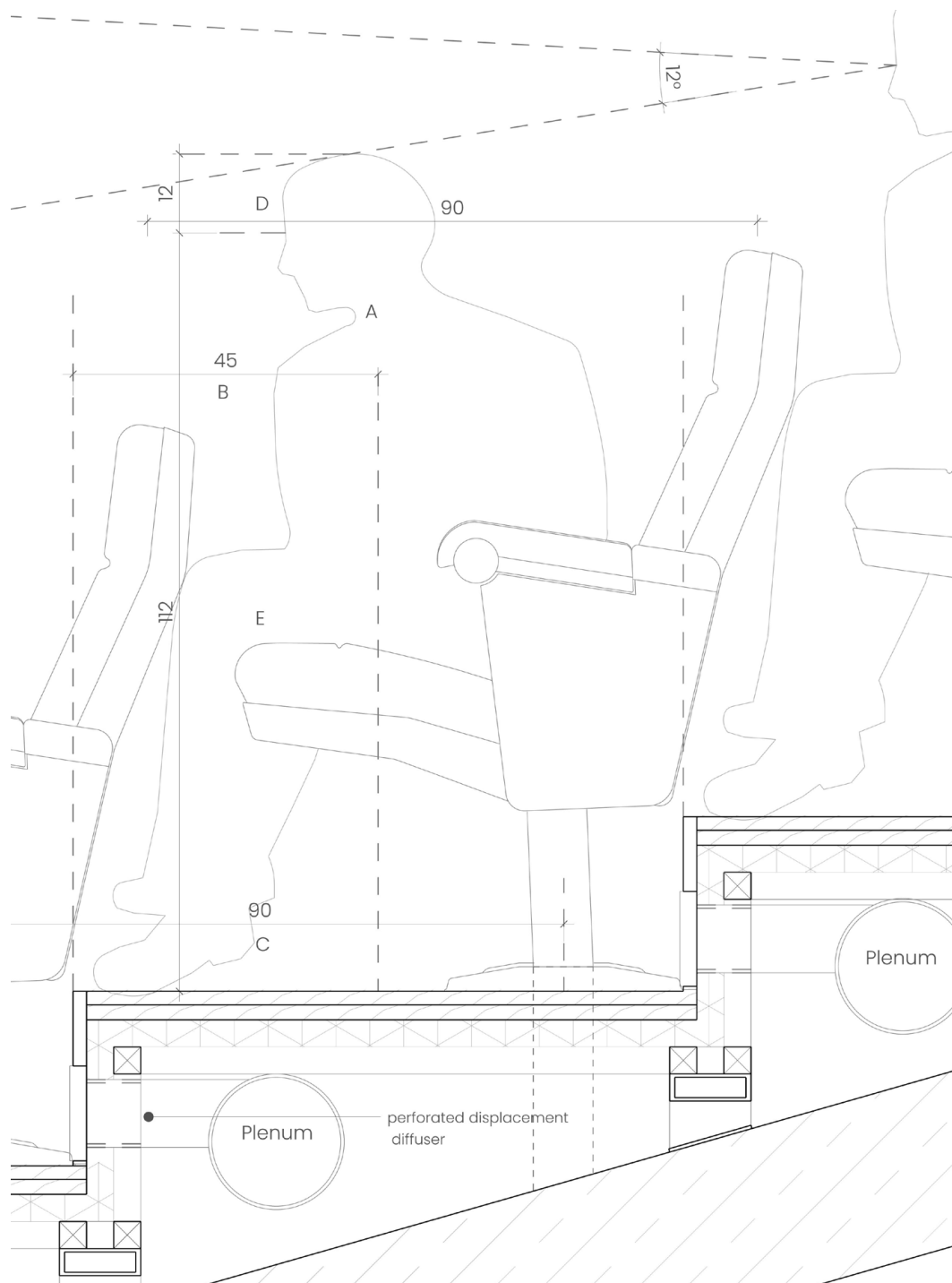




R2		S2		S3	
19	Vegetative layer	100	Stone block	100	Stone block
2	Filer nonwoven		Air gap		Air gap
40	Dimpled membrane	100	Steel substructure	0.1	Glue
2	Waterproof membrane	150	Insulation EPS	150	Insulation XPS
180	Hard Insulation xps	250	Prefabricated wall	2	Waterproof membrane
2	Waterproof membrane	15	Plaster	250	Reinforced concrete
12	Concrete tilted layer			15	Plaster
250	Concrete slab				
15	Plaster				
F2		F3			
20	Wooden flooring	20	Wooden flooring		
70	Concrete layer	70	Concrete layer		
60	Insulation EPS	60	Insulation EPS		
500	Concrete Foundation	500	Concrete Slab		
2	Waterproof membrane	15	Plaster		
200	Insulation XPS				

STONE FACADE | DETAIL 1:20

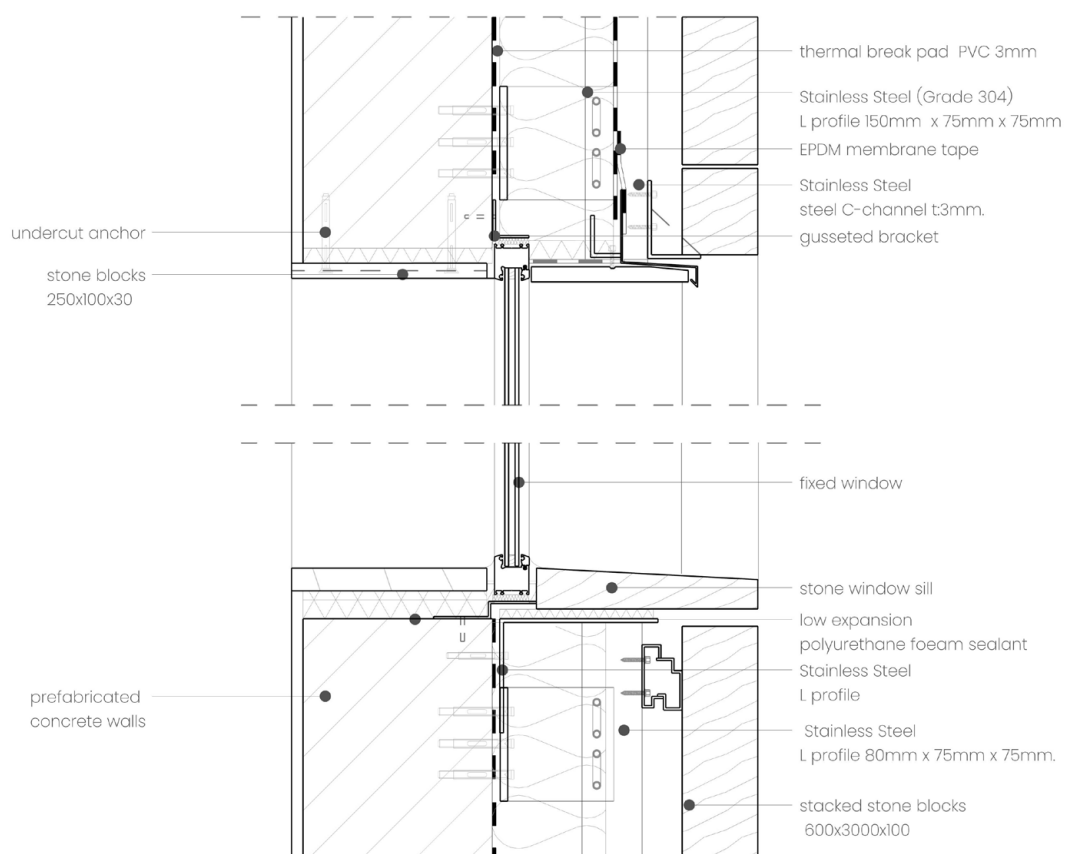
Fig. 42. Detail through concrete external wall structure of the concert hall | scale 1:20



AUDITORIUM RISER AND SEATING SECTION | 1:10

A - width of one row | B - Free space in front of the chair | C - Spacing between seats | D - Distance from an eye to top of the head | E - Average eye height

Fig. 43. Detail of auditorium riser and seating section | scale 1:10



STONE FACADE | WINDOW DETAIL 1:10

Fig. 44. Window detail in the stone facade | scale 1:10

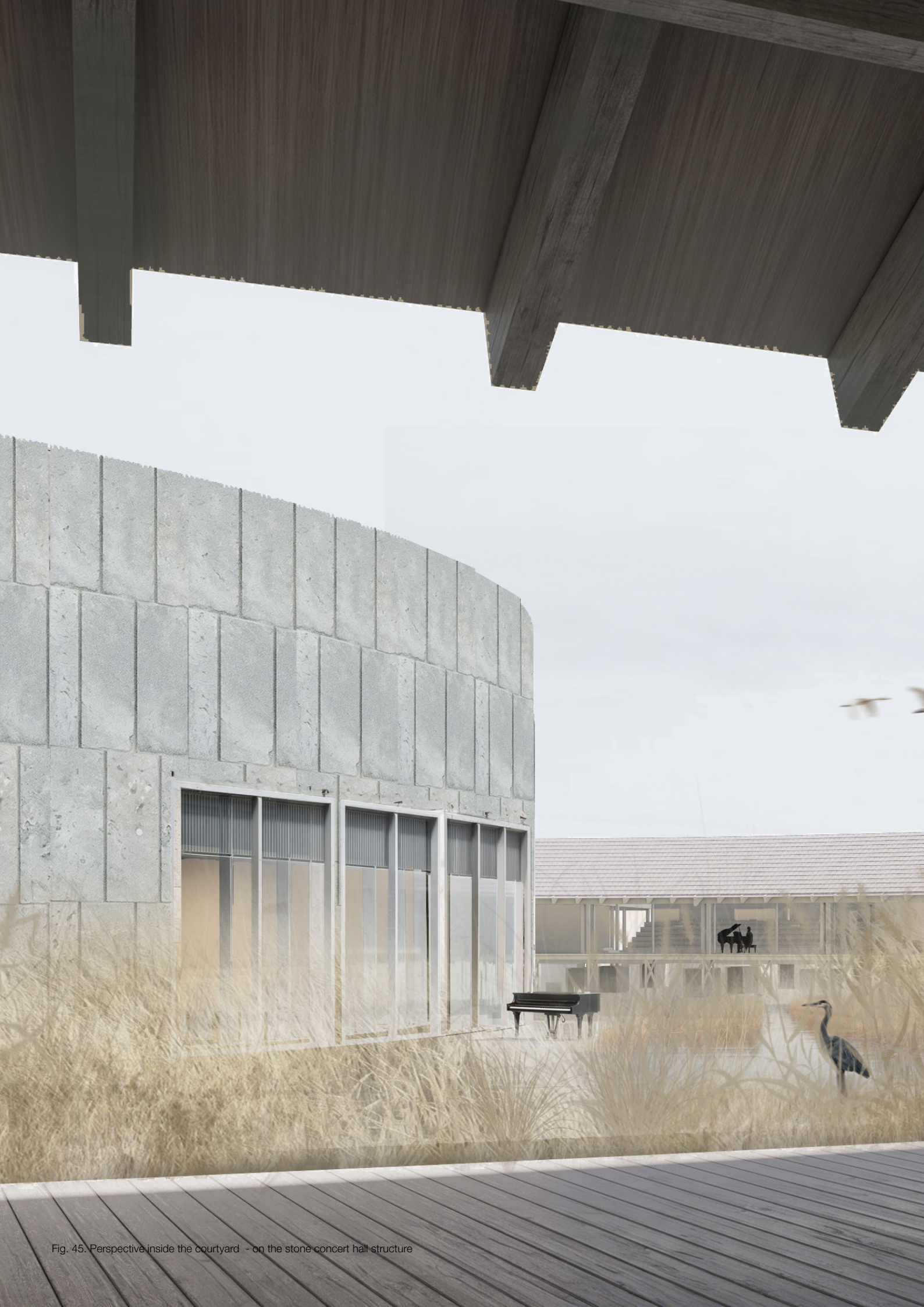


Fig. 45. Perspective inside the courtyard - on the stone concert hall structure

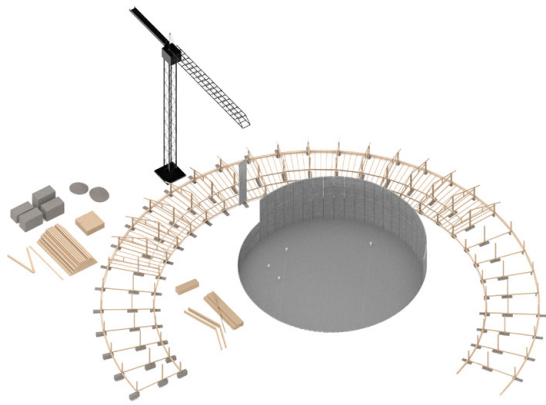




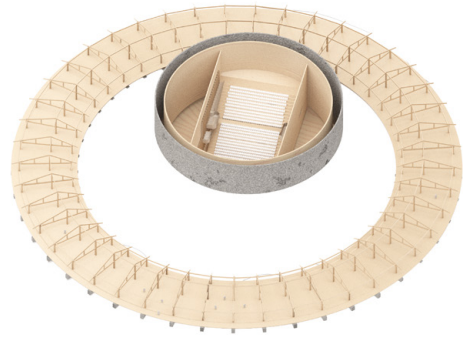
Fig. 46. Perspective inside the main concert hall - performance



Fig. 47. Perspective inside the chamber hall



BUILDING PHASE



+100 YEARS
Concert Hall

DESIGN FOR ADAPTABILITY

The design allows for adaptability due to its modular structure. The building can be converted and transformed while keeping the same module. In particular, the outer wooden volume allows for changing functions over time, from a concert hall's supporting functions into housing, student housing, and shelter. The main concrete concert hall transformation process can include spaces such as a communal zone, storage, or a bunker. The building afterlife predicts either full disassembly or allows the structure to stay and be used as a viewing deck, whereas the concrete concert hall remainings can be transformed to a water pond, further enhancing biodiversity. The building afterlife predicts either full disassembly or allows the structure to stay and be used as a viewing deck, whereas the concrete concert hall remainings can be transformed.

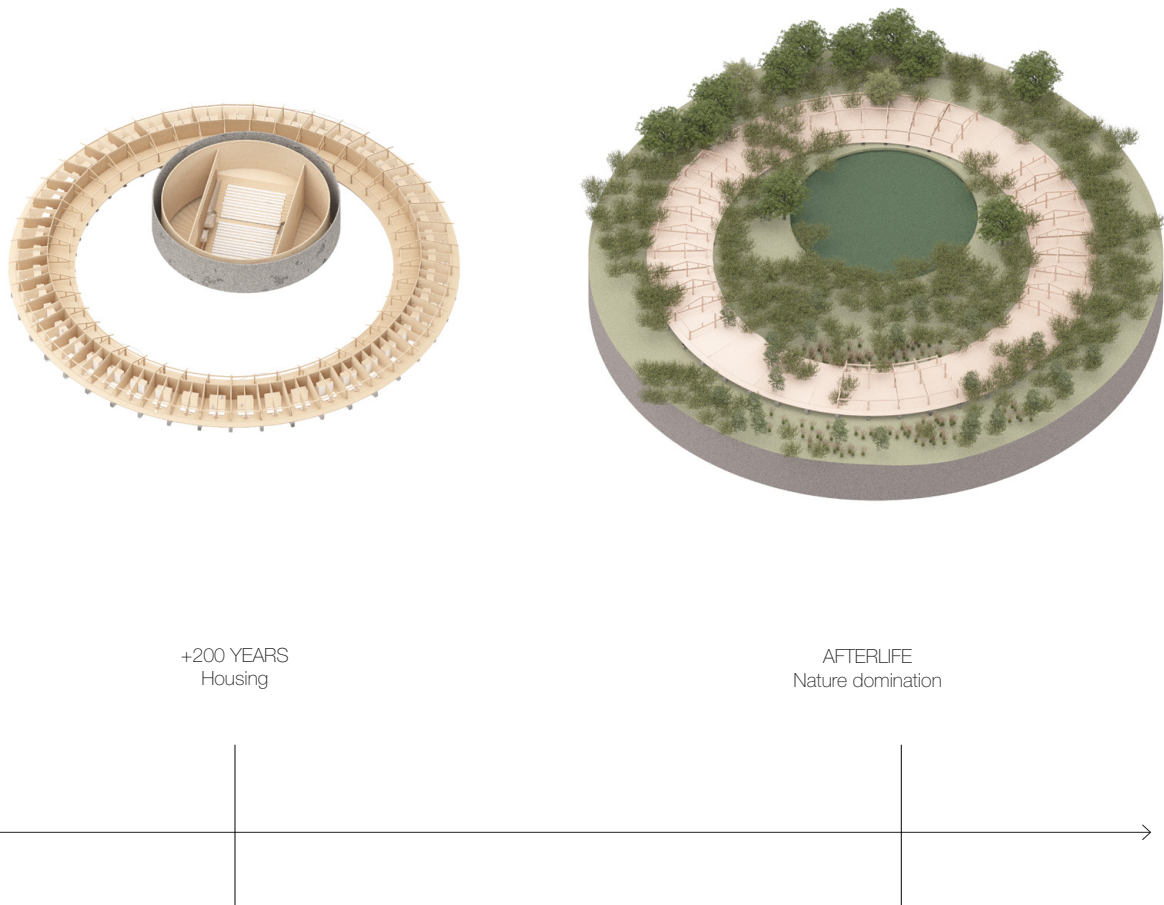


Fig. 48. Design for Adaptability - building lifespan diagrams

LOCAL MATERIALITY

Building design considers the use of materials such as granite stone, GLU-LAM wood, concrete and slate roof coverings, such as skifter. Facades are designed with sawn lumber treated wood, and granite on the concert halls' main facades. All materials are locally sourced, which both lowers transportation costs and expresses the space's local character, where the use of wood and stone is highly appreciated. An aspect of local materiality helps to ensure a low CO2 footprint, even though the design considers a concrete structure. Each material is used according to the function or need.

DISCUSSION

The thesis's main research focuses on public building architecture, highlighting its poor performance in terms of sustainability, functionality, and contextual relevance. The task was to challenge the iconicity, ecological isolation, and monumentality of such elements in space, which nowadays shine as icons and are being placed in the city, full of noise, far from a natural environment. The bilbao effect shows the critical approach to public architecture, which aims to drive massive economic transformation through a single iconic building. This rises skepticism about its functionality and contextual value. Secondly, engineers refer to them as white elephants because their costs exceed their economic value, raising further questions about how to design public architecture and what it should aim for. As we face significant changes in both mental approach and legislation that will increase building requirements for sustainable development, the thesis responds to the rising need for sustainable design in the public building industry, which requires as much new experimentation and attention as housing design.

In order to fully answer the question "How can the contemporary concert hall evolve from environmental isolation and monumentality toward greater ecological integration?" it was necessary to work with the site located in nature. One of the first and most important criteria when choosing the site was that it was degraded terrain in need of regeneration. This created an opportunity to work with landscape regeneration strategies, which formed the fundamental basis for the building design.

The building addresses the question through the implementation of the mentioned strategies, the integration of nature, an adaptable design, and the maintenance of the concert hall's functionality. Thanks to the modular system based on the circular shape, it ensures easy control over cost, life-cycle assessment, and building longevity, planning for its future functions. As the main concert hall is embedded in the terrain, it keeps a modest appearance. To contextualize the design, only natural and local materials were used, bringing the architecture closer to its surroundings and respecting cultural values. What's more, it not only creates spaces for visitors but also provides communal zones for the local community to use or rent.

In order to define the full rightness of the building, there are steps that would need to be explored in the next stage, which include conducting comprehensive Life Cycle Assessment (LCA) calculations, performing detailed acoustic modeling and validation, and developing technical documentation and geotechnical analysis of the site's soil composition to support the land regeneration strategy. That would enable answering questions such as: What is the real-world viability of realizing this type of architectural proposal? Is it possible to change the way we think about concert halls, transforming it into a shared habitat for both human culture and natural ecosystems? Would

sustainable practices be effectively applied to this specific typology? (LCA, DFD, building lifespan). Would it cause another bilbao effect?

Ultimately, I envision this project as a model for public design that integrates spaces for both humans and nature, making it beautiful, functional, contextualized, and sustainable.

AI APPENDIX

During the production of this thesis, AI was used solely as a tool to enhance productivity and accelerate work. This includes specifically adjusting the APA reference system to alphabetical order and finding synonyms for words or concluding extensive documents. In graphic production, AI is now part of Adobe Suite CC, an integrated component of the graphic programs. Due to these changes, AI is increasingly used in programs like Illustrator and Photoshop to select objects, trace images, rotate individual elements, and extend picture frames. During the sketching phase, it served as a source of quick "sketch checks," enabling faster decision-making on design choices, etc.

Experience

2024 - 2026
3D modeler - freelance

2022 - 2024
Junior Architect | EFFEKT Arkitekter ApS

2021 - 2022
Architects Assistant | Loesch+Partnerzy

2019 - 2020
Architectural intern | KUBATURA

Aleksandra Maria Bator



Education

Master of Science in Architecture and Urban Design -
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Erasmus Exchange - Master of Science in Architecture
and Urban Design - University of Lisbon

Bachelor of Engineering in Architecture and Urban
Design - Cracow University of Technology, Poland

Polish architect and urban designer based in Krakow and Copenhagen. Currently a Master's candidate at Chalmers University of Technology. Her international experience at firms like EFFEKT has shaped a philosophy of architectural restraint. Her work prioritizes humble, nature-responsive design, seeking to seamlessly integrate buildings into their surrounding landscapes rather than impose upon them. By bridging architectural precision with urban-scale thinking, Aleksandra focuses on sustainable implementations that honor the delicate balance between human habitation and the natural world.

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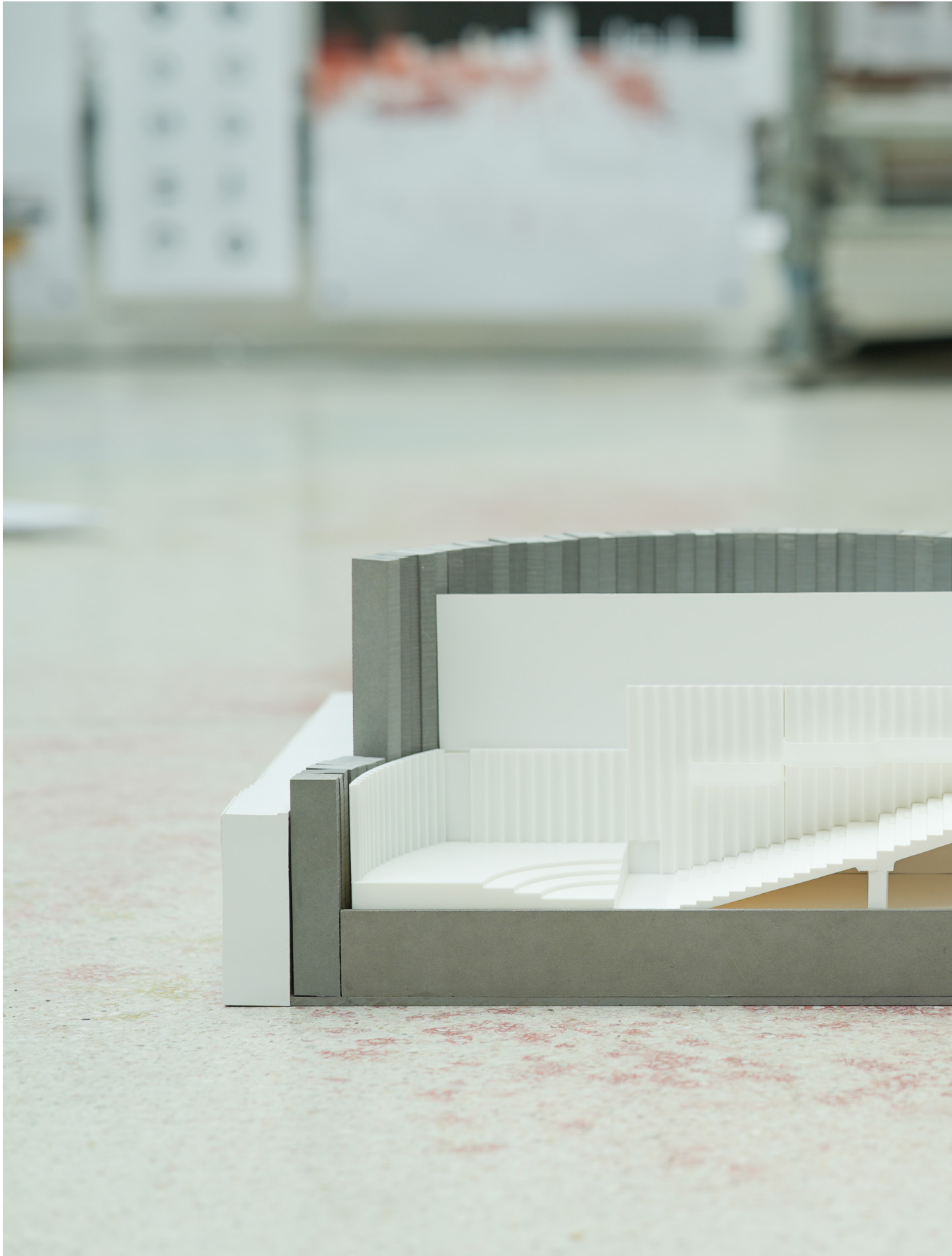
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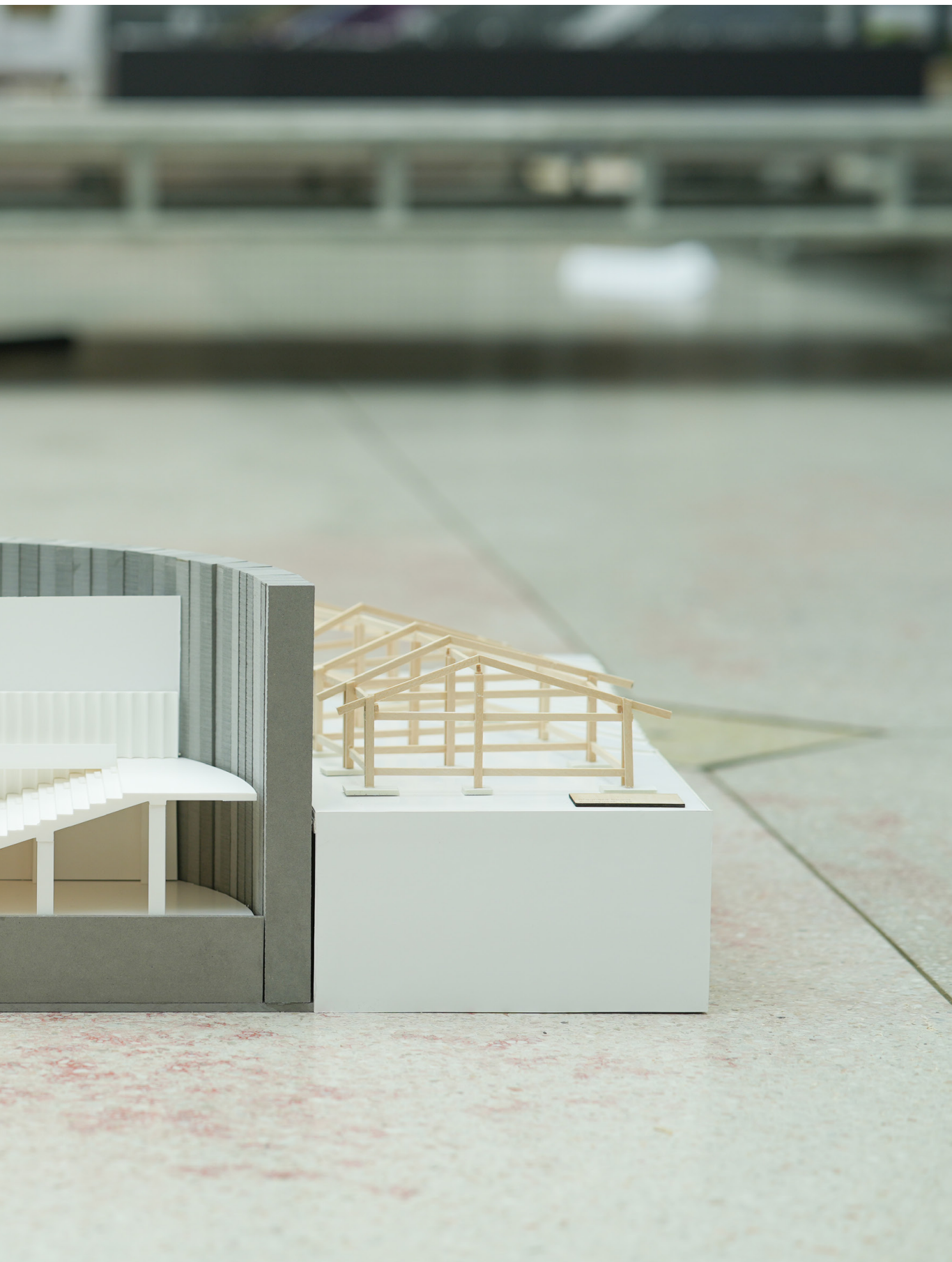
APPENDIX



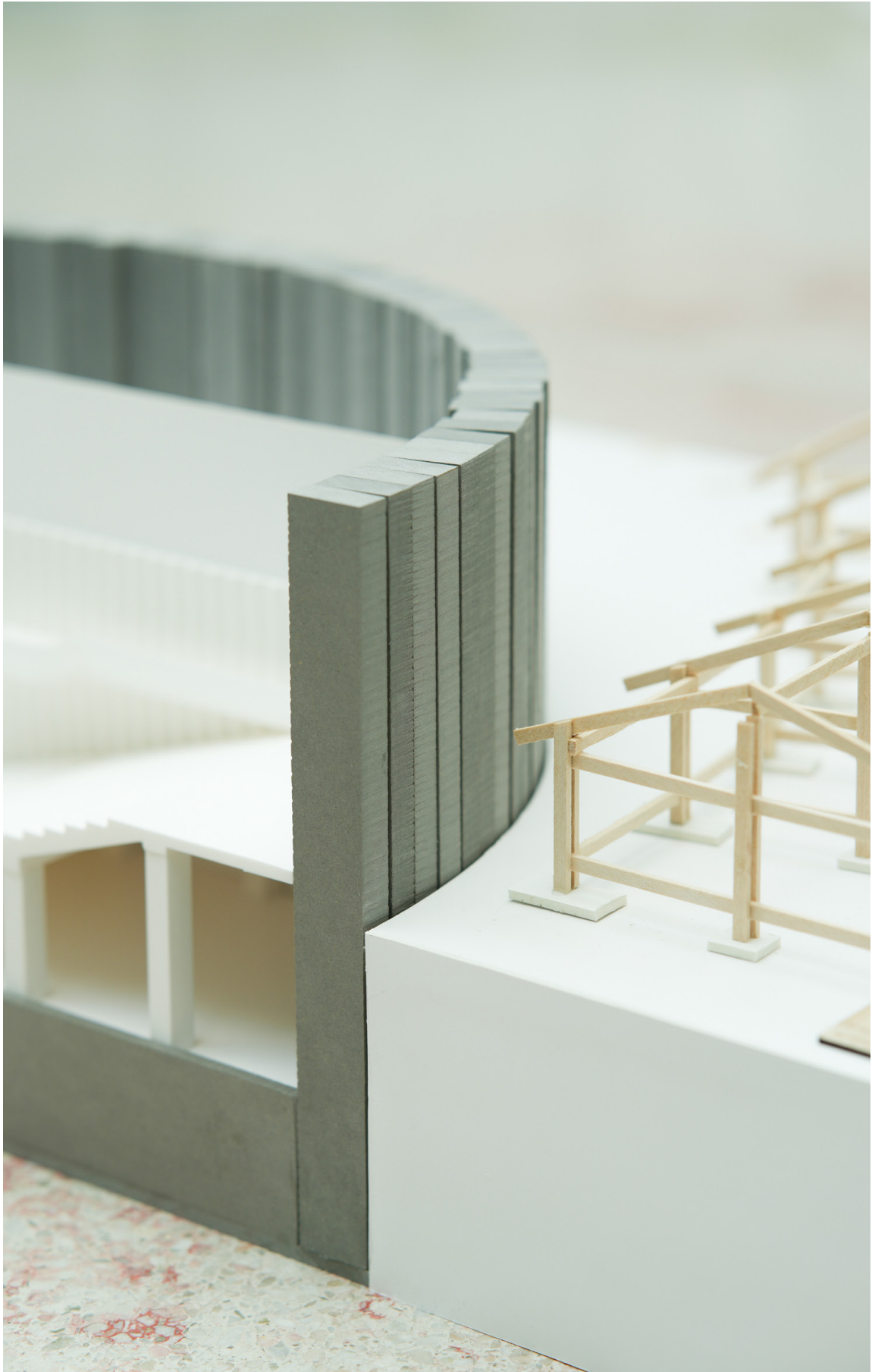


SITUATION MODEL 1:1000

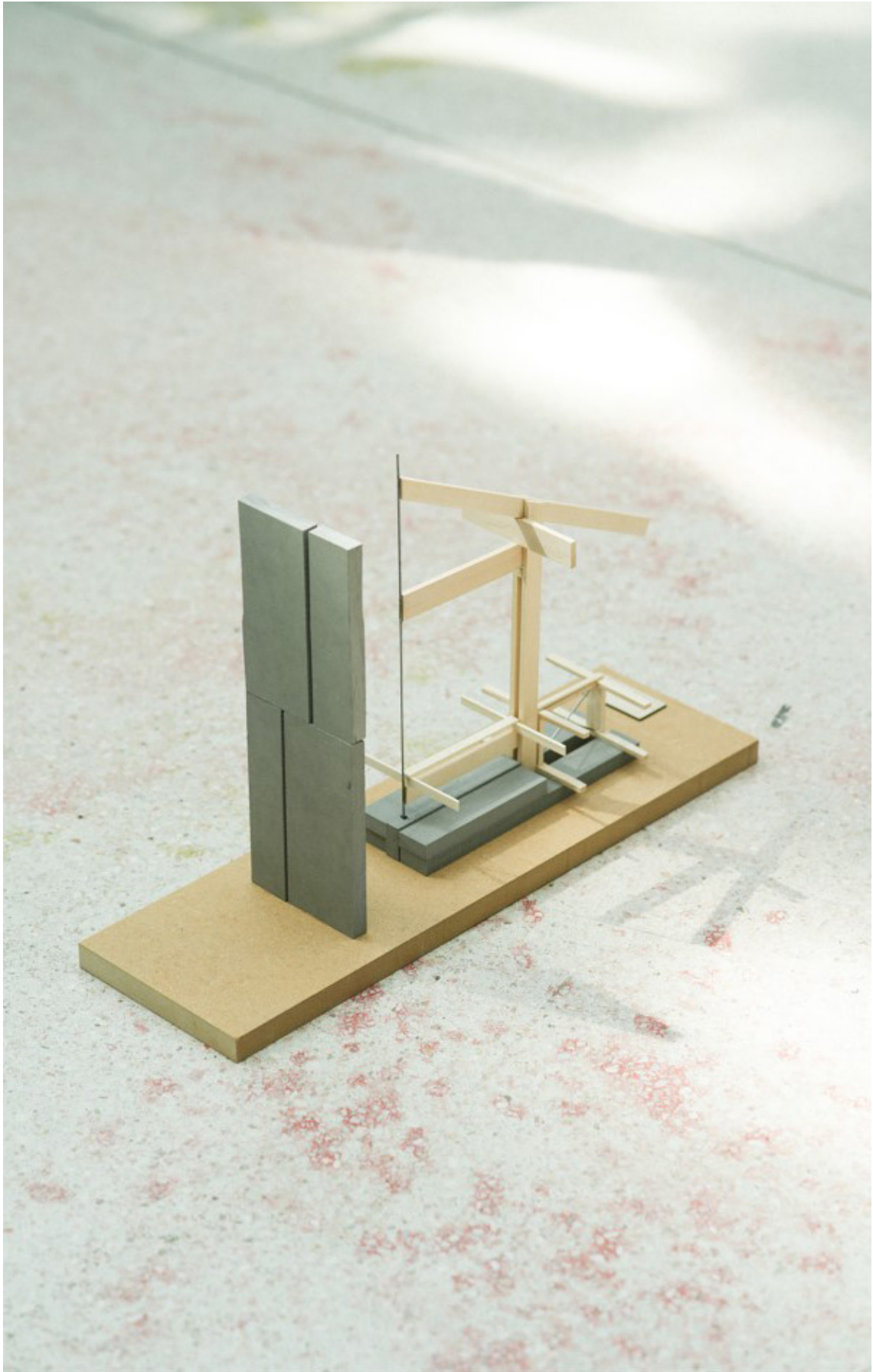


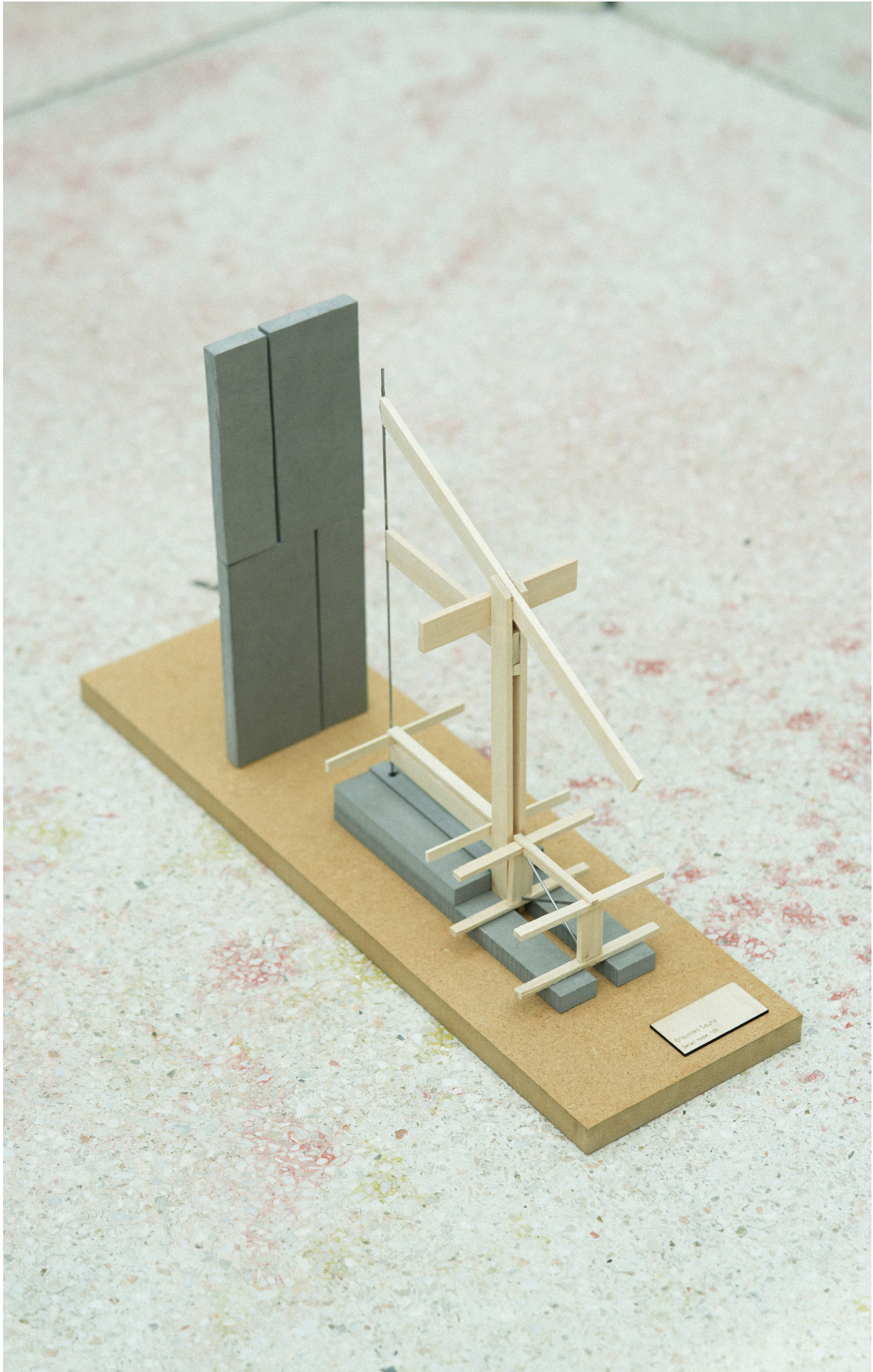


BUILDING SECTION MODEL 1:100









DETAIL MODEL 1:20

DOUGHNUT FOR URBAN DEVELOPMENT - MAPPING

The design aligns with theoretical framework created by Kate Reworth and Home.Earth called "Doughnut for Urban Development" assessing the design and its rightness. The book tackles upon sustainable design within Planetary boundaries, referring to ecological ceiling and social foundation. Group of scientists collected such data to navigate building and urban design. Shown diagram is based on assumptions on what the building could answer or deal with. Additional testing is required. Ecological ceiling refers more to urban planning, whereas social foundation can define building design. Due to that, the considerations tackle climate stability and healthy ecosystems as main topics.

Diagrams show scale from 1 to 10, which allows for more in tact definitions.

CLIMATE STABILITY | LOCAL

- E.01 : Non-toxic materials
- E.02: Waste management
- E.03: Sustainable mobility
- E.04: Renewable energy
- E.05: Energy efficiency
- E.06: Limit new construction
- E.07: Optimised structure
- E.08: Flexible design
- E.09: Circular design
- E.10: Reversible connections
- E.11: Low-carbon construction
- E.12: Durable design

CLIMATE STABILITY | GLOBAL

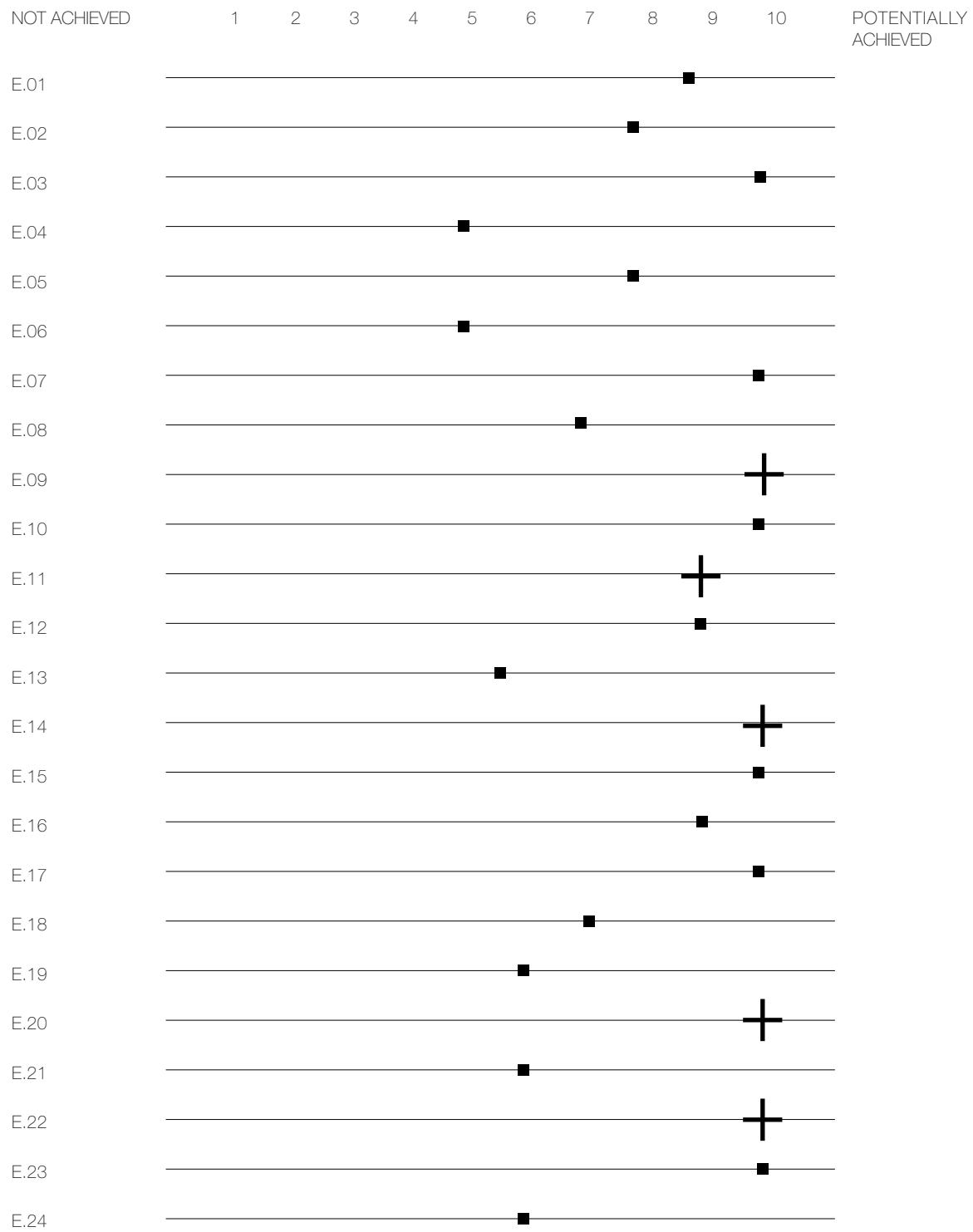
- E.13 : Carbon budget
- E.14: Impact assessment
- E.15: Transparent reporting
- E.16: Waste management
- E.17: Low carbon materials
- E.18: Renewable energy
- E.19: Energy efficiency
- E.20: Life cycle thinking
- E.21: Carbon sequestering
- E.22: Responsible sourcing
- E.23: Minimise transportation
- E.24: Pollution mitigation



MAIN FOCUS



SECONDARY FOCUS



HEALTHY ECOSYSTEMS | LOCAL

- E.25: No chemical fertilisers
- E.26: Healthy maintenance
- E.27: Integrated energy
- E.28: Build on converted land
- E.29: Grey water use
- E.30: Water cycle support
- E.31: Pollution avoidance
- E.32: Habitat preservation
- E.33: Support biodiverse soil
- E.34: No invasive species
- E.35: Purify the air
- E.36: Impact assessment

HEALTHY ECOSYSTEMS | GLOBAL

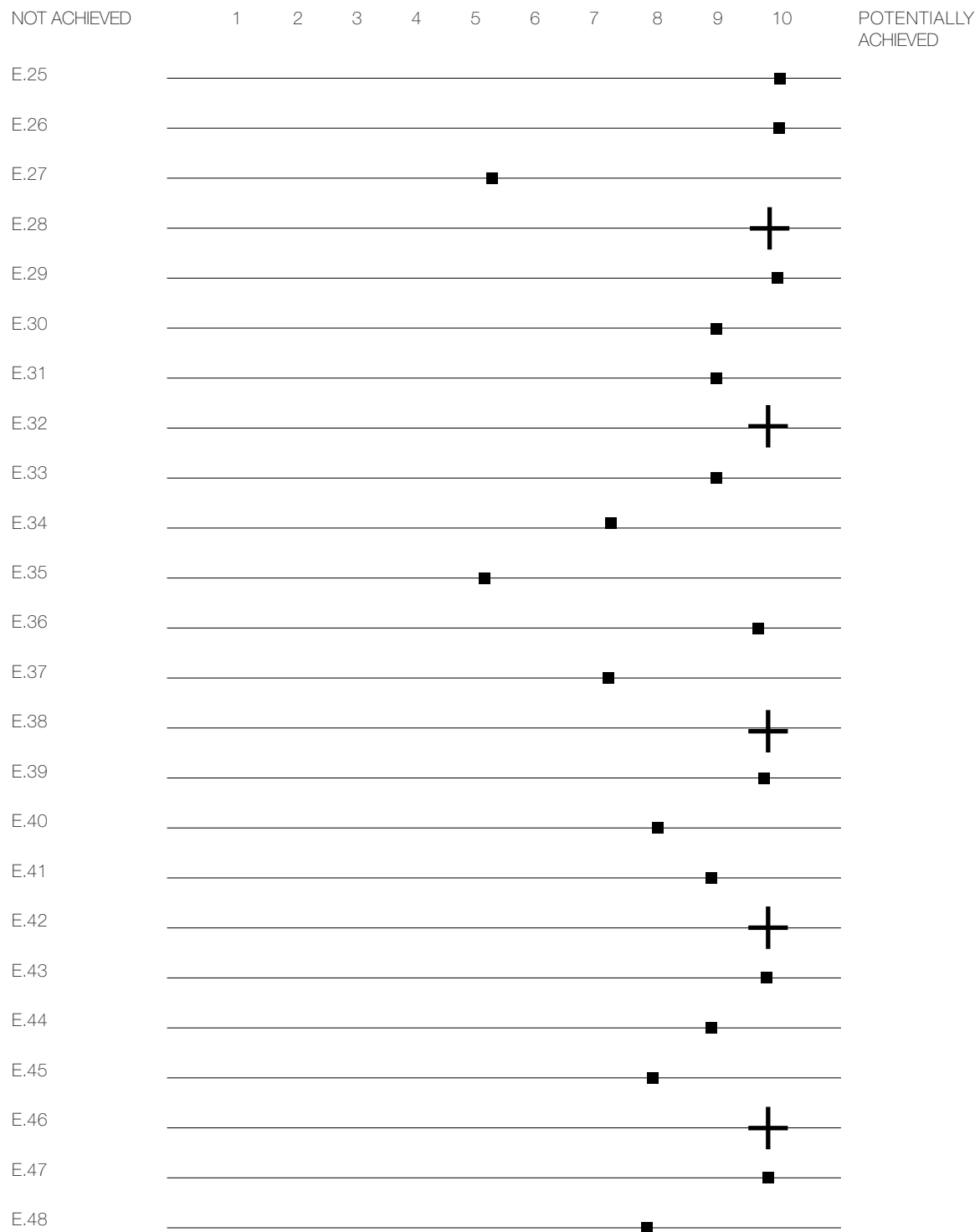
- E.37: Set biodiversity target
- E.38: Impact Assessment
- E.39: Transparent reporting
- E.40: Source organic materials
- E.41: Chemical avoidance
- E.42: Ecosystem protection
- E.43: Avoid land conversion
- E.44: Limit freshwater use
- E.45: Pollution avoidance
- E.46: Support natural ecosystems
- E.47: Restore natural resources
- E.48: Maintain biotopes



MAIN FOCUS



SECONDARY FOCUS



ALEKSANDRA MARIA BATOR

MASTER THESIS

2026