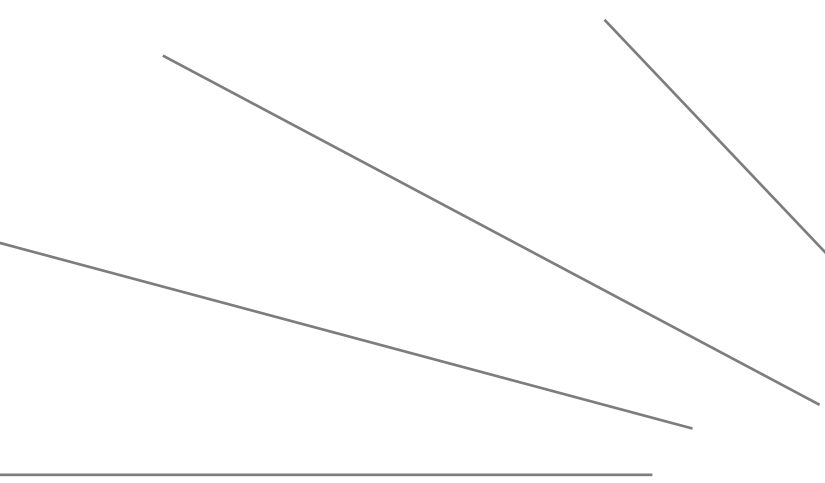


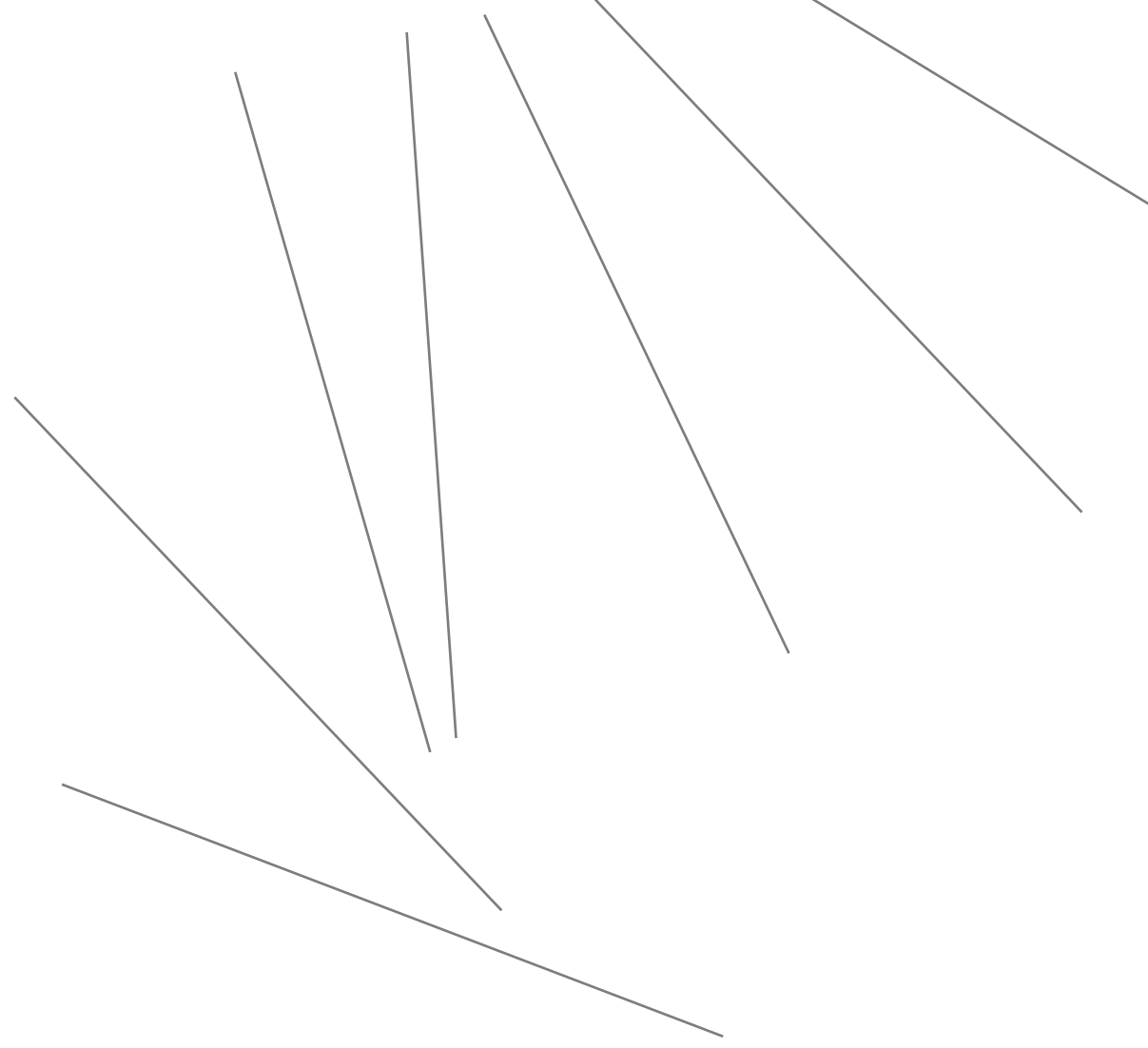


Agri[culture]

an architectural approach to combining climate
and cultural resilience in the urban landscape

Bachelor's project in Architecture and engineering
Department of Architecture and Civil Engineering
Division of Architectural Theory and Methods

Elsa Bolund
2026



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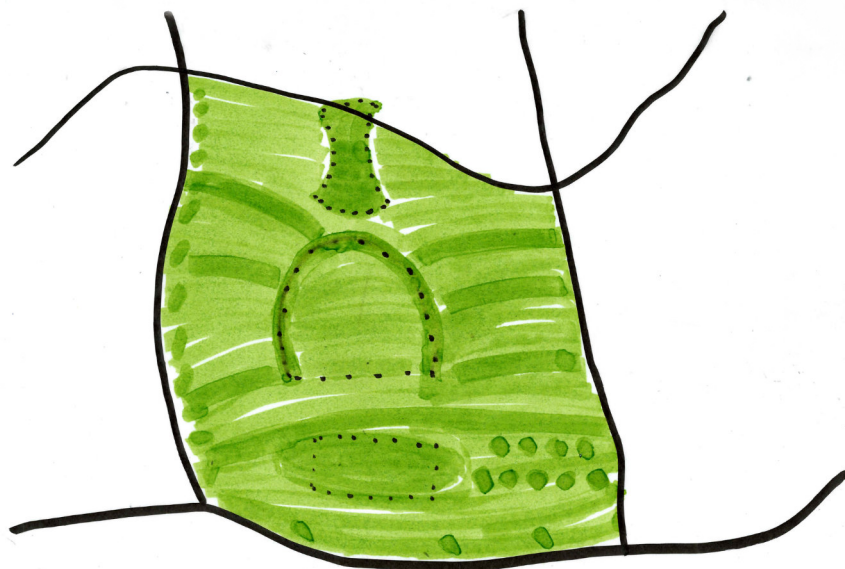
Agri[culture]

an architectural approach to combining climate
and cultural resilience in the urban landscape

ACEX16 Bachelor's thesis in Architecture and engineering

Spring 2026

Focus: climate resilience, social sustainability, local food production



Author	Elsa Bolund
Collaborator	Wilhelm Litsgård
Supervisor	Morten Lund
Examiner	Mats Ander

The world we live in is changing rapidly. Pandemics, natural disasters and global warfare are putting into question the systems our societies rely on, and could leave us without food, water, shelter or resources. Resilience requires strong social bonds, urban farmlands and climate resistant crops.

It is not a matter of if these needs will arise, but about when and how hard they will hit us when they do.

At the same time, we cannot afford to lose sight of who we are as a society. In times of crisis, we need people to trust one another, have places to turn to for help and be able to provide for each other. We need culture. We need music.

AGRI[culture] means to solve both needs in the same space. The landscape is shaped into a garden using techniques that enrich the soil and prepare it for future use. The plot is shielded from noise using nature itself: earth, trees, crops, plants, and technical constructions like green walls where locals are invited to grow their own produce in the sound-absorbent construction. By the river lies an outdoor music pavilion in natural clay materials that host orchestras and events. When the seasons change and the orchestra moves out, the plot changes. The soil is milled into farmland and the pavilion turns into a barn, storage and garage for commercial food production. In cases of emergency, it can also be used as a shelter and crisis center. After a few seasons, the farmland is once again turned into a park while the ground regains its nutrients. The orchestra returns and the cycle starts over.

Design process

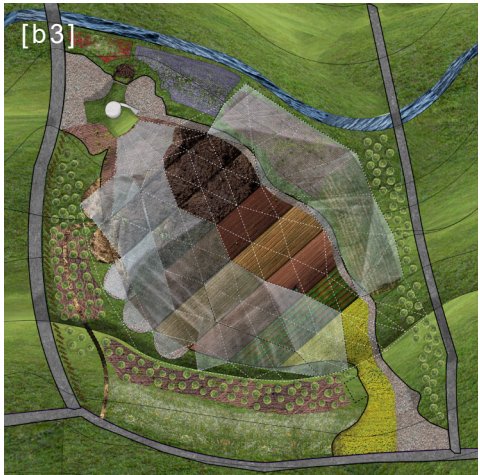
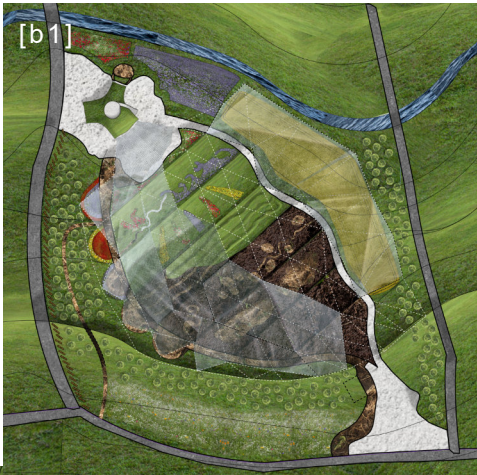
Our design process for this project started, as it almost always does, with an underlying issue to tackle, explore and come up with a potential solution for. In the past, our projects have focused on energy efficiency, reuse and circularity in the building sector, transformation of older buildings, and social and economic sustainability in the industry. For this project, we want to go wider. We have been interested in resilience for a long time: how can we prepare our society for the challenges that arise from geopolitical, socio-economic and climate change issues that are already rocking our systems?

We began creating iterations based on different societal problems we were interested in and wanted to resolve but also based on other concepts and ideas that interested us. Each concept was explored using colors, shapes, words, and themes to describe both the problem and idea as simply and effectively as possible. The iterations consisted mostly of sketched out plans, but also models, texts, sections and pictures, and were mostly used to describe to each other and others what we meant with our idea and what we wanted our project to consist of, produce and explore. We ended up combining three of these early concept iterations - temporary, landscape, and network - into a final concept that we moved forward with and produced models and plans to start exploring this new stage. After that, our process went mostly digital: we produced images, 3D models, scripts and plans to describe both our ideas and the specific technical solutions needed to bring them to life.



Portfolio

- [a] The lawn being used for music preformanc. Botanical gardens, cover crops. earth berns and trees protect acusticly.
- [b] The lawn under transformation. The covered walkways are removed and the nutrient rich soil below is cultivated into fields. The semicircular flowerpatches are turned into turning areas for harvesters and tractors.
- [c] The lawn transformed into farmland. The sectioned gardens are used as fields, the treelines as orchards and the green walls for growing herbs and lettuce. The fields which previously held rapeseed are replanted with grass peas to ensure soil rotation and protect from flooding.



Bachelor thesis project

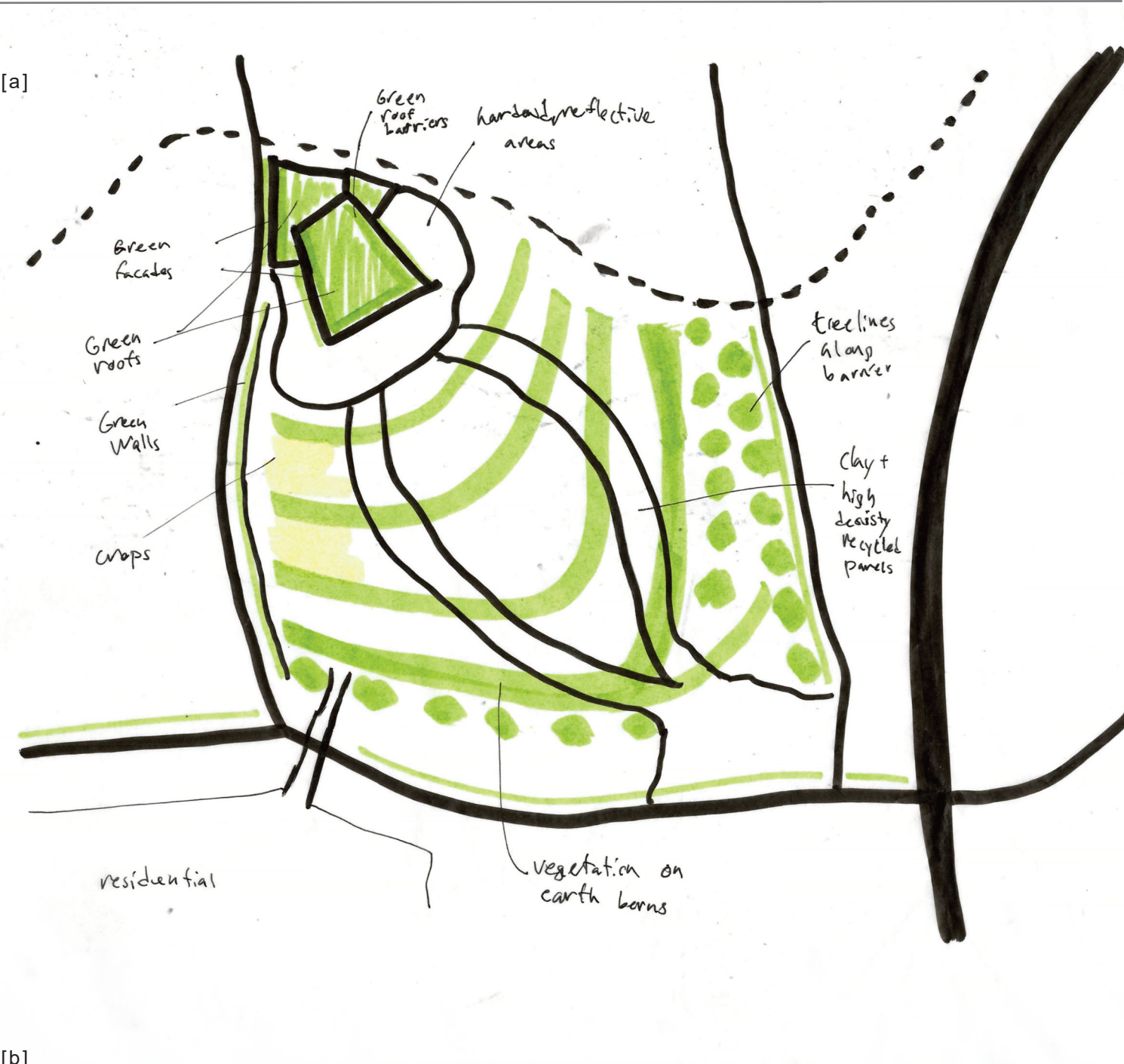
Elsa Bolund

Environmental noise control

The noise control strategy combines passive landscape measures with ground absorption, reducing both direct sound propagation and diffracted noise reaching the audience area.

- Earth berms provide primary shielding and increase propagation path length
- Vegetation belts and cover crops introduce additional attenuation
- Acoustic barriers use recycled materials for targeted noise reduction
- Retention of porous agricultural soil enhance ground absorption

In the residential area, a sound pressure level of 69 dB is reached with concerts playing at 95 dB. This is considered acceptable for occasional events such as concerts.



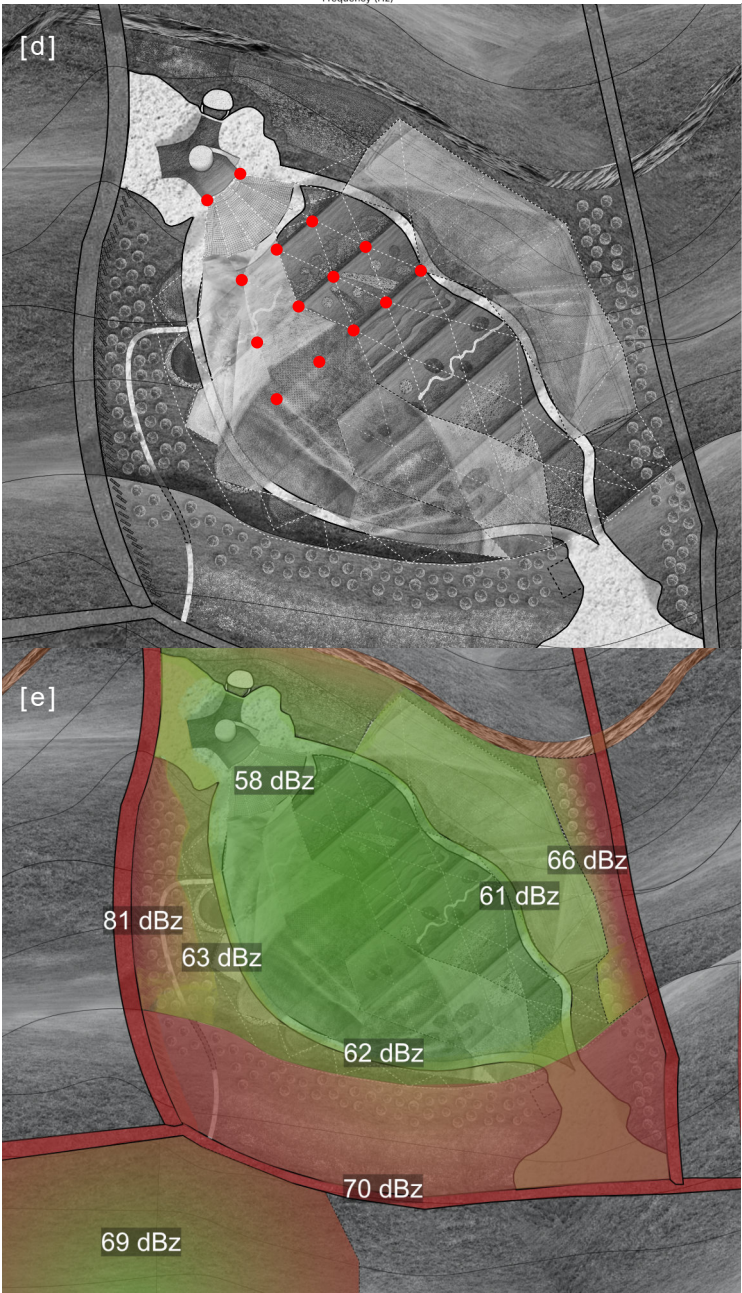
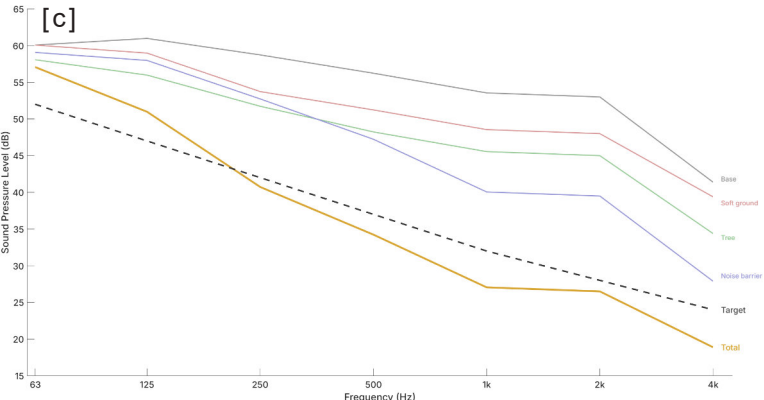
[a] Sketch of the landscape elements and their impact on the acoustic environment

[b] Section of the landscape and lawn

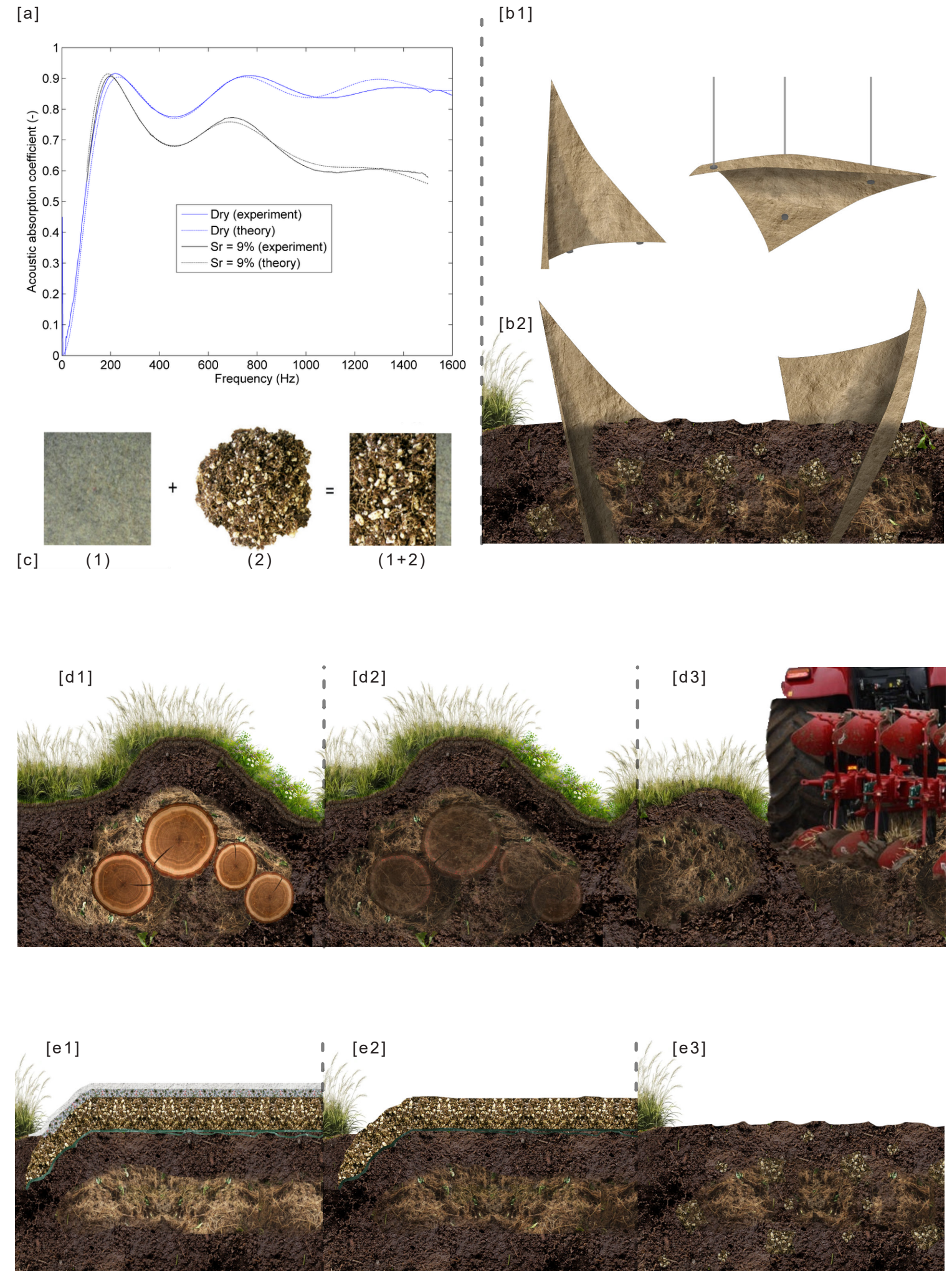
[c] Sound pressure levels across the audience area, with a target reference based on typical values for urban park environments

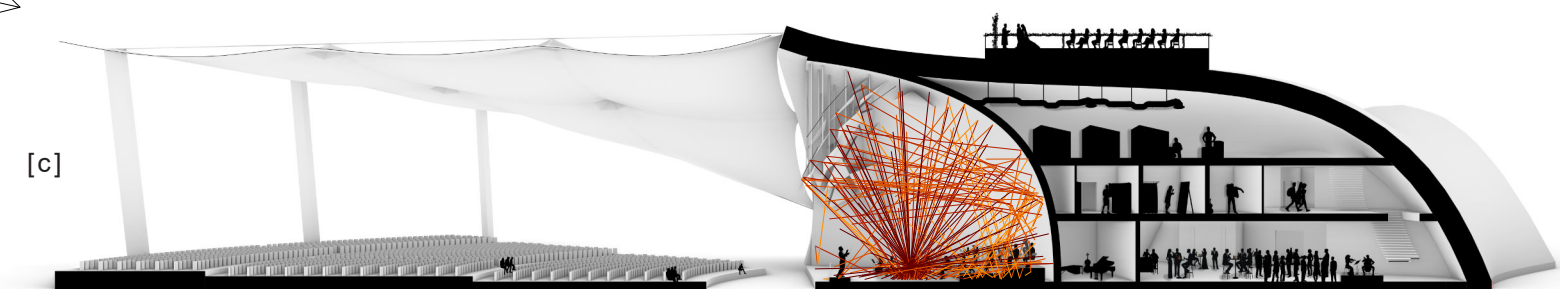
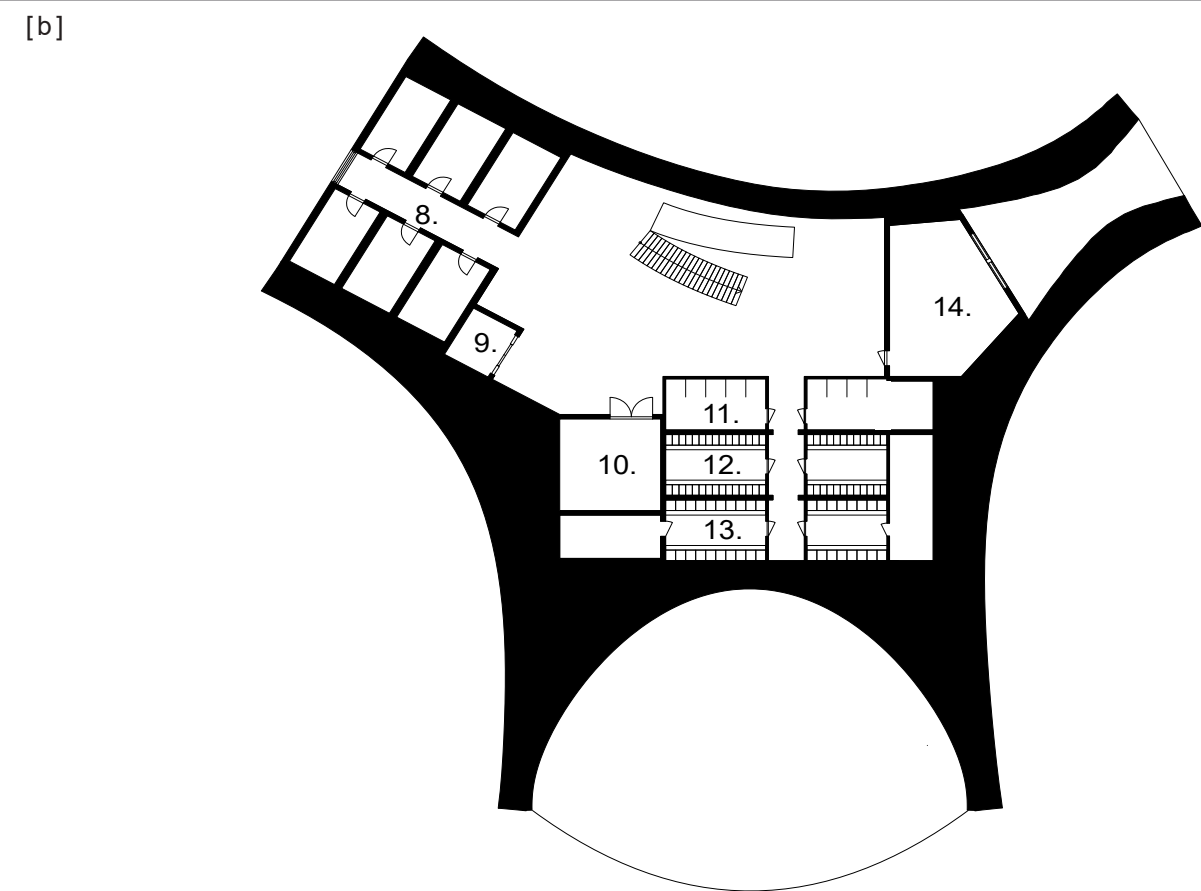
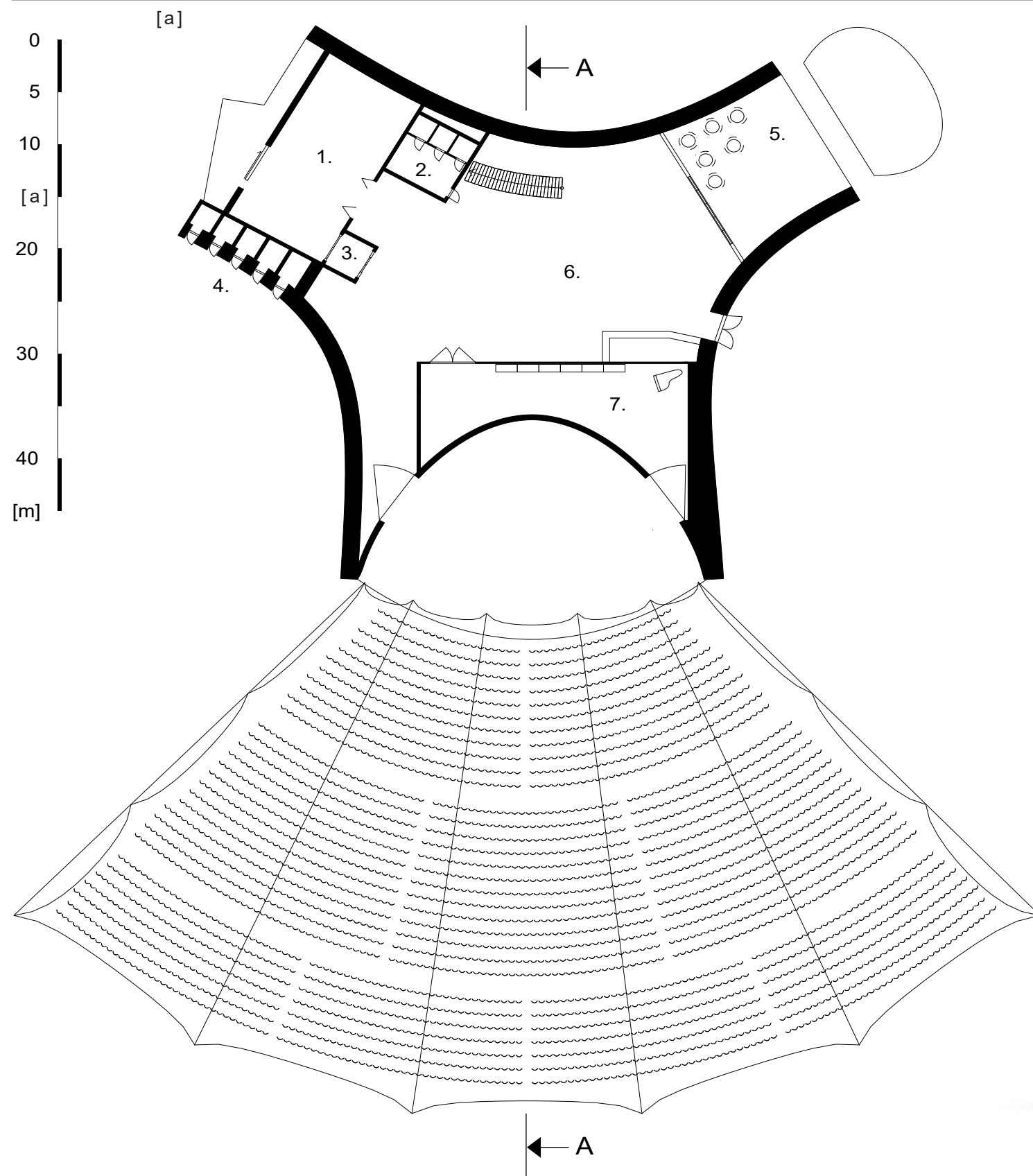
[d] Proposed loudspeaker arrangement. Each speaker row is 50m apart at 15m elevation

[e] Calculated noise levels across the lawn



- [a] Sound absorption coefficient of mixed material from fermented soil slurry and wood chips (Pampuro N, Preti C, Cavallo E; Sustainability; 2018)]
- [b] Clay-based reflectors are used on stage to create an appropriate sound environment (1). When the site is transformed, the panels are placed in the fields to disperse water from the surface to the soil, an ancient technique known as Olla (2).
- [c] Sound absorption through recycled materials such as textile scraps, wood shavings, and agricultural residues (Hosanna project, 2013)
 (1) low-density material made from recycled waste
 (2) low-density soil
 (1+2) combination creates a low-density sound absorber]
- [d] Cross-section of the ground treatment. The horticultural technique Hügelkultur is used to shape the landscape and promote soil enrichment. Logs and organic debris are placed in the ground to naturally ferment into nutrient-rich biomass (1). This composition has shown to be highly sound absorbant (see Figure 11). As the mounds ferment, the logs are broken down (2) and can eventually be tilled into the soil of the fields (3).porous soil is tilled into the ground (3).
- [e] Cross-section of the paths and standing areas, made from recycled material on porous soil. Below, a bokashi process is induced in the ground by the weight of people walking on it (1). The materials are highly sound absorbant (see [b]). As the site is transformed, the top walkway is removed (2) and the porous soil is tilled into the ground (3).





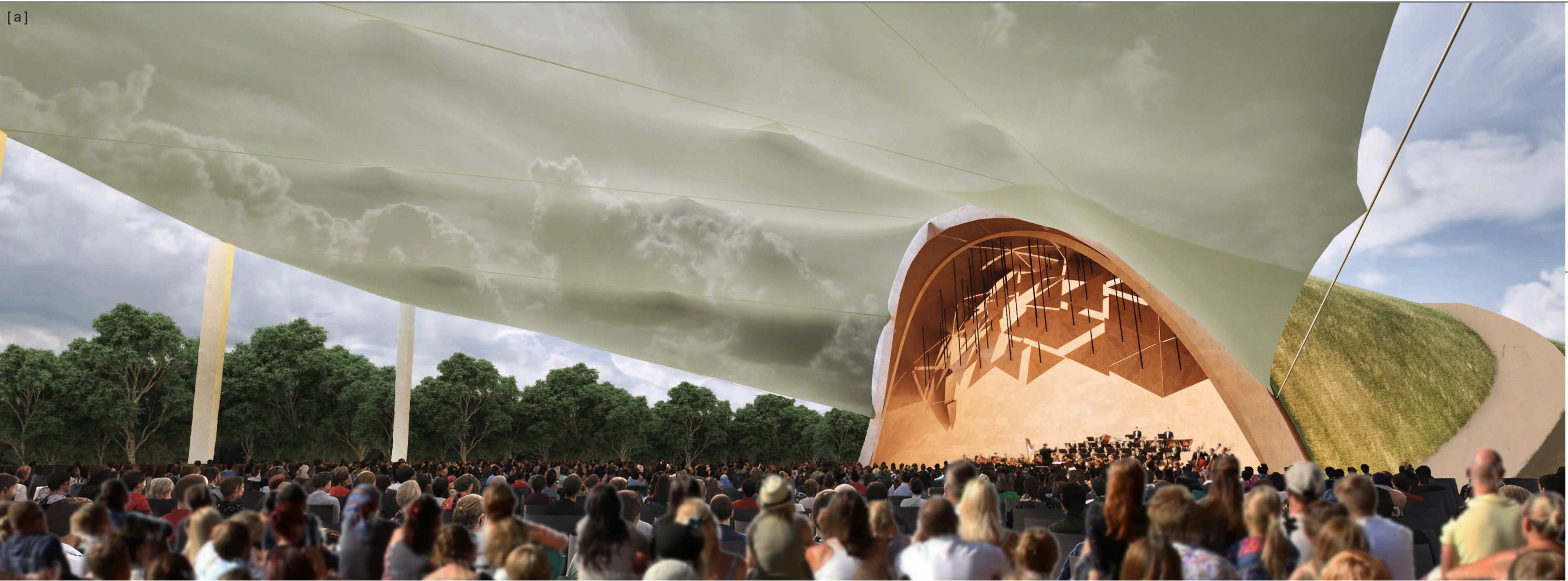
[a] Main floor of the pavilion

1. loading bay/storage
2. restrooms
3. elevator
4. public restrooms
5. cafeteria/2nd stage
6. reception/green room
7. storage/big instruments

[b] Second floor of the pavilion

8. dressing/practice rooms
9. elevator
10. star dressing room
11. restrooms
12. locker rooms/unpacking
13. locker rooms/unpacking w/ showers and WC
14. office

[b] Section A-A. The practice and rehearsal rooms are designed in compliance with NC 20 through isolated walls. Other spaces, are designed for NC 30.



[a] View of the stage as seen from a seated audience member.

The Pavillion

A green hill melts into the landscape, housing the stage and necessary facilities. Facing the river, a second stage creates a more intimate setting for smaller events. Loading bay neighboring the road provides easy logistical access with immediate storage area. Stage is covered in clay material.

A separate entrance serves as the main entrypoint for back of house, opening into a spacious green room/reception area. Sharing this first floor is plenty of storage space with dressing rooms and office space on the second floor. The third floor is reserved for HVAC, technical equipment and additional storage.

The sail roof covering the main audience is retractable and the 3000 seats can be removed, making space for standing audience during pop and rock concerts. The lawn has space for more than 10000 standing and sitting lawn audience members.



[a]

Space and sight

The architectural concept uses sight, touch, and dimensions to create an environment that the visitor both explores and becomes a part of, but which also leads them forward by the sight and the promise of something waiting at the end of the slope.

The visitor is pulled towards the musical pavilion: by gravity, by light, by paths and by sight lines. On the way there, they explore the botanical garden and get to walk around, inside, on top off and below the different architectural landscape elements created by artists, architects, and local communities in collaboration. This creates an intimate experience both for a person visiting for the first time and for people living close by and coming back again and again.

The pavilion rises from the ground in the shape of a hill, becoming part of the landscape with its green, sloped walls, round shape, and scalable roof. Using locally sourced clay material in the construction creates a warm, earthy sensation for the visitor while providing acoustic and environmental benefits. The shape of the building and the seated audience area is optimized using parametric models to maximize acoustic, structural, and experiential qualities.

[a] Perspective of the lawn used for musical preformances.

[b] Perspective of the lawn used for food production.



[b]

Reflections

For me, architecture has always been a tool rather than an end product. For as long as I can remember, I have been interested in city, society, and interpersonal structures, and have tried to find different ways to analyze them. Looking at society through an architectural lens allows you to analyze the impact of the physical on the cultural, the influence of the practical on the abstract, how issues of class and status manifest in physical space, and vice versa. In an increasingly globalized societal system, architecture has also been one of the most practical and tangible ways for politicians and citizens to influence the places they govern and inhabit, and through that create new living environments and conditions.

Through my architectural education, I have become increasingly convinced that architecture can be exactly the tool for social change I always hoped it could be. Seeing how the desire to understand an area’s needs and conditions can make a project bigger than its program and technical building requirements, and seeing this desire being well received by critics, mentors, and others in the field, has strengthened my belief that there is a possibility for change and development through architecture.

But i have also realized that for architecture to be an effective and reliant tool for creating a sustainable future, there need to be effective rules, guidelines and programs for it to fall back on. I belive that the act of creating the systems, conditions, regulations and laws that both enable and require projects to be and build better is also a way to shape and form the way our cities look, act and preform. During this and my other projects I have come to the conclusion that my way of shaping society, while it may not be the traditional route for an architect, will be through changing and creating the new systems required build, live and grow better: to use what we have, to learn from the past, to build consciously and create a society that take care of the people and resources in it. I want to be an architect of buildings and cities through becoming an architect of systems - because to shape the conditions is to shape the product, and to formulate the requierments is to form the resluts.

Author and creator	Elsa Bolund
Production year	2026

