



URBAN FOREST

A SCOUT CABIN IN THE CITY
THAT STRENGTHENS THE CONNECTION
BETWEEN YOUNGSTERS AND NATURE

Jenny Folcke, Master thesis at Chalmers Architecture,
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CHALMERS
UNIVERSITY OF TECHNOLOGY

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Jenny Folcke
folcke@outlook.com

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Examiner: Morten Lund
Supervisor: Jonas Carlson

Photos without reference: Jenny Folcke



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ABSTRACT

There is an increased longing back to nature in our industrialized society, where the cities are getting denser and denser. It is important for all people, and especially for youngsters, to be outdoors and to get away from the digital screens and enjoy nature. Realizing that nature is the vital foundation of our lives is crucial for creating a sustainable development.

"Urban forest" contributes to this discourse through an investigation about how architecture can promote nature in an urban environment, how nature can be integrated with the building and how the scout culture can be developed in an urban setting.

The outcome is a design for a scout cabin in the city that will introduce natural world to youngsters and strengthen the connection between people and nature. It is important for showing how the urban life can connect to nature in a sustainable way.

In the scout cabin youngsters will learn about nature and its importance. The method is learning by doing, through creative activities. Their discoveries should encourage them to explore nature both in the city and out in the woods. By experiencing nature firsthand, youngsters will increase their motivation and knowledge to live sustainably.

Keywords: Architecture, nature, scout cabin, weaving, wood, Frihamnen.

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BACKGROUND

DISCOURSE

I believe that the environmental problems are a vital part of today's discussion in society and an important issue for me as an architect to work with, to create a better future.

Education is an essential part in creating a sustainable society. People, and especially children, need to understand the connection between their lives and nature and to realise that nature is the foundation of our lives, in order to start living sustainably. Architecture can achieve this by integrating the nature with the urban environment both physically and visually and thereby develop our connection to nature.

There is an increased longing back to nature in our industrialized society, where the cities are getting denser and denser. I believe it is important for all people, and especially youngsters, to be outdoors, get away from the digital screens and enjoy nature. By experiencing nature, instead of just reading about it, youngsters will get the will and knowledge to live sustainably.



Ångårdsbergen in Gothenburg.

THE SCOUT MOVEMENT

The scouts is an organization with the aim to make young people engaged in nature. They want to increase kids and youths' understanding and respect of nature, animals and other people through outdoor activities.

As a child I was a scout in my hometown Skövde. I remember us being in the scout cabin and out in the nature exploring and learning through fun activities. We learned how to set a fire and how to tie knots, while we at the same time collaborated in groups and learned about the nature.

Since several years has passed since then, I wanted to update my knowledge about the scout movement. Therefore, in September, I visited the scout group of Johanneberg for a meeting in their scout cabin Viggeliden in Guldheden, Gothenburg.



Scout meeting in Skövde.

The scout group of Johanneberg has around 40 members and offers both sea and land scouting. A weekly meeting usually starts with an activity outdoor, in the surrounding area. The task is performed in smaller groups, called patrols, and the adult leaders help the scouts when necessary. When the task is completed they sometimes prepare meals over an open fire or on tranguia stoves, always outdoor.

The scout cabins interior space is used during the cold winter and in the dark evenings, as well as for sleeping area at camps for the younger scouts.

The older scouts can attend local and international camps to meet scouts from other unions. The camp areas are always built by the scouts themselves, using mostly natural materials.

My conclusions from the scout meeting was that the outdoor environment is very important, while the interior space is used most as a complementary space.

The scout cabin should be made by natural materials, as their camp areas, and could partly be built by the scouts themselves.

The outdoor environment should preferably be divided into several smaller rooms, since the activities are performed in the smaller patrols.



Scout meeting with cooking over an open fire, Skövde.

INTENTIONS

When I first moved to Gothenburg in 2010, I walked around the city to get to know the environment. Near my home in Johanneberg there was a scout cabin that often organized activities. But the house itself and its surroundings had boring appearances that did not promote the scouts' outdoor living.

Then I got the first idea of designing a nature inspired scout cabin that would motivate the scouts to learn more about nature.

I developed my project plan and it resulted in a design for a scout cabin in an urban environment with nature and sustainability as the theme. A design with an architecture that highlights the importance of nature.

With my master thesis, I have thus investigated how architecture can promote nature in an urban environment and how nature can be integrated with the building. I have also explored how youngsters can interact with and learn about nature through architecture as well as how the Scout movement can be developed in an urban setting.

I hope to have created an architecture that brings people back to nature inside the city. An architecture that inspires and teaches about our beautiful nature and its role in our lives.



Forest hut made by children outside the scout cabin Viggeliden.

INSPIRATION

I have gotten much inspiration through being outdoors, enjoying our beautiful nature.

The forest with its beautiful tree tops, with the variety of heavy tree trunks and thinner branches, influenced me to focus on transparency. This, combined with wood as my main building material, led me to use weaving as the main construction method. The weaving system creates a geometrical shape while at the same time it is transparent.

Inspiration from nature thereby resulted in this design for a scout cabin built up by weaving of wood. The system creates a continuous shape that integrates the interior with the exterior spaces.



Early sketches of spaces inspired by nature.

REFERENCE PROJECTS

The Wall of Zudaji in Japan by 403 Architecture has a facade containing creative apertures as a result of irregular placed gaps. This creates a feeling of natural lightning, as from underneath treetops in a forest.



Dezeen magazine. *The Wall of Zudaji*. www.dezeen.com/2012/02/20/the-wall-of-zudaji-by-403architecture/ (2015-16-16).

Naturum Vänerskärgrården in Lidköping by White was designed with inspiration from the nature, as is shown in the roof made of braided willow and hazel.



Timber Dentistry by Kohki Hiranuma Architect is built with thoughtful construction made by the natural material wood. This results in an inspiring space which brings to mind constructions in nature.



Architizer. *Timber Dentistry*. <http://architizer.com/projects/timber-dentistry/> (2015-08-24).

The wall by Mikael Hansen is an architectural design that looks organically. Located in nature it is embraced by the woods and becomes a part of the environment.



KieranTimberlake. *Loblolly House*. <http://kierantimberlake.com/pages/view/20/loblolly-house/parent:3> (2015-08-30).

DESIGN PROCESS

CONCEPT

TRANSPARENCY



The treetops natural variety in transparency acted as inspiration for the construction system; weaving.



WOOD AS BUILDING MATERIAL



Wood is a sustainable natural material that enhances the feeling of nature on the site.

EMBRACING NATURE



Plants integrated with the structure results in an architecture that blends in with the surrounding environment.

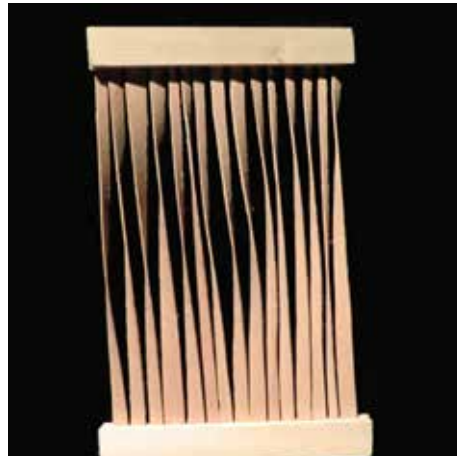
EXPERIMENTS TO ACHIEVE TRANSPARENCY

CURVES



Curved shapes results in soft shadows and asymmetric apertures.

TWISTING



Bending wood creates a variety in transparency.

NATURAL SHAPES



Organic shape with different weaving methods.

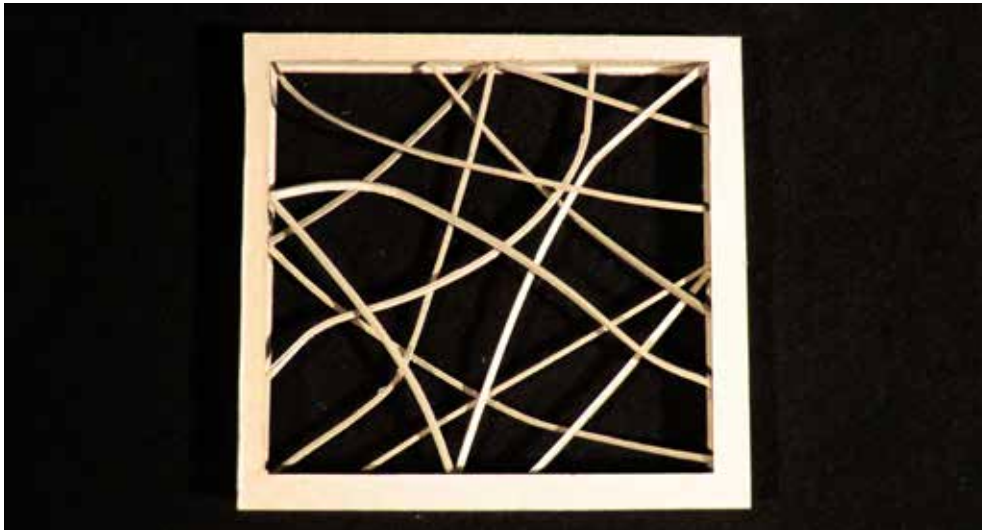
CLOSENESS TO NATURE



Showing off nature through architecture.

EXPERIMENTS WITH WEAVING

WEAVING



Weaving creates a beautiful pattern.

NATURAL MATERIAL



Fir is bendable before it has dried. A way to bring nature into the architecture.

EQUAL ELEMENTS



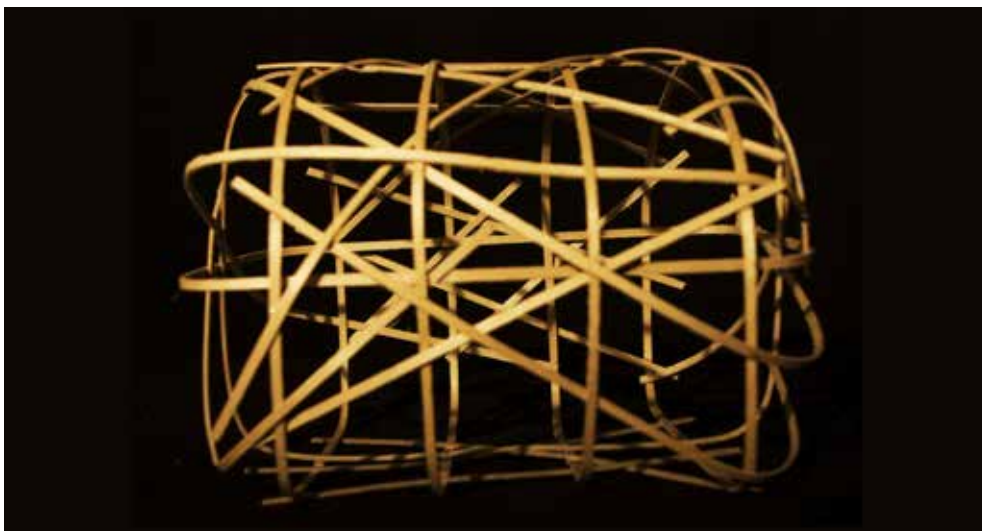
A weaving system where the structural members are as thin as the nonstructural.

STRUCTURAL SYSTEM



Using weaving as the structural system.

A CONTINUOUS SHAPE



A model with a continuous shape, created by the weaving system, that defines all spaces.

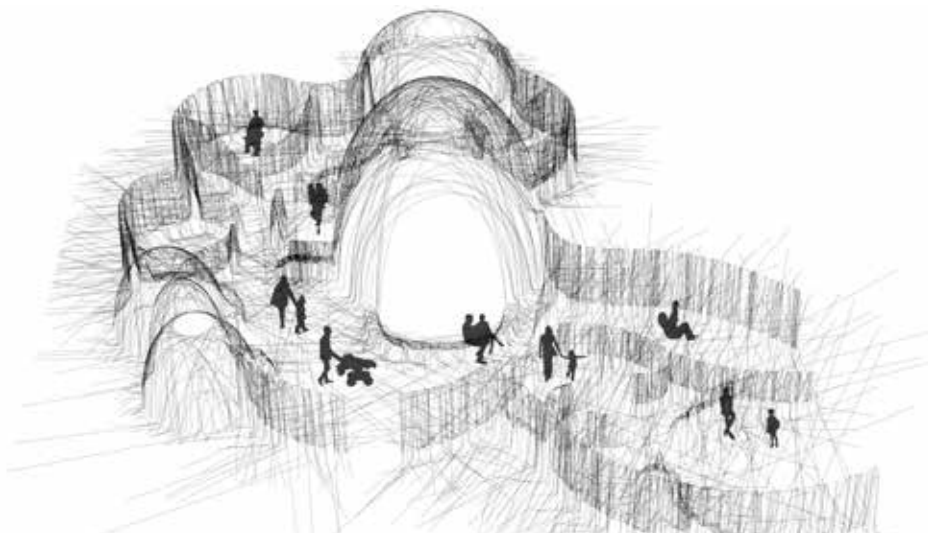
WOVEN STRUCTURE PROPOSAL

THE DIGITAL FACTOR



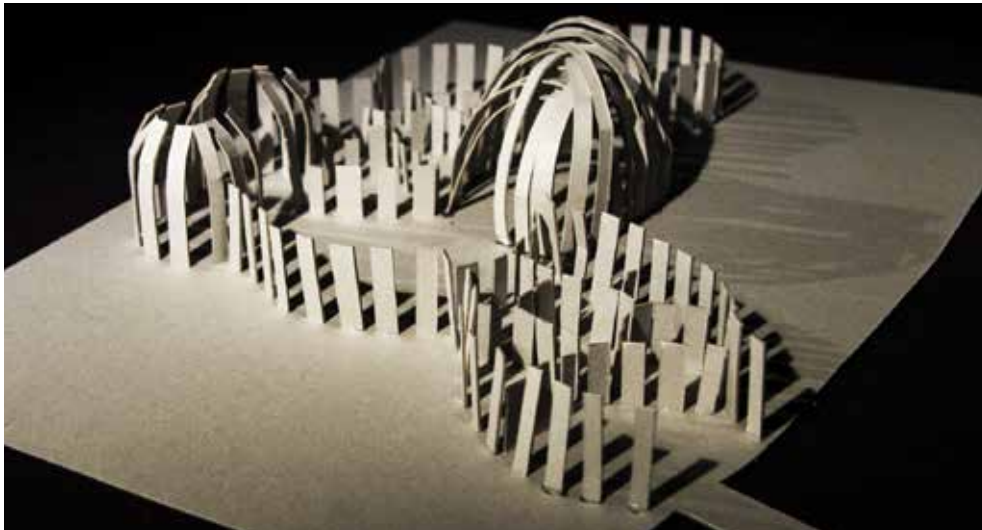
Adding a digital factor to expand the capacity of the weaving system.

VARIATY IN CONSTRUCTION



Low areas for walking combined with high areas for enclosure and lower curved structures for seating.

EXTERIOR INTERSECTS INTERIOR



Integrating the interior with the exterior spaces. Organic shapes make the architecture blend in with nature.

INTEGRATED VEGETATION



Plants integrated in the structure creates an architecture that is constantly evolving, like nature itself.

DESIGN PROPOSAL

DESIGN

The design is a scout cabin in Frihamnen that will introduce natural world to youngsters and strengthen the connection between people and nature. It is important for showing how the urban life can connect to the nature in a sustainable way.

The main target group is youths. In the scout cabin they will learn about nature and its importance. Focus is on learning together through creative activities. Their discoveries should encourage them to explore nature both in the city and in the woods. This will strengthen their knowledge about sustainable development.



Perspective showing the scout cabin.

LOCATION

Frihamnen is located on Hisingen in central Gothenburg. Today it serves as a harbour and industrial area. During the next coming years it will be developed into an inner city area with 15 000 homes and 15 000 workplaces.

Centrally located in the area is the Jubilee Park. It will be a green and urban park that will be developed through the ideas from an upcoming architectural competition.

The Jubilee Park has already begun to evolve. Currently there is a public bath with a sauna, swimming pool and dressing rooms, a roller derby path, a sailing school and cultivation boxes for urban farming, among other functions.

The scout cabin is situated in this waterfront park, in the context of these activities. The site was chosen because of its proximity to water, closeness to existing functions and the central position embraced by nature.

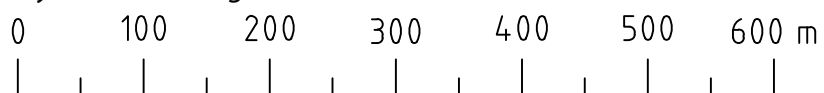


Photos of the public bath in the Jubilee Park.

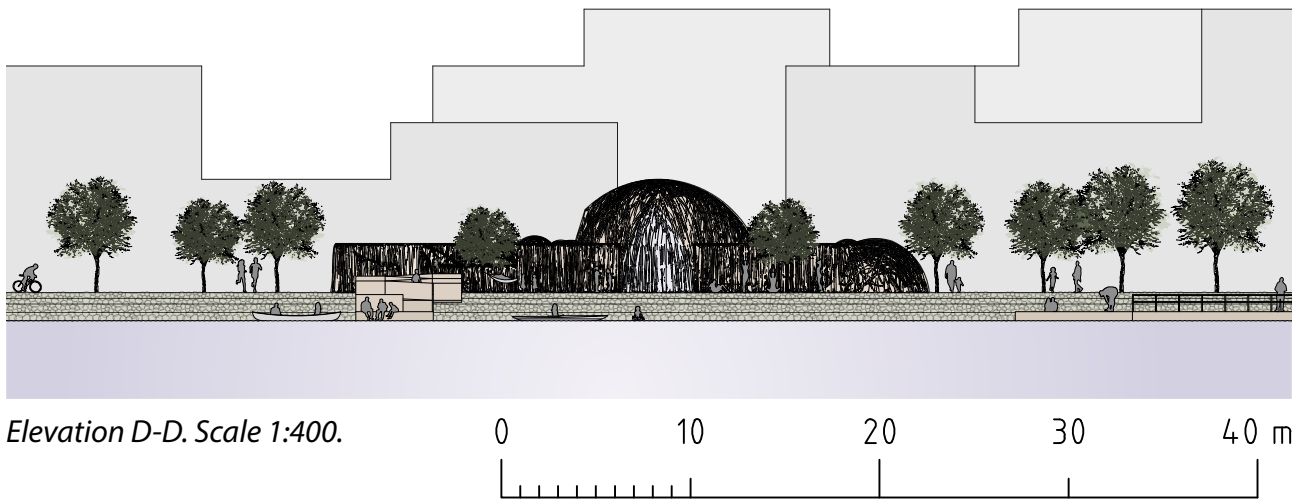


Map of Frihamnen. Scale 1:6000.

Based on the City of Gothenburg's vision of the future Frihamnen.



Design proposal



Site plan. Scale 1:1600.

Based on the City of Gothenburg's vision of the future Frihamnen.



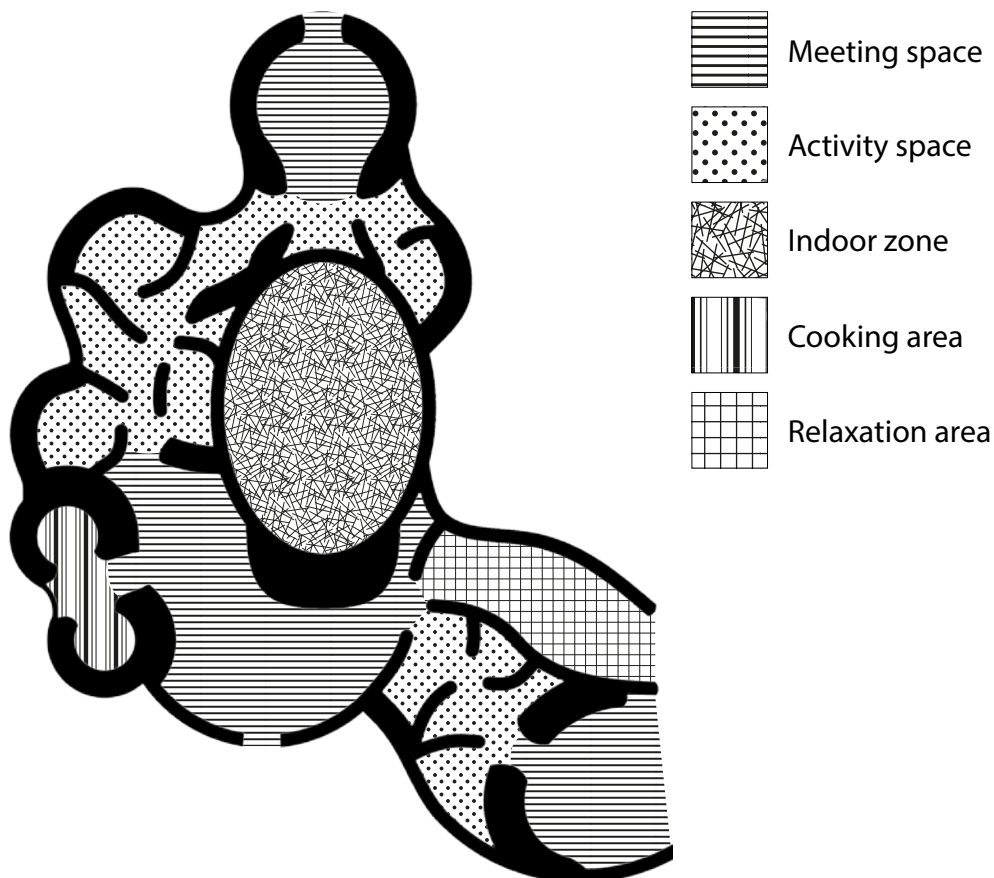
ACTIVITIES

The interior of the scout cabin consists of a multifunctional hall used for meetings, socialization and as a sleeping area for the younger children, as well as a toilet and an office.

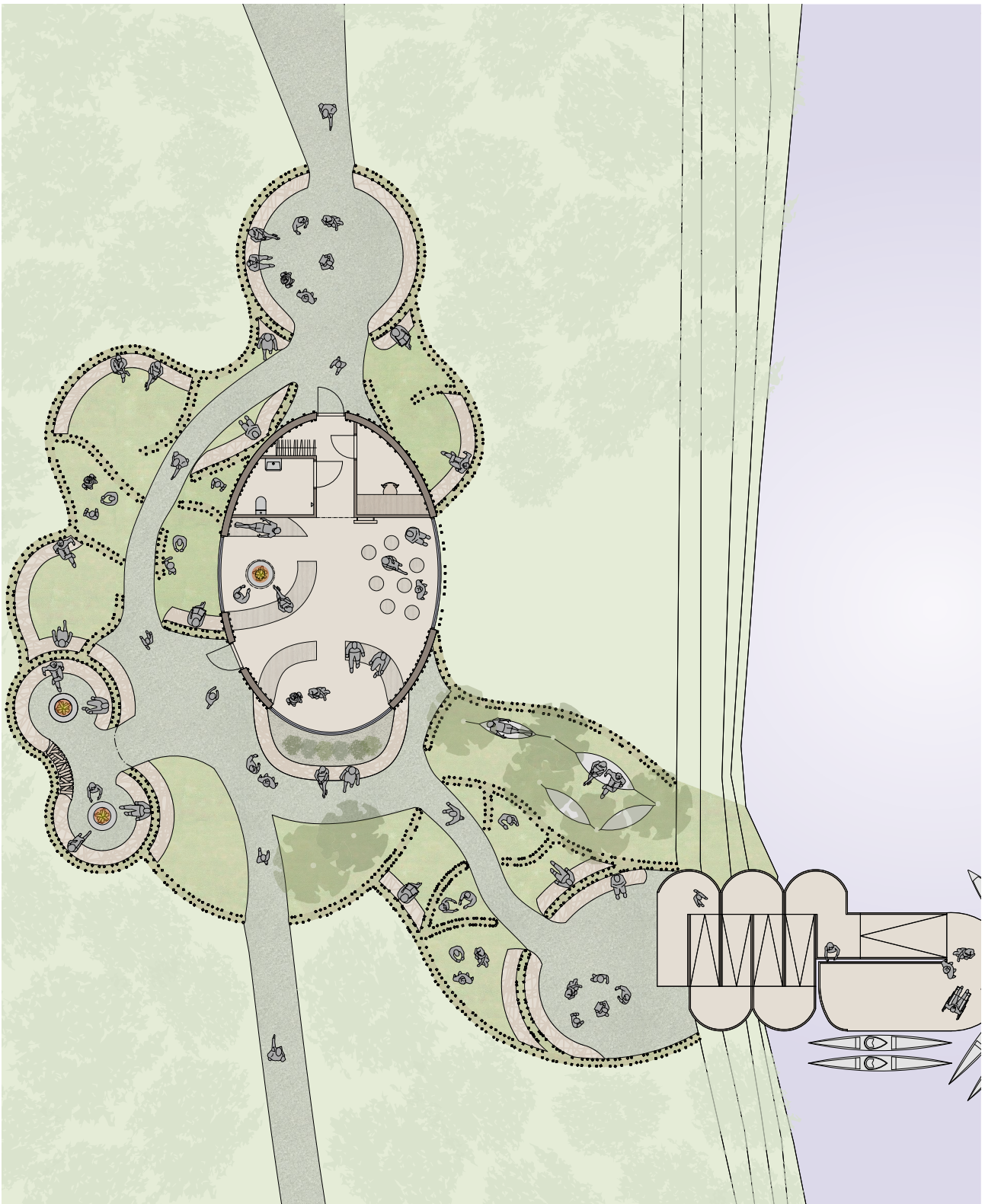
The outdoor space is divided into several rooms with braided walls, built up as clearings in this urban forest. There are some bigger meeting spaces, a relaxation area, smaller activity spaces and a cooking area with fire places.

By the water there is a bridge that leads down to a floating dock where the scouts can access their boats.

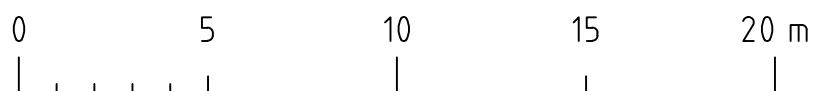
The existing functions in the Jubilee Park can be joint-used by the scouts and the visitors. For instance the scouts can use the cultivation boxes for growing food, or spend a relaxing evening in the sauna.



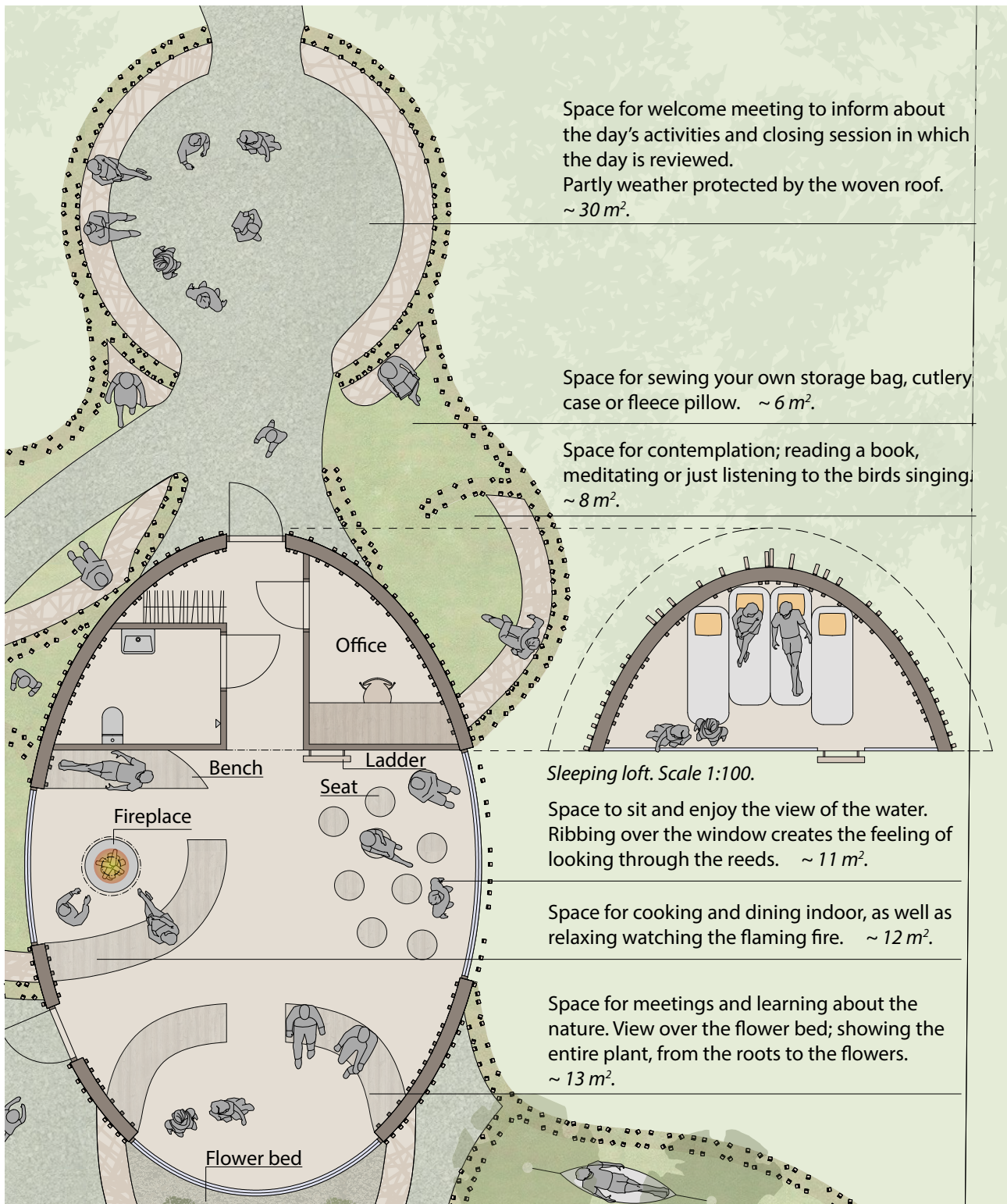
Program.



Plan. Scale 1:200.

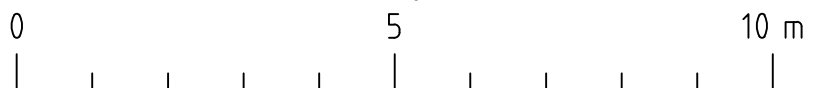


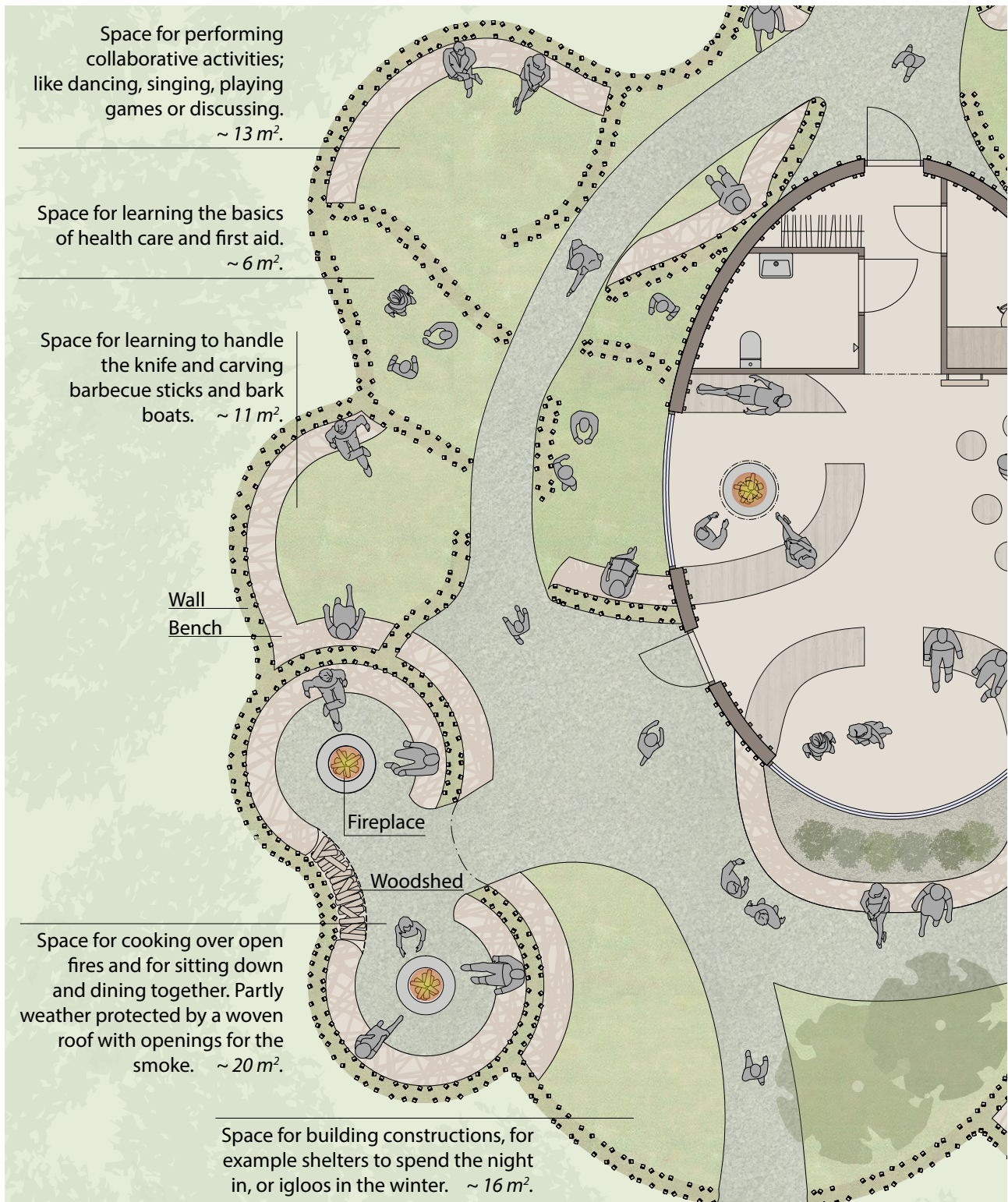
Design proposal



Part of plan. Scale 1:100.

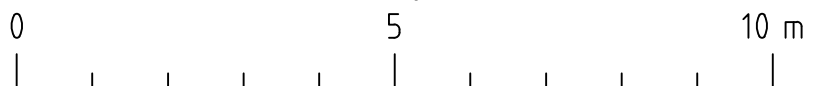
Text on the plan shows examples of activities suitable for the different spaces.





Part of plan. Scale 1:100.

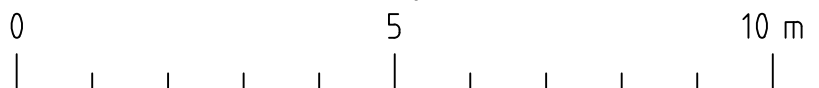
Text on the plan shows examples of activities suitable for the different spaces.





Part of plan. Scale 1:100.

Text on the plan shows examples of activities suitable for the different spaces.



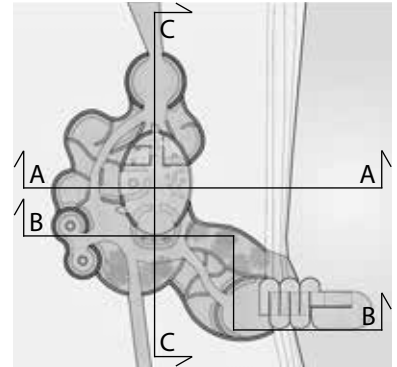
THE SCOUTS

The scouts are the social hub in the scout cabin. They are responsible for the maintenance and will show visitors around and teach them about nature. Thereby the learning will be hands-on, conducted mainly kids to kids, instead through learning from an ordinary exhibition guide.

The activities are done in small groups, patrols, where the scouts learn to collaborate, to be a leader and to respect others, themselves and the environment.

They learn the meaning of being a scout through competitions and games mixed with practical knowledge about outdoor recreation and nature. The method is learning by doing; trying everything for real instead of just reading about it in books.





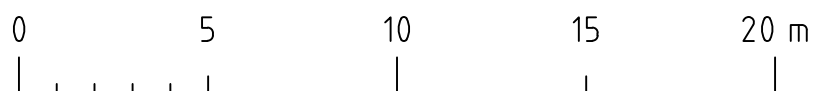
Section A-A. Scale 1:200.

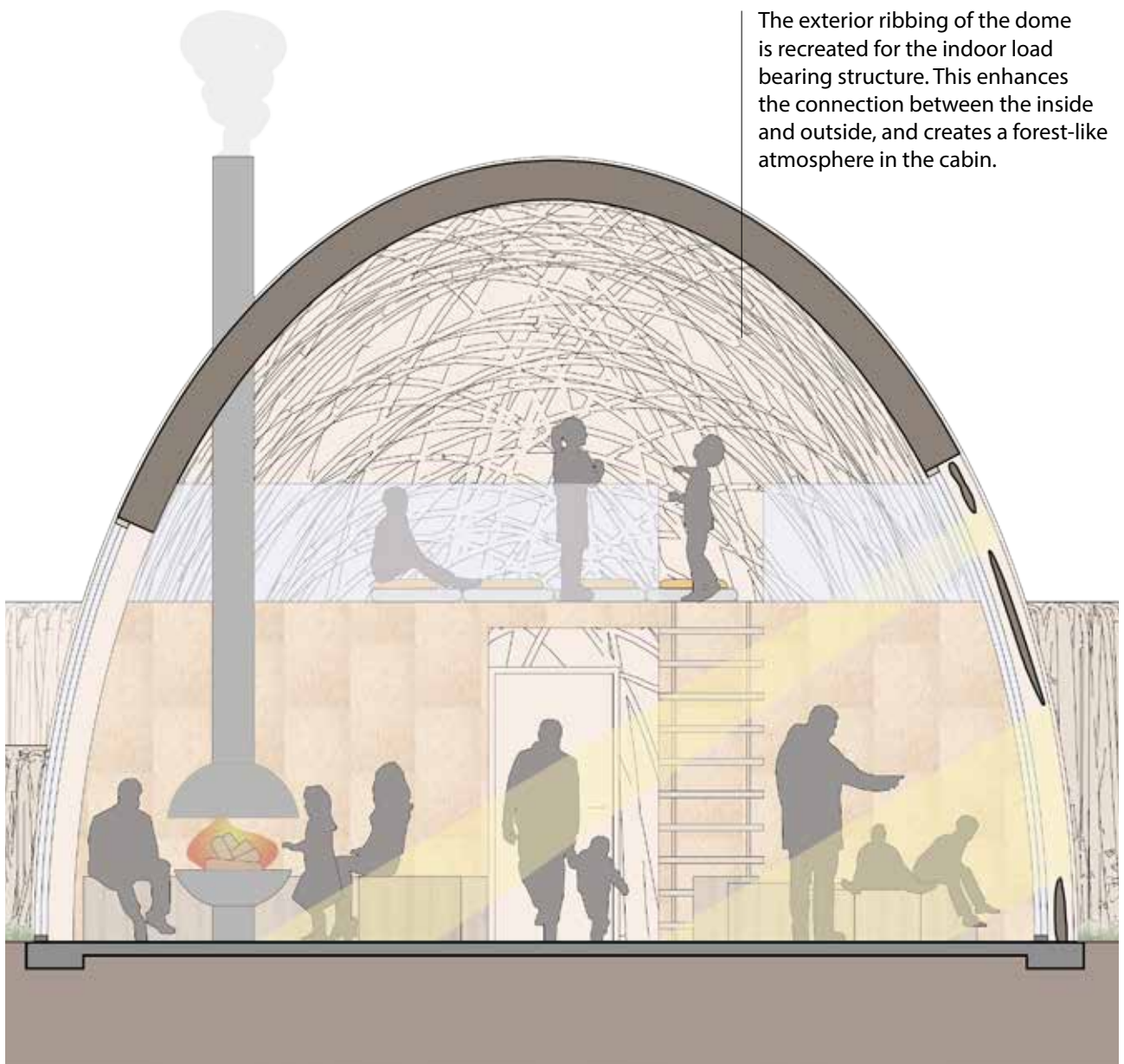


Section B-B. Scale 1:200.



Section C-C. Scale 1:200.

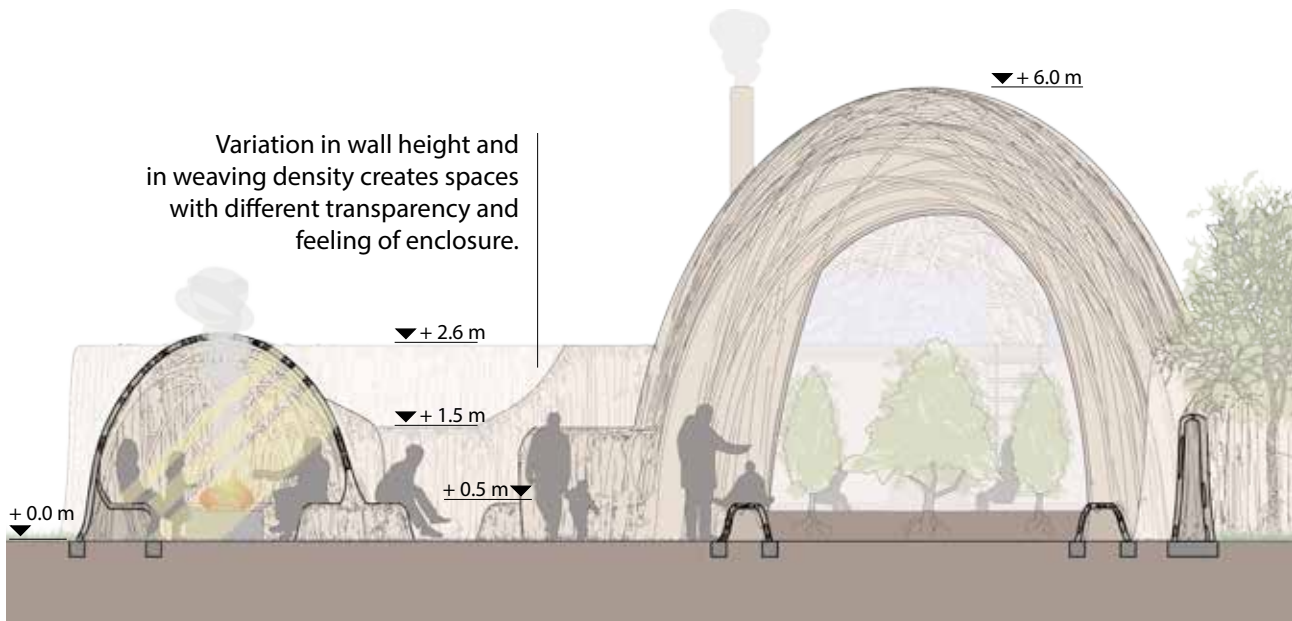




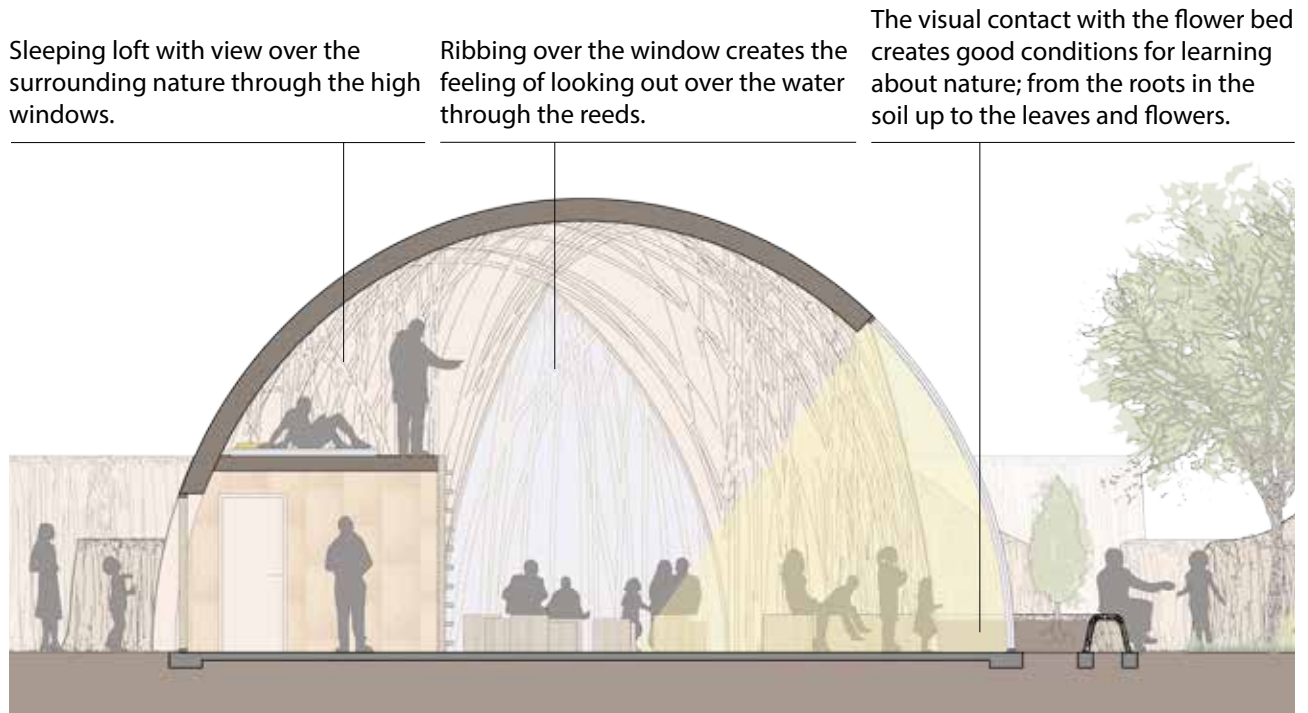
Part of section A-A. Scale 1:50.



Design proposal



Part of section B-B. Scale 1:100.



Part of section C-C. Scale 1:100.



CONSTRUCTION

The exterior and interior becomes one through the continuous weaving construction. It consequently builds up all architectural shapes, such as the walls, roofs and exterior benches.

The weaving system and the organic materials, wood and plants, results in a scout cabin that echoes the urban forest in which it sits and blends in with the nature.

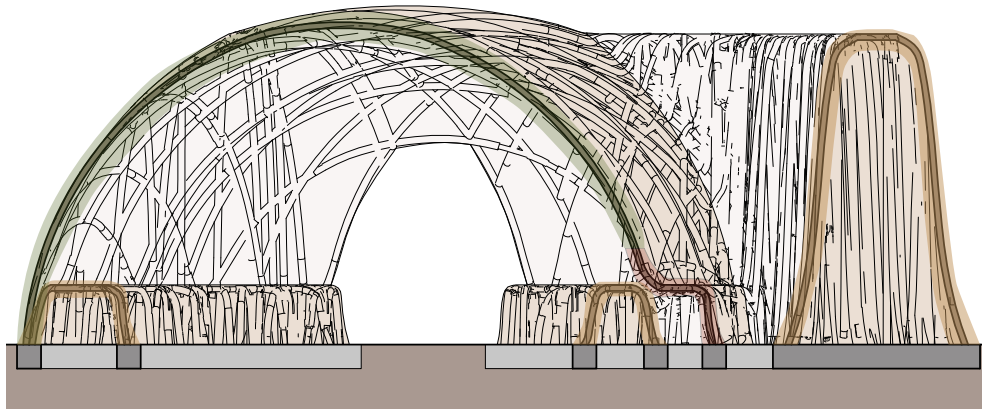
The weaving system is constructed through steam bending thin wooden boards. With this method the wood is made pliable through steam and then the saturated boards are molded into desired shape. When dried, the bent pieces retain their shape and are assembled.

The braided wood is fastened in molded concrete rings, which act as stabilizing walls in the ground.

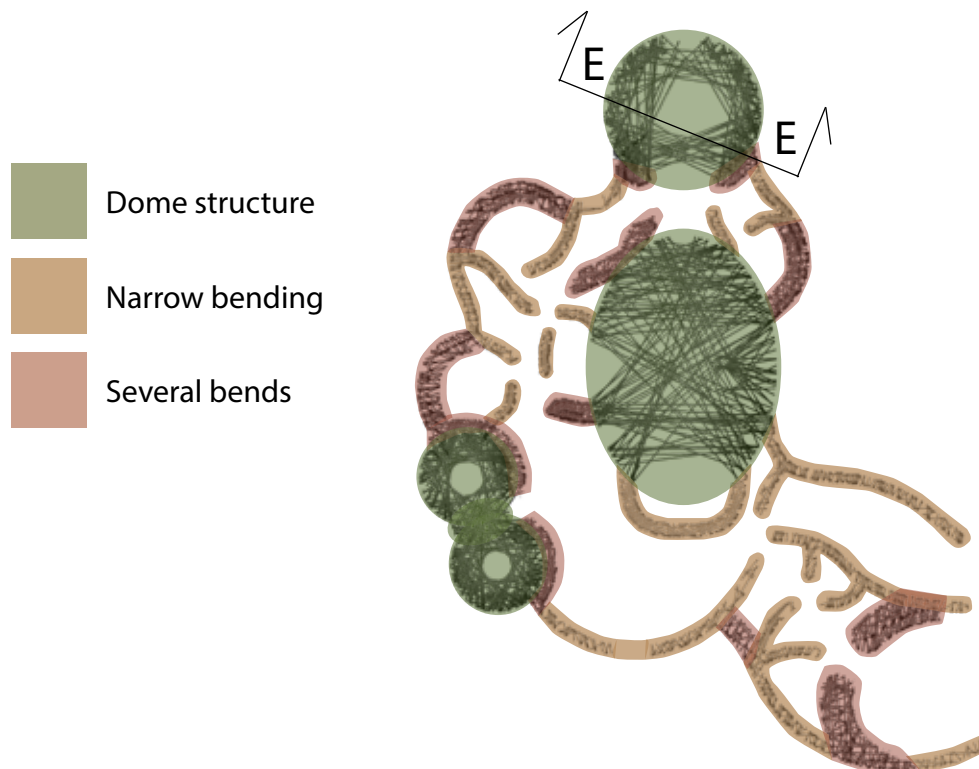


Perspective showing the weaving structure and the foundation.

STRUCTURAL DESIGN



Section E-E.



The complexity of the weaving system varies from naturally curved dome shapes to more complex curved structures with serials of singular bends.

STEAM BENDING

The thin wooden strips are molded into right shapes through steam bending. This is a woodworking technique commonly used for building wooden boats and furniture.



Dunn, C. (2013) Steam bending. *Connor designs*. www.cdunnpd.blogspot.se (2015-11-23).

WISA Wooden Design Hotel in Helsinki, Finland, by Pieta-Linda Auttila has soft wooden curves created by thin birch boards that was saturated and molded into desired shape.



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CONCEPTUAL CONSTRUCTION MODELS



VEGETATION

I imagine the scout cabin to be constantly evolving, through new architectural elements and growing nature.

The scouts can build new constructions over time, when spaces for new functions are required. At the same time the vegetation will grow larger, spread out over the area and fully become a part of the architecture.

This is possible thanks to the weaving system. The braided construction creates gaps that serve as perfect surfaces for plants to climb up on. Climbing plants will then grow up and frame the structure, resulting in natural green walls that constantly evolve, like nature itself.



Perspectives showing the woven structure before the plants has grown up to embrace it.



Perspective showing the relaxation area with the structure covered by vegetation.



Perspective showing the dome structure covered by vegetation.

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Thank you all!

