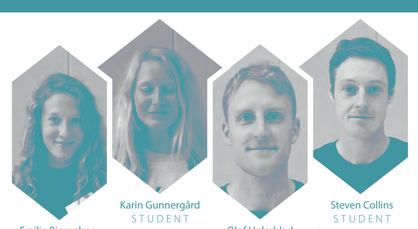
2016

Drifting Towards Utopia

Featured Project



Karin Gunnergård
STUDENT
Architecture, Chalmers University of Technology

Steven Collins
STUDENT
Structural Engineering, Aalto University

Emilie Bjørneboe
STUDENT
Architectural Engineering, Technical University of Denmark

Olof Holmblad
STUDENT
Architecture and Engineering, Chalmers University of Technology

Jan Suchorzewski
MENTOR
Gdańsk University of Technology

Markus Hudert
MENTOR
Aalto University

Context

Historically Hamburg is a harbor city and it has always, since the ship was invented, been the norm to transport freight on the water. In the past, it was filled with industrial activity that utilized the well-connected water canals for shipping. The connectivity to the North Sea made the area very important for Hamburg, and Germany as a whole, for importing and exporting goods. Today, the industrial sector is diminishing and the water now provides the potential to be exploited by the citizens. By providing them the ability to access the water, they may connect with it like skippers before them did.

Socially Rothenburgsort is a very divided area with residential areas, industry and colony homes. There are public spaces in Rothenburgsort, but more public spaces are needed, so that people can connect and perhaps enjoy the water and nature together. There are very few attractions in the area as it lacks public functions such as parks, playgrounds and libraries, as well as private functions such as coffee shops and places of interest such as suitable fishing areas or music halls. It is an unwelcoming area for people to meet.

Structurally and architecturally Because Rothenburgsort is a part of Hamburg harbor, driftwood is a common phenomenon. Driftwood has always been present due to the mix of wood and water and it was a common sight in the area for the purposeful transportation of logs and the natural drifting of old fallen trees. The beauty and structural values that exist within wood are used to connect the areas together and allow them to develop with time. The industrial structures of the past, including the steel warehouses as well as the many bridges will be transformed as the adaptable, sustainable and useful modern driftwood modules take root in Rothenburgsort.

Site

Infrastructure Rothenburgsort offers the people quite a good infrastructure for vehicles, bikes and pedestrians. There is a good road network both in the residential area and in the industrial area. Rothenburgsort is in general well-connected to the rest of Hamburg with plenty of bridges. However, it is a peculiar place with its low density, declining industries and empty streets, in fact it has more of a rural feeling as if in the periphery of the city. It is designed for coming and going but not so much for staying and living.

Missing links The largest infrastructural problem in Rothenburgsort is crossing the railways. There is only one bridge that connects the two areas on either side of the rails. For this reason, Rothenburgsort is divided and there is a missing link to connect the areas and the people. There are also few connections directly to the water throughout the island due to many built and natural barriers.

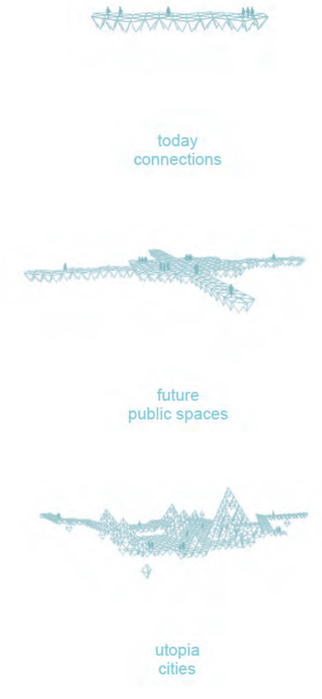
Utopian potential Rothenburgsort feels like an isolated and disconnected part of the city, internally and externally, while exhibiting the attributes of a valued landscape. It is an area surrounded by water, with major unused space in the middle where the railways pass through. Today there is very little connection between the people and the water and by changing this and granting people access to the water, new utopian potential is unleashed. These areas can be used to connect people and gather them together to have them reconnect with people and nature.

Theme

Conceptional idea and development Today, there is a need for better connectivity to the water. Tomorrow, the water will have risen. The design must therefore reflect the dynamic water situation occurring in Rothenburgsort and enable application in a multi-functional manner to benefit the various needs of the citizens. From technological advances to changes in water level, all change requires adaptation for survival, thus the structure aims at sustainability and adaptability.

Interpretation of „link" As the water level of the area rises in the future, the functions — links — that were previously available on land disappear and have to be achieved on water. From mobility connections to homes and public spaces such as parks, playgrounds and libraries, the needs of the citizens must all find their place in the floating utopia.

Relevance for future cities Flooding and densification of the cities will in future claim more and more of the public space. Public space will then expand out on the water and keep the cities floating. In utopia, cities will be dynamic societies founded by people who want to stay together. Friends, families, people needed in the societies and curious travelers will form nomadic communities.



Design

Utopian idea We have developed a floating infrastructure module that is able to join together, separate, and drift through the waters of Rothenburgsort, bringing the people along with it. The modules are built from wood with advancing properties that ensure it to be the most advantageous material for current and long-term use. They will progress with society and become self-sustaining systems that work on the ideology of cyclical society, circular economy and are naturally established. It is a general humanly designed system in which utopia is born out of simplicity.

The link The most crucial aspect here is that the single module can be built up from one simple shape to create any sort of larger structure or platform as desired – bridge, square or house. The panels are designed in such a way that they can be built by any individual, in any way they wish. As in the case in tying one's shoes, the structures are commonly understood by the whole of society and are understood as a general norm.

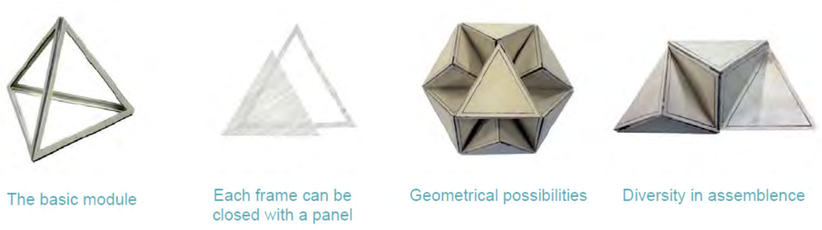
Implementation of the link The modules are free to move around individually or they can come together and form larger communities. They can be built upwards towards the sky or down into the water. They are dynamic in all directions. Imagine going to sleep in one place and waking up in a brand new environment. Imagine you never have to work in the same place or the amount of new connections you can make while floating around all day!

Distinctive feature

Material Wood is a strong and light material parallel to the grain but weak in the perpendicular direction. Today, laminations of timber elements have reduced the effects of weakening factors. With improved technologies, the materials properties can be enhanced to greater extents by ensuring a more organized grain direction with more parallel fibers. In the future, the material will have reached its full potential with perfectly parallel fibers and altered cell size, shape, and length that maximize its strength.

Connections The connections need to resist lateral wave and wind loading forces between modules. From hardwood dowel connections and beech plates with corrosion resistant steel dowels, the connections will develop into ball joints with electromagnetic forces. Further into the future subatomic strong attractions will substitute all connections.

Functions A mechanical water filtration system is created within the cell structure of the wood fibers. The kinetic energy in the water is harvested and can then be transformed again into other forms of energy needed for the citizens. The structures are designed to be carbon neutral and nutrient sequestering.

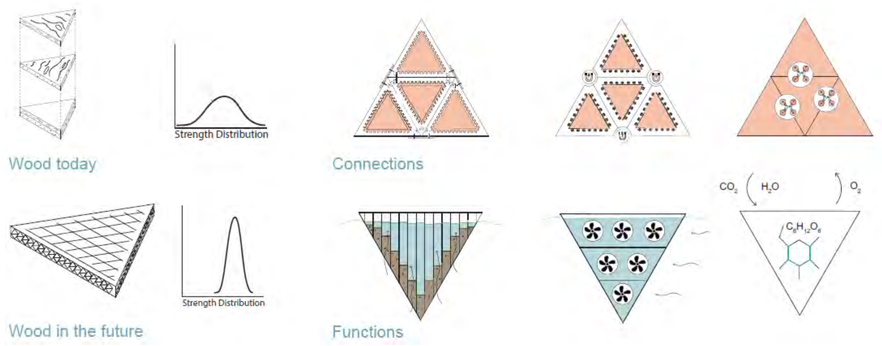


The basic module

Each frame can be closed with a panel

Geometrical possibilities

Diversity in assemblence



DAAD

Co-funded by the Erasmus+ Programme of the European Union