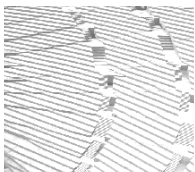


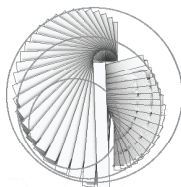


# SURROUND

CUSTOM VIEW



FLEXIBLE SIZE



WATER WALL



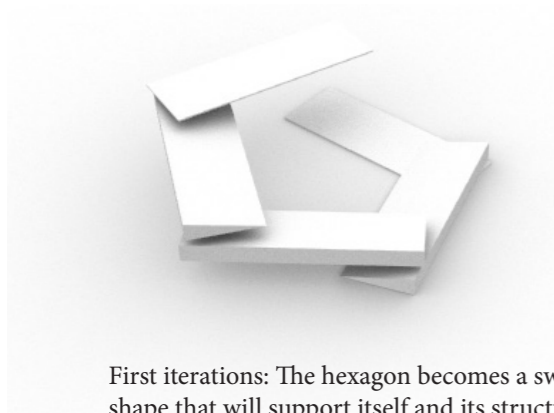
360 °



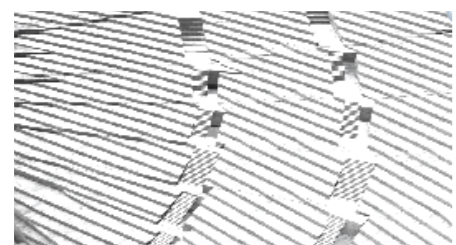
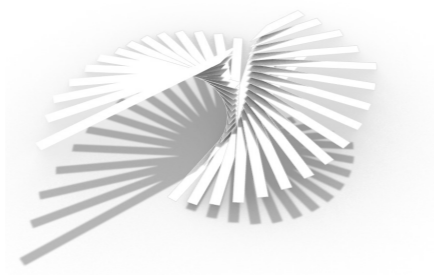
Bachelor project  
Spring 2020  
3rd year  
Examiner: Morten Lund, Wolfgang Kropp,  
Peter Christensson  
Program/Software: Rhinoceros, Grasshopper, Adobe  
Photoshop, Adobe InDesign

## TAKE YOUR SEATS AND THE SHOW WILL BEGIN

The assignment was to create a music pavilion that would follow certain rules according to a competition. The acoustics played a huge part in the concept and the shape of the structure. Our four concepts were custom view, flexible size, water wall and audience from every angle. "360 degrees"



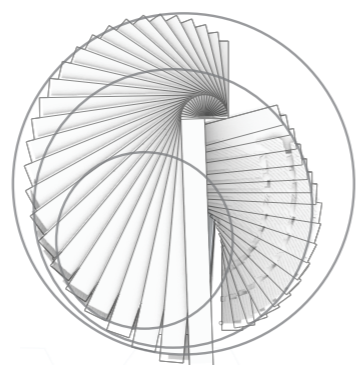
First iterations: The hexagon becomes a swirl. The idea is to make a shape that will support itself and its structure.



The shape was formed by two main criterieas.

First we wanted to create intimacy and making the audience come closer and experince not only the show but also the massive audience itself.

Through scripting we manage to create bleachers with different angles retracting one common viewpoint.



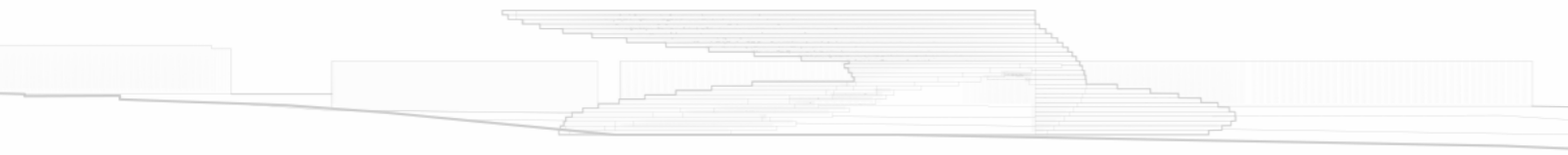
We also wanted to separte the different sizes of audience. We did this by making the structure dividable for the right amount of people by adding walls of water. This would also work as a acoustical refelctive wall.

## The Result - Surround

Surround is a pavilion with the purpose of bringing people together, both figuratively and literally. Allowing people to gather in all directions, besides, under and above, bring them closer, both to each other and the performance on stage.

With three different acoustical settings and spati-ality, the pavilion can house both a giant festival as well as a delicate symphony. For each occasion, the pavilion adjusts its size to fit the current audience. It is created by dividing th structure with water walls, creating intimacy, better acoustics and a closeness to the nature.

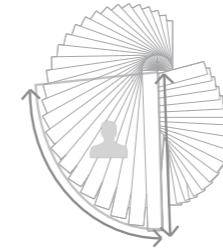
To give the visitors an optimized experience, all the sections of the bleacher are directed towards the stage, giving a free sight for everyone.



The area around the pavilion is going to be an open park for sunday picnick and late night strolls. The area contains, apart from the pavilion, an large mechanical parking system, toilets, bars and lots of walkways.

The whole area is shaped so the audience of big concert has a view over the paviluin and the stage.

## Sizes and water walls



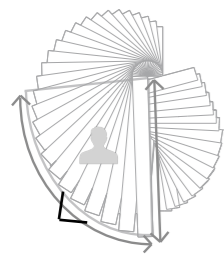
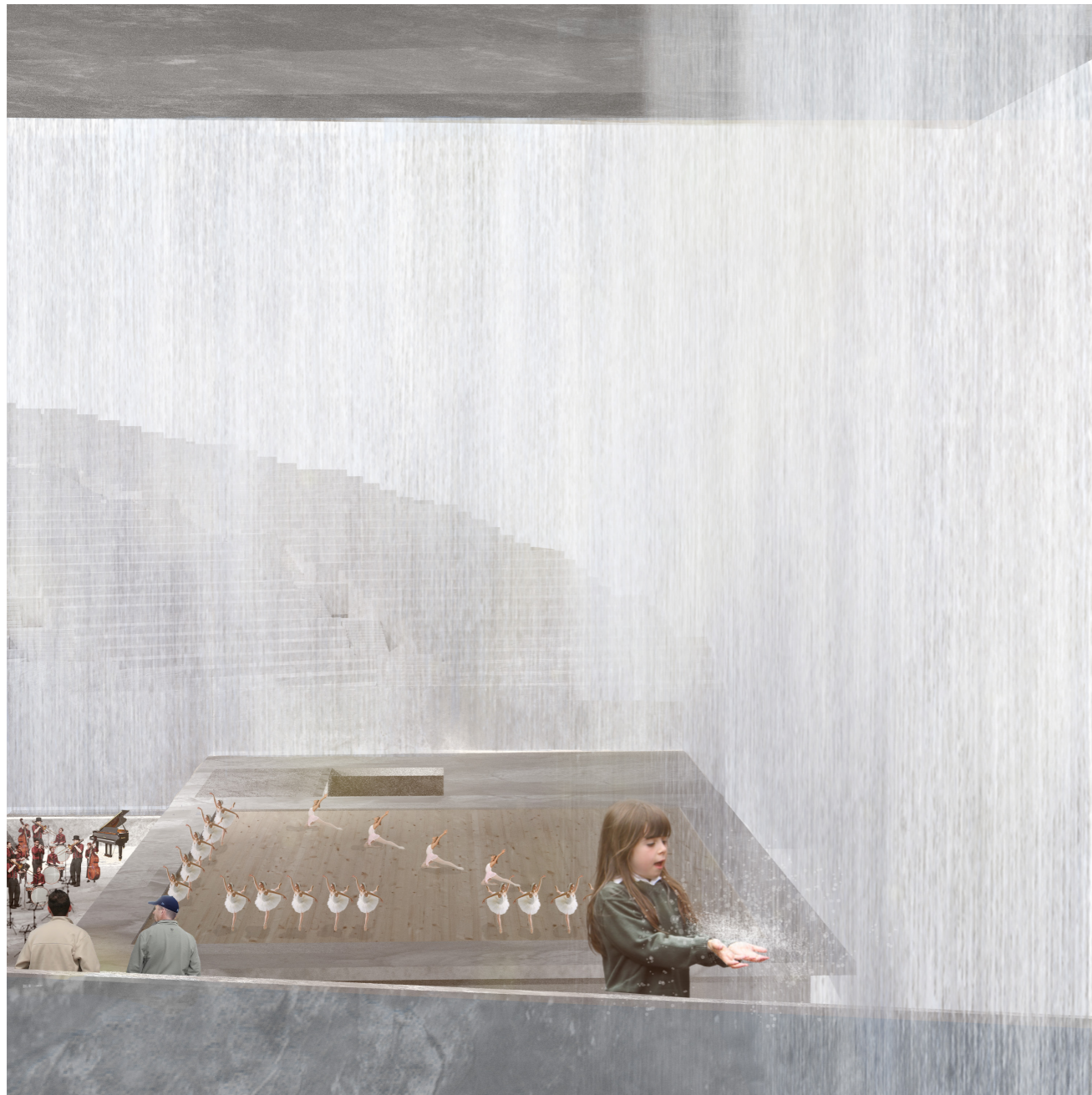
The structure can be seperated in three different sizes. The smallest one have water wall going around the whole left bleacher, the stage and the sitting audience on the ground. This will create a very intimate feeling of being inside a waterfall.



In the next size the right bleacher is included. The water wall will then only pass on the left side of the roof. The area is now more open and as an audience you can see over to the other side and be connected from more angles.



The larges size includes standing audience in the north and the south side of the stage. Here the water wall only falls on a short part of the roof to create a wall behind the left bleacher. There is now audience from all sides of the stage.



7 000



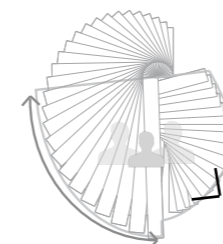
Water wall



Only natural sound

View from the left bleacher.

The water wall will create intimacy for the small audience. The feeling could resemble being inside a waterfall. The water wall will also help the acoustic by being a reflective surface.



10 000



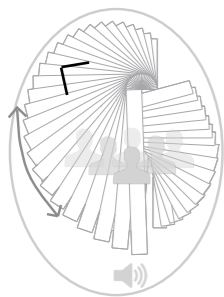
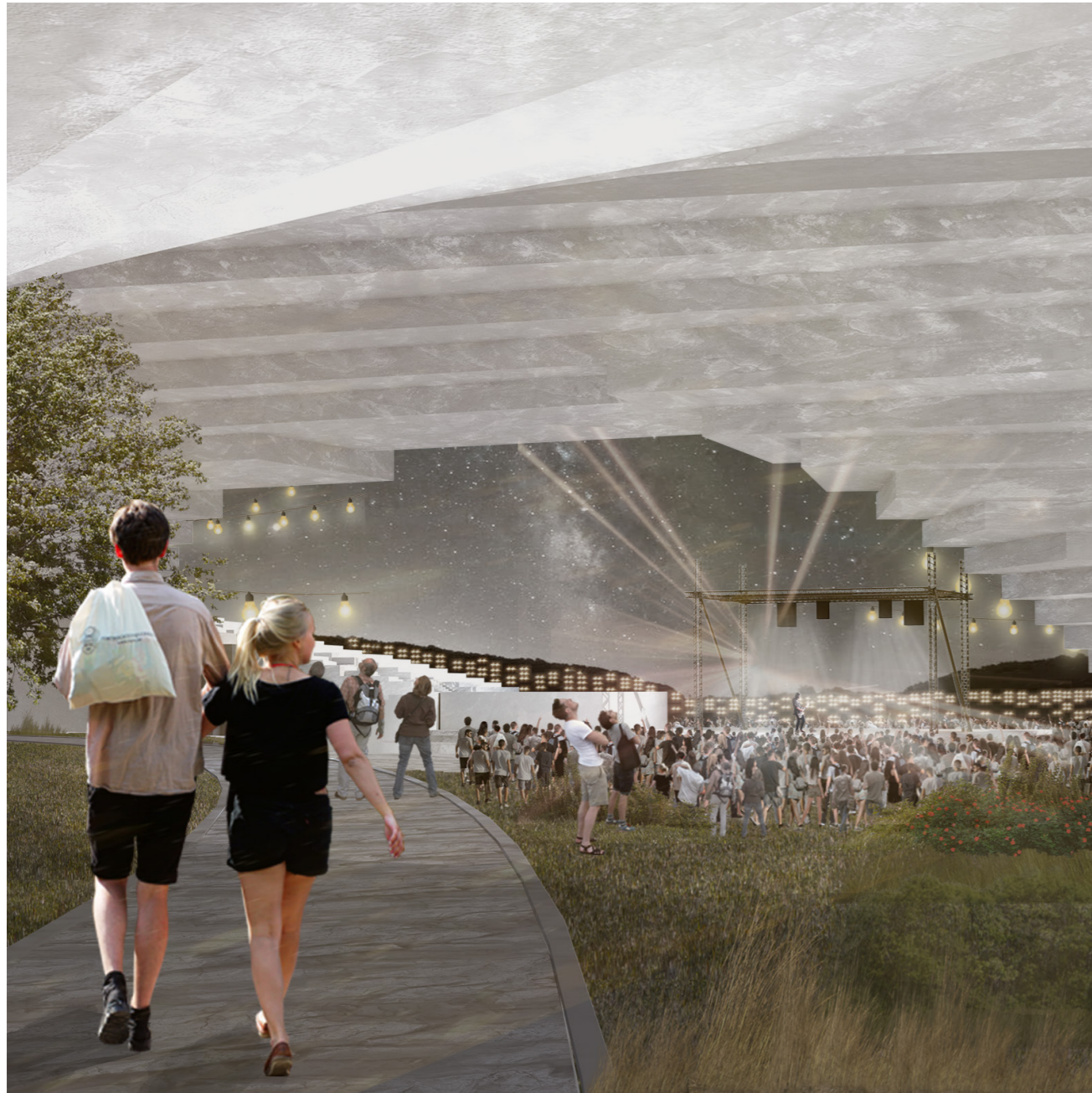
Water wall






Only natural sound

View from the right bleacher hours before a show is about to begin.

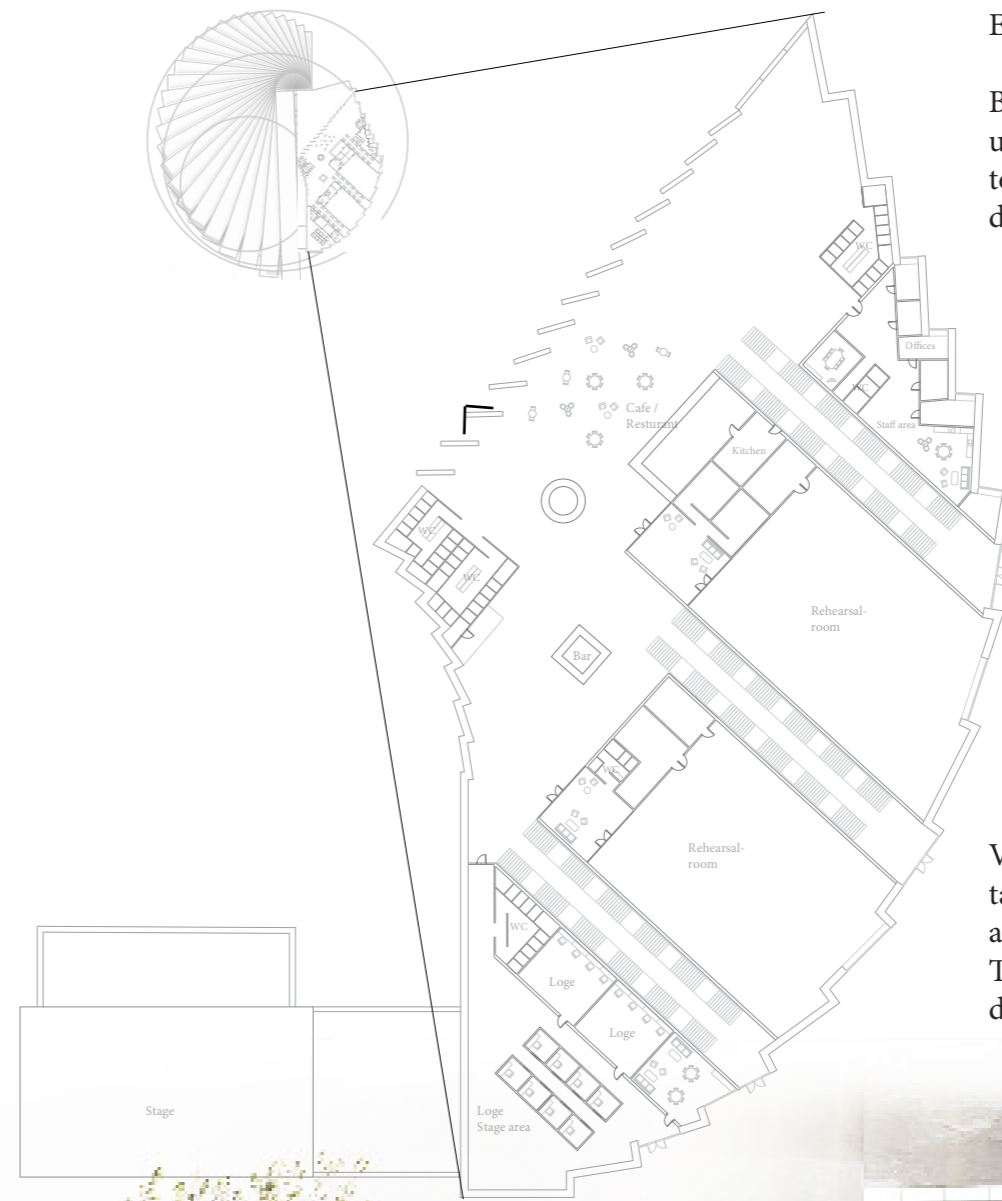
The audience will sit in 270 degrees around the stage. Each step of the bleacher has a 90 degree right-angle to the stage and the audience can see the rest of the audience around the stage on different heights. The water wall helps create great acoustics and a feeling of intimacy here as well.



-  25 000
-  Water wall
-  Electroacoustics' position

View from underneath the structure of the pavilion.

Big concert such as rock and pop or even festival size demands lot of place for the audience. The pavilion can now take audience from all angles to create more intimacy for the visitors.

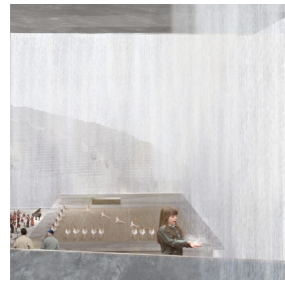


ENTRANCE PLAN

Building containing staircases to upper bleacher, restaurant, bar, toilets and rehearsal rooms and dressing rooms for the staff.

View from the cafe and the restaurant looking over the stairs and into the rehearsal room. This will make the whole building more lively and enjoyable.





7 000

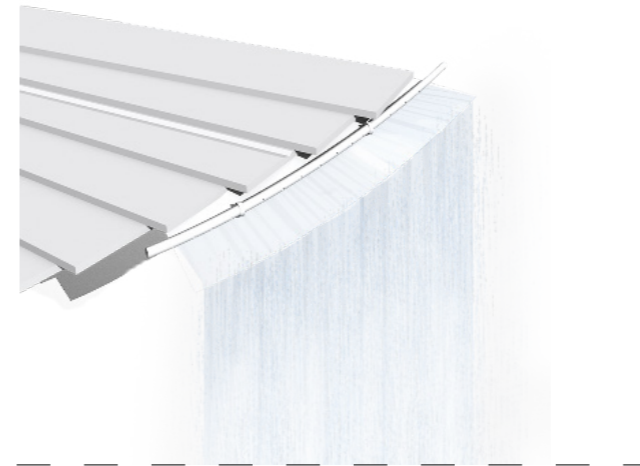
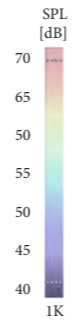
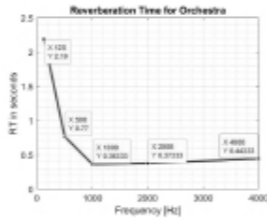
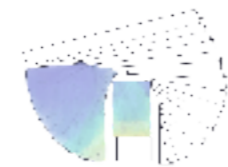


Water wall



Only natural sound

Reverberation time



When the curtains go up, the water goes down...



To optimize the acoustics according to the occasion for the evening, water is falling down along the edge of the roof, giving a reflective surface back to arena.

At the same time, the venue adjust in size, depending on how many water walls running at the same time. This contributes to the illusion that the pavilion's is custom-made for that exact right amount of people.



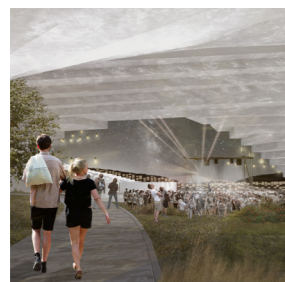
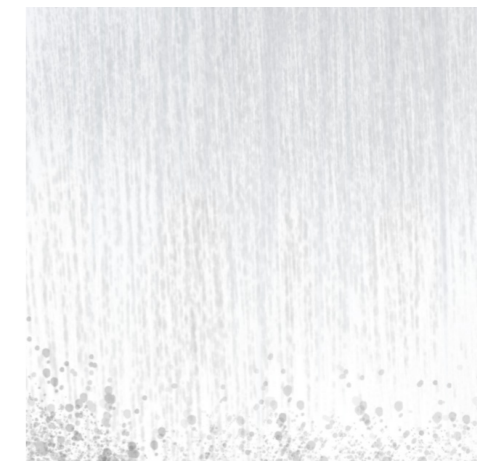
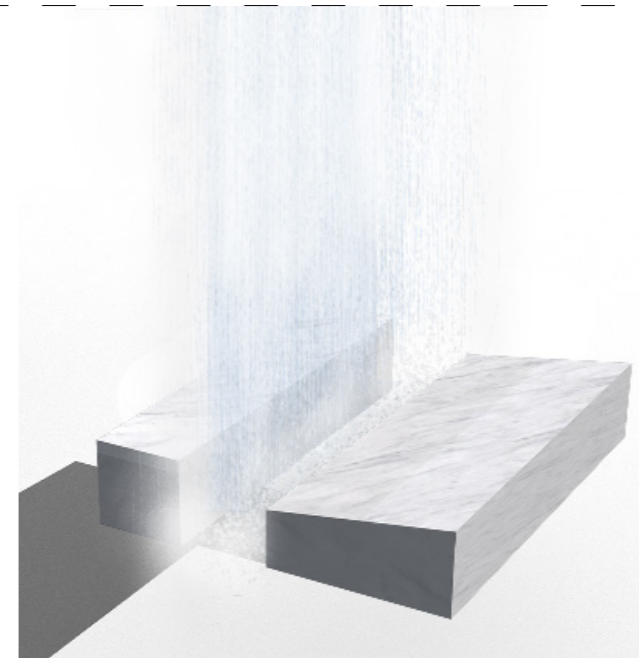
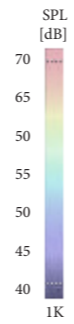
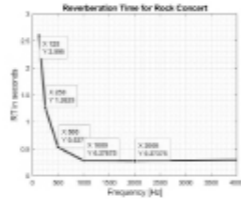
10 000



Water wall



Only natural sound



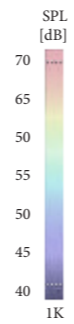
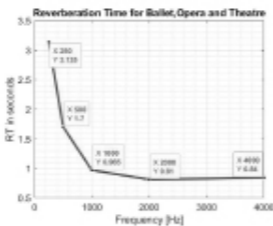
25 000



Water wall

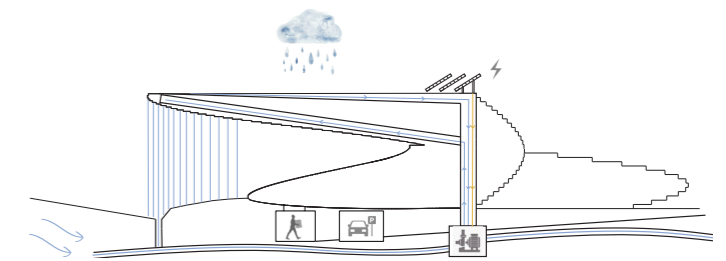


Electroacoustics' position



A system where drainage from the ground beneath the standing crowd and including with rain water and water from the river, pumps up the water in the structure and forms a wall made of water, contributing to the needed reflections.

To avoid noise from the water, the water is falling down a crack and hits the bottom far beneath the ground surface.





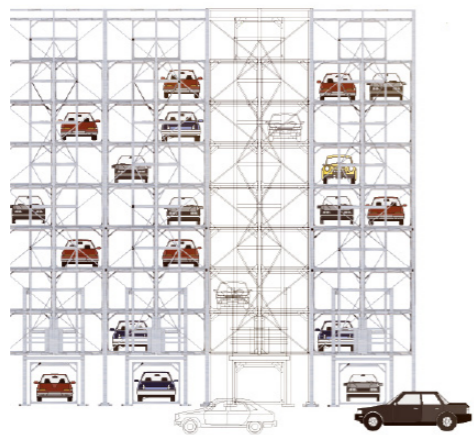
When night falls, the parking rises...

Building a structure which contains mechanical car-parking system, where the cars are stacked on top of each other, a smaller area of the site is needed for the parking.

By letting the cars be the sound barrier, the site will be protected from the noise that entails from themselves.



When an event is about to happen, the parking towers fills up one by one and the site "is brought to life". Controlling the car lights from remote, the car contributes to the light show in the sky. The structure will build up those protective shields around the field right before the sound protection is needed, and this will also protect the residential area in south.



No one knows how we are going to travel in the future. The height of the sound barrier is depending on today's needs, and may change over the years.

A light weight structure is easily moveable and when the need of parking is reduced. The car-parking structures are easily removed and the site will be car free.

## Reflection of the interdisciplinary collaboration

### How the Architecture meets the acoustics

#### Challenges:

Shape that would fulfill certain demands.

The goal was to find a shape that would be or where able to remake to an optimized shape for great view for the audience.

The shape should also be structural yet light.

Not symmetrical but follow certain patterns so it would be easy understandable.

Meeting the acoustics demands:

## Reflection of the methodology

#### Idea-process- handmade models and sketches:

We had an advanced form of our building, so we needed to pass on and make it as a 3D model quite quickly. It was probably not the best thing for the imagination, further on I would like to remember holding on to handmade idea sketching further in the process.

#### Iteration process- grasshopper and 3D operations

Still quite hard process since we learn grasshopper while working. It was a fun and exciting process where we both learn a lot. We also learnt when to say stop and keep going by "hand" in rhino.

Hanna and I had different ways of working. She had easily to let go and let the program be an extension of her hand drawing and I was more urgent to make all the pieces fit in the beginning. I have a lot to learn from that. It doesn't have to be totally correct or worked out on the drawing board.

#### End process- finish with photoshop and rendering made by v-ray:

Biggest challenge was understanding v-ray and applying material. It's interesting to learn that the more you actually know about a program the more you realize that you don't know of the program.

#### Reflection of the architectural and acoustical quality:

The quality we achieved wasn't as good as we might have hoped for at the beginning. It was one of our biggest problems. The idea and the immediate solution wouldn't have worked as graceful as we would like. We could have given more time to explore other options, but we didn't make it our priority.