

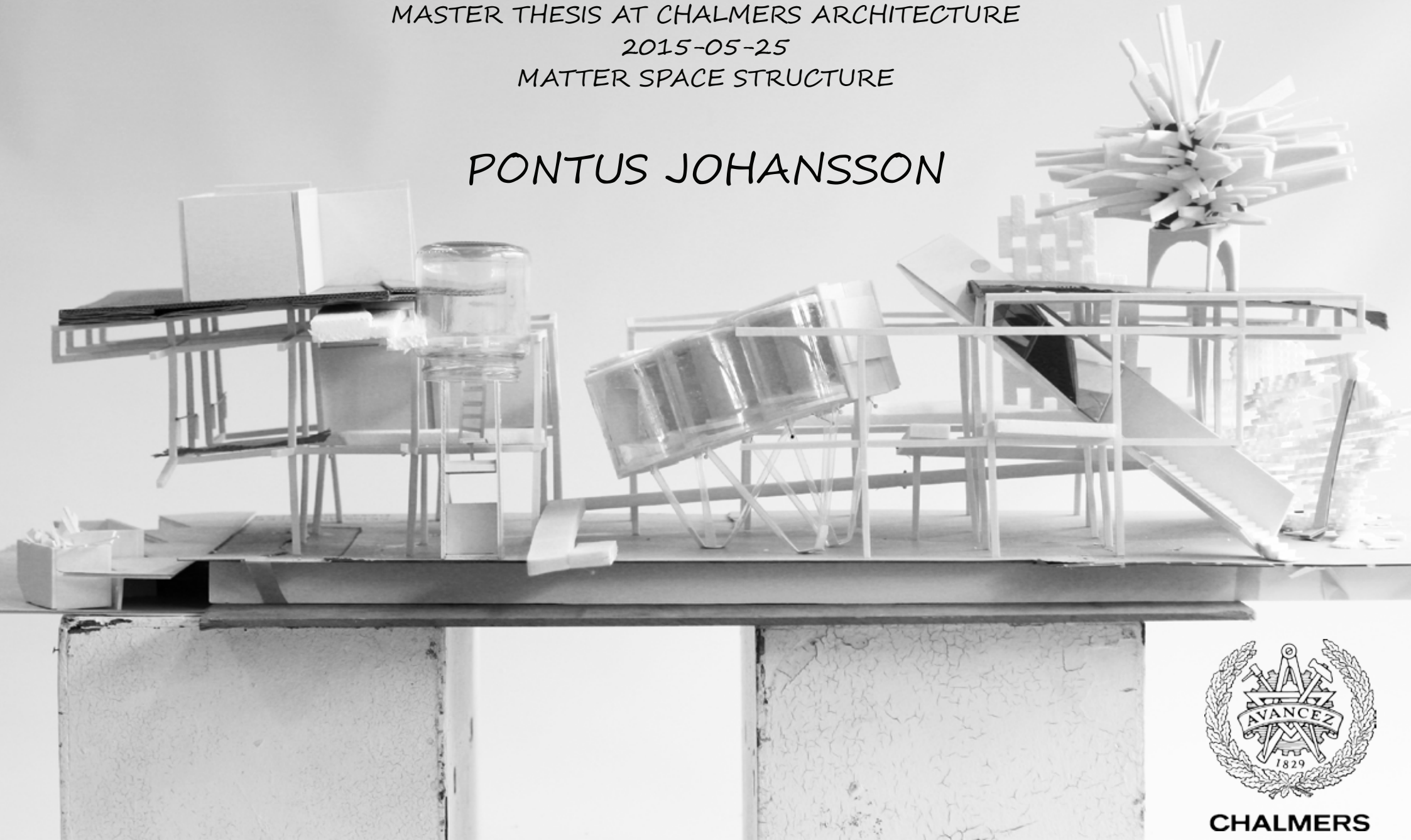
# THE TRASH LAB

MASTER THESIS AT CHALMERS ARCHITECTURE

2015-05-25

MATTER SPACE STRUCTURE

PONTUS JOHANSSON



CHALMERS

# Abstract

The natural resources are shrinking and the knowledge about recycling is lacking. The society needs to become more sustainable.

The Trash Lab is a visitors center on top of a recycling station where you will learn more about recycling and environmental sustainability. The project discovers how architecture can bring joy in to the learning process and inspire future generations.

The methods that have been used during this project are mainly model work, interviews and study visits. There have been interviews with exhibition designers and communicators to understand how the visitors explore an exhibition. The models have been done to understand the construction and explore how the inner volumes can fit in.

The buildings main attractions are the exhibitions and the two workshops. But there are also a restaurant, an auditorium and an urban roof top park.

You as visitor will activity take part of the museum and at the same time see what's happening at the recycling station. The building is constructed with a box frame, concrete floor slabs and inner volumes within the frames. The main construction is made of steel and the inner volumes are then made of recycled materials.

My main goal with The Trash Lab has been to inspire people to become more sustainable. It is a creative and joyful place where you as visitor may interact with other people, explore and understand how recycling works today and how it can work in the future.

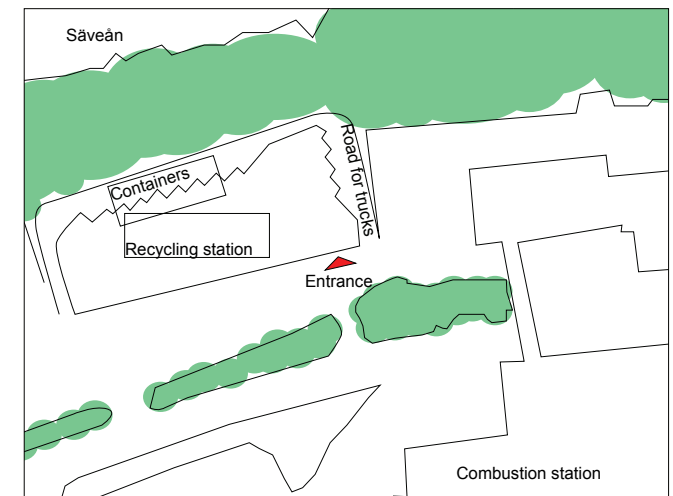
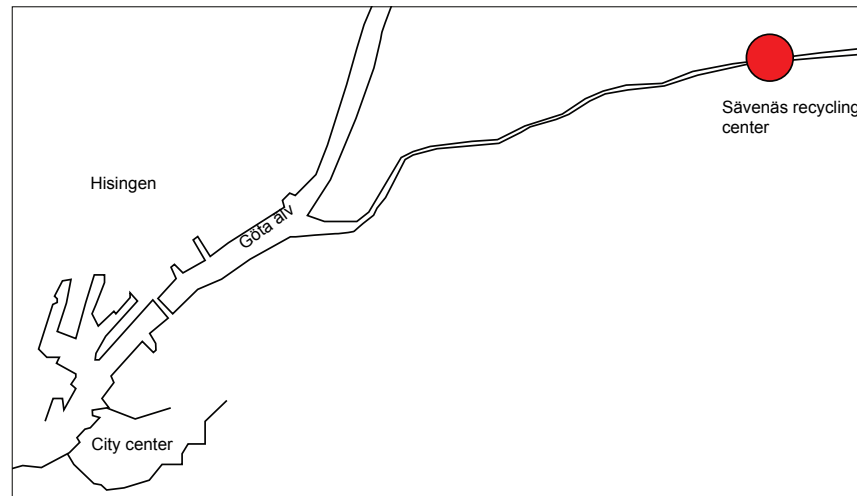
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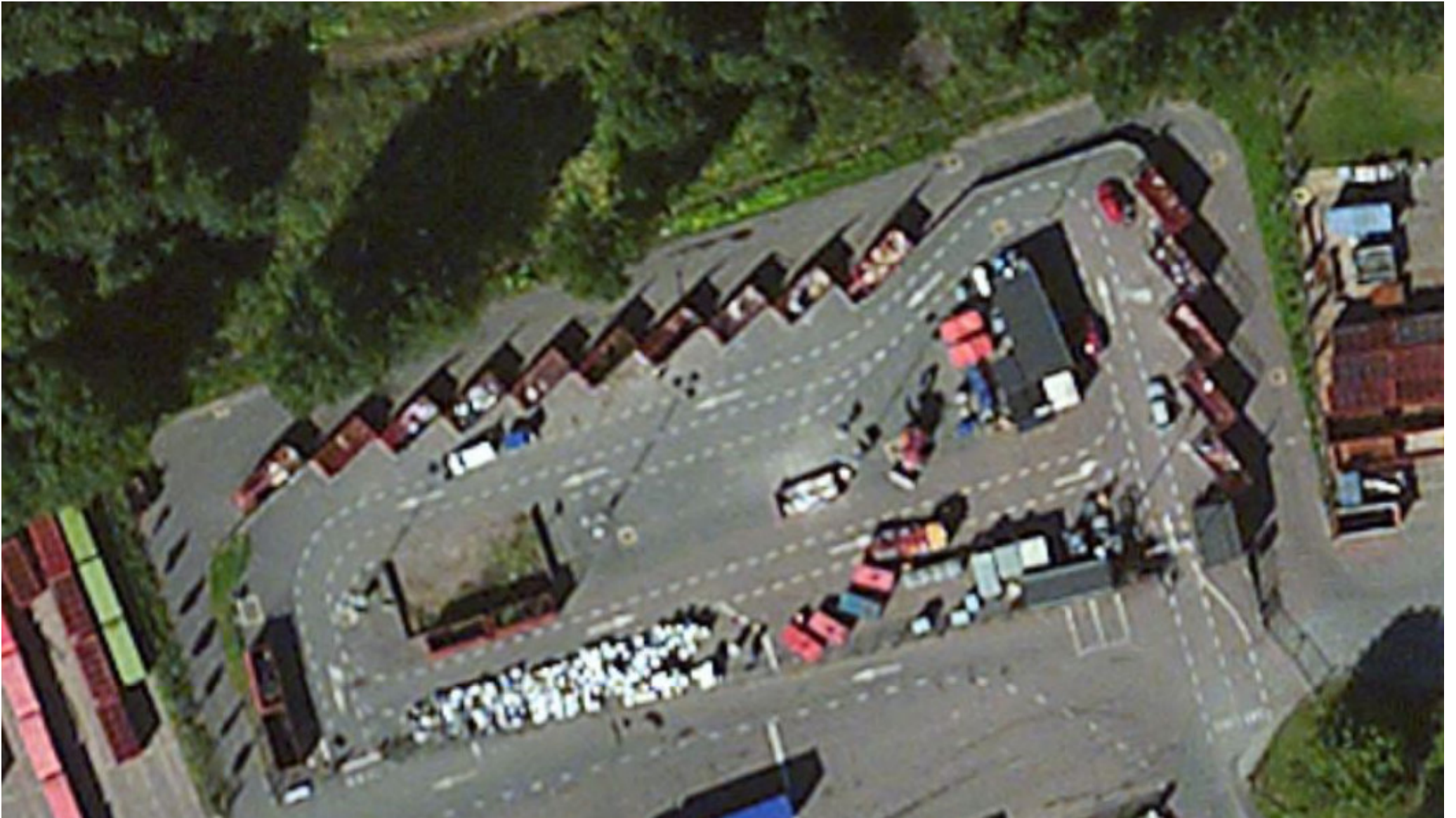


# Location

The chosen site is situated in the north east part of Gothenburg, at a recycling- and combustion station 5 kilometers from the central station. It is an industrial area with the S  ve  n river passing on the north side.







# Interviews and study visits

To understand how visitors may explore an exhibition interviews has been done with exhibition designers and communicators at different visitors center in Gothenburg.

Ellinor Günter is working as a communicator at Ryaverket. She shows school kids and other educational groups how the city cleans dusty water. Ryaverket's main design goal are to create a nice atmosphere even though they are dealing with waste and dusty water and their building has a shape of a raindrop. Ellinor means that the architecture can help the communicator to get a discussion with the audience.



Kurt Lindmann is a development engineer and communicator at Renova. He shows students and politicians how the recycling system and the combustion station works. As a visitor you will be able to use your senses while visiting them, which Kurt finds as an important part of the experience.





Håkan Sigurdsson works as an exhibition designer at Universeum. He believes that it is important to build an exhibition that contains something everyone can relate to. For instant, create a living room and explain what happens with the furniture at the recycling station when they no longer can be used at home. Håkan is also fond of letting the visitors be creative and for example play and build with things.







# Method

When I was a kid I built my first own house model. It was made of shoeboxes. Holes were made for doors and windows. A small matchbox could become a bed and small textiles become curtains and carpets. After one shoe box was made you were able to connect several together and a house was created. Your fantasy and your building materials become your only limitations. The methods that have been used for the design during this project are mainly the same as for the shoeboxes.

The models have been done to understand the construction and explore how the inner volumes can fit in. The models are made to trigger the visitor's interest and during the working process it has also triggered my own fantasy. I have partly used things at the trash bin and then seen how that can become used in another scale. In the beginning the constructions become developed and after that several ideas for the inner volumes become explored. After that each program got its own shape and in-between those outdoor exhibitions are made.

# Design and Program

The building's main attraction is the trash museum with its pavilions and the two workshops for material explorations. There will also be a restaurant serving dumped food, an external museum for other exhibitions and an auditorium for political meetings or school classes.

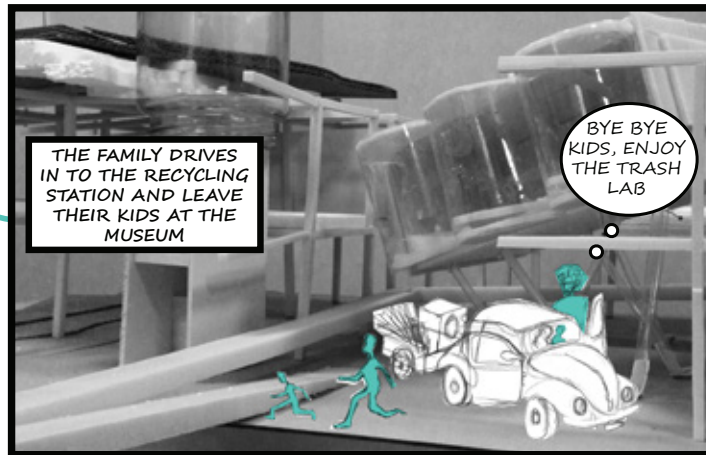
The design of the building blocks has different characters related to their different needs. But they all have one thing in common; they all play with the grid.



# Comic strip

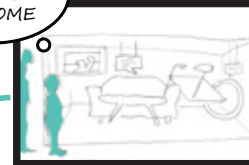


WEEKEND!!



THE SOFA THAT WE HAVE AT HOME

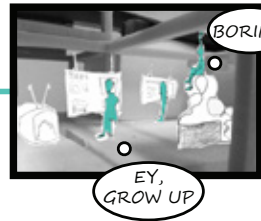
THE TRASH MUSEUM, FOLLOW DIFFERENT MATERIALS IN YOUR LIVINGROOM



INTERACTION BETWEEN MUSEUM AND RECYCLING STATION







BORING

EY,  
GROW UP

THE KIDS  
MOVES ON AT  
THE TRASH  
MUSEUM,  
LOOKS AT  
MOVIES, PLAYS  
AND MAKES  
EXPERIMENTS

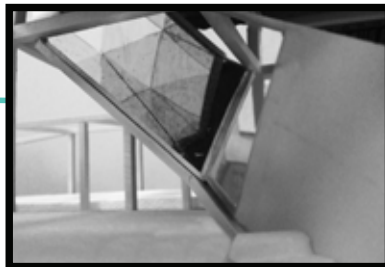


THEY ALL ENTERS  
THE ROOF TOP  
SKATEPARK AND  
THE OUT DOOR  
SEATS  
SKATERS ARE  
BUILDING A JUMP  
AND THE FAMILY  
ARE HAVING A  
COFFEE TOGETHER

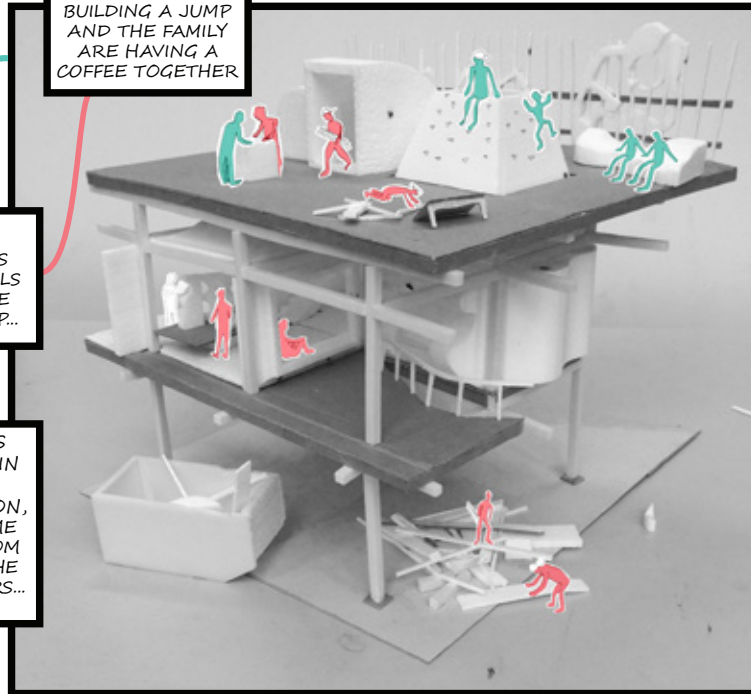
## THE FAB LAB WORKSHOP

...AND  
BORROWS  
SOME TOOLS  
FROM THE  
WORKSHOP...

SKATERS  
ARRIVES IN  
THE  
AFTERNOON,  
PICKS SOME  
WOOD FROM  
ONE OF THE  
CONTAINERS...



THE PARENTS  
PARKS THEIR  
CAR AND  
ENTERING THE  
MUSEUM BY  
THE  
TRIANGULAR  
STAIRS



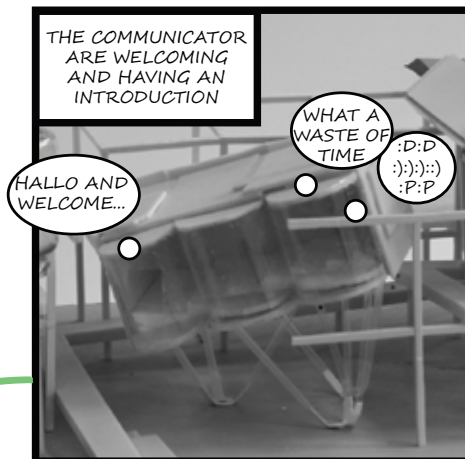
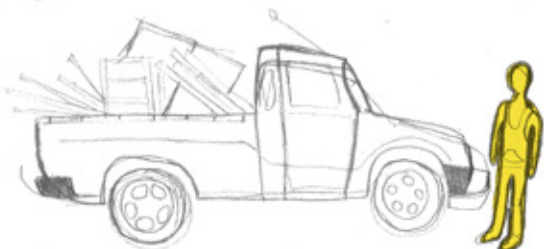
# Comic strip

## AUDITORIUM

## THE MATERIAL PAVILIONS

WEEKDAY!!

THE SCHOOL KIDS ARE ENTERING THE TRASH LAB AND MOVES IN TO THE AUDITORIUM



THE COMMUNICATOR ARE WELCOMING AND HAVING AN INTRODUCTION

HALLO AND WELCOME...

WHAT A WASTE OF TIME

:D:D  
:):):):)  
:P:P

KIDS ARE DIVIDED IN TO GROUPS THAT EXPLORES DIFFERENT MATERIALS IN PAVILLIONS

...AND THE CONTAINERS



CLIMB UP TO THE GLASS PAVILION MADE OF SMALL GLASS BOTTLES, LAY ON THE FLOOR AND LOOK UP TO THE ROOF. A MOVIE ABOUT GLASS RECYCLING WILL BE SHOWN

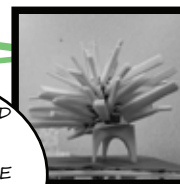
A PAVILION OF WATERPROOF WALLPAPER, COOL AND STRONG STRUCTURES

A WALL OF TV SCREENS, THIS WILL BE THE BEST PLACE EVER

THE GUM PAVILION ARE MADE OF OLD TIRES

DEMOLISHED APARTMENT WALLS WILL BECOME THE CONCRETE AND BRICK PAVILION

A COLOR FULL BOX WITH SCULLS TELL YOU ABOUT HAZARDOUS WASTE AND PAINT



ENTER THE WOOD PAVILION THAT LOOKS LIKE A HEDGEHOG OR BE PART AND BUILD ON THE COMMON WOOD SCULPTURE

CARPENTER ENTERING THE RECYCLING STATION AND THROW AWAY HIS MATERIAL WHILE THE KIDS EXPLORES THE CONTAINERS

OPEN THE FRIDGE AND SEE HOW THE WHITE GODS ARE RECYCLED



## THE RESOURCES RAMP



GROUP OF OFFICE WORKERS HAVING LUNCH AND A WALKS ALONG THE RIVER

## THE DUMPSTER RESTAURANT

THE METAL PAVILION ARE MADE OF OLD CONTAINERS TURNED UP SIDE DOWN

THE PLASTIC PAVILION WILL BE IN THE WALL MADE OF PLASTIC BOTTLES AND IRONED PLASTIC BAGS!

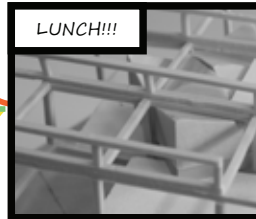


THEY SEES MATERIAL EXPLORATIONS INSIDE THE WORKSHOP



THEY ARE THEN GETTING OUT TO THE NATURE THROUGH WALKING PATHS AND READS WERE THE MATERIALS COMES FROM AT DIFFERENT STATIONS

THE CARPENTER PARKS HIS CAR AND ENTERS THE BUILDING. THE BRAVE AND CURIOUS KIDS ARE ASKING QUESTIONS ABOUT THE WASTE SHE THROWS AWAY

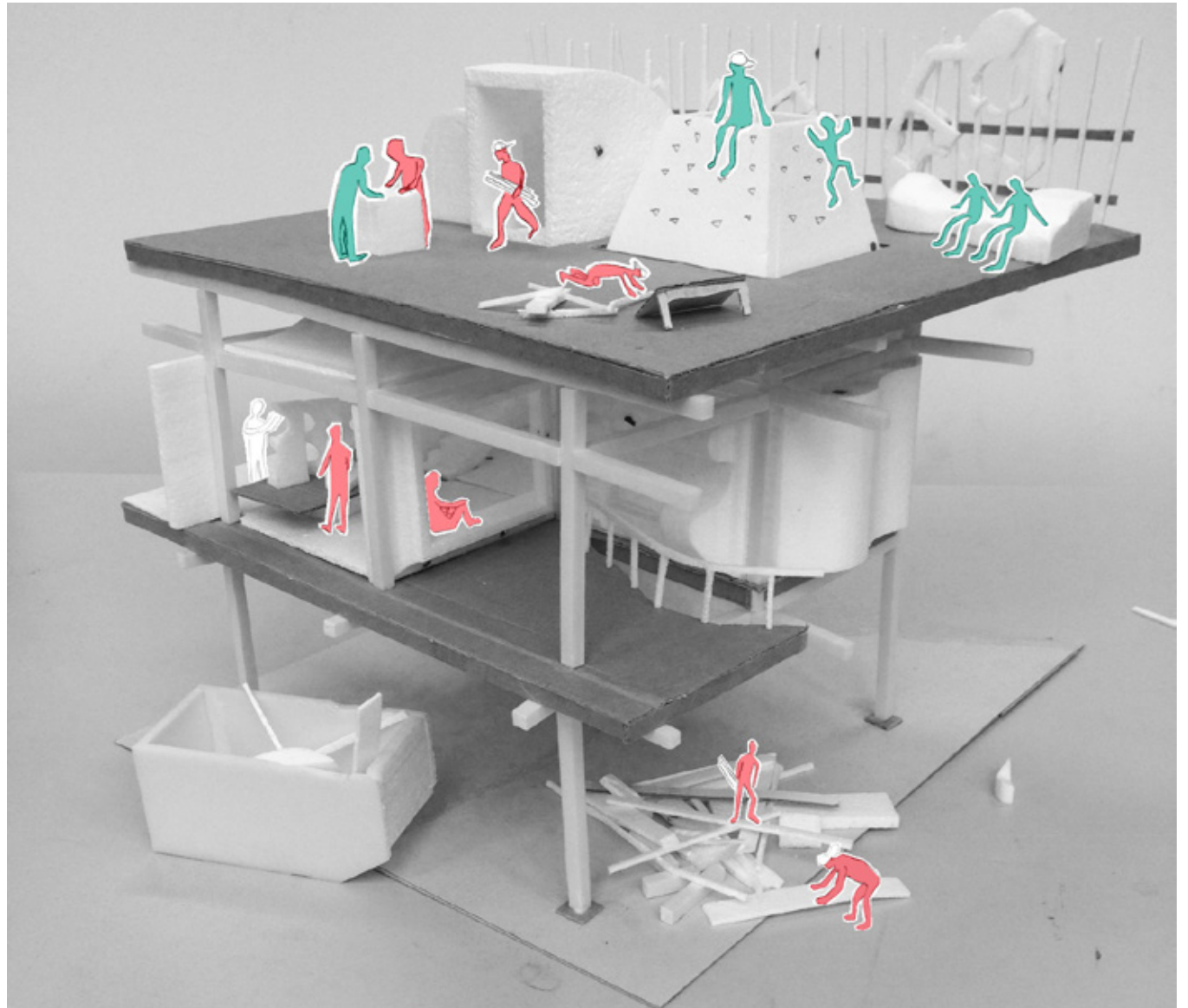
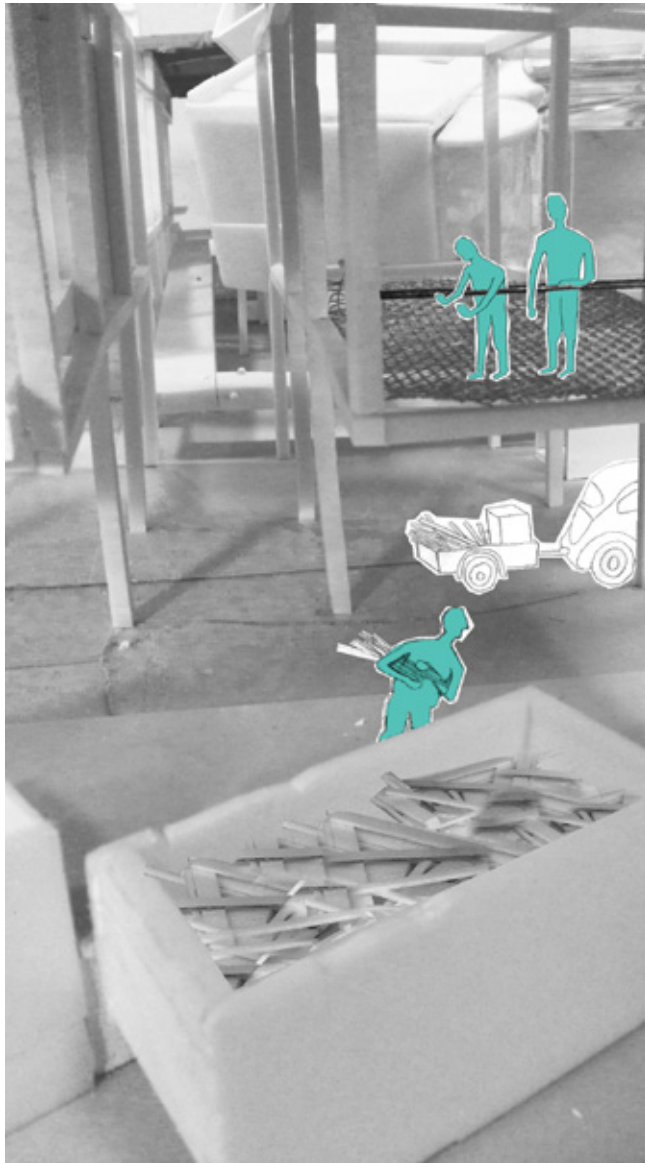


LUNCH!!!

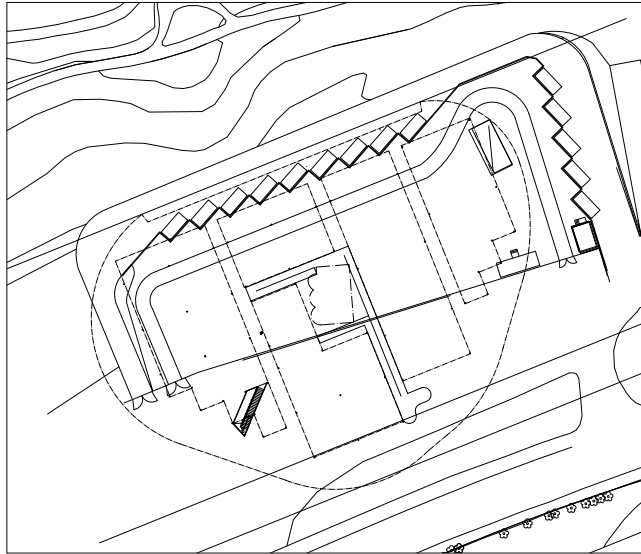
WALKS ALONG THE RAMP AND OUT TO THE RIVER

TURN BACK ALONG THE SECOND PART OF THE RAMP AND BACK TO THEIR OFFICES

THE DAY ENDS WITH A SHORT PRESENTATION FOR THE OTHER STUDENTS ABOUT THE DIFFERENT MATERIALS

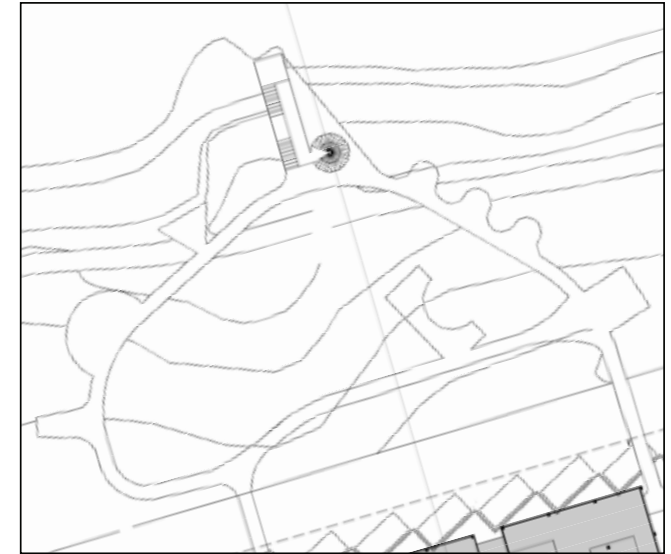






## Ground floor +0,0

Ground floor with only a few pillars on the existing recycling station



## The resources ramp

The ramp is made to be able to reach the nature and river Săvean from The Trash Lab as well as learning about our natural resources at different stations.

# First floor

The first floor has a curved floating floorslab made of concrete. There are holes to look at the recycling station from. Some of the holes has a net of steel that you are able to walk on.

Within the construction several building blocks is placed with different materials and geometry but the all have one thing in common, they all play with the grid!

## Workshop

The Workshops are divided, one with machines called a fab lab to build exhibitions and do material explorations. Another One without machines for the visitors to build something.

The building is made of recycled plastic and brings light from roof windows that visitors will be able to interact with. The roof windows has different sizes and heights. One of them includes a stair. Some says it looks like a wine bottle, other says it looks like a chimney.

## External exhibition

Made as a snake were you as visitor can follow the exhibition. It is build out of old containers put together.

## Dumpster restaurant

It is made with several tilted squares and serves food that can't be sold anymore but still are possible to eat.

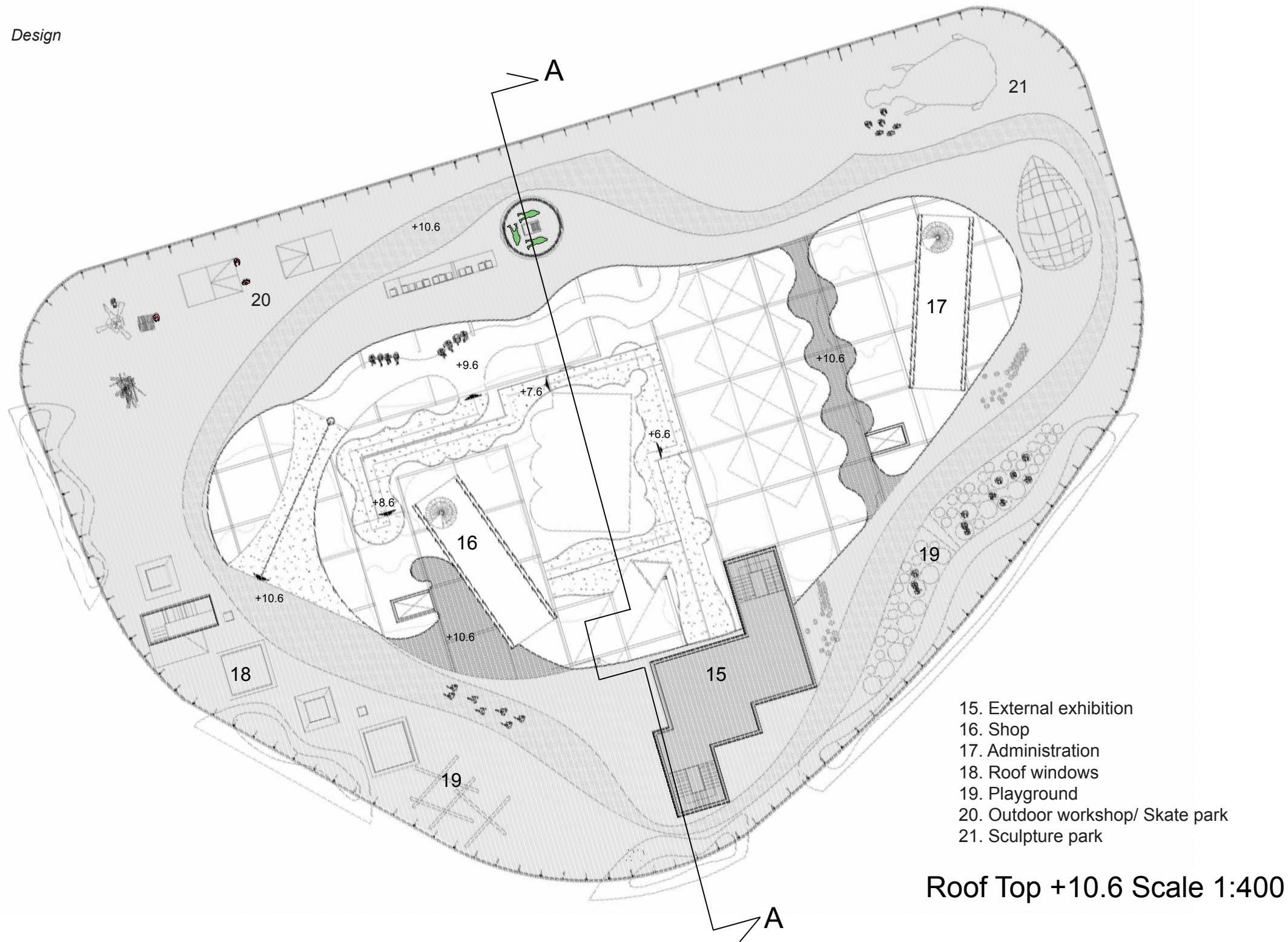
The material used for this building are corrugated iron

## Auditorium

The Auditorium is exploded from the grid and stands on its own construction. It is tilted and situated in the center of the building. It is supposed to have a wooden construction and decorated with reused doors as interior walls.

1. Entrance
2. Ticket office
3. Auditorium
4. Fab-Lab Workshop
5. Workshop
6. Material Storage
7. Short cut to restaurant
8. Exhibition space
9. Pavilions
10. external exhibition
11. Dumpster restaurant
12. Elevators
13. exhibition space
14. short cut to restaurant







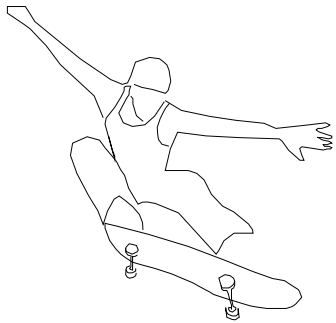
# The roof top

It is an open urban park and covers the museum and recycling station. It is made of concrete. The visitors are able to enter the roof by the ramp, or elevators. There are seats towards the sun hid from the wind.

The roof has a path with different stations.

There are an outdoor workshop connected to the trash lab. There will become a skate- and sculpture park with sculptures made of trash. A playground made of recycled materials and the squares you see are the roof windows from the work shop.

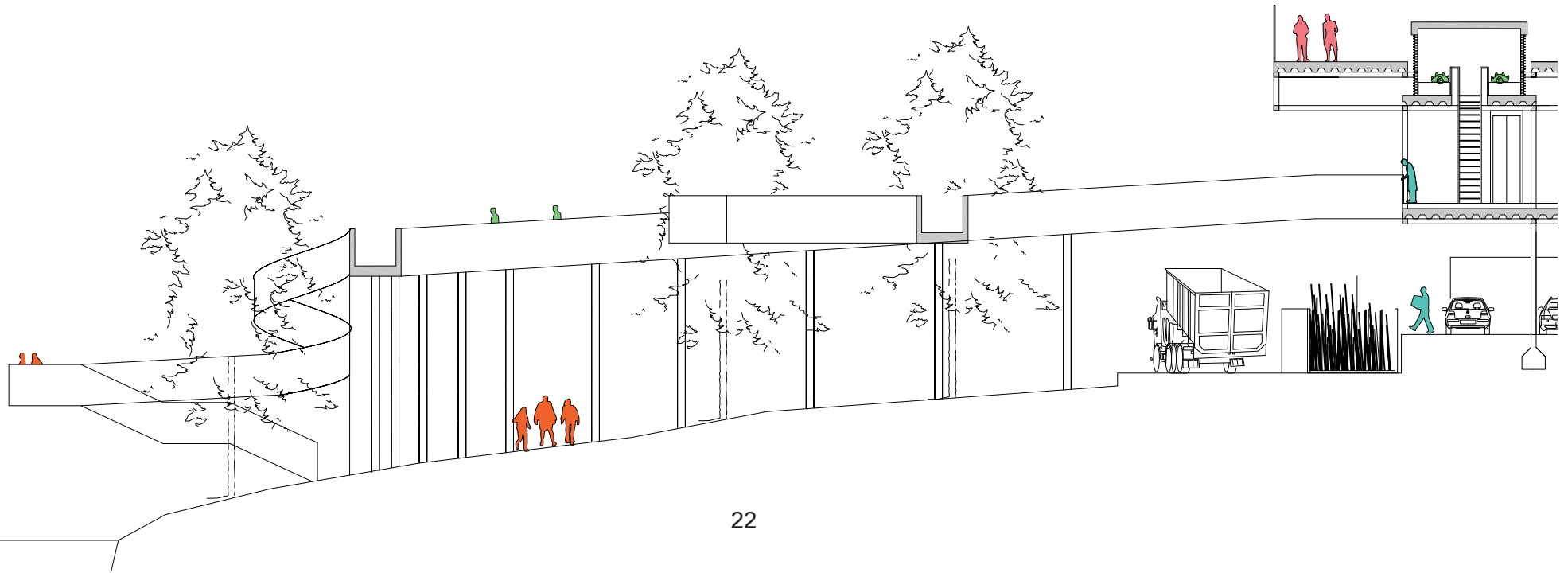
The pictures you see are inspiration projects from all over the world. Play grounds and sculptures made of reused materials.

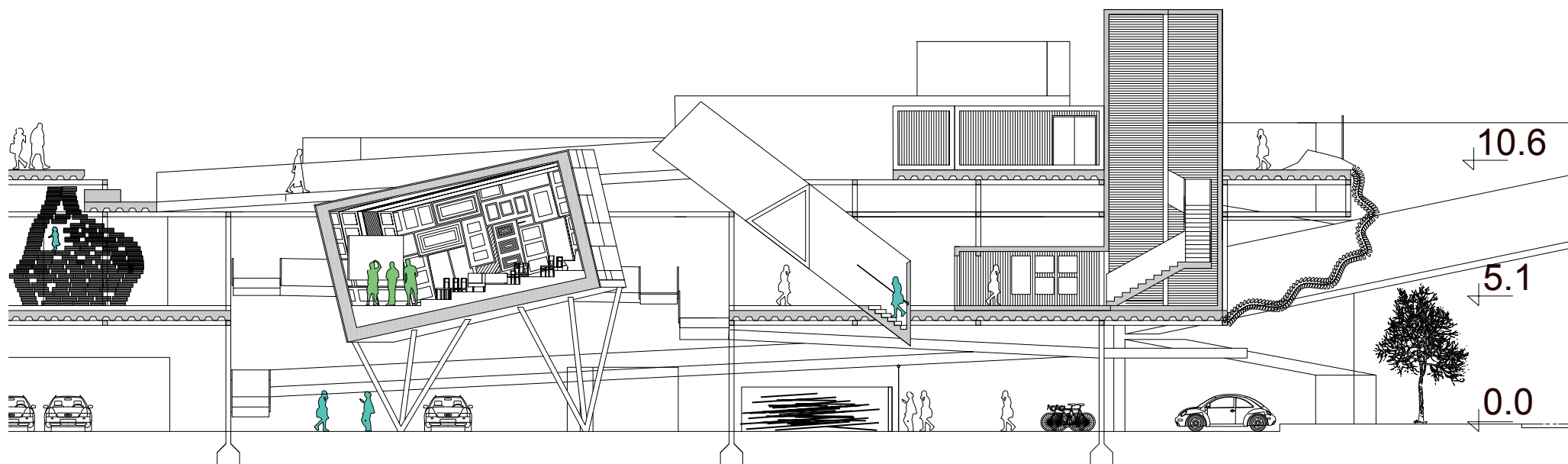


# Section

The section shows the construction. It is a box frame to make just a few pillars on the existing recycling station. Within the box construction several building blocks with different geometry are made to fit in. What you see is pavilions, an Auditorium, the triangular stairs and the external exhibition space.

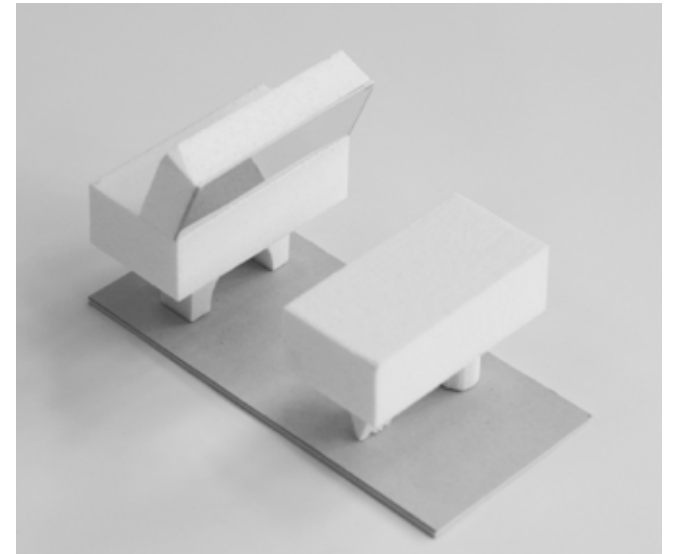
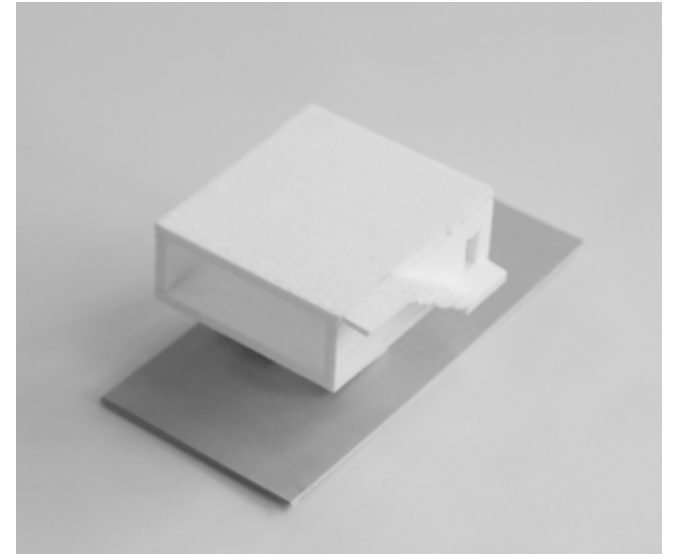
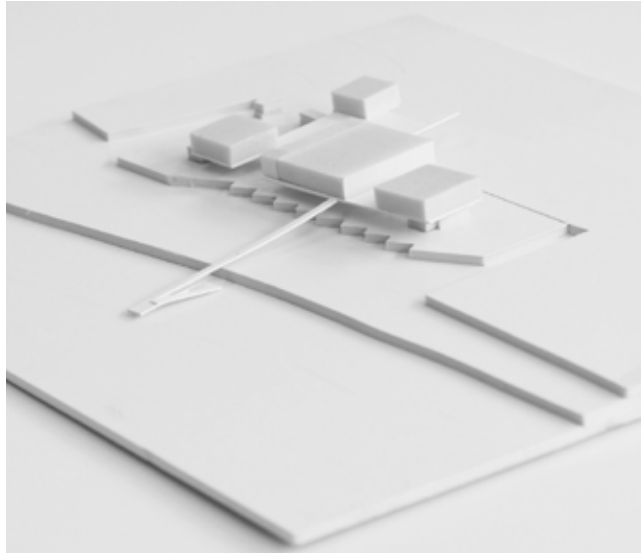
The section also shows the existing recycling station, the industrial area on the south side and the nature on the north side.





# Process

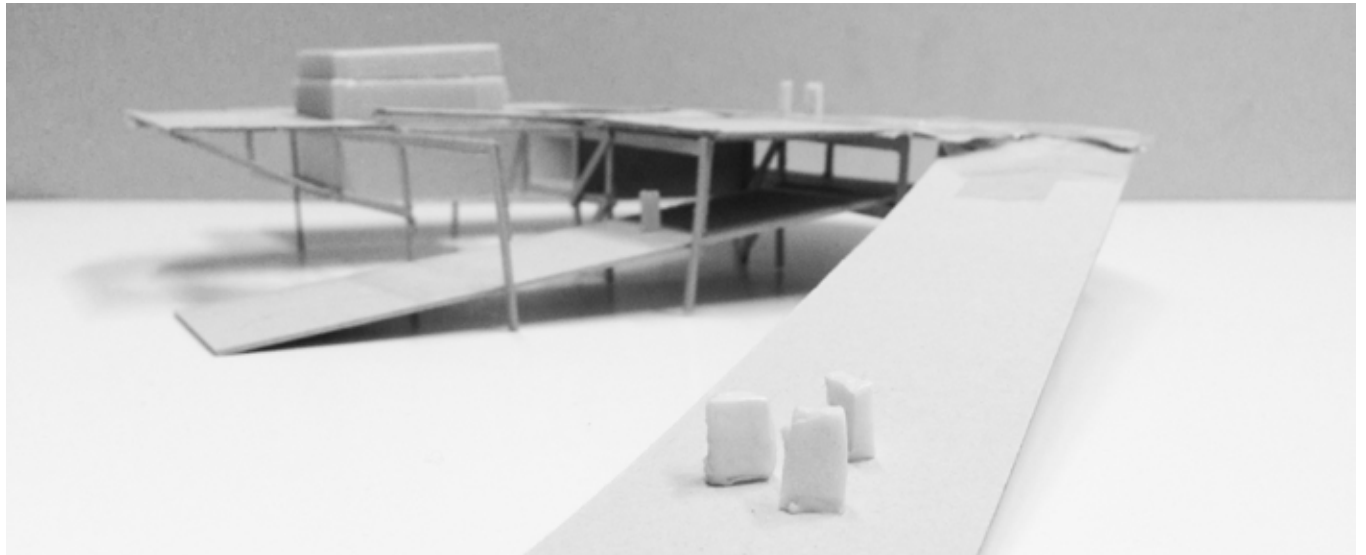
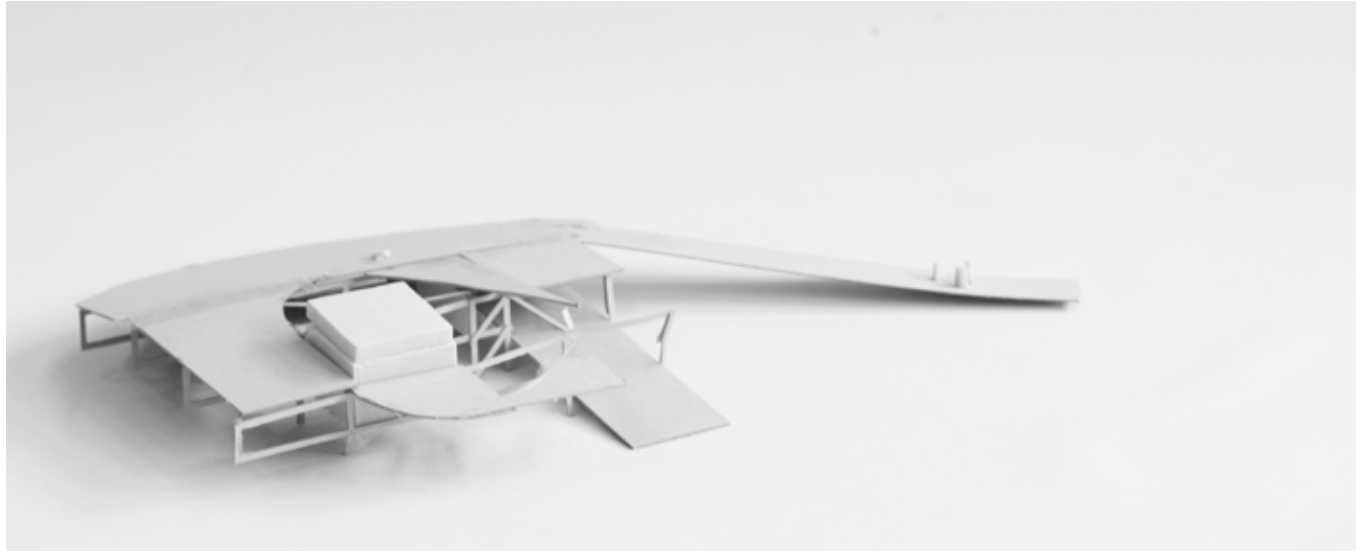
During the beginning of the process a model with a floor and several boxes was made together with two small models that shows ideas of interactions between floor plans.



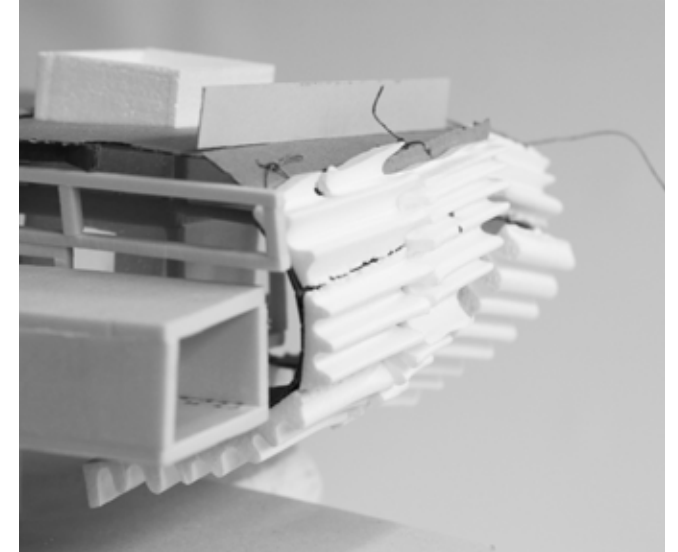
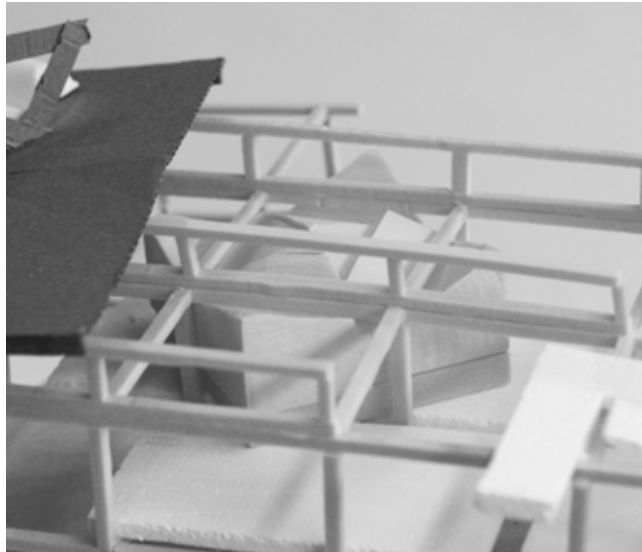


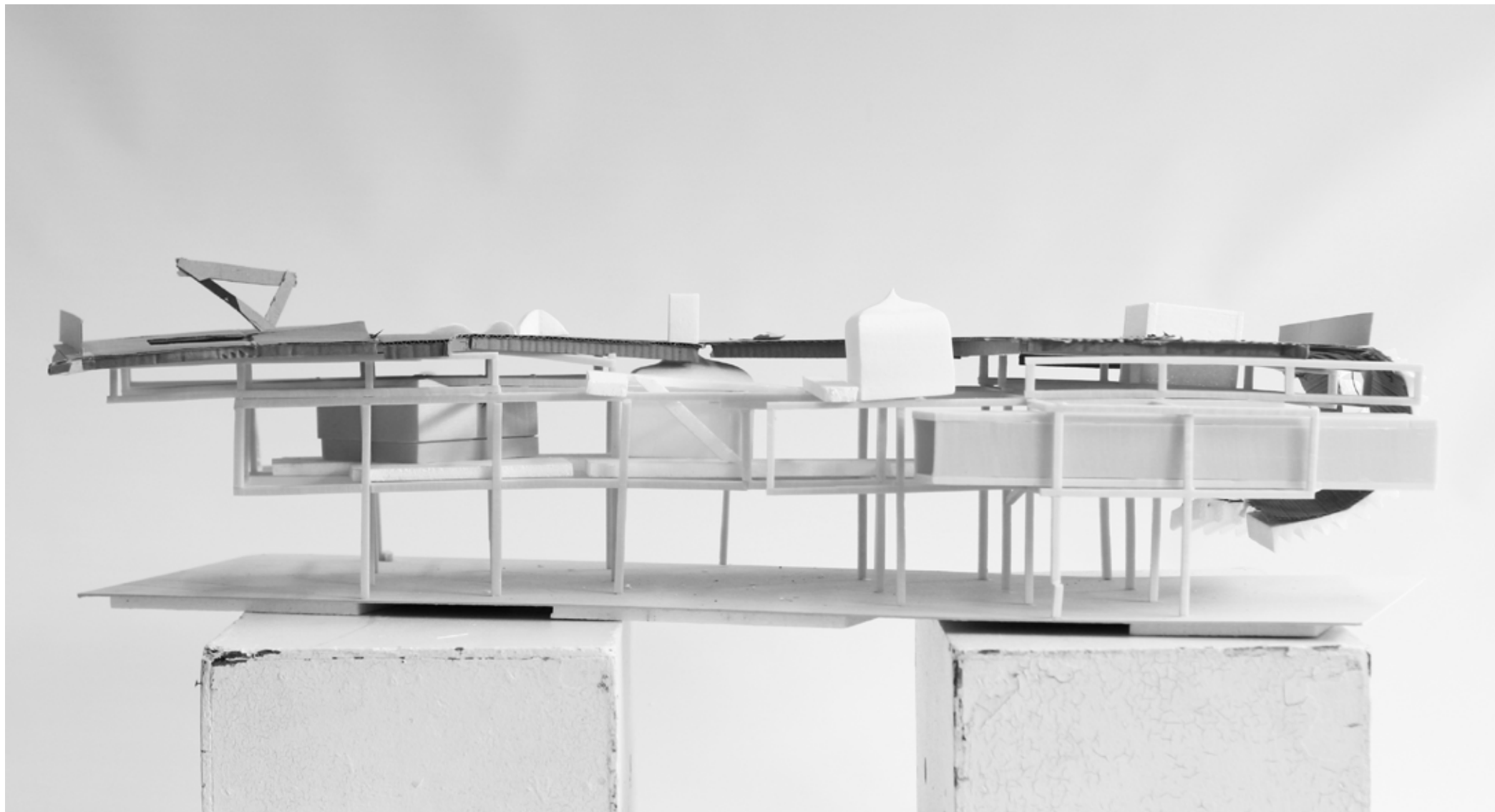
Since the building is above the recycling station the construction was the first thing to solve and was discovered with the next model.

Later on the construction become more developed and solved as a box frame.



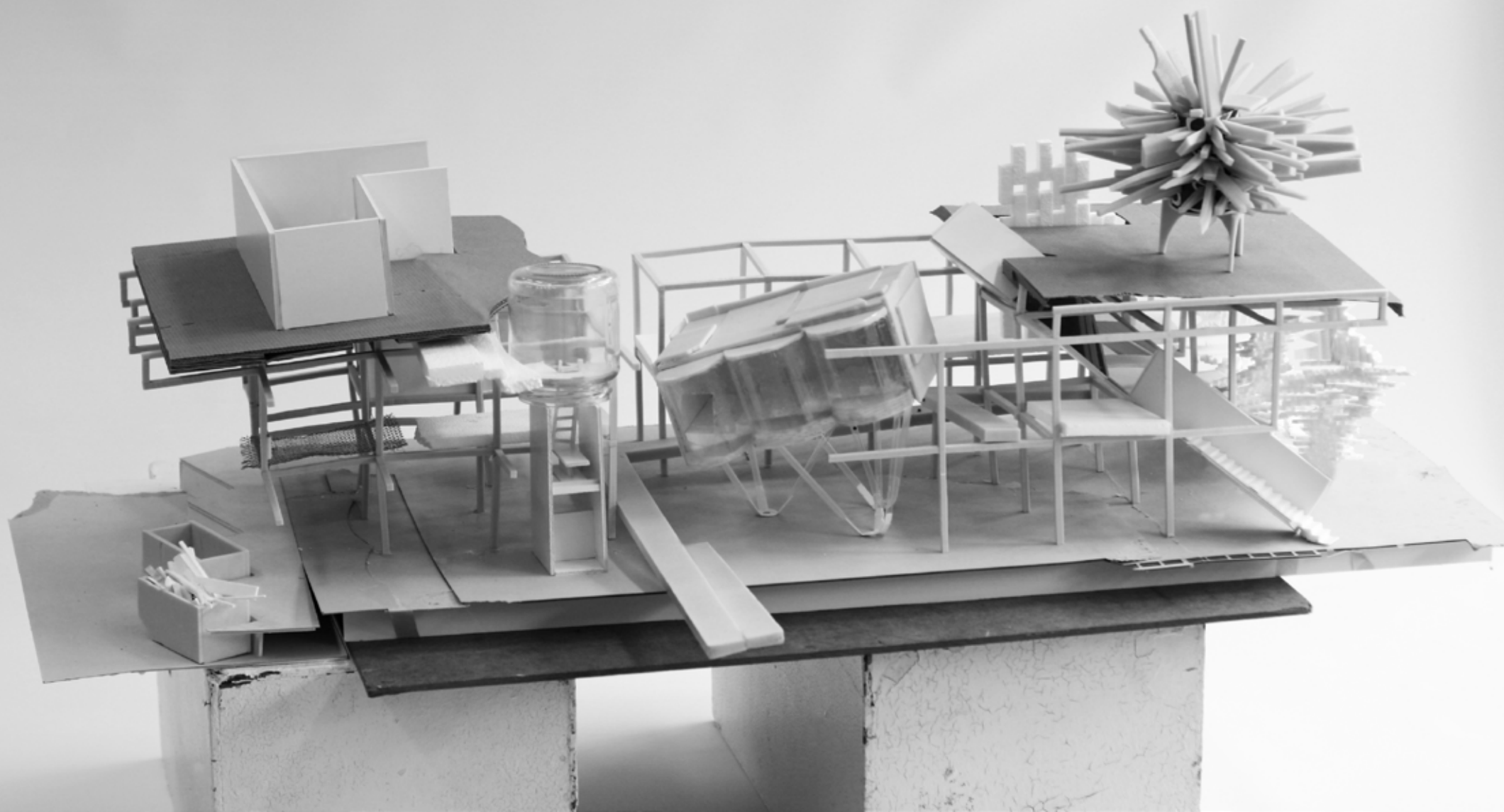
The Next thing that become explored was to find in what ways different volumes can fit in to the construction. That is explored in this model.



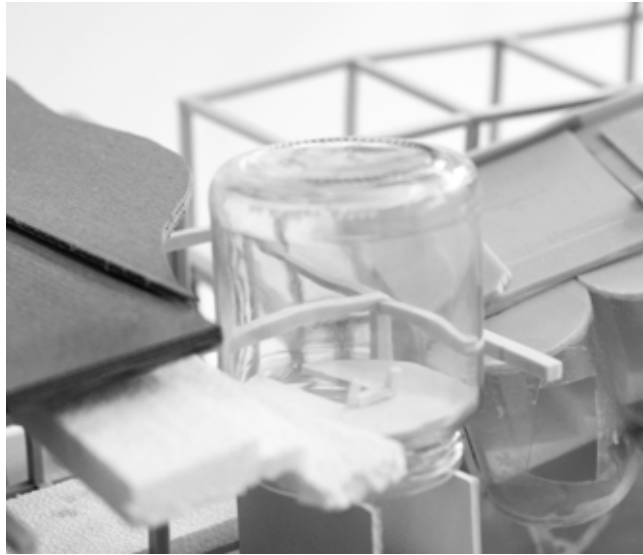


Later on explorations has been done to see how the box frame can become divided, how the ramp can fit in to the construction and how the pavilions can look like.



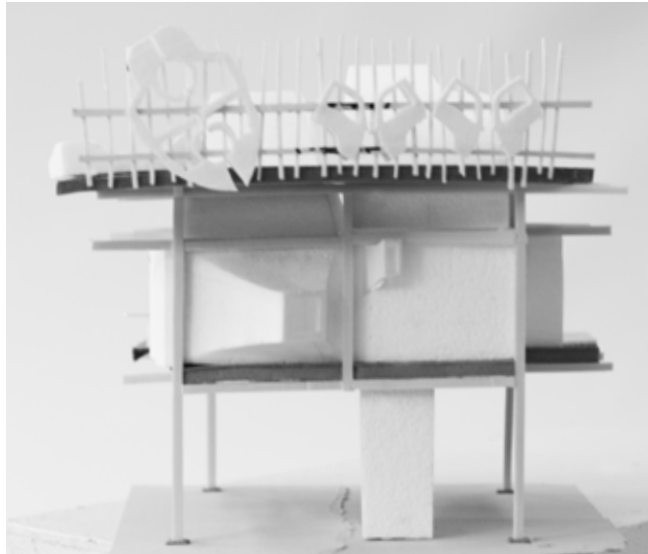


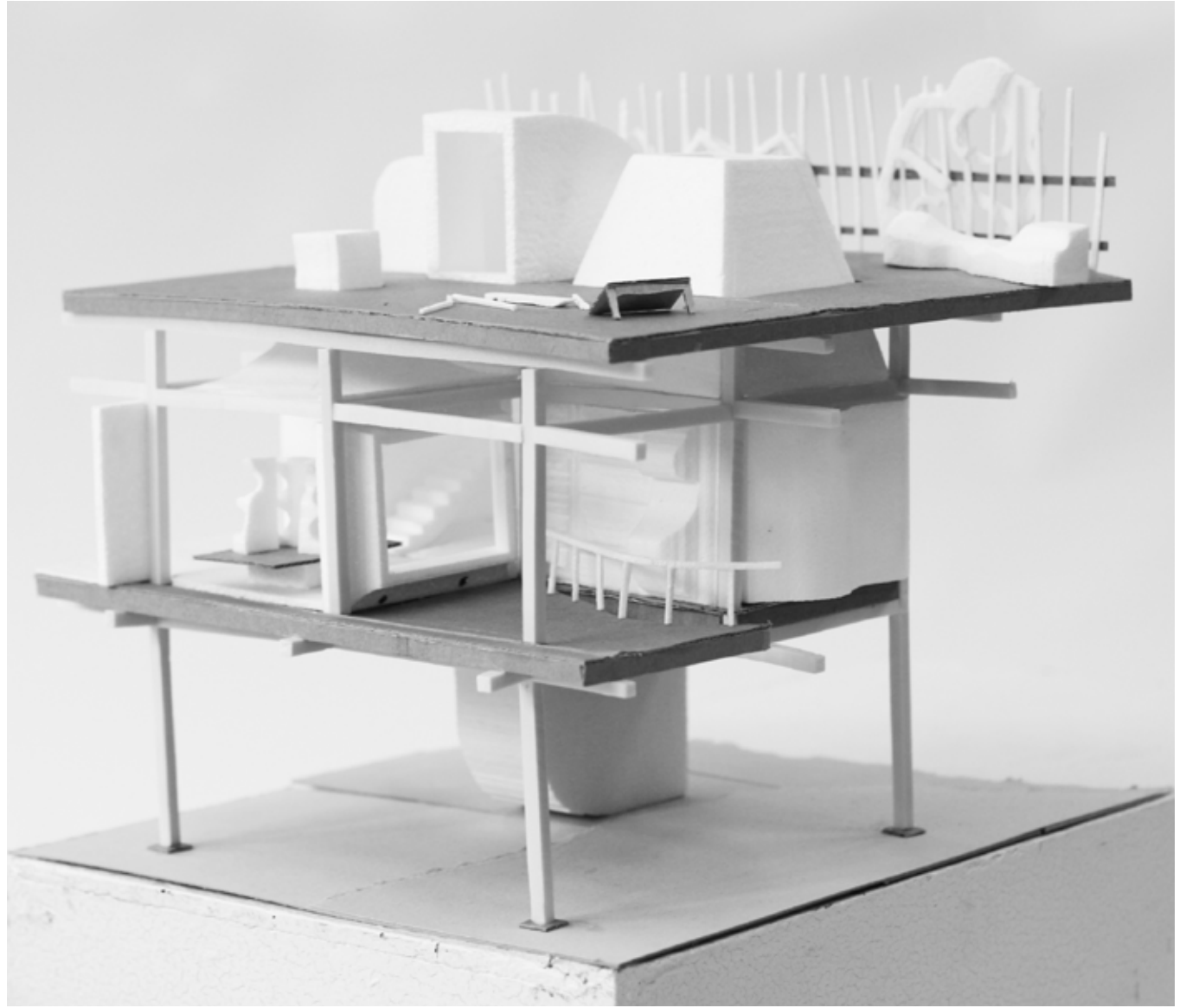




In the end I have chosen to develop the workshop volumes.

The final model shows how the roof windows can look like with different thickness and heights and include a stair as well. Some windows can pop out horizontally as well. The wall has different thickness and is supposed to become part of the material explorations. The volume is sometimes separated from the outdoor concrete floor slab to be able to look downstairs.





# Notes from the examination

# Sources

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<http://www.playgroundprofessionals.com/news/playgrounds/playgrounds-made-junk104>

POULUS JOHANSSON

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TRASH LABS  
environmental sustainability  
Jäsenäs - Renova

John:  
scale and representation,  
glass jar  
How much can people participate  
and motivate the project.

Leo:  
can you take the trash away  
legal issues around recycling  
history of things  
could be sorting

Peter:  
Artistic identity  
Joy of working  
models from trash found in park

John: fun and interesting project  
- how the museum

Will Almqvist - author of objects  
Early trash history - junkyard (curator) machine  
model: jar → ? → ?  
Rural studio - low price inventiveness  
Shantytown - Jäsenäs → scary town  
Leo: a project with a title  
change to recycle

Peter: relate to the  
own relation to the  
trash  
thinking about the possibility of people