Orrsjöpalatset
The Orrsjö Palace

Johan Bjärnström

Handledare/ Peter Lynch, Nina Lundvall,
Supervisor James Payne
Examinator/ Per Franson
Examiner

Examensarbete inom arkitektur, avancerad nivå 30 hp
Degree Project in Architecture, Second Level 30 credits
25 Maj 2018
Introduction

This is my grandfather Hans Björnström and the house in the background is probably the reason I wanted to become an architect. My grandfather worked as a carpenter and built this house together with my father and as a child I was deeply impressed that they could build a house all on their own.

My idea for this last project in school is to draw a house that I in the coming years will build with my own hands, just like they did. I think this will make me grow as an architect and have a big impact on my understanding of architecture.

In these five years in school I have done a large number of projects; city plans, libraries, schools and theaters, but if a friend asked me to help him/her to draw a house I would not know how the construction work, because I never built anything bigger than porches, docks, and skateboard ramps.

So now I want to take this opportunity to really learn all the separate stages of how to construct a house.

I have a plot in Sundsvall where my wife’s family have a summer house with a vacant plot next to it. The site is located 20km south of Sundsvall. The plot is right next to a small lake which has the most magical summer light.

I have always had a fascination of light and have worked a lot with it in my previous projects. Now I want to take this opportunity to really do a thorough research of how light affects the architecture.

My approach has been to make a lot of sketchmodels in which I test different qualities of light and atmospheres.
Thesis / Task

This is a thesis project with the intent of investigating the relation of light and material. I have explored how different qualities of light effect the rooms they illuminate. The way i have investigated this is by visiting and photographing great traditional buildings in the open air museum Skansen in Stockholm. I have selected these specific building because they handle light and materials in a fascinating manner.

Reference buildings
Traditional Swedish houses at Skansen
  -Oktorpsgården
  -Moragården
  -Kyrkhultsstugan
  -Bergsmansgården
  -Skogaholms Herrgård
  -Bollnässtugan

From the reference projects i have incorporated some of the best ideas and atmospheres that i strive for in my summer house.
I have built large scale models and tested them in different materials and directions of light. I have also explored exactly how the house is to be constructed and done large scale detailed construction drawings.

Learning outcomes

I want to deepen my understanding of exactly how this house is going to be constructed and therefore gaining alot of experience of the construction of buildings in general.
This will be a quite small house but as i am going to build it i think it will affect me a lot as an architect and my understanding of the structure.
I want to expand my knowledge of different qualities of light and their relation to different materials.
The last few years i have developed a fascination for light and this is something i want to evolve further.

Purpose

As there is a great housing shortage in Sweden it’s easy to force build a lot of buildings very fast and not thinking of the quality of light and material in the rooms of the new buildings and only thinking of the short term money aspect.
I want to expand my knowledge of how buildings is constructed. By having a greater understanding of this it will make me a better architect and strengthen my role in making constructural decisions.
The critical discussion i want to talk about is how a room is affected by the placement of openings in relation to its direction and how the materials and atmosphere of the room is effected of this. I also want to discuss the general knowledge of how building are made and by having a greater understanding of the construction it will also mean that i can decrease costs in one part of the building and put them on parts that will make for better architecture.

Method

I began by visiting and photographing the selected reference projects and doing measuring of the most interesting parts. Then i investigated the line of the sun according to the season. My approach have been to do visits to the reference projects three times during the thesis, one in the beginning one in the middle and one at the end to investigate the how the light changes over the season.
I have done a lot of visits to different building in the Stockholm area and then choose these 5-6 most interesting ones. After extracting the most interesting references photographed and measure them i did large scale models of the different typologies, then tried them in different directions of light and materials.

Then i derived from this and started to draw the first parts of the summerhouse. Doing large scale test of material and light to explore the qualities of light and different materials of floors, walls and ceiling.
For drawing this i’m going to work a lot in large scale models, highly detailed construction drawings, plans, sections and elevations.
PROCESS
I began with visiting skansen, where I researched their drawing archives. Then I selected the most interesting buildings, in which I investigated their handling of light and photographed.
DRAWINGS
from skansen archives
DRAWINGS
from skansen archives
PROCESS

While doing my visits to skansen i simultaneously began my process of investigating light and atmospheres in sketch models.

Before beginning with the sketch models i decided that i would not think about the whole building but only focus on the one specific room i was investigating, then when i had made all rooms i were to combined them to a whole.
SKETCH MODELLS

Master bedroom

1:40

1:40

1:40

1:40

1:20

1:20

1:20

1:40
SKETCH MODELLS
Master bedroom
SKETCH MODELLS
Entrance and bathroom

Entrance and bathroom model 1
1:40

Entrance and bathroom model 2
1:40

Interior model 1

Interior model 2

Entrance and bathroom model 3
1:40

Entrance and bathroom model 4
1:40

Interior model 3

Interior model 4
PROCESS

Combining the different rooms to a whole.
After finishing the sketch models of the rooms I began combining them to a whole. First in sketching then in a 1:20 model.

SKETCHES OF THE WHOLE

Sketch 1

Sketch 2

Sketch 3

Sketch 4

Sketch 5

Sketch 6
After sketching I picked sketch 5 and decided to make a 1:20 model to test it. I liked the kids room, kitchen, dining area, storage wall and living room but I did not enjoy the master bedroom, bathroom and entrance, the building also became too large, 110 sqm.
I kept the livingroom, kitchen, dining area and the storage wall. To make the building as compact as possible all the storage is in the heartwall and under the beds, the master bedroom have two doors to remove unnecessary corridor space. In the second model i added ceiling windows and openings in the storage wall to let the light through.
The site is located 20km south of Sundsvall at lake Orrsjön. The plot consists of two plots with the lake at the north.
Panels

1. Reference images from Skansen
2. Site information
3. Photo of my Grandfather
4. Drawings from Skansen
5. Model photos
6. Sketches
7. Siteplan 1:200

8. References, Interior elevation
9. Elevations matching drawings 1:50
10. Plan with surroundings 1:20
11. Sections 1:20
12. Long section with surroundings 1:20
13. Interior model photos 1:10
14. New elevations 1:50
PLAN LARGER
original scale 1:20
OLD INTERIORS
Before change
1:10 Modell