

0

Cave - an urban shelter

Intertwining creative expression with nature



CHALMERS
UNIVERSITY OF TECHNOLOGY

Tove Nankler

Matter Space Structure
Examinator: Morten Lund
Tutor: Peter Christensson

ABSTRACT

Intertwining a cave-like structure to its surrounding, based on memory of me in nature close to my home in Gothenburg. I am using a Cave for consciously letting the light in, engaging with the walls and creating a harmonious and beautiful inside. Representing the "inner" world.

Structure is placed at Duvberget close to my home where i live today in Majorna. To be used as an urban shelter, where you can visit together with your kids and experience nature in the city. Project is about grounding in to nature, both as humans and through our buildings. It put us in contact with our roots, leading to architectural values, sustainable and beautiful.

Cave is to be built with cross laminated timber walls, to use on top of

eachother almost as bricks. This for gaining sufficient inner climate, functions in the walls and beautiful light openings playing together with the thick organic walls. Nothing extra then 100% wood is to be used.

As a method i am using creative investigations, where i sketch and take photos - inspired by nature and memory intentions. With sketching paper and layer on layer method.

I have found a creative process to use in every future projects. A rare building technique for housing. That uses both handcrafted and industrial techniques.

KEYWORDS: Grounding, relating, intertwining - nature, essence

TABLE OF CONTENT

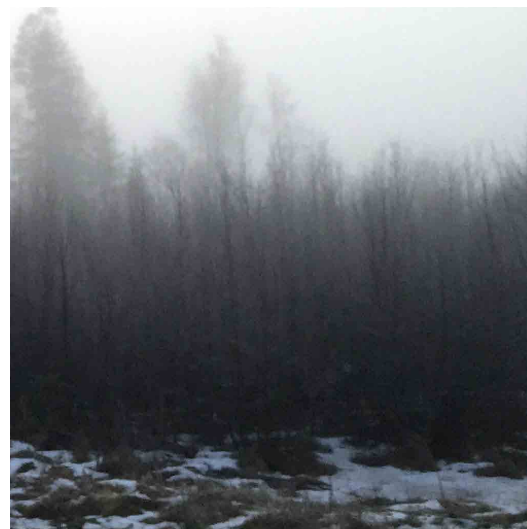
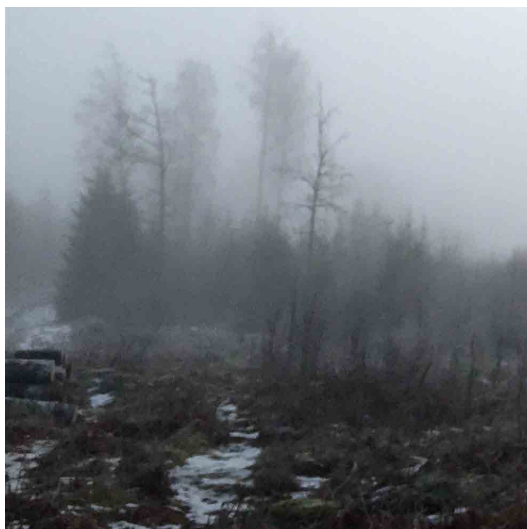
5	Main question and objective	50	Process of Värmland
6	Värmland	82	Duvberget
7	Introduction	84	Wims spatial findings at Duvberget
8	Childhood memory	102	Site at Duvberget
9	Background	106	Light-studies
10	First model of the Cave	120	Merging
11	Why Cave?	123	Site at Duvberget
12	Process of the Cave	124	Quote
14	Cave as house	125	Materiality
18	Case studies	126	Close-ups at Duvberget
19	Värmland		
20	Discourse		
22	Investigating harmony		
24	Conclusion prototypes		
25	Conclusion diagram		
26	Outside - inside		
28	Magnetic		
30	Raking light		
32	Centered		
34	Patterns		
36	Prototypes		
37	Concept model		
38	Cave illustration		
39	Philosophy of Cave		
40	References		
44	Quote		
45	Värmland		

MAIN QUESTION AND OBJECTIVE

What can we gain in terms of
architectural values - psychological
healing properties, economy,
sustainability, creative expression,
when working with spirit of nature, in
aspects of: memory, materiality,
integrating and relating to surrounding
elements

beauty for everyday life for everyone

Instead of adding another layer in
architectural techniques and expression,
i am interested in scaling off. To keep
it clean and connect with the roots of
architecture and humanity.



INTRODUCTION

During childhood i spent the summers in Värmland - at my summerhouse. It is located nearby a lake, and surrounded by deep forest. Me and my brother spent almost all the time outside - swimming and playing in the forest.

The closest we came to nature would be when we went out hiking for some days. Only us, the canoes, a trianga kitchen and tents. Remember it felt magic and free - to deeply understand our connection to nature and that it has everything we need.

Therefore an **"urban shelter"**, a space in-between nature. A building with purpose to make the link between nature and humans. It will be placed at Duvberget, for shining light on importance of nature in the city, for everyday luxury for everyone.

*I put my hands and feet on the naked
mountain, experiencing the lukewarm
rock..earth, stones and dry yellow
grassblades¹*

¹ Childhood memory - Tove Nankler

Background

Returning to the Cave

Cave is made out of a childhood memory - based in the mountains where i grew up in gothenburg. It symbolizes the need for a space of complete harmony and stillness, a place where you can empty yourself and refill again. Cave has transformed from being a one person home to being a small family home. I am **returning** to the Cave to be placed at Duvberget in Majorna to be used as an urban shelter. To visit together with your kids or to have a nature experience in the city.

Cave as an urban shelter will get inspiration from forest at my summerhouse in Värmland, which is a place I have **returned** to since childhood. It is located in the deep forest, nearby a lake and with its biodiversity almost intact.

That is why i have chosen this place, to connect to the roots of where we come from - as humans in general (nature), but also for me in personal. Because this is the only place i have, and will keep **returning** to.

Returning is a necessary skill to use when working in a creative process. Being gentle about changing and reconstructing our own ideas, but also to understand life in a broader sense. Life is not always straight forward, with a start and an end. Life happens "on the road", with lots of circular movements and **returning** places. But never with the same experience as before. Always with a new perspective.

Through **returning** to the roots of nature and architecture, i will find out what is necessary to keep and what we

can do without.

When placed and integrated in its context at Duvberget, I am somehow **returning** to the childhood memory of me climbing in the rock, nearby my home in Gothenburg. This time with my child, for creating new childhood memories.

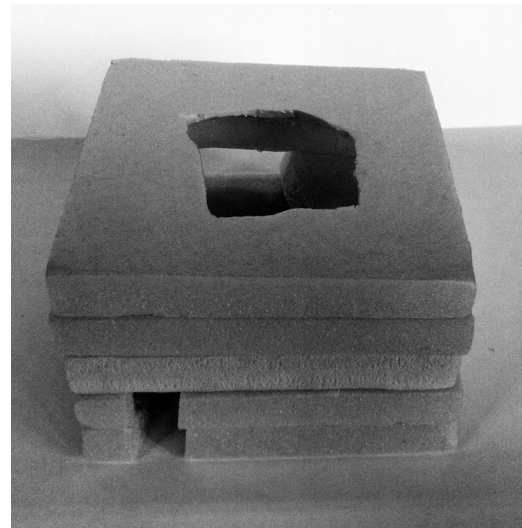
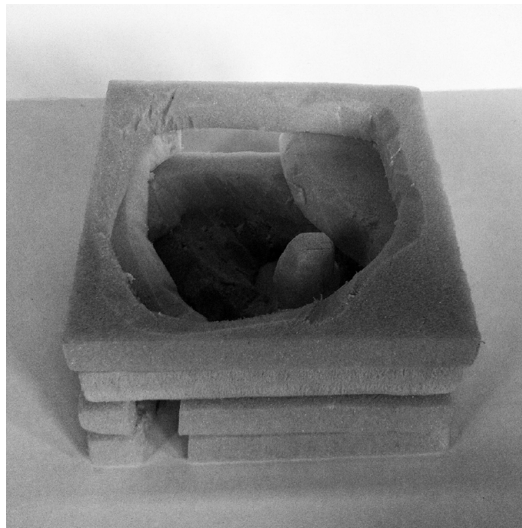
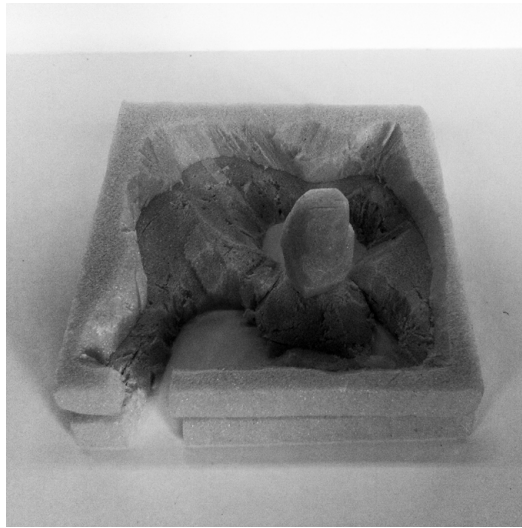
Plato's ideas or the so-called Platonic eidos were pure mental forms that were imprinted in the soul before it was born into the world.¹

Relating to Platos Eidos, i am manifesting forms out of mental ideas, represented in this physical world. To use as a fundament and discussion for shared projection.

¹ Soccio, Douglas J. (2009). Archetypes of Wisdom: An Introduction to Philosophy. p. 128.

First model of the Cave

With intention of childhood memory in mind



WHY CAVE?

A cave is often created through forces of nature, where opening is smaller than it is deep. They have served as homes for humans since beginning. Inside can beautiful creations arise, made through chemical reactions and weathering.¹

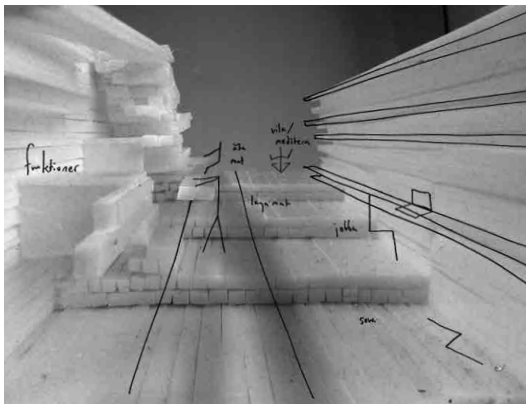
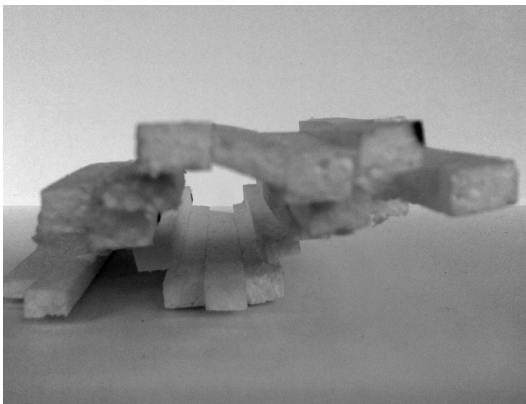
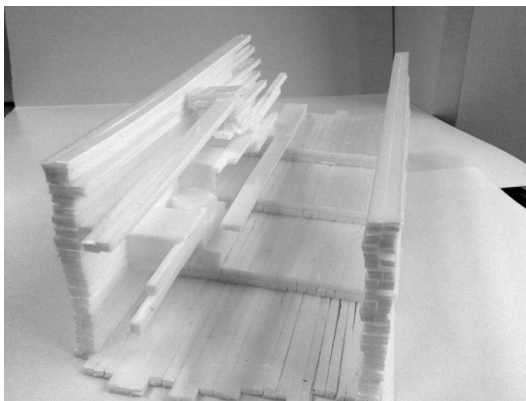
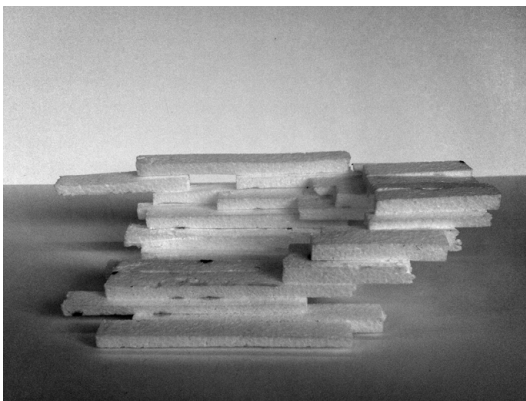
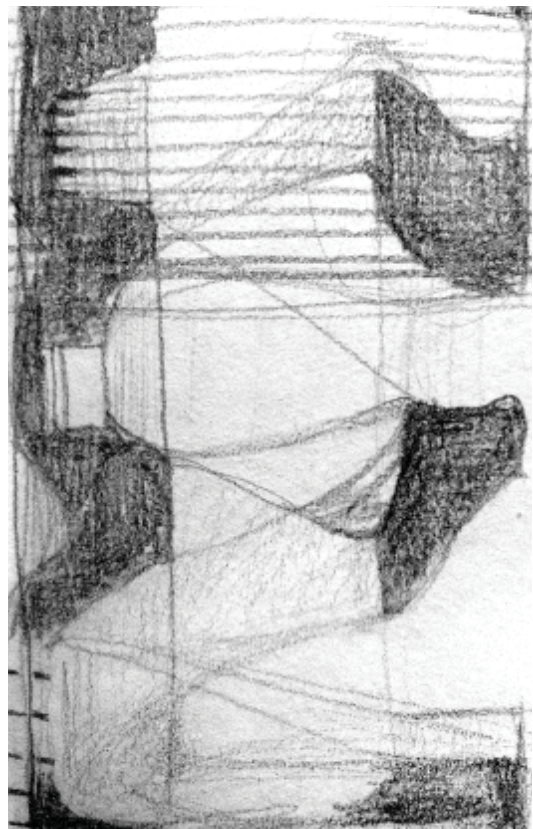
I see Cave as a representation of the "inner world". With a background of visiting places nearby my home in childhood. Always on my own, always seeking out a mountain - surrounded by nature and stillness. I sat there until I felt I was "back again", when I had emptied myself and refilled again.

Therefore cave as structure is a solid space, where you can bodily move and engage with the walls. Not exploited to the surrounding, but consciously letting the light and surrounding engage with and creating the inside.

1 Spirit Cave (2019) Nationalencyklopedin.

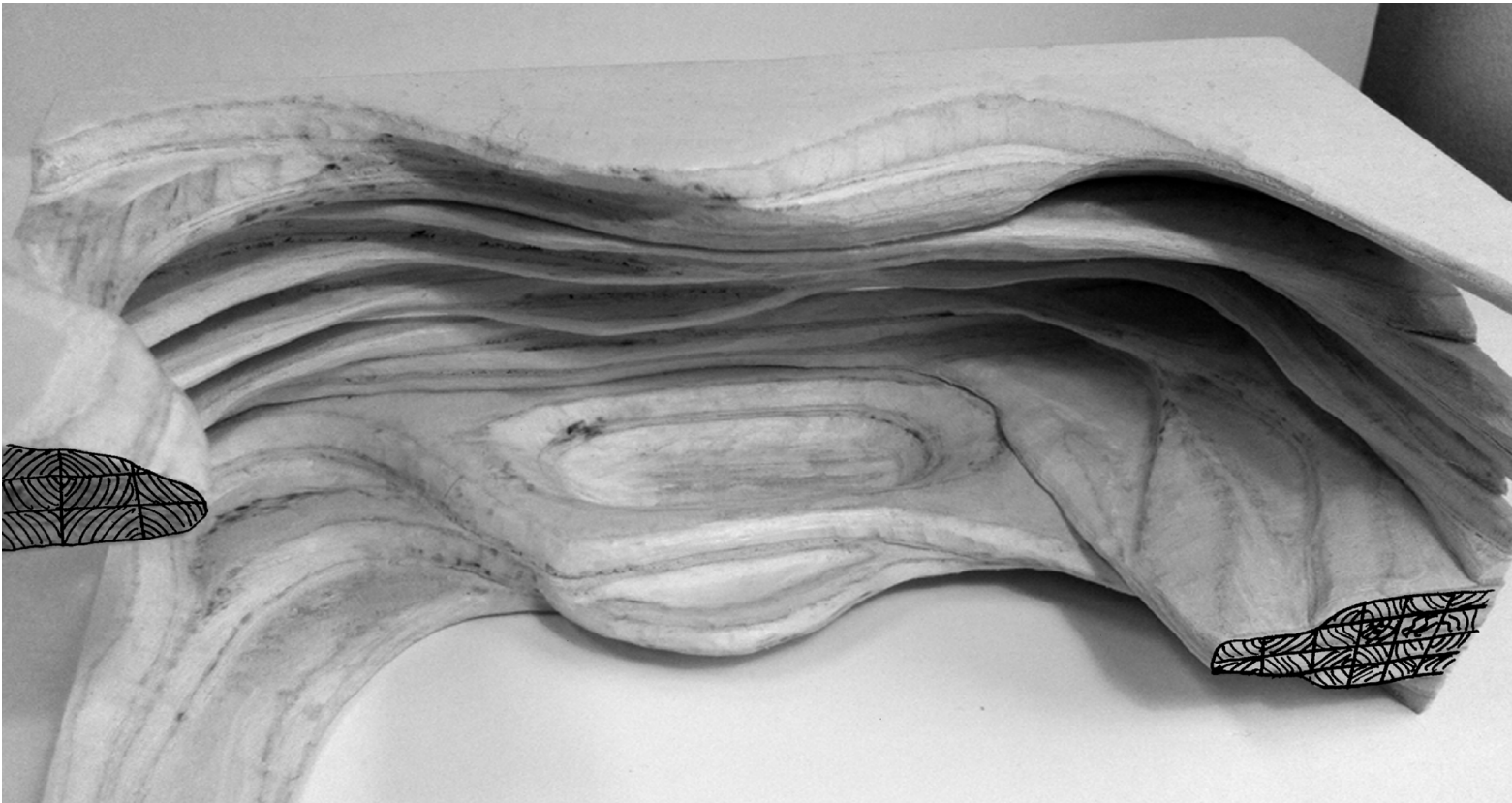
Process of the cave

Models and sketches made during process, where selected the first model and sketch to move on with



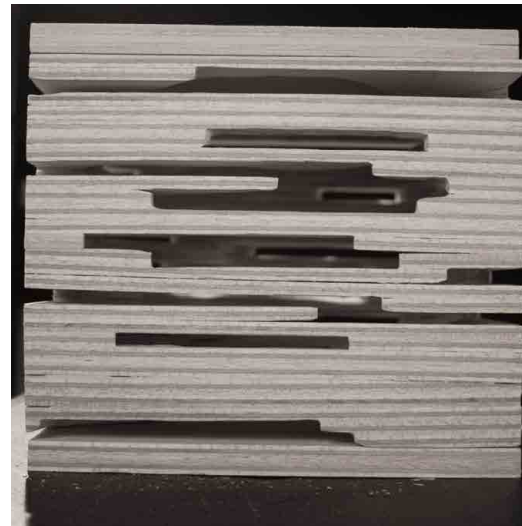
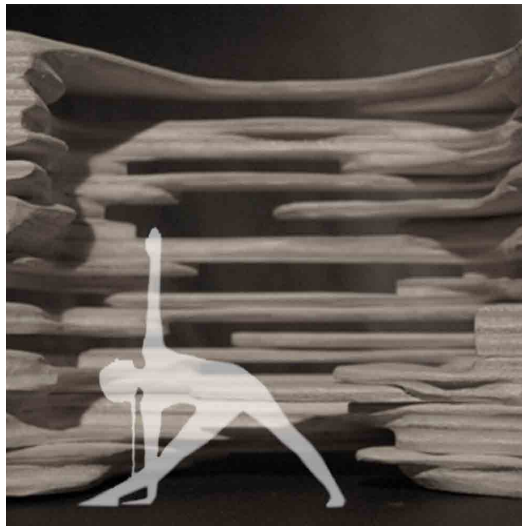
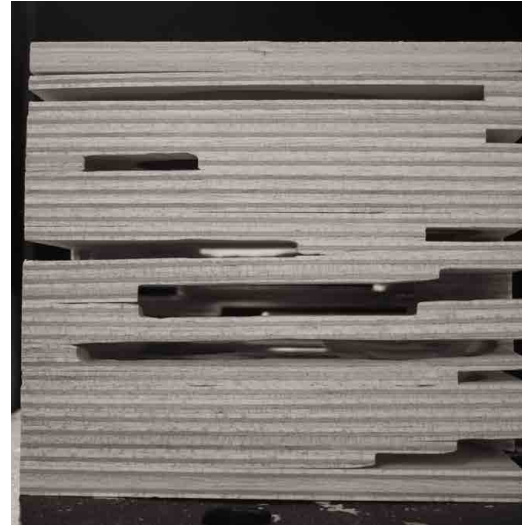
Process of the cave

Developement of the first model, made through cnc-cut and carving
for smooth surface - gluing them together



Cave

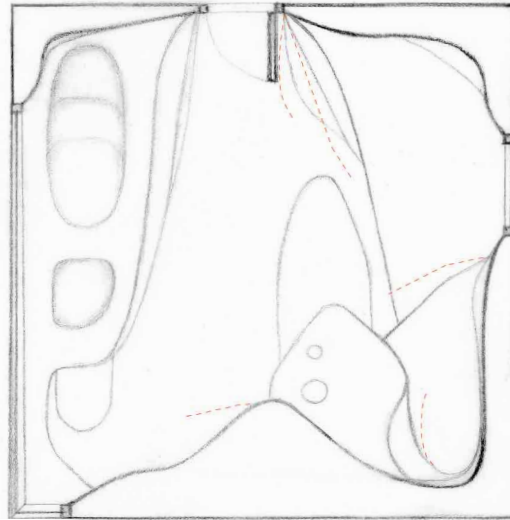
One person student house, 9m2



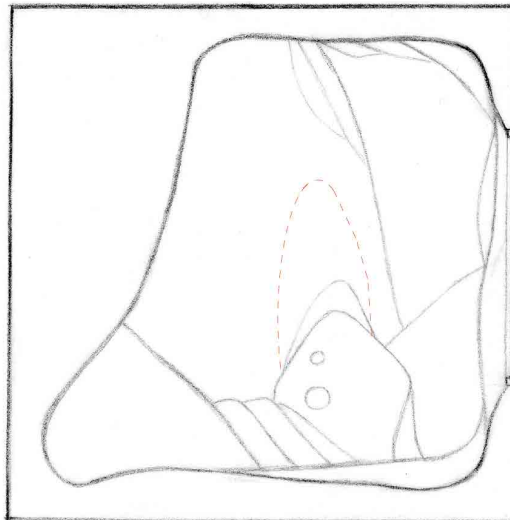
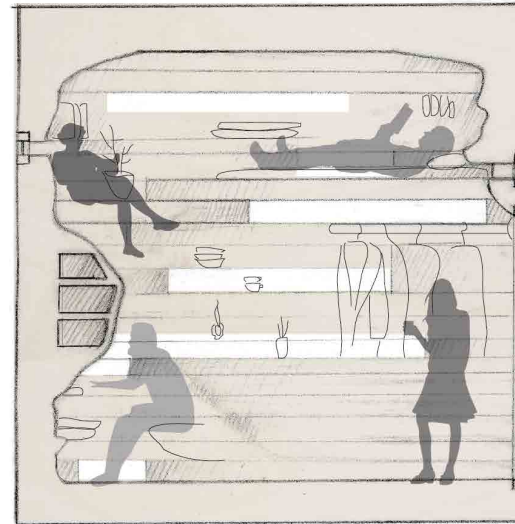
Cave

One person student house, 9m2

Plan 1



Section B



Plan 2

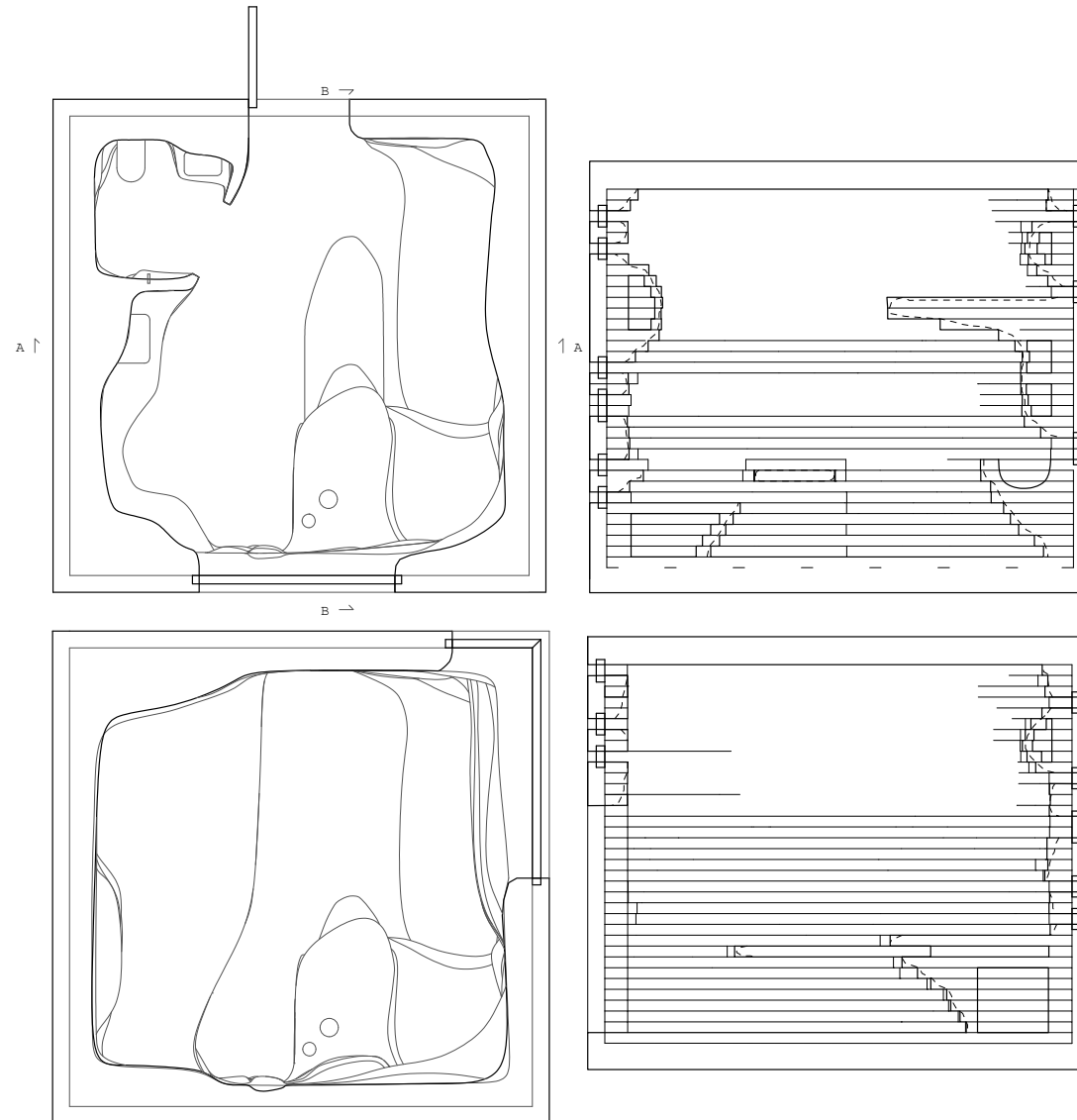


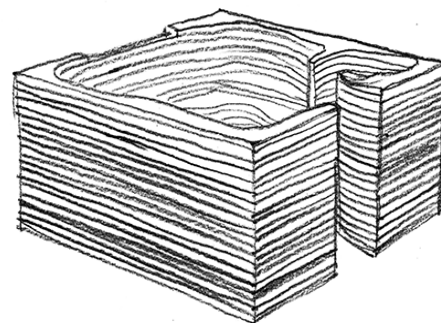
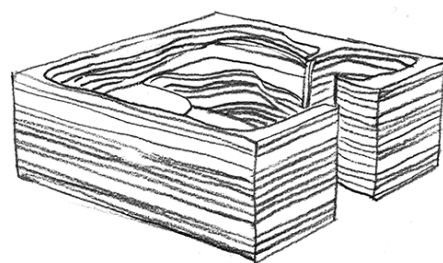
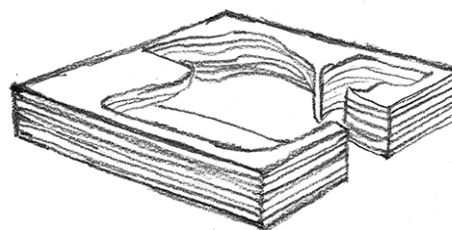
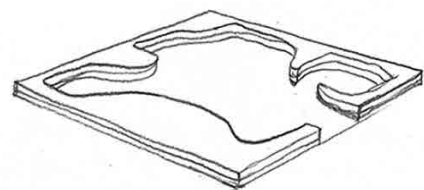
6

Section A

Cave

Small family (attefalls) house, 25m2





Case studies

Building philosophies

N-HOUSE



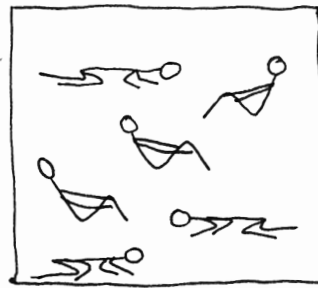
9

LE CABANON

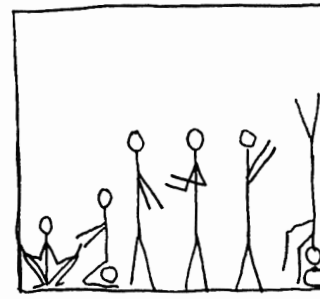
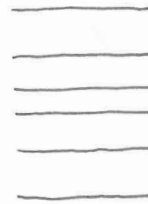


10

PROTOTYPES



Functions in varied heights



Tailor-made functions

Case studies

Building technology

REINDEER PAVVILION



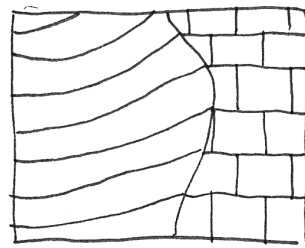
11

TERMITE PAVILLION

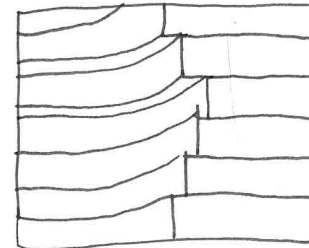


12

PROTOTYPES



Digitally controlled 3d
milling on a core of
wooden timber



Prefabricated cnc-cut
on cross laminated
timber



DISCOURSE

It is my firm belief that humans need connection to nature to stay **grounded** and **harmonious**. I don't believe that we have to live and build in nature, i do believe that humans and cities is a living organism. But as Alvar Aalto propose it has to do with an understanding about **humans relationship to nature**¹. And i would like to translate it to an understanding of our **cultural roots**, to understand where we come from.

I find interest in returning to the Cave, to keep it clean and to understand the essence of where it started. But also to discover where the architecture creates a link between human and nature. Through studies of Alvar Aaltos interest in nature and sketches that reaches an understanding of grounding buildings to

its surrounding. Le Corbusiers way of intertwining creative expression with nature, through industry and economy. And my own creative process where i sketch, take photos, build models and experience surrounding. I am through mental and bodily movement - relating, manifesting and grounding building in to my system. To use as a fundament and a way of linking architecture to human and nature.

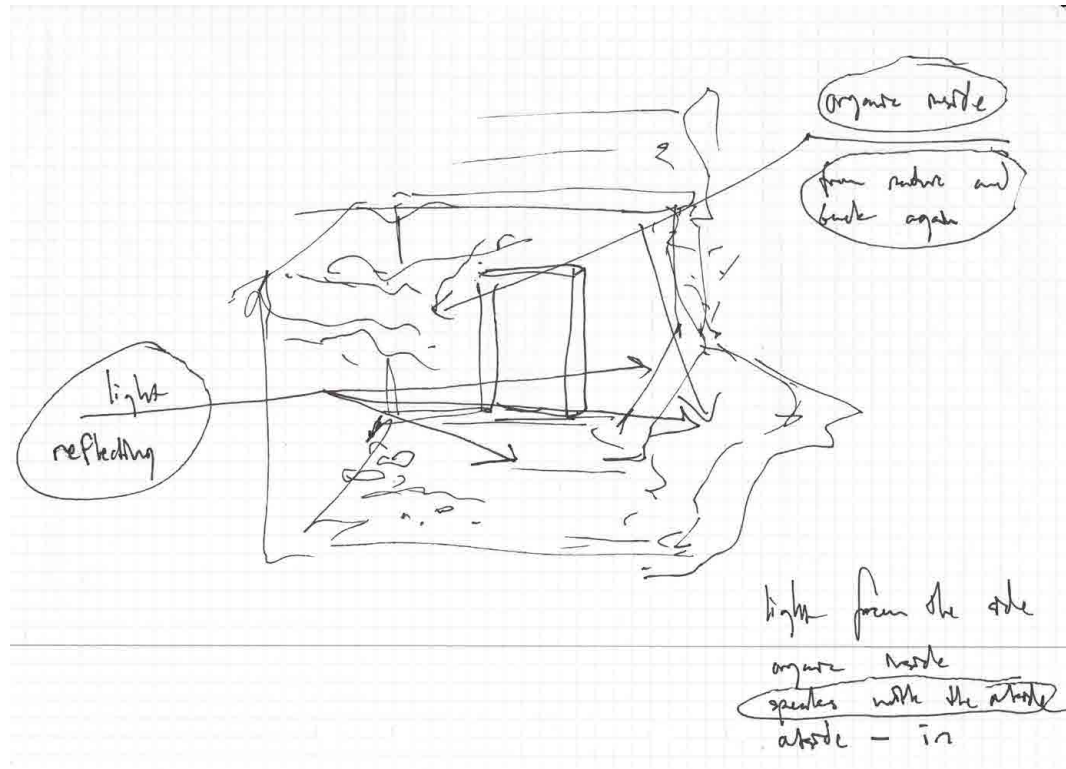
The Primitive hut is a **conceptual hut**, is an abstract concept of a place that is created through mans response to the natural environment, where **architecture acts as the mediator between man and nature**. The Primitive hut concept explores how architecture came to be, and is a way of explaining the fundamental origins of architecture².

¹ Menin, S and Samuel, F (2003). Nature and Space: Aalto and Corbusier. p. 76

² Laugier, M. A. (1755). An Essay on Architecture.

Investigating harmony

Through studies of nature, paintings and architecture - in a search for creating a meditative space



OUTSIDE - INSIDE

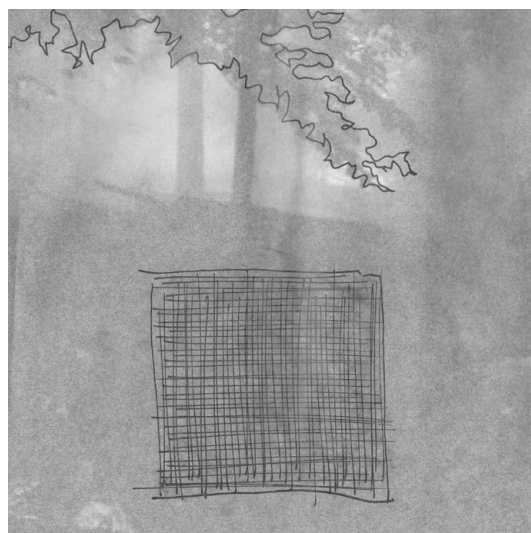
Nature on the inside, what is inside and what is outside? How much can nature interact with a building?

Curved irregular forms, living organic material on the inside. Stones and raw materiality with structure. Light from the side and light reflections.

14

Investigating harmony

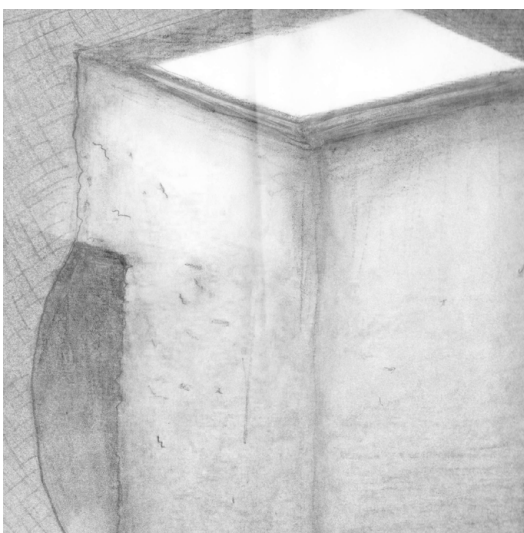
Through studies of nature, paintings and architecture - in a search for creating a meditative space



15

MAGNETIC

How does building interact with surrounding? Contrasting in its forms but reflecting in materiality, structure and density



16

RAKING LIGHT

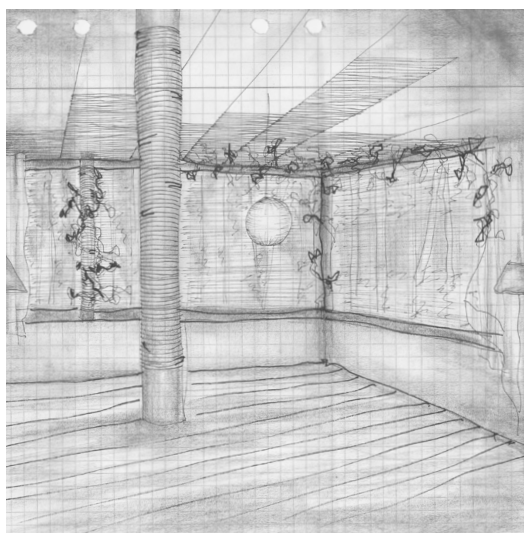
Light from an indirect source creates shadows defining the structure of the material



17

CENTERED¹

A central core surrounded by materiality in different shapes and volumes, reflecting light on a variety of intensity during the day



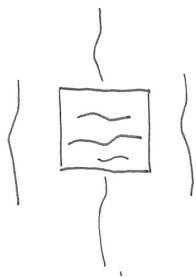
18

PATTERNS¹

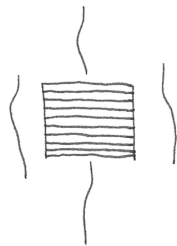
Where nature is reflected on the inside in an architectural creation. Through variated patterns and treatments

Conclusion prototypes

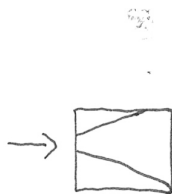
A conclusion diagram of the five important directions for further investigations



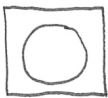
OUTSIDE - INSIDE
Where nature and architecture meet



MAGNETIC
Contrasting surrounding



TRAILER LIGHT
Shaping with shadows



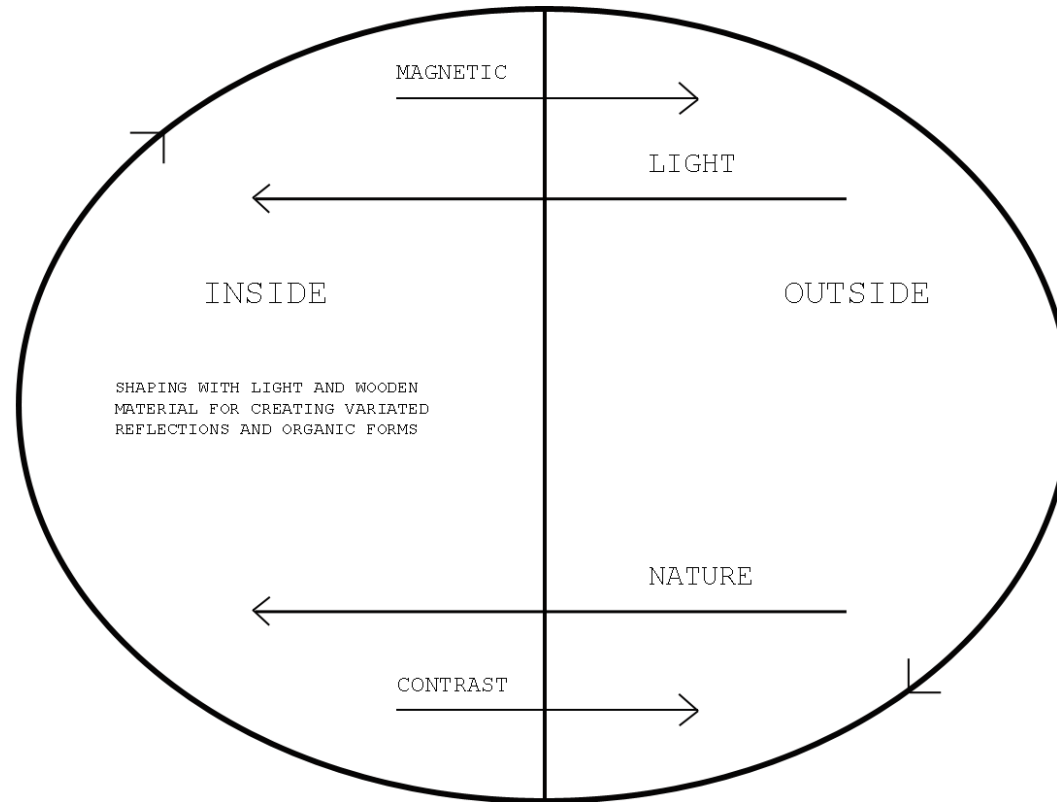
CENTERED
Core surrounded by matter



VARIATION
Patterns/treatment reflecting nature

Conclusion diagram

Circle represents orbit, that what comes from nature goes back to nature



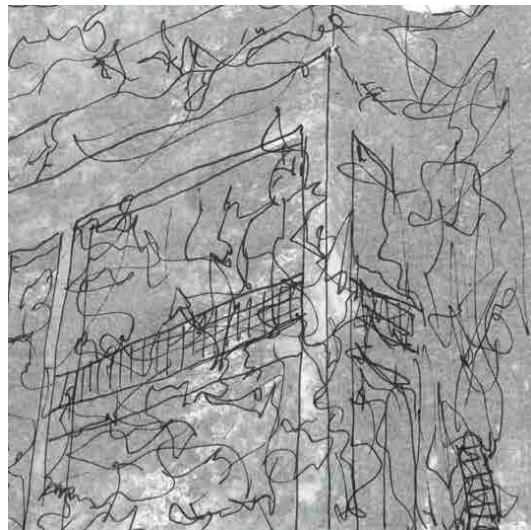
20

Inside is reflecting outside/surrounding - through shaping with light, form and materiality. Outside of building contrast and reflect surrounding through form and dense pattern - creating a magnetic approach

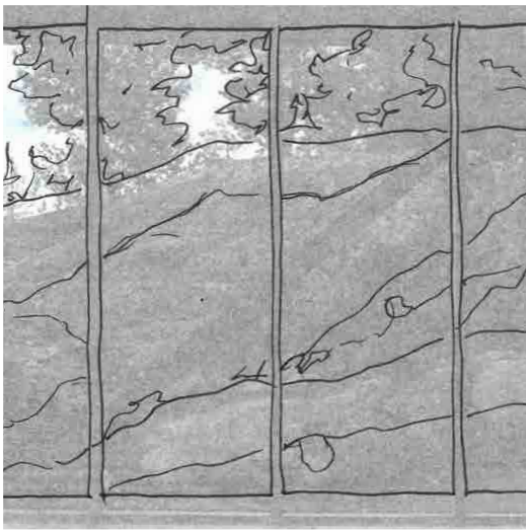
Outside - inside

Where nature and architecture meet

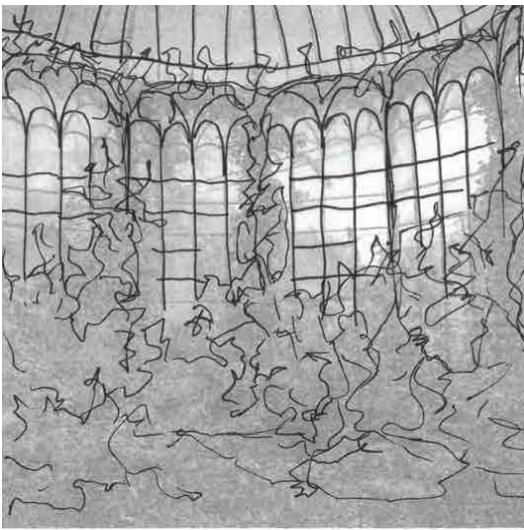
Investigation through fotografies and sketchingpaper



The wilderness and uncontrollable of nature interacts with industrial structure - on the outside



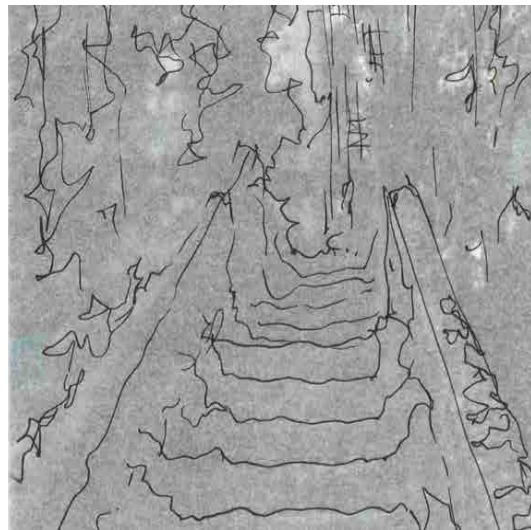
Organic forms of nature framed by controlled industrial structure



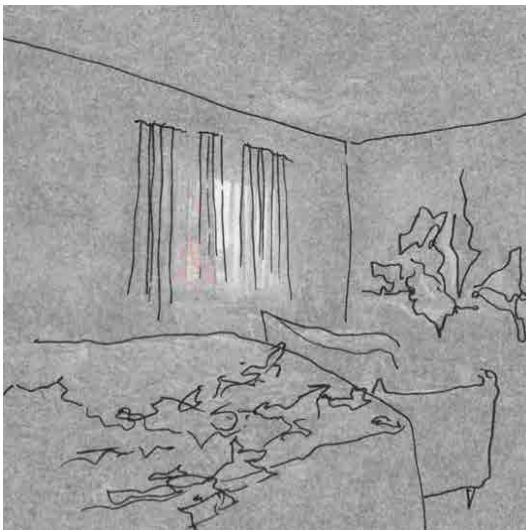
Organic uncontrollable form interacting with industrial organic form - on the inside



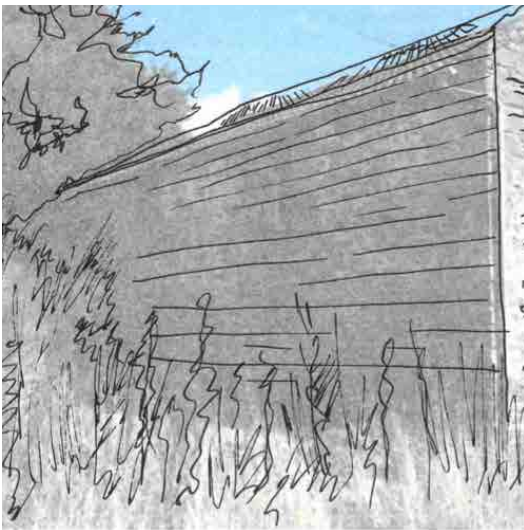
Meeting between outside and inside through transparency and opening



Where industrial production interacts with organic living nature - outside



Organic living nature interacts with industrial structure - on the inside



Building exterior interacts with natural surrounding - both contrasting and grounded

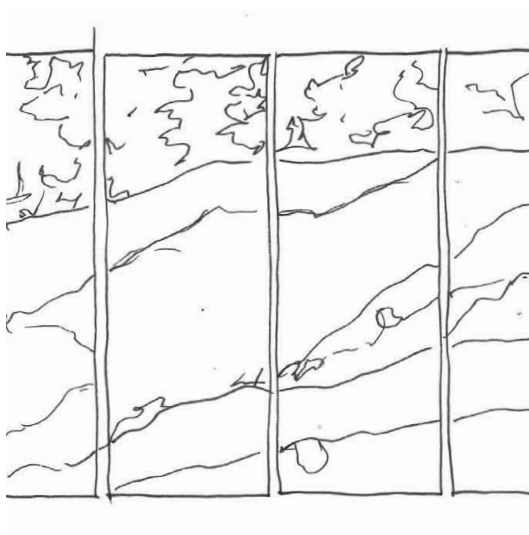


Exterior industrial construction interacts and contrast organic natural elements

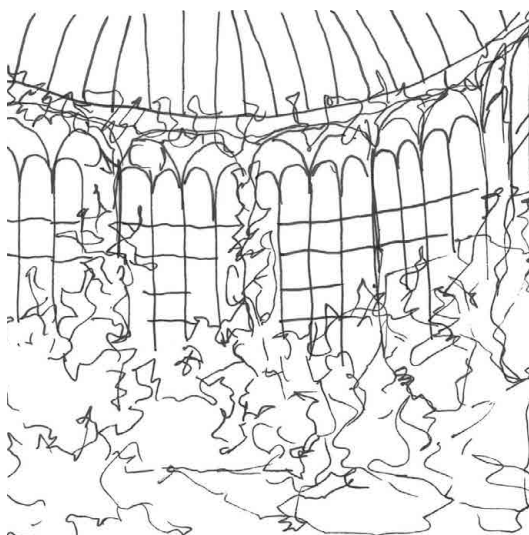
Where nature and architecture meet



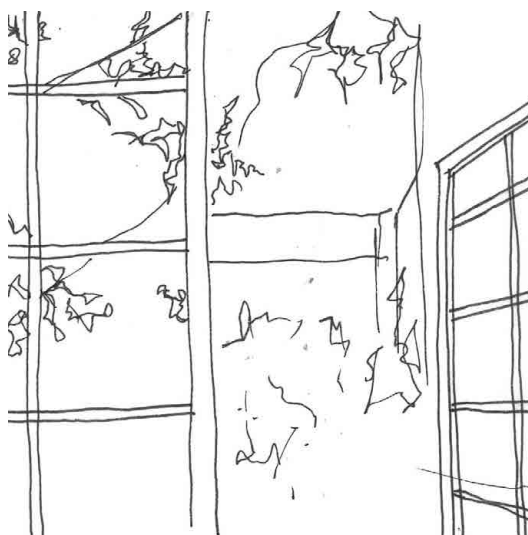
Organic - industrial, outside



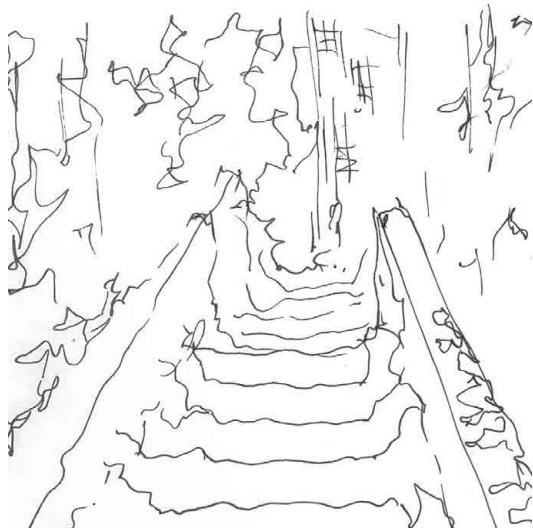
Framed organic by industrial - inside



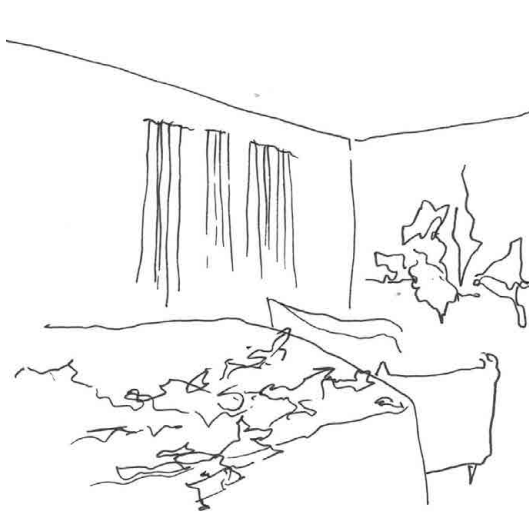
Organic nature interacts with organic industrial - inside



Industrial inside interacts with organic outside



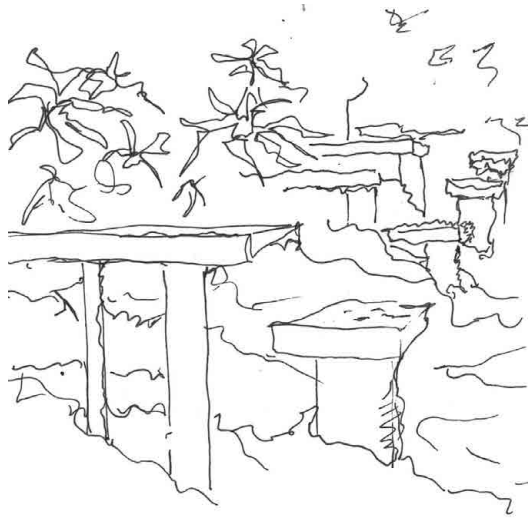
Organic industrial - outside



Organic industrial - inside



outside interacts with outside

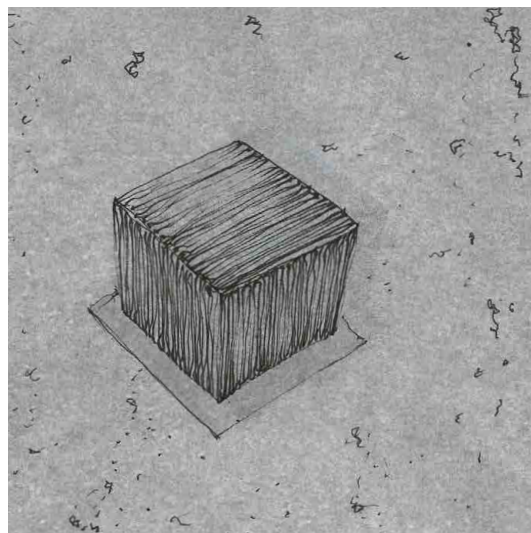


Organic - industrial, outside

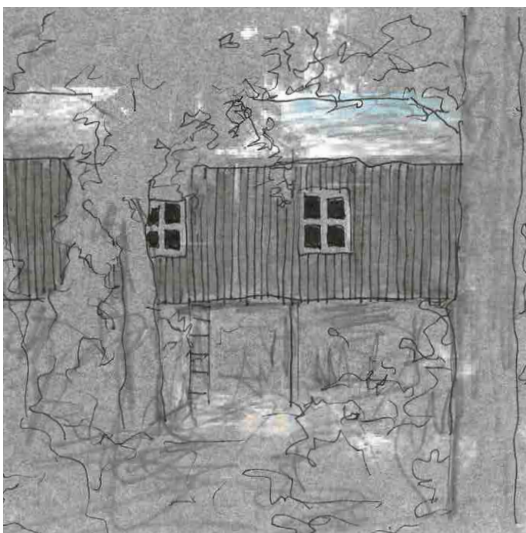
Magnetic

Density and contrasting surrounding

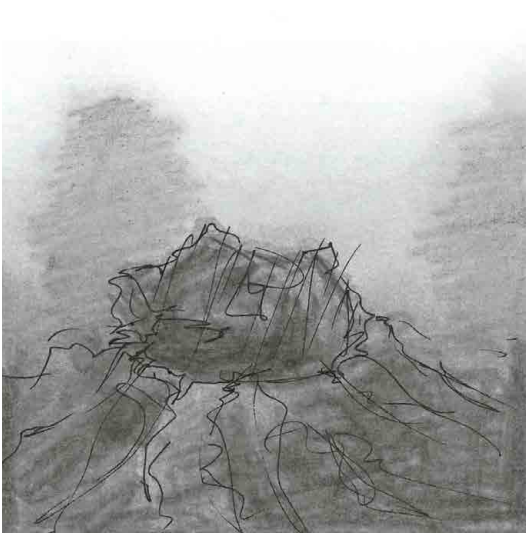
Investigating density of design and how it interacts with surrounding for creating a magnetic experience



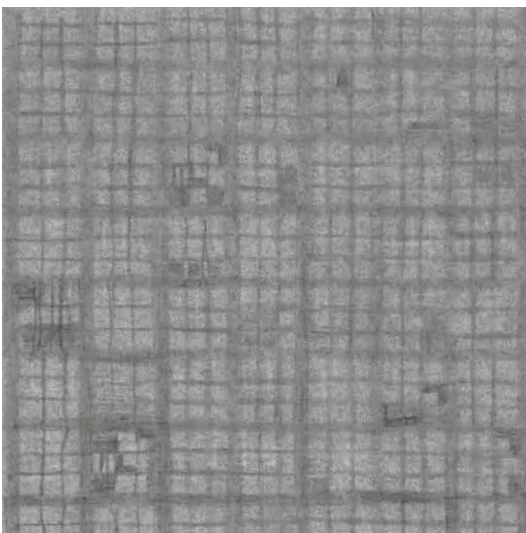
Dense in materiality and mass, grounded and contrasting surrounding - also reflecting in minimalism



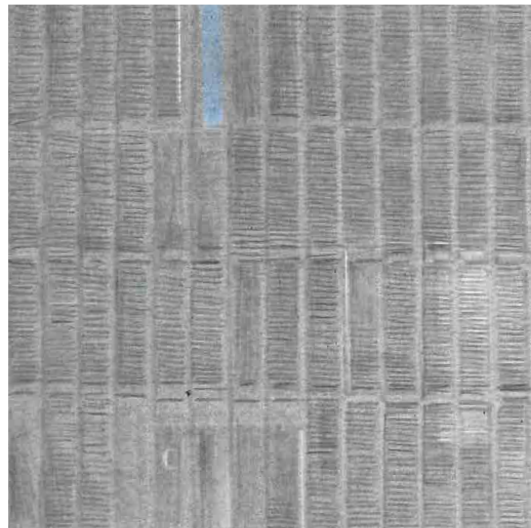
Magnetic in openings and reflection, small but dense, creating curiosity and mysticism



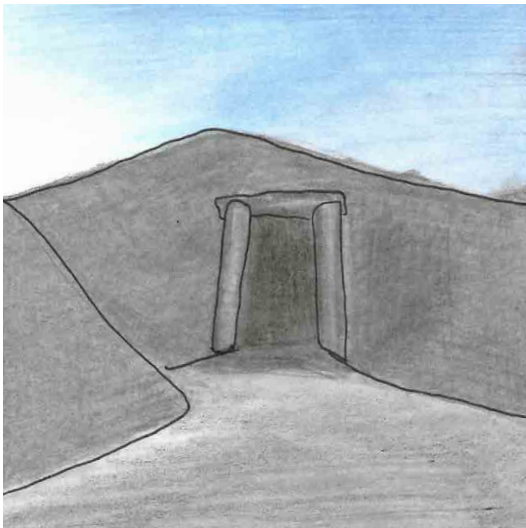
Magnetic in opening creating a mysticism and density in shadows. Relating to surrounding in form



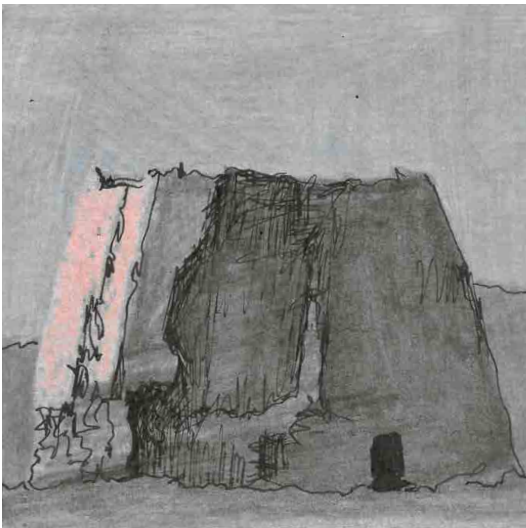
Irregular and variated patterns, dense in scale creating a magnetic outside



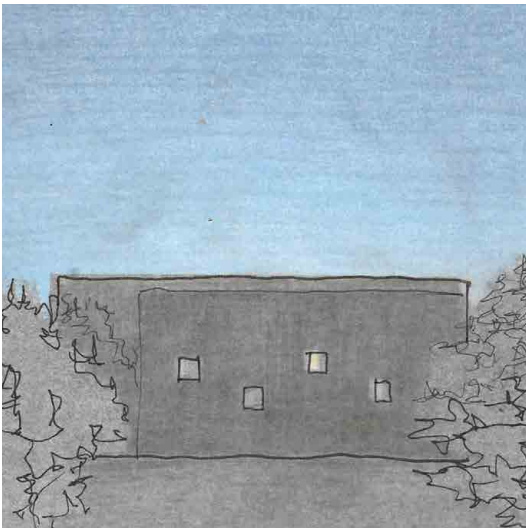
Irregular and variated patterns, dense in scale creating a magnetic outside



Opening with shadows and no transparency creating mysticism and magnetism and curiosity

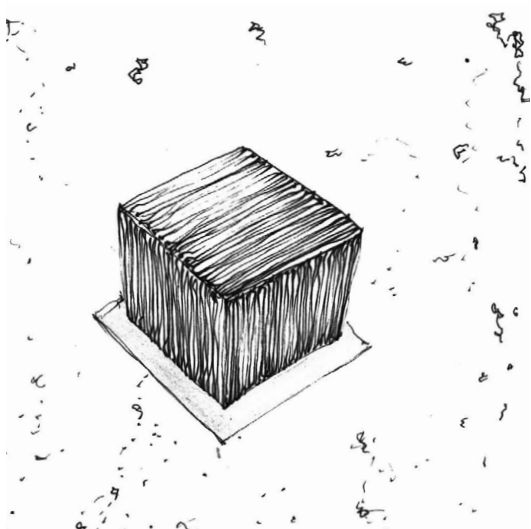


Opening with shadows and a dense structure with form reflecting surrounding



Forms contrasting surrounding, transparent facade with light openings but magnetic in contrast and density

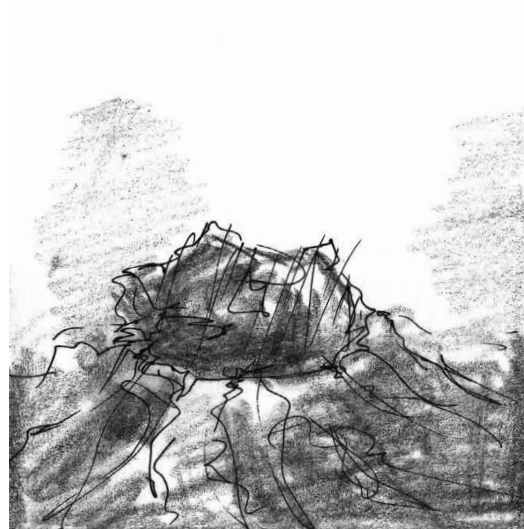
Density and contrasting surrounding



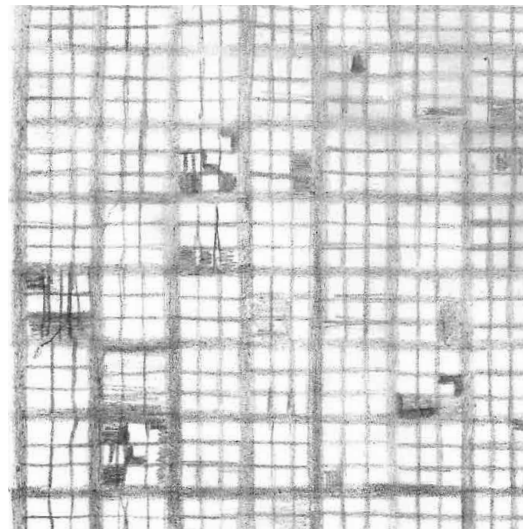
Density and contrasting surrounding



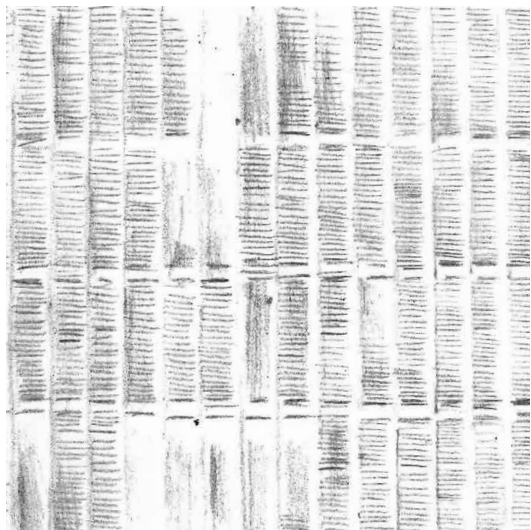
Dense but not grounded



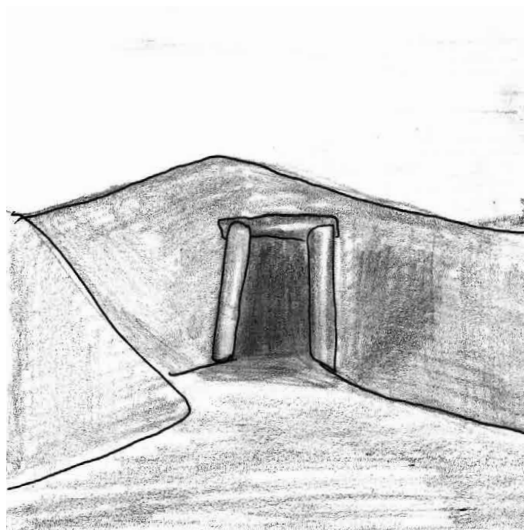
Magnetic and relating to surrounding



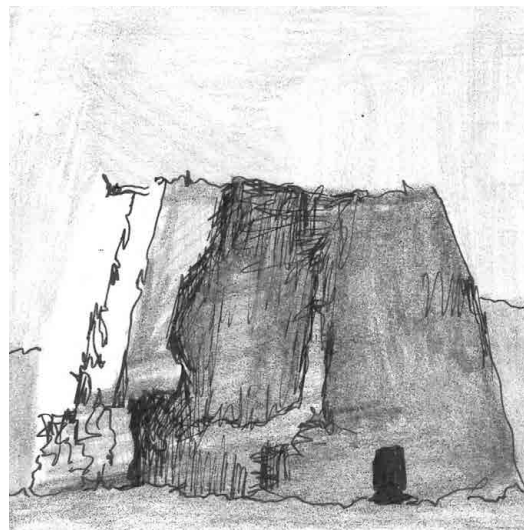
Pattern with irregular scale creating magnetism



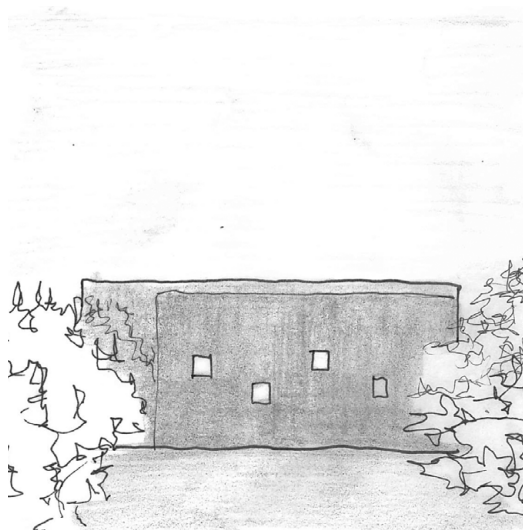
Pattern with smaller scale in pattern creating density and magnetism



Dark and dense opening creating contrast and magnetism to organic surrounding



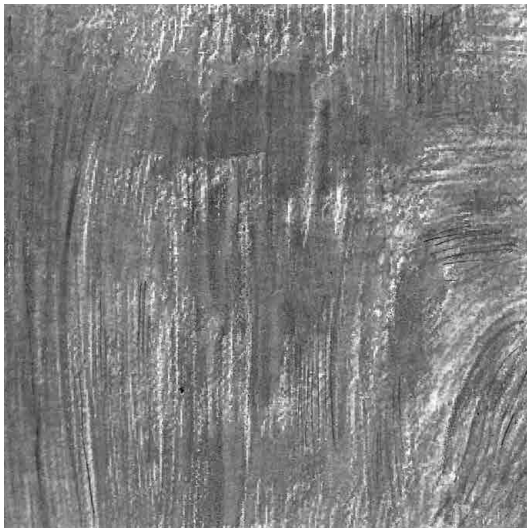
Dense organic structure relating to surrounding with magnetic opening



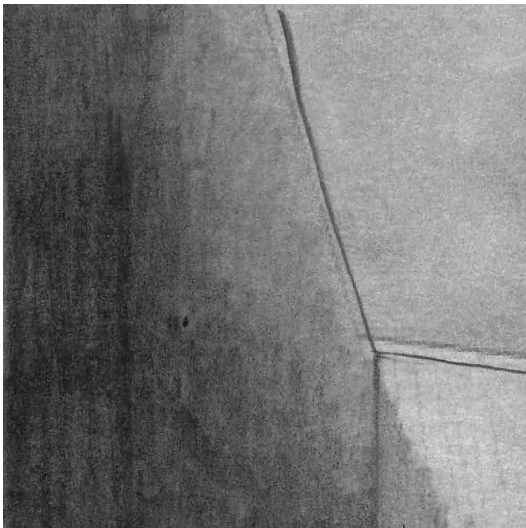
Transparent facade creating mysticism and contrasting surrounding

Raking light

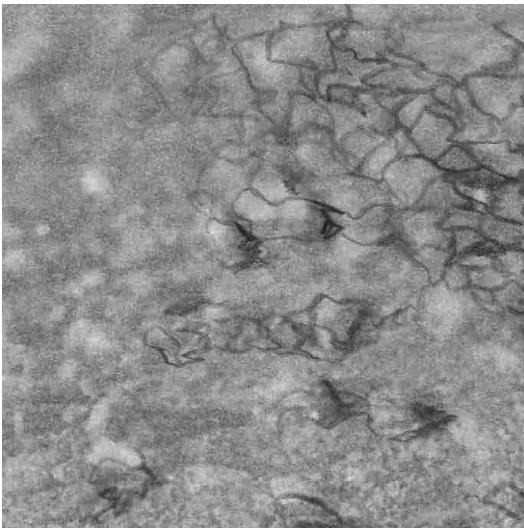
Shaping with shadows



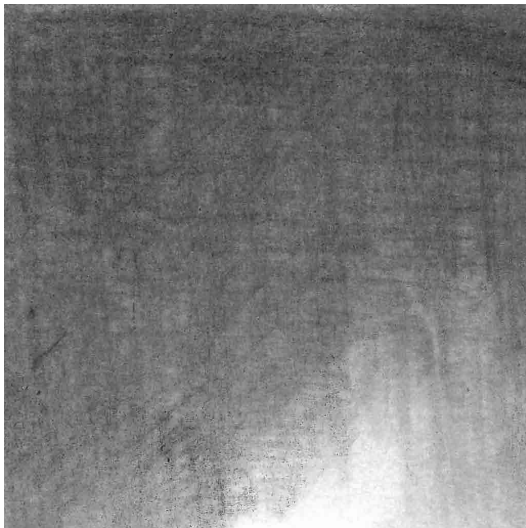
Raw dense surface creating structured lines in varied direction



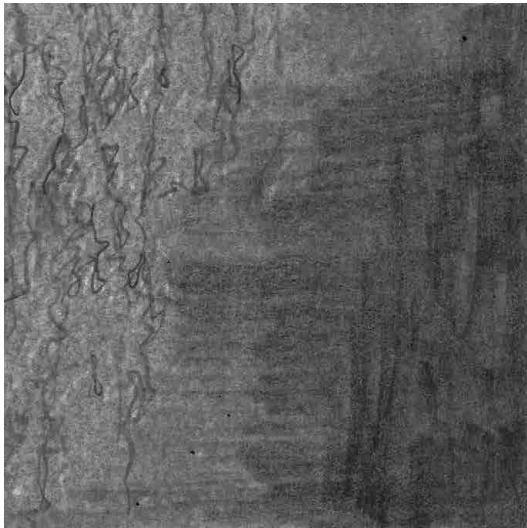
Smooth surface with light from above, creating a degradation in shadows



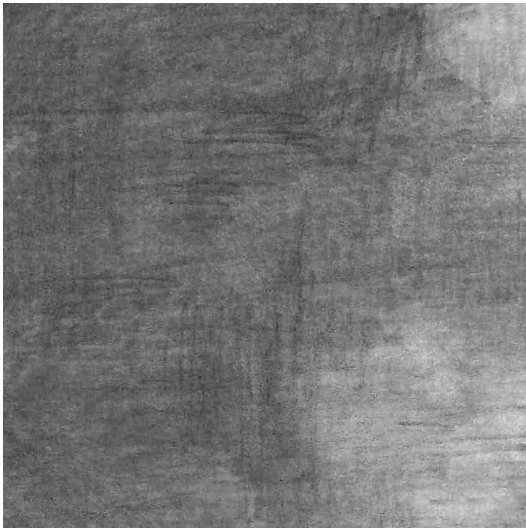
Rough organic surface creating irregular patterns and shadows



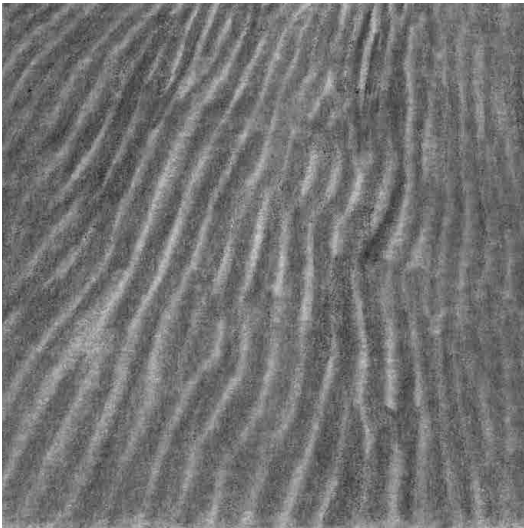
Smoke meeting sky, creating a degradation in light and dark



Structured surface meeting light from the side creating both pattern and degradation in shadows



Cloud meeting sky, creating a degradation in shadows from left to right



Light from the side on structured surface creating regular organic pattern

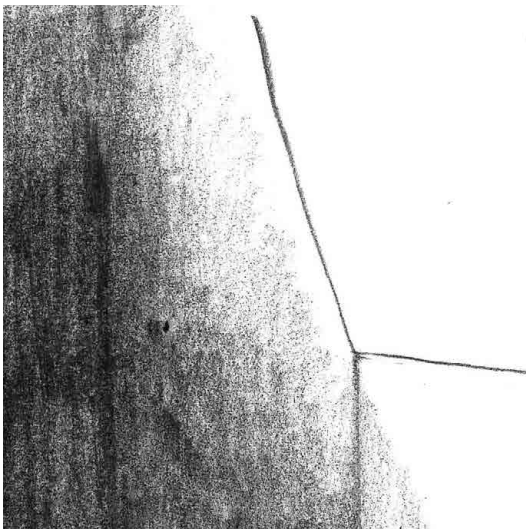


Light from the side on surface with smooth difference in materiality and contrast in shapes and colours

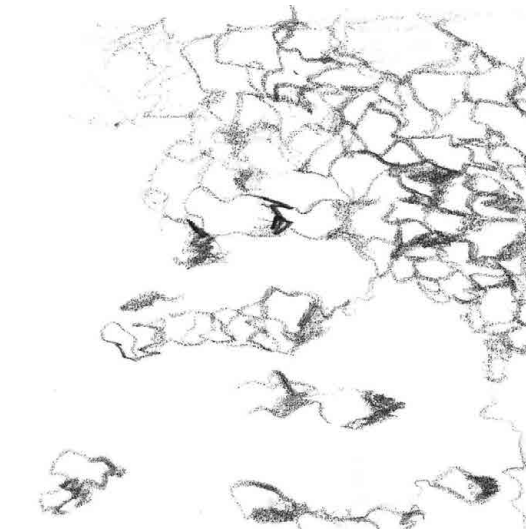
Shaping with shadows
What to take with to next investigation



Organic lines in irregular directions



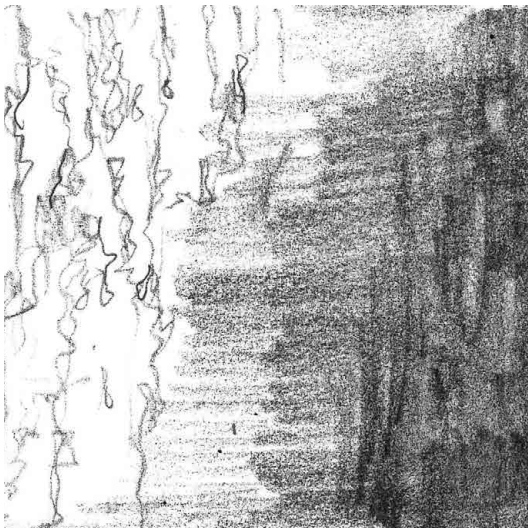
Shadow degradation



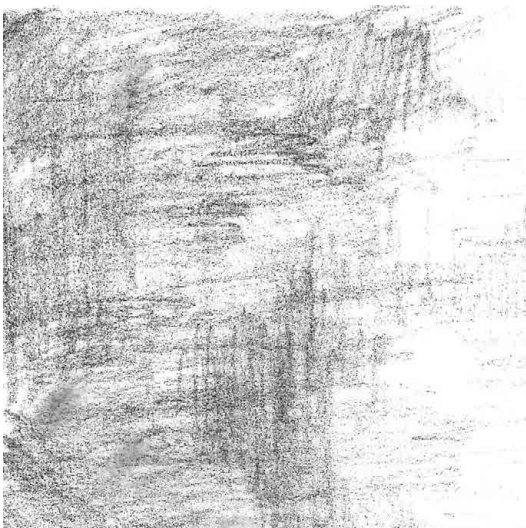
Raw structured irregular surface



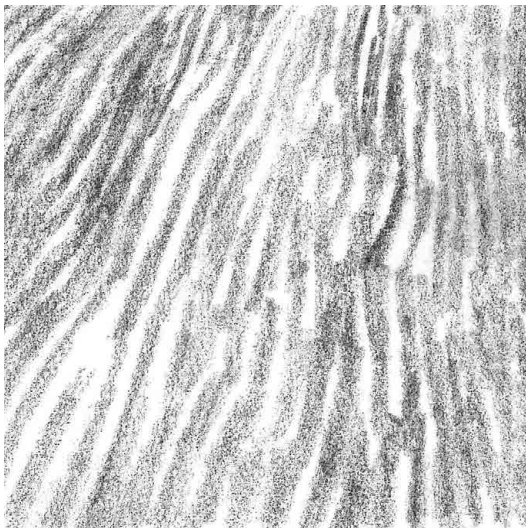
Crossing lines i variated directions



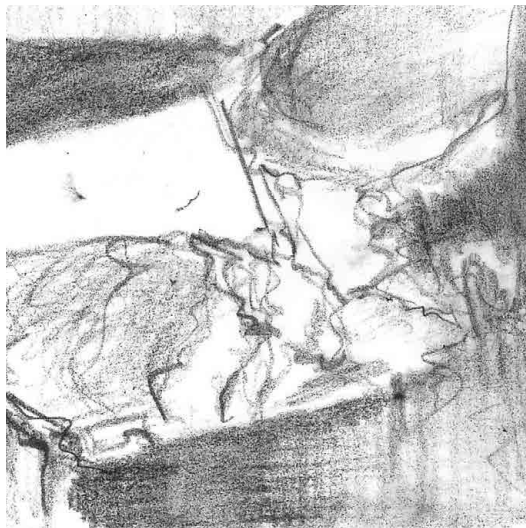
Organic pattern with shadows



Raw surface of crossing lines



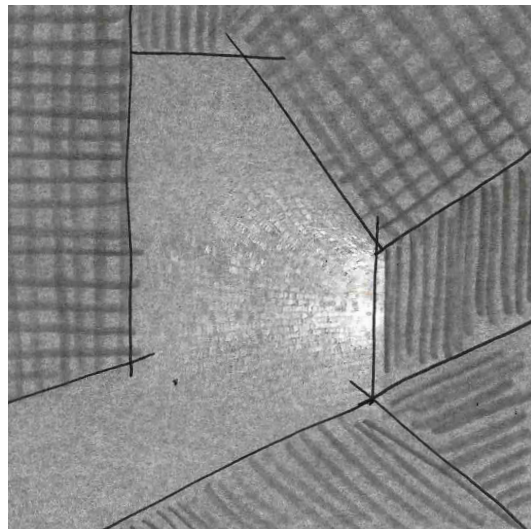
Organic structured pattern



Organic forms and contrast in shadow

Centered

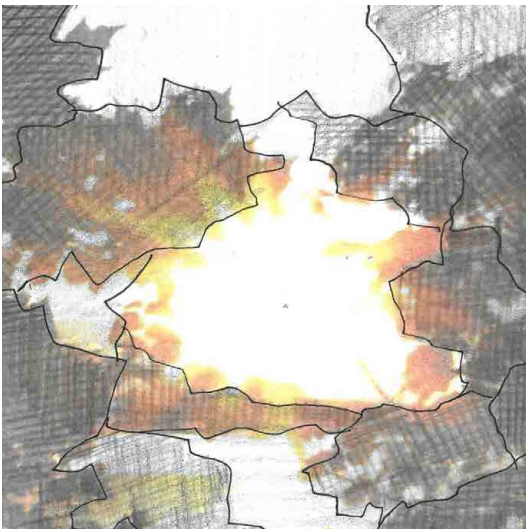
Core surrounded by matter in variated forms and density



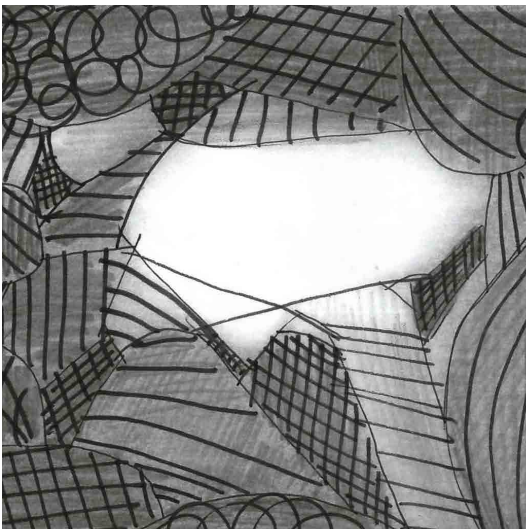
Light in the middle surrounded by crossed, straight and diagonal patterns



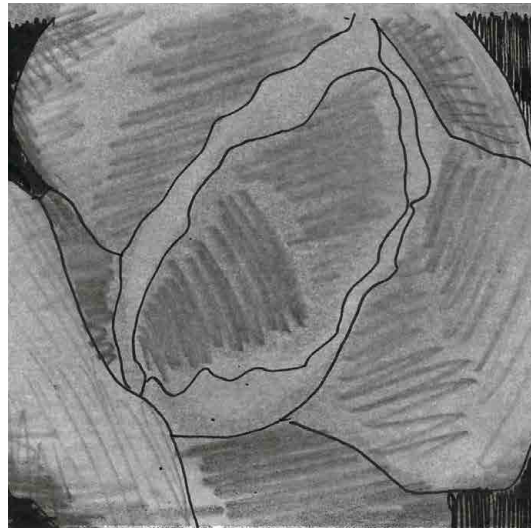
Light in the middle surrounded by crossed, straight and diagonal patterns, reflections and density



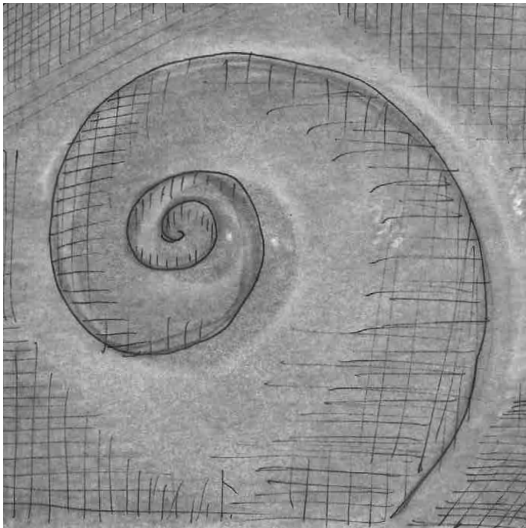
Light in the middle surrounded by crossed, straight and diagonal patterns and organic forms



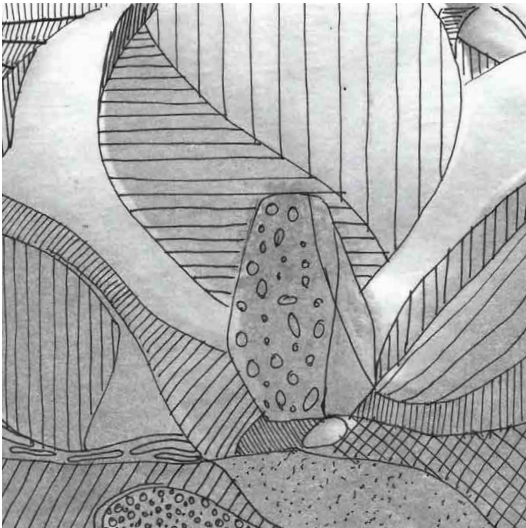
Light in the middle surrounded by crossed, straight, diagonal and circular patterns and organic forms



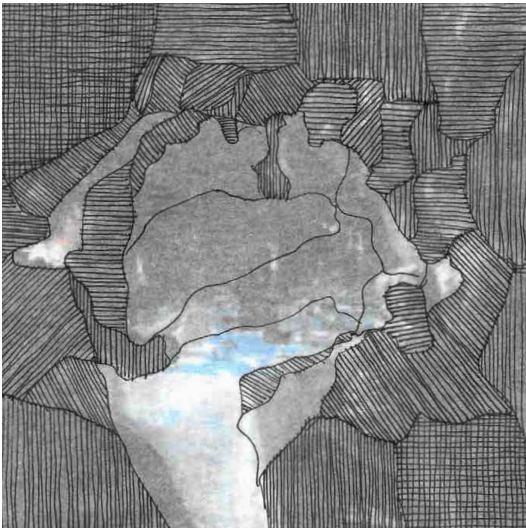
Dark matter in the corners with organic forms surrounding a core of similar density and patterns



Circular movement creating a center core with magnetic movement to the middle

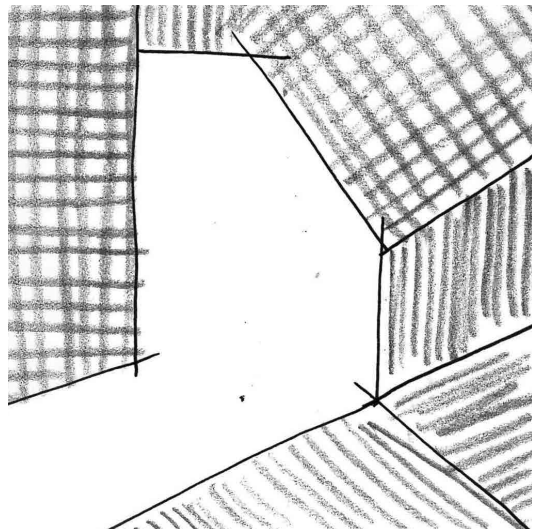


Patterns of dots - straight, crossed and diagonal lines, together organic forms and light reflections

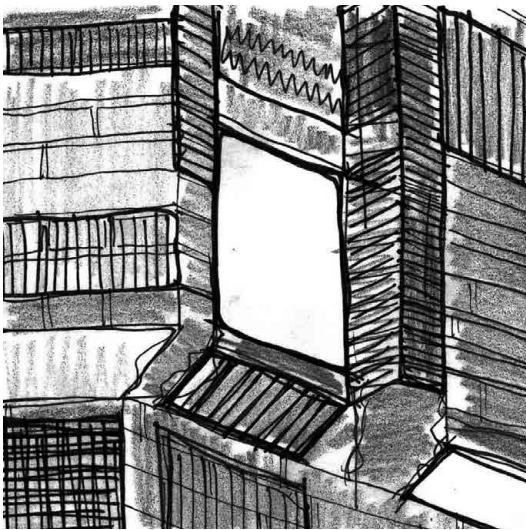


Organic forms with similar density and straight, crossed and diagonal lines surrounding a core

Core surrounded by matter in varied shapes and density



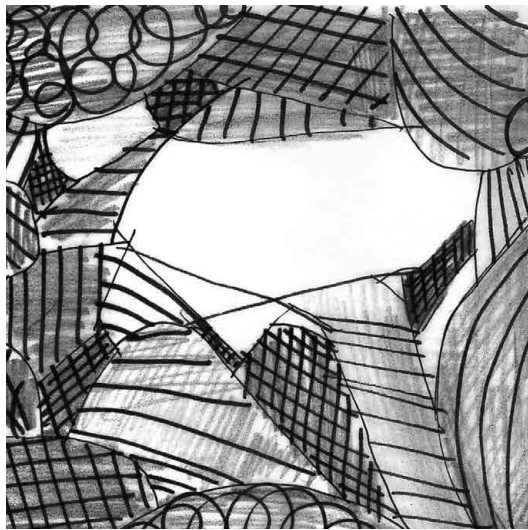
Core surrounded by a variety in pattern



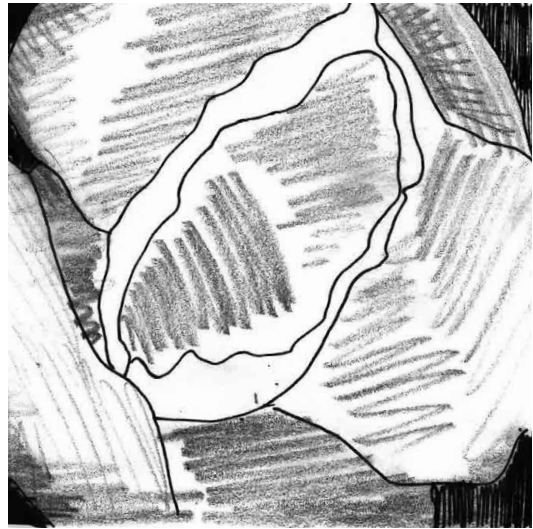
Core surrounded by a variety in pattern and density



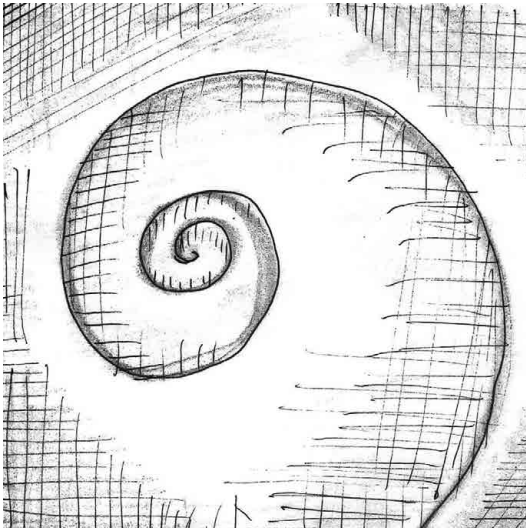
Core surrounded by a variety in pattern, reflection and form



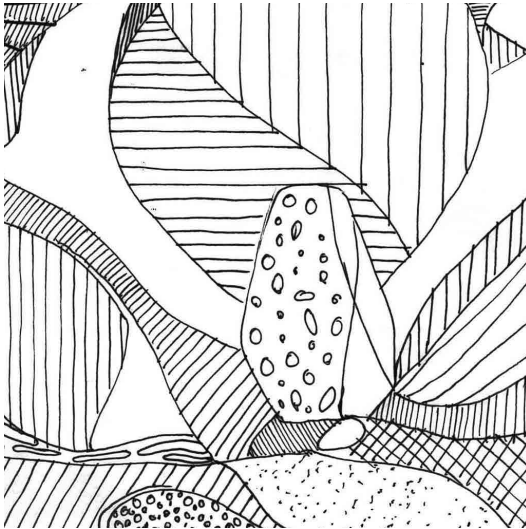
Core surrounded by a variety in pattern, density and form



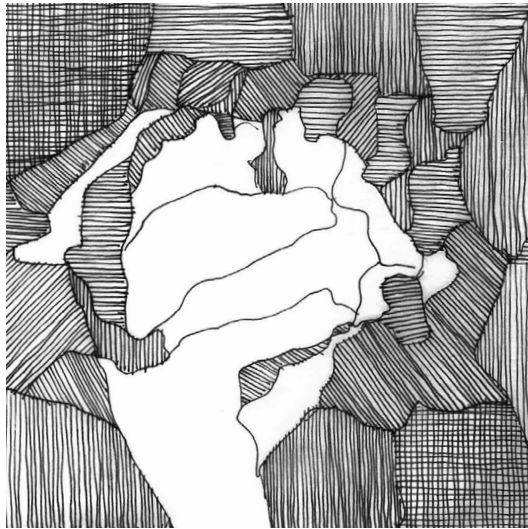
Core surrounded by organic forms and dark matter



Core surrounded by circular movement



Core of organic forms surrounded by patterns in density



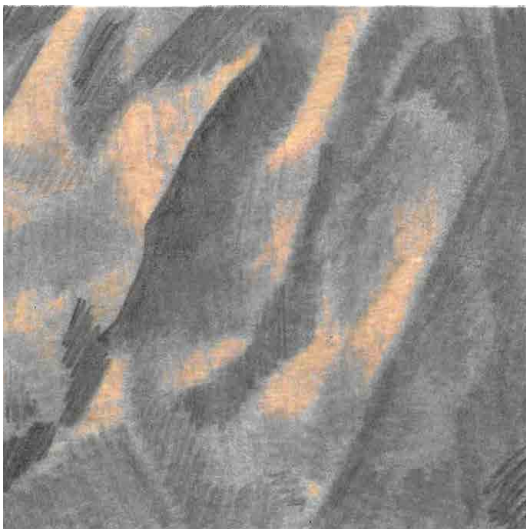
Core of organic forms surrounded by patterns of straight, crossed and diagonal directions

Reflections/patterns

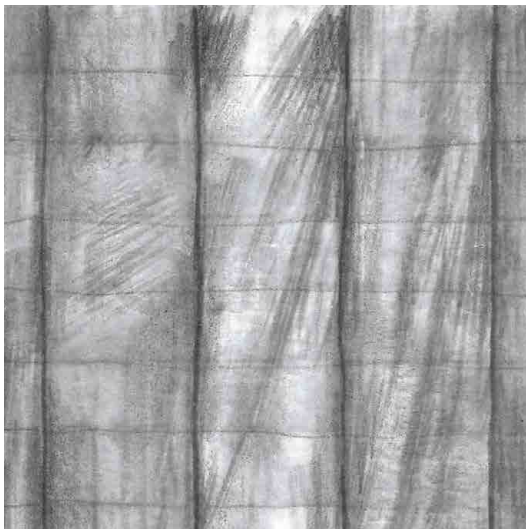
Patterns and reflections imitating nature



Detailed organic forms together with reflected surfaces



Reflected surfaces in degradation of shadow



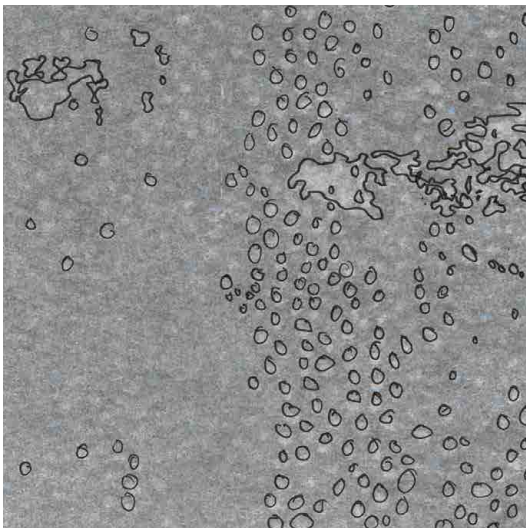
Reflected surfaces in degradation of shadow. Straight lines contrasting diagonal lines in variated direction



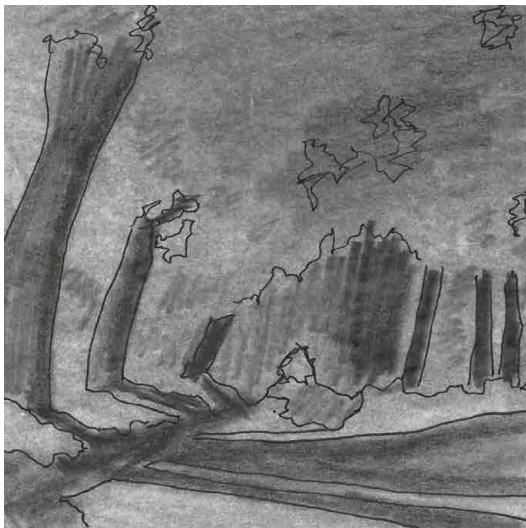
Reflected surfaces in degradation of shadow. Creating an organic experience



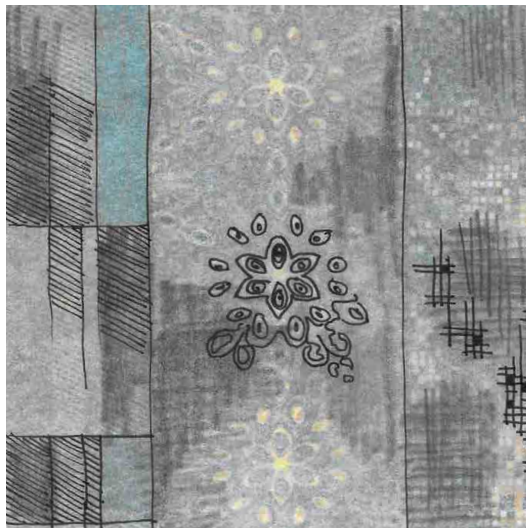
Organic patterns contrasting surface



Organic patterns contrasting and reflecting surface



Light from the side creating contrast in shadows, highlighting organic forms



Organic pattern contrasting reflected pattern with diagonal lines

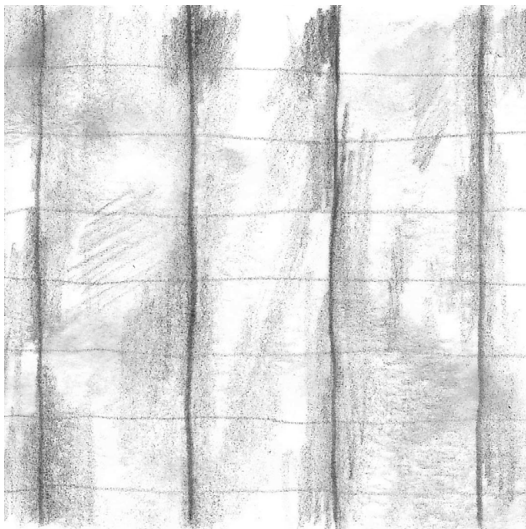
Patterns and reflections imitating nature



Organic pattern and reflected surface



Reflections on surface creating integrated degradation in shadows



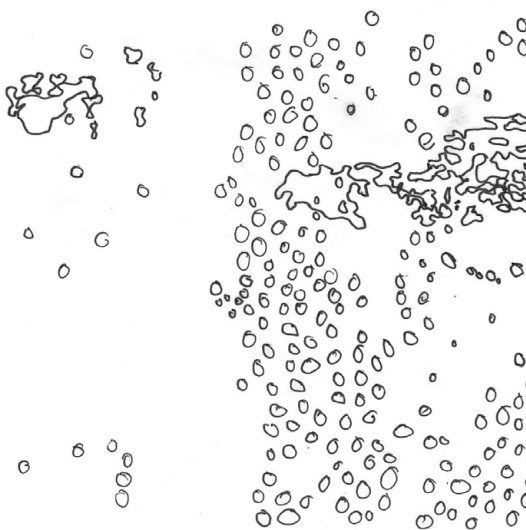
Contrast in scale and straight and organic patterns



Degradation in shadows on reflected organic forms and surfaces



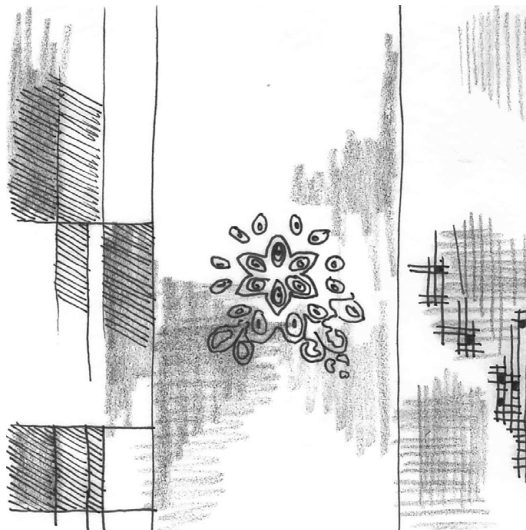
Organic pattern contrasting surface



Organic pattern on surface



Light from the side creating contrast in shadows and reflected surface

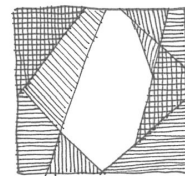
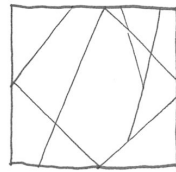
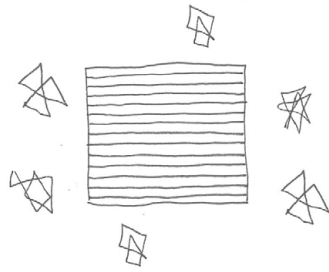
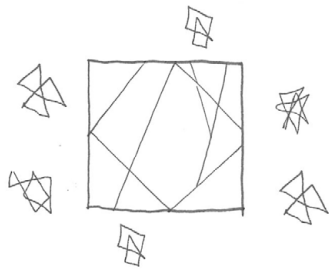
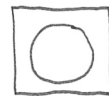
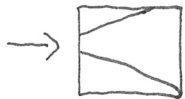
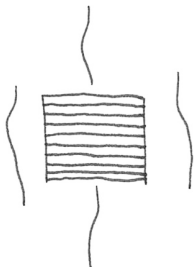
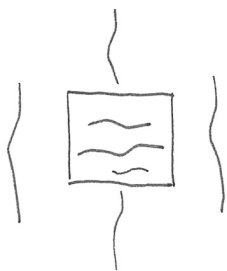


Organic pattern contrasting reflected surface

30

Prototypes

Sketchy prototypes to further develop the five important directions



OUTSIDE - INSIDE

MAGNETIC

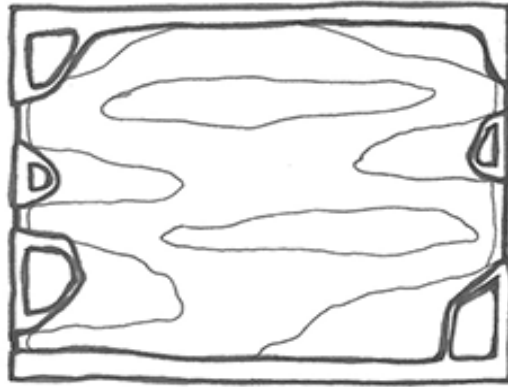
RAKING LIGHT

CENTERED

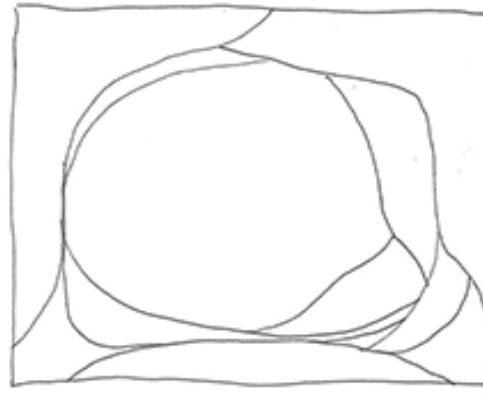
VARIATION

Concept model

A squareformed model with functions along the walls and inside the walls, where space is centered and light comes through the sides



SECTION

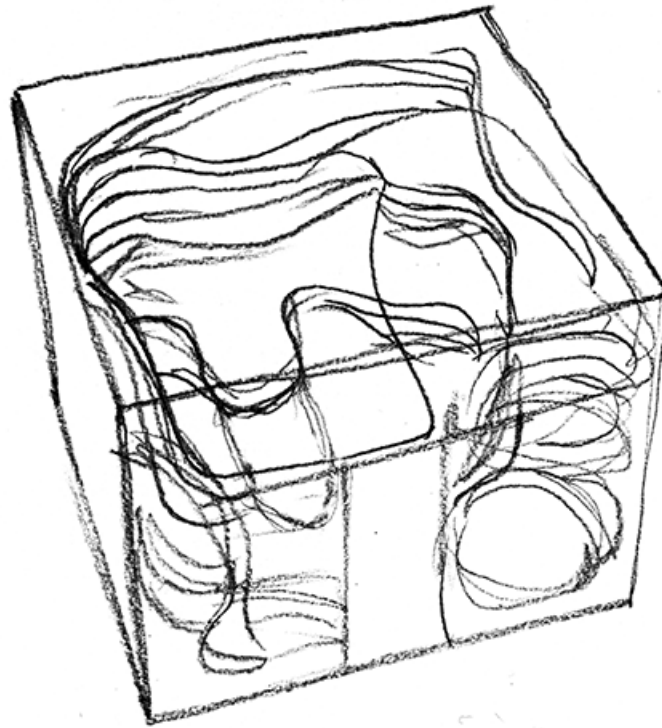


PLAN

32

Cave attefall

Transparent in perspective



Philosophy of Cave

Representations of Cave through history

The Primitive Hut

The idea of **The Primitive Hut** contends that the ideal architectural form embodies what is **natural and intrinsic**. ...The Primitive hut provides a point of reference for all speculation on the essentials of building and represents arguably the first architectural 'idea'. ...Understandings of vernacular architecture have often had a major influence on the understandings of the Primitive Hut, as they often provide a different point of origin for a potential direction for architecture. Rather than focusing on the meanings that are associated with the building and its components, **the Primitive Hut questions the fundamental components that are universal in architecture¹**.

Designing for diversity

The more we zoom in and find the true essence of who we are, the more we can zoom out and understand the overall pattern.. of human behaviour, forms, nature and even of micro and macrocosmos. Finding an essence does not mean that we are losing diversity, i would like to say that we can do both with advantage. For example, we can use Cave first as a form, then to be used for individual needs. Designing for diversity through a form.

As a response to the article in archdaily; Designing for diversity²

Plato's Cave

Plato has Socrates describe a group of people who have lived chained to the wall of a cave all of their lives, facing a blank wall. The people watch shadows projected on the wall from objects passing in front of a fire behind them, and give names to these shadows. The shadows are the prisoners' reality.

In relation to Plato's Cave, Cave is also a representation of what is unseen manifesting in this world. But Cave is about consciously letting the light in. Engaging with darkness (intuition) and creating a beautiful inside with what is already there.³

Plato's Archetype

The origins of the archetypal hypothesis date as far back as Plato. **Plato's ideas or the so-called Platonic eidos were pure mental forms that were imprinted in the soul before it was born into the world.** Some philosophers also translate the archetype as "essence" in order to avoid confusion with respect to Plato's conceptualization of Forms. While it is tempting to think of Forms as mental entities (ideas) that exist only in our mind, the philosopher insisted that they are independent of any minds (real). Eidos were collective in the sense that they embodied the fundamental characteristics of a thing rather than its specific peculiarities.⁴

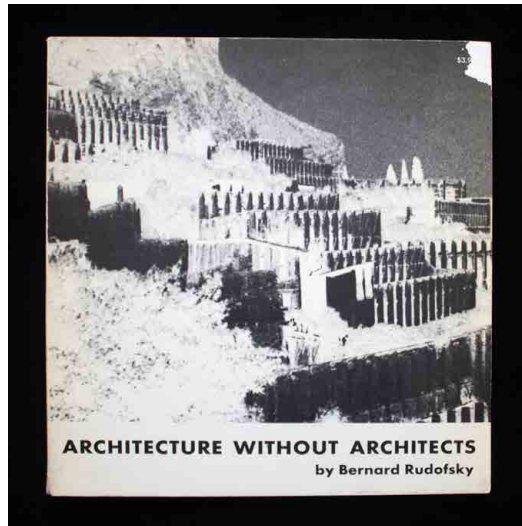
¹ Laugier, M. A. (1755) An Essay on Architecture.

² Christopher N. Henry (2011) Designing for Diversity. <https://www.archdaily.com>

³ A. S. Ferguson (1922) Plato's Simile of Light. Part II. The Allegory of the Cave. p. 15-28

⁴ Soccio, Douglas J. (2009). Archetypes of Wisdom: An Introduction to Philosophy, p. 128.

References



34



35

*"Vernacular architecture does not go through fashion cycles. It is nearly immutable, indeed, unimprovable, since it serves its purpose to perfection. As a rule, the origin of indigineous building forms and construction methods is lost in the distant past."*¹

Creating what is neccesary with what you have in site, gaining sustainable constructions - **what comes from nature goes back to nature**

1 Rudowsky, B (1964) Architecture without architects. p.1

LE CABANON



36



37

Using industrial building techniques for building clean and economically, with human creative impact on the inside - still relating to nature through raw materiality

VILLA MAIREA



38



39

Letting nature inspire inside, outside contrasting and relating to surrounding.
Through volumes and dense patterns and natural treatment, creating magnetism.

VILLA MAIREA



40



41

Intertwining nature through building with organic living nature on the inside

*"Aaltos association of the search for harmony, organicism and love is important, drawing on his key influences of the wisdom of the ancient greece and his experiences and knowledge of nature."*¹

Värmland

Forest surrounding Bustelund, where i spent my childhood and where i find inspiration to Cave attefall



42



43





45



46

Process

Photography from forest in Värmland



Amount of dark and density with a balanced amount of light reflections (from light, semi-light to dark) in a repetitive but irregular pattern - creating a harmonious and safe mysticism.

47

Free hand sketch from photography



Moss on hills, light white fir and dark heavy birch - creating dynamic contrasts

48

Process

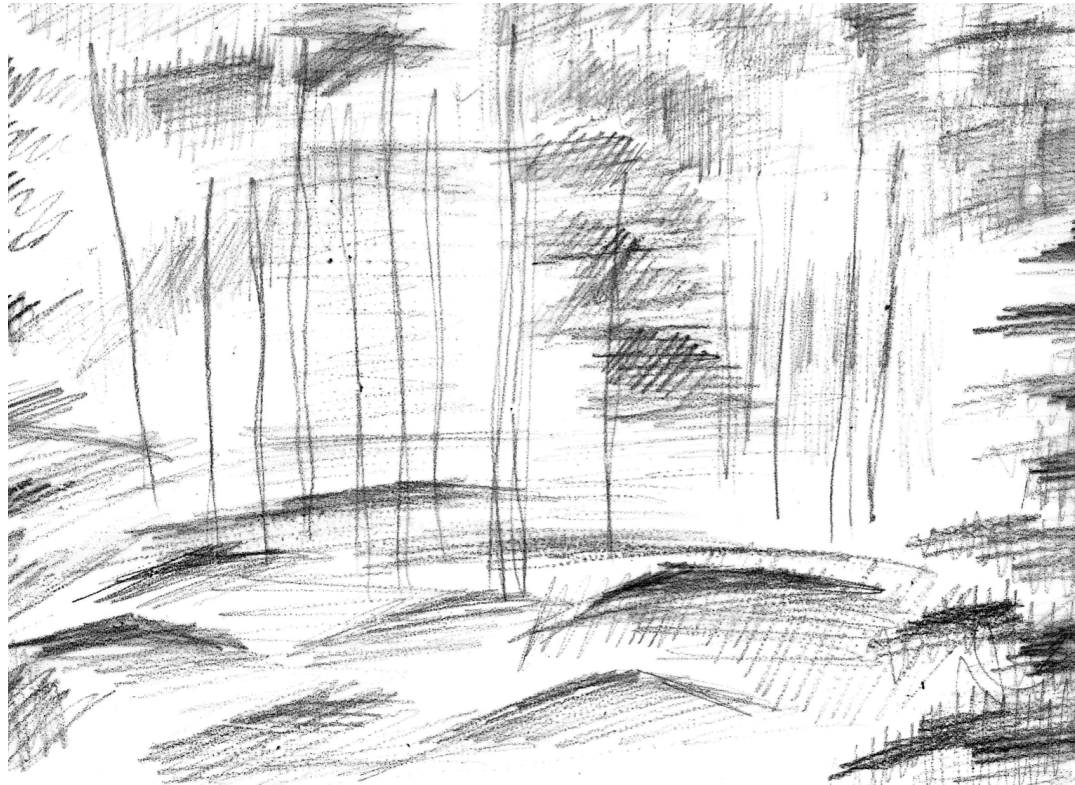
Sketch on sketchingpaper over free hand sketch



Densities in fir, moss and birch in combination with densities in light reflections - creating dynamic shifts

49

Sketch on sketchingpaper over sketch on sketchingpaper



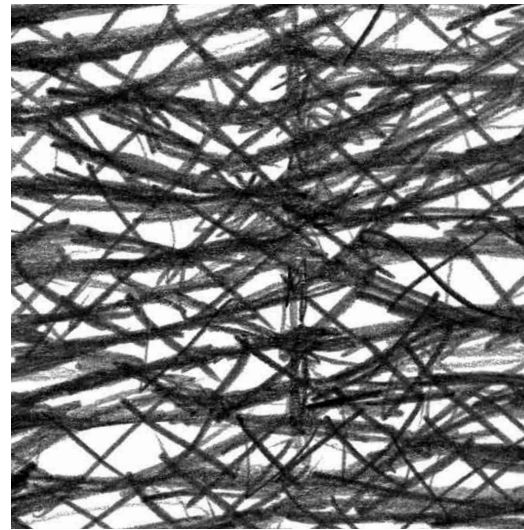
Directions in fir, moss and birch creating dynamic patterns

50

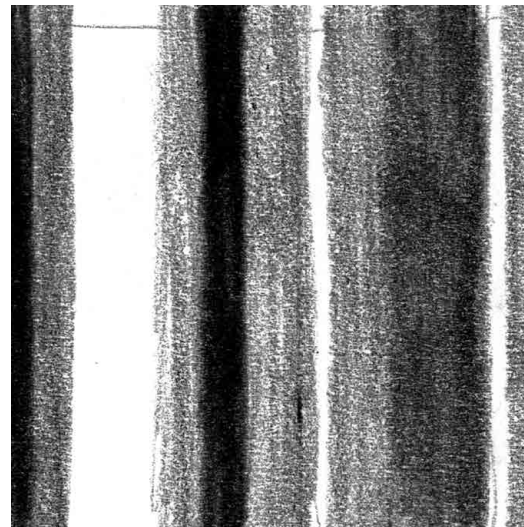
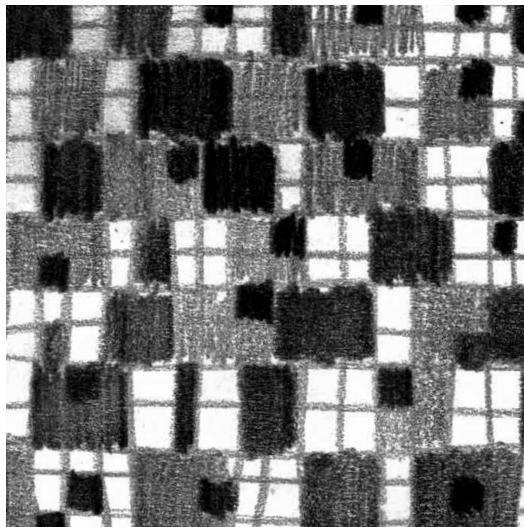
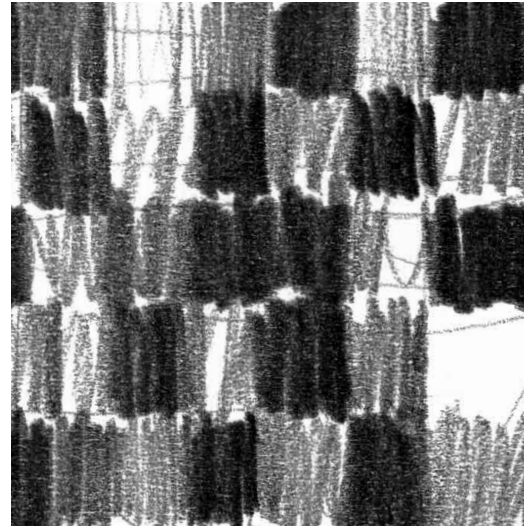
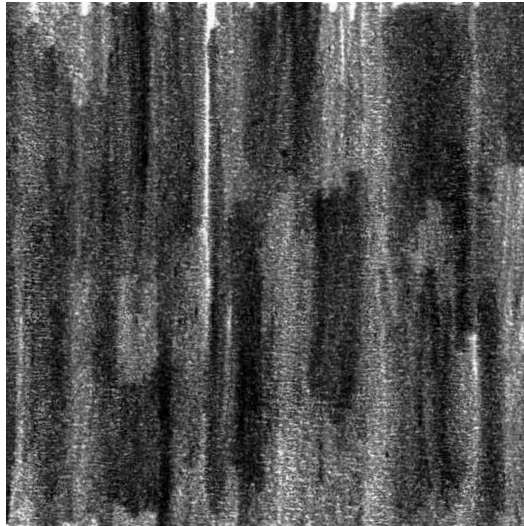
Prototypes

Sketching four free interpretations looking at one picture

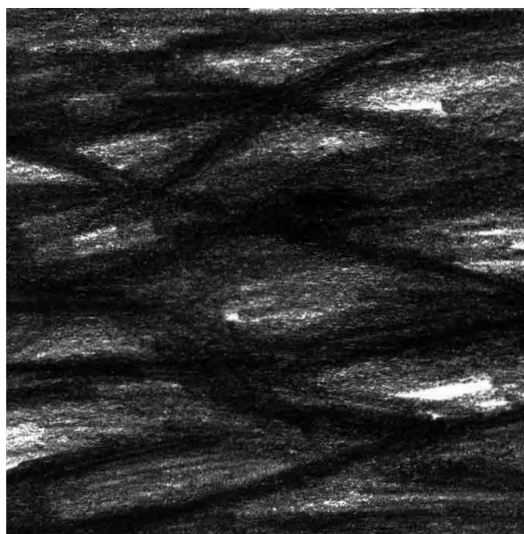
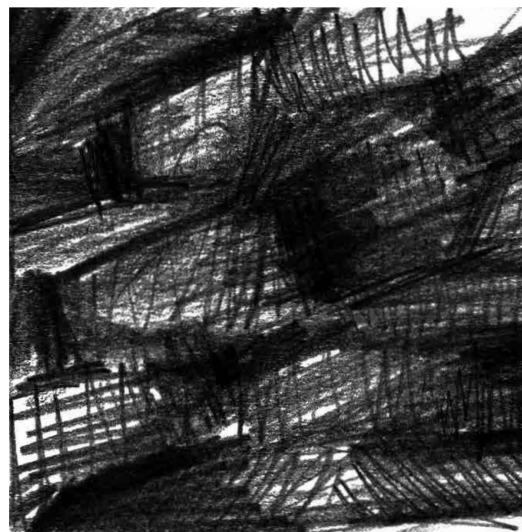
PHOTOGRAPHY



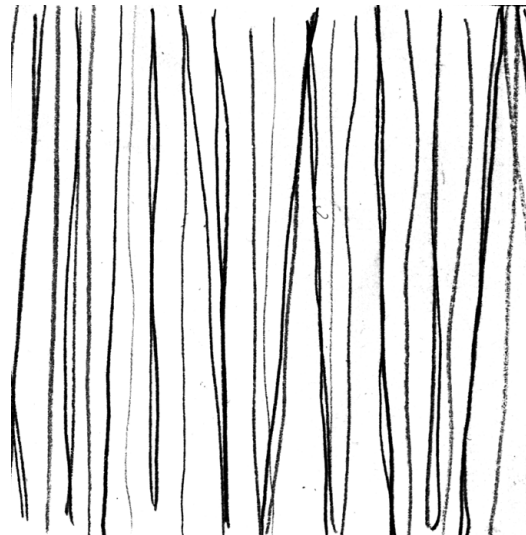
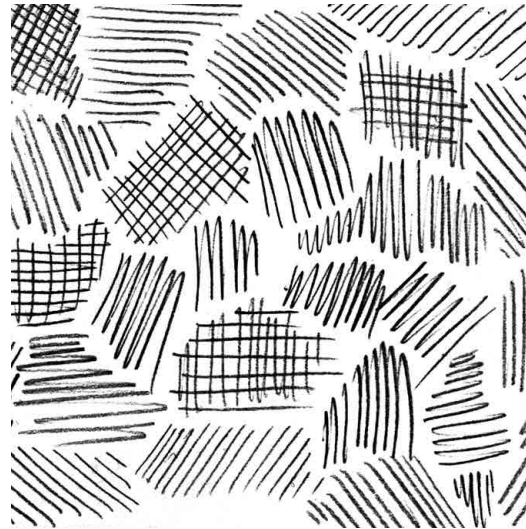
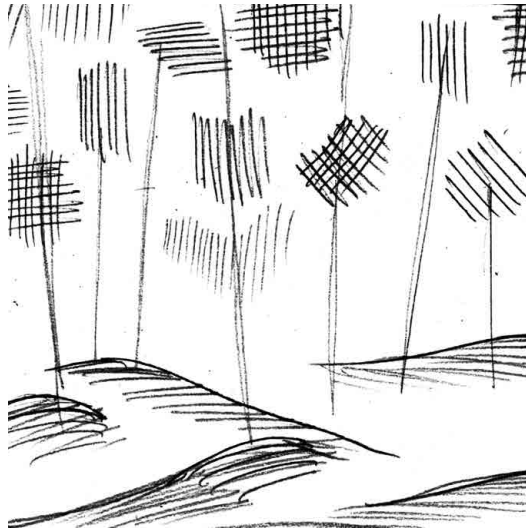
FREE HAND DRAWING



SKETCHINGPAPER OVER FREE HAND DRAWING



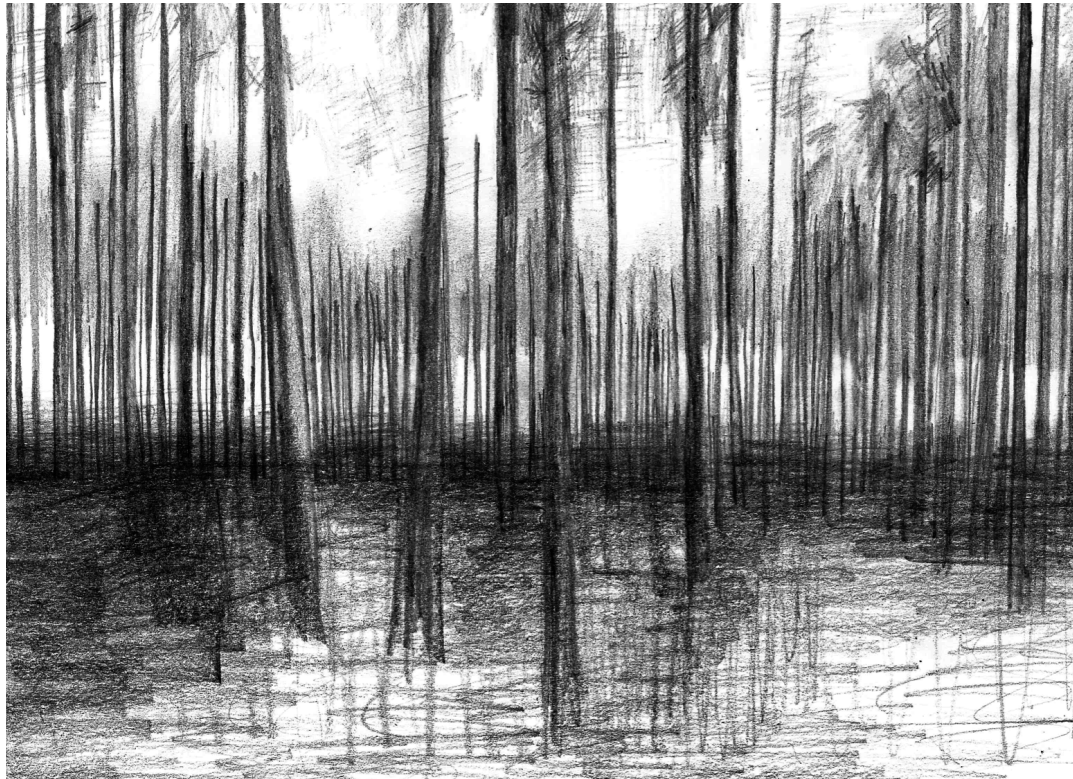
SKETCHINGPAPER OVER SKETCHINGPAPER





Forest with a dense and repetitive structure/pattern, creating an introverted horizontal light combined with lightreflections made through fog and green moss and spruce needle

55



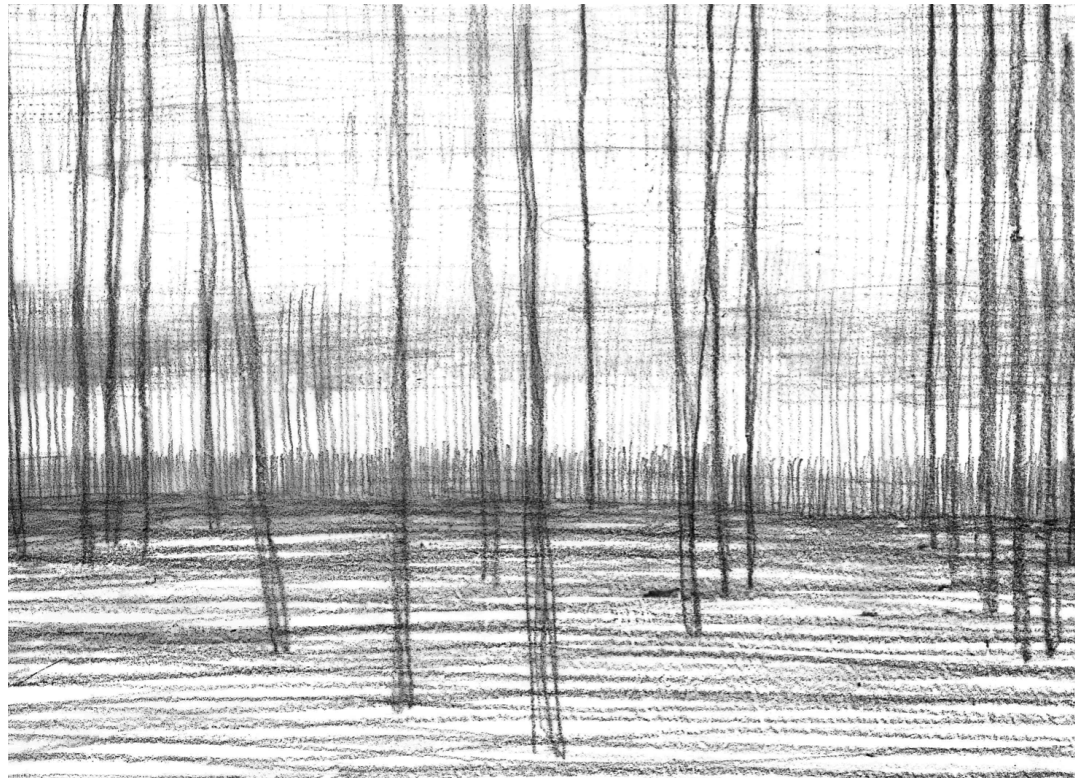
Skiss with focus on blackness and trees in front of the horizon

56



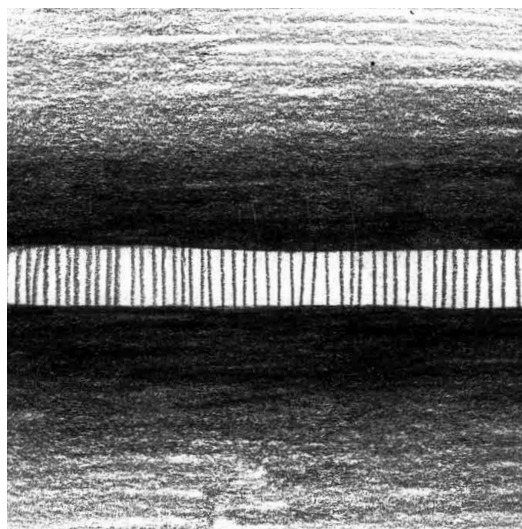
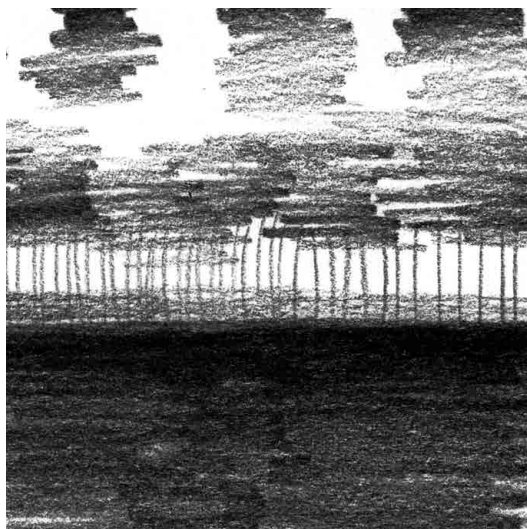
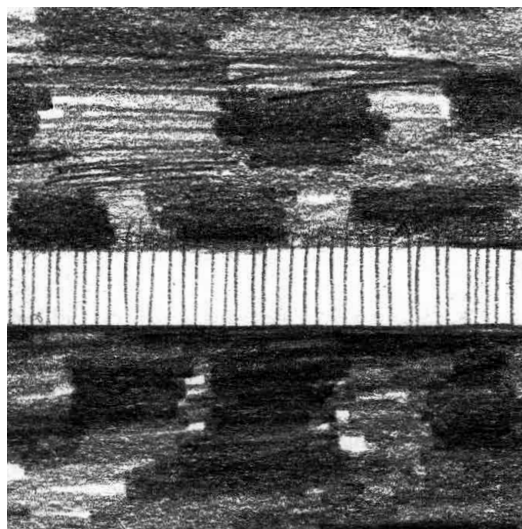
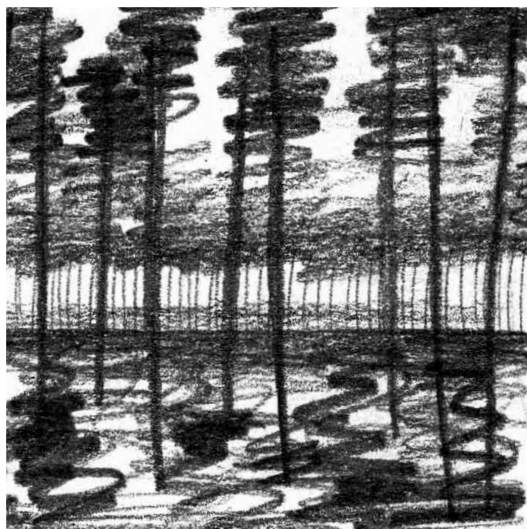
Skiss with focus on surrounding shifts in light and dark. Above and below

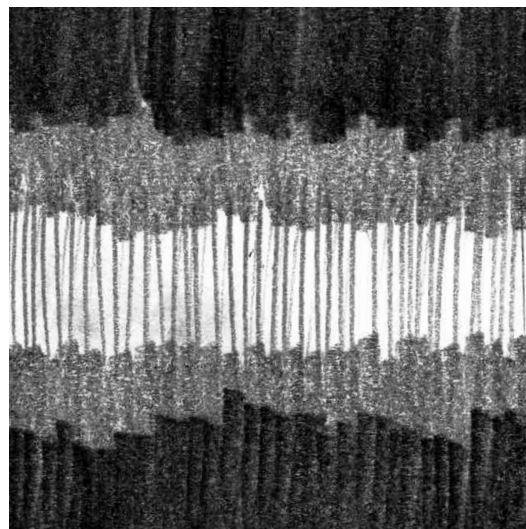
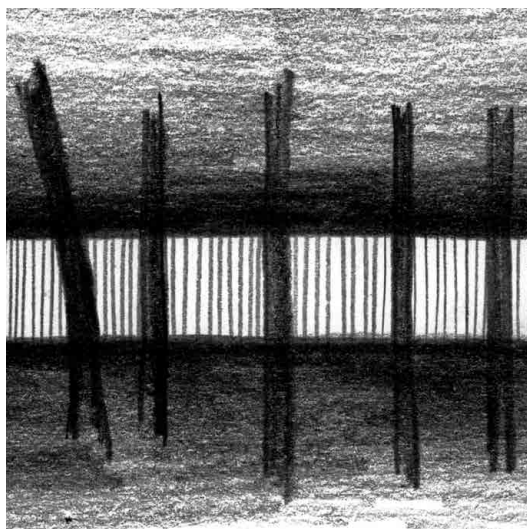
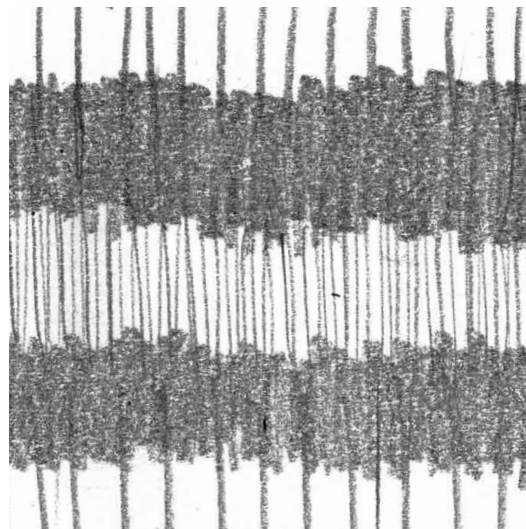
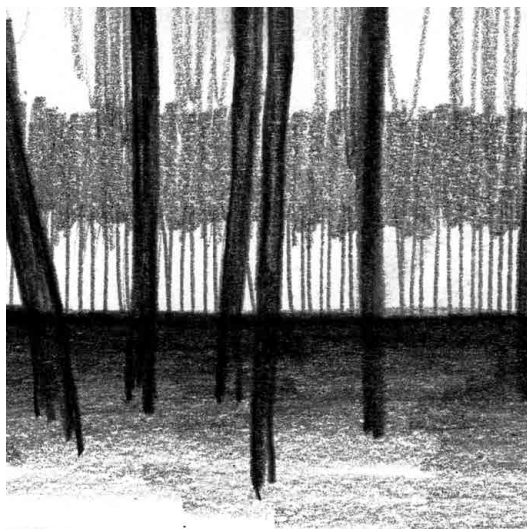
57

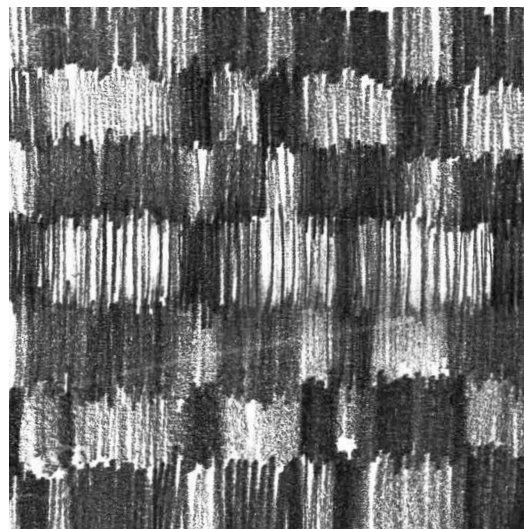
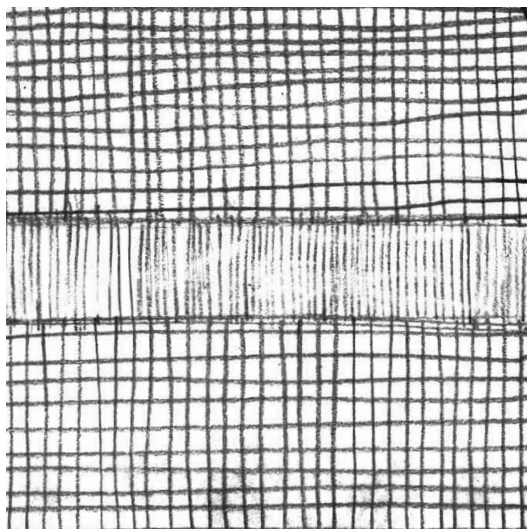
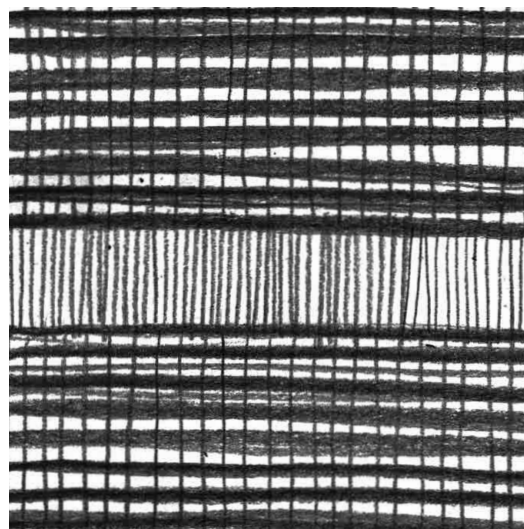
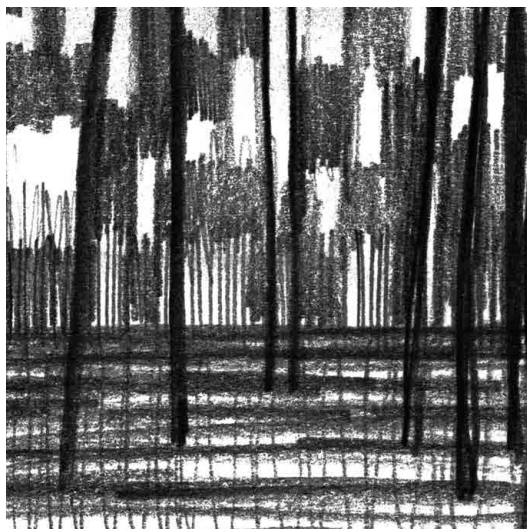


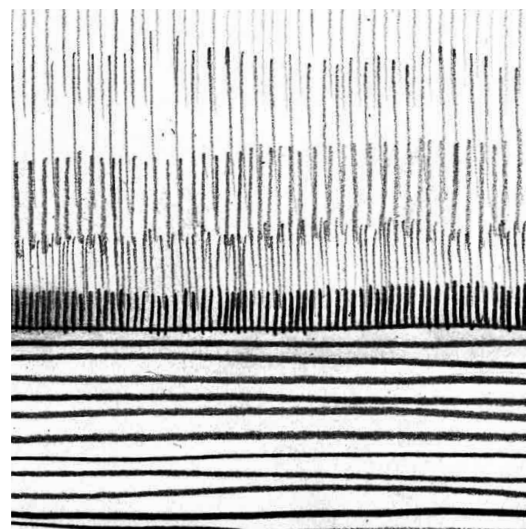
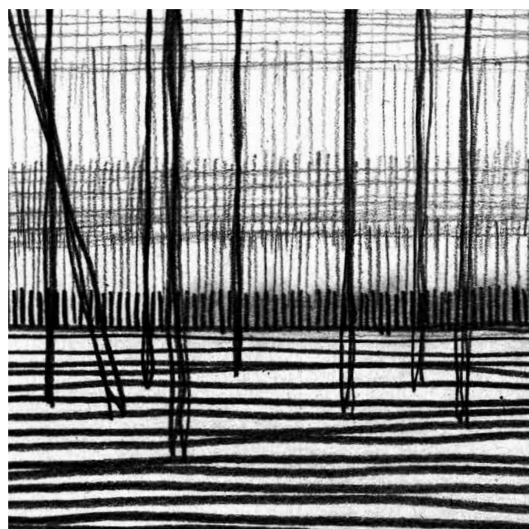
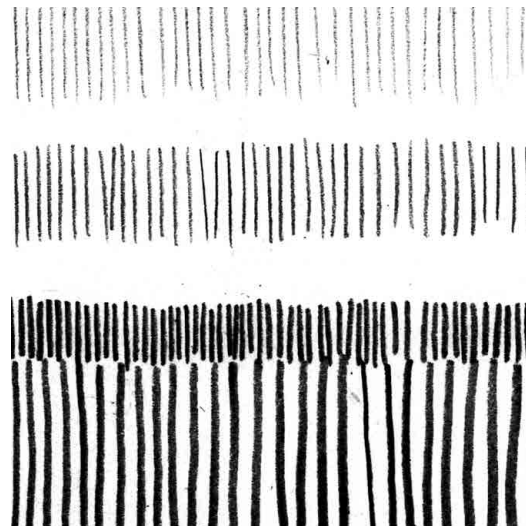
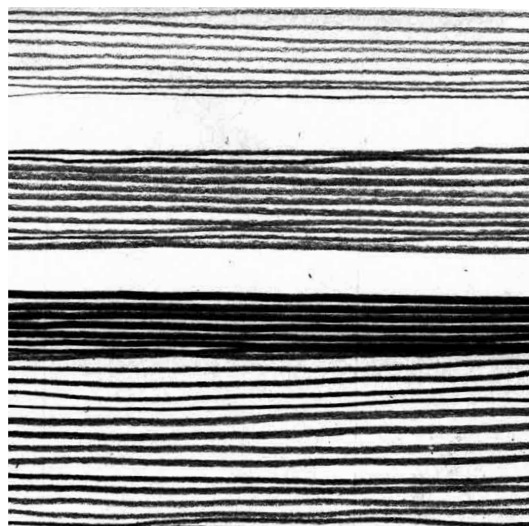
Skiss with focus on simple structure of the lines and right amount of blackness

58











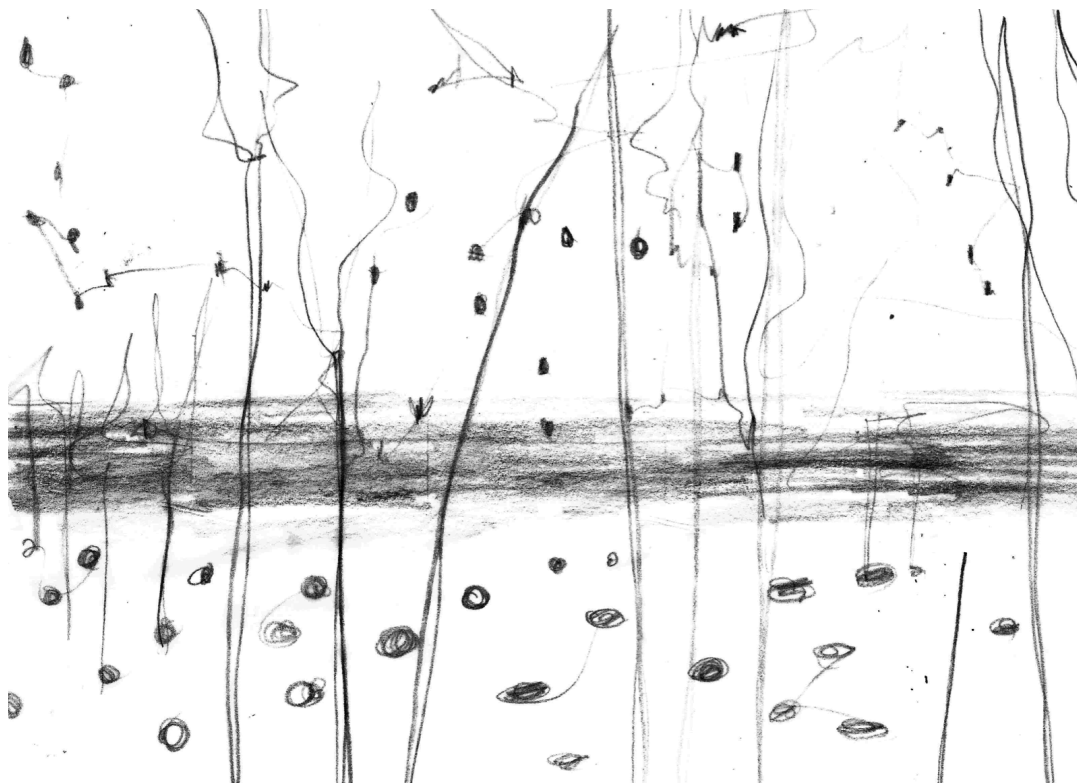
63

Light birch forest with a dense horizon, white snow on land and a light sky - creating contrast

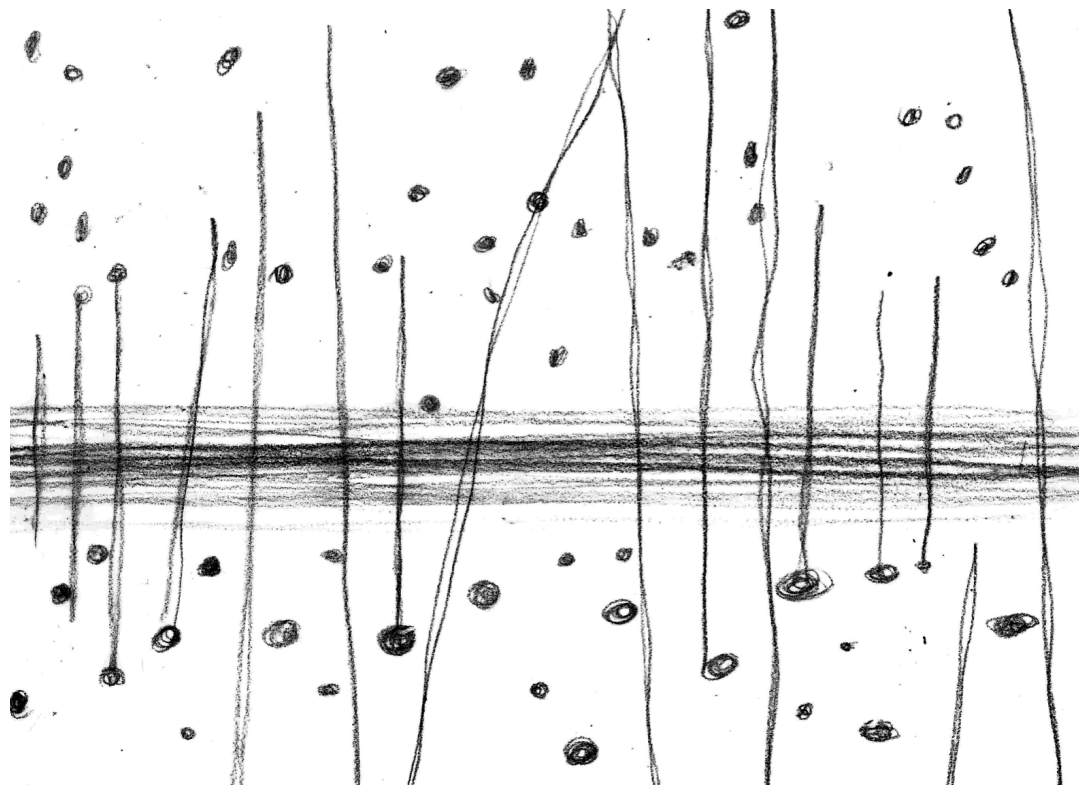


Naked birch trees with contrasting white background

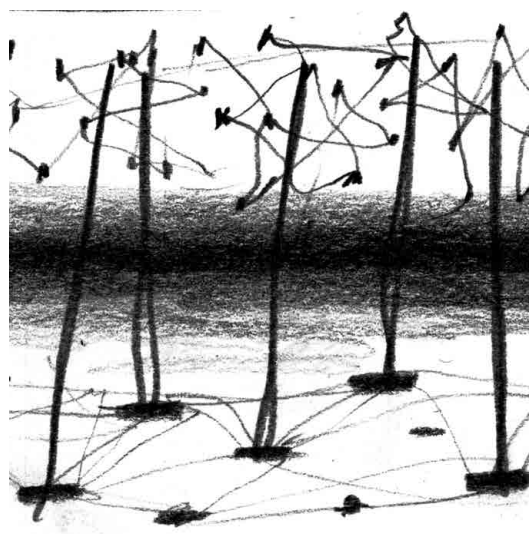
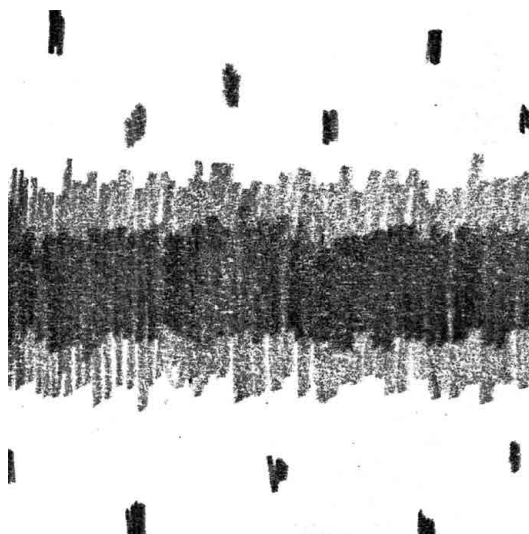
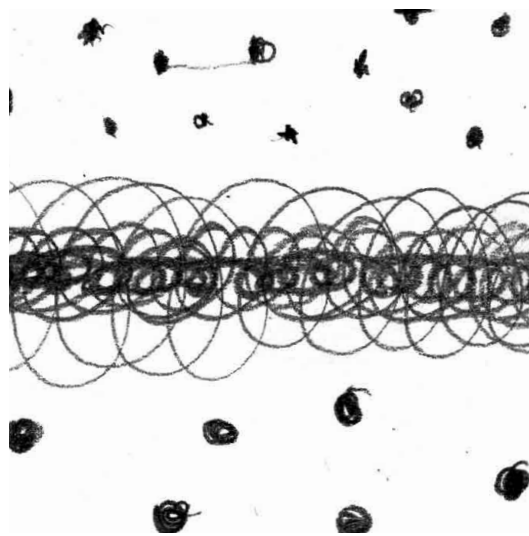
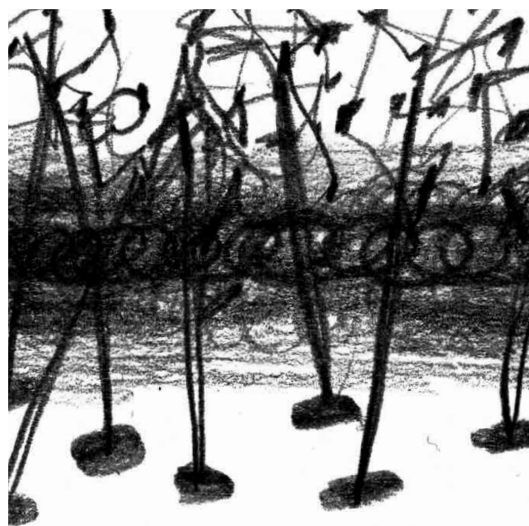
64

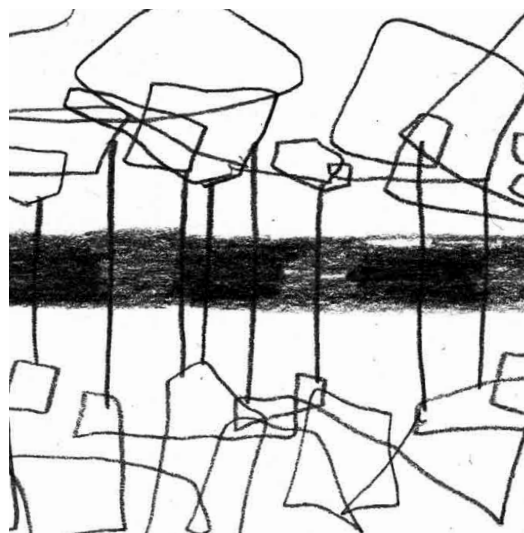
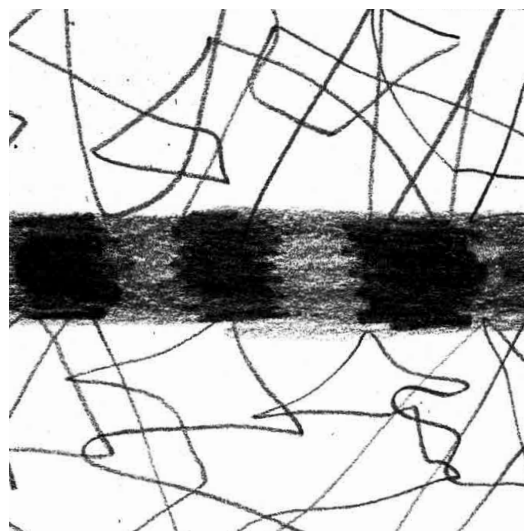
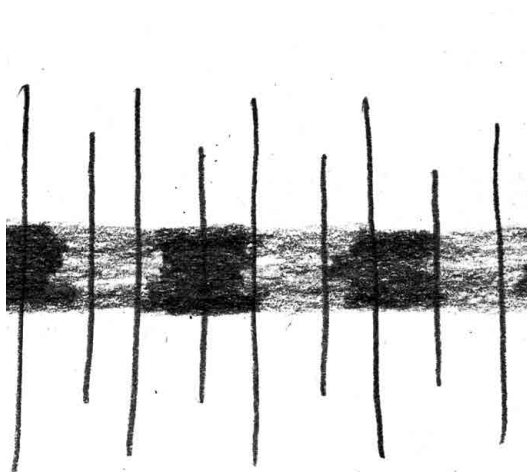


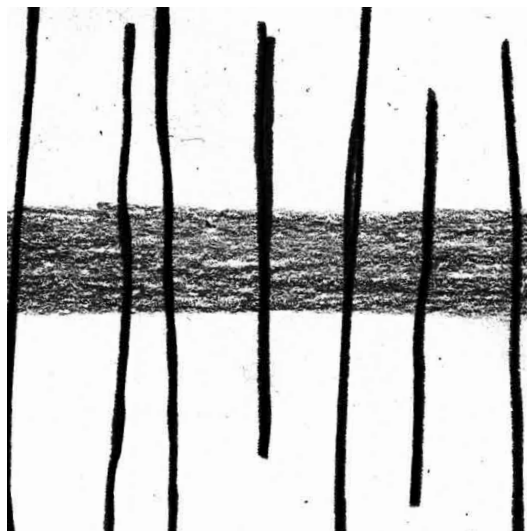
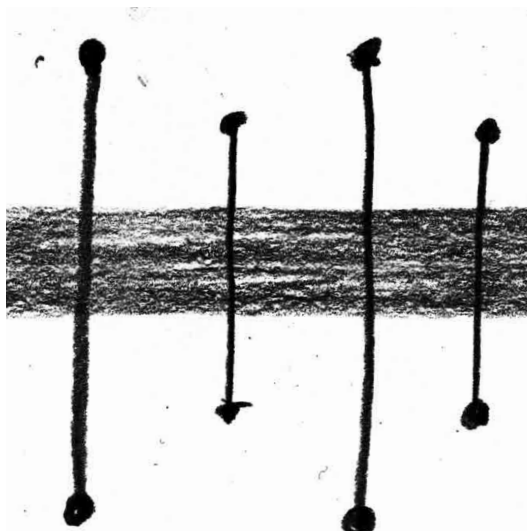
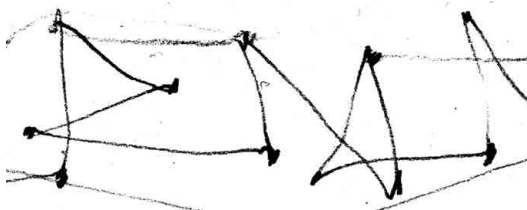
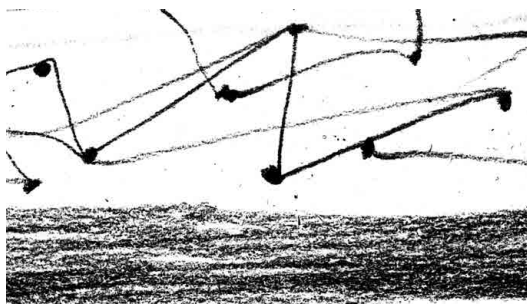
Dark spots on the ground surrounding trees and grass and dark spots in the sky made from birch trees⁶⁵

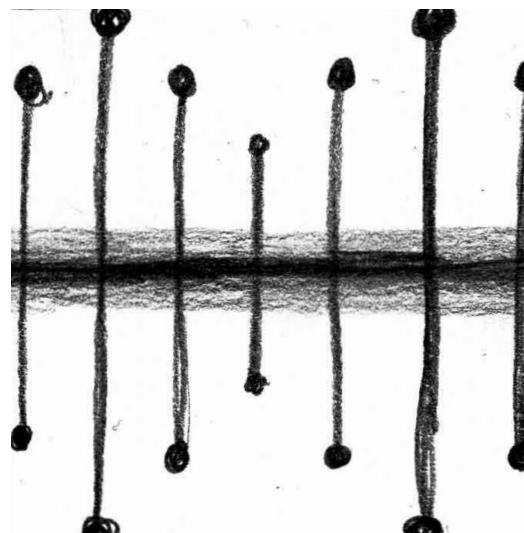
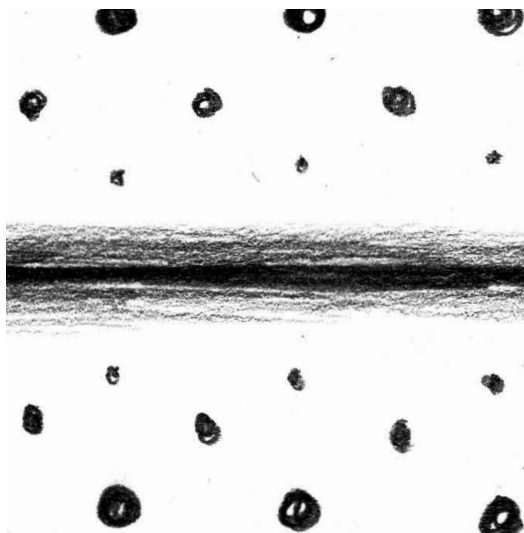
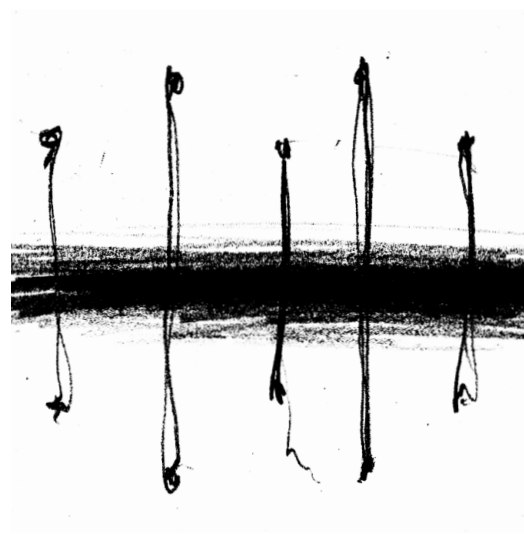


⁶⁶
Dark horizon, with dark spots in the sky and on the ground together with dark birch stems - contrasting white ground and white sky











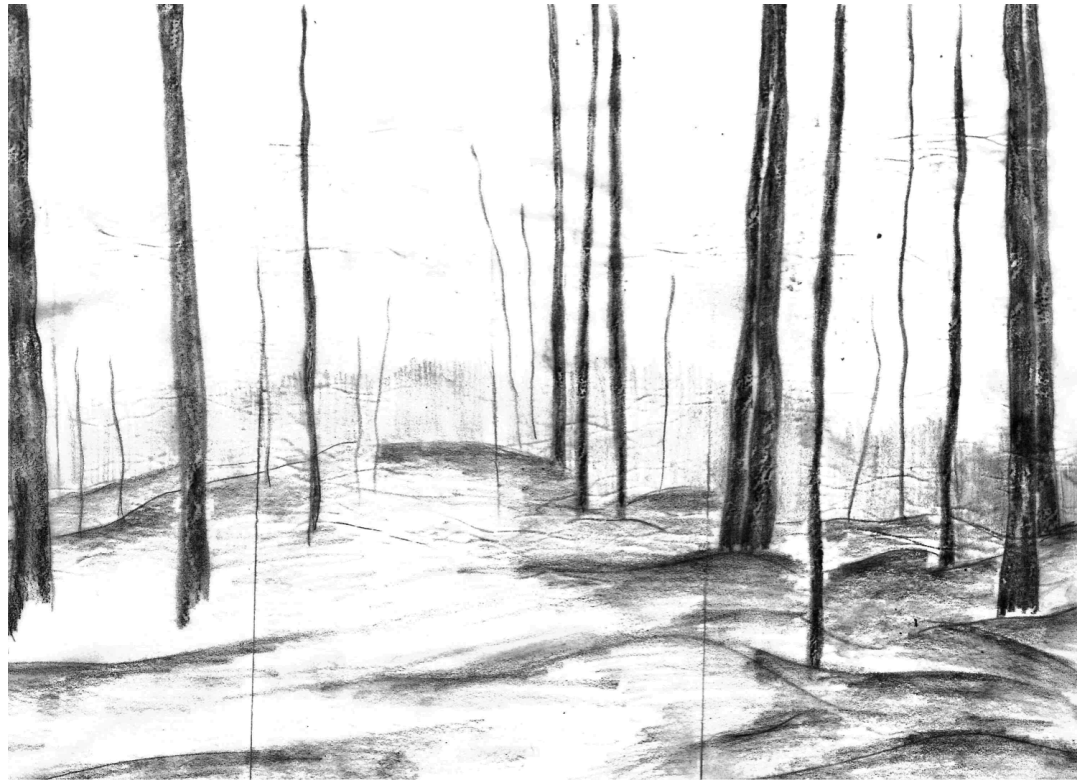
Three contrasts in dark and light, with a light sky, dark ground and semi light horizon

71



Contrast in forms in tree species, such as birch and spruce

72



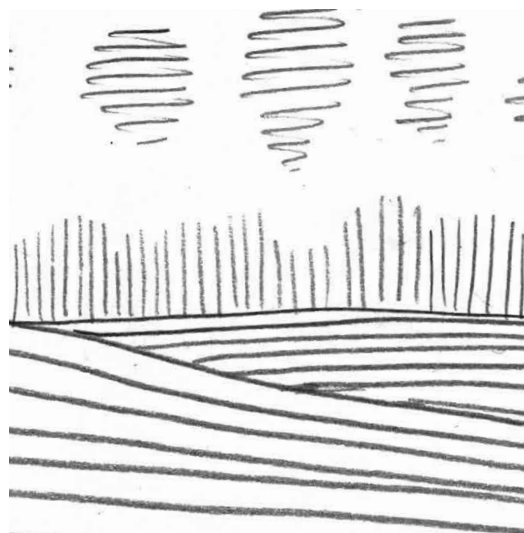
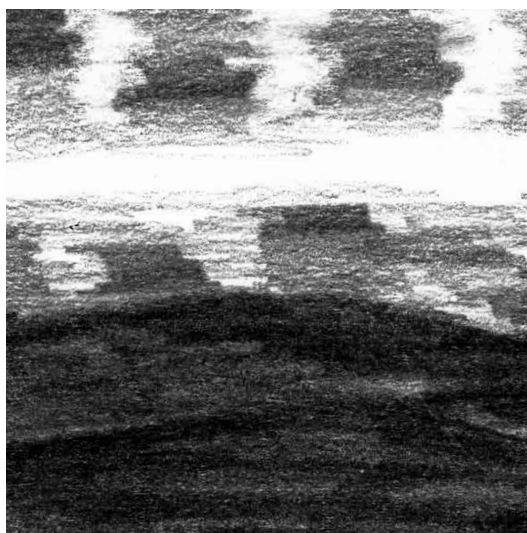
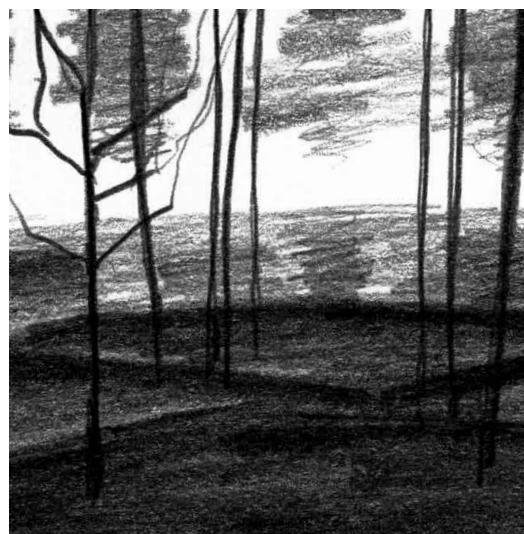
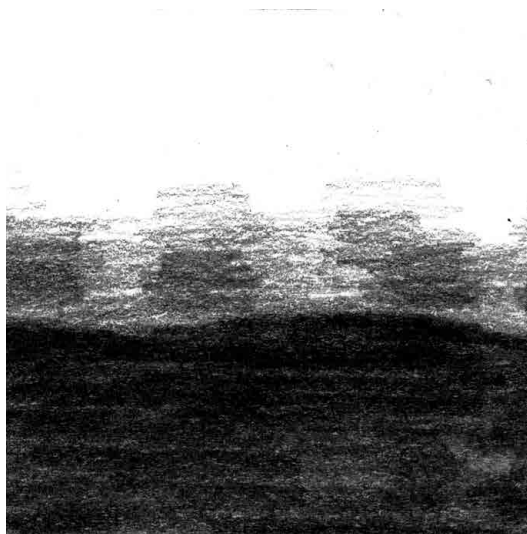
73

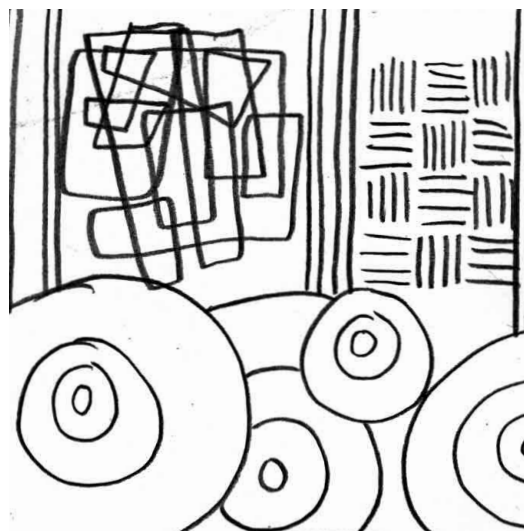
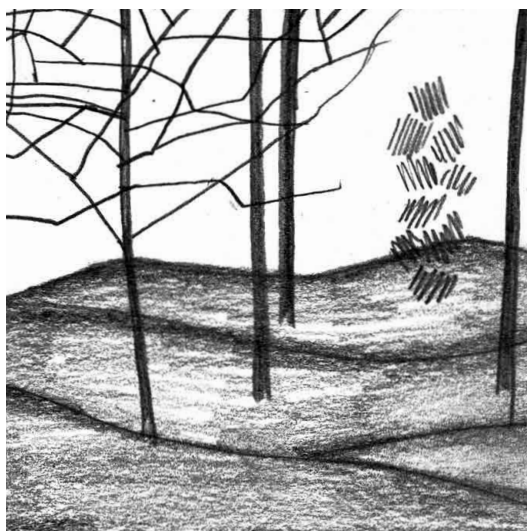
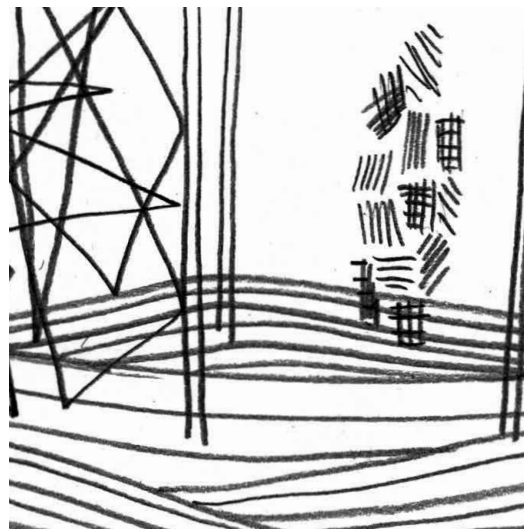
Contrasts in shifts between dense tree trunks, mossy ground and sun shining on forest horizon

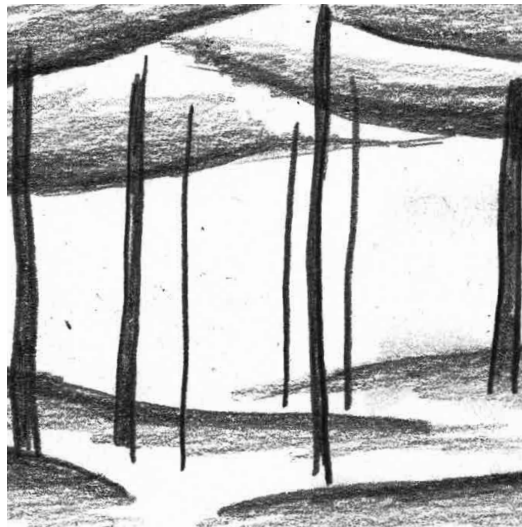
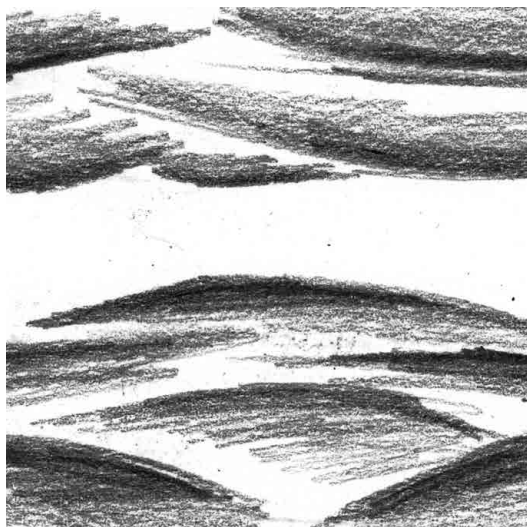
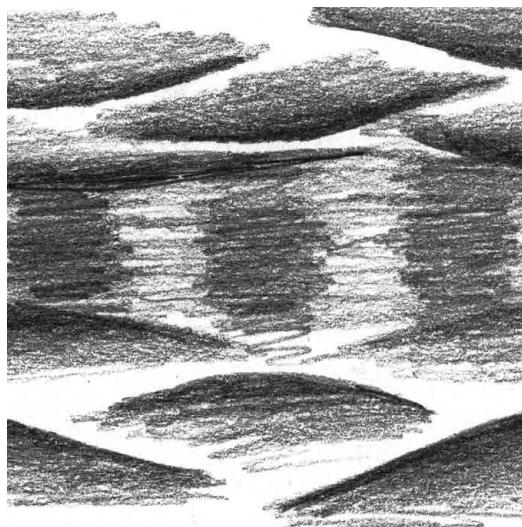
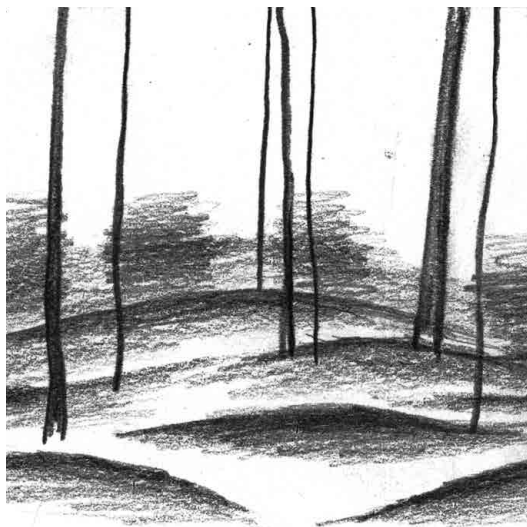


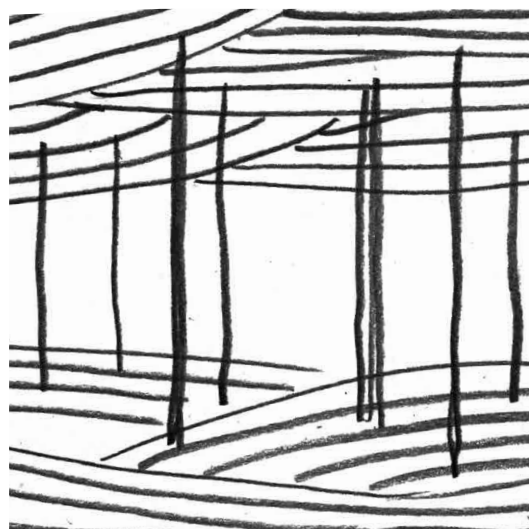
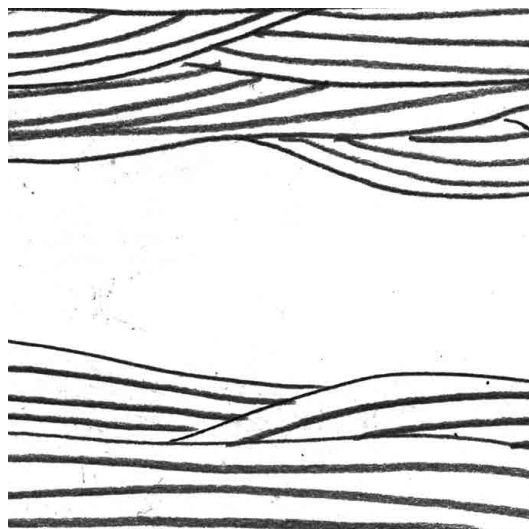
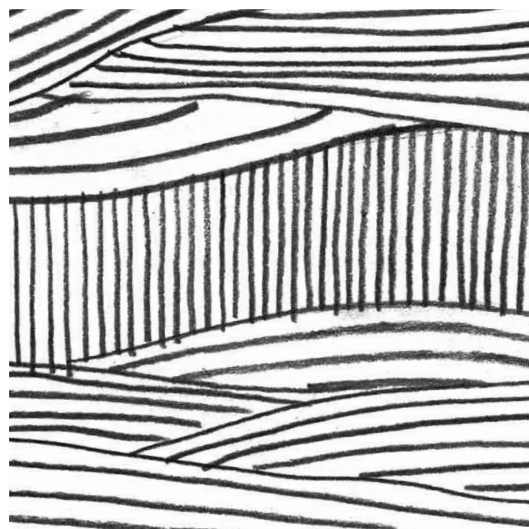
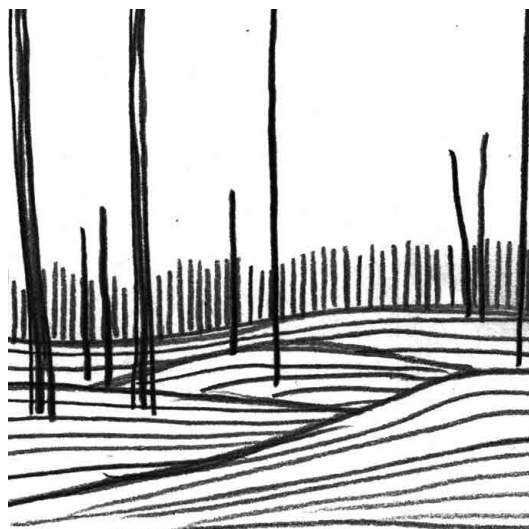
Contrast in direction of lines, from straight to curved

74



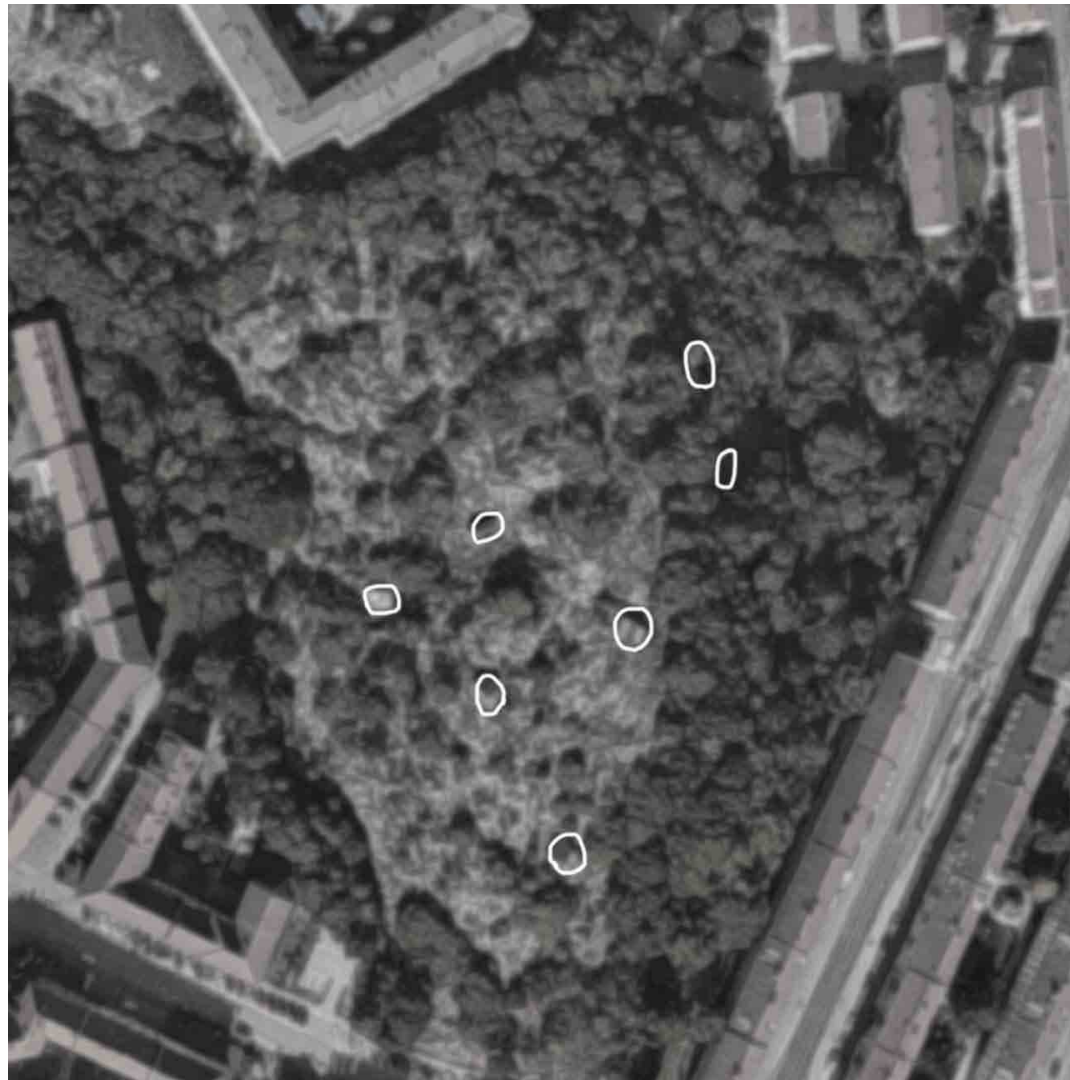






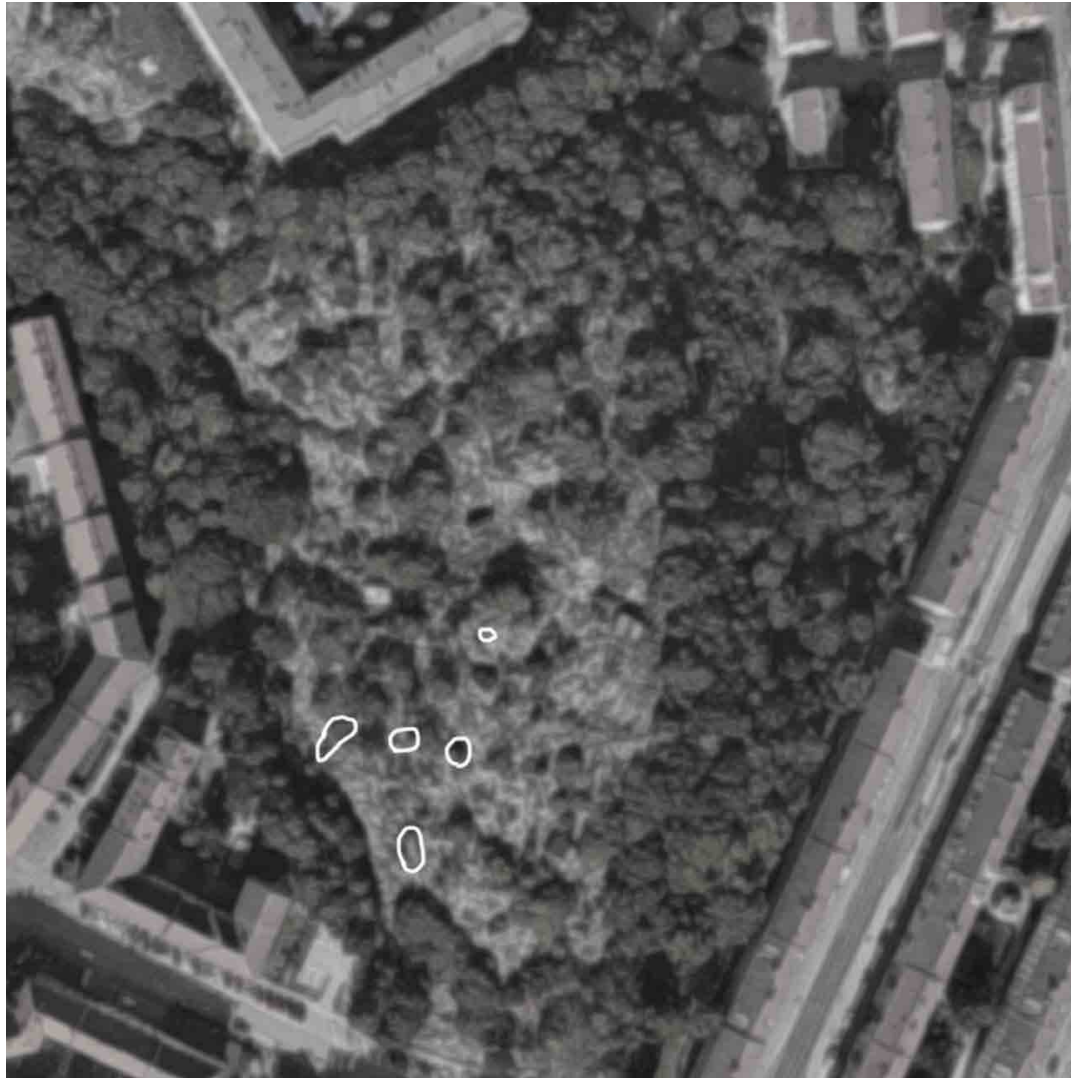
Duvberget

Dovecotes at Duvberget



79

Places of Wims findings in spatial qualities

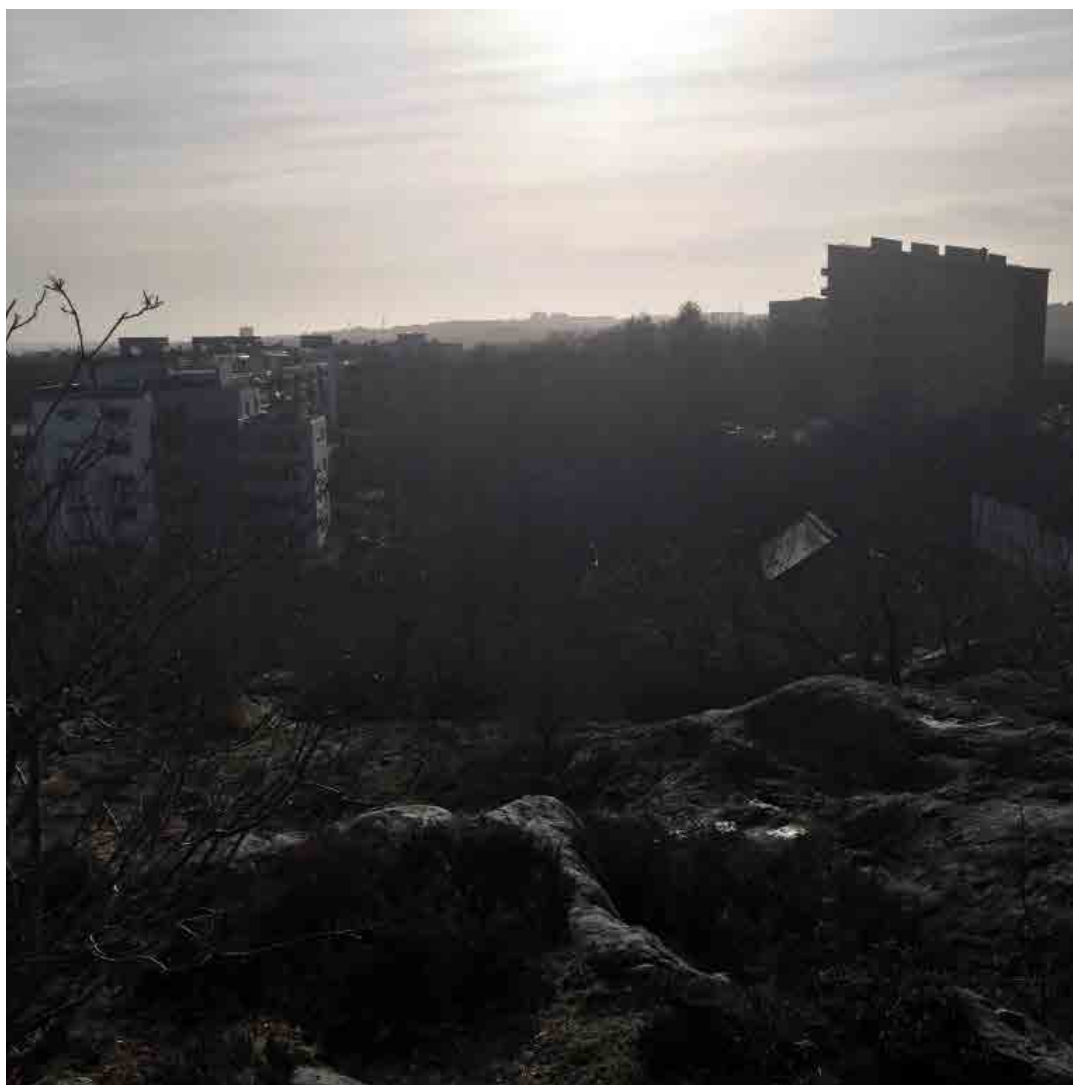


80

Photos taken from visit together with my son Wim



81



82





84

Stone bed

Photos and sketches researching Wims spatial interests at site, for inspiration to urban shelter - both inside and outside activities



85

STONE BED



Natural forces creating an organic stone bed. In section we see that it is curved for body placing in between and above rock. In section below we see that bed makes space for leg, but, back and neck.



86

MAGIC SOUP





Stone in rock landscape, perfect for making magic soup



In section we see that stone is large enough for a child standing on one side and for a grown up sitting on the other side, resting in the heather

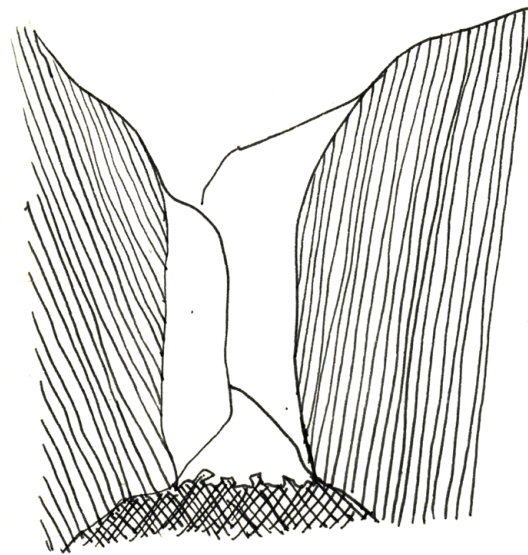
88





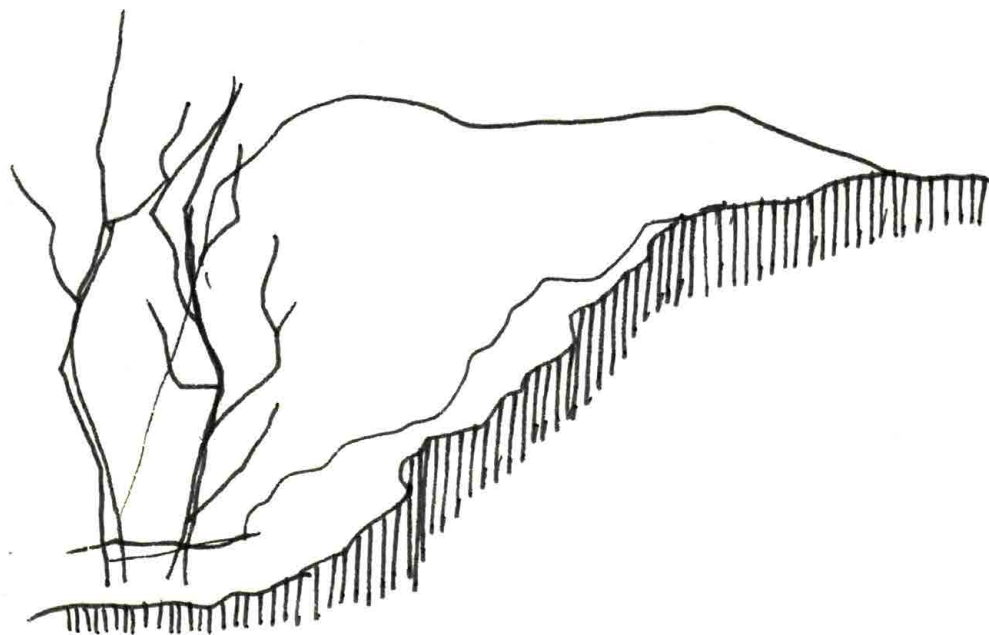


EXCITING CLIMBING



91

In section we see that during climbing it is possible to use even the walls which creates a new dimension. Not being able to see the outcome or where you are heading gives excitement

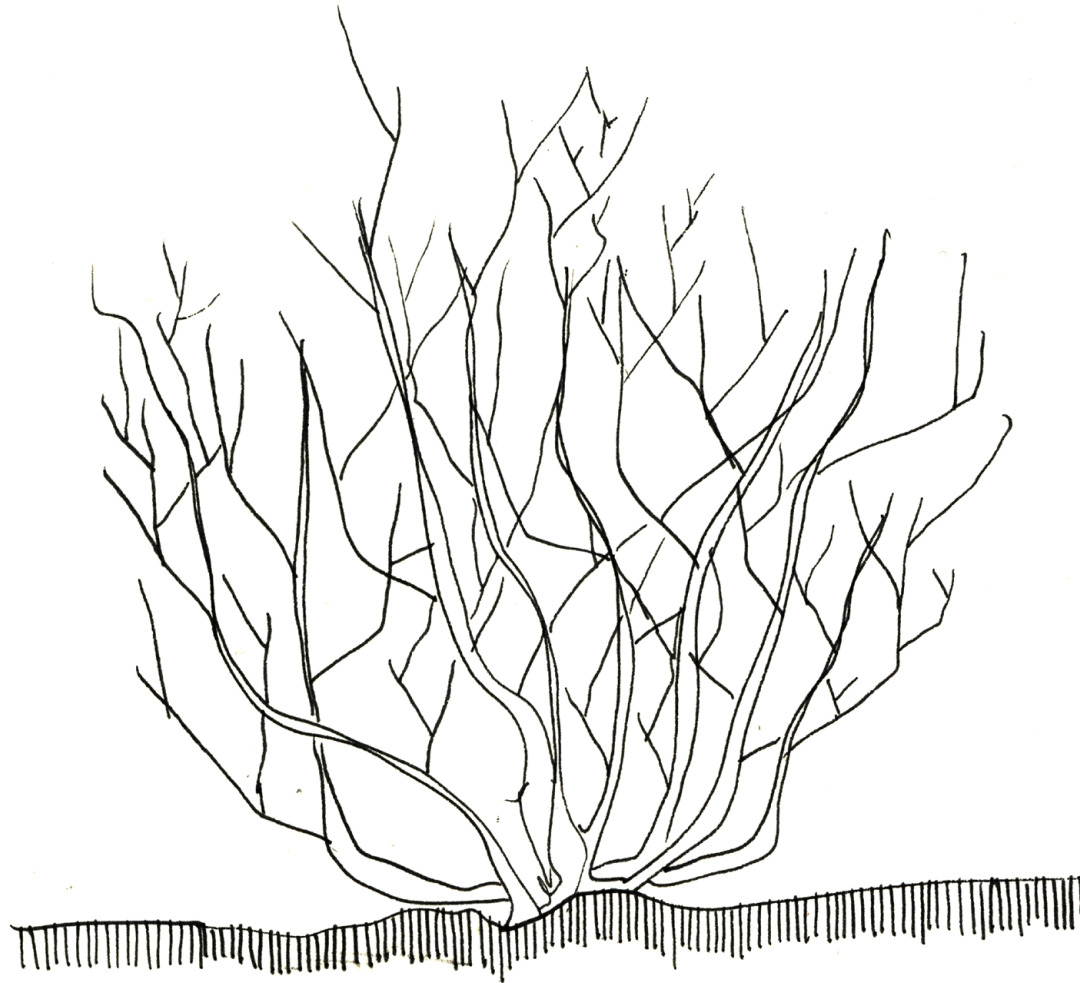


92

Before climbing there is trees to either use for climbing or to passage before climbing, creating a hidden space - a new place to explore. Not knowing where you were, not knowing what you will come to, just here and now.

TREE BED

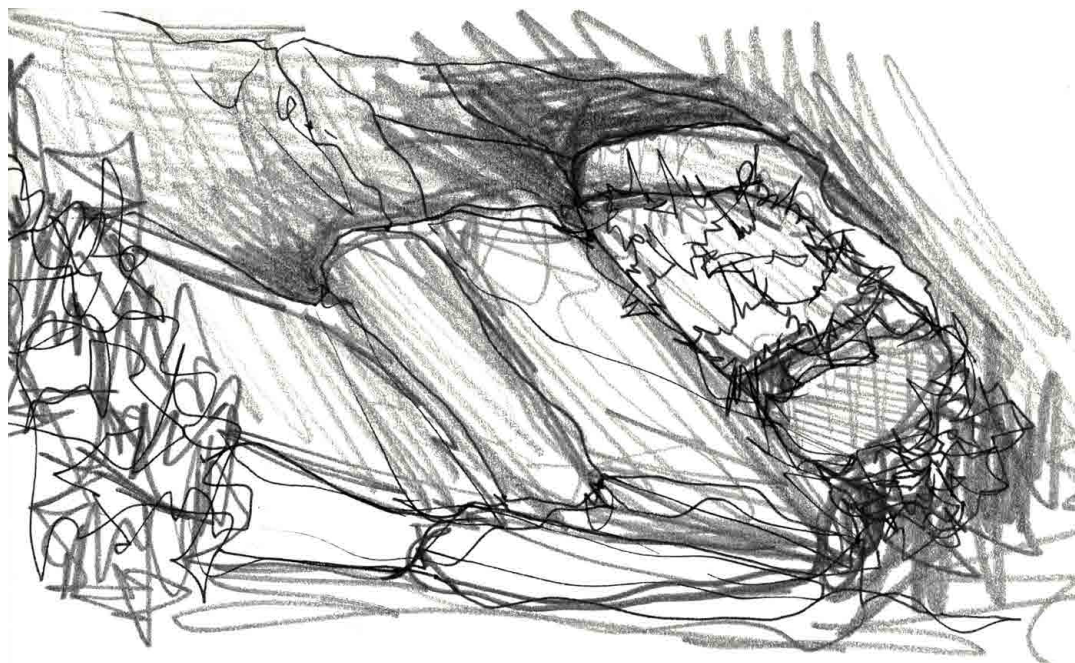




In section we see that tree is rooted with curved branches creating a natural bed ⁹⁴

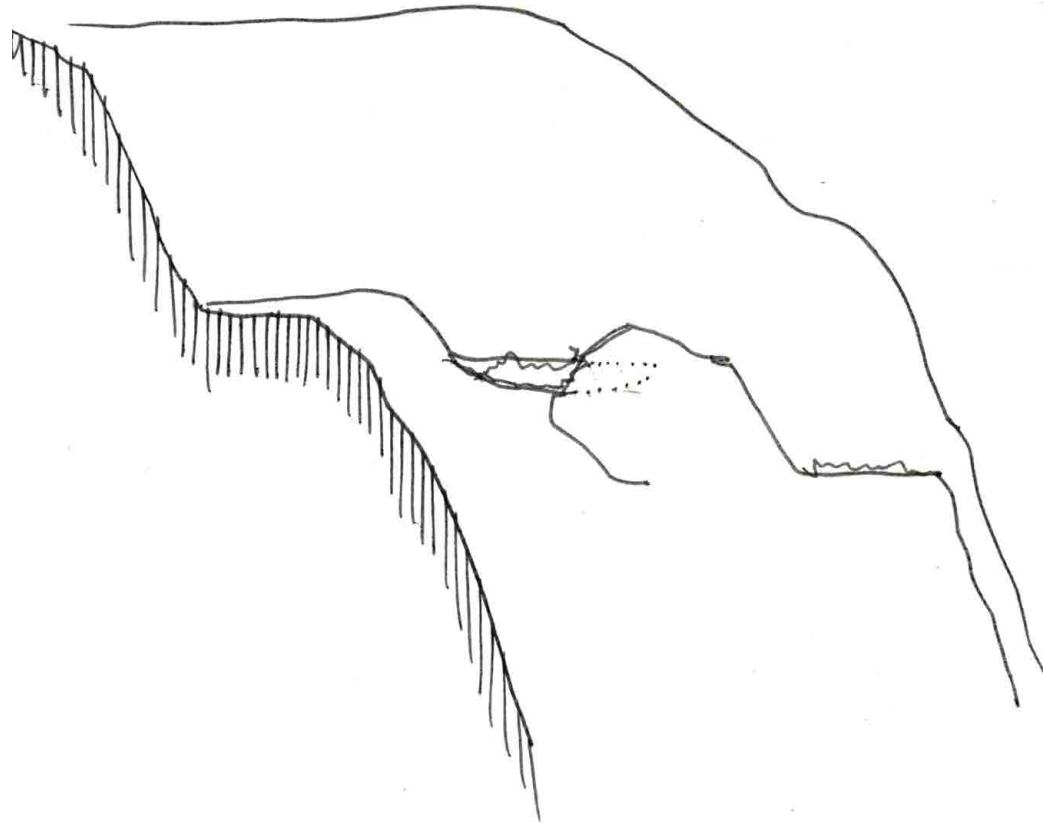
BALCONY





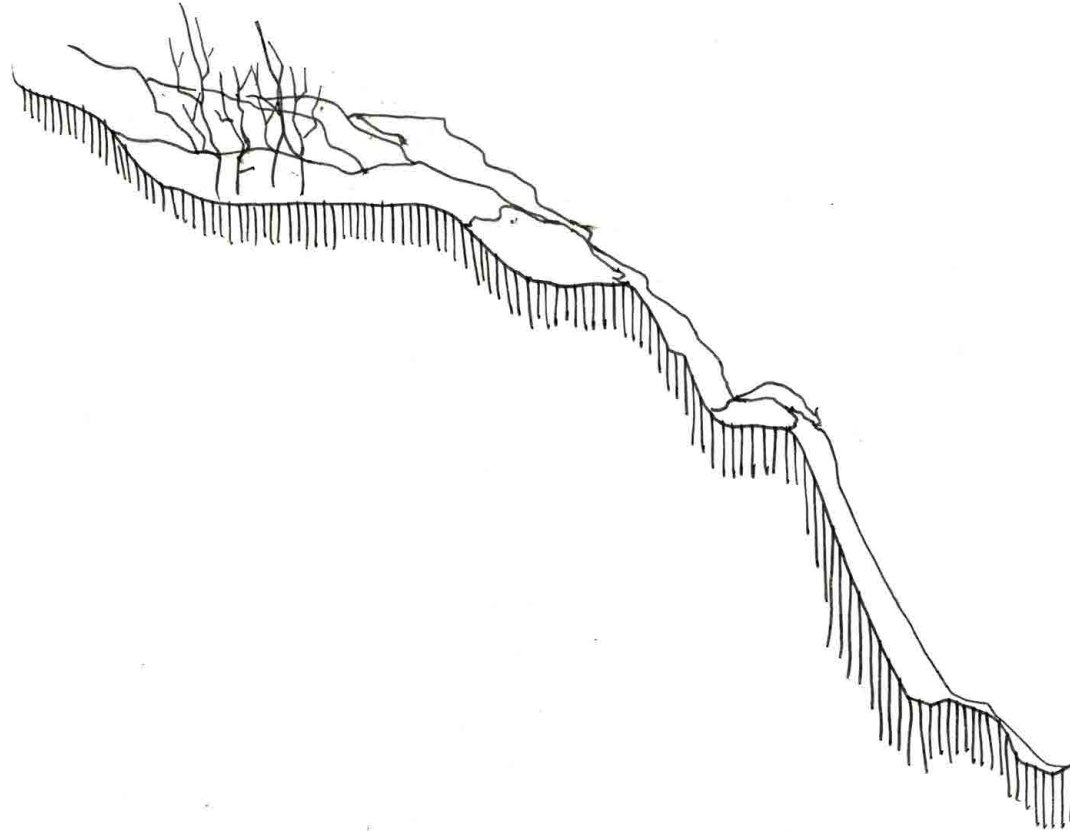
Stones and grass and bushes creating a natural balcony

BALCONY



97

Balcony is sited on a cliff so you need to climb up and down to reach it, when you reach it you are all alone with safety from the rock in your back and with a view over gothenburg harbor entrance. Rock in front of balcony serves as balcony parapet



98

In section we see that balcony is sited just below site of Cave

Site of placing Cave at Duvberget



99



100

Site at Duvberget



101



102

Light studies

Through comparing models with a variety in openings



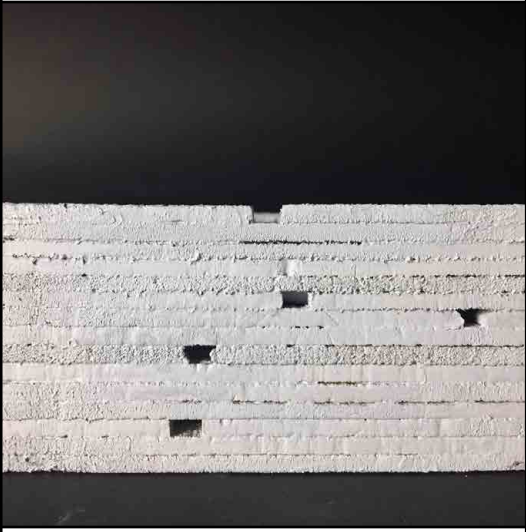
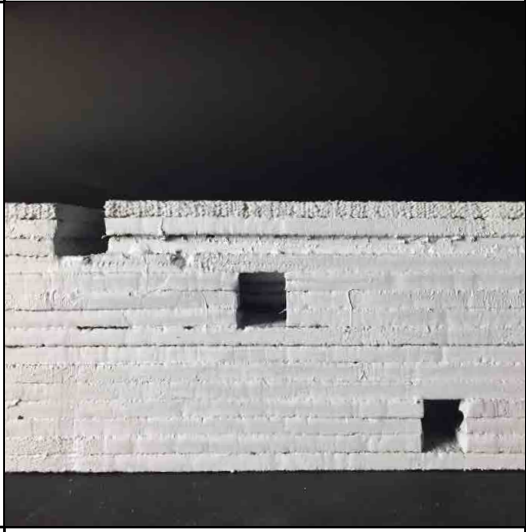
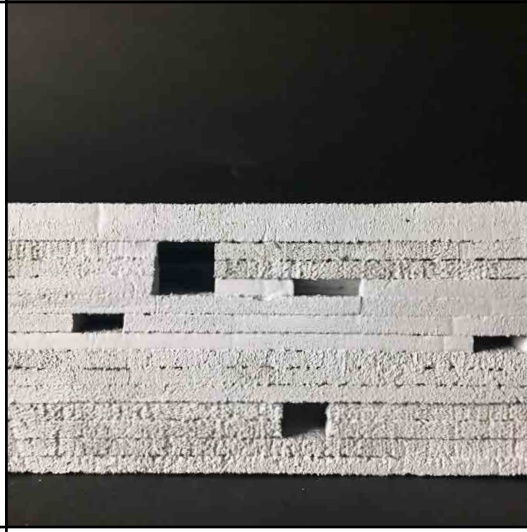
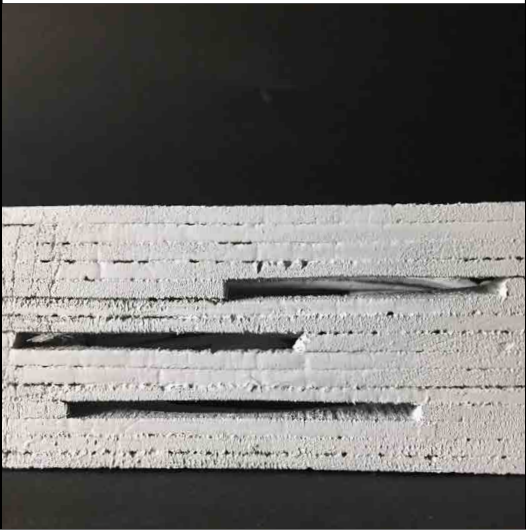
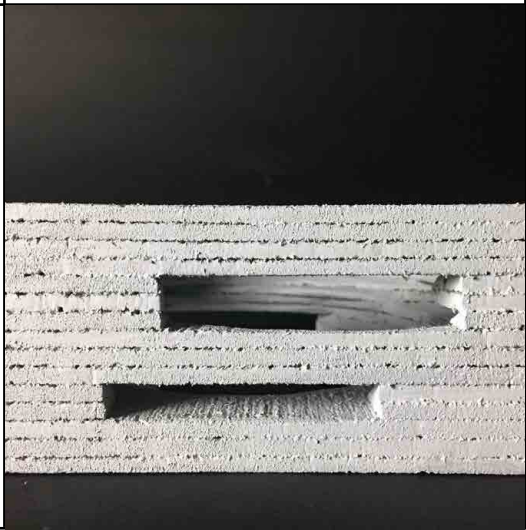
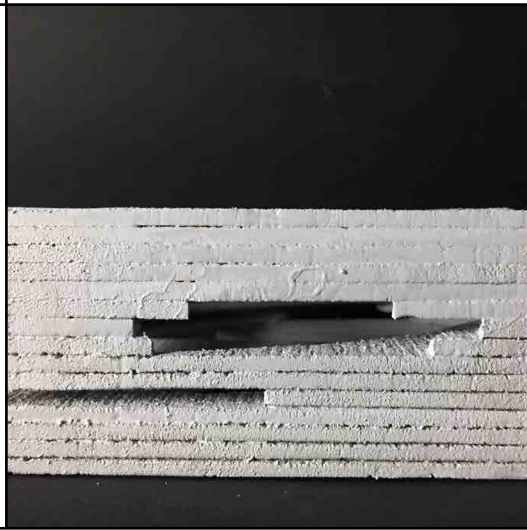
103

Settings:

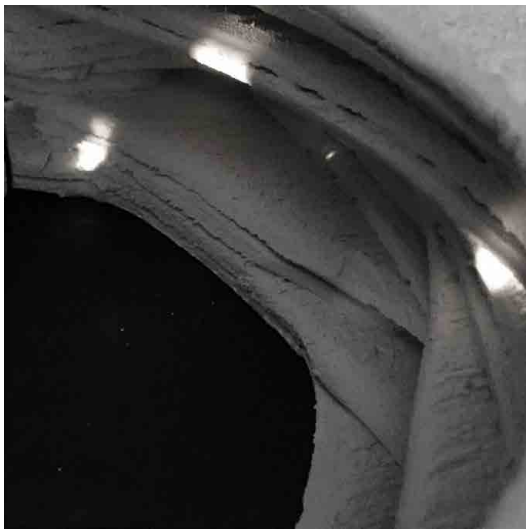
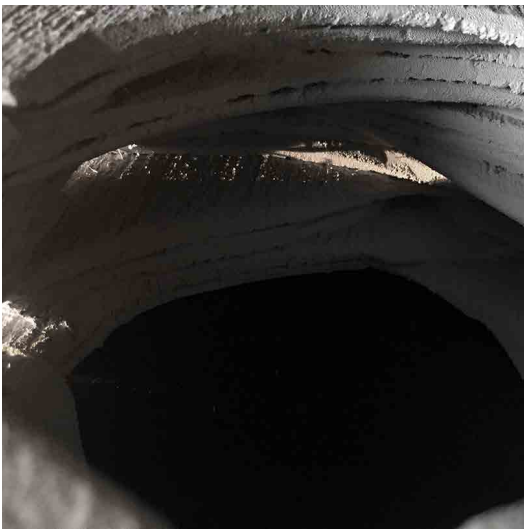
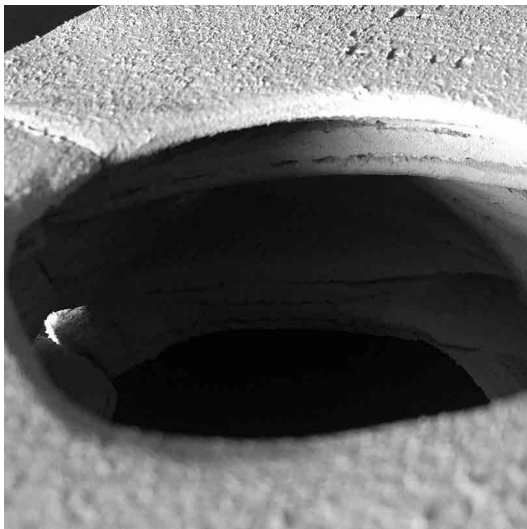
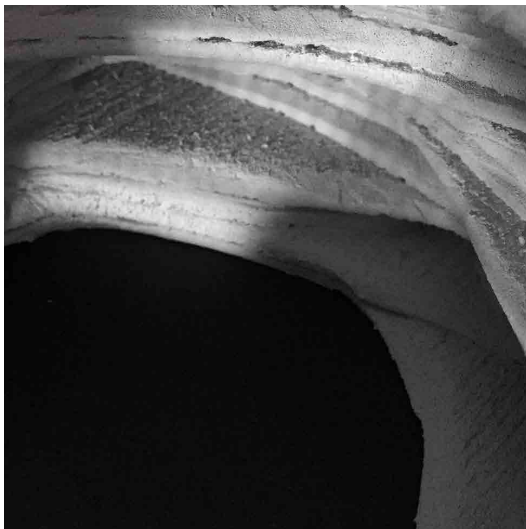
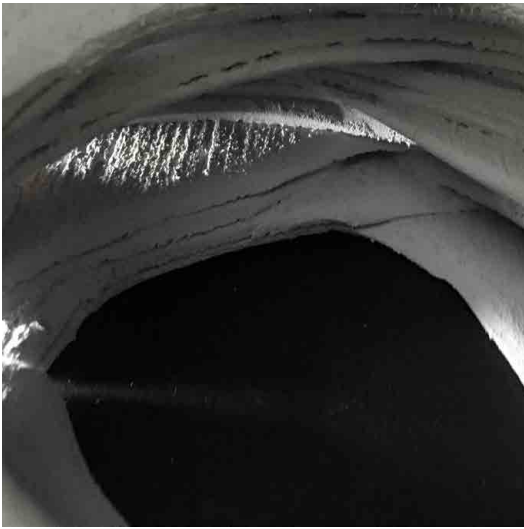
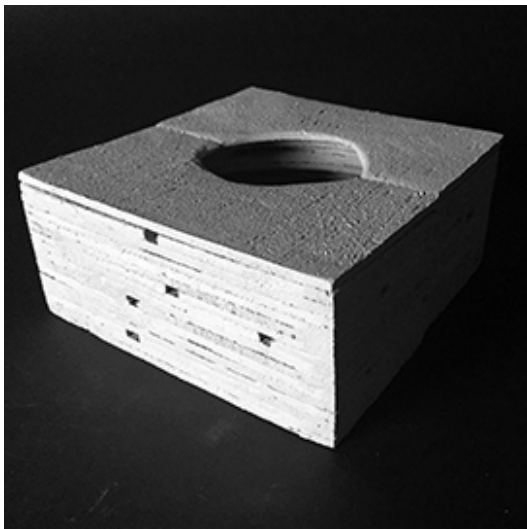
Using same thickness in slabs and with light from the side. One lamp for day light, one lamp for evening light and one for general light to use at both day and evening. Using a black paperboard to block external light from Caves top.

Size of models: 15 x 15 x 8 - 1:20

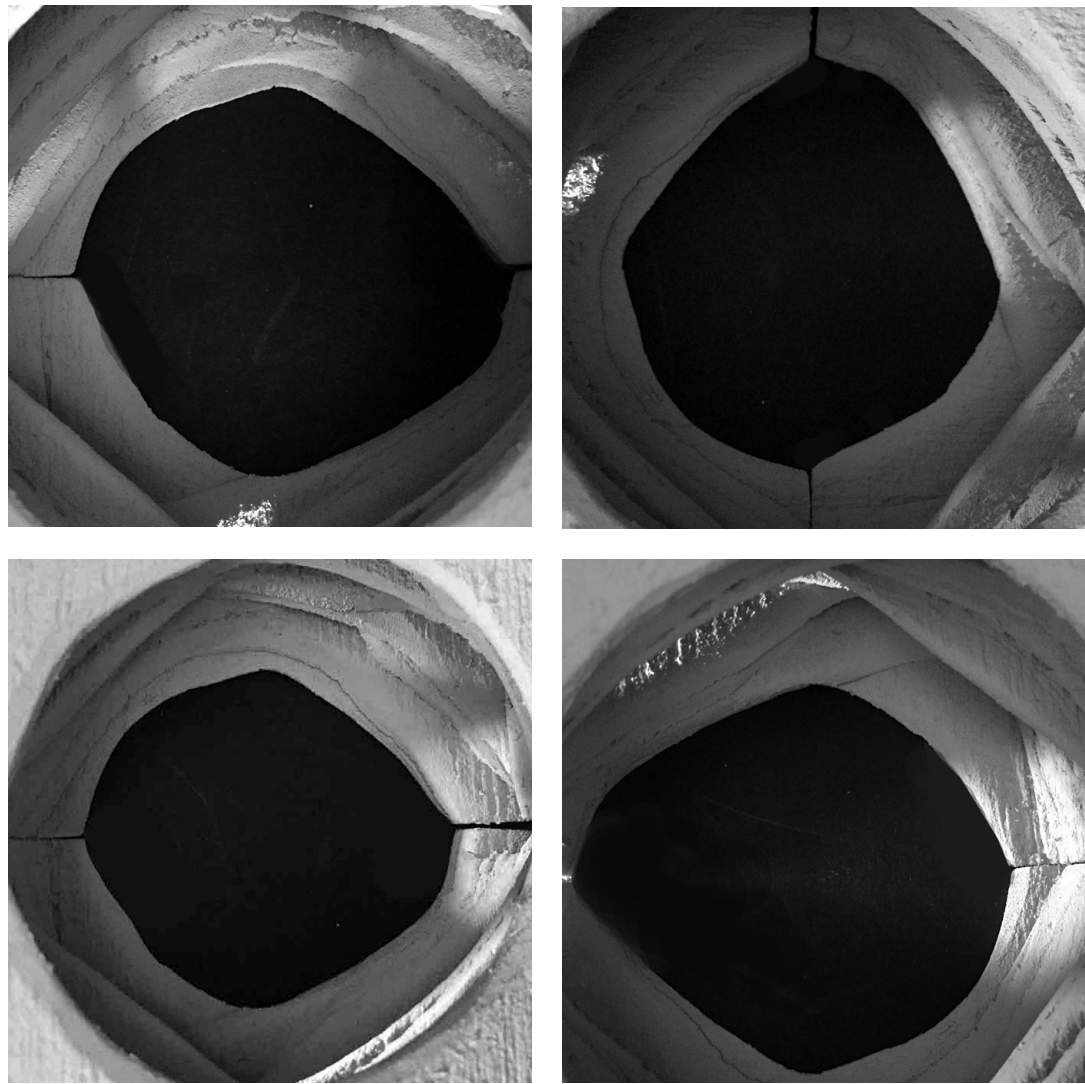
openings

slabs		simple	dubble	simple and dubble
size				
	small			
	broad			

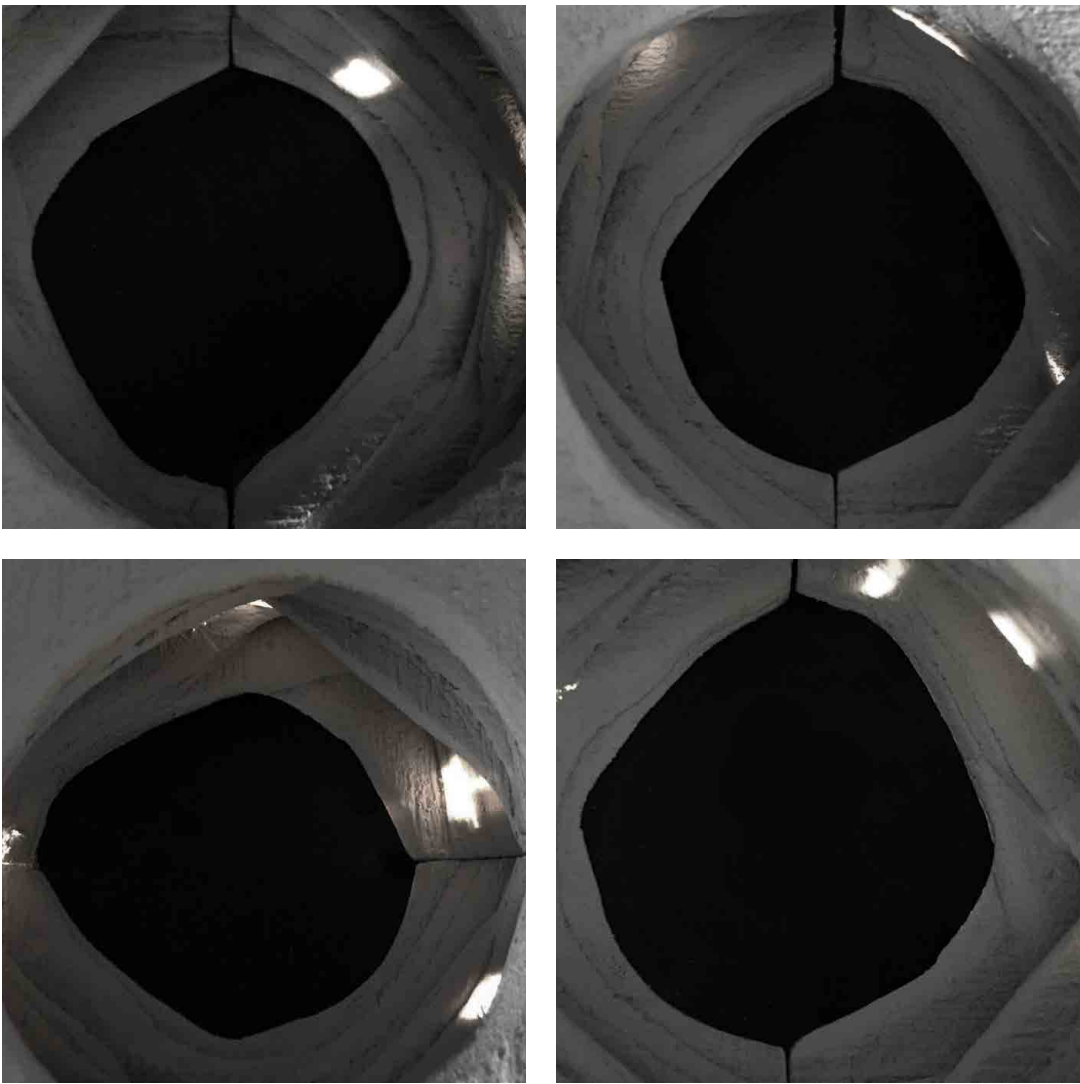
SMALL AND SIMPLE, perspectives in daylight and evening light

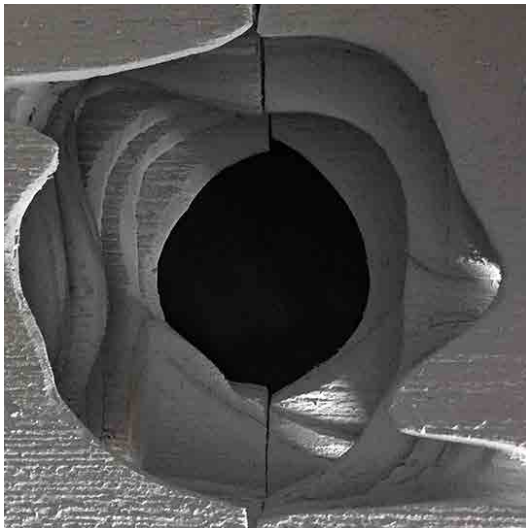
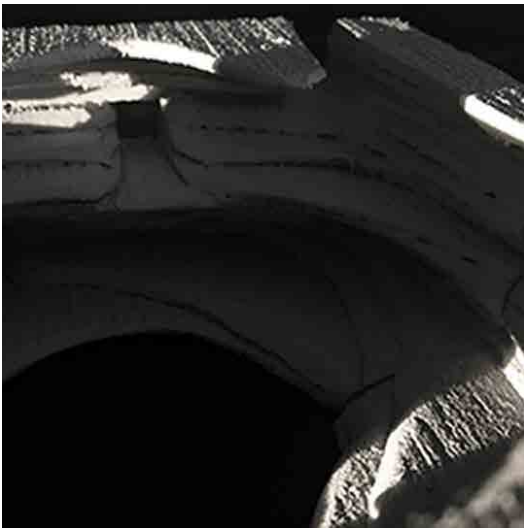
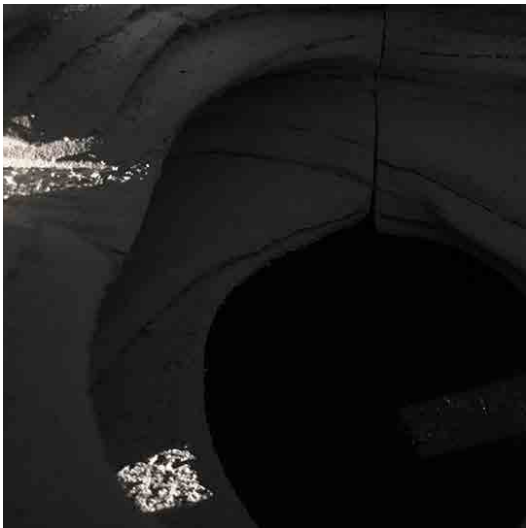
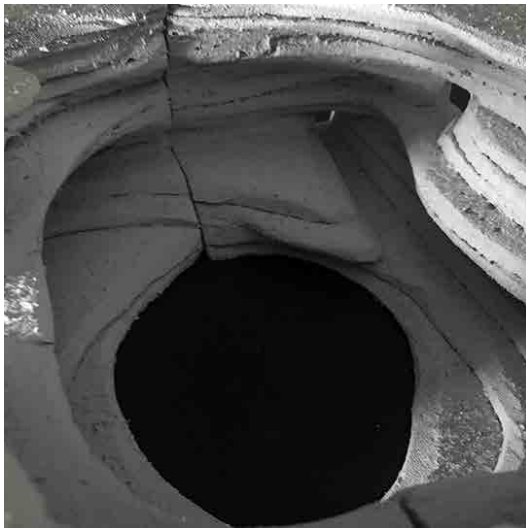
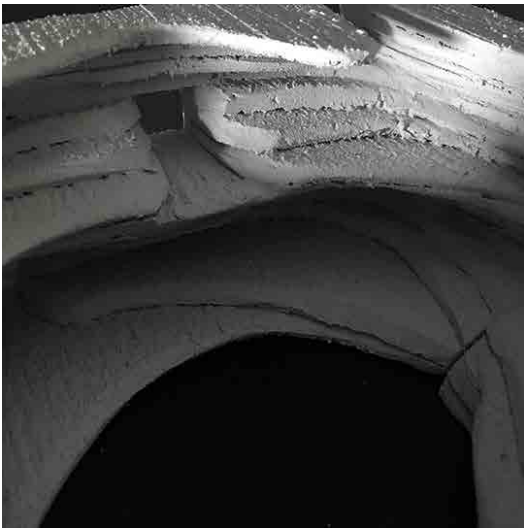
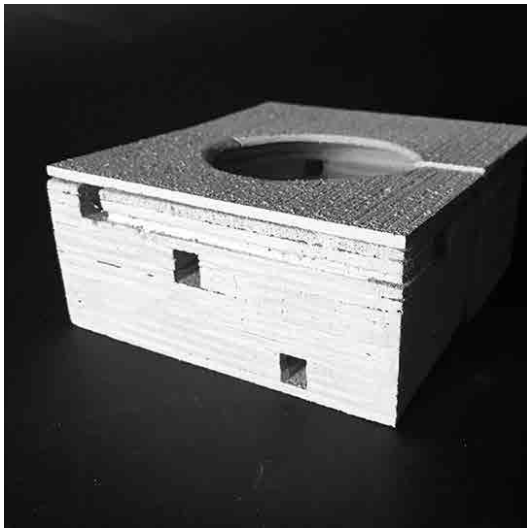


Day light - north, west, south and east

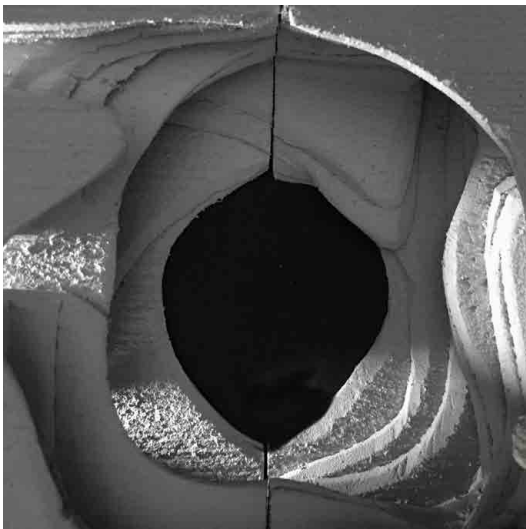
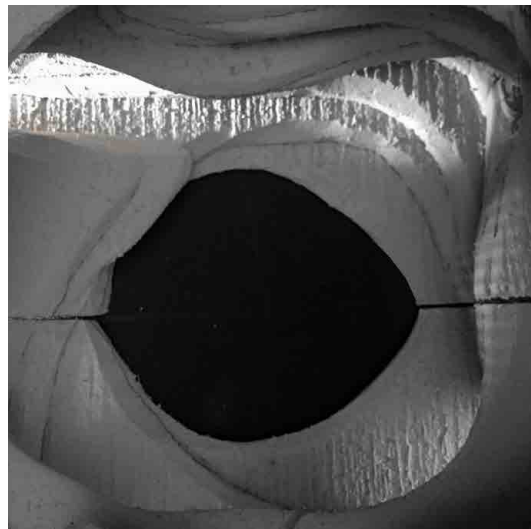
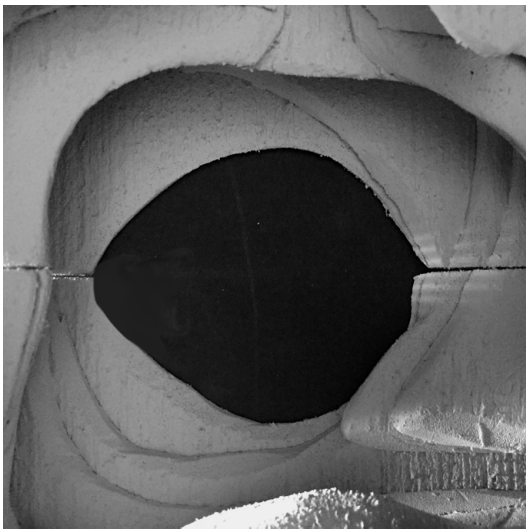
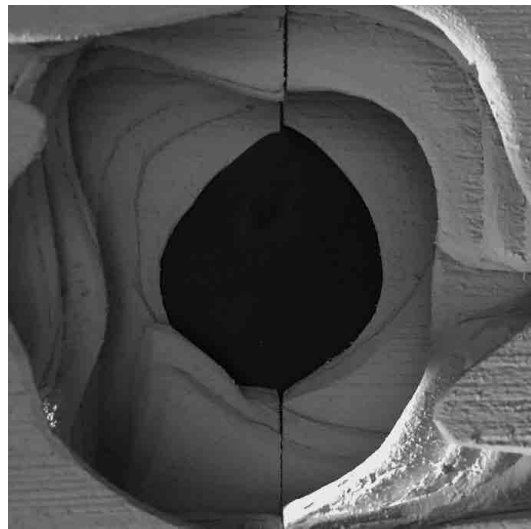


Evening light - north, west, south and east

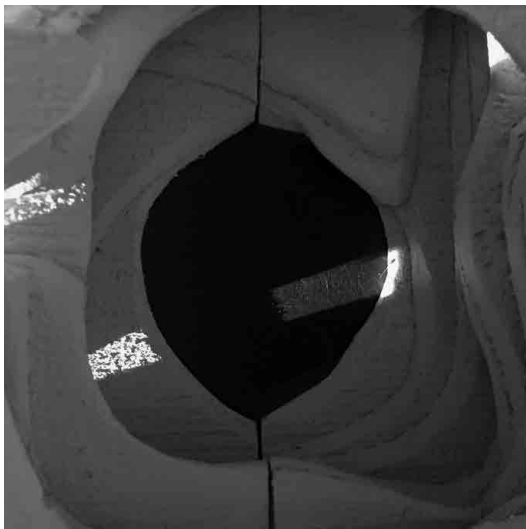
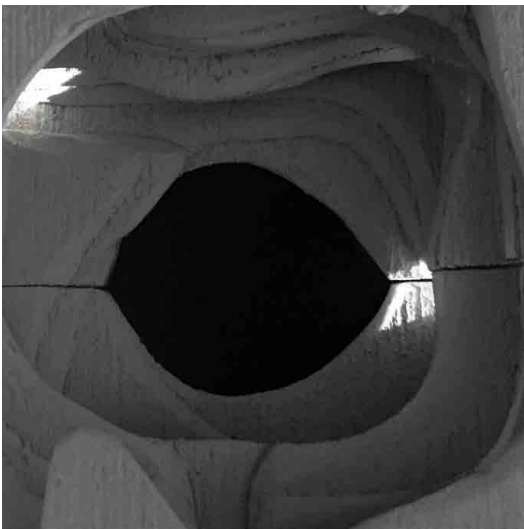
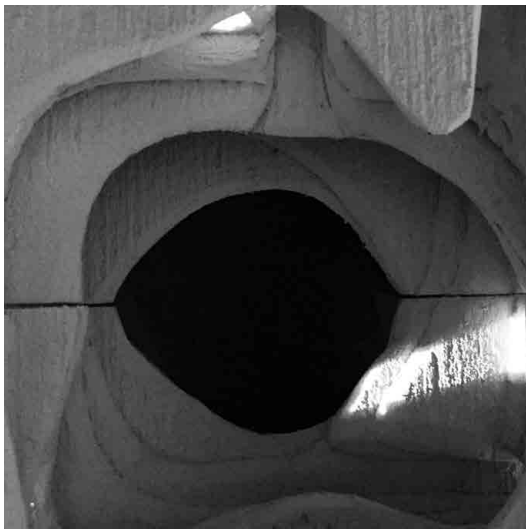
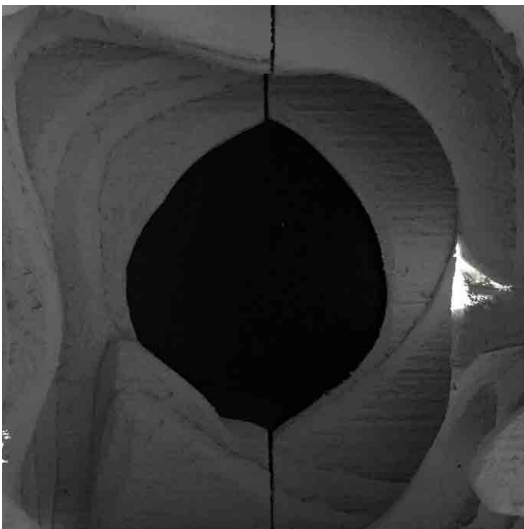


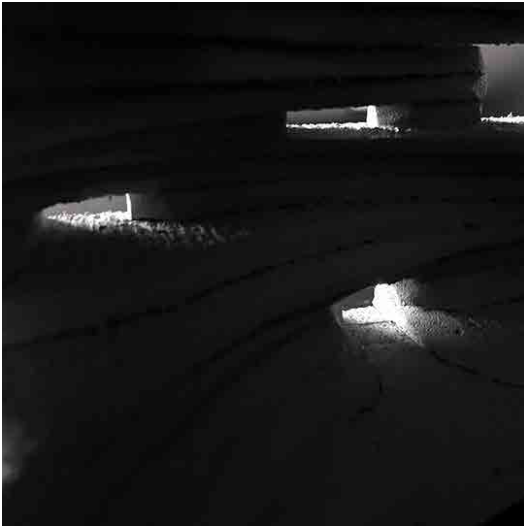
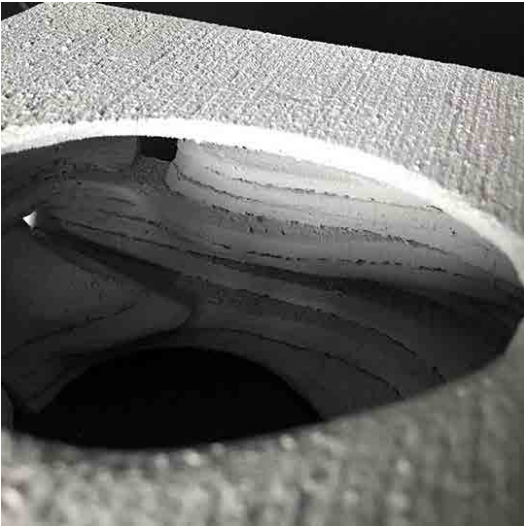


Day light

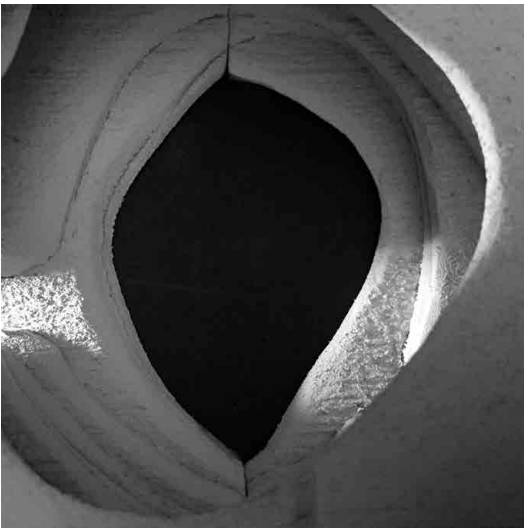
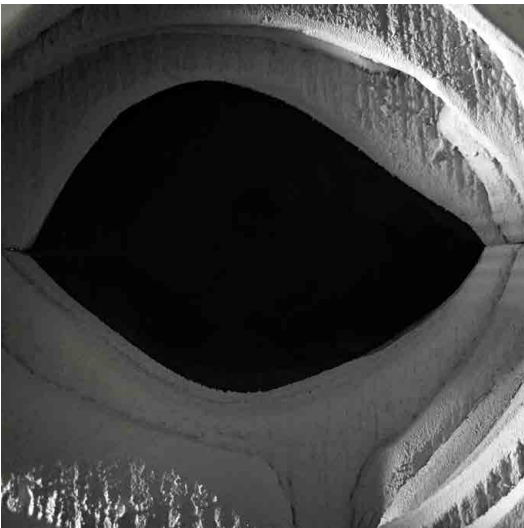
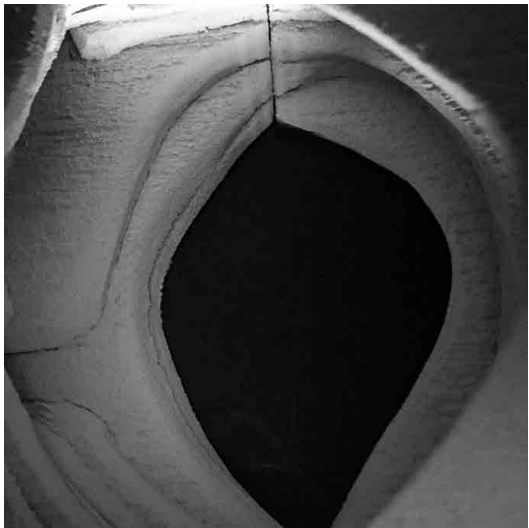


Evening light

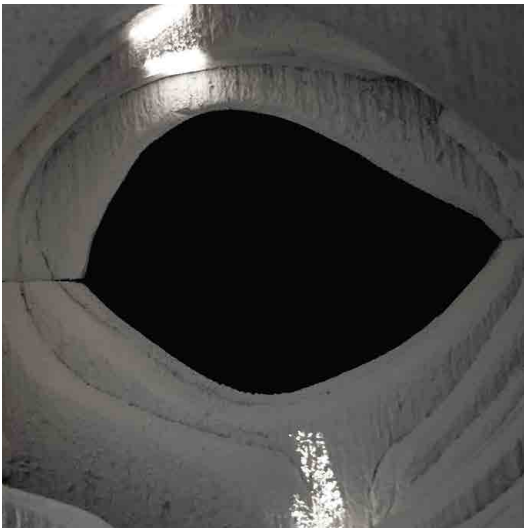
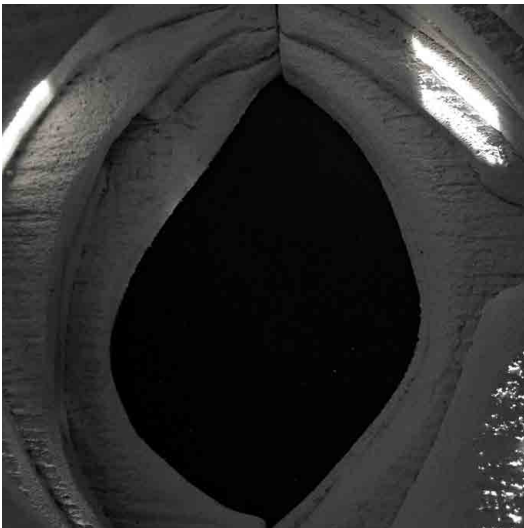


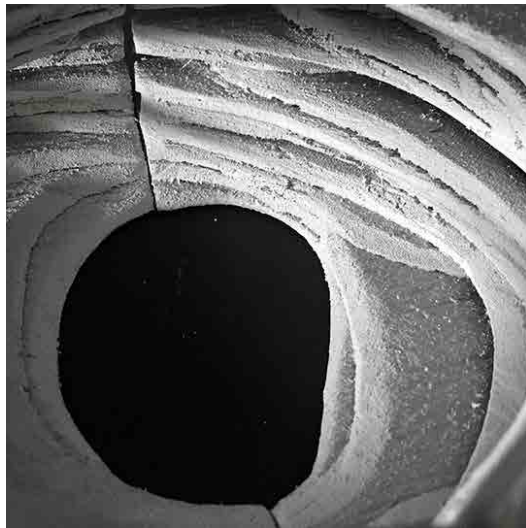
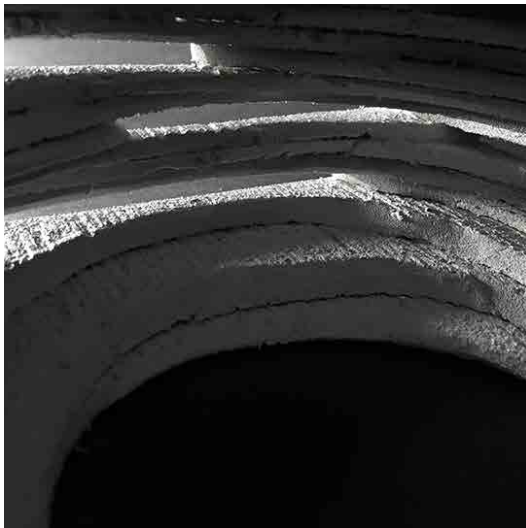
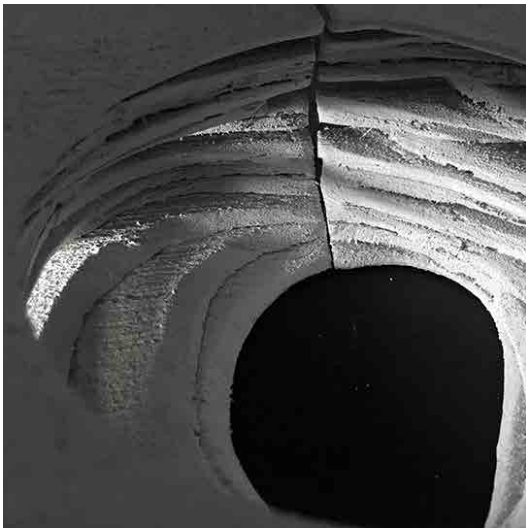
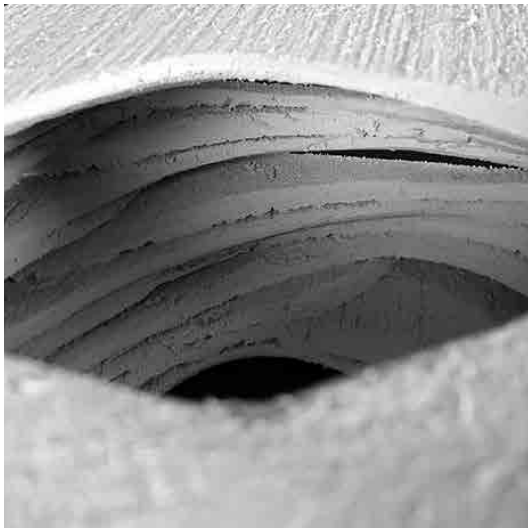
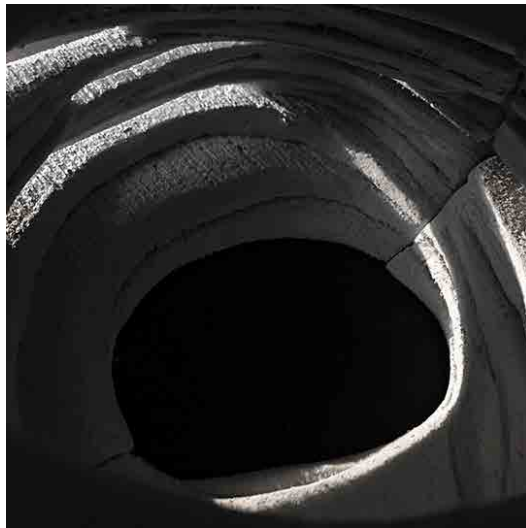


Day light

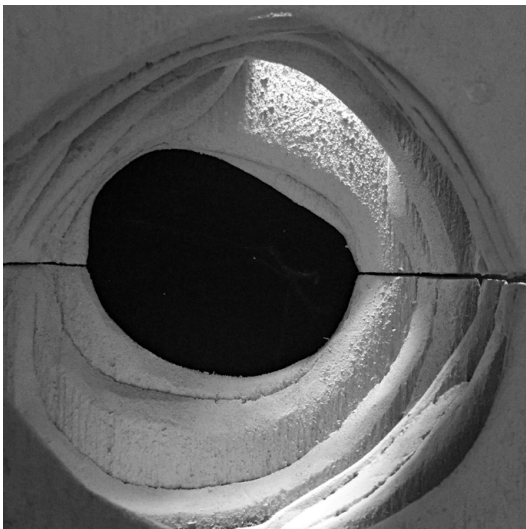
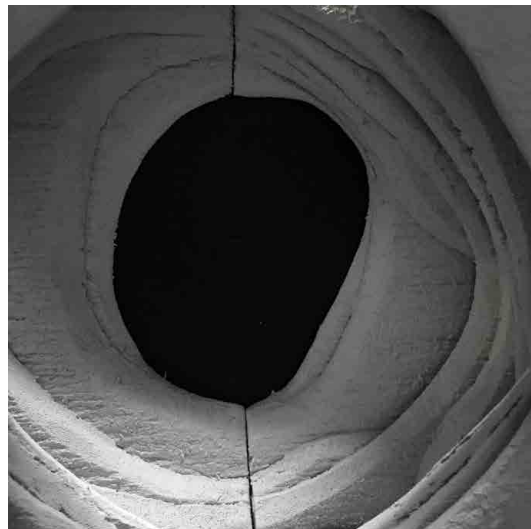


Evening light

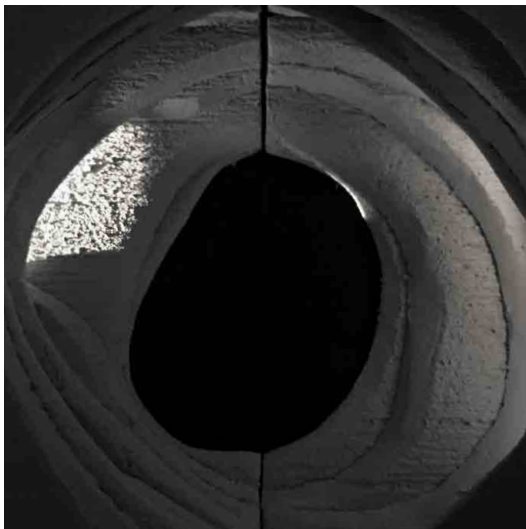
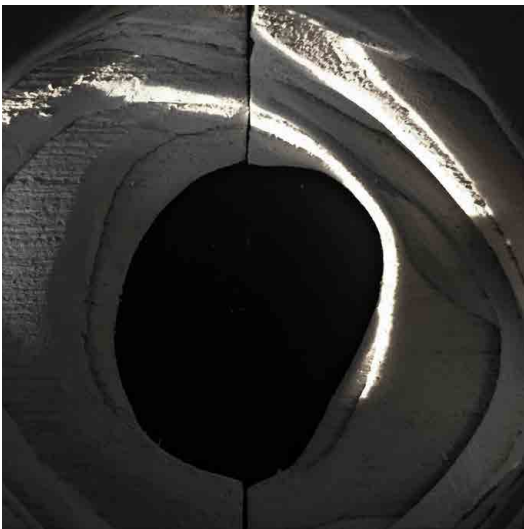
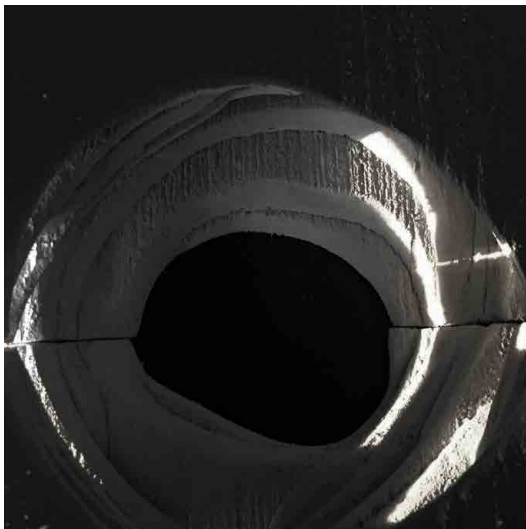
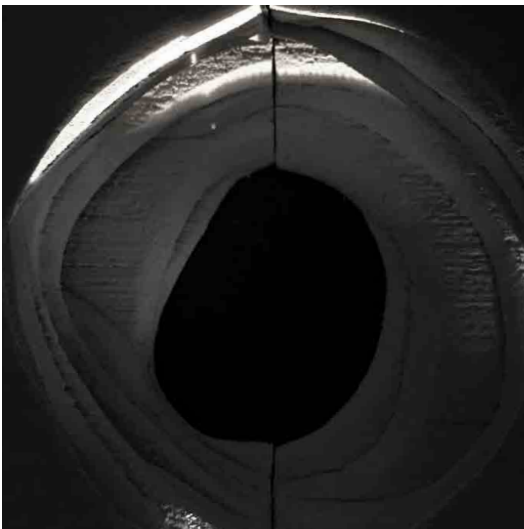


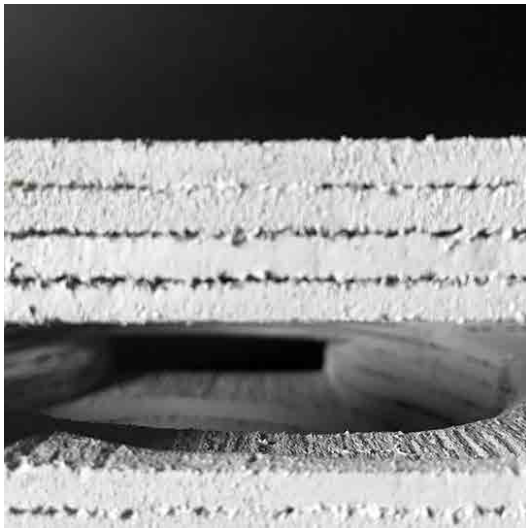
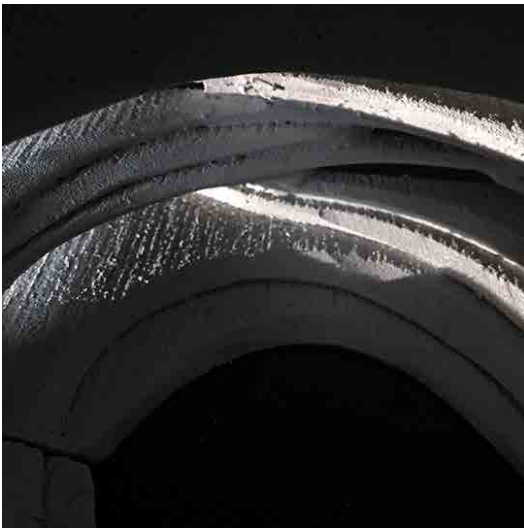
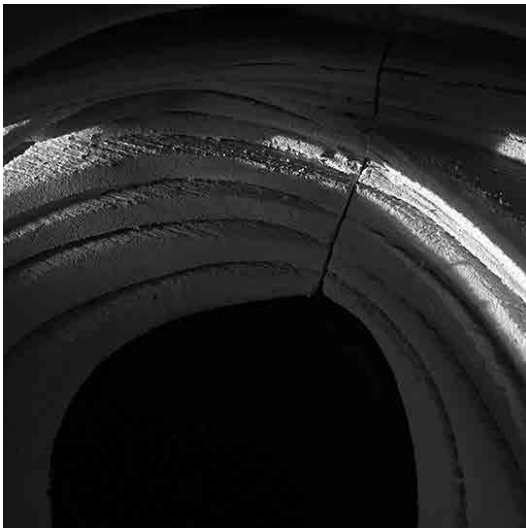
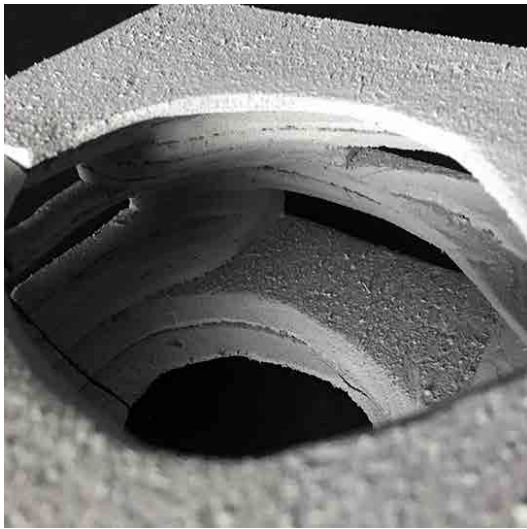


Day light

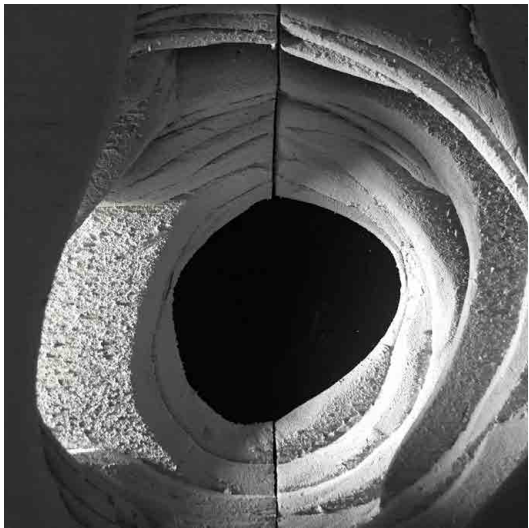
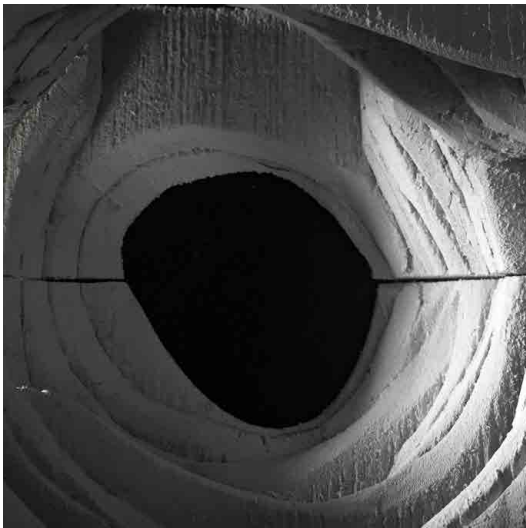
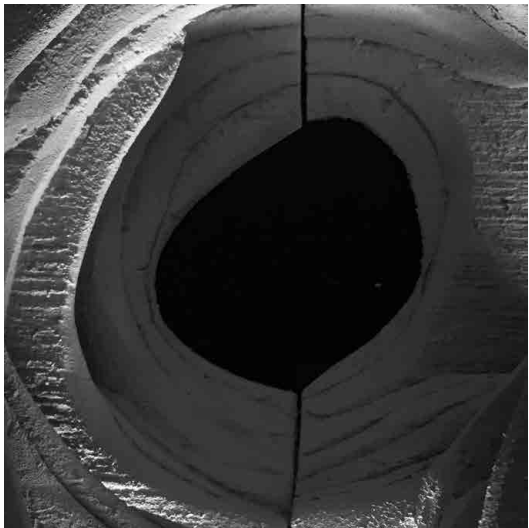


Evening light

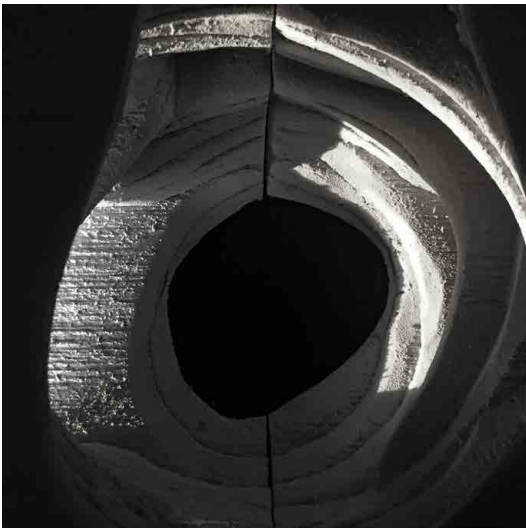
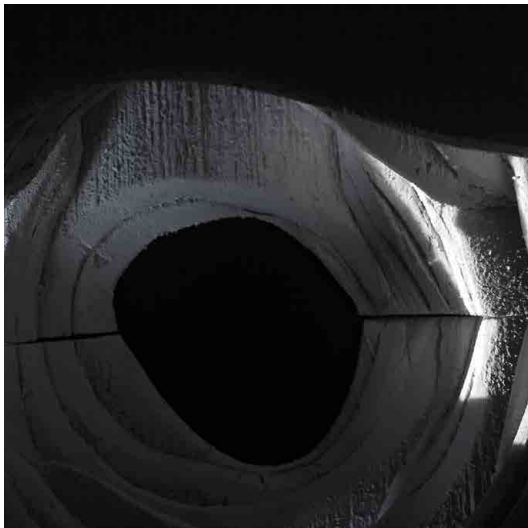
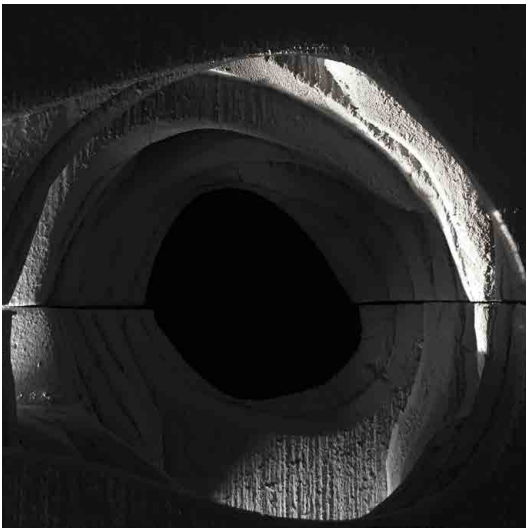


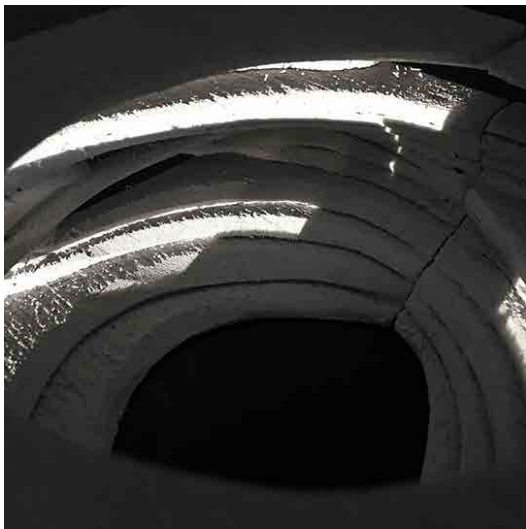
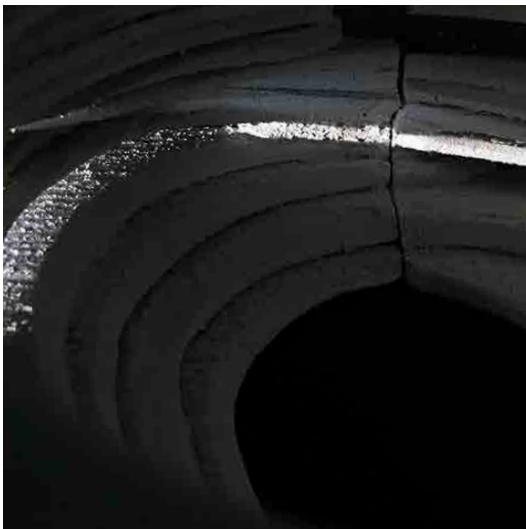


Day light

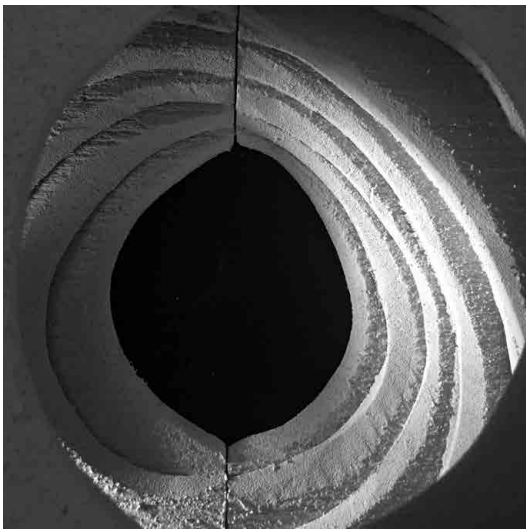
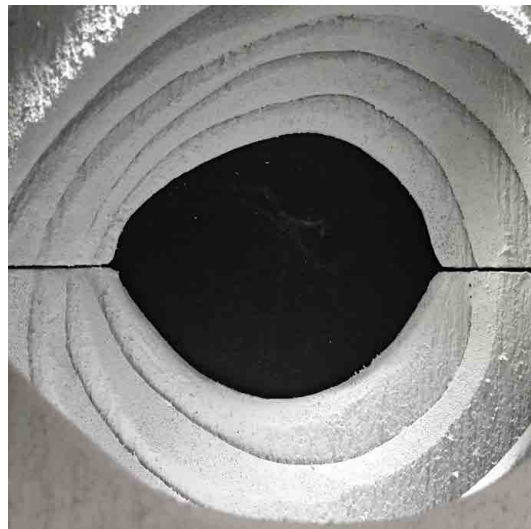
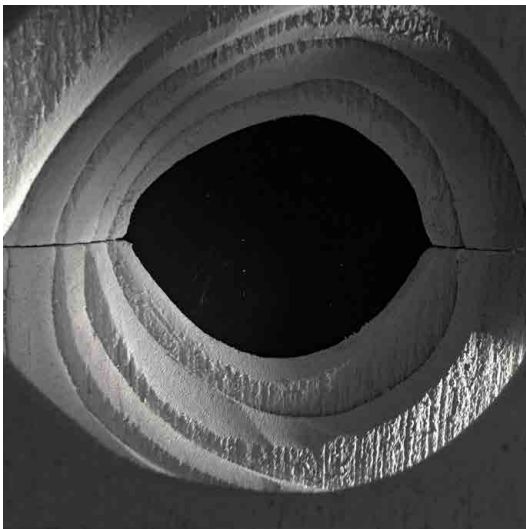
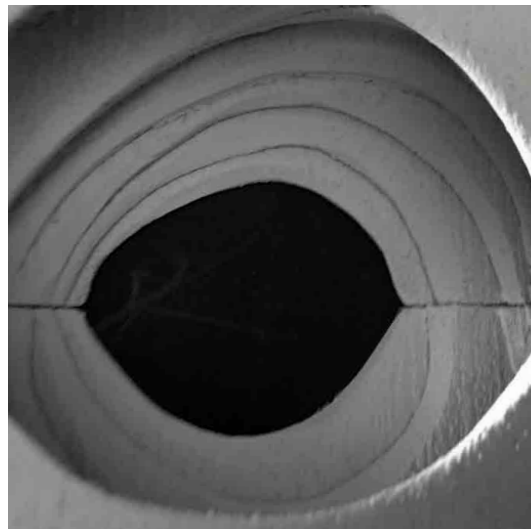


Evening light

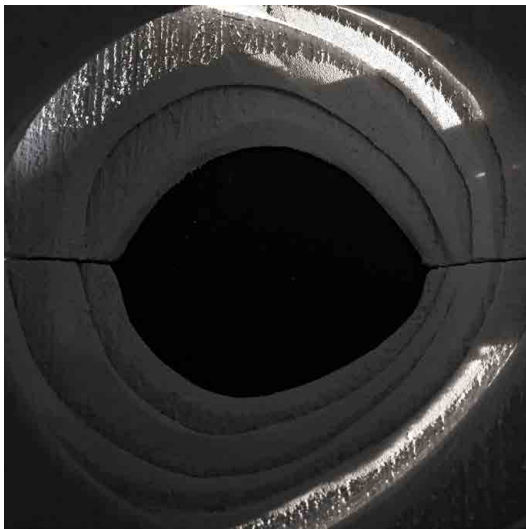


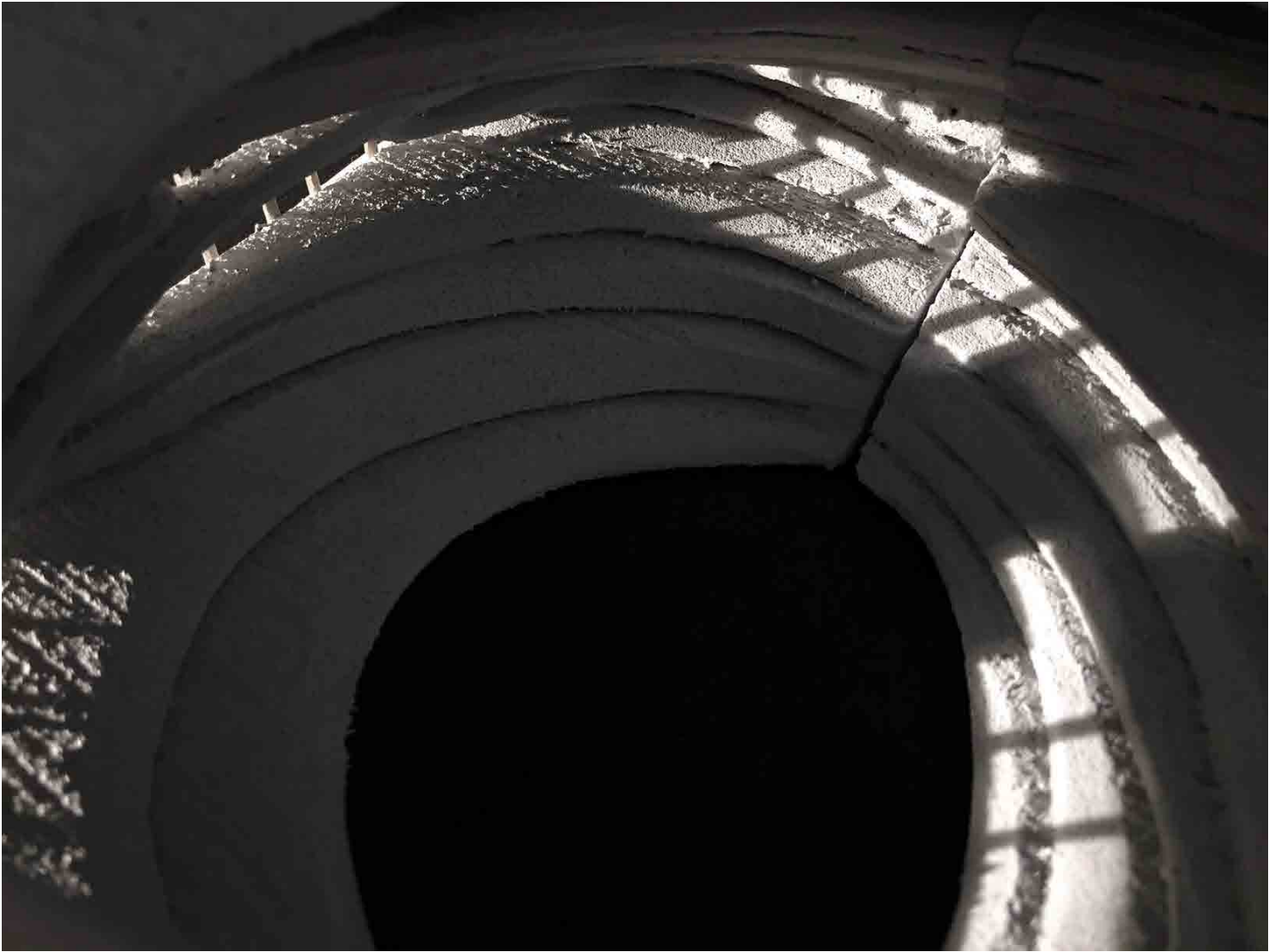


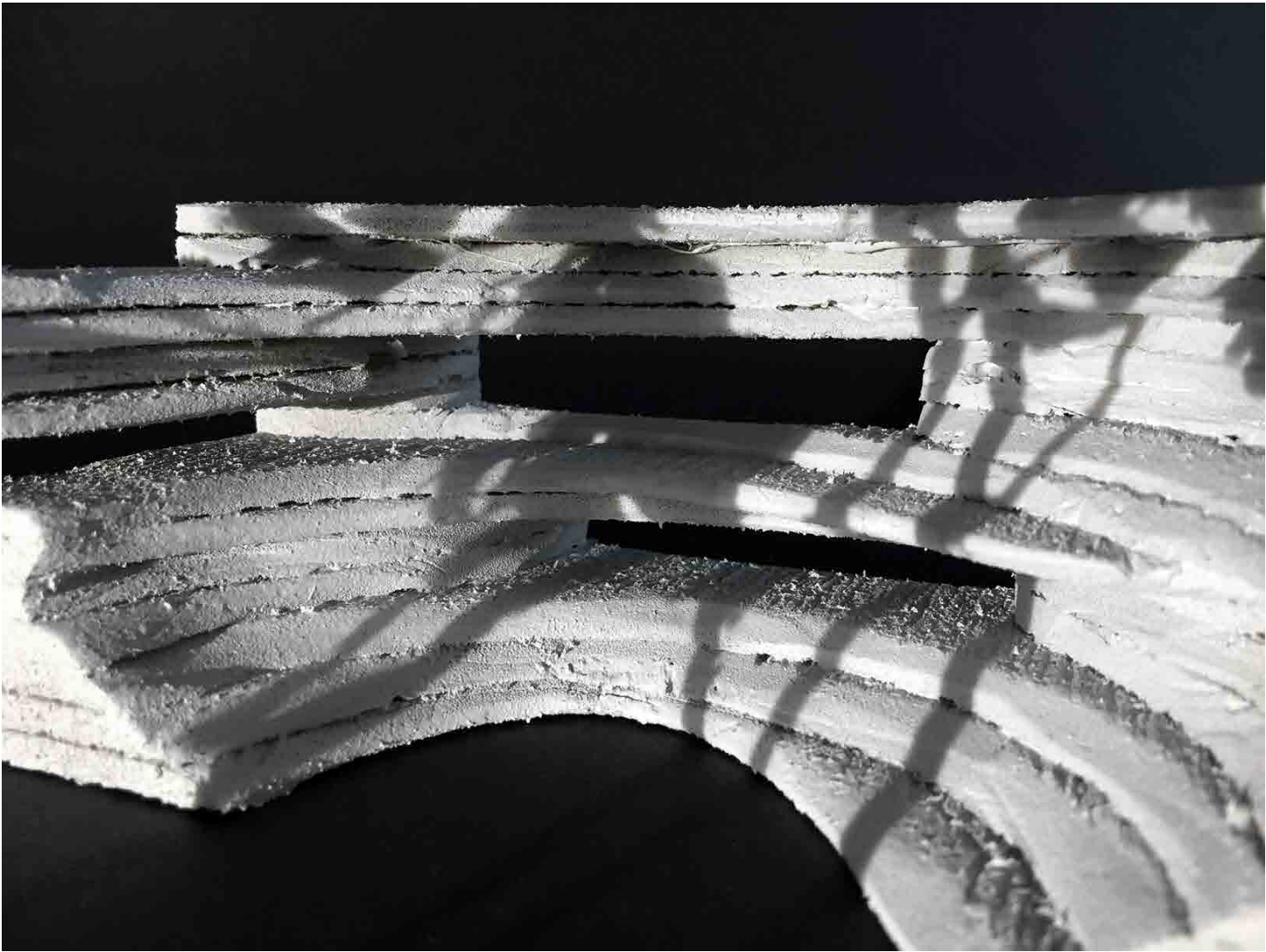
Day light



Evening light



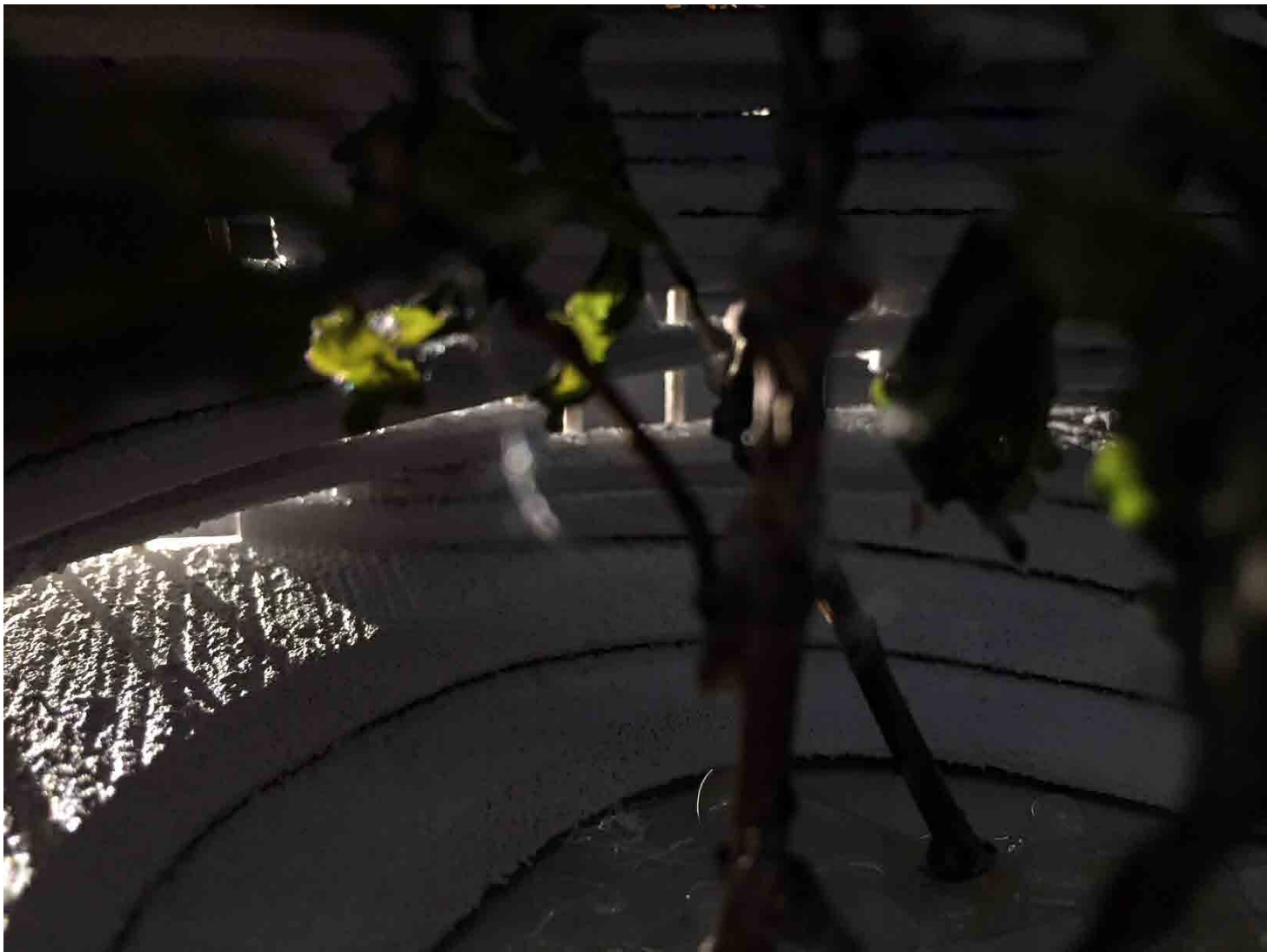




MERGING

Trees and organic forms inside

striped horizon, raking lihgt and reflections





DUALITY

Duality is an essential feature of the human mind. Our mind makes use of duality to understand the world, to make sense of it.

True maturity is attained when a person becomes aware of the fact that the mind understands the world by means of duality. When the person becomes aware of his dual nature, he begins to transcend it. He steps back from his mind and realizes, for the very first time, that he has the power to observe and control his own mind.¹

Cave is representing such condition, that when two contrasting forms meet there can be formed a new shape. Such place is called awareness.

¹ The human mind and duality: How we understand the world (2015) <http://www.psychmechanics.com>

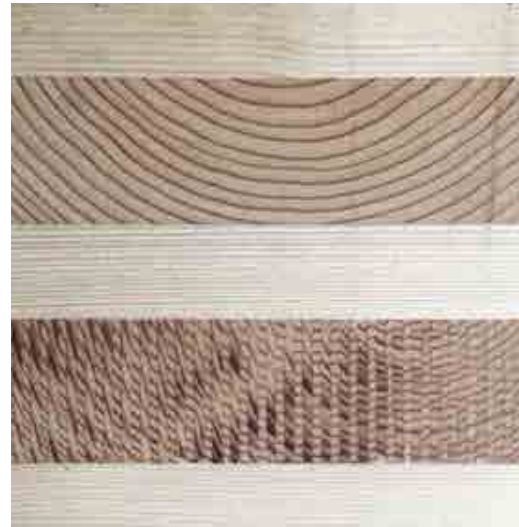
Materiality

Biodegradable tar and linseed oil without any preservatives. For protection and to create a magnetic, contrasting outside and a reflective inside with patterns and treatments.

MAGNETIC



TREATMENT/PATTERNS



121

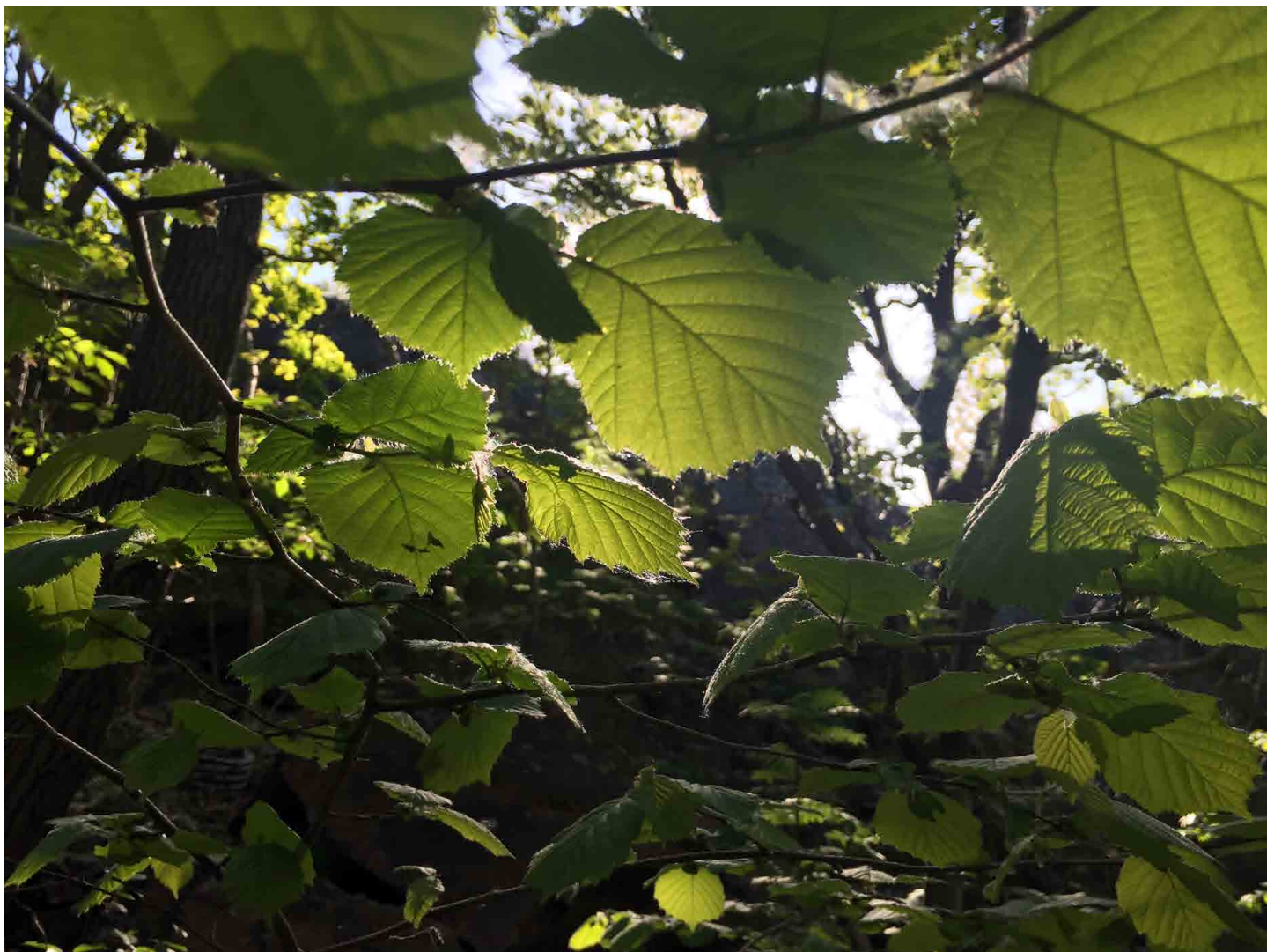
BUILDING TECHNIQUE is to be used by hundred holz or similar company (building with hundred procent biodegradable wood) and cnc-cut at fabric, then puzzled together on place and milled by hand for curved inside. Last finish is to treat with organic tar and raw linseed oil.

Second alternative is to build them by hand with saw and plugs and put together. Then pieces could be treated beforehand and milled as above.





123





125

INDEX OF IMAGES

- 000: Model picture, *light-studies*, Tove Nankler, May 2019
- 001: Photos of Värmland, *where i find inspiration*, Tove Nankler, January 2019
- 002: Model picture x4, *first model of Cave*, Tove Nankler, October 2013
- 003: Model picture x6, *prototypes of childhood memories*, Tove Nankler, October 2013
- 004: Model picture x2, *experimenting with Cave*, Tove Nankler, November 2013
- 005: Model picture x4, *Cave as a student house*, Tove Nankler, December 2013
- 006: Sections and plans x4, *hand drawing*, Tove Nankler, December 2013
- 007: Sections and plans x4, *Cave as an attefalls house*, Tove Nankler, February 2014
- 008: Hand drawings of model x4, *Cave as an attefallshouse*, Tove Nankler, Mars 2019
- 009: *N-house*, Sou Fujimoto Architects, November 2018, <https://vectorsave.com/2009/09/final-wooden-house-by-sou-fujimoto/>
- 010: *Le Cabanon*, Le Corbusier, November 2018, <https://www.mimoo.eu/projects/France/Roquebrune-Cap-Martin/Le%2520Cabanon%2520de%2520Le%2520Corbusier>
- 011: *Reindeer pavillion*, Snøhetta architects, November 2018, <https://twwhlsppls.com>
- 012: *The Termite Pavilion*, a collaboration between Softroom Architects, Freeform Engineering, Atelier One, sound recording specialist Chris Watson and designers Haberdasherylondon, November 2018, <https://www.dezeen.com/2009/09/05/the-termite-pavilion-at-pestiv>
- 013: *Nature of Värmland*, Tove Nankler, January 2019
- 014: *Outside-inside (investigating harmony)*, Tove Nankler, December 2018
- 015: *Magnetic (investigating harmony)*, Tove Nankler, December 2018
- 016: *Raking light (investigating harmony)*, Tove Nankler, December 2018
- 017: *Centered (investigating harmony)*, Tove Nankler, December 2018
- 018: *Patterns (investigating harmony)*, Tove Nankler, December 2018
- 019: *Prototype illustrations*, Tove Nankler, December 2018
- 020: *Conclusion diagram*, Tove Nankler, December 2018
- 021: *Outside-inside* (sketchingpaper over photography), Tove Nankler, December 2018
- 022: *Outside-inside* (sketchingpaper only), Tove Nankler, December 2018
- 023: *Magnetic* (sketchingpaper over photography), Tove Nankler, December 2018
- 024: *Magnetic* (sketchingpaper only), Tove Nankler, December 2018
- 025: *Raking light* (sketchingpaper over photography), Tove Nankler, December 2018
- 026: *Raking light* (sketchingpaper only), Tove Nankler, December 2018
- 027: *Centered* (sketchingpaper over photography), Tove Nankler, December 2018
- 028: *Centered* (sketchingpaper only), Tove Nankler, December 2018
- 029: *Patterns* (sketchingpaper over photography), Tove Nankler, December 2018
- 030: *Patterns* (sketchingpaper only), Tove Nankler, December 2018
- 031: *Prototype illustrations* (developed), Tove Nankler, December 2018
- 032: *Concept model*, Tove Nankler, December 2018
- 033: *Cave illustration*, Tove Nankler, February 2018
- 034: *Rudowsky, B* (1964) Architecture without architects
- 035: *Rudowsky, B* (1964) Architecture without architects - An underground city in Tungkwai (China)

036: Le Cabanon (2009) <https://www.wsj.com/articles/SB10001424127887323495604578539330498779980>
037: Le Cabanon (2012) <http://www.frankreich-sued.de/roquebrune-server/le-corbusier.htm>
038: Villa Mairea (2014) <https://www.pinterest.ca/pin/864128247221651069/>
039: Villa Mairea (2014) <https://www.pinterest.ca/pin/864128247221651069/>
040: ladeira da misericordia (2012) <https://designsourcebook.net/2012/10/28/li-na-bo-bardi/bo-bardi-concrete-and-tree/>
041: ladeira da misericordia (2012) <https://www.wmf.org/project/ladeira-da-miseric%C3%B3rdia>
042: *Forest of Värmland*, Tove Nankler, January 2019
043: *Forest of Värmland*, Tove Nankler, January 2019
044: *Forest of Värmland*, Tove Nankler, January 2019
045: *Forest of Värmland*, Tove Nankler, January 2019
046: *Forest of Värmland*, Tove Nankler, January 2019
047: *Forest of Värmland as process*, Tove Nankler, January 2019
048: *Illustration of forest of Värmland*, Tove Nankler, February 2019
049: *Illustration of forest of Värmland*, Tove Nankler, February 2019
050: *Illustration of forest of Värmland*, Tove Nankler, February 2019
051: *Prototypes*, Tove Nankler, February 2019
052: *Prototypes*, Tove Nankler, February 2019
053: *Prototypes*, Tove Nankler, February 2019
054: *Prototypes*, Tove Nankler, February 2019
055: *Forest of Värmland as process*, Tove Nankler, January 2019
056: *Illustration of forest of Värmland*, Tove Nankler, February 2019
057: *Illustration of forest of Värmland*, Tove Nankler, February 2019
058: *Illustration of forest of Värmland*, Tove Nankler, February 2019
059: *Prototypes*, Tove Nankler, February 2019
060: *Prototypes*, Tove Nankler, February 2019
061: *Prototypes*, Tove Nankler, February 2019
062: *Prototypes*, Tove Nankler, February 2019
063: *Forest of Värmland as process*, Tove Nankler, January 2019
064: *Illustration of forest of Värmland*, Tove Nankler, February 2019
065: *Illustration of forest of Värmland*, Tove Nankler, February 2019
066: *Illustration of forest of Värmland*, Tove Nankler, February 2019
067: *Prototypes*, Tove Nankler, February 2019
068: *Prototypes*, Tove Nankler, February 2019
069: *Prototypes*, Tove Nankler, February 2019
070: *Prototypes*, Tove Nankler, February 2019
071: *Forest of Värmland as process*, Tove Nankler, January 2019
072: *Illustration of forest of Värmland*, Tove Nankler, February 2019
073: *Illustration of forest of Värmland*, Tove Nankler, February 2019

074: *Illustration of forest of Värmland*, Tove Nankler, February 2019
 075: *Prototypes*, Tove Nankler, February 2019
 076: *Prototypes*, Tove Nankler, February 2019
 077: *Prototypes*, Tove Nankler, February 2019
 078: *Prototypes*, Tove Nankler, February 2019
 079: *Duvberget* (2019) Google maps
 080: *Duvberget* (2019) Google maps
 081: *Wim och Duvberget*, Tove Nankler, February 2019
 082: *Duvberget och omgivning*, Tove Nankler, February 2019
 083: *Wim och Duvberget*, Tove Nankler, February 2019
 084: *Wim och Duvberget*, Tove Nankler, February 2019
 085: *Stone bed*, Tove Nankler, February 2019
 086: *Stone bed illustrations*, Tove Nankler, Mars 2019
 087: *Magic soup*, Tove Nankler, February 2019
 088: *Magic soup illustrations*, Tove Nankler, Mars 2019
 089: *Exciting climbing*, Tove Nankler, February 2019
 090: *Exciting climbing illustrations*, Tove Nankler, Mars 2019
 091: *Exciting climbing illustrations*, Tove Nankler, Mars 2019
 092: *Exciting climbing illustrations*, Tove Nankler, Mars 2019
 093: *Tree bed*, Tove Nankler, February 2019
 094: *Tree bed illustration*, Tove Nankler, Mars 2019
 095: *Balcony*, Tove Nankler, February 2019
 096: *Balcony illustration*, Tove Nankler, Mars 2019
 097: *Balcony illustration*, Tove Nankler, Mars 2019
 098: *Balcony illustration*, Tove Nankler, Mars 2019
 099: *Site at Duvberget*, Tove Nankler, February 2019
 100: *Site at Duvberget*, Tove Nankler, February 2019
 101: *Site at Duvberget* (2019) google maps
 102: *Illustration of site at Duvberget*, Tove Nankler, Mars 2019
 103: *light-studies*, Tove Nankler, April 2019
 104: *light-studies diagram*, Tove Nankler, April 2019
 105: *Light-studies perspective*, Tove Nankler, April 2019
 106: *Light-studies*, Tove Nankler, April 2019
 107: *Light-studies perspective*, Tove Nankler, April 2019
 108: *Light-studies*, Tove Nankler, April 2019
 109: *Light-studies perspective*, Tove Nankler, April 2019
 110: *Light-studies*, Tove Nankler, April 2019
 111: *Light-studies perspective*, Tove Nankler, April 2019
 112: *Light-studies*, Tove Nankler, April 2019
 113: *Light-studies perspective*, Tove Nankler, April 2019
 114: *Light-studies*, Tove Nankler, April 2019
 115: *Light-studies perspective*, Tove Nankler, April 2019

- 116: *Light-studies*, Tove Nankler, April 2019
 117: *Model studies (striped horizon)*, Tove Nankler, May 2019
 118: *Model studies (Patterns/Reflections)*, Tove Nankler, May 2019
 119: *Model studies* (Trees and organic forms inside), Tove Nankler, May 2019
 120: *Site at Duvberget*, Tove Nankler, May 2019
 121: *Treated Cross-laminated wood*, Tove Nankler, May 2019
 122: *Close-up at Duvberget*, Tove Nankler, May 2019
 123: *Close-up at Duvberget*, Tove Nankler, May 2019
 124: *Close-up at Duvberget*, Tove Nankler, May 2019
 125: *Close-up at Duvberget*, Tove Nankler, May 2019

BIBLIOGRAPHY

Soccio, Douglas J. (2009). *Archetypes of Wisdom: An Introduction to Philosophy*, Seventh edition. Belmont, CA: Wadsworth Cengage Learning.

Menin, S and Samuel, F (2003). *Nature and Space: Aalto and Corbusier*. Routledge; 1 edition.

Laugier, M. A. (1755). *An Essay on Architecture*. London: T. Osbourne and Shipton.

WEB

Spirit Cave (2019) Nationalencyklopedin. <http://www.ne.se/uppslagsverk/encyklopedi/lång/spirit-cave>

A. S. Ferguson (1922) Plato's Simile of Light. Part II. The Allegory of the Cave. <https://www.jstor.org/stable/636164>

The human mind and duality:how we understand the world (2015) <http://www.psychmechanics.com/2015/01/the-human-mind-and-duality.html>

ARTICLES

Christopher N. Henry (2011) Designing for Diversity. <https://www.archdaily.com/175518/the-plato-effect-in-architecture-designing-for-human-diversity>

SPECIAL THANKS TO:

MORTEN, for inspiration, challenge and support
PETER, for support and creative listening
MAJA, for strength and care

CLARA, for taking care of my kids
LENA, for taking care of my kids
VIKTOR, for endless love
HALLON AND WIM, for grounding me everyday

tove.nankler@gmail.com