



TSA

Tree - Specific Architecture



Master project
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Oslo National Academy of Fine Arts 2020

CONTENT:

Introduction

CHAPTER I HUMAN PERSPECTIVE

Film

Century of unpresence

Nature

The viewer and the observer

Interiority

formulating a question

CHAPTER II CONCEPTUAL FRAMING AND TREES OF OSLO

City trees

BYM

conceptual framing

inspirations

design evolution

CHAPTER III DESIGN PROPOSAL

TSA concept

TSA map 2020

Design

TSA webpage

References

Note regarding present

pandemic situation

This project is based on the idea of creating a Tree-Specific Architecture, which encourages us to discover Oslo's city trees from a different perspective and, at the same time, provides us with a space to rest our minds from the city rush.

The book is constructed according to the natural process of project evolution. The first chapter is a reflection about human relation with nature and the influence of contemporary world on our perception of presence. Second chapter introduces the development of the project which is affected by the new research and further conceptual framing. The last chapter is dedicated to design proposal.



Chapter I
Human perspective



[click to watch the film](#)

password: perceive

“I am a camera with its shutter open, quite passive, recording, not thinking”
(Isherwood, 1939 p.1)

I often find myself gazing into nature.
Trees - My favourite objects of interest.
Branches from the very top of the crown gently dancing with the wind. I like that movement.
I have my favourite angles. I'm seeking for the perfect frame. All that, to create a desirable composition. I look up - in my sight there are only branches and the sky.

Two elements.
Contrasts bring out the colours.
My composition looks like a moving painting.
I am beyond time.

There is a tree just outside my windows.
That tree and my perception of it, became the inspiration for this project.



birch outside my window
documented in a period
of 6 months

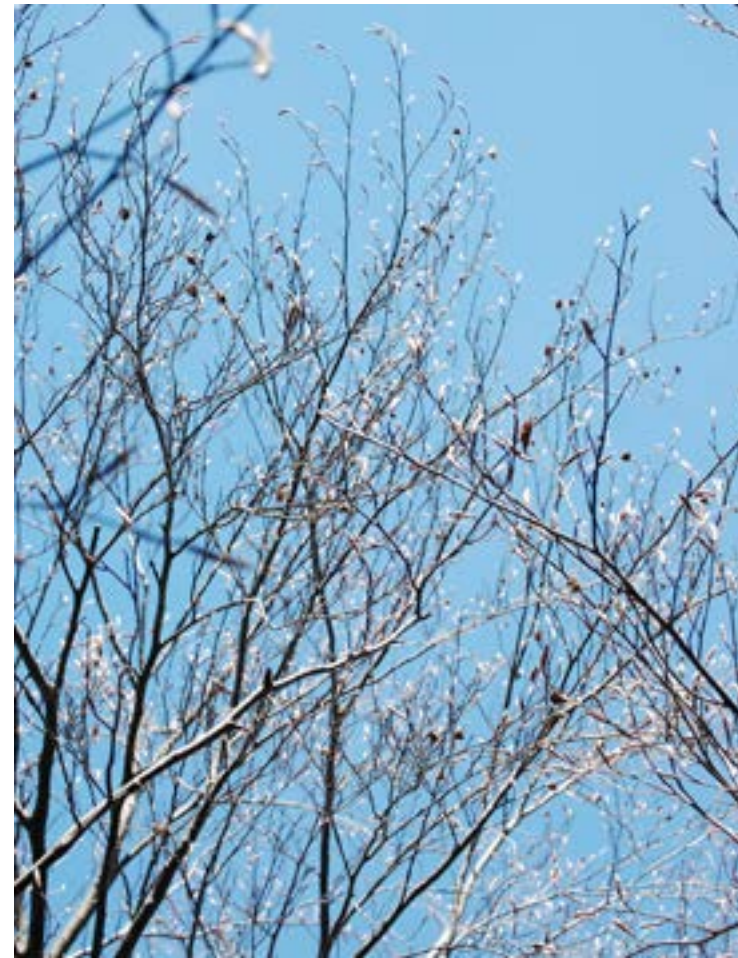
I decided to document my tree.
Each day, each hour, the tree was different, depending on light and weather.

When the view becomes familiar, we can recognise and observe the changes which leads to creating a bond with the tree itself.

The Tree, becomes a storyteller, conveying the narrative about time, seasons, changes and something that looks like a peaceful stillness but in fact is a dynamic performance. Shimmering leaves create visual pattern in motion.



copper beech



We live in the century of unpresence.

Unpresence

Have you noticed our dangerously increasing inability to acknowledge presence and therefore our emotions and feelings in the present time? Our minds are occupied by a constant flow of information. Fast pace of life, rising expectations, aggressive stimulation and emotional disconnection dominate our lives. Digital technology, social media - parallel reality. The world in which we REpresent not ARE present. We are almost never truly alone. Our phones are always by our side. Vibrating. Blinking. We mostly think about our future or past - not so much about "here and now".

On top of that, we tend to push away emotions or unwanted feelings, which in the common opinion are the factors that may distract us from fulfilling our tasks. We struggle to find time for self-reflection.



Arctic circle nature, Arnøya



nature and its restorative influence.

Nature is a very special environment for us, humans. It is a place of our origin where we tend to go back, in search for relief from all this tension caused by busy lifestyle. It's because natural environment has qualities which have a restorative effect on us. It's familiar for us, it evokes fascination, effortlessly dragging our attention without any cognitive effort, and it makes us feel away from daily obligations.

We yearn for nature. We create parks as a stop-gap solution to stay in contact with natural world. Unfortunately, due to presence of other people and city noises urban green areas are not as relaxing as "being away" within nature.

Time

Being immersed in nature gives us the sense of natural time flow. Seasons and day-night cycles are changing the environment fluently. Yet, this process seems way slower than anything what happens in the urban realm. We have to be patient to acknowledge it. Rapid changes in lights, sounds, movement, characteristic for the city are absent in nature.

The stimulus is rich but very gentle, operating within the patterns and harmonious motion. Trip to nature changes our perception of time, no longer represented by traffic lights, duration between tram arrivals and work hours.



white willow



The viewer and the observer

Being within nature awakens all our senses.

Let's focus on vision.

There wouldn't be the act of looking without its performer – the viewer. The perceiver of the visible. But there is also another type of perceiver - the observer. The observer though is someone else than the viewer. We could specify viewing as a one - time action.

In the contrary, the act of observation is rather a process. Observing, is seeing changes over time. It is a visual act of engagement with the ongoing process of the observed subject, which leads to reflections or discoveries.

The idea of becoming an observer was introduced on the larger scale in Romanticism, when nature became a muse for writers, artists, musicians and thinkers. Existential reflections became the way to perceive the world, and the tool for that was to contemplate nature. But most importantly, XIX century is the time of emotional experience, subjectivity and spirituality. This significant act of observing became the way to connect with our emotions and truly express them.



horse chestnut



Interiority

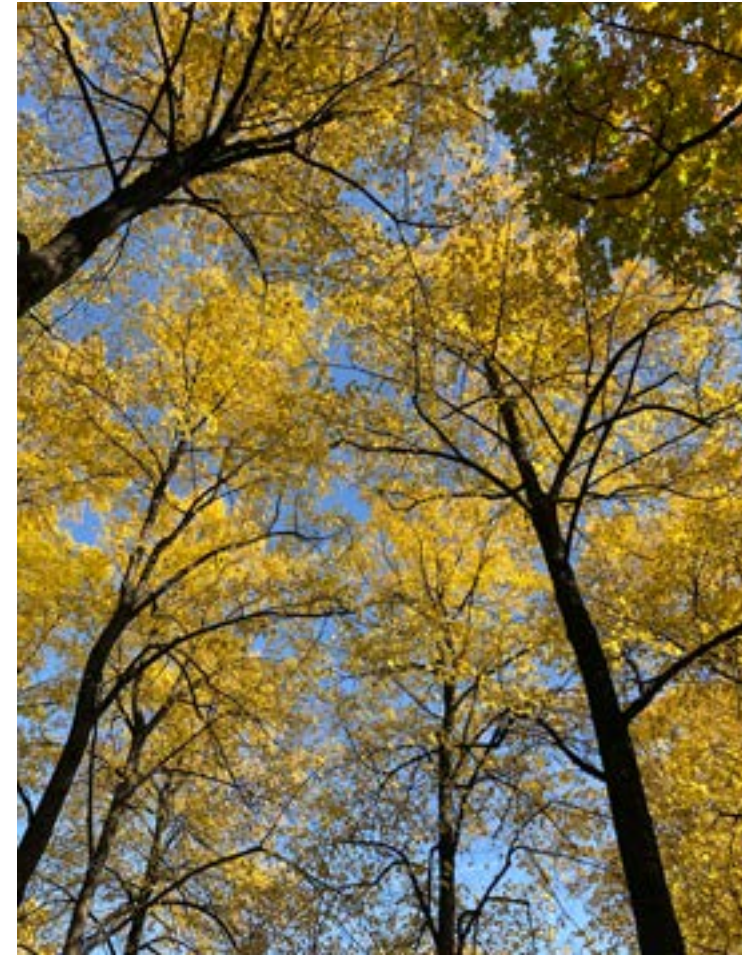
Our interiority is defined as our psychological existence. It is our inner bodily space for reflections, feelings and emotional experiences.

But Richard Sennett, professor of sociology says, "Interiority is actually linked to the exterior rather than to the interior". Exteriority is something that is outside, it is detached from us and often we do not have control over it. It makes us feel, because it is independent and can be unpredictable.

It seems like in order to reach within ourselves many times we look into the outside. In some sense our Interiority is shaped by the exterior.



linden



My reflection made a full circle.

Busy contemporary life affects our perception of presence which makes it harder to be present in the moment.

To find peace and relax our minds we direct ourselves away from the city rush - towards nature, kingdom of tranquillity, where it is easier to become a mindful observer, both of the landscape but also our own thoughts and state of mind. We do it, because looking outside our everyday setting, brings us closer to our bodily "inside" and to "now".



Citizens of Oslo are lucky to live in a capital surrounded by a vast forest. A trip to nature is within the reach of city transportation. Unfortunately, our daily schedule and obligations do not give us the opportunity to leave the city whenever we need a moment of relaxation and withdrawal. Oslo Marka is close, but not close enough for people located in the city centre, to go there for example during lunch break.



acer (maple)



I have asked myself:
How could I create a sense of tranquillity,
which we find in nature, without the need of
leaving the urban setting?

I have decided to direct our attention to the most
familiar symbols of natural world – trees.



weeping willow



Chapter II
Conceptual framing
and
Trees of Oslo



Sammenligning av bygnings- og trestruktur i Oslo her. Oslo er allerede en grønn by p.g.a. sine parker. Her ser man hvor mye grønnere byen ser ut når man tar med trekroner i gater, gårdsrom og hager.

We cherish our Marka forest, but do we appreciate our city trees enough, or do we tend to pass them by? I will risk speculating, that maybe we even take them for granted?

There are many obvious reasons why we need greenery and trees in the urban setting. They clean our air, they are home to many ecosystems, they bring aesthetical value and have a positive effect on our moods. But there are less obvious reasons like for example the fact that trees, through their roots, absorb a lot of water produced by rains, contributing to decreasing the possibility of flooding.

We need urban trees, but these trees also need us to survive and flourish in the environment which is far from natural.

VETERANTRÆR



Sommersk, Høfnerveien 27A
 Træet er ca. 300 år gammelt og tilhører løv. Den solide, tvede stammen, krønlignende og det utstrakte greinene i kronen, gir et utvilsomt inntrykk. Eike har hultet som er viktig for naturangiften. En rødskinn blåst er funnet.
 Låperstredet

Sommersk, Apotekergaten 2
 Træet er over 200 år gammelt og tilhører løv. Træet er registrert med naturverdi 5 (regulert våg) i kommunens naturatlas.
 Fredningsnr. 1529

Park, Blomstergaten 147
 Træet har en imponerende og uttrykksfull form med en slank stamme på ca. 3 meter. Store, gamle furutrær er generelt viktig for spesielle arter og insekter.
 Fredningsnr. 1959

Sommersk, Rindøen 88
 Træet er 240-300 år gammelt og tilhører løv. Stamme- og greinstrukturen er kompleks.
 Fredningsnr. 1951

Til høye: "Fluss-eike" i Grønneveien 16 er mulig Oslo eldste og tykkste tre. Trøt er stammetverdi på ca. 2 meter og en svært alder på 5-600 år. Et slett er virkelig veteran og er, spesielt i slutten, betydelig som henger på grenene og lett løse for å fjerne og regjeringe spåne fra kronen. Eldste Fluss-eike er et stiler like ved Katten til høye holder ved.

Trær er ikke fredet, men stiler ved forsvil om utvalgte naturtyper (hult eike) etter naturangiften.



En gammel "Poppel" med over 4 stammer og 10 meter i diameter og mer.



God resultatting er det viktigste for et tre. Trunkon (1) er det gamle del av tre. Drivpunkt (2) er grenid som ligger under barkens flak (3) og der utvokst stam og bark. Trær vokser fort og ut.

Viktig skadet tre kan påføres en 2-3 ganger bredere av trunkon. 30-40 % av volumet består av gammel væske (væske) i tillegg til det gamle vannet (væske) i trunkon.

- 11 KRITERIER FOR BEVARELSESDYGTIGE TRÆR**
- Alder:** Trær eldre enn 100 år regnes som veterantrær på 100 år og eldre enn 200 år regnes som gammeltrær.
 - Høyde:** Trær over 20 meter er en viktig faktor for å vurdere et tre. Trær over 20 meter er en viktig faktor for å vurdere et tre.
 - Omkrets (målt 1m over bakken):** Trær med en omkrets på 100 cm er en viktig faktor for å vurdere et tre.
 - Historie:** Trær med forbindelse med en historisk person eller event "historie" er en viktig faktor for å vurdere et tre.
 - Geografi:** Trær som vokser i spesielle miljøer eller i spesielle steder er en viktig faktor for å vurdere et tre.
 - Ekstetik:** Trær som har en spesiell form eller utseende er en viktig faktor for å vurdere et tre.
 - Utvikling:** Trær som har en spesiell utvikling eller form er en viktig faktor for å vurdere et tre.
 - Biologi:** Trær som har en spesiell biologi eller form er en viktig faktor for å vurdere et tre.
 - Hult og hultet:** Trær som har hult eller hultet er en viktig faktor for å vurdere et tre.
 - Subjektivitet:** Trær som har en spesiell form eller utseende er en viktig faktor for å vurdere et tre.

- GRUNNREGEL VED ARBEID NÆR TRÆR**
- Arbeid nær et tre bør kvalitetskontrollen av utførelse tidligst.
 - Arbeidet bør som hovedregel utføres minst 5 meter fra stammen og utenfor dryppsonen. Arbeid nærmere krever stamvernet (Eks. isolasjonsmater). Graving bør starte utenfor trekransen.
 - Kjøring og lagring i nærheten kan skade treet. Det bør benyttes et beskyttelsesgjerd i dryppsonens ytterkant.
 - Graving med maskin innenfor dryppsonen må ikke foretas. Røtter med diameter over 30 mm bør ikke håndteres med gravemaskin.
 - Lekkasje av kjemikalier i nærheten må utredes. (Benzin, diesel etc.). Varm røtt fra selvsagsmaskiner kan ødelegge trekransen.
 - I tørre eller kalde perioder må bløtleggelse som dekket med isolerende materiale, for eksempel halm.
 - Erfaglig tidligver bør best hvordan treet skal beskåret og hvor det bør plasseres nye.

DE VANLIGSTE TRESLAGENE I INDRE BY

(angitt i prosent)

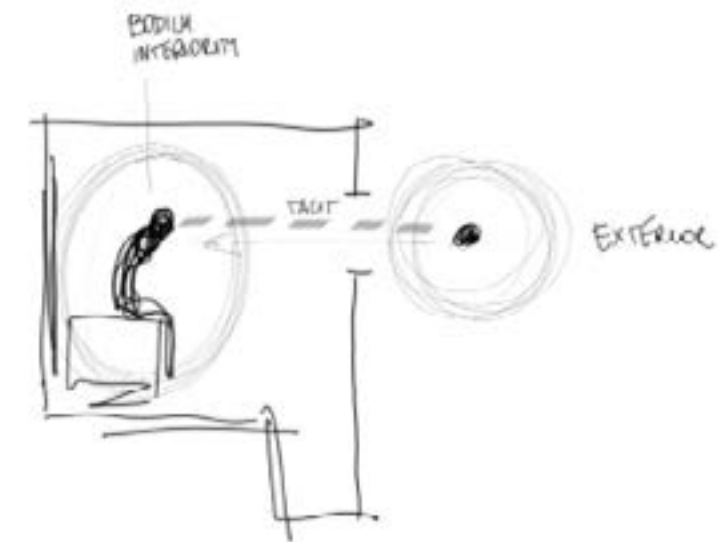
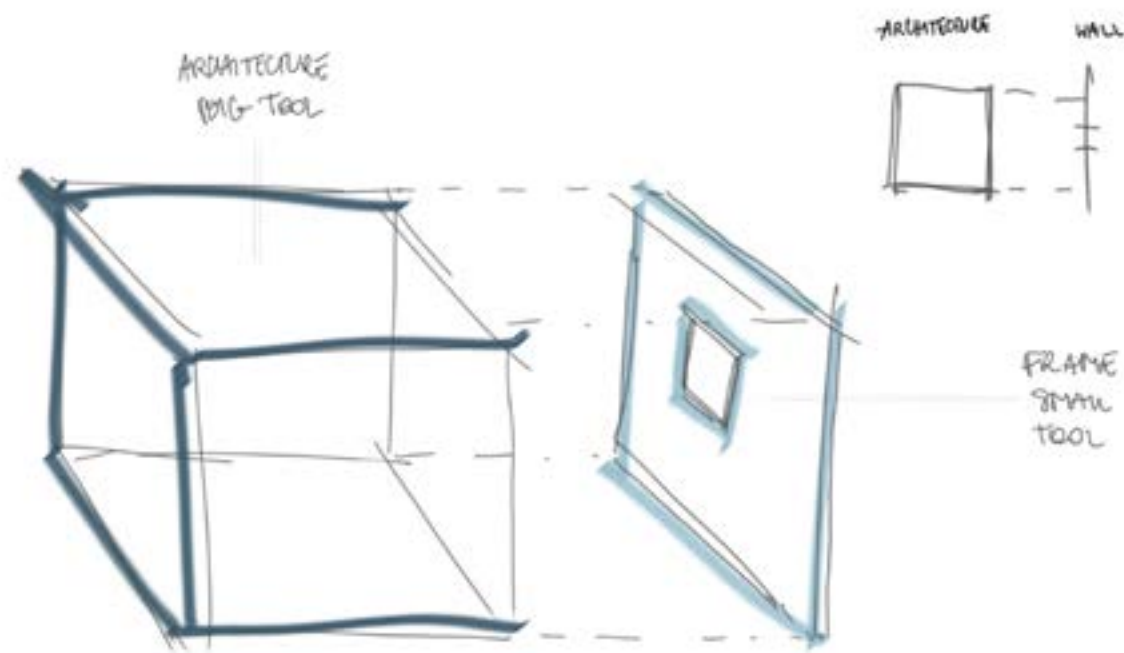


- Lind (27)
- Spisslønn (18)
- Bjørk (12)
- Alm (9)
- Hestekastanje (5)
- Platanlønn (4)
- Eik (3)
- Kirsebær (3)
- Ask (2)
- Svenskeasal (1,5)
- Pil (1)
- Poppel (1)
- Morell (1)
- Bøk (0,5)

Bymiljøetaten

Bymiljøetaten is an organisation responsible for taking care of streets, squares, parks, green recreational areas, sports, Marka forest, and Oslofjord, as well as air, noise, water and soil. Their aim is to create safe, green and active city. BYM is responsible for about 15.000 trees in Oslo. There are 14.000 trees registered in "indre by" which are marked by species, size, condition of the tree and growth condition.

On their website we can find some general information about trees in Oslo, and more detailed ones, regarding law regulations. To my surprise there was no list of important, old, or interesting trees. My correspondence with Bymiljøetaten, gave me the idea that they could use some help with promoting the knowledge and enrich information about Oslo trees accessible to the public.



conceptual framing for the design process

Parallely to my Oslo tree research, I was interested in developing an unconventional approach in architecture, where the building becomes a tool for viewing exteriority. I wanted to explore the idea of becoming an exclusive observer by creating a platform for others to experience themselves in a different way - by stepping out from the everyday position of a performer and doer, into the position of the receiver.

My aim was to create a space which gives people the opportunity to imbibe the Exterior and through that, come closer to the Interior.



Inspiration from Skyspaces by James Turrell

The artist who's work is the quintessence of inspiration for me in this project, is James Turrell. I am inspired by his approach to the act of looking and pure emotionality, which his works evoke. He works with the aspects of time, space and light perception.

I am mostly interested in his projects of skyspaces because they relate directly to the world outside and they show the relation between interior and exterior space of the project. The sky - orientated variation of his structural cuts are giving the illusion of a projection of the sky rather than a real aperture. The view becomes abstracted.

Inspiration from the concept of intimate landscapes

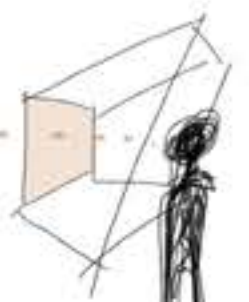
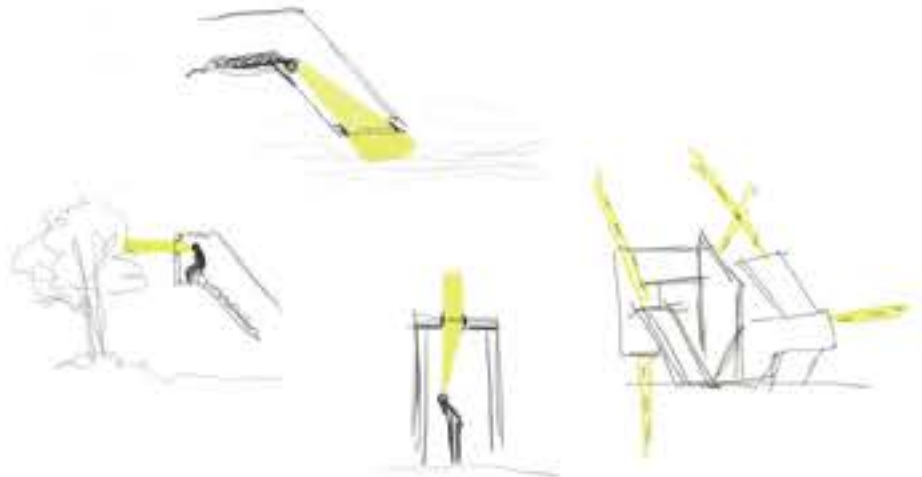
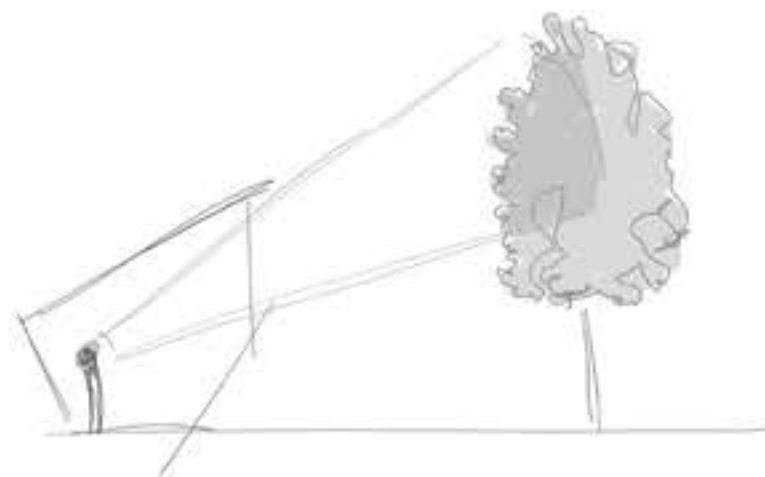
In architecture, we tend to aim for vistas – open wide, panoramic views for the pristine landscape. It gives us, people, the feeling of reduced boundary between nature and the interiors of the buildings and us, ourselves. It gives us the sense of location and connectedness to the outside world. In contrary in photography, vistas are considered to be one of the hardest subjects. The reason for this is that it is really hard to achieve something else than just portraying the view while aiming for the vista. What I am interested in, is the opposite approach for framing the views on landscapes - in photography called intimate landscape. What differs this kind of photography from the vista, is the lack of the horizon and by that, smaller spatial reach.

In my project I explored the concept of the intimate view inspired by photography portraying intimate landscapes.



“Intimacy implies a certain feeling of being enclosed but does not deny the existence of the wider world. (...) the intimate approach helps to move the image beyond the illustrative into the abstract. (...) abstraction can lead to the viewer looking more deeply at a subject than they would otherwise.”

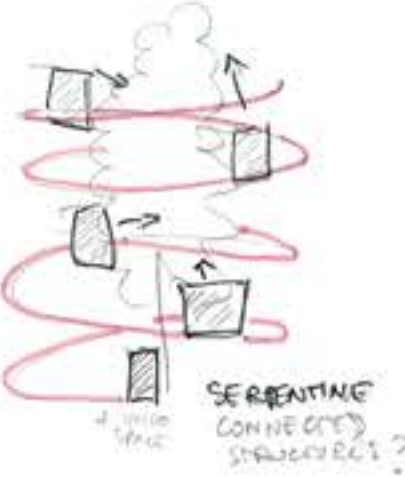
Ward, D. (2012). Hov. [photograph].



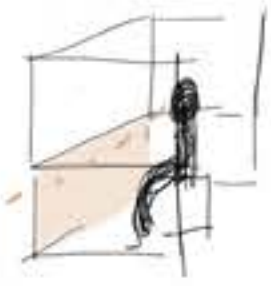
AN
SEMIATE

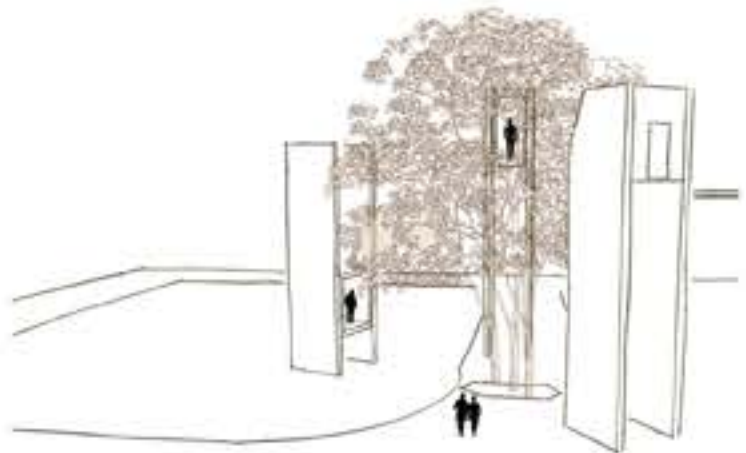
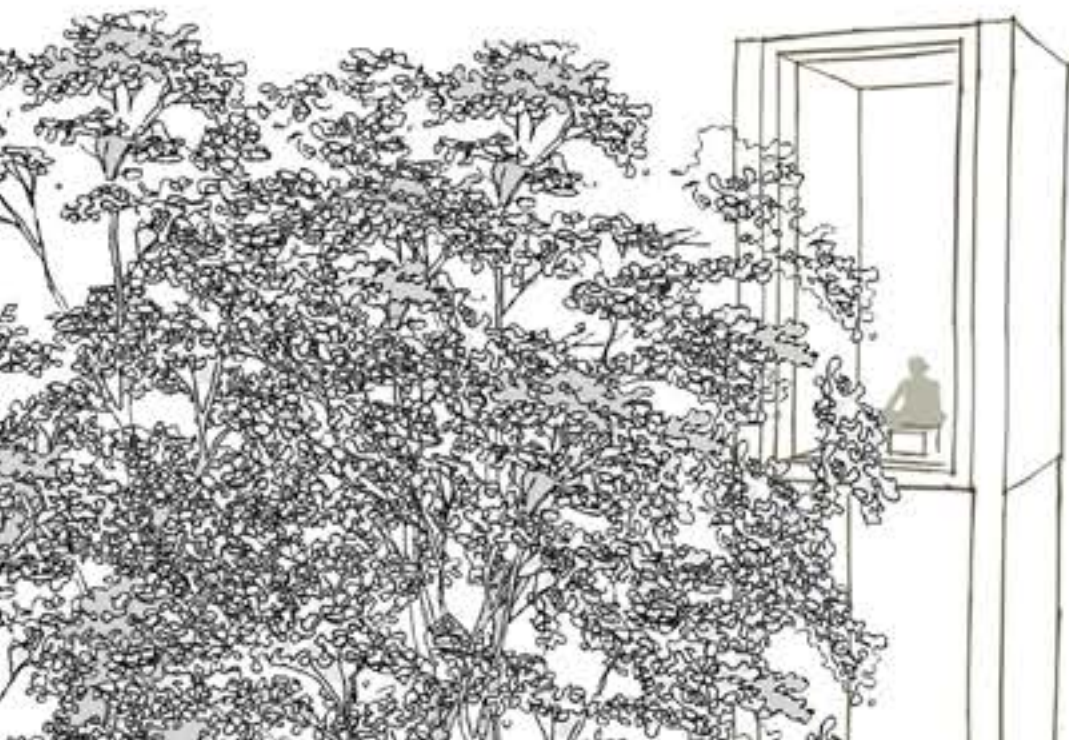
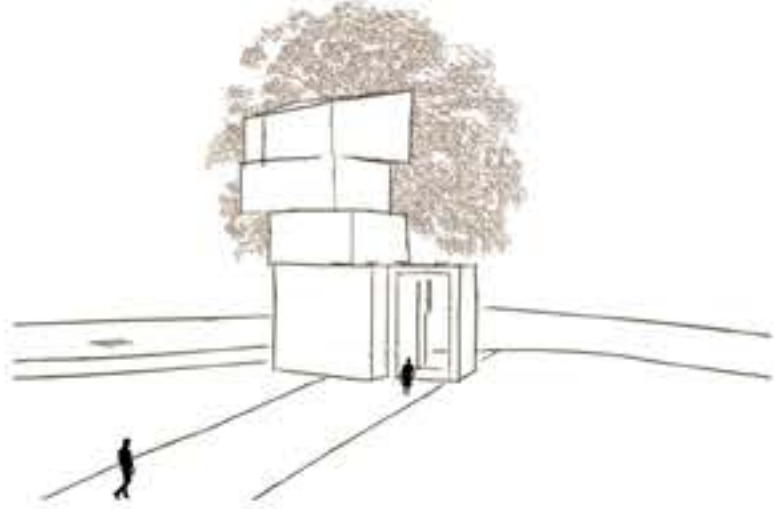
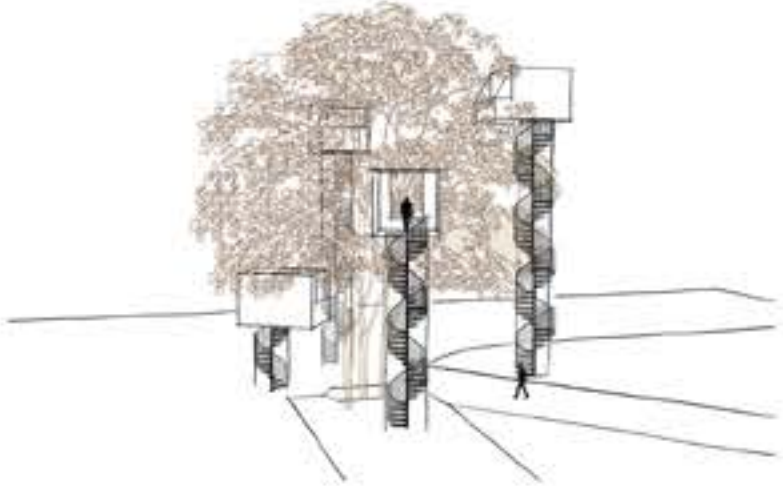


ALL CONNECTED
BY STAIRCASES



SERPENTINE
CONNECTED
STRUCTURE?







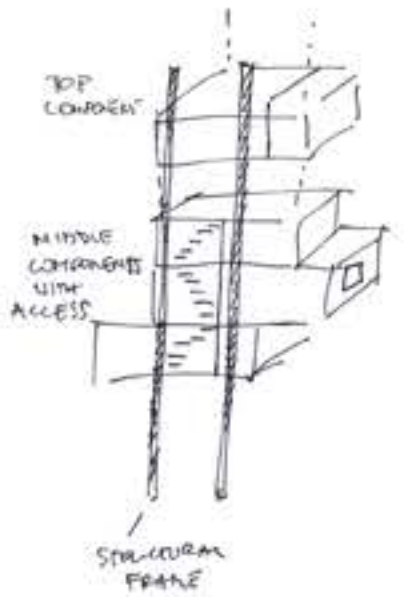
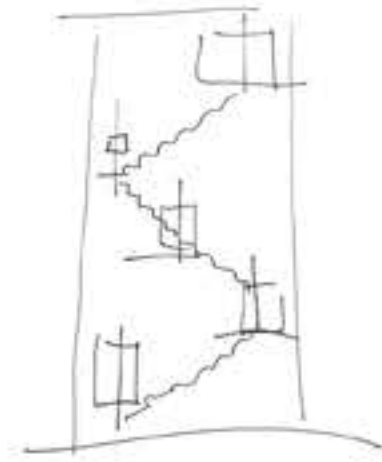
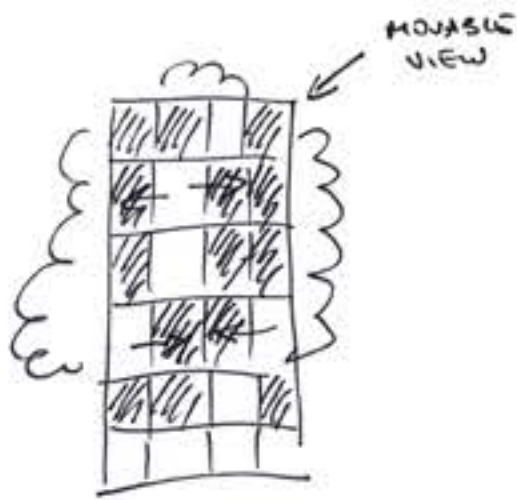
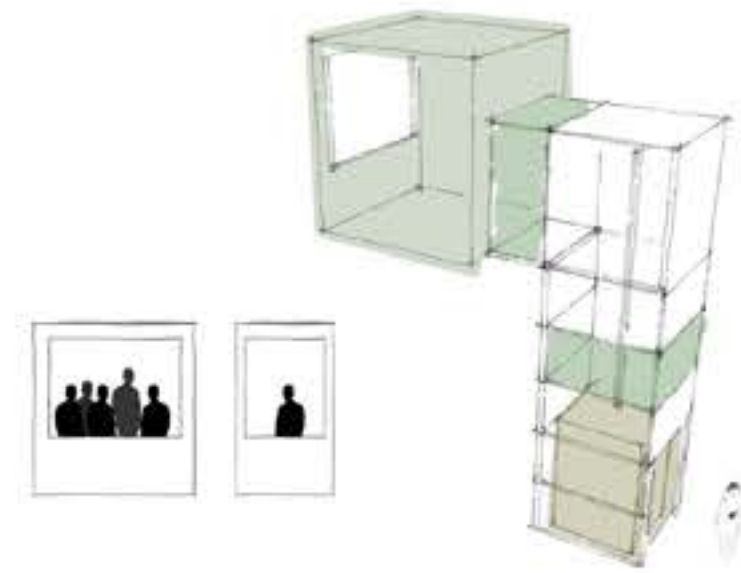
design of the space and form



construction and access



group (interaction, levels)





cherry blossom

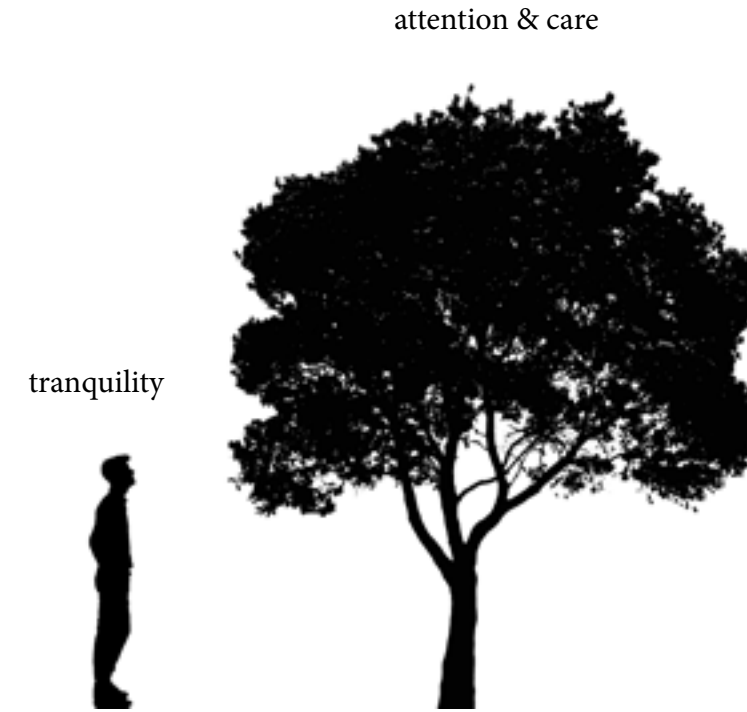


Chapter III Design proposal

“nature is not only just a protagonist but it also may be a co-author”
(Hill, 2015)

what is TSA?

Tree -specific architecture (TSA), is a Type of **observatory architecture** which introduces the **tree as a motive, viewed from an unusual perspective**. TSA Is characterised by minimal negative impact of the architecture on the tree's life and represents more **mutualistic relationship between humanity and trees**. By creating a tranquil refuge from the city rush where visitors can observe the beauty of trees from the close up perspective, **TSA enables us to understand, appreciate and care for city trees better.**



The concept is based on dialectics between city trees and humans and their mutual benefits from the design investigation.

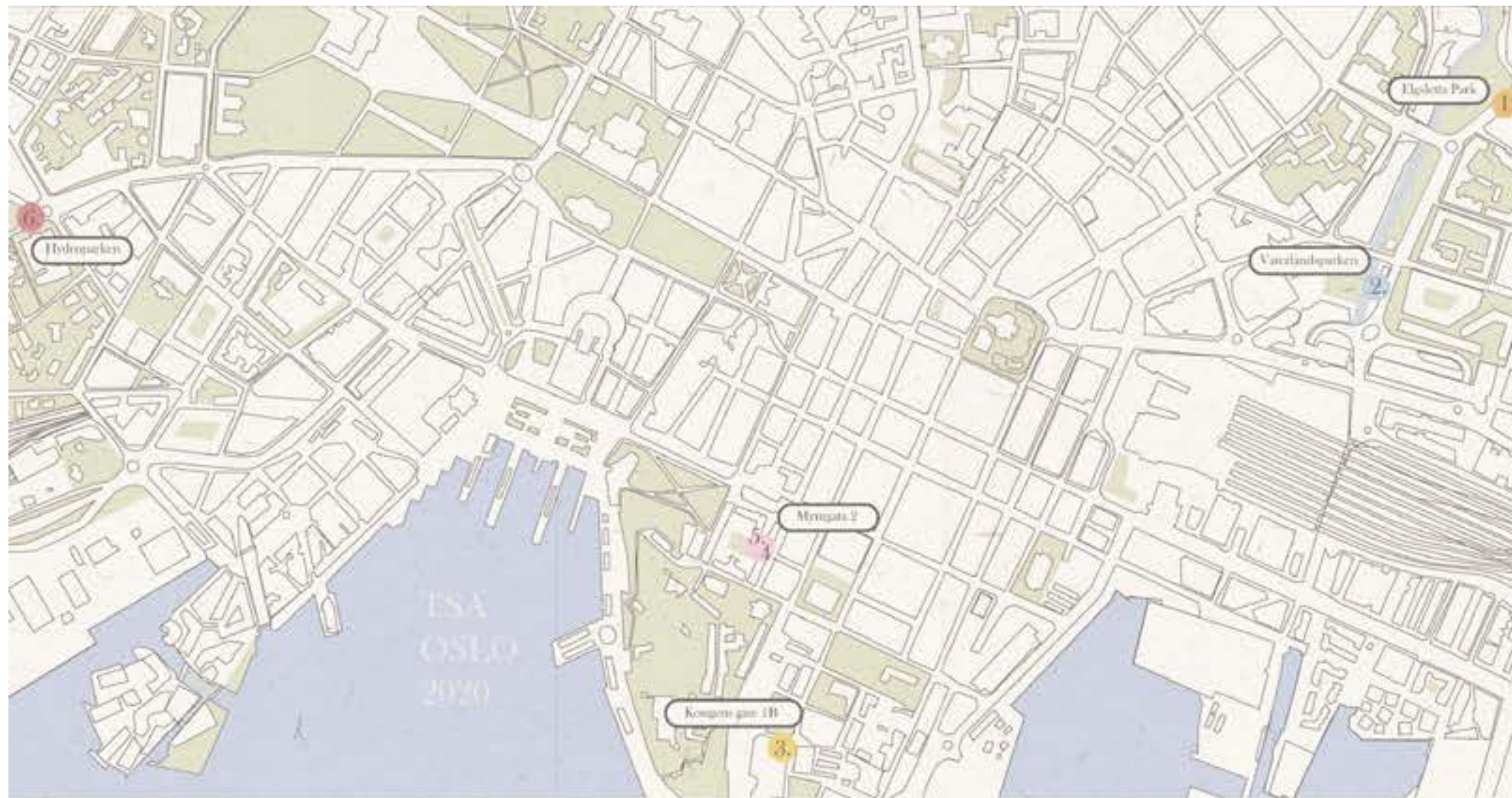
TSA & BYM

The concept is based on the cooperation of TSA organisation, and Bymiljøetaten. TSA proposes a new kind of architecture type, dedicated to exhibiting city trees, which supports tree care system in Oslo. TSA, apart from its educational character, holds spaces, which allow the citizens to be abstracted from surrounding and gives an opportunity to take a break from vivid city stimulation. The installation takes the visitors through the journey of exploring the tree piece by piece from unusual perspectives, giving them a new insight into its beauty and complexity. Inside the buildings visitors can find wallscreens with various information about exhibited tree - from its history and parameters, through specie characteristics, to stories shared by its admirers.

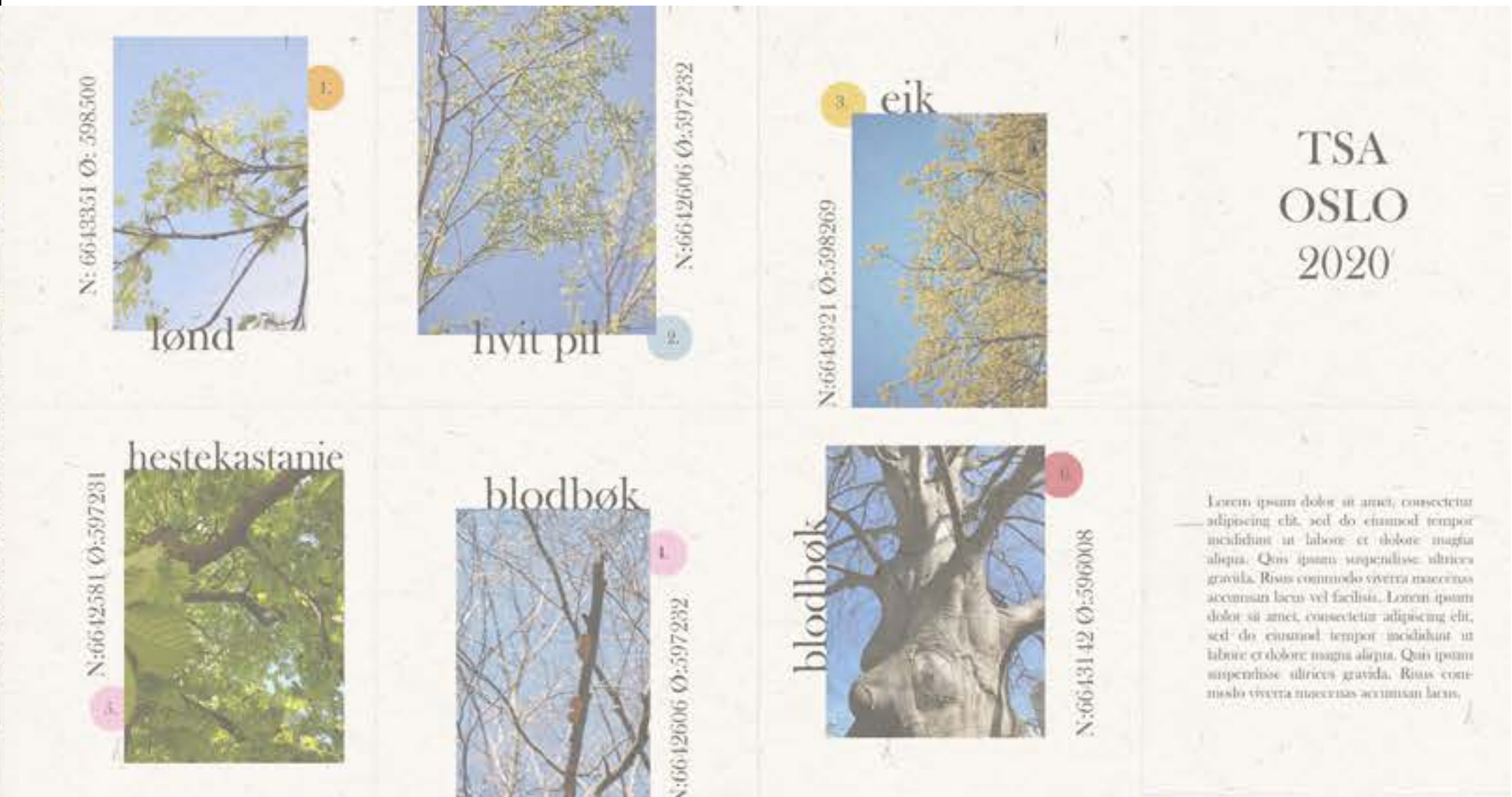


Mockup of a folded TSA map,
printed on recycled paper

the concept includes a map of six trees, selected within the central parameter of Oslo, which are “exhibited” in five viewing galleries throughout one year.
Each year, the Tree galleries will exhibit different set of trees.
The variety of tree species brings the diversity through daily and seasonally changing narration.



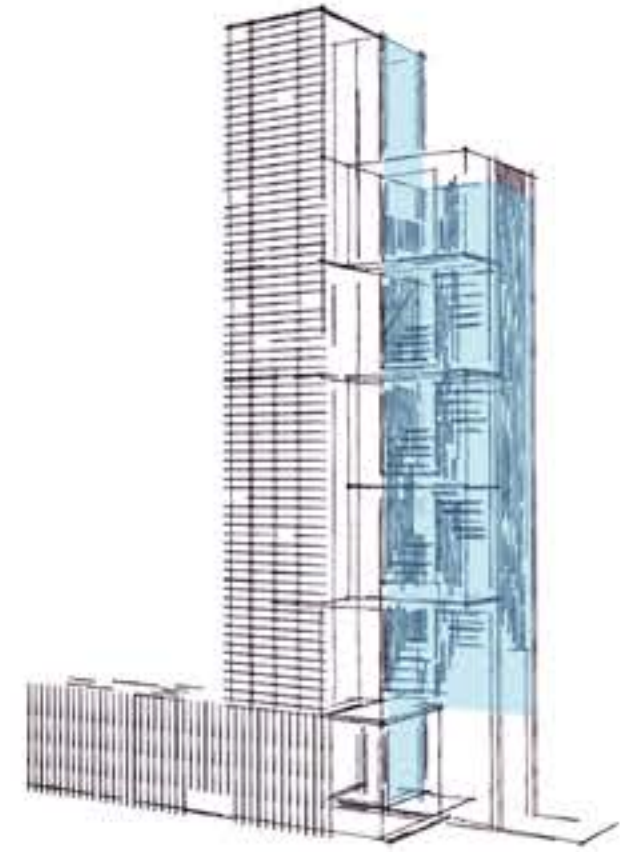
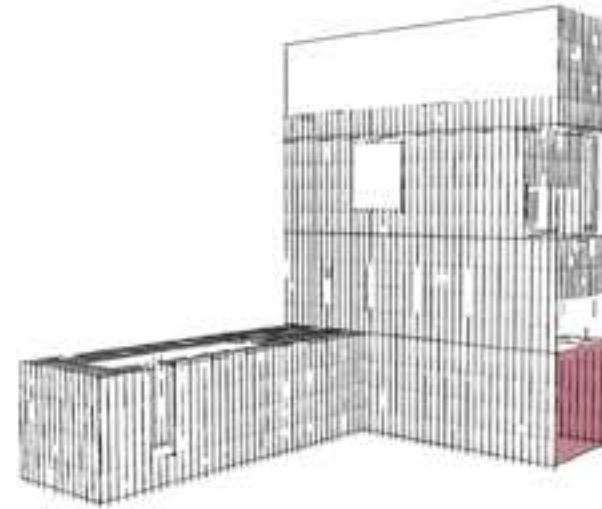
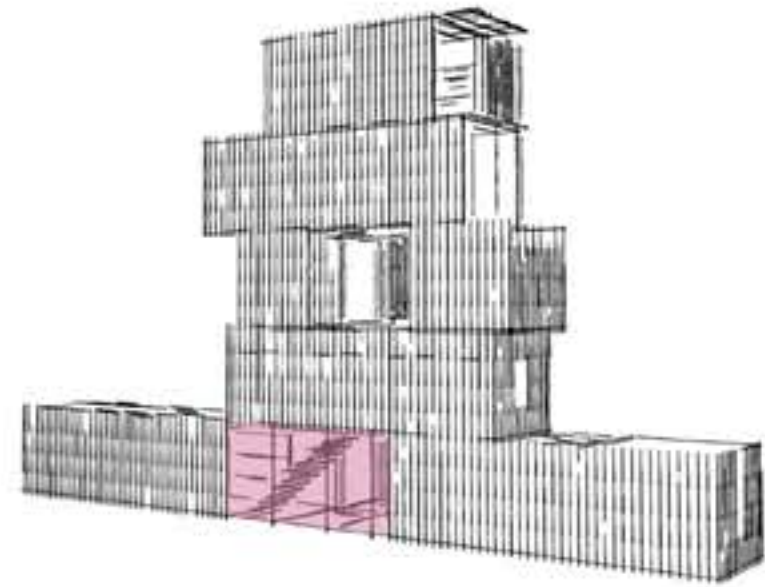
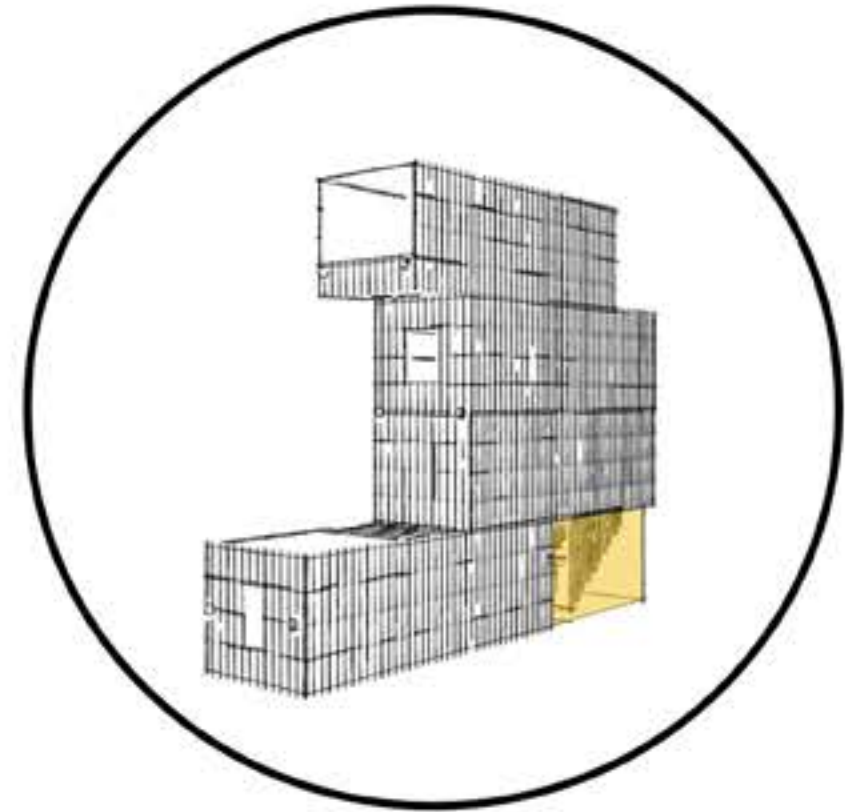
The map provides locations and a photographs revealing glimpses of each tree, as well as a information about the TSA concept. All you need is the most important information to reach each destination - the rest awaits inside the buildings.

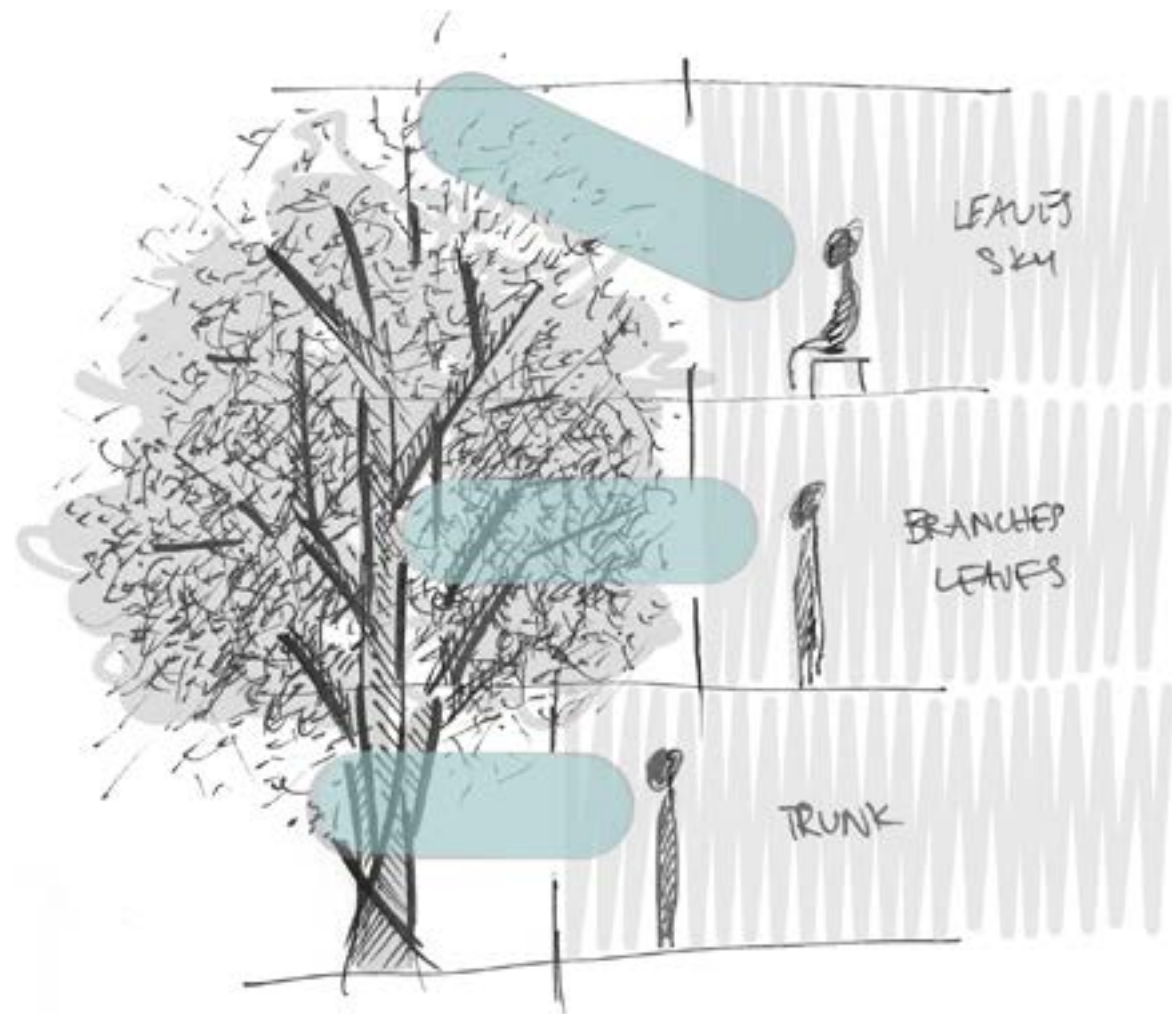


Each building is identified by color according to the characteristics of the exhibited tree or location.

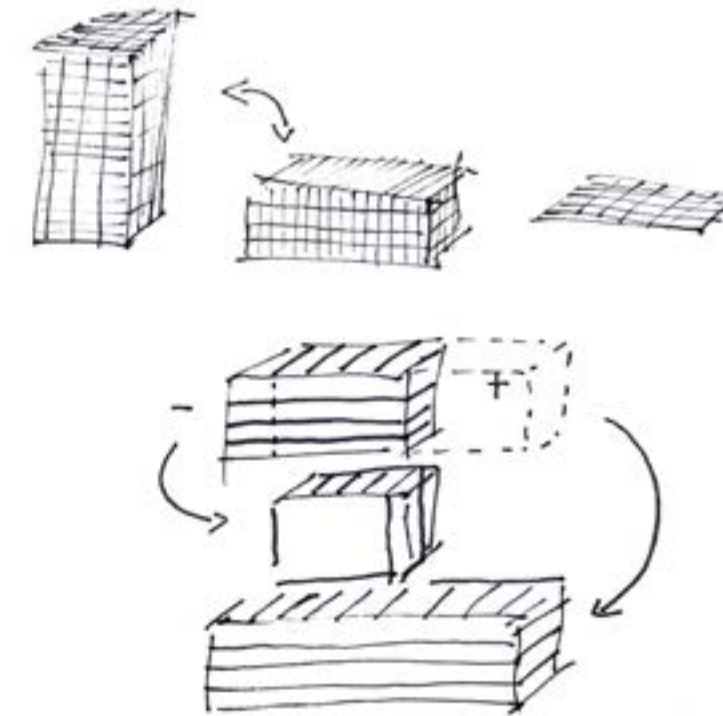


Because all buildings are constructed from the same elements I am presenting only one of them in a more detailed manner.





buildings are constructed from levels, each revealing different elements of the tree.



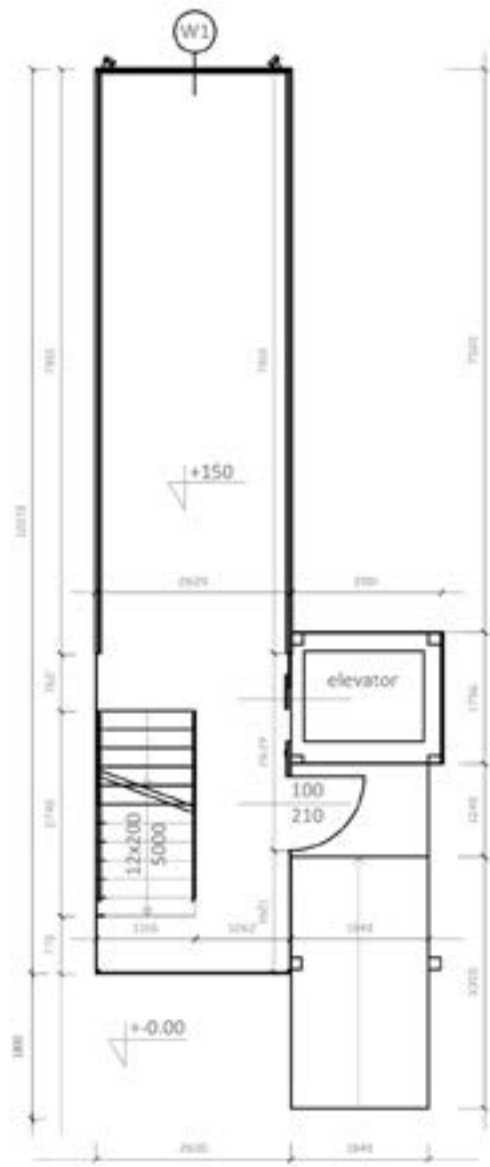
All structures are based on the same modular system which can be adapted to each location and adjusted to the parameters of each tree.

the singular module is based on famous idea of an exhibiting container. It is constructed on steel frames and covered with planks 20/60 centimetres, created from recycled plastic conglomerate. the planks can be removed in any area to create an aperture or a place for window. Standard module frame measures 260 / 760 / 240 and can be extended or decreased in length, depending on the need.

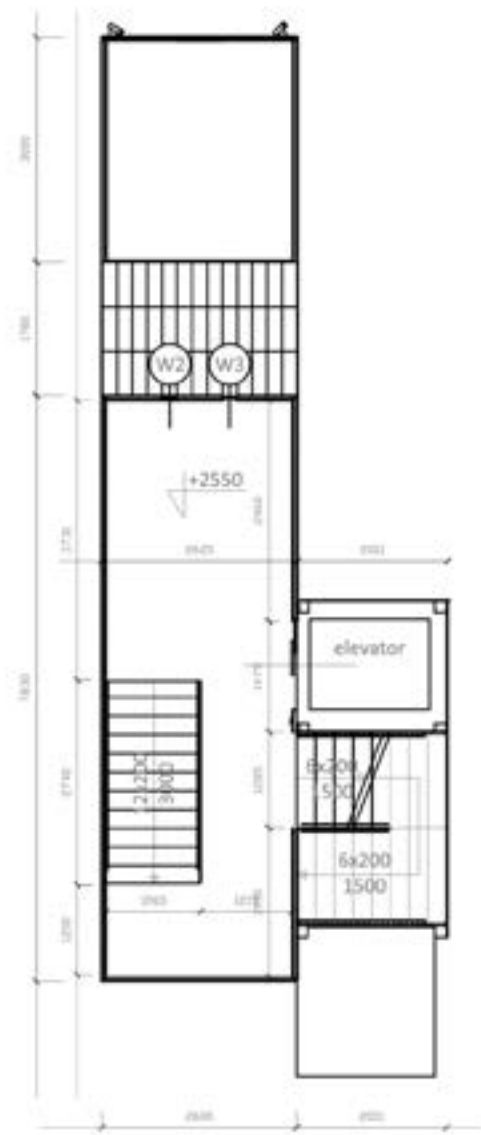
The modules are stacked on top of each other, supported by a vertical staircase and elevator construction. Apart from viewing windows with hidden seals, the buildings contains regular windows, as well as tinted glass walls, both with purpose of providing more light into the spaces as well as providing the sense of social security (the visitors will be visible from outside of the building).

The buildings have a character of architectural installations with a constant flow of fresh air, through the open staircase construction.

Because the TSAs aim is to present the tree as a living, fascinating organism rather than a building material, wood was not used for neither construction purposes nor aesthetical choice.



1.Floor



2.Floor

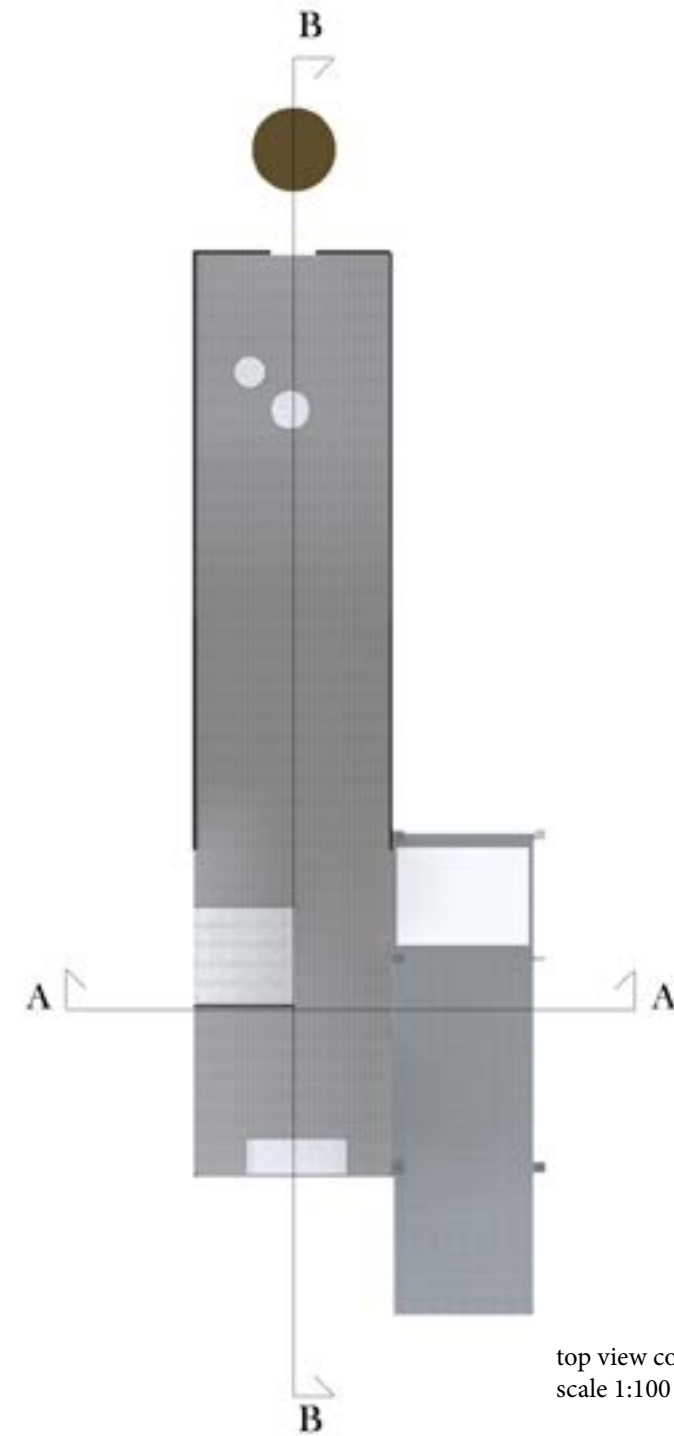


3.Floor

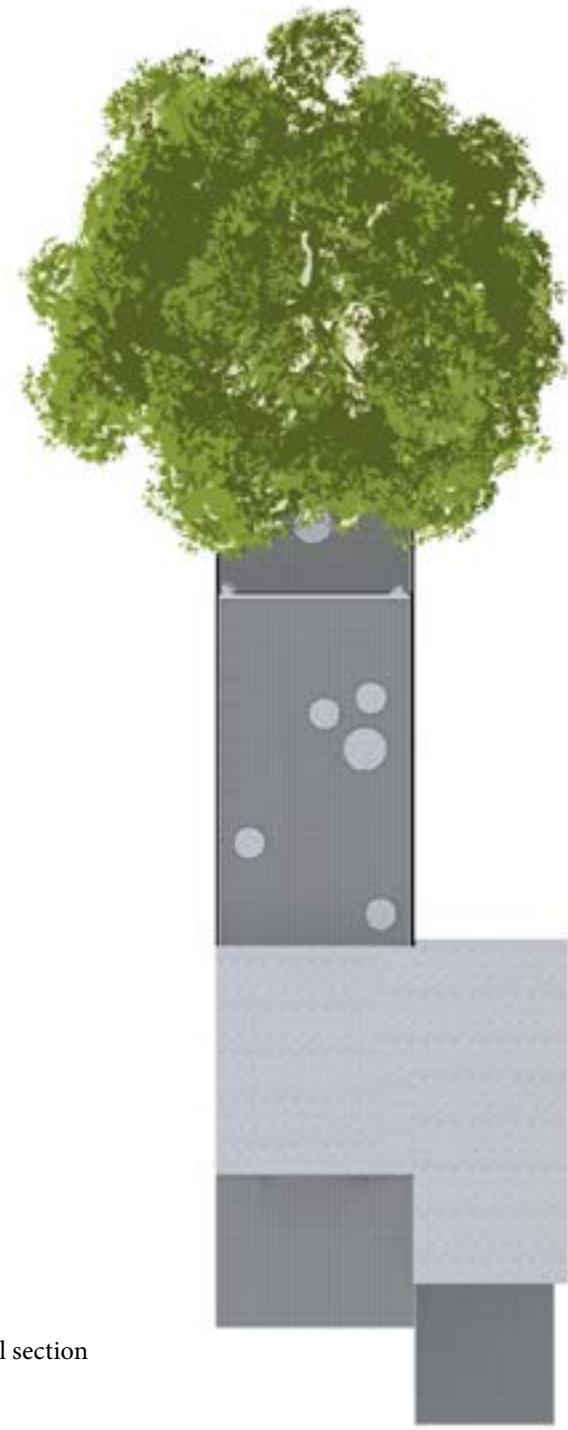


4.Floor

top view technical sections
scale 1:100
measurements in mm



top view conceptual section
scale 1:100



top view conceptual
scale 1:100

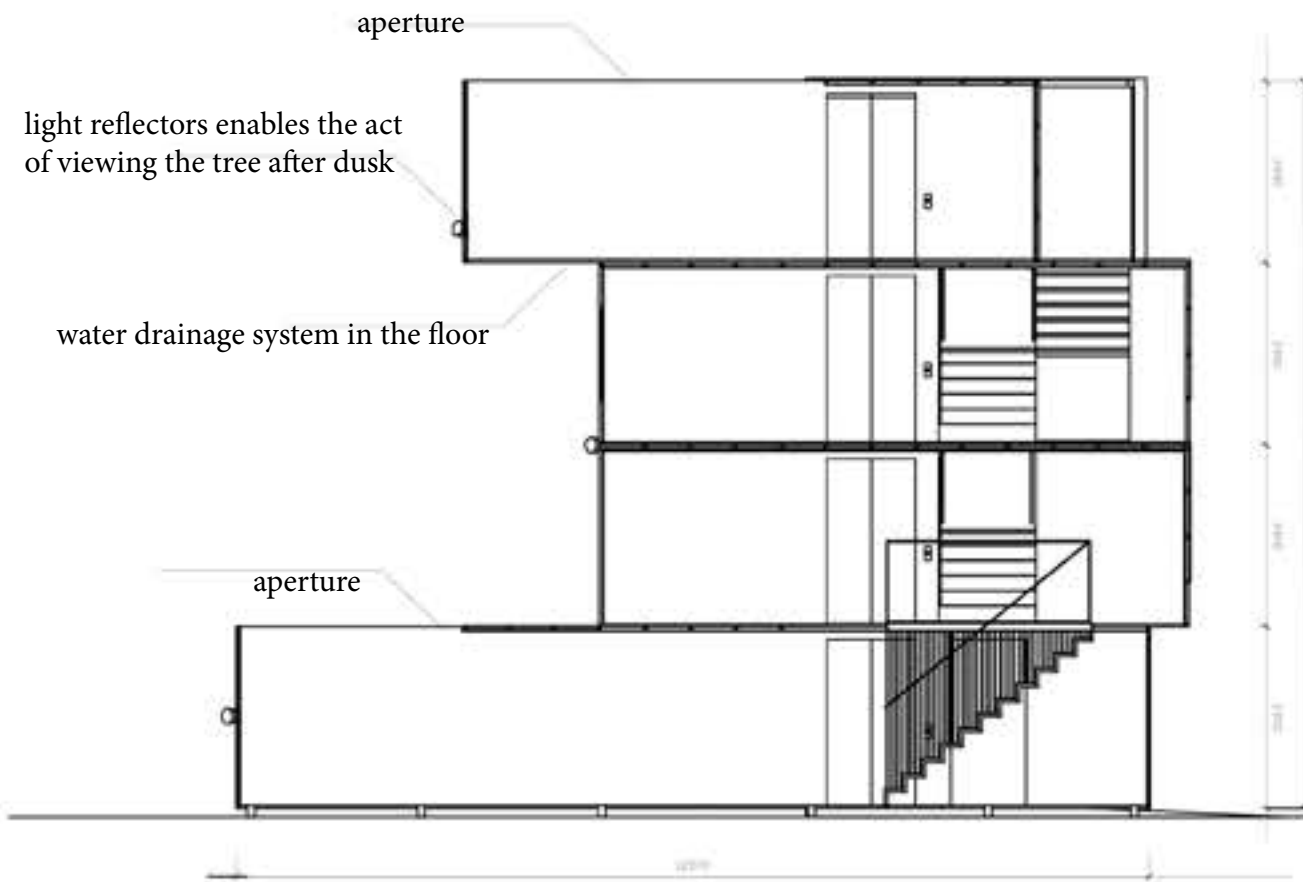


the staircase and elevator construction provide stability for the viewing blocks



Section AA technical scale 1:100 measurements in mm

Section AA conceptual scale 1:100 measurements in mm



Section BB technical
 scale 1:100
 measurements in mm



Section BB conceptual
 scale 1:100
 measurements in mm





The views are picked with the aim to only expose natural elements (the tree and the sky) within the frame. That way, the viewers can benefit from the calming effect of looking at the tree without the visual distractions of urban elements. If the visitor will find the concept engaging, he might return to repeat the experience, and by that, his nature as a participant will change from the viewer into the observer.

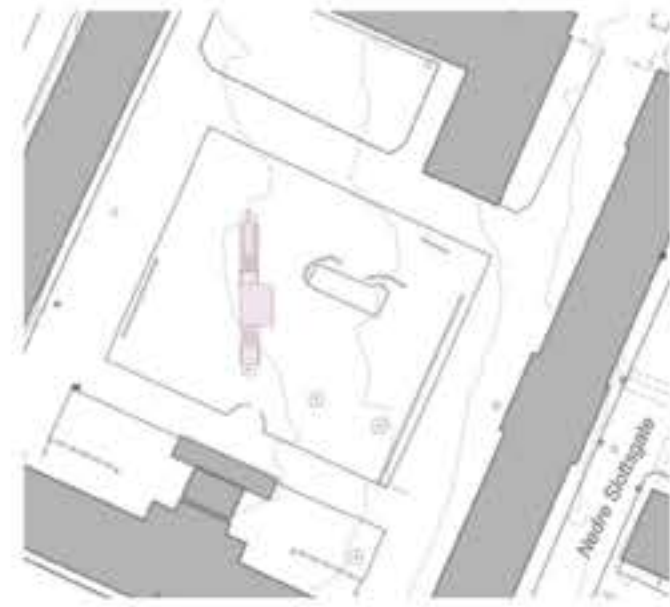
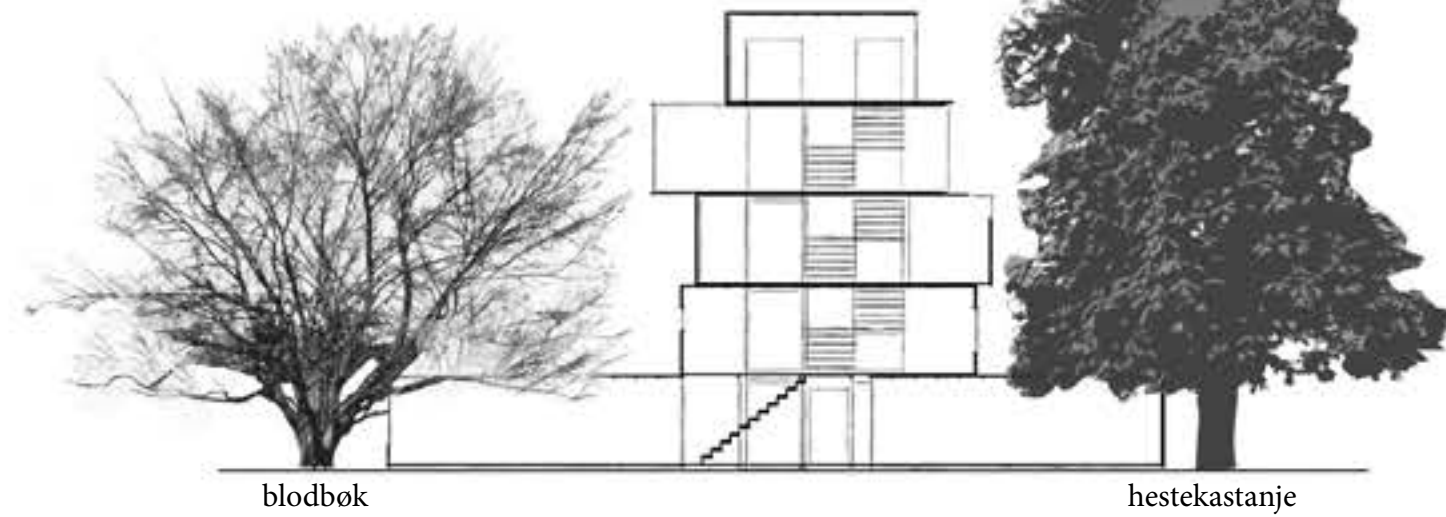
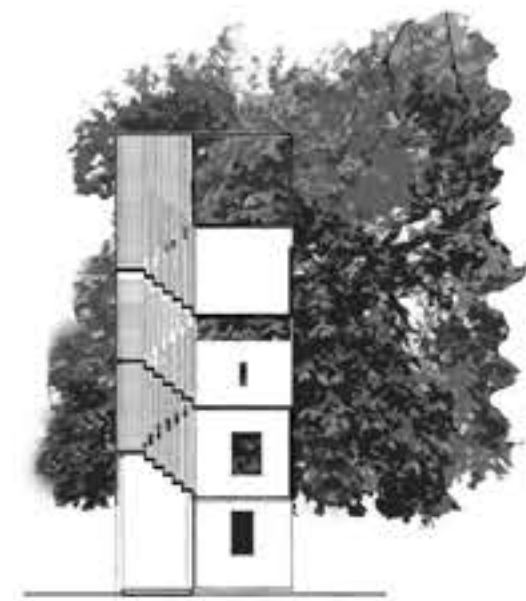
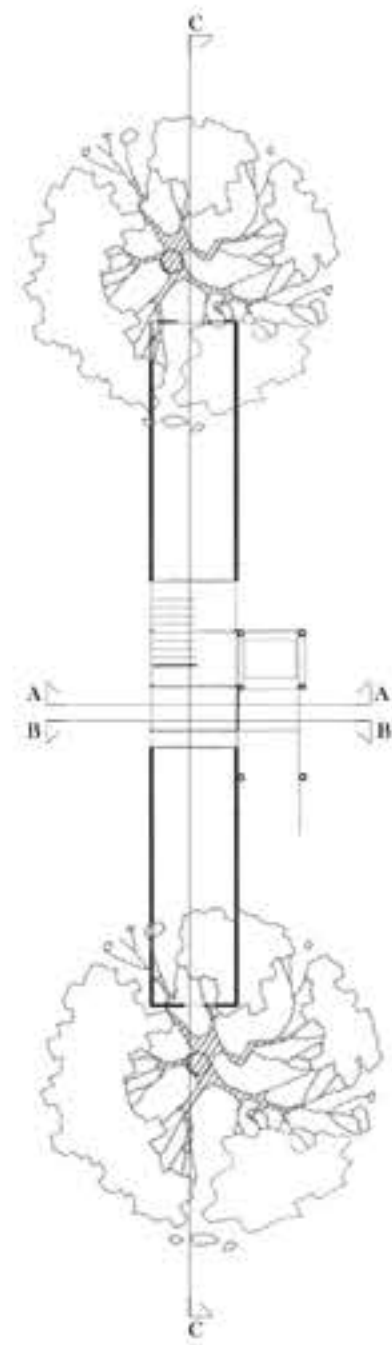
To visit the TSA buildings the visitors, have to buy a daily e-ticket on the Bymiljøetaten website, which allows them to visit multiple locations during the day. To enter the building the visitors, have to scan the ticket code in the electronic machine attached to the door. The price for entrance is calculated from the building preservation needs and is estimated to be relatively low. Whole money raised from the ticket sales is dedicated for the Bymiljøetaten tree care system.





exhibited
Oak (Eik)



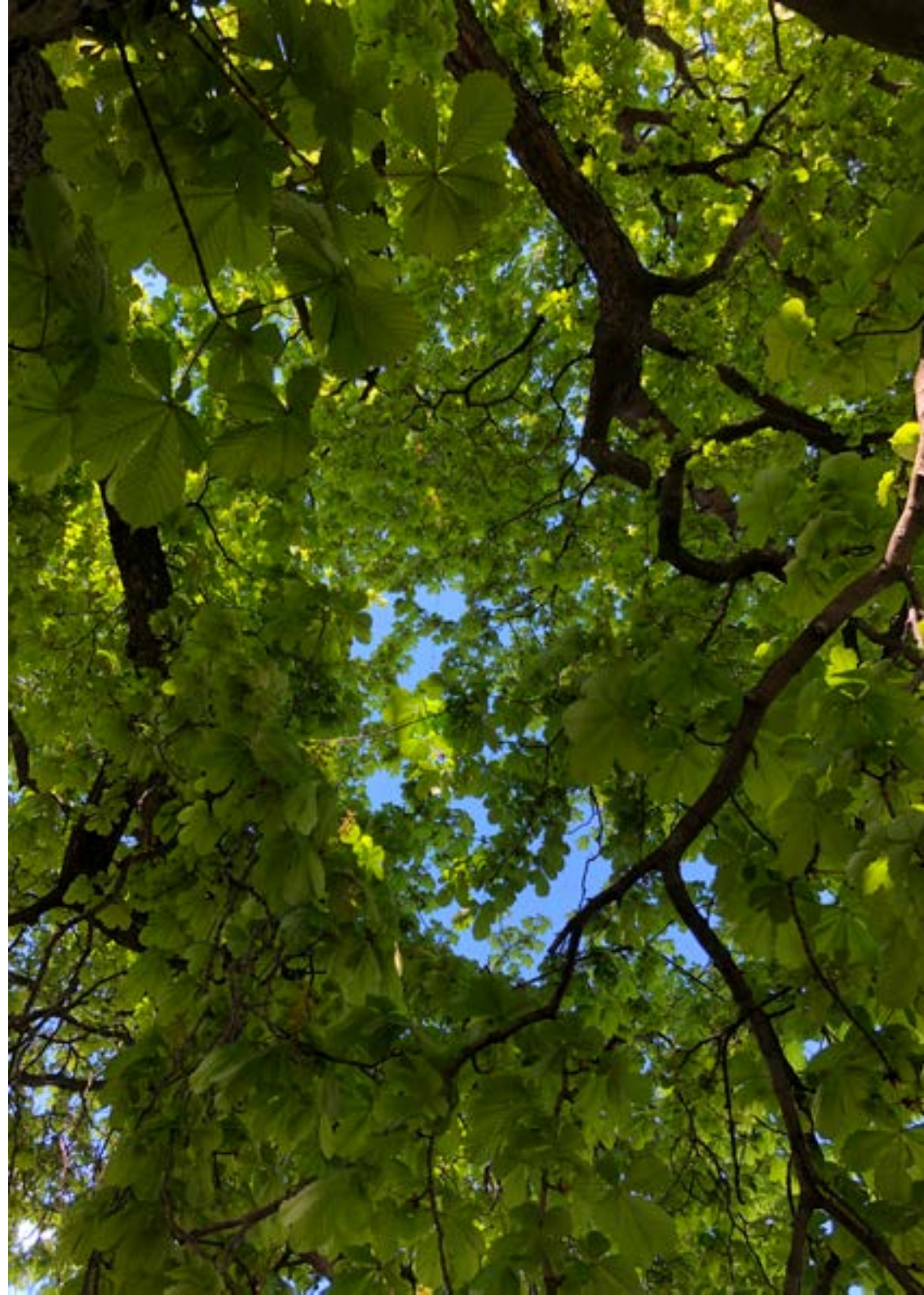


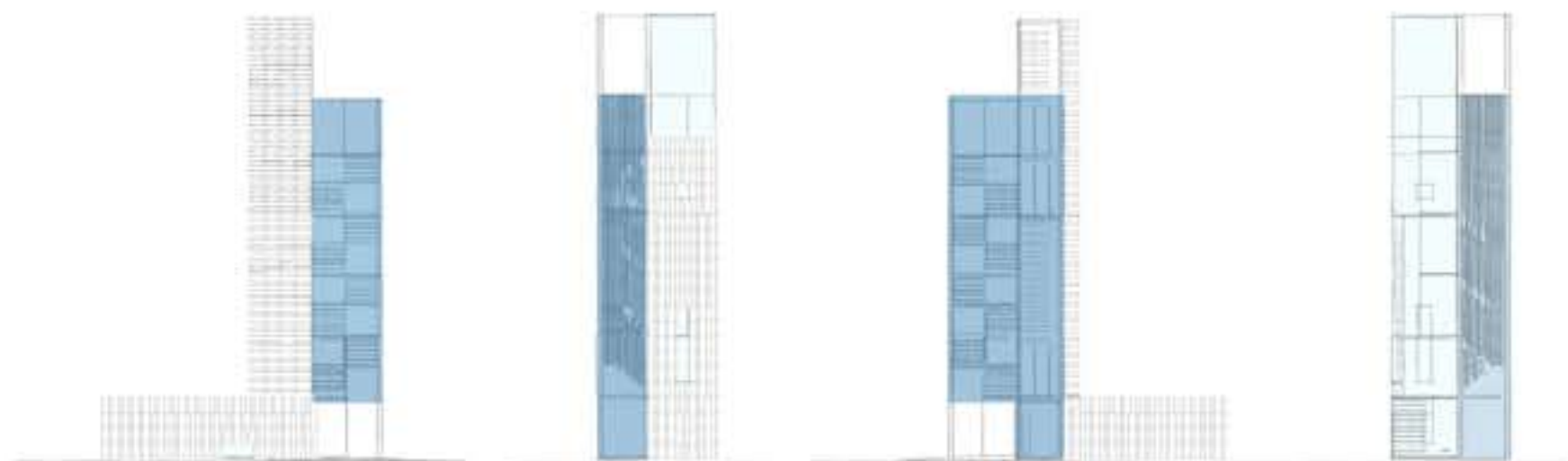
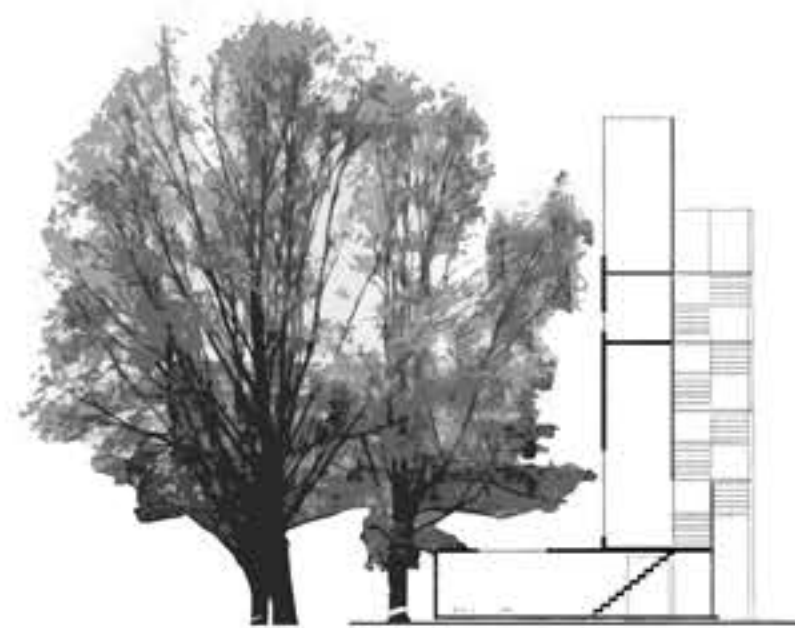
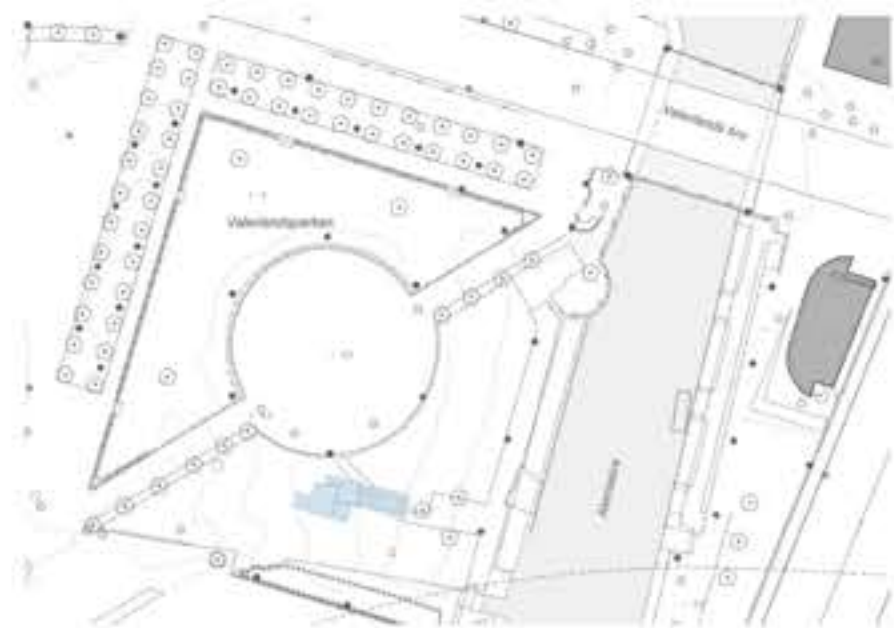
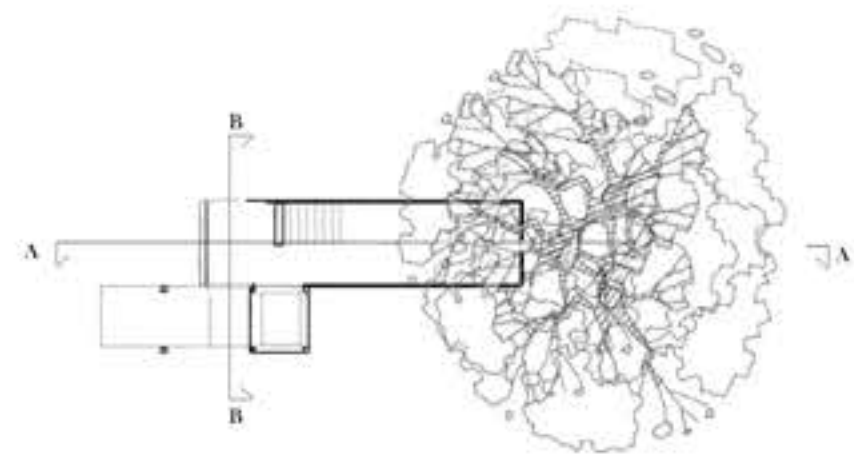


exhibited copper beach
(blodbøk)



exhibited horse chestnut
(hestekastanje)

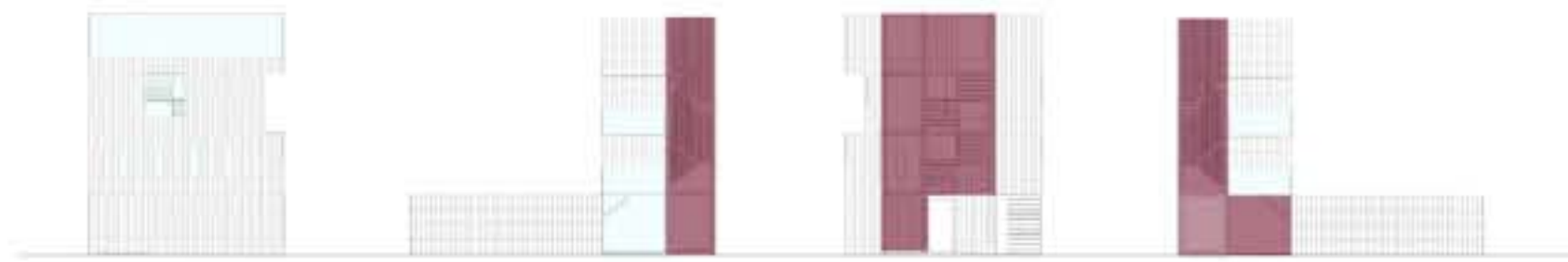
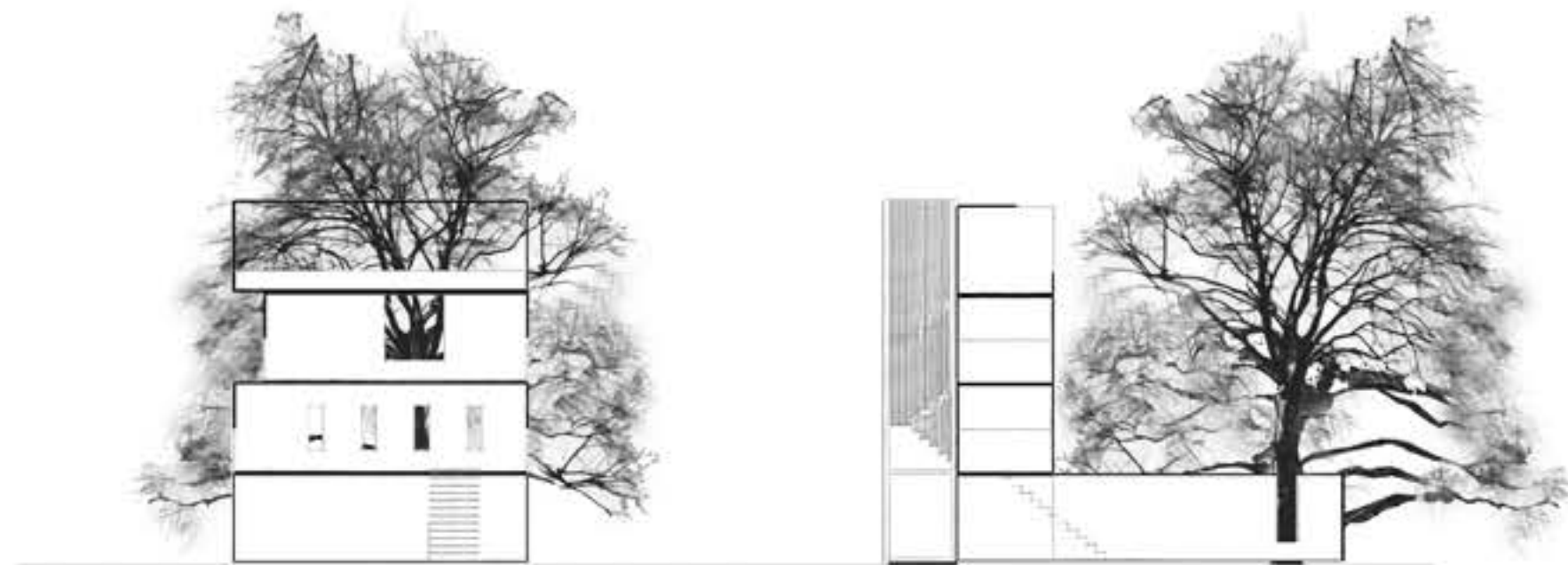
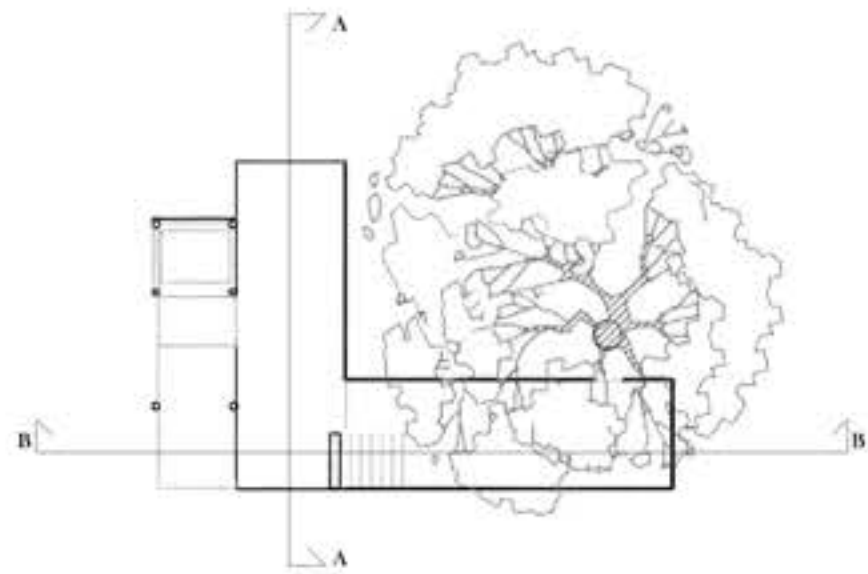






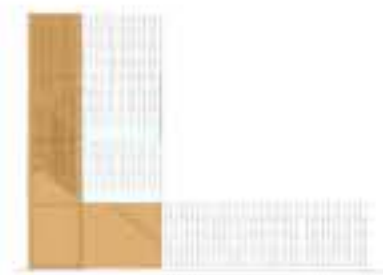
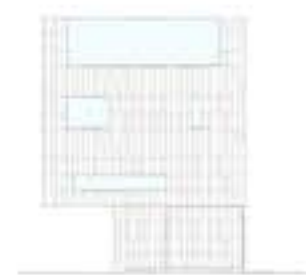
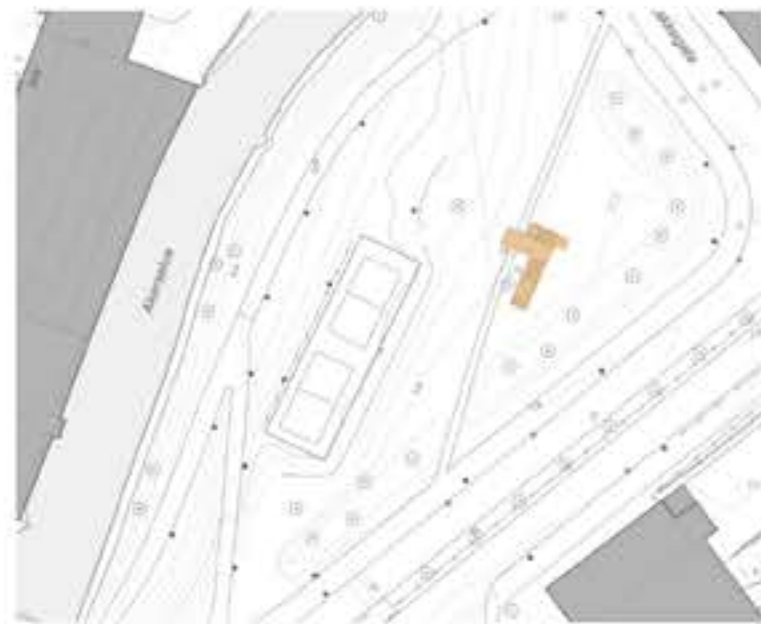
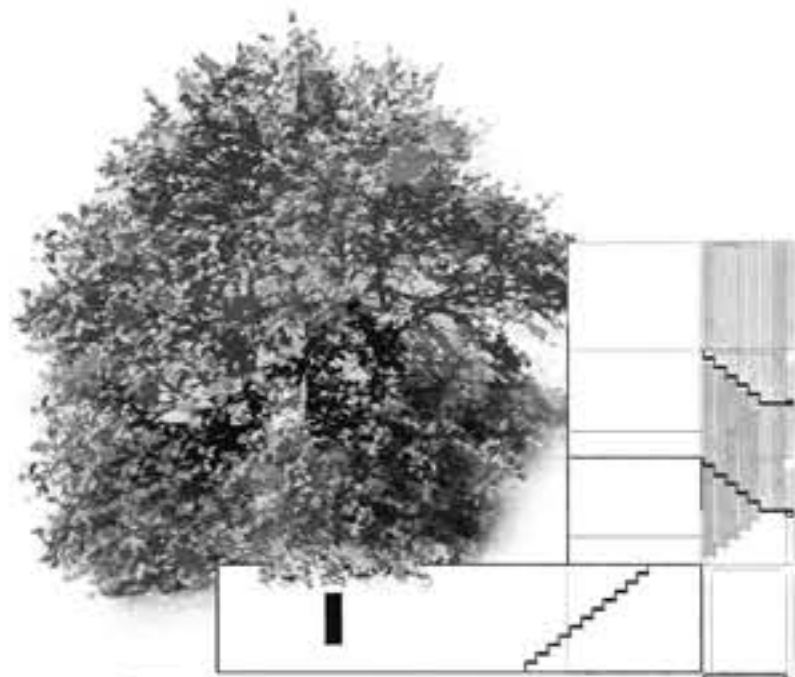
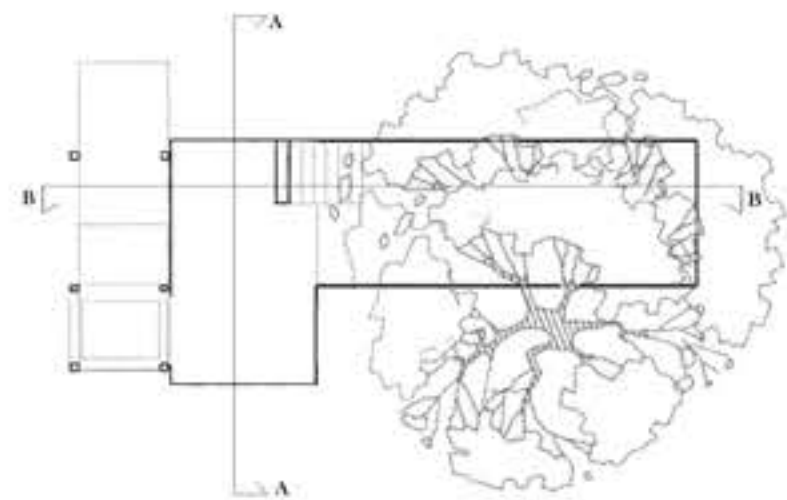
exhibited white willow
(hvit pil)







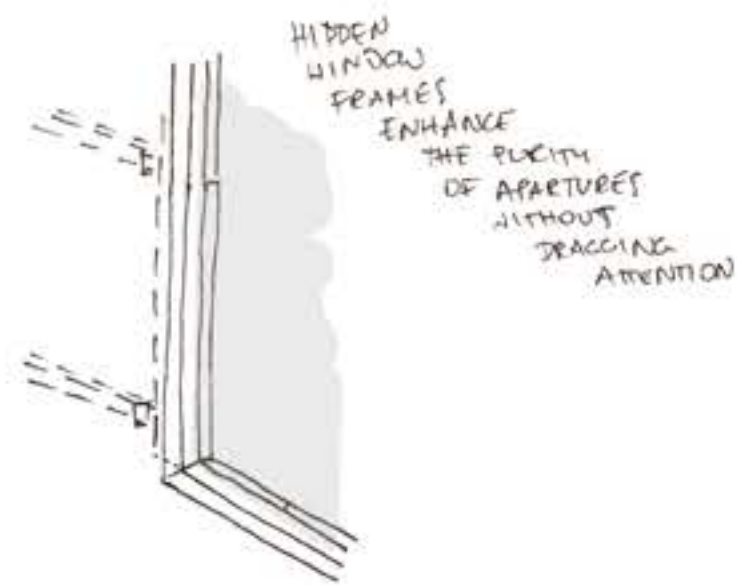
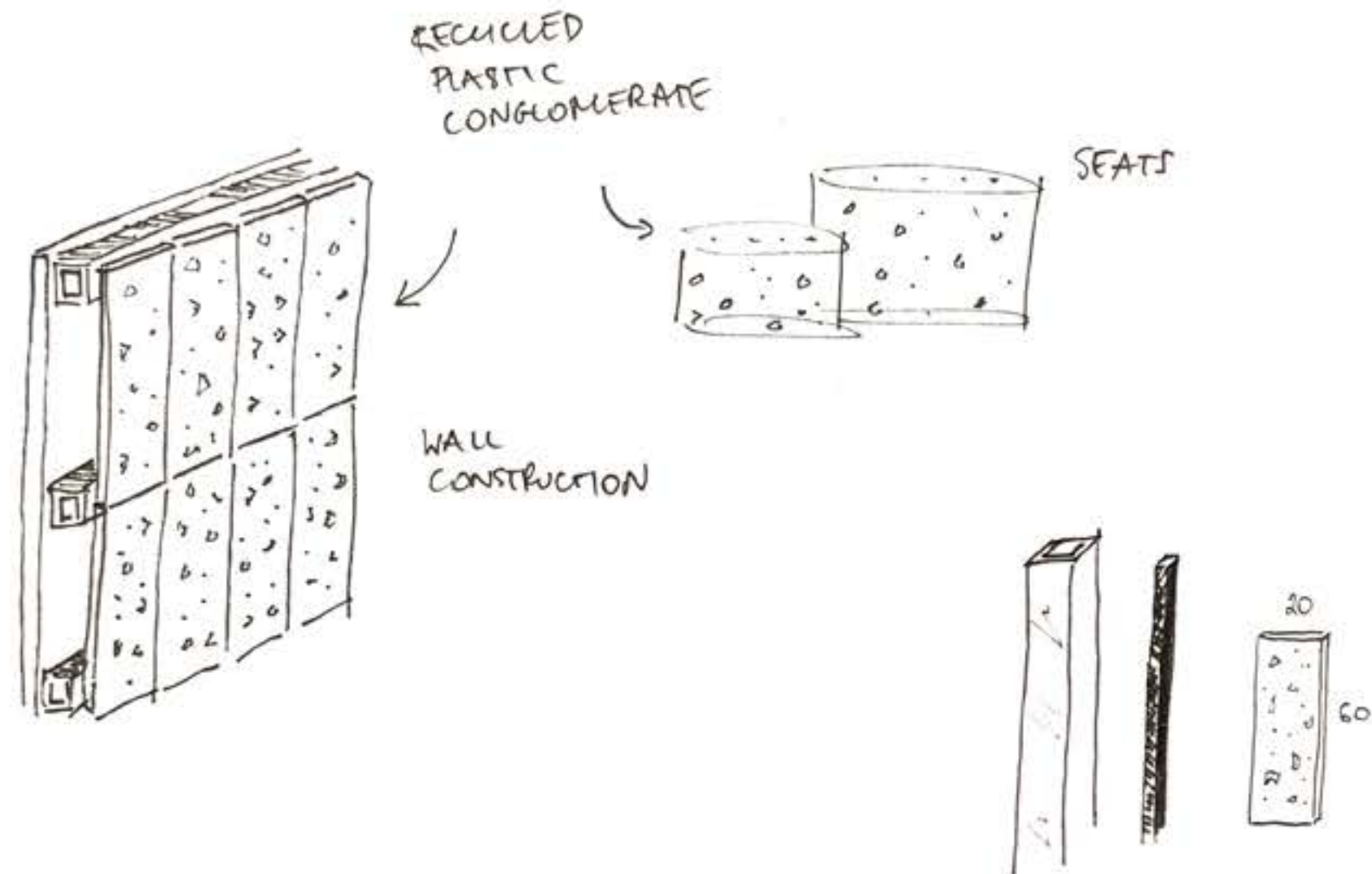
exhibited copper beach
(blodbøk)





exhibited maple
(lønd)

TECHNICAL SKETCHES



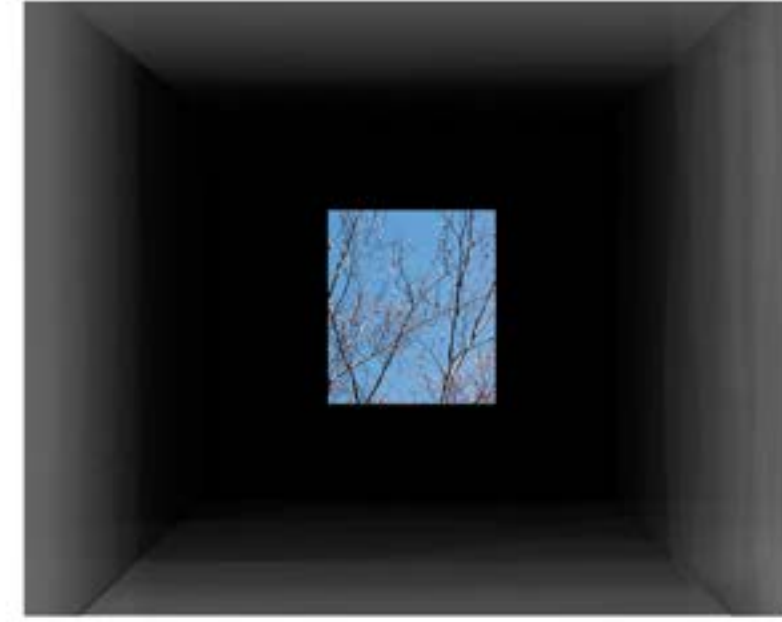
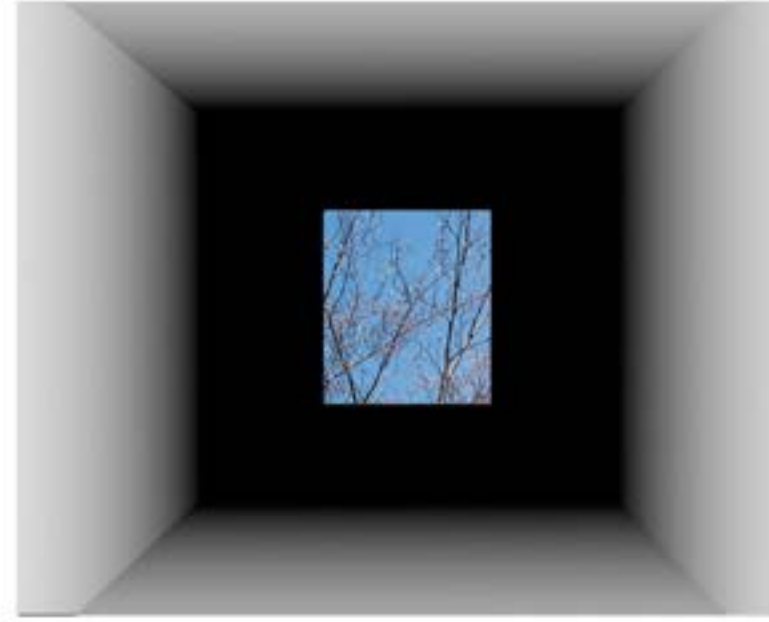
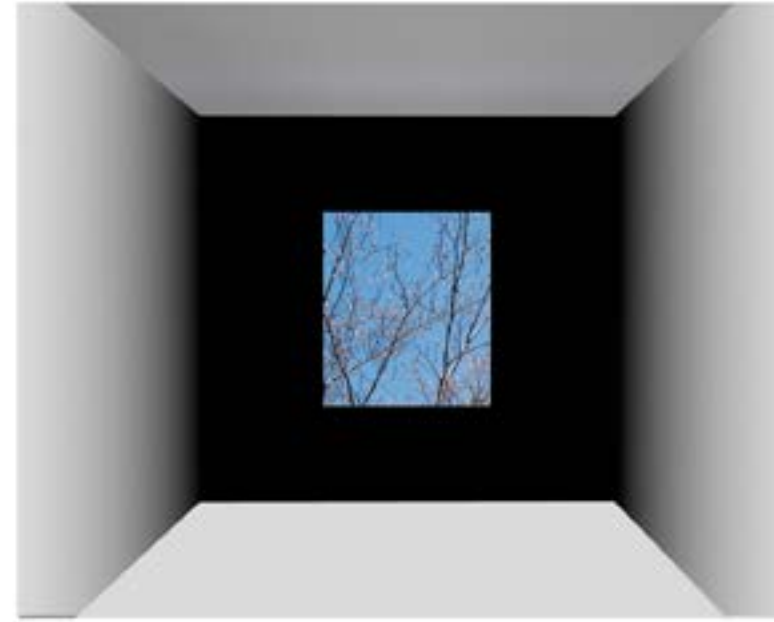


The main factor behind the choice of the aesthetics and materials for the interiors was the concept, that the framed views of the tree are the most important elements of the spaces. Therefore materials, textures or patterns should not draw visitors attention away from the windows / apertures . Walls, floors and ceilings were kept plain and smooth. To visually enhance the viewing areas the solution of black - white gradients were proposed.

The aim was to create a three-dimensional background for the exhibited views.

the only pieces of furniture inside each building, are round simple stools and a shelf for blankets near the entrance, both created from the same material as the exterior layer of the building - recycled plastic conglomerate.

additional light sources were provided to lighten up the staircase areas.

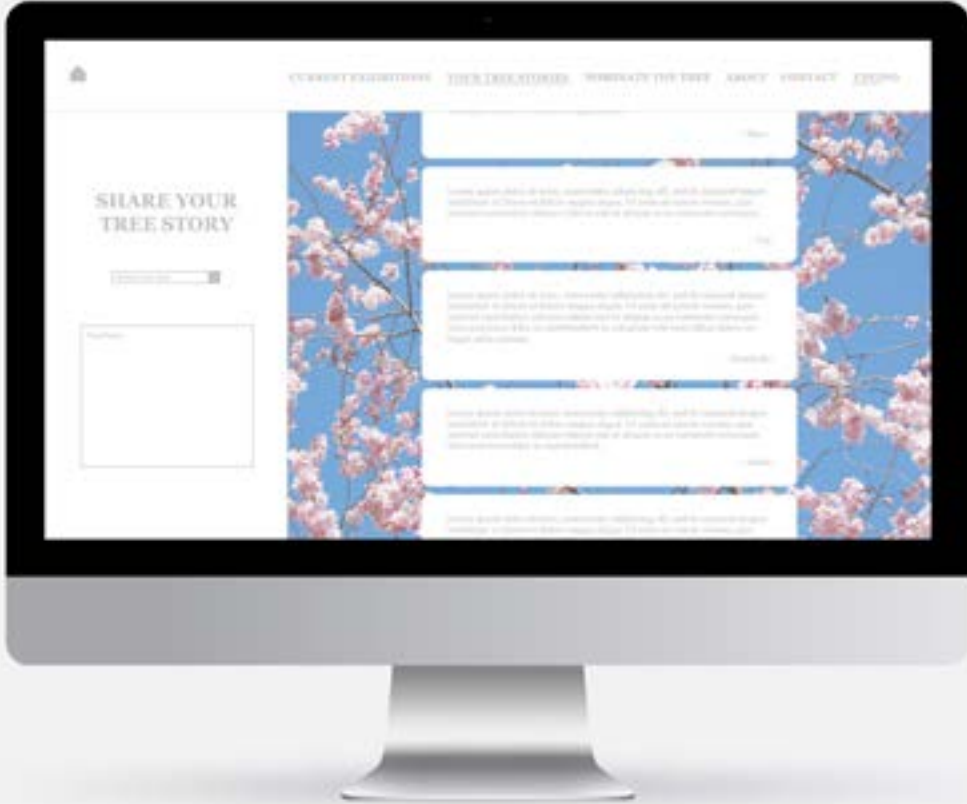


Series of tests regarding the influence of different gradients on the perception of the view.



the space is dedicated to all age groups. Thanks to multiple levels the visitors can find comfort without interrupting each other, regardless if the reason of their visit is to calm their minds or to learn something new about the exhibited tree.

TSA website not only provides the information about the current exhibition but also encourages citizens of Oslo to be a part of the concept, by proposing a platform to share their personal tree stories or nominate trees which they would like to see exhibited in the next seasons.



Further development

First step in order to transfer the project from concept to reality would be gathering a group of specialists within different professions. Contribution of arborists, biologists, engineers, landscape architects, fellow architects, and historians to the project, would make it gain additional depth and help it become technically realistic.

I also believe, that with the interest and contribution of Oslo Citizens and tourists, the project could grow bigger and expand into other areas of the city or even be adapted in different Cities around the world.

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Note regarding current pandemic situation.

How this situation affected my project? / What would I have done differently?

If I would have a normal access to school's master studio and workshops, I would have definitely worked with physical models, both to test the forms and to create a final architectural model. I believe physical models enable better understanding of the form and scale, both for the designer and the audience. I wish I could have also experimented with recycled plastic conglomerates to create material samples for the exterior walls of my buildings. Lastly, I would have presented my materials in various printed formats instead of one digital project book.