

M a k e  
S e n s e

- Visit the stations to encounter the five mates

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## THESIS STATEMENT

### SENSE

Space is real, for it seems to affect the senses long before reason. Sensory design slows space down, making it feel thick rather than thin, it knits together time and space, honors the pulse of living and embraces human diversity.

### SERIES

Individual characteristics for each station, each station is an own individual that are ordered and arrayed, which makes it a part of something bigger that together create a whole. A line of Architectural mates.

### GEOMETRY

We learn to organize geometric forms and color from that we are children, using complex form only makes it inexplicit and disturbs the unity of the whole. Using a simple form intensify the arrangement of the whole.

## INTRODUCTION

Space is real, for it seems to affect the senses long before reason. The materiality of the body meet the materiality of space. The body carries in itself spatial determination and spatial properties: down, up, left, right. Symmetry and dissymmetry. It hears as much as it sees (Tschumi, 1995).

Sensory design slows space down, making it feel thick rather than thin. An intimate room reverberates with shifting shadows and surfaces shaped from wood, wool, or stone. An atrium changes with the sun. Rough walls and dense fabrics absorb sounds.

Sensory design knits together time and space. To create an understanding of the whole when we look at a building, our gaze darts from small details to

larger volumes. People who are deaf use reflective surfaces to see what is happening around them, reflections duplicate space and creating visual echoes.

Tactile graphics are used to communicate through the sense of touch. Buildings with spacious hallways and vibrant materials accommodate everyone, including people who are deaf or blind. In this way sensory design embraces human diversity. Inclusive design creates a multisensory enhanced environment that holds a wide range of physical and mental abilities for people of all ages

Sensory design honors the pulse of living and sensory experiences enable consciousness. It is grounded in phenomenology and explores how we observe the world (Lipps, A , Lupton, E. 2018).

## ABSTRACT

Space is real, for it seems to affect the senses long before reason (Tschumi, B). Sensory design slows space down, making it feel thick rather than thin, it knits together time and space (Lipps, A, Lupton, E), honors the pulse of living and embraces human diversity (Ponty, M). How can architecture include senses in the design process?

This thesis project explores the possibilities of designing an interactive space that stimulates the senses. It investigate the ability to put the senses first and organisation second. The promenade through the design proposal make us aware of ourselves and the architecture encourages us to interact with it. By materializing such an abstract thing as the sense, the project contribute to an understanding of ourselves in relation to architecture.

This thesis focuses on the five basic senses, vision, touch, smell, sound and taste. The senses can be materialized in several ways, this thesis explores some of them. Sense is the ability to translate physical or chemical impressions to visual, hearing, tactile, odor or taste sensations (ne.se). Our brain does this constantly, but how can we use architecture to enhance this translation?

The design proposal consists of a promenade with five stations, one for each sense. The stations are like characters with individual characteristics placed in the landscape. They are geometrically connected, ordered and arrayed so that together they create a whole. A series of architectural mates that you can encounter along a walk.

Senses are in general strengthened by contrast and this is applied in the contrast between the exterior and the interior. The exterior with its white smooth walls and the interior with its sense specific elements.

The project is made through design investigations and workshops. References are found in studies of architectural and art references.

This thesis has a phenomenological approach and is focusing on interactive environments and sensory architecture. It's meant to give the visitor a feeling of architecture as an extension of the human body, but does it make sense?

### THESIS QUESTIONS

How can architecture include the senses in the design process, put the sense first and organisation second?

### KEYWORDS

Senses  
Seriality  
Geometry  
Route  
Stations  
Mates  
Charachters

## TABLE OF CONTENTS

Aim

Reading instructions

Background & Discourse

The five senses

The human body

Geometry

Method, Seriality as a design strategy

Site

Final Design

Site

Taste station

Sound station

Smell station

Vision station

Touch station

Final models

Photos

References

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La gratitud and Jardin de botanic

Rachel Whitered

Sol Le Witt

Neo Concretivism

Ode de Osaka, Sverre Fehn

Ocean Pool, Carlos Mourão Perreira

The Matter of Time, Richard Serra

Sense and Material

Bernhard Leitner

Bone Collection, Loïc Bard

Design Process

Design studies

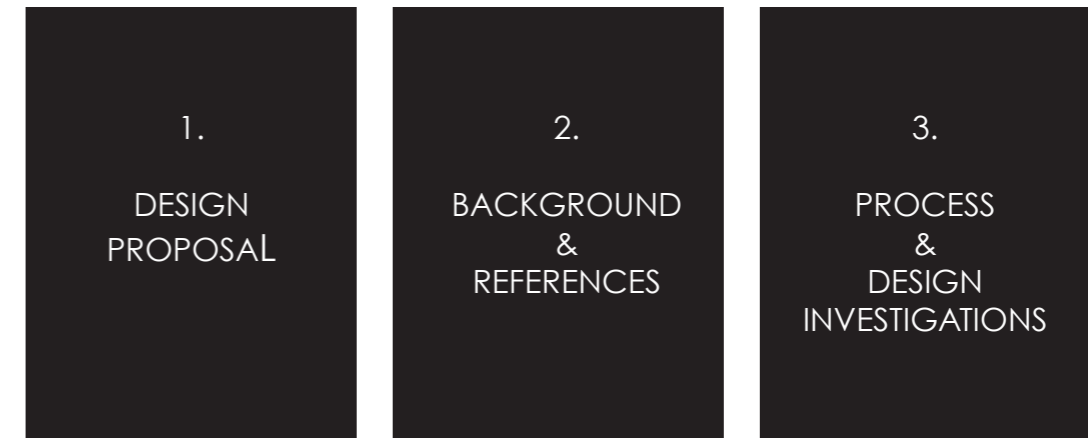
What, why how

Iterations

Design process

Reflection

Bibliography



## READING INSTRUCTIONS

This thesis is divided in three parts. First the design proposal, which is a result of the investigations that has been done. Then the background and references. The third part consist of the process and design investigations.

The thesis touch upon questions with several awnsers and words with various definitions. Therefore, have in mind the definitions listed below, and the delimitations on this thesis.

DeLimitations:

This thesis is focusing on the five basic senses, vision, touch, smell, sound and taste.

Glossary and terms

Sense:

The ability to translate physical or chemical directions to visual, hearing, sensory, odor or taste sensations (Ne.se).

Perception:

Apprehension of the sense data. The objective understanding and simultaneously a subjective interpretation (Stiles, Selz, 2012).

Phenomenology:

Explores how humans and other creatures perceive the world (Lipps, A , Lupton, E. 2018).

Interactive:  
influencing each other (oxforddictionaries.com).

Character:  
The quality of being individual in an interesting or unusual way (oxforddictionaries.com).

Seriality:  
Repeatedly committing the same offense and typically following a characteristic, predictable behavior pattern (oxforddictionaries.com).

Kinship:  
A sharing of characteristics or origins (oxforddictionaries.com).

Stations:  
A stop at a route. A place that you stop at on your way, a destination. Stations are connected to each other and together they create something bigger (oxforddictionaries.com).

Mates:  
A fellow member or joint occupant of a specified thing. Synonyms: Companion, helpmate, a friend or companion (oxforddictionaries.com).

## AIM

This thesis aims to contribute to an answer to the questions, how can we include the senses within the design process? and how does the human body relate to space?

The project investigates the ability to put the sense first and organisation second. It explores alternatives of how

we can include senses within architecture.

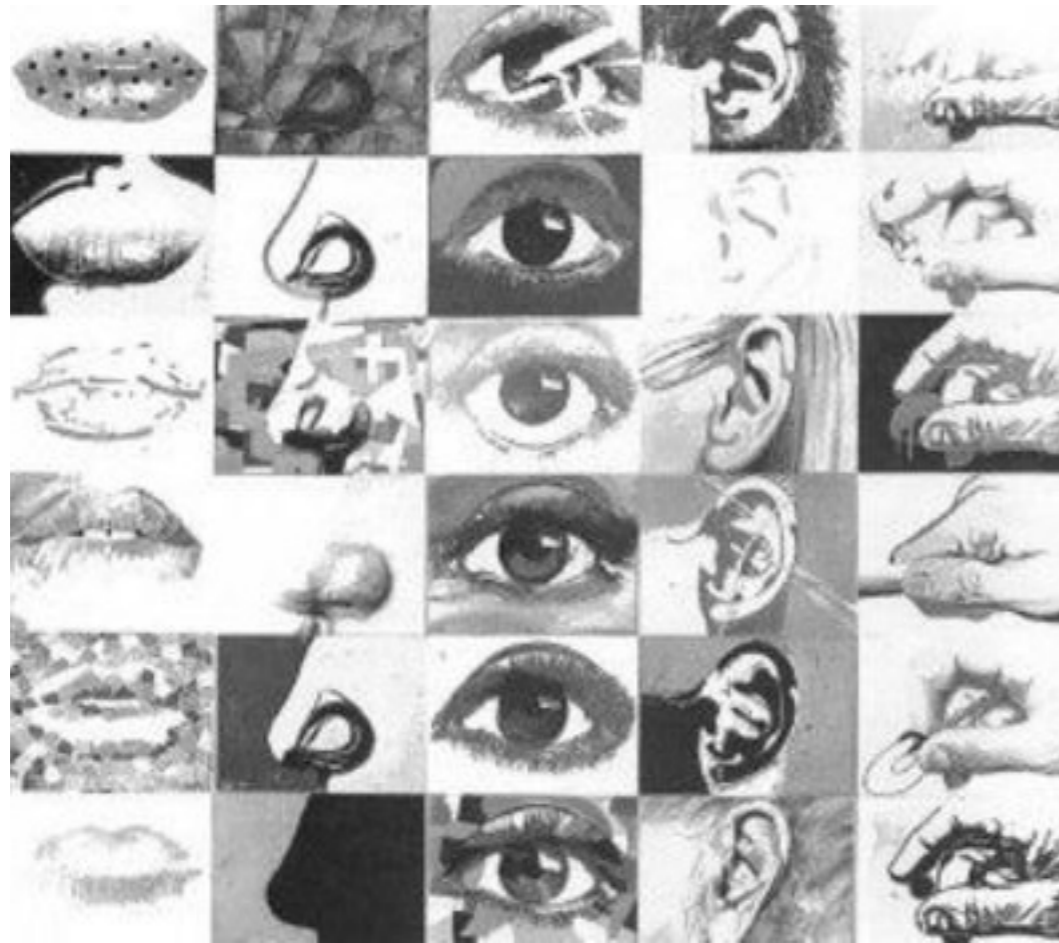
Since the senses do not have a physical form this thesis aims to explore how we with the help of architecture can create something concrete of such an abstract thing as the sense. To give form to something abstract.

b a c k g r o u n d  
&  
d i s c o u r s e



"The sight separates us from the world, while our other senses unites us with it".

(Pallasmaa, 2009)



1. The five senses

## THE FIVE SENSES

The five human senses play a unique role by translating information from the environment and transforming it to the human brain for interpretation. The brain then informs the body (Kinuthia, 2017). In western culture sight has been seen as the most important sense (Pallasmaa, 2009). Sight stands for around 80% of our impressions, hearing for around 10-15%, 5 - 10% remains for touch, smell and taste. The dominance of the eye has oppressed the other senses and makes us detached and isolated from them (Pallasmaa, 2009). Contrast is in general strengthening the senses. e.g. going from a light room to a dark room (Ne.se). Senses are affected when we are exposed to changes and differences in stimuli, when exposed for a long time to a continuous thing, which neither becomes stronger nor weaker, we become adapted and won't react on it (wikipedia.org). If you

take away a sense the other senses strengthen, e.g. if you block a view you can see it more clear once it's exposed again. This could effectively be translated to architecture and spatial sequences (Lipps, Lupton, 2018). The sense is providing information to our brain about the world around us, but also information about ourselves. Both to satisfy us and to give us information and signals of the world around us. The sense is generally an ability through which perception of external stimuli occurs. The minds have evolved in relation to the ability to react and give sensory impressions, e.g. knowing where food is or a danger is related to the ability to react, e.g. by moving towards food or escape. The opposite situation, moving fast in an environment that one cannot perceive, is dangerous (wikipedia.org).

"No matter how high tech we become, we still need and want our basic needs as human beings. That includes the stimulation of our senses".

(Stefan Behling, 2016).

### TASTE

Chemical sense that is used at short distances. Reacts to substances in food and is transmitted via water solutions. Several senses affect the sense of taste and it has a strong relation to smell (Ne.se).

Our primary tastes are sweet, salty, bitter, acid and umami. Primary tastes are flavors that the human being can feel with the taste buds on the tongue and in the throat. Compared to the sense of smell, the sense of taste only seems to distinguish between a few different flavors. To create the ultimate taste experience in the brain it interacts with the sense of smell and touch. It is often difficult to distinguish between the sensory experiences caused by stimulation of different parts of the tongue and the smell experiences that occur simultaneously (wikipedia.org). Bliss point is the ultimate combination of sweet, salt and fat.

### SMELL

Chemical sense that works in the distance. The sense of smell manifests through the nose (Kinuthia, 2017). The sense of smell is mainly the sense that decides how we perceive the taste of the food. Smell can also warn us "We claim the sense of smell works so we can't smell anything special when the smells that meet us in everyday life are in accordance with the unconscious expectations we have - whereas odors that do not match our expectations seem alarming. As if, for example, you come home and think that smells burnt" says Per Møller. The smell center has a close link to the part of the brain that has to do with emotional experiences. Therefore a certain smell can bring back memories and reminds us of certain emotions (Hundborg Koss, 2015).

### VISION

The sense of sight manifests through the eyes (Kinuthia, 2017) and is the ability to perceive light. Almost one third of the body's sensory cells is found in the eyes.

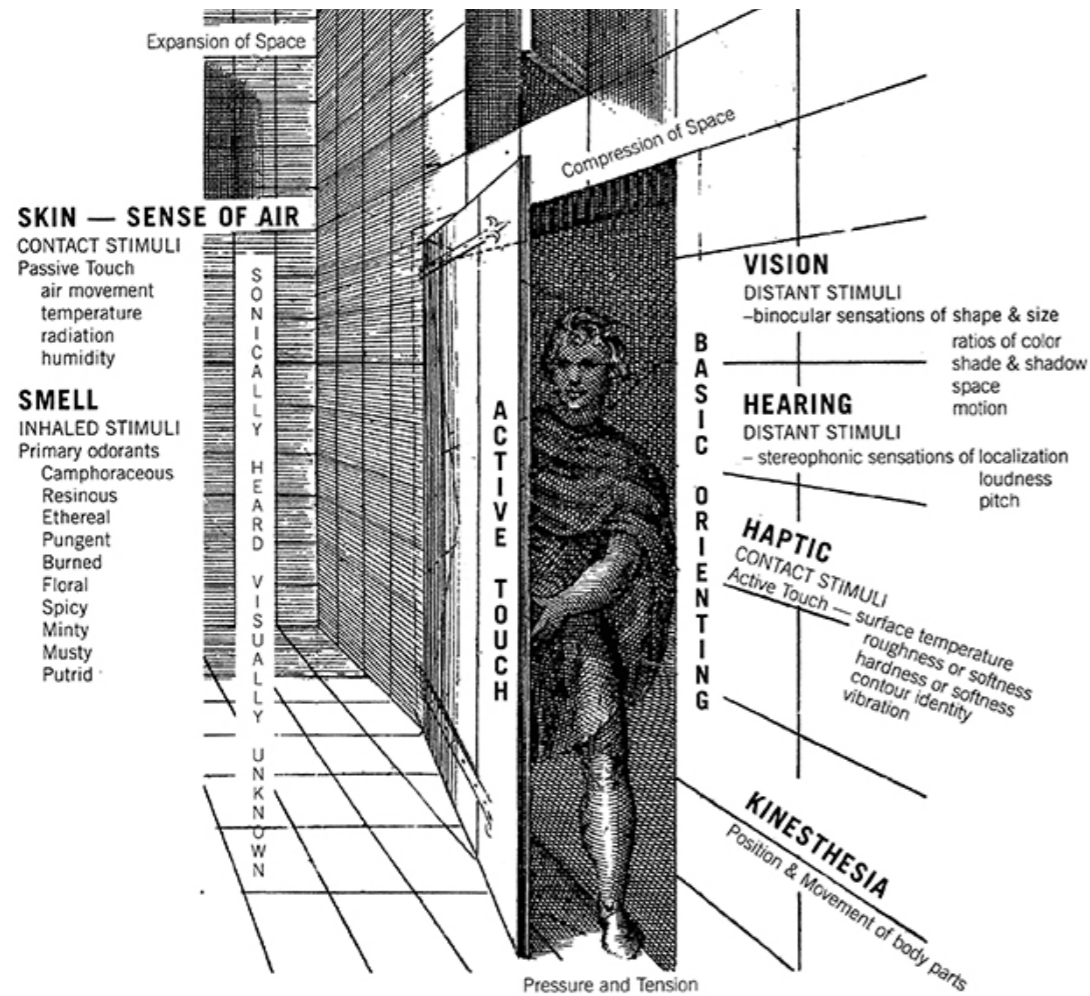
Light consists of electromagnetic oscillations, wavelength. The eye can register light in the range between 300-800 nm, ultraviolet-infrared, visible light (Ne.se). Light is registered by the sensory cells in the retina, the light that hits the retina is transformed into nerve impulses, which reach the brain's visual center. The brain translates the information as three-dimensional images. Light with different wavelengths is perceived as different colors (Brydolf, 2005).

### SOUND

The sense of sound manifests through the ears (worldatlas.com) and is measured in frequency, through sound waves. It is pressure waves that move in the air and which we hear by ear (Ne.se). We experience sound by feeling vibrations and seeing movements as well as hearing by ear. We often close our eyes when trying to hear a sound more clearly since darkness helps us hear clearer (Lipps, A., Lupton, E. 2018). We hear through vibrations e.g. when walking on a flexible or dumb surface. When creating sound, we also create space (Isaza, 2014).

### TOUCH

The sense of touch manifests through our skin (Kinuthia, 2017) and one feels touch through pressure, temperature (Brydolf, 2005) density and vibrations (Ne.se).



2. Human body and architecture

"The dances has his ear in his toe"  
(Pallasmaa, 2009).

## THE HUMAN BODY

We define the composition of space through the movement of our bodies (Lavin, 2011). Architecture is as a bodily mass, a membrane, a fabric, a kind of covering, cloths, velvet, silk all around us - the Body (Zumthor, 2006).

"To produce new spatial experiences that cut through the separation of perception from action, and point to the possibility of something more than the visual consumption of representational space - the possibility for invention, and reinvention between architectures and bodies" (Nilsson, 2007).

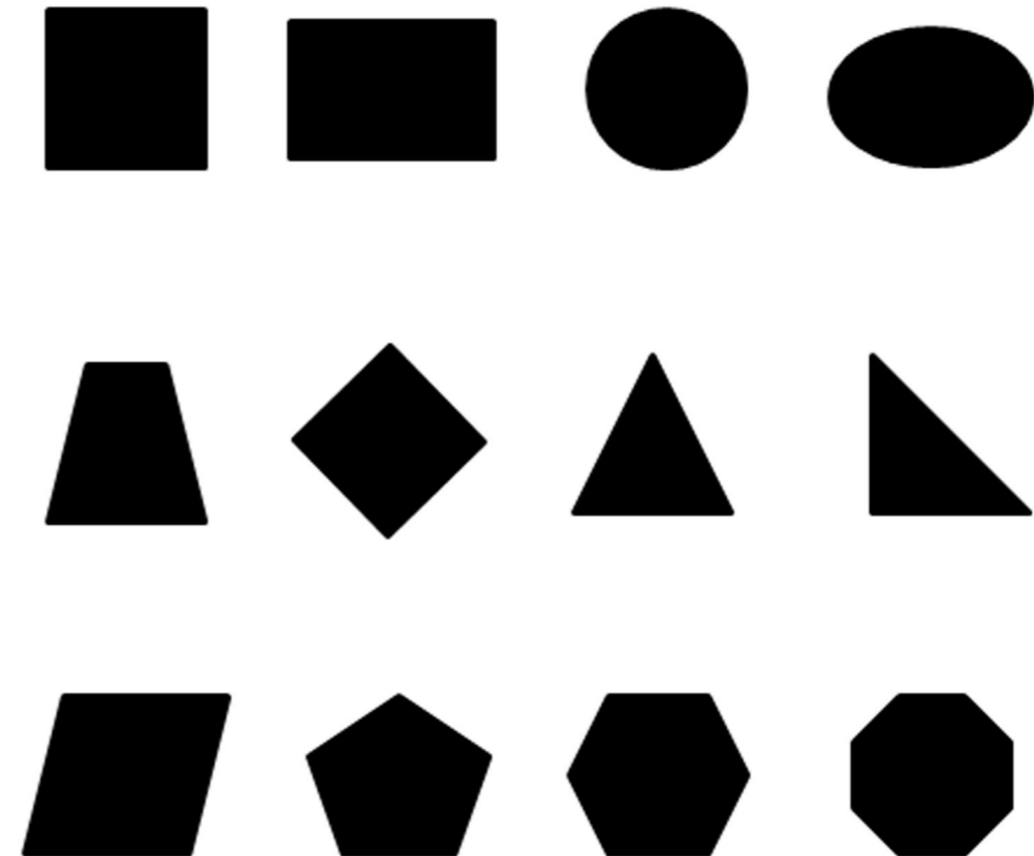
We judge the scale of a building in

relation to our own body. As we pass through a doorway, space hugs us and then lets us go. Air ripples over our skin, our feet touches the building's floor, and our hands grasp its railings and knobs. Windows puncture walls and expand space. When our body presses into the cushioned surface of a chair, both body and chair give in and react (Lipps, Lupton, 2018).

Zumthor, says that architecture is like a body, then what is the body? Lets say that the body is the five senses put in a form. Then architecture is the 5 senses in a form.

"If you want to know something about people, you have to understand how we interact with the outside world, and none of what we do is independent of our senses"

(Per Møller, 2015).



## GEOMETRY

We are surrounded by geometric shapes and the geometric forms are something we see in everything. It is among the first thing our brain react at and read and we learn to organize geometric forms and color from that we are children. Geometry is used to develop skills such as logic, problem solving and spatial understanding (Verdine, Lucca, Michnick Golinkoff, Hirsh-Pasek, Newcombe 2015).

There is a beauty in the simple and uncomplicated form, using complex form only makes is inexplicit and disturbs the unity of the whole. Using a simple form intensify the arrangement of the whole (Stiles, Selz, 2012). We are surrounded by space, and the shape of things. The

world is built upon geometric forms. Our planet and stars are all of different geometric forms and sizes and to everyday things such as rectangular pictures on the wall, square windows and circular tables.

To be able to understand the worlds shape, we need to be able to understand and have knowledge of spatial use. Position, size and shape of things. To be able to visualizing things, we need the understanding of geometry and geometry helps us to bring together both sides of our brain, logical and creative thinking (Verdine, Lucca, Michnick Golinkoff, Hirsh-Pasek, Newcombe 2015).

"The form itself is of very limited importance; it becomes the grammar for the total work. In fact, it is best that the basic unit be deliberately uninteresting so that it may more easily become an intrinsic part of the entire work."

(Stiles, Setz, 2012).

## METHOD SERIALITY- AS A DESIGN STRATEGY

There is individual characteristics for each station. Each station is an own individual that are ordered, arrayed, which makes it a part of something bigger that together create a whole, the line of Architectural mates (Lavin, 2011).

They all have a relationship and derives from the same kinship. The stations have a relation in exterior but the interior various to the exterior. The exterior share the same material and comes from the same geometric forms.

The stations are open to the exterior, have a smooth outside and complex inside.

They are a sort of compositional form, meaning that they are individually designed but has a visual relationship. They are also a sort of group form since they have a consistent use of basic materials and construction methods as well as spontaneous, variation in physical expressions. They are places in relation to the geography and topography and at the same time always in consi-

deration of human scale (Maki, 1964). An assemblage of individual parts of the building creates the unity of the whole (Moussavi, 2019). The design derives through conceptual models, design investigations of series, simple cut outs, shifting between analogue and digital, 2D and 3D in Rhino. Going back and forward through several iterations.

Research in made through interview with an acoustic, taking part of lectures, observations of art and architectural case studies. Analyzes of the sense and geometry through out the process. Make changes, adapting and designing through delimitations and rules.

References of senses in architecture, series and geometries. Analyzes of images both digital images and paintings.

The forms is investigated both with 3D printed models and cardboard models, in various scale.

Conceptual ideas through worlds, to make the reader easier grasp the project.



Meccinareberget

## SITE: MECCINAREBERGET GOTHENBURG

A mountain in the middle of the city but still not considered as city center. With Per Dubbsgatan as a barrier straight through, sloping and inaccessible nature on one side, and low utilized land up towards Guldheden, Meccinareberget is quite isolated from its neighboring areas. The university, hospital and property owners want to change this, and also hope that the initiative for a development plan can increase the exchange between the area's many activities (Andersson, 2013).

Meccinareberget is located close to university of Gothenburg, Shalgrenska hospital, central Gothenburg, Linnéplatsen, slottskogen, an allotment area and Konstpedemien.

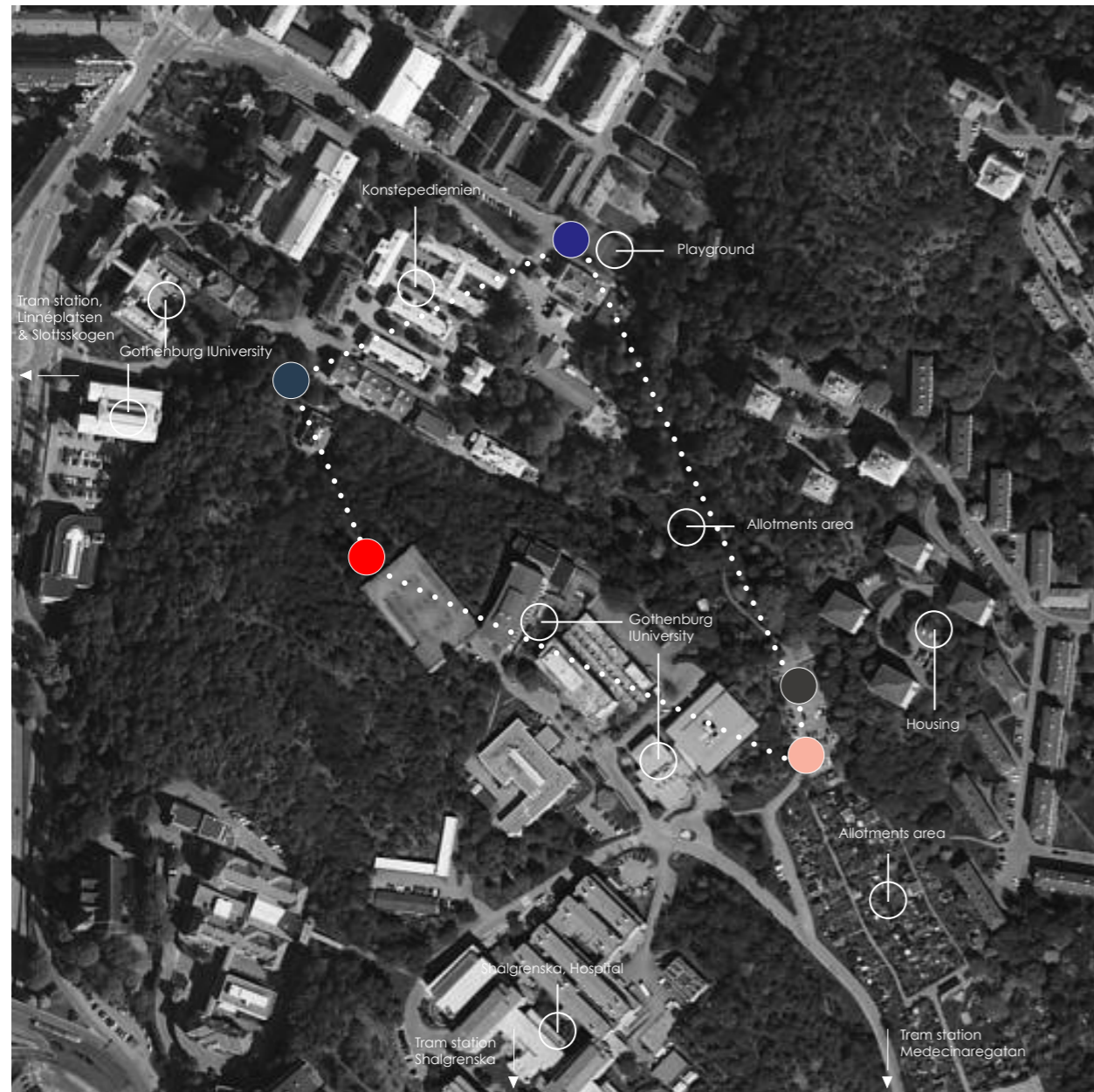
There is future plans for expansion in the area, to connect it to Linnéplatsen, to create a stronger connection to the rest of the city center and make the green areas at Meccinareberget more accessible, and create a more urban environment (GP, 30 okt 2018).

### REFLECTION

The paths have no clear connection to each other. Today is Meccinareberget as a barrier, like a hidden gem. The central location has a huge potential. Here you can hear the birds, you are close to the artworld, allotments and university facilities.

Today Meccinareberget is under development which makes it in particular interesting.

f i n a l  
d e s i g n

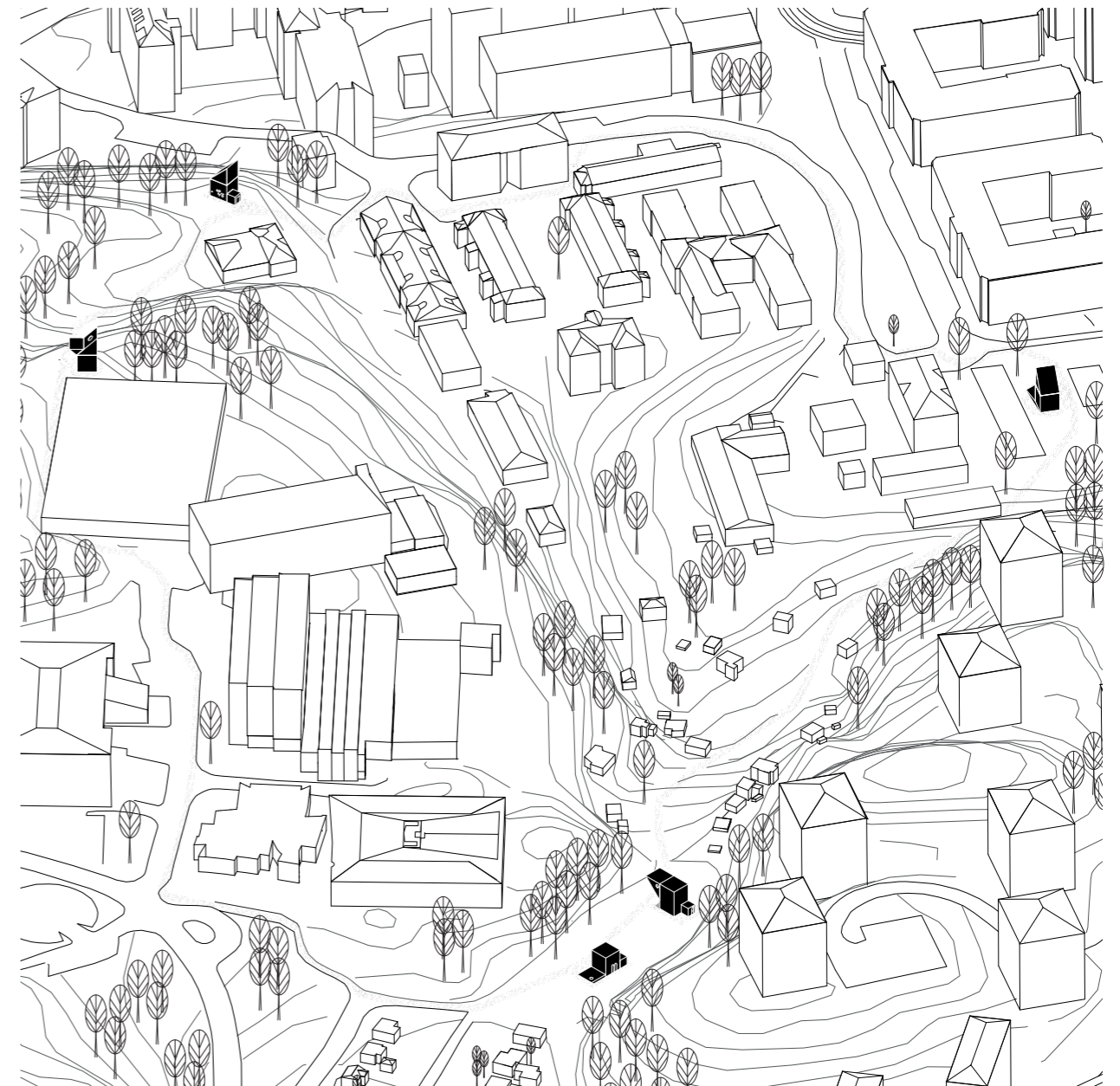


● Smell ● Taste ● Vision ● Sound ● Touch

WHAT AND HOW

The stations are like sculptural objects places in nature- like hoarders placing things in "inappropriate" places. Hoarders do, in such way as to interrupt the flow of body in space (Lavin, 2011). Walk through, pass by, walk under, sink down in. change of view, orientation points. All of them is a place for reflection. You can visit them in group and/or alone. They could host exhibitions, like an ex-

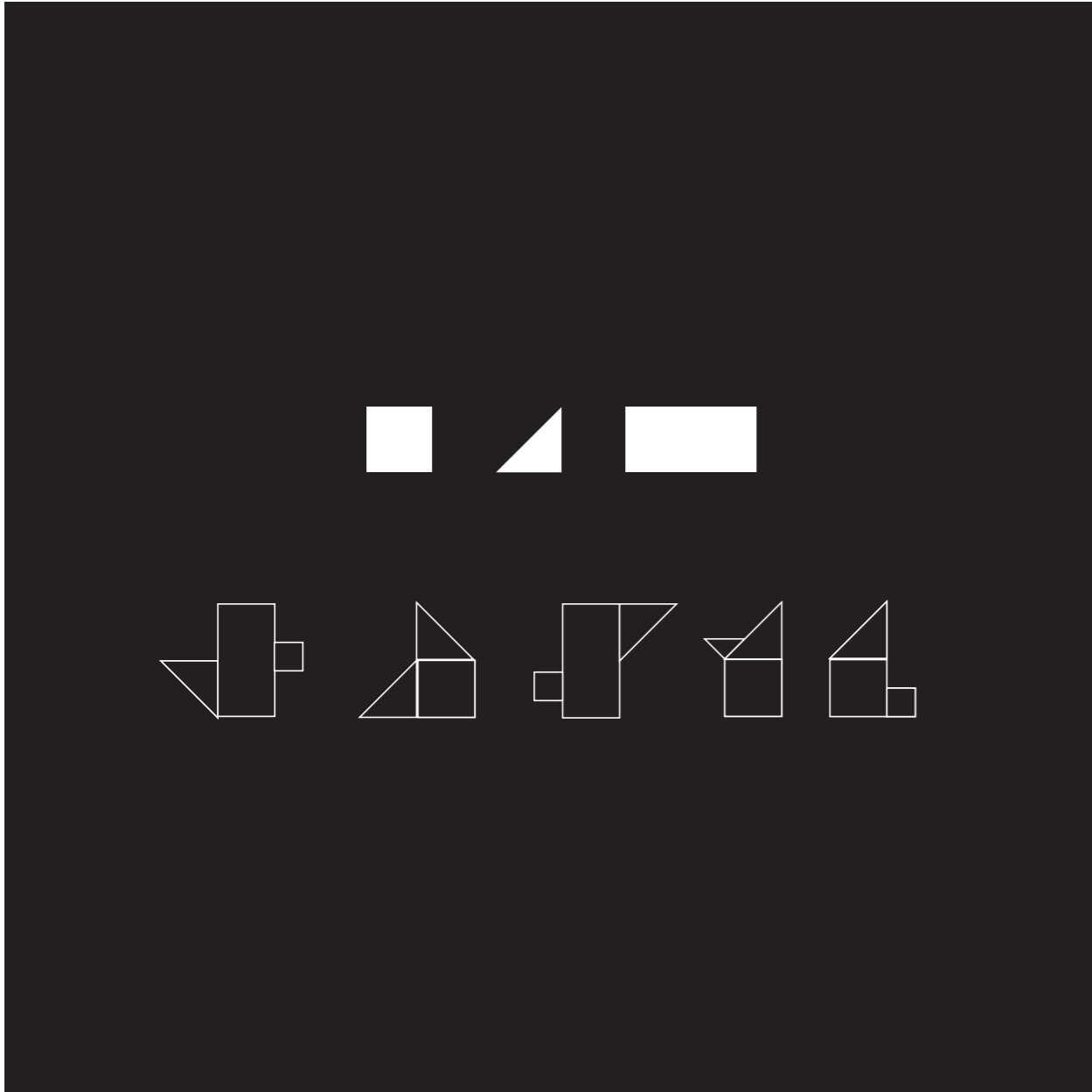
tension for Konstpedemien, Gothenburg university, allotment area and the kindergarten. They are placed in a grid as the Follies in Parc de LA Villette and create a reason to visit the area. One can chose if you want to visit just one station or all five. The walk create a contrast along the way. Ups and down and along corners (Jencks, Silver 2013).



The sense is an Including, universal language. The stations suits all ages, children and elderly people. It is an experience that you can experience both alone and in group. It could be a place for school groups and organizations to visit. A part of the education in the society and it works as an extension for the functions in the area. Just like hoarding frees the interior from typical convention of use

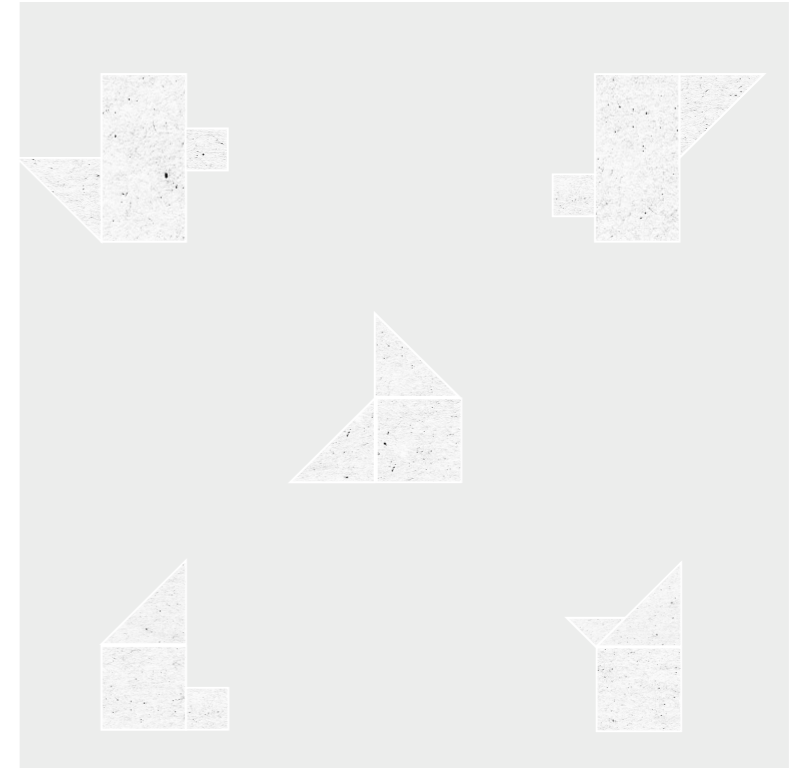
(Lavin, 2011) the stations are freed. The change of conventional use activates encounters and opens up the building to forgein ideas (Moussavi, 2019). During daytime the stations is full of life and during nighttime they are like silen lit up satellite/sculptures in the city. The function is open, so that the visitor can use it individual (Lavin, 2011) and put it's own personal touch on space.

CONCEPT

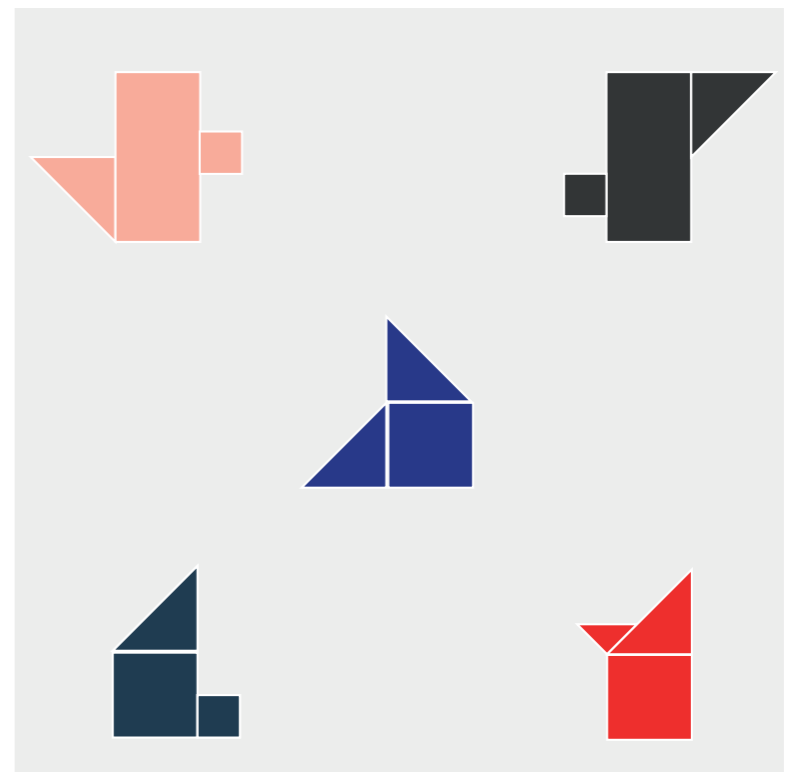


The simplicity in the geometric forms allows for a more complex forms. To make the geometric forms, stand out, the forms are put together with a visible seam between. The visible geometric forms strengthens the series.

CONTRAST EXTERIOR AND INTERIOR



EXTERIOR  
Precast white concrete with ablasted surface. The relief in the facade highlights the change of light.



INTERIOR  
Sense specific element.

## THE FIVE MATES

The mates have individual characteristics and personalities. Each station have three geometric parts and are geometrically connected. The contrast is present in each station with the white smooth walls at the exterior, on the interior the materials various and is specific for each sense. The exterior hints what specific sense it is.

"Open space is an invitation to hoard more, things that have material lives is not a secondary addition to the architectural situation. It's an instrument of personalizing".

(Lavin, Sylvia, 2011)

### TASTE STATION

#### INTROVERT

Expression of animal, go inside, down in. Here the visitor can taste the salty walls.

here is a place for outdoor sitting and it works as an extension for the allotments area. A place for rest. Taste does not regular apper within architecture, but here the bubbly form of the scraped salt walls and floor are present. It has the look of being alive. Translucent pink Himalaya salt, wich is lit up from behind. The salt has a strong visual effect since we eat with our eyes.

contrast: Shadow, dark, closed.

here you get a directed vision, it is a place for exploration. Come up from low to high to get a change of vision and directed vision. Contrast, dark/ light, open/ closed.

The interior is covered in red color on walls, floors and ceiling. Located high in the landscape, orientation point in the city and for the walk.

### SMELL STATION

#### INTROVERT

Expression of animal, go inside, down to, burnt wood (Ban Sugi Ban) smell of fluid tar. A play with expectations.

A place for exploration, located in relation to the taste station.

### TOUCH STATION BETWEEN EXTROVERT AND INTROVERT. CURIOUS.

Various tactile walls, rugged, bubbly surcafes, straw, concrete and metal walls, various depth on the floor with soft sand to sink down in.  
Contrast: Rough vs smooth, Hard vs soft, warm vs cold.

Placed in relation to the playground and kindergarden. Place for seating to feel the surcafe of the support underneath.

### SOUND STATION

#### EXTROVERT

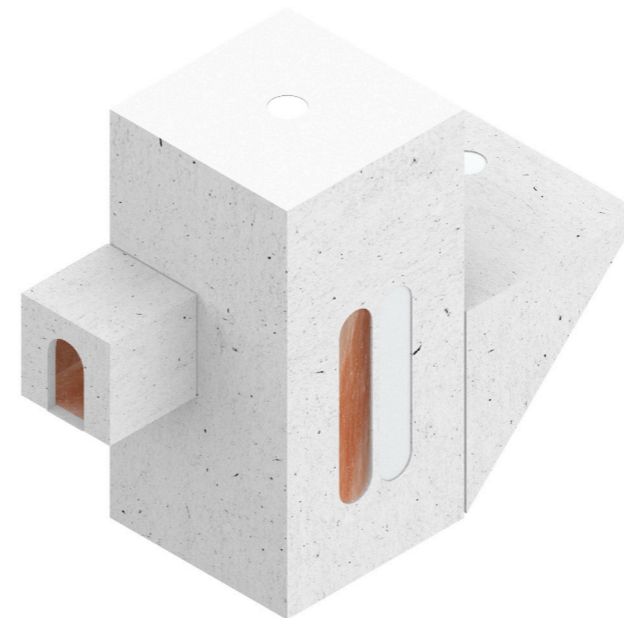
Expression of movement, the walls are thick and the entrance door is heavy, openings in the facade with the form of small audial funnels.

The station works as an extension for Konstpediemien. Located close to the tram station Linnéplatsen. Enhanced sound and silence and enhanced rainchatter. Sound from footsteps on the various floor materials of wood, concrete and metal.

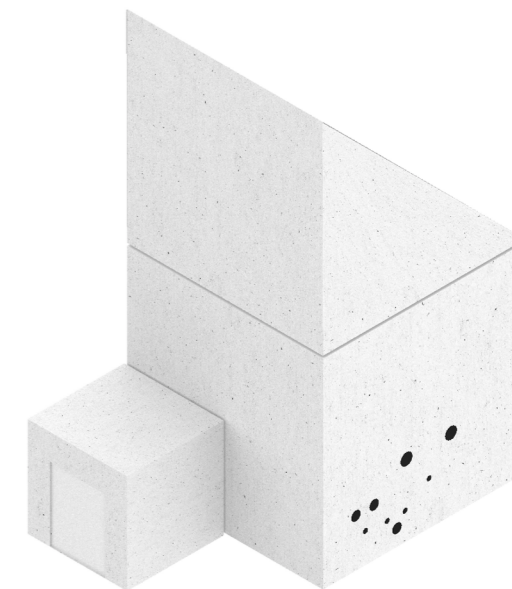
### VISION STATION

#### EXTROVERT

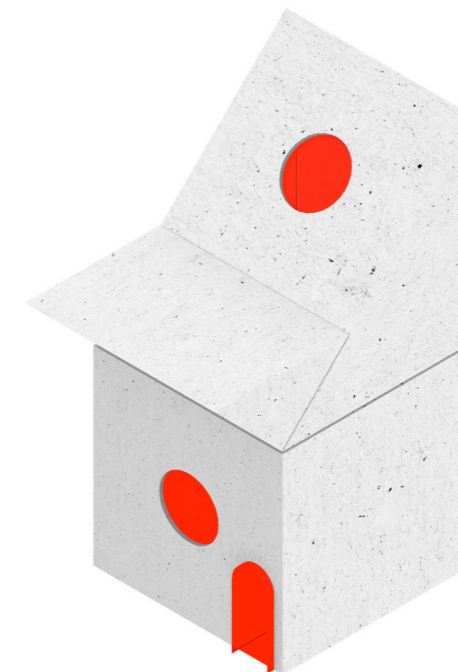
Observer. Look out over the city, step out over. Mirrors the sky, reflections, surprise factor, openings. A play with perception.



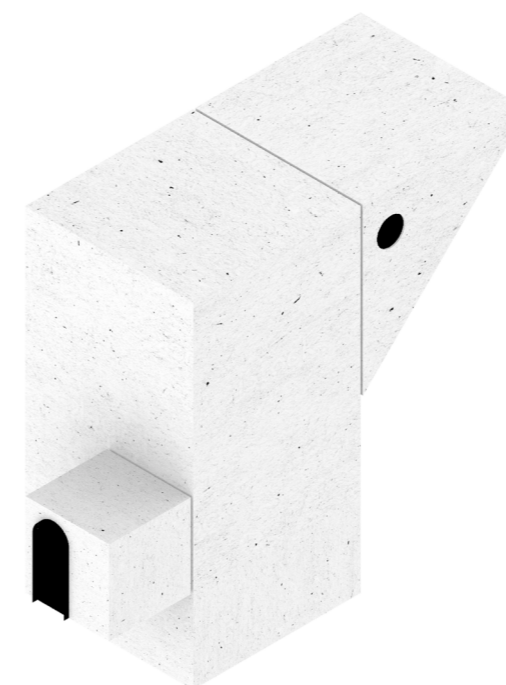
Taste station



Sound station



Vision station



Smell station



Touch station

# t a s t e

Chemical sense that is used at short distances. Reacts to substances in food and is transmitted via aqueous solutions. Several senses affect the sense of taste and it has a strong relation to smell (Ne.se).

Taste is not something that you experience only with your taste buds. The first sensation of taste is through the eyes. Colors have a strong effect on the expected taste and taste is strongly connected to our expectations. Expectation and color is of importance to our sensation of taste e.g. our brain read the color of red as sweet, as ripe berries. It is something that we have learned in our sense memory. We expect red to be sweet and our expectation affects our taste sensation since we taste with our brain.

Our primary tastes is sweet, salty, bitter, acid and umami. Primary tastes is flavors that we can feel with the taste buds on the tongue and in the throat. Compared to the sense of smell, the sense of taste only seems to distinguish between a few different flavors. It interacts with the sense of smell and touch

in order to create the ultimate taste experience in the brain (wikipedia.org). The ultimate combination of sweet, salt and fat is called bliss point.

#### LOCATION

Placed in relation to the smell station and in connection to the allotments. Partly under ground, the entrance takes you down, like walking in to a body, the sense is focused inside.

#### CHARACTERISTIC:

Introvert

#### MATERIAL

Pink Himalaya salt walls, which is translucent and lit up from behind. salt water. Feeling of something being alive.

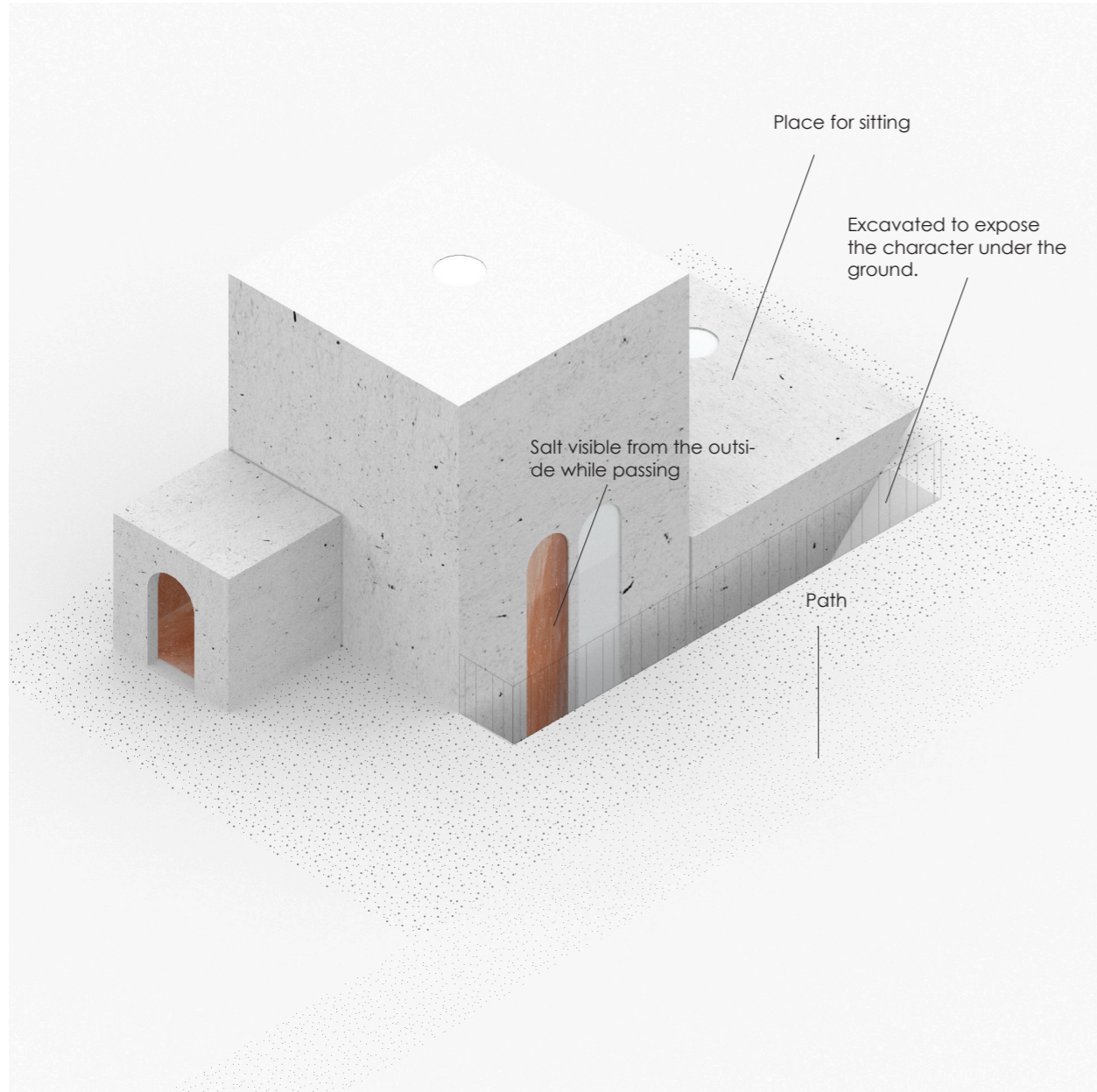
Salt mines are placed under ground, you walk down in to them.

#### FUNCTION

Temporary exhibition and workshop space for the allotments and university area. Sun and resting spot with outdoor sitting.

Water dissolves salt and therefore the station is open to the exterior, so that one easily can taste the walls. Light from inside, lit up at evening.

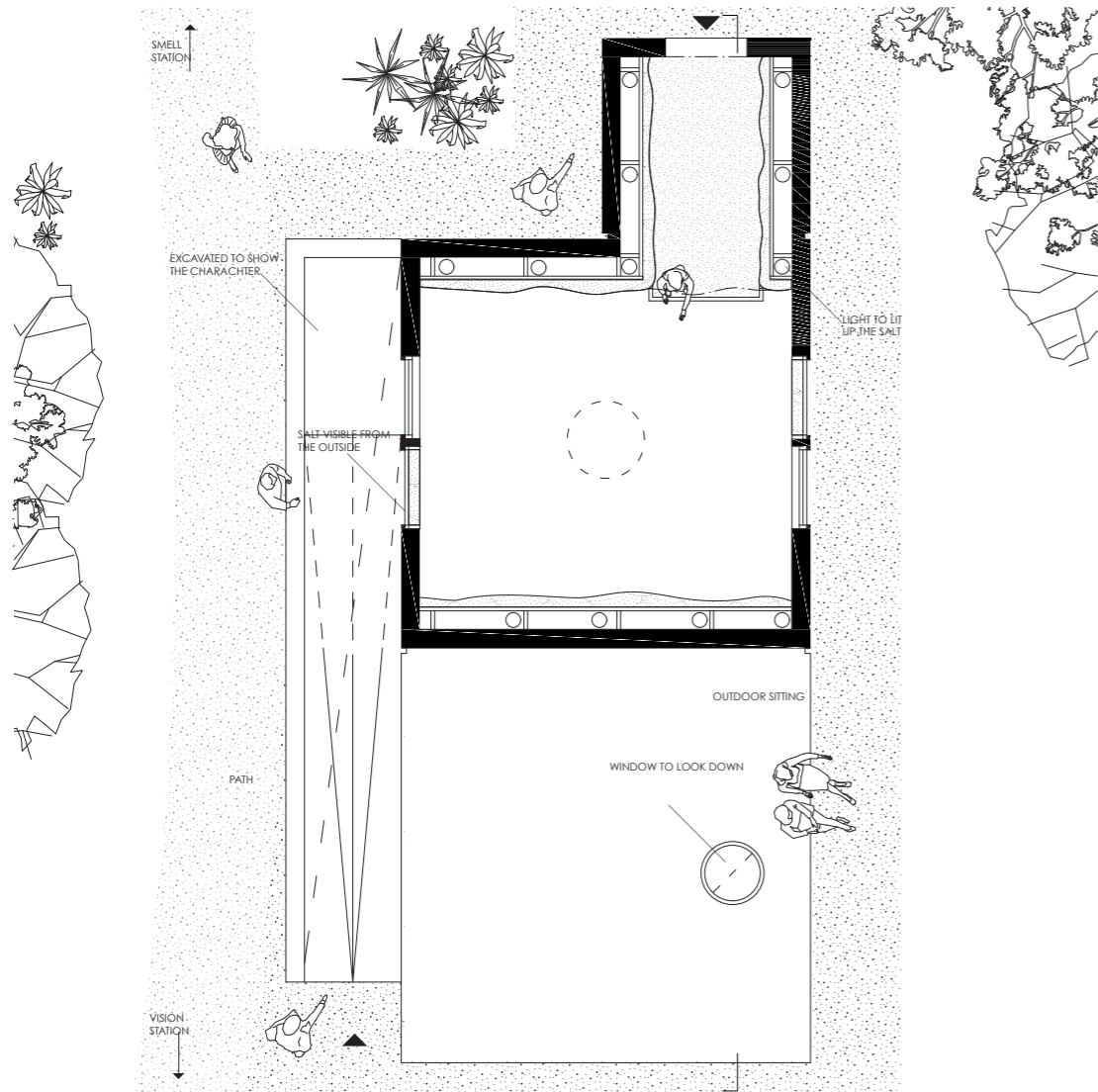




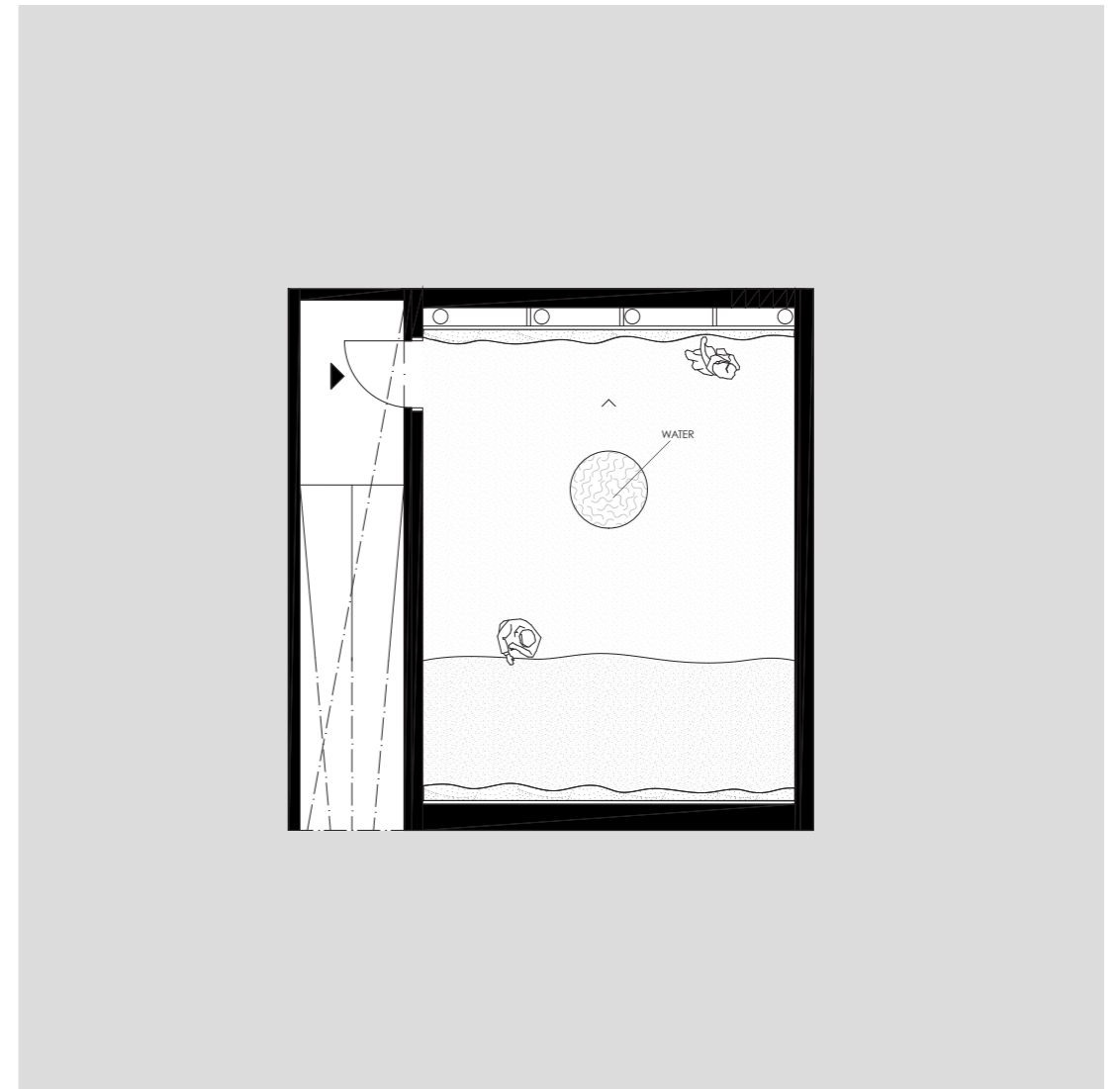
AXONOMETRI



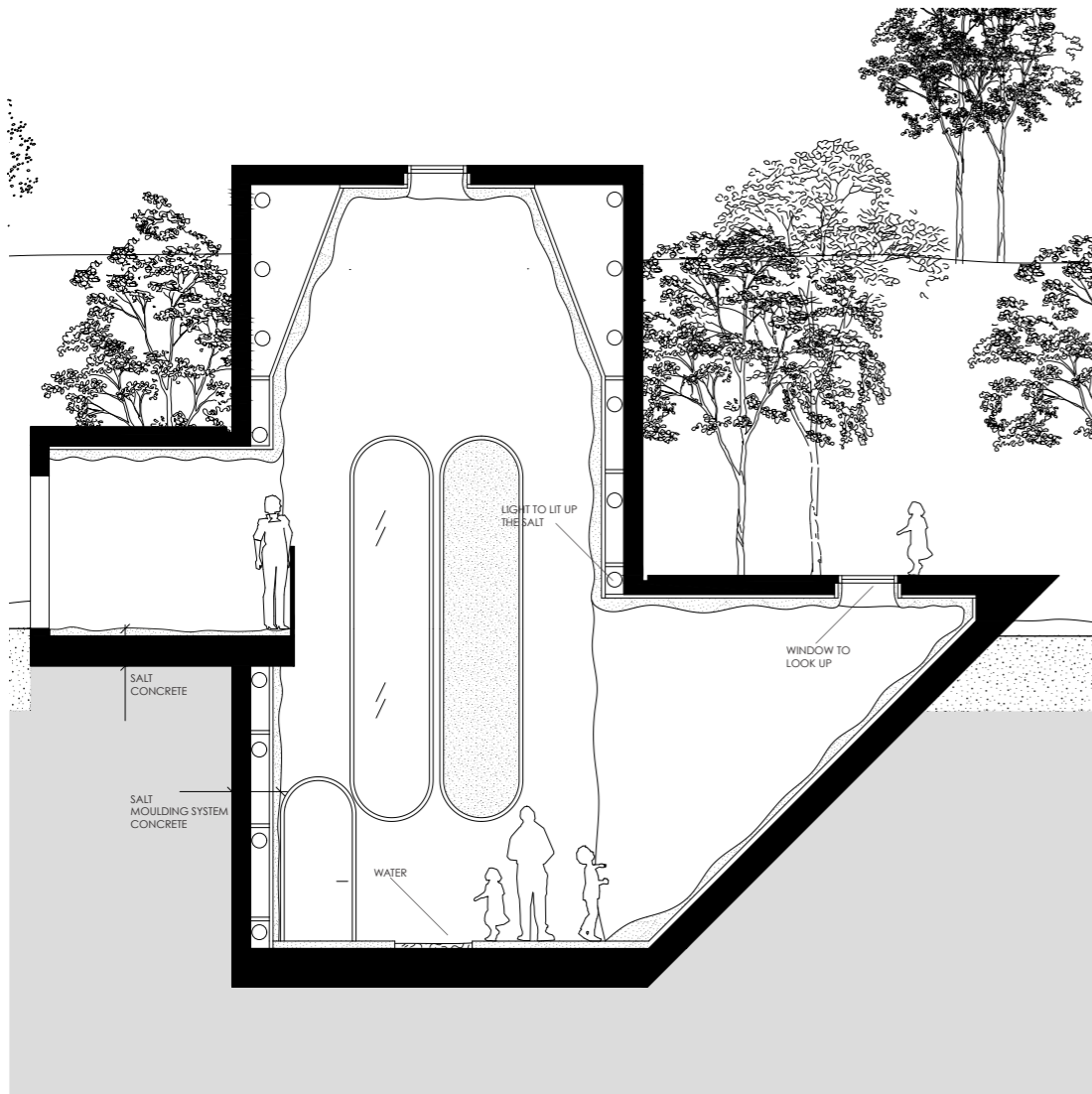
INTERIOR PERSPECTIVE



PLAN 1  
1:50 (A3)



PLAN 0  
1:50 (A3)



SECTION  
1:50 (A3)



TASTE- AND SMELL STATION

# s o u n d

The sense of sound manifests through the ears (worldatlas.com) and is measured in frequency through sound waves. We experience sound by feeling vibrations and seeing movements as well as hearing by ear. We often close our eyes when trying to hear a sound more clearly, since darkness helps us hear more clearly (Lipps, A., Lupton, E. 2018). When creating sound, we also create space. Vibrations, walk on flexible surface, dumb surfaces. There is a strong coherence between visual and auditory stimuli (Isaza, 2014).

"It sounds like you expect from what you see" (Höstmad, 2019).

#### LOCATION

A close distance to Linnéplatsen, most central station.

#### CHARACTERISTIC:

Extrovert - Sticks up like someone that screams for attention.

#### MATERIAL

The walls are thick, to strengthen the sense of sound, the windows niche is deep to display the thick walls and the entrance door is big and heavy this reveals the sense to the exterior. Dripping water on metal floor, The small holes of the sound funnel, windows reveals the sense to the exterior.

#### FLOOR MATERIALS

Wood, concrete and metal. The variation of floor materials create a contrast while moving. Above the metal floor is a tube to lead down the rain, this to enhance the rainchatter against the metal floor.

#### SOUND MIRROR

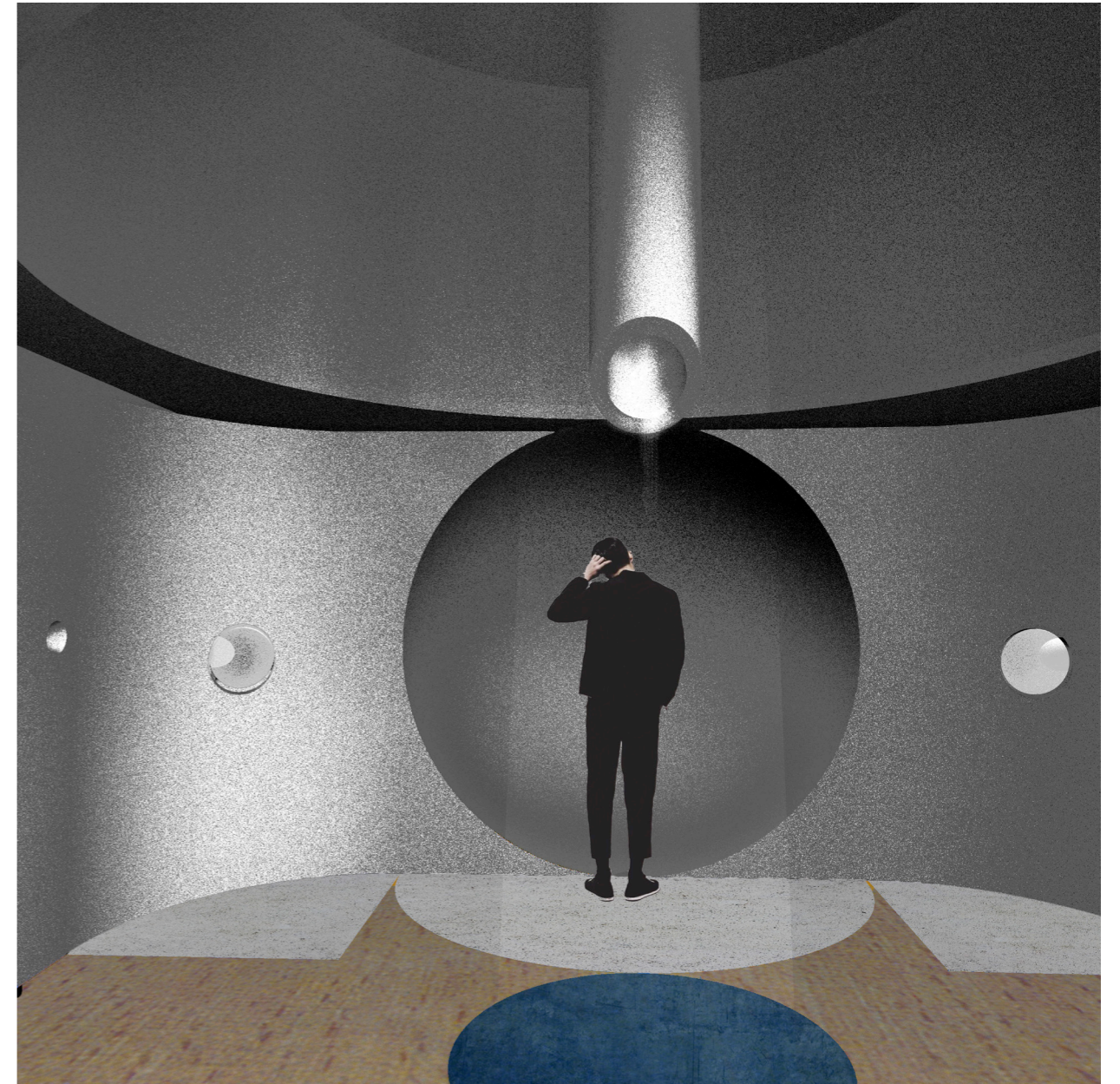
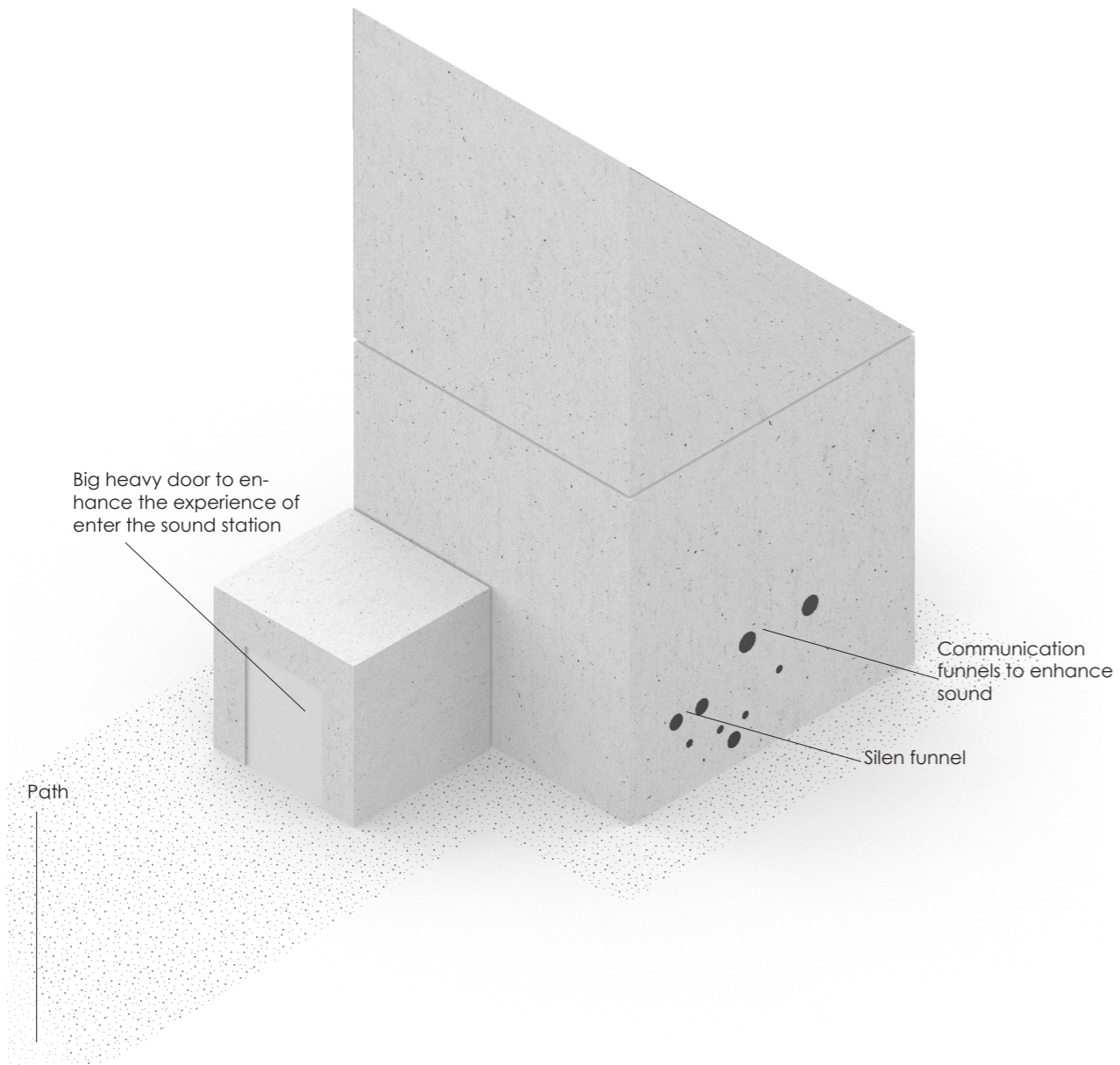
The concave surface of the sound-mirror makes the sound bounce in the same, but opposite angle.

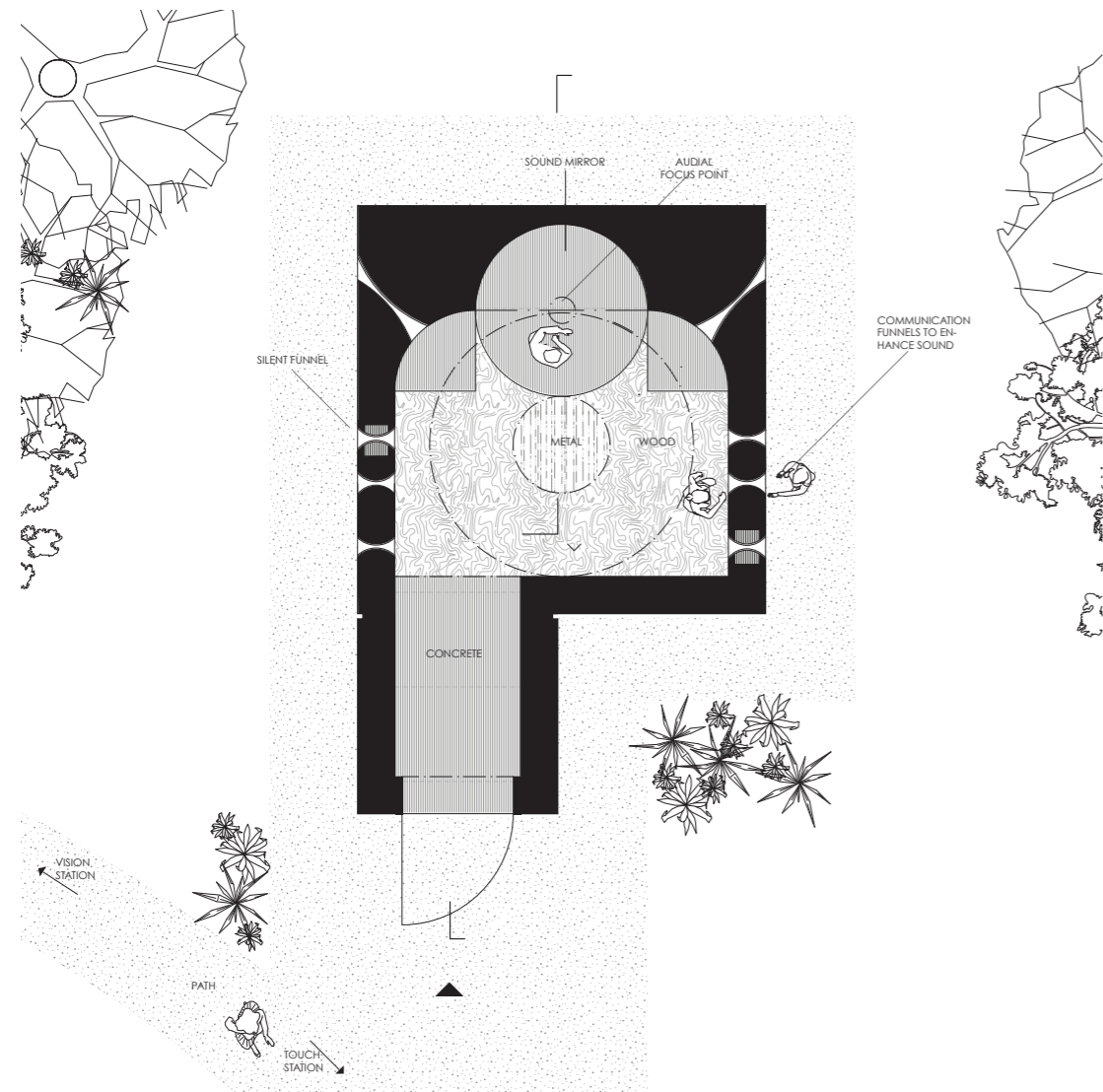
#### SOUND FUNNELS

The sound funnels, which is integrated in the walls has the shape of a trumpet, it is wide in the openings and has a quite small diameter in the most narrow parts, this to enhance sound. They make it possible to interact and communicate through the walls. They are combined with some isolated funnels so that you don't hear the sound, which create a variation of experiences.

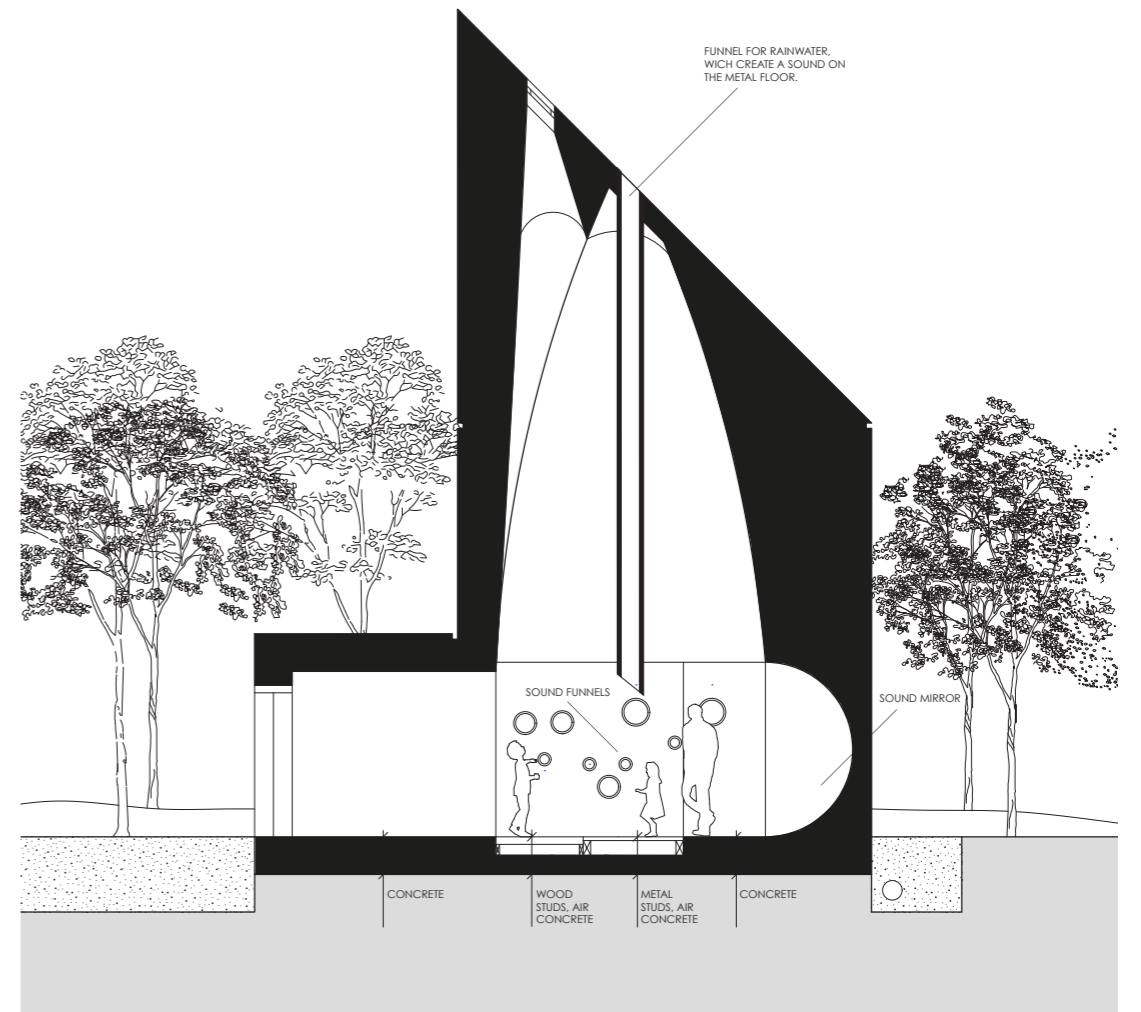
#### FUNCTION

Smaller events and make interactions with the walls with the small hole in the facade. Temporary exhibition, workshop space as an extension for Konstpedemien.





PLAN 1  
1:50  
(A3)



SECTION  
1:50  
(A3)



"It sounds like you expect from what you see"  
(Höstmad, 2019).

SOUND STATION  
YOU SEE VISION STATION IN THE BACKGROUND

# s m e l l

The sense of smell manifests through the nose (worldatlas.com). It is mainly the sense that decides how we perceive the taste of the food. (Per Møller). And is a smell that works in the distance.

The smell center has a close link to the part of the brain that has to do with emotional experiences. Therefore a certain smell can bring back memories and reminds us of certain emotions (Brydolf, 2005).

Smell can also warn us "The sense of smell works so we can't smell anything special when the smells that meet us in everyday life are in accordance with the unconscious expectations we have - whereas odors that do not match our expectations seem alarming" Per Møller.

#### LOCATION

Located in connection to the taste station, since the senses are strongly connected and in relation to the allotments.

The station is partly under ground, since the sense is focused inside. You smell the tar from a distance and while pas-

sing you see it in the excavation. The station also gets a smaller appearance when it's located partly under ground, which get a smaller look in relation to the allotment area.

**CHARACTERISTIC:**  
Introvert

**MATERIAL**  
Burnt wood, Ban sugi Ban, Yakisugi and fluid tar.

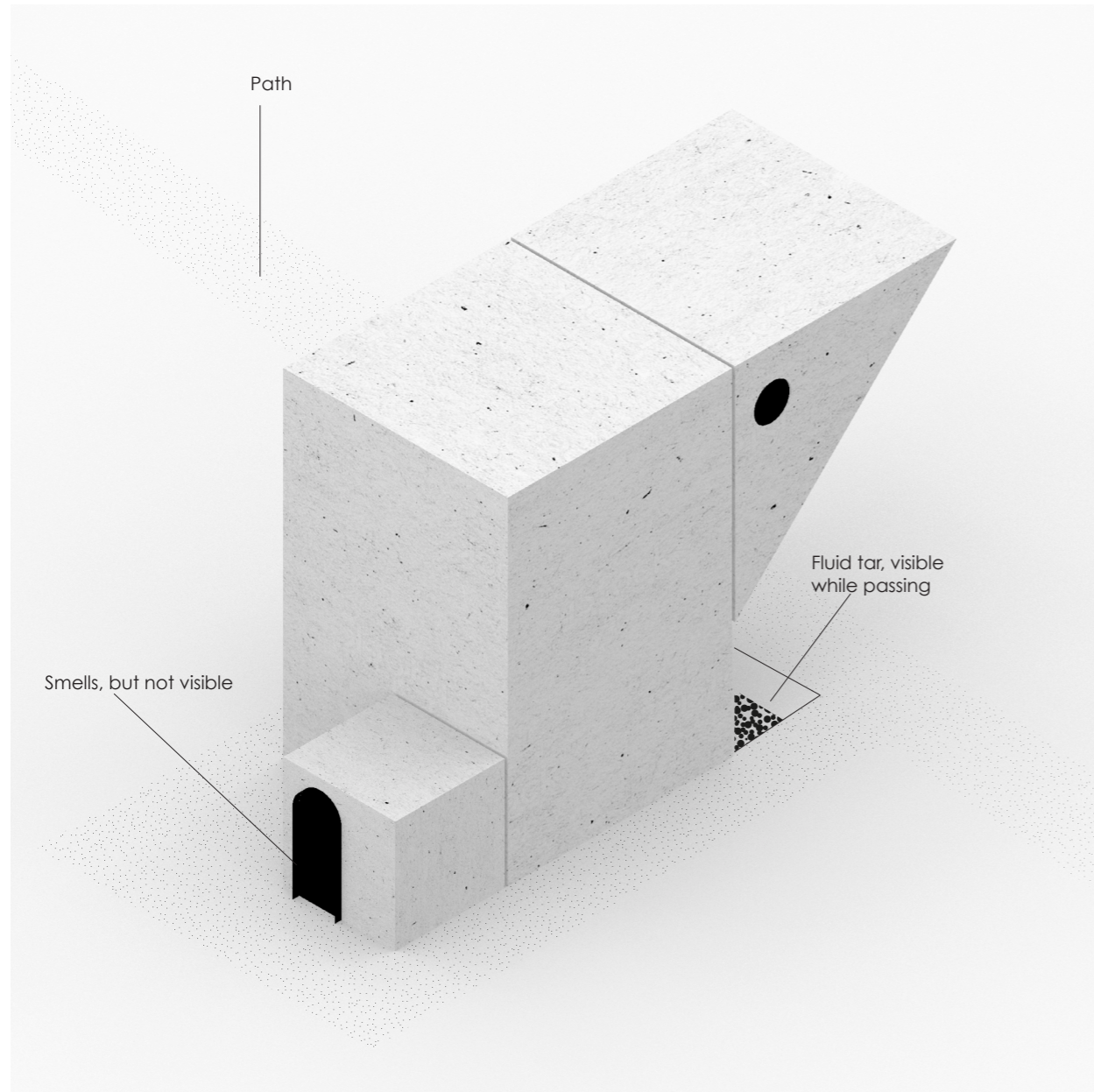
Contrast : white smooth exterior.

**FUNCTION**  
Temporary exhibition/workshop space for the allotments and university area.

You pass between the walls of the entrance while the smell intensifies. When entering the main room you get a look of the tar from above. This awakens curiosity and makes you more aware of the sense of smell.

When leaving the station you might have got used to the smell but the next time you feel the smell of tar you will think back of the visit.

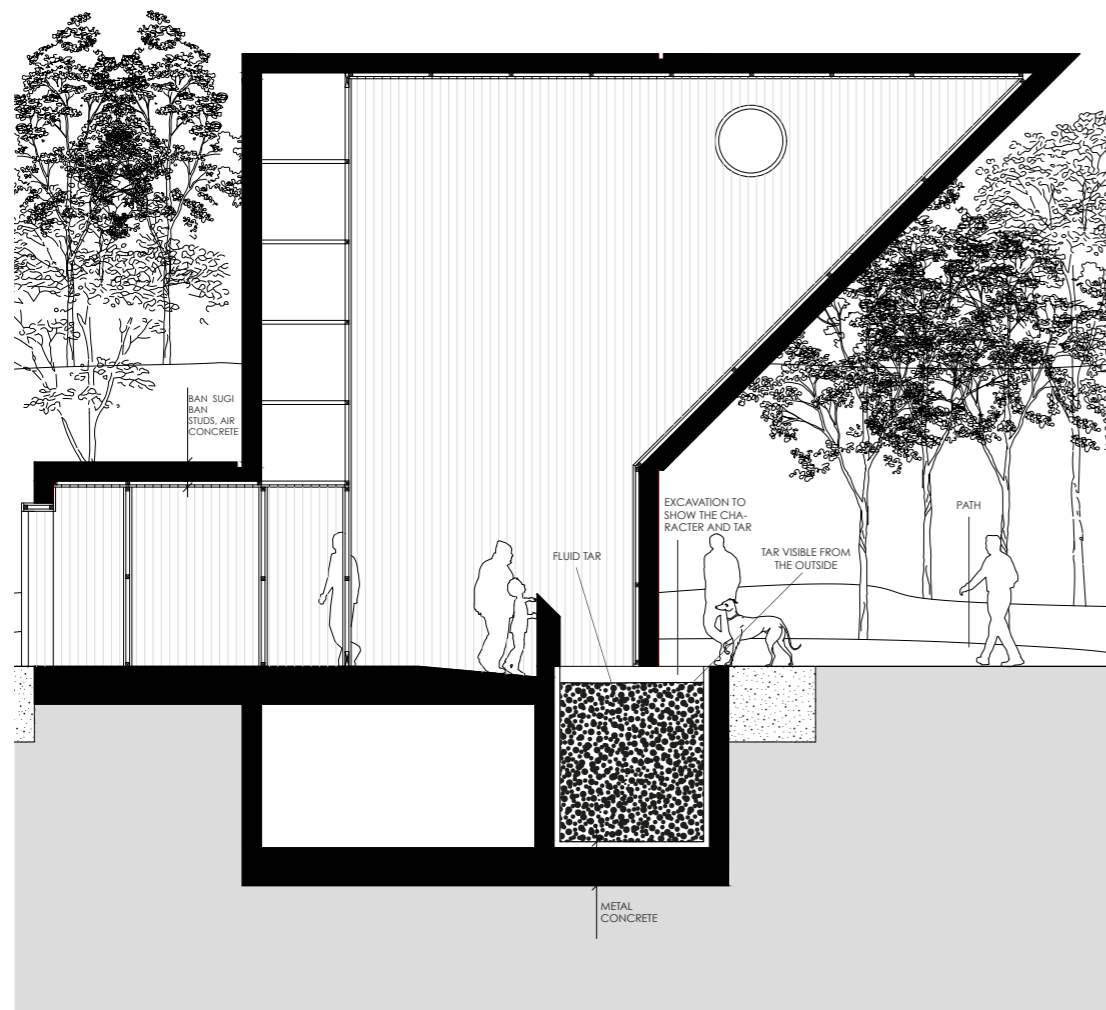




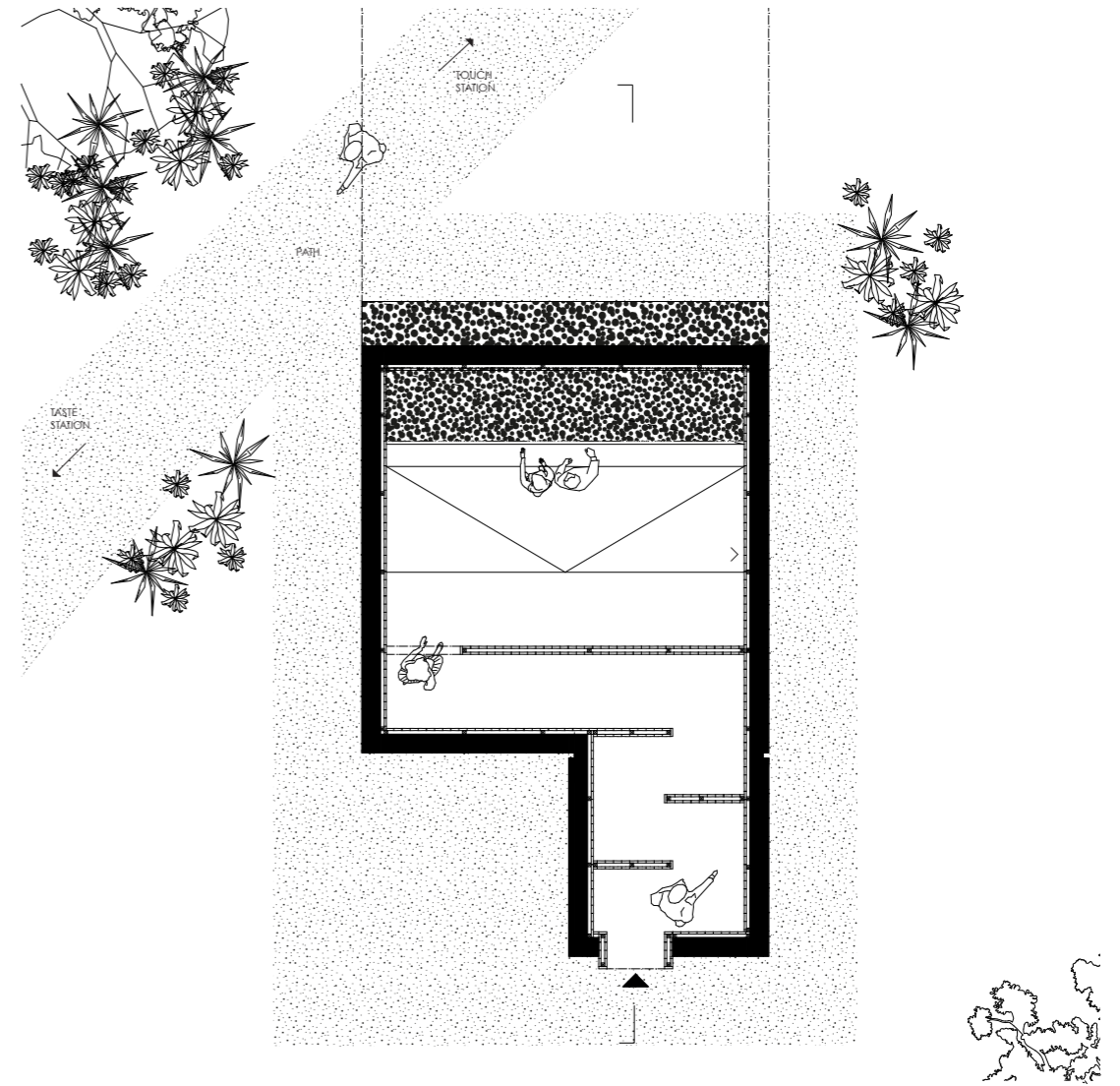
AXONOMETRI



INTERIOR PERSPECTIVE

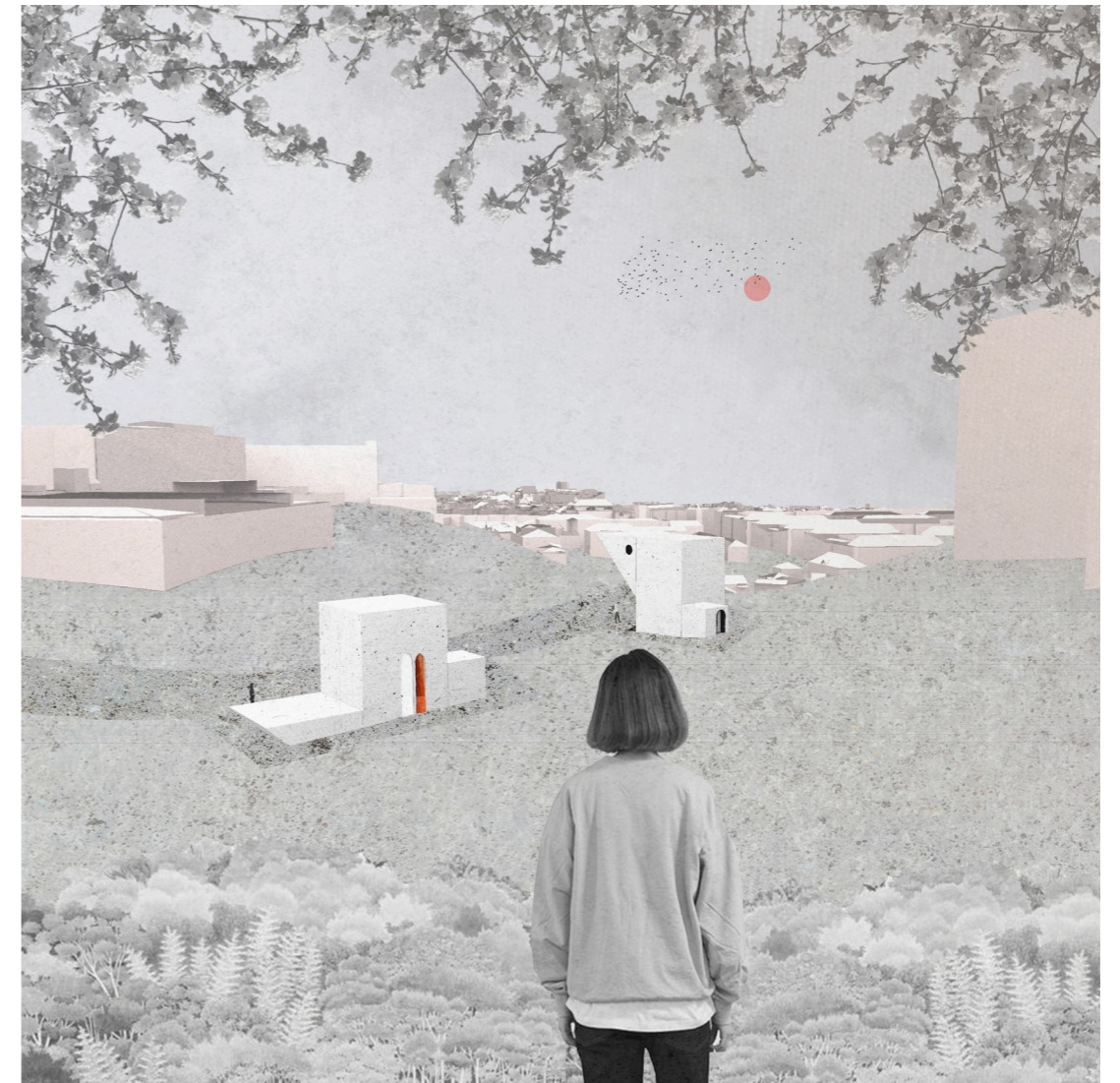


SECTION  
1:50 (A3)



PLAN  
1:50 (A3)

The stations are like sculptural objects placed in nature- like hoarders placing things in inappropriate places. Hoarders do, in such way as to interrupt the flow of body in space  
(Lavin, 2011).



SMELL- AND TASTE STATION

# v i s i o n

The sense of sight manifests through the eyes (worldatlas.com) and is the ability to perceive light. Vision is the most dominant sense and we are constantly feed with visual impressions. Almost one third of the bodies sensory cells is found in the eyes (Brydolf, 2005).

Light consist of electromagnetic oscillations, wavelengths. The eye can register light in the range between 300–800 nanometers, ultraviolet-infrared, so called visible light (Ne.se). Light is registered by the sensory cells in the retina, the light that hits the retina is transformed into nerve impulses, which reach the brain's visual center. The brain interprets the information as three-dimensional images. Light with different wavelengths is perceived as different colors (Brydolf, 2005).

Vision = Light  
Light = Electromagnetic radiation, various wavelength.  
Color = Result of how our brain processes the electromagnetic waves. Color is sensory data.  
Color of red = The lowest frequency of visible light. One of the primary colors. The strongest color.  
Contrast color: blue.

How we see light is also affected by the contrast, both within he visual area and between a situation and another (Wikipedia).

Vision= Perspective. The round walls in the station, tricks the perspective with

the impression of limitless.

Vision is quite difficult to represent since we constantly are feed with visual images.

#### LOCATION

Placed high on a hill, highest location of all five station, since this is the most dominant sense. You walk up when you enter and around corners. When you are at the second floor you get a surprise factor.  
The station sticks up to the sky.

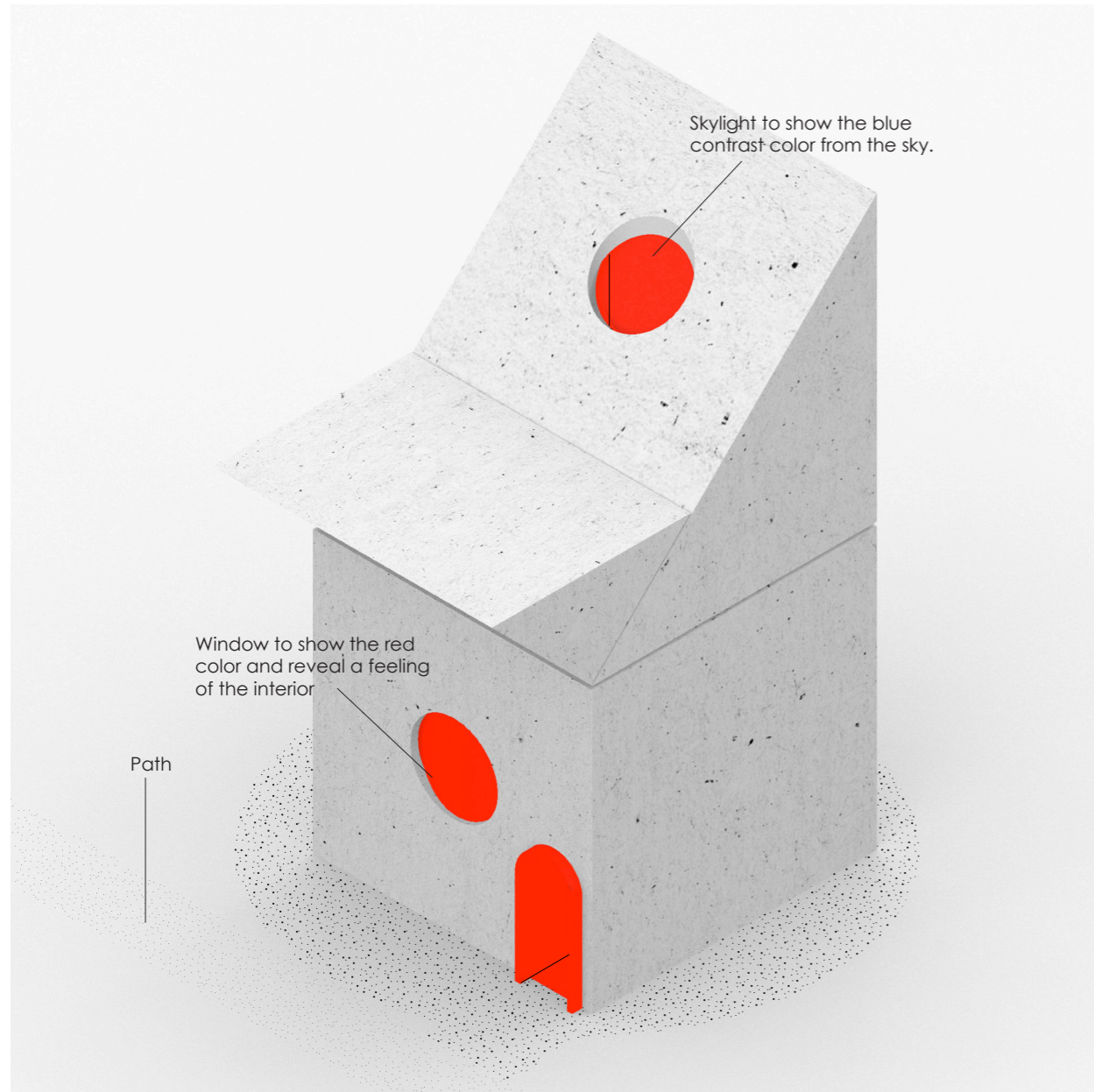
CHARACTERISTIC:  
Extrovert

#### MATERIAL

Sunlight and sky, contrast- dark and light, red and blue. You get a directed vision both up and down.  
You don't see everything at once.  
The mirror wich is placed in the middle with a sky light above gives reflections from the blue sky.

#### FUNCTION

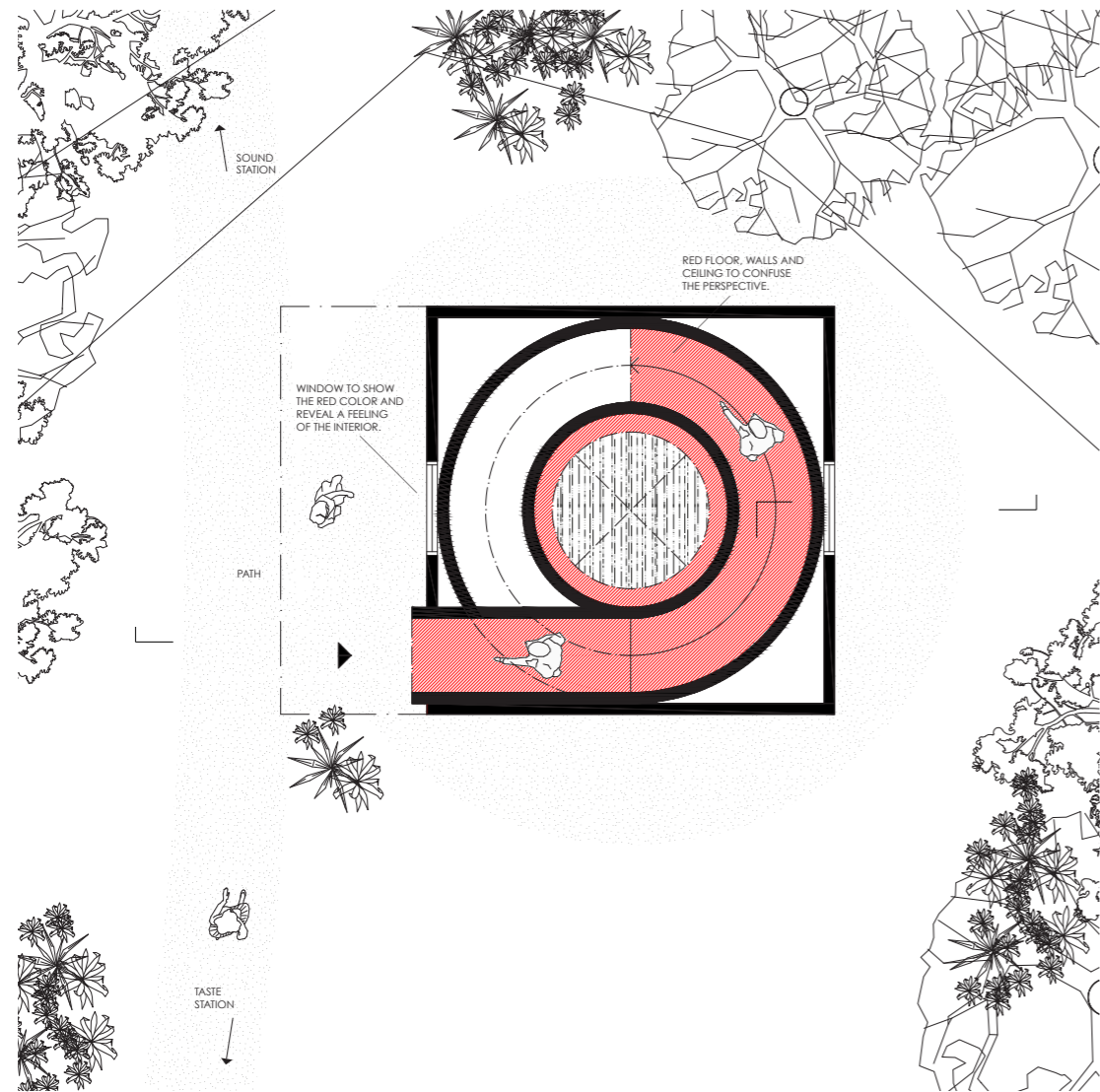
Transition space, look up, down and in to.  
The station can host Ttemporary exhibition/workshop space and smaller lectures.  
It works as an orientation point in the city, since it's placed high on a hill.  
Turist attraction.



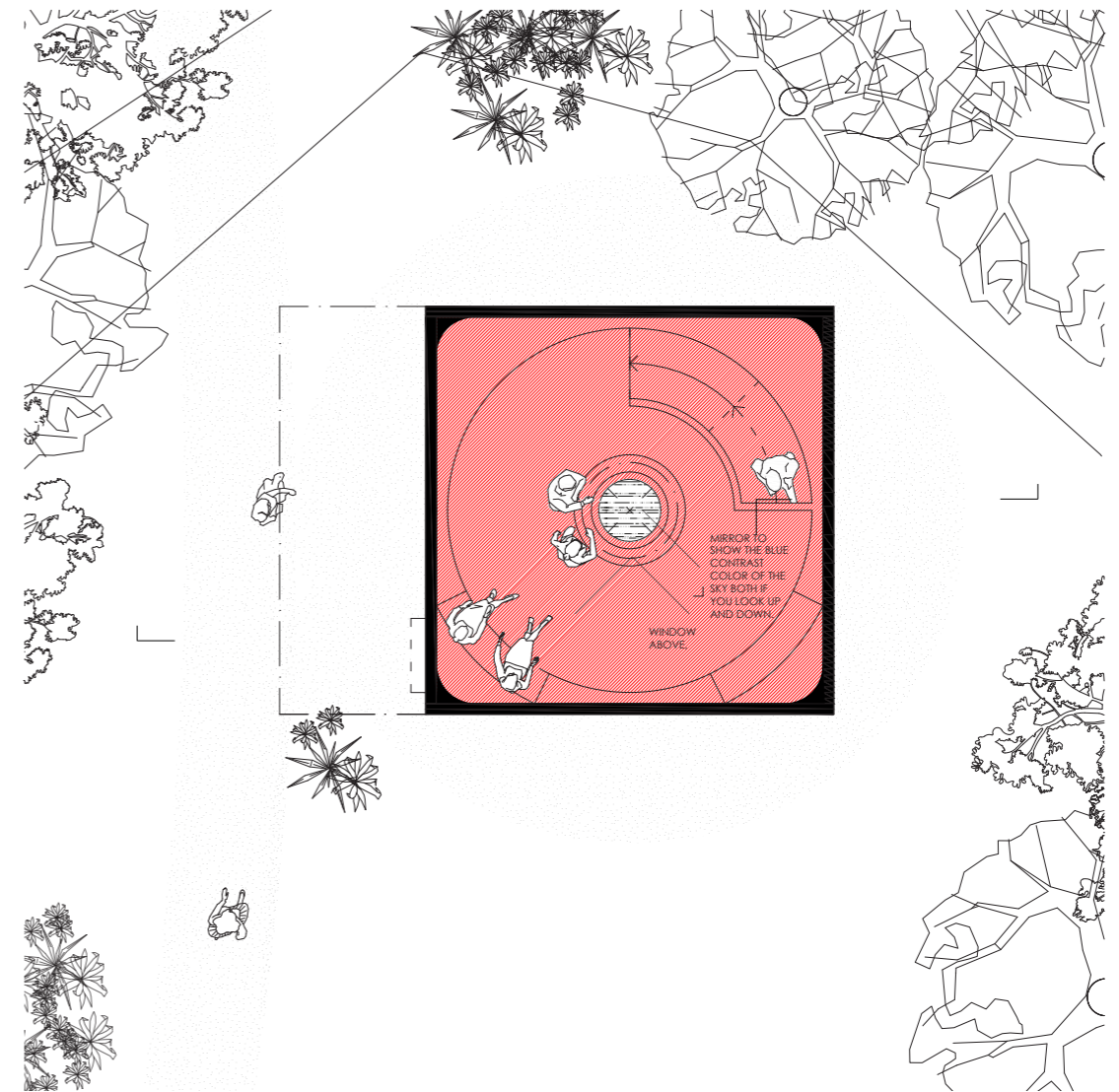
AXONOMETRI



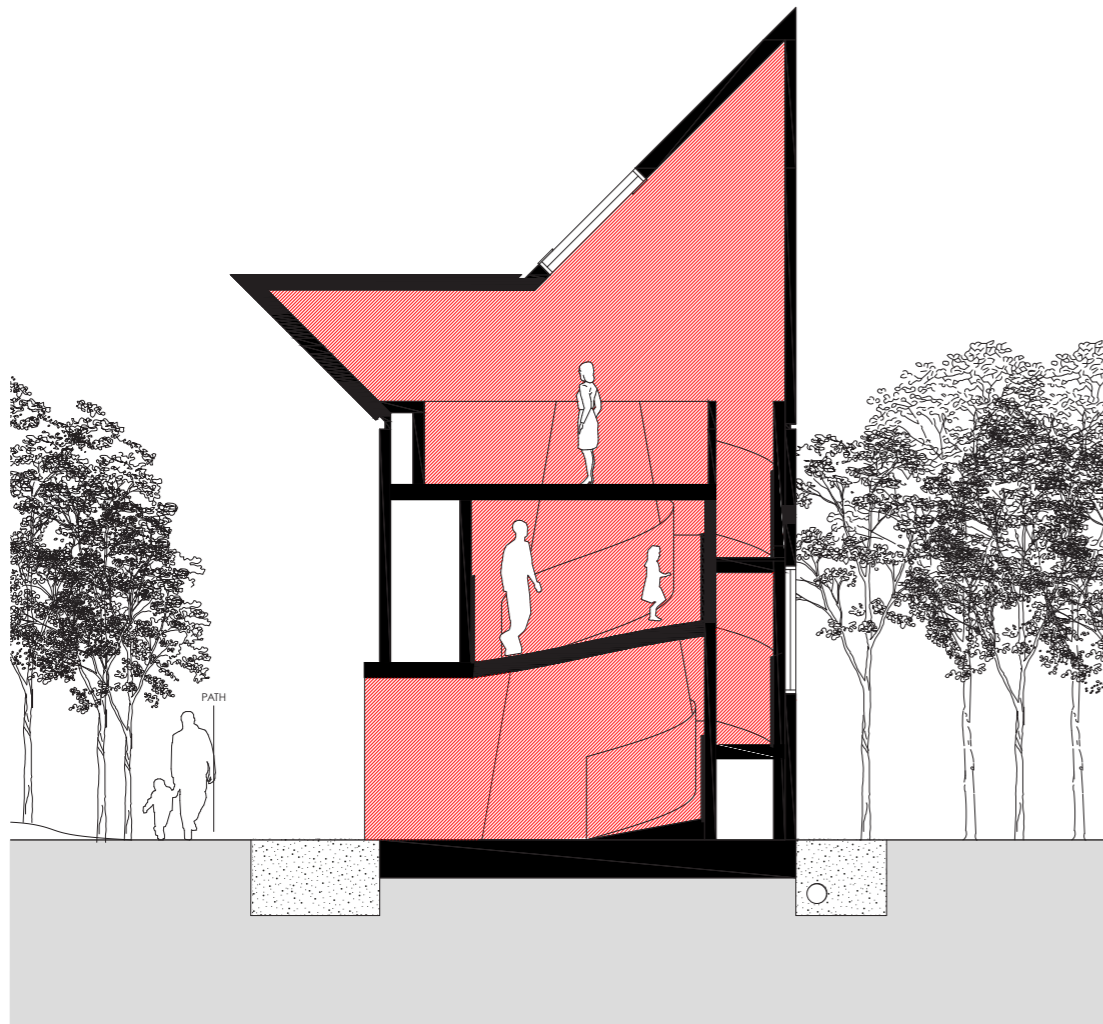
INTERIOR PERSPECTIVE



PLAN 1  
1:50 (A3)



PLAN 2  
1:50 (A3)



SECTION  
1:50 (A3)



VISION STATION  
YOU SEE SOUND STATION IN THE BACKGROUND

# touch

The sense of touch manifests through our skin (worldatlas.com) and we feel through pressure, heat, cold (1177.se) and vibrations (Ne.se).

Materials has different conductivity, the ability of materials to conduct electricity and heat (NE.se) This is something that we feel when our body is against the materials.

Thermal conductivity is a materials ability to conduct heat and is measured in Watt.

For building materials, the insulation capacity is stated as heat conductivity. In this context, the magnitude is denoted by  $\lambda$  and is therefore often called lambda value ( $\lambda$ ).

#### LOCATION/POSITION

Touch station is placed in relation to the playground.

#### CHARACTERISTIC:

between Introvert and extrovert

#### MATERIAL

METAL WALL: 50  $\lambda$  - leader (good con-

ductivity) which means that it takes the warmth from the body. Cold smooth surface.

CONCRETE WALL: 1,7  $\lambda$ , warm smooth feeling.

STRAW WALL: around 0,14  $\lambda$ . Insulator, give warmth to the body. Soft, warm prickly feeling in contrast to the metal wall.

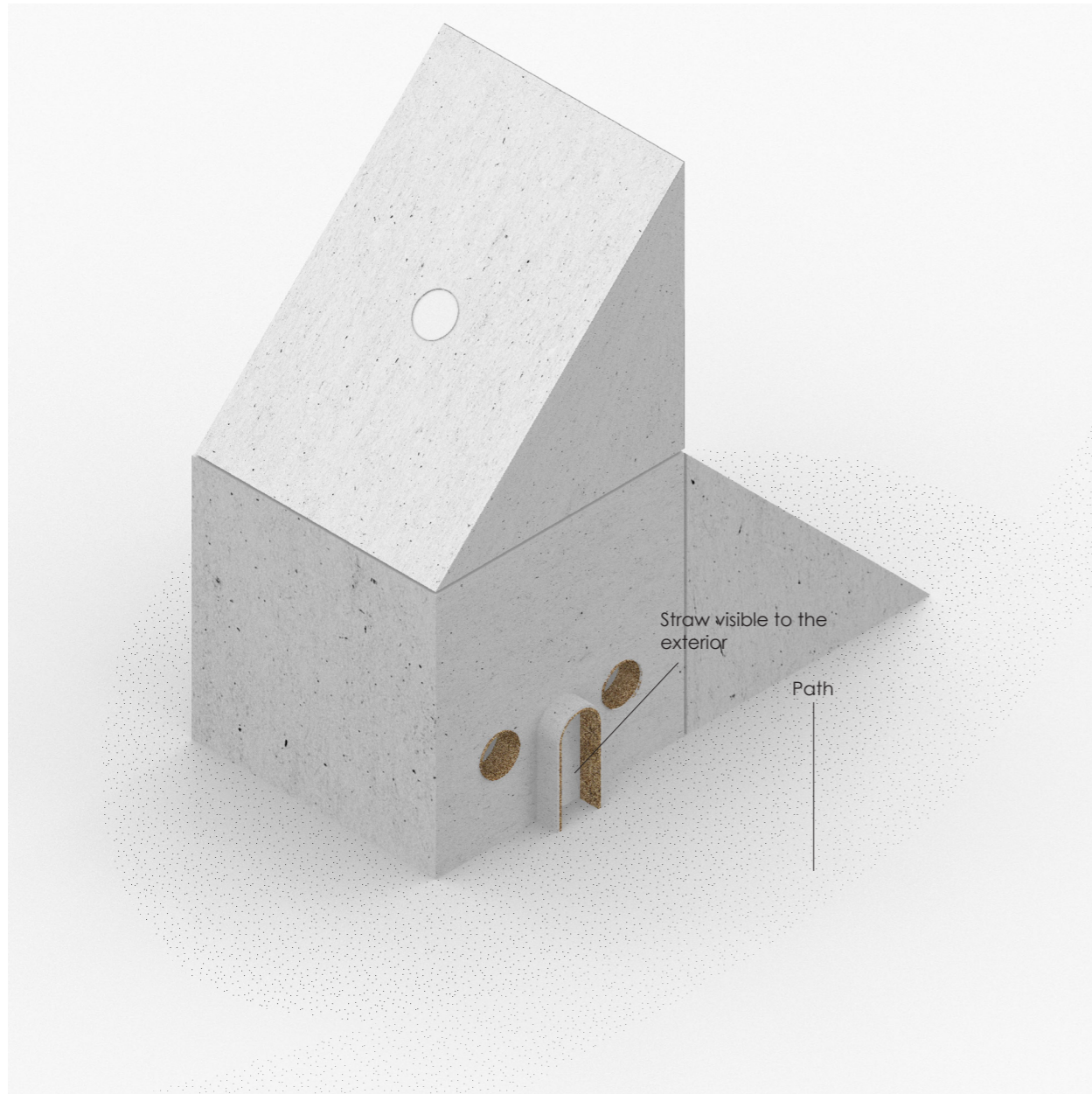
Floor in various depths with sand on top to sink down to.

#### FUNCTION

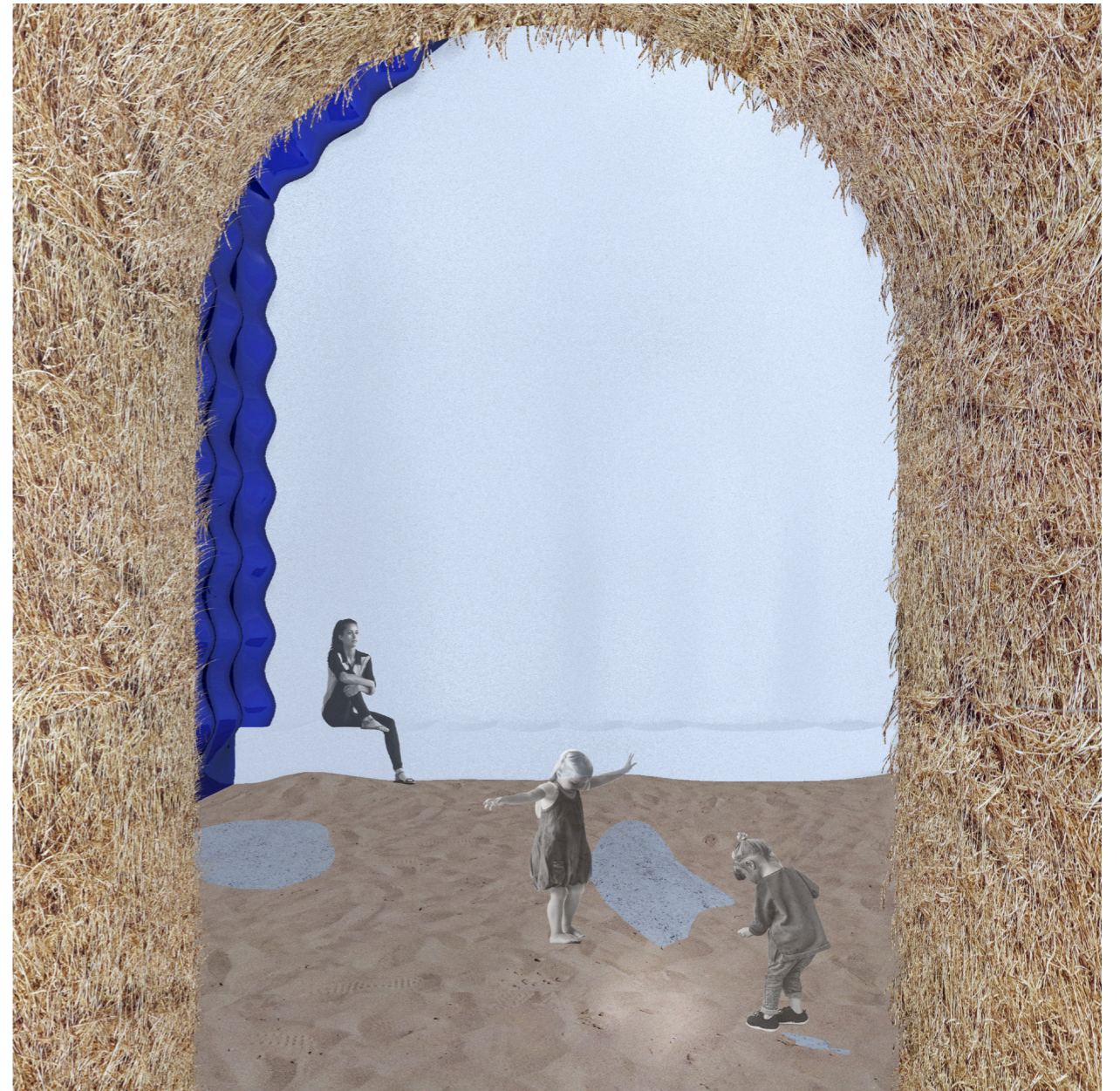
A place for exploration with the interactive tactile walls.

Can host temporary exhibition/workshop space in connection to the kindergarden, playground and soccerfields. Like an indoor playground, in connection to the existing playground. Here one can also sit and rest while feeling the surface under the body.

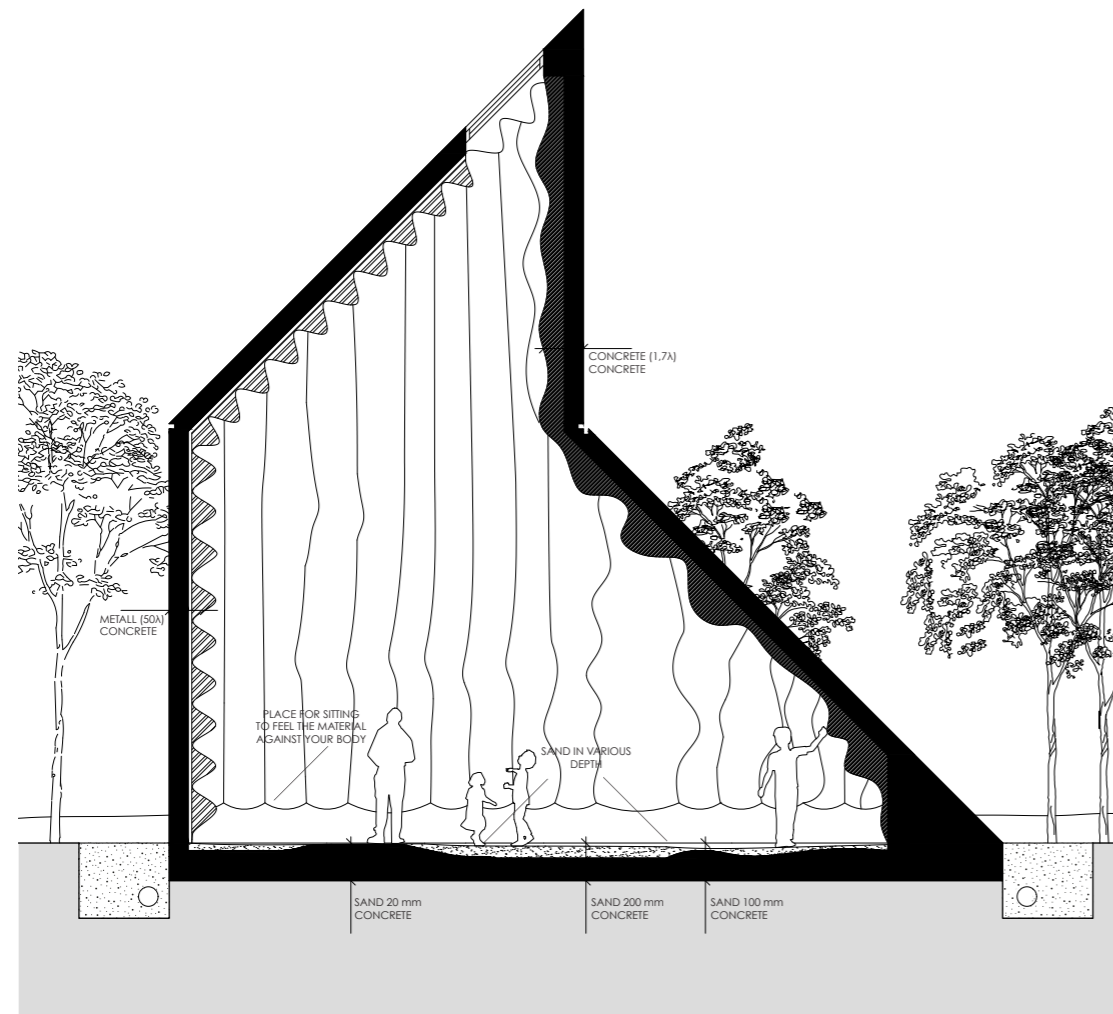




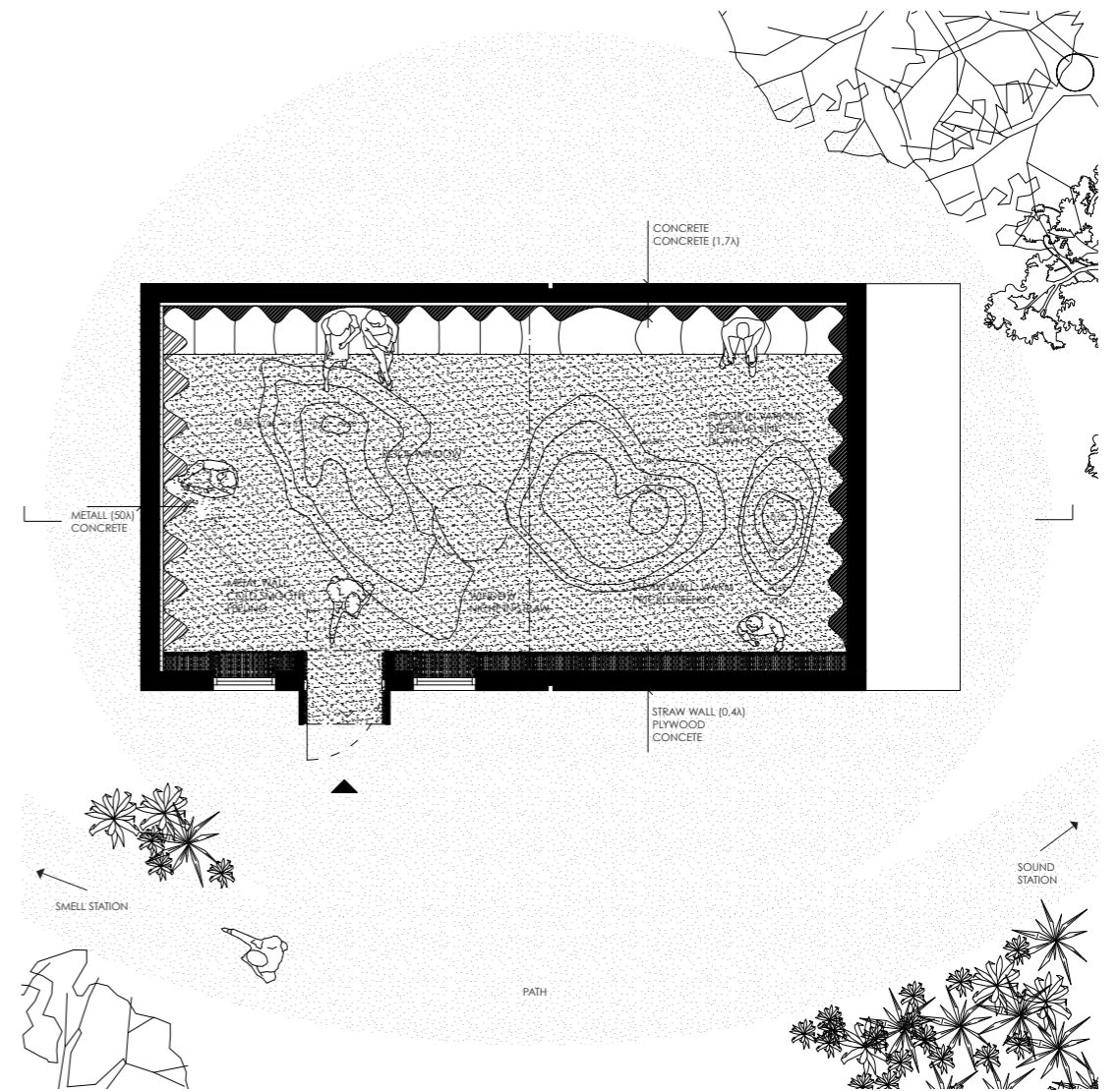
AXONOMETRI



INTERIOR PERSPECTIVE



SECTION  
1:50 (A3)



PLAN  
1:50 (A3)

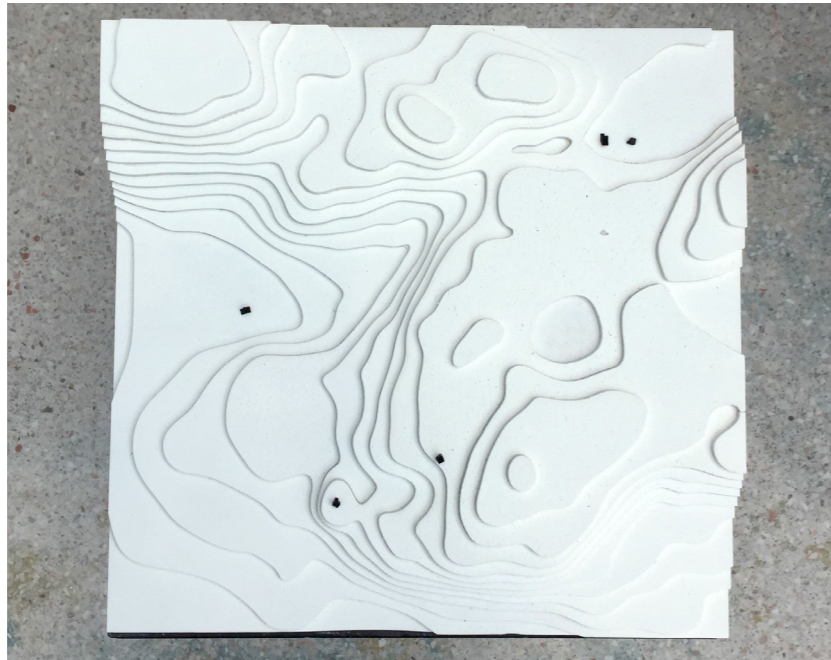
There is a beauty in the simple and uncomplicated form. Using a complex form only makes is inexplicit and disturbs the unity of the whole. Using a simple form intensify the arrangement of the whole.

(Stiles, Selz, 2012).

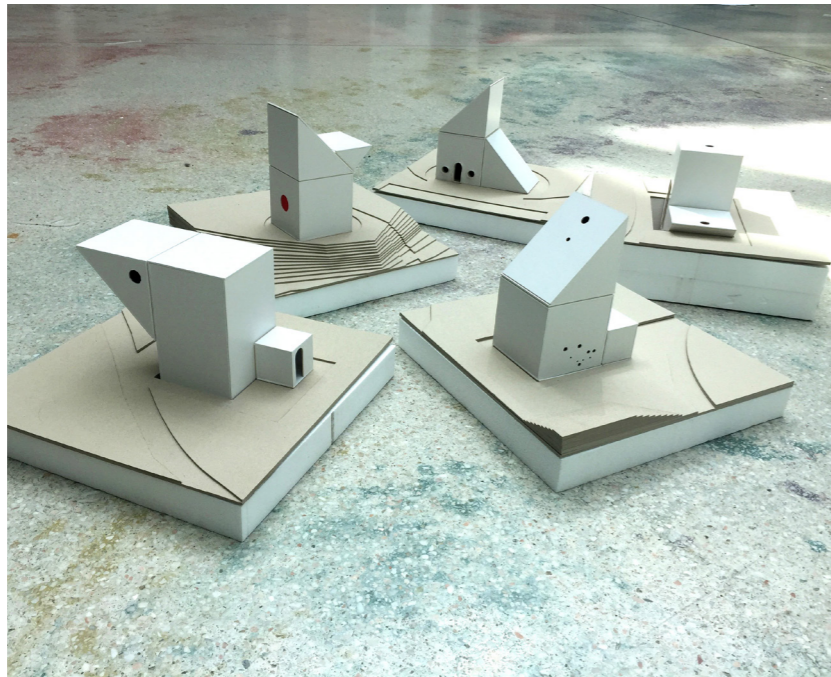


TOUCH STATION

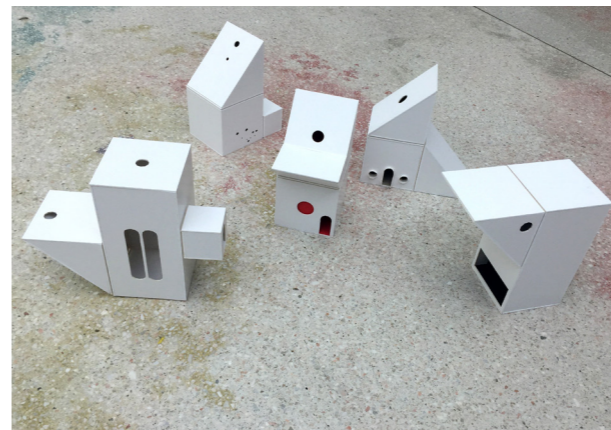
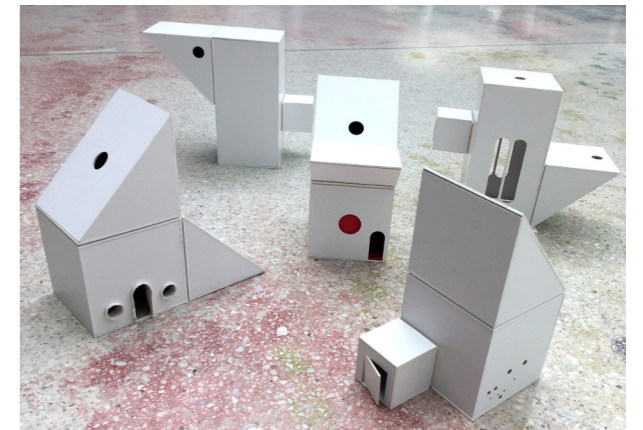
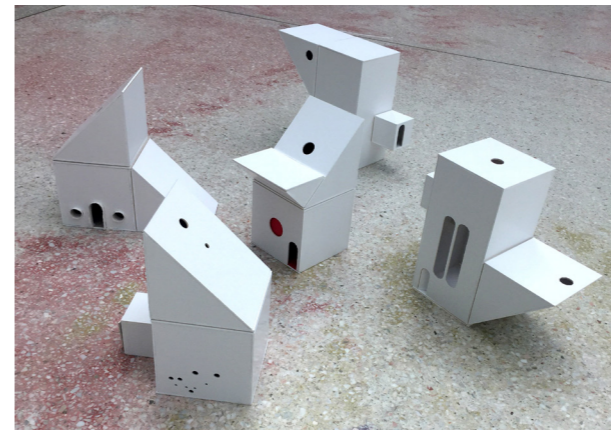
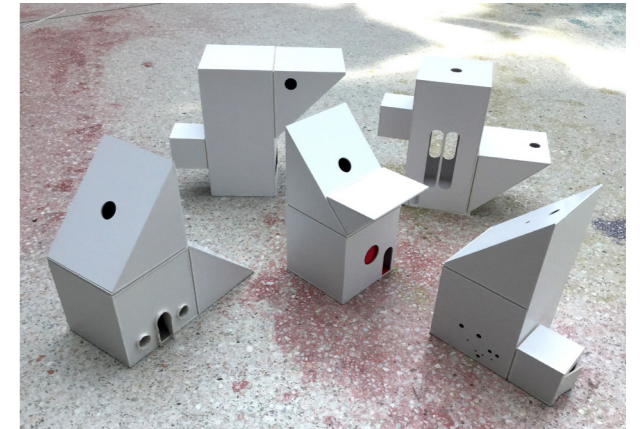
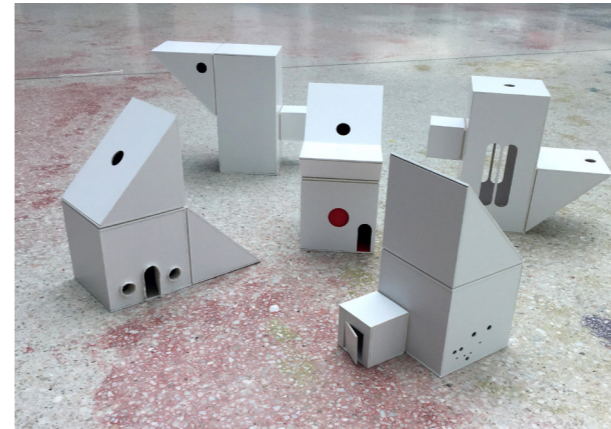
f i n a l  
m o d e l s



Site model

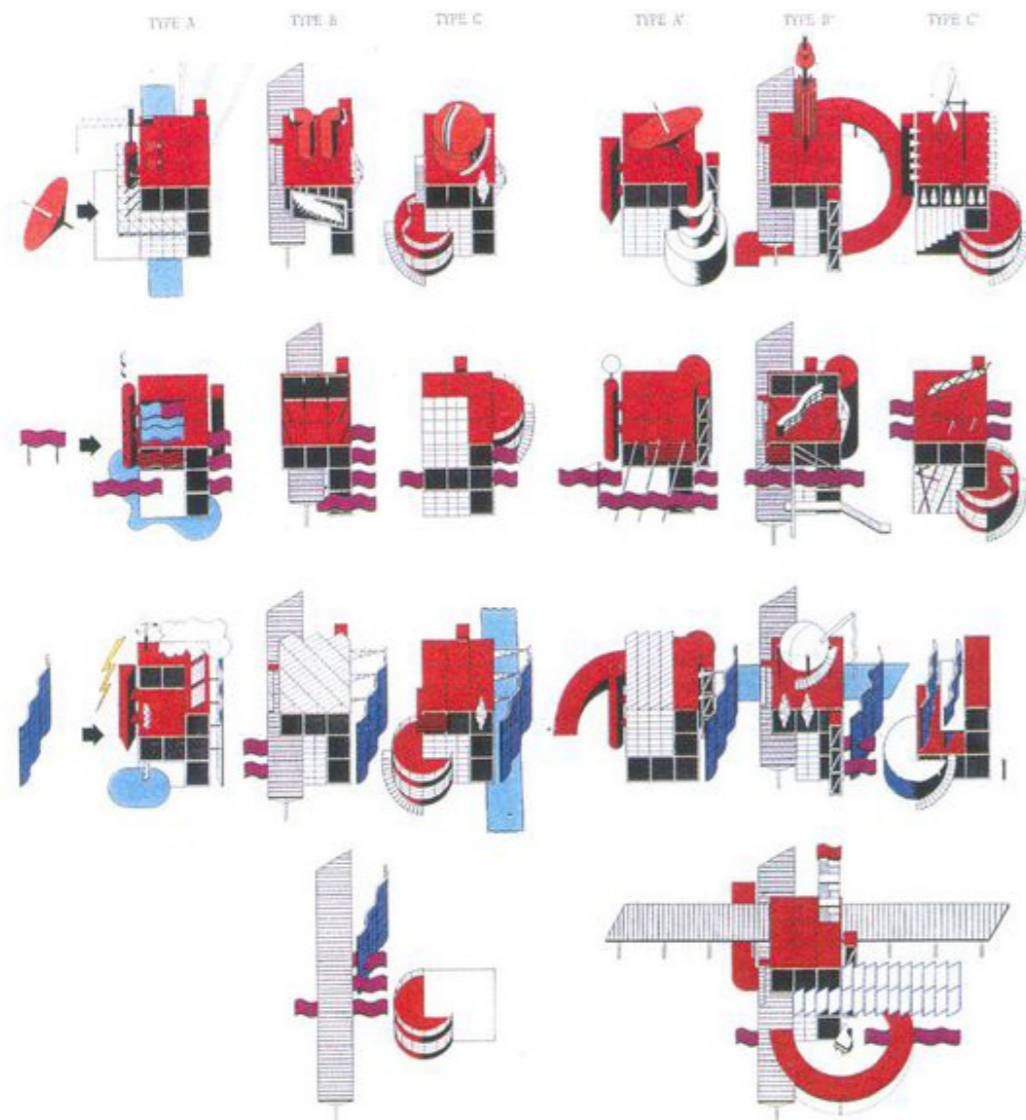


The mates and surrounding landscape



Models of the series of mates

r e f e r e n c e s



3. Series of the Follies in Parc de La vilette, Paris. Bernard Tschumi

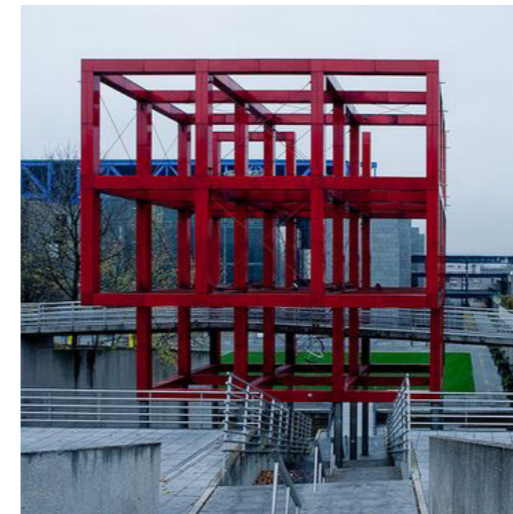
### FOLLOIES IN PARC DE LA VILETTE, PARIS.

Bernard Tschumi

They all have a resemblance in color and material. The form and structural grid is changing but they are all seen as a part of a serie. They have clear geometric forms. Because they are spread out in Parc de la Vilette they create a unity of the park and has a clear identity. They emphasizes movement through the park (tschumi.com). They are built on a point-grid, lines and surfaces (Blundell Jones,2012). "The form itself is of very limited importance; it becomes the grammar for the total work. In fact, it is best that the basic unit be deliberately uninteresting so that it may more easily become an intrinsic part of the entire work" (Stiles, Selz, 2012).

**THE WALK, PLACED IN A GRID**  
The Follies in parc de la Vilette is placed in a grid and connected to each other. They guide the visitor along it's walk through the parc.

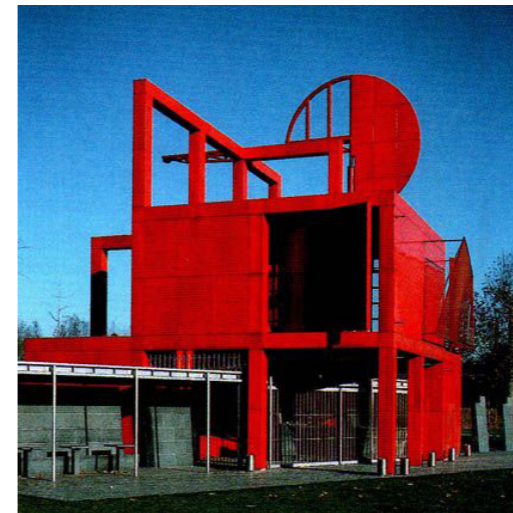
**REFLECTION:**  
Like the Follies in La Vilette the ambition for the sense stations is that they could be a magnet for the site. The Follies is a part of the communication, which the sense stations also is. The simple form is of limited importance, it is the arrangement of the form and relation between the stations that is important. They all have clear geometric forms and visual effect. They emphasizes movement and are connected to each other. They guide the visitor along it's walk and they create a reason to go there.



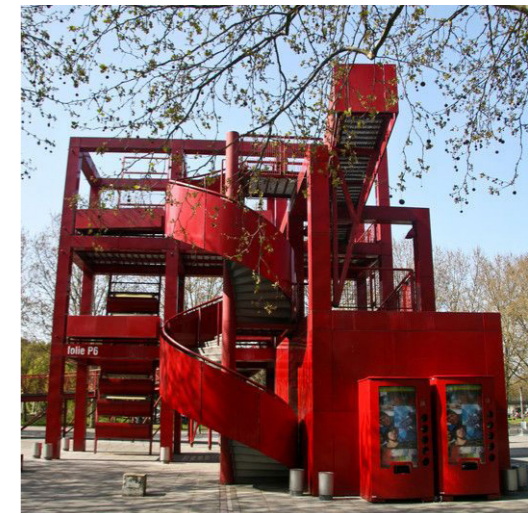
4



5



6



7



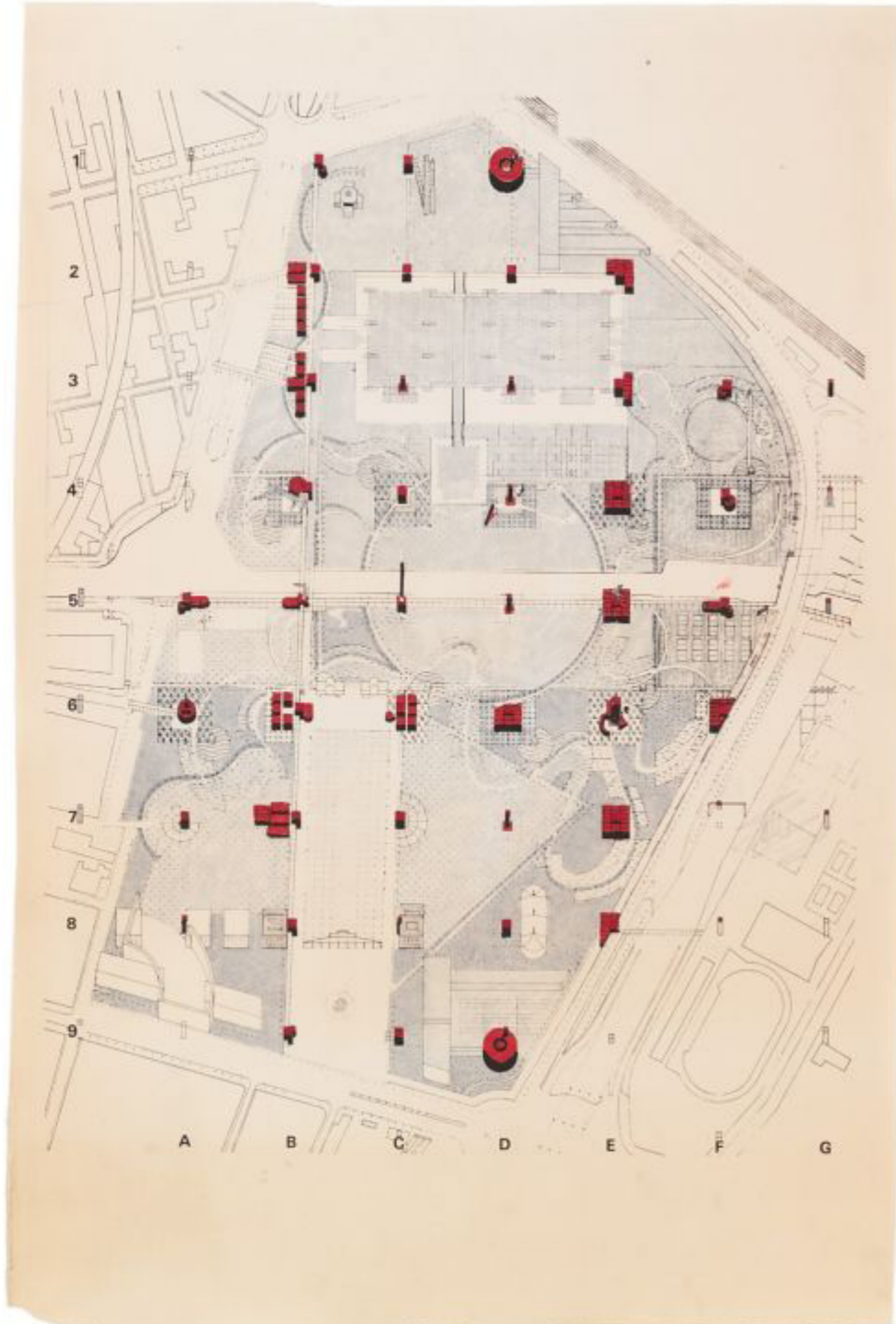
8



9

Geometric forms, circle & square. The square is divided in smaller squares. Open structures and closed surfaces. Part of the communication. Same color and material.

Vision: Strong color, see through  
Touch: Smooth surfaces



10. Grid of the Folioies in Parc de La vilette, Paris. Bernard Tschumi

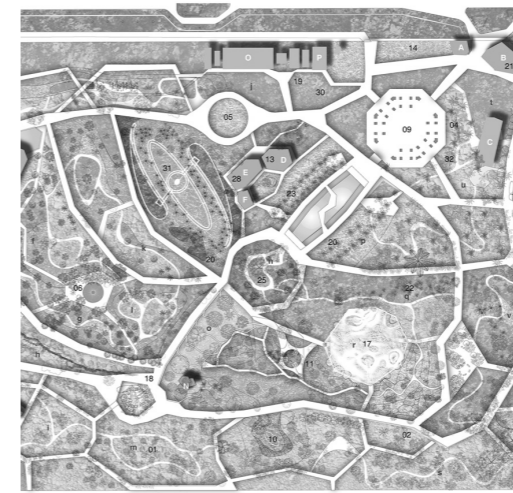


11. Jardín Botánico de Culiacán, Mexico.



12. Jardín Botánico de Culiacán, Mexico.

Sound - laugh, footsteps  
 Vision - sun  
 Smell - earth, vegetation  
 Touch - elements and surfaces to sit on.  
 Taste - earth



13. Orientation map of Jardin de Botanic, Mexico.  
 Part of a path.



14. Part of a route. La Gratitude, open chapel  
 Pilgrimage Route in Jalisco/ Mexico, Derek Delecamp.

## La gratitud and Jardin de botanic

Both of the projects are a part of a route. The monument ,La gratitude is contrasting against the sky and when you enter you are filled with personal reflection even though the monument consists of nothing but four walls. The projects is simple, as a structures that will remain abandoned most of the year and will age becoming part of the landscape. The both projects are creating a gathering space along the paths (archdaily.com). Jardin de botanic invite the visitor to interact with the architecture.

### REFLECTION

A play for interaction and reflection. The architecture gives the possibility to inner reflection and create a reason to go there. To pay tribute to the soft values in life. They are a part of the landscape.





15



16



17



18

Same color, contrast in expression of surfaces. Same form, in various compositions and directions.

### Rachel Whiteread Untitled (Stairs) 2001

Just as give form to the sense, Rachel Whiteread give form to something that you normally can't touch, the negative form, the empty space in between. She use the same basic form that is used in several different ways. As the mates they all have the same material and color. Which makes them tolerant to variations in form. Same basic form that is used in several

different ways which create the expression of different forms. The form is different but in clear similarity to each other. The different angle and hight makes it interact with space. The stair-like element unites.

Referens to design strategy: Same color, different yet similar form. Sense of architectural mates.



19. Untitled (One Hundred Spaces) (1995)



20. Untitled (One Hundred Spaces) (1995)



21. Untitled (One Hundred Spaces) (1995)



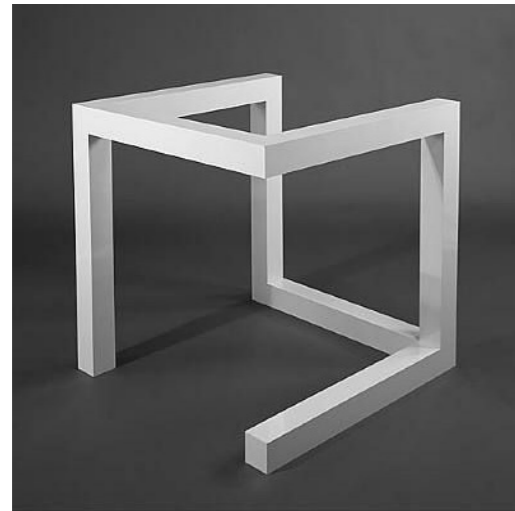
22. Untitled (One Hundred Spaces) (1995)

Variations in color, same form but stretched differently. Architectural mates.

### Rachel Whiteread Untitled (One Hundred Spaces) (1995)

In opposite from Untitled (Stairs) 2001, this project has similar form, stretched differently, but different colors. Different opacity, could be different material. The contrast is strengthen the expression. The clear and sharp form makes it tolerate for change in color and material. Empty space and air solid.

Referens to design strategy: Stretched differently and variations in color and material.



23



24



25



26

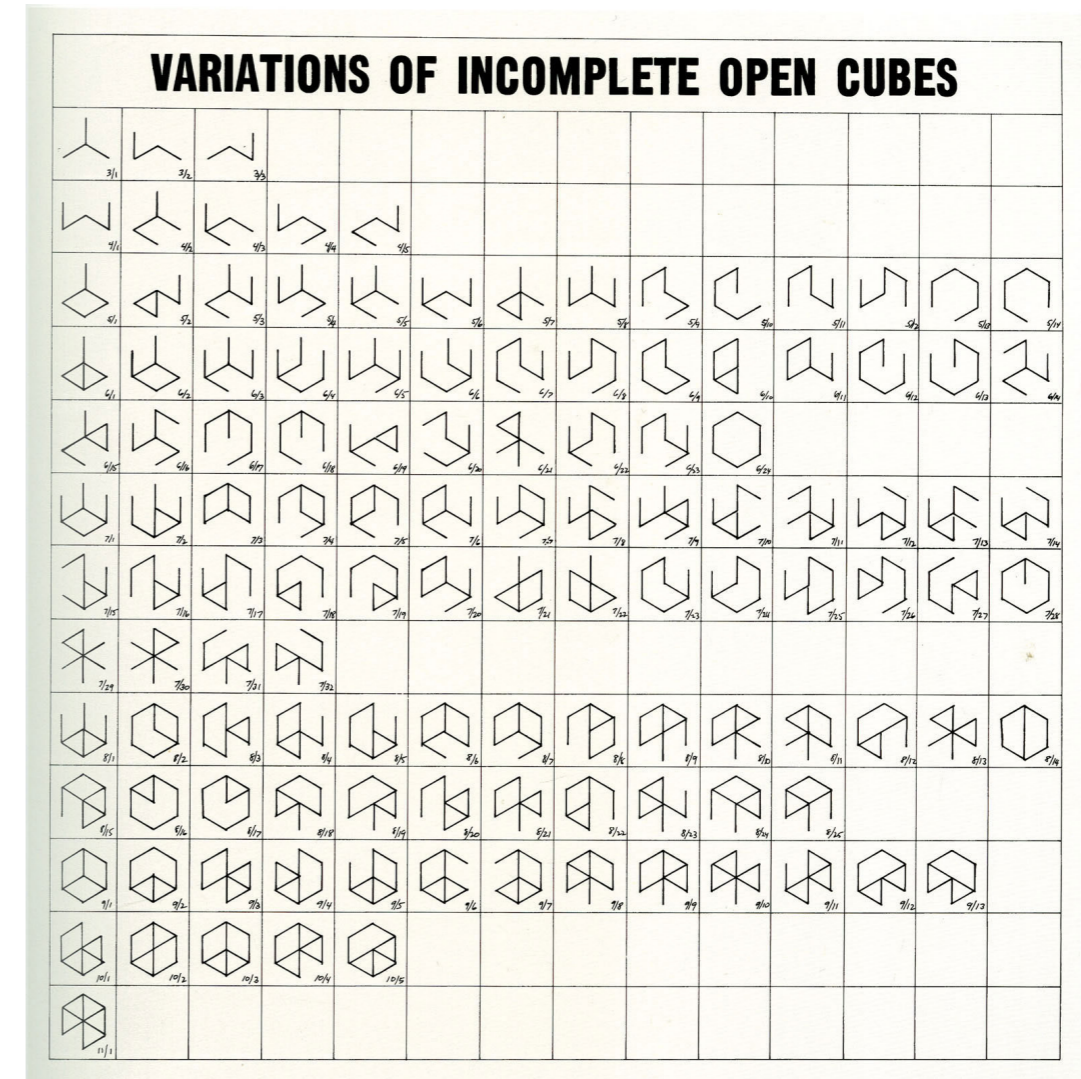


27



28

Geometric form, one color and one material.



29

### Sol Le Witt

Three-part variations on three different kinds of cubes - elements for serial projects: 2 2 3 (4 parts).

#### REFLECTION

One color, one form, in same compositions but different openings, surfaces. The same color and geometric form makes them tolerant to variations of compositions.

Refers to design strategy: Geometric form: cube, with gradient of change makes the series connect.

## Neo-Concretism

The neo-concrete movement was a splinter group of the 1950s Brazilian concrete art movement, calling for a greater sensuality, colour and poetic feeling in concrete art (tate.org). The Neo-Concrete Movement (1959–61) was a Brazilian art movement, which developed from Rio de Janeiro's Grupo Frente, a coalition of artists working in Concrete Art. Neoconcrete artists rejected the pure rationalist approach of concrete art and embraced a more phenomenological and less scientific art. Ferreira Gullar inspired Neo-Concrete philosophy through his essay "Theory of the Non-Object" (1959) and wrote the "Neo-Concrete Manifesto" (1959) which outlines what Neo-Concrete art should be. Brazilian artists Lygia Clark, Hélio Oiticica, and Lygia Pape were among the primary leaders of this movement. Ferreira Gullar described a work of art as "something which amounts to more than the sum of its constituent elements; something which analysis may break down into various elements but which can only be understood phenomenologically" (Neo-Concrete Manifesto in 1959). Neo-Concrete artists sought to create a multi-sensorial space which caused the spectator to feel more acutely their own body and existence. They believed artworks should interact with the spectator and make the spectator more aware of his or her physical body and metaphysical existence. It is only with the participation of the spectator that the artwork becomes complete (wikipedia.org).

### LYGIA CLARK

Clark co-founded the Neo-Concrete movement. The Neo-Concretists believed that art should be subjective and physically experienced. Interact with her art works. Clark explored the idea of sensory perception through her art. Her art became a multisensory experience in which the spectator became an active participant. Clark's works dealt with inner life and feelings and in her later work she tied the art to physical therapy. Clark moved more toward art therapy

than actually creating new works. She used her art therapy to treat psychotic and mildly disturbed patients. Art critic Guy Brett observed that Clark "produced many devices to dissolve the visual sense into an awareness of the body." Clark's later works focused heavily on the unconscious senses: touch, hearing and smell. In her 1966 work, Breathe With Me, Clark formed a rubber tube into a circle and invited participants to hold the tube next to their ear. The participants could hear the sound of air entering and exiting the tube, which produced an individual sensory experience for each participant (wikipedia.org).

### LYGIA PAPE

Pape was a visual artist, sculptor, engraver, and filmmaker. She pushed geometric art to include aspects of interaction (Osorio, L C 2006). Initially inspired by the formal geometric abstraction of Concrete art, The Neo-Concretists transformed Concrete art's geometric shapes into organic three-dimensional objects, designed to be manipulated by participants and to be experienced sensorially. The inclusion of art into everyday life (hauserwirth.com). Pape's contact with cinema was to confirm her interest in the relationships between image, light, movement and duration, which became characteristic of her Neoconcrete period. Pape lectured at the departments of architecture and visual arts (Osorio, L C 2006).

### HÉLIO OITICICA

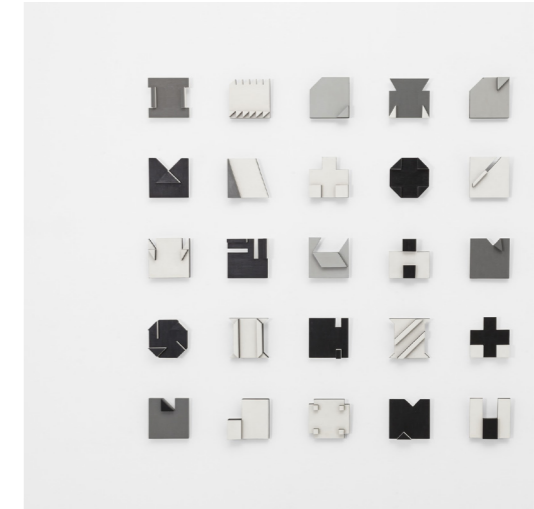
In 1960 Oiticica joined the group and his groundbreaking series of red and yellow painted hanging wood constructions effectively liberated color into three-dimensional space (tate.org).

### REFLECTION:

They work with geometric forms and in strong colors. It touches interactivity, senses, health & therapy. And they bring it together, they give form to the abstract.



30. L. Clark, interactivity & senses



31. L. Pape, series

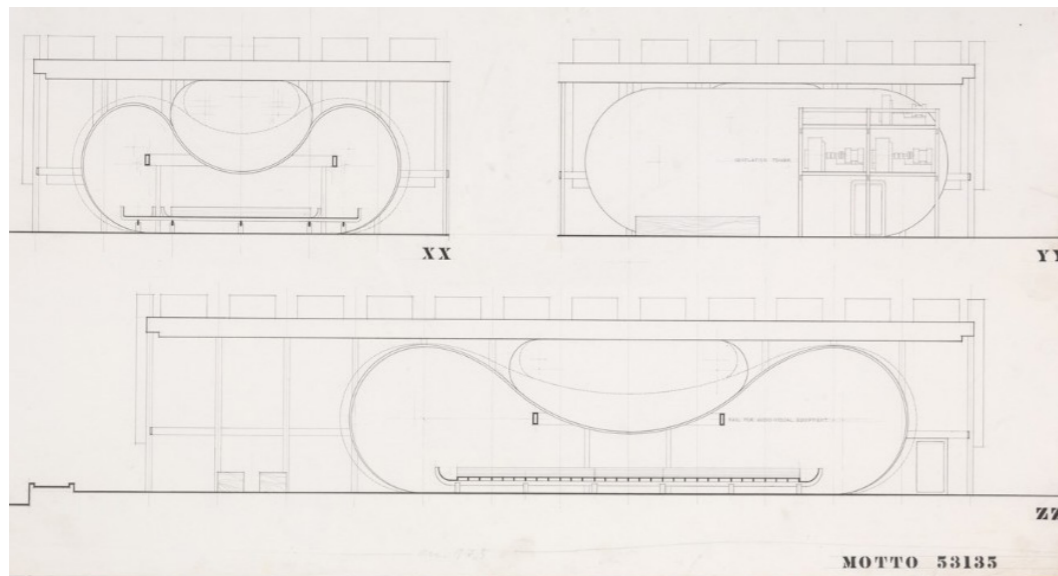


32. H. Oiticica, light, wood and clear colors



33. H. Oiticica. Contrast in colors, placed in nature.

Part of the landscape (but as Adhocism, placed in wrong place) geometric forms and play with perception. The repetition of form and surfaces makes it tolerant to variation in color.



34. Geometry: Room in room, geometric form in geometric form. Circle inside a square.



35.

Sound: Air, breathing sound, both from the structure and from your own body. Vision: Contrast in color and the blurry outside, light. Smell: Air, wood, Taste: Air, Touch: smooth and cold benches to sit on. The air is so present that you can almost touch it.



36.

body. Geometric form in geometric form, round form in a cube. Room in room. The open space enables time for reflection. The walls are not able to see clear through, but yet you can see silhouettes. The space is a gratitude to light. The room makes you focus and reflect inside of yourself. It's a place for inner reflection. A bench for seating and reflection. The benches are in dark metal which is a strong contrast to the otherwise light and airy room. The contrast is strengthened by the different material expressions. There is also a warm wooden door. The closed door is important for the ritual experience. You open the door and enter the room, and the door is closed behind you. It's like entering a sacred word. Warm wood door. You enter the room and leave the world outside. Contrast in material both in surfaces and in color.

### Ode de Osaka, Sverre Fehn

Ode de Osaka is a breathing structure that is designed by Architect Sverre Fehn. It was the competition entry for the Scandinavian pavilion at the World Fair in Osaka 1970. All details are developed in order for the installation to be dismantled and re-erected. There are no objects on show – only space (archdaily.com). Fehn's concept for a breathing pavilion consists of two inflatable forms, in which the fresh air would stand in contrast to Osaka's heavily polluted air outside (nasjonal-museet.no). The installation could host e.g. smaller lectures, meditation courses, yoga classes or artist talks (vandreutstillinger.nasjonalmuseet.no).

#### REFLECTION

The installation is like a breathing



37. Sea bathing facility, Lourinhã, Portugal



38. Sea bathing facility, Lourinhã, Portugal

### Ocean pool

#### Carlos Mourão Pereira

Carlos Mourão Pereira is a Portuguese architect who works on developing multi-sensory aspects of architecture. He became blind in 2006, but he decided to continue his architectural work. He always had an interest in the senses and multi-sensory architecture and he realizes how being blind means that he can work with the senses.

After Pereira became blind he developed his architecture from the new insights he gained. His blindness challenged his understanding of aesthetics in architecture, but also his sense of architectural space. He searches for more than a visual representation to shift the attention of the spectator towards a deeper sensory awareness. His design is multi-sensory in nature and much richer than the visual aspects that get most attention during

the design process and discussions afterwards.

He has designed a sea bathing facility for the Paimogo Beach in Lourinhã in Portugal. The sea bathing facility allows for the same rich multi-sensory experience of the ocean and the life within. The small pools are recreated in the smaller touching tanks where a person can look at, feel and even smell the seaweed (Willem-Vermeersch, Heylighen, 2012).

#### REFLECTION

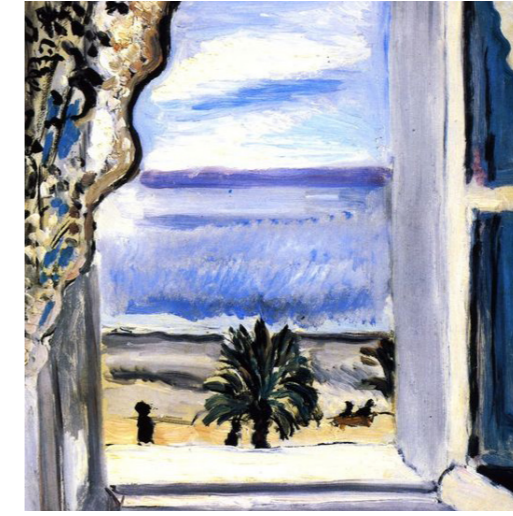
The project shows how the senses can have a crucial role when designing. It is also a project that shows that there is much to win in designing not only with our vision in mind. We explore architecture through our bodies and architecture can give the possibility of exploring something that otherwise is hard to explore. In this case the water and all that the element has to offer.



39. Materiality in the digital world, Wang Söderström.



40. Materiality in the digital world, Wang Söderström. Touch- fury soft surfaces and look of being squeezed. Vision- Glossy surfaces and contrast. Taste- recembrance of food



41. Painting, Matisse  
Sound - Waves and wind  
Vision - Light and distance  
Smell- Ocean breeze, seaweed  
Touch- Wind and soft curtains  
Taste- salty air



42. Painting, Klimt  
Sound - feet stepping on leaves  
Vision - Light in distance  
Smell- Wind and vegetation  
Touch- bark on the trees  
Taste- fresh air

## Sense & material

Wang södersröm designs in the border between physical and digital and how it interacts with our senses (Viijuma, V (2017). Their work is an interplay of glossy and matte surfaces and the contrast between hard and soft forms. They include an aspect of handcraft in the digital production where forms and shapes are given the look of a human touch.

The work derives from experiences, images or phenomenon from the world around us and is translated to digital imagery (youngart.se).

### REFLECTION:

The Madonna veil sculpture shows the possibility to create different expressions in the same material. The hard

and compact stone has a soft and transparent look. It shows how we through design can create the expression of various materials that trigger our senses.

The connection between ancient sculptures and modern digital design. We do not have to separate the senses from the digital world. Even tho it's only visual images we can through these images trigger our other senses e.g. We can through a fury image imagine the feeling of softness. And when the difference in material surfaces is strongly visualized we can through our memory of the surface, experience the different feeling of materials.



43. Madonna veil sculpture  
Contrast in material, stone appears to be soft.  
Sound - Silence and still.  
Vision - Contrast in surfaces.  
Smell- the veil.  
Taste- fabric  
Touch- Contrast of hard and smooth appearance.



44. Renaissance net sculpture.  
Contrast in material, stone appears to be soft.  
Vision - Contrast in surfaces.  
Touch- The soft fabrics verses the hard stone.



45. The matter of time, Richard Serra

## The matter of time

Richard Serra

Matter of Time allows the viewer to perceive the relative simplicity of a double ellipse to the complexity of a spiral. It creates different effects of movement and perception, unexpectedly transformed as the visitor walks through and around, creating a feeling of space in motion. The entire room is part of the sculptural area. The artist has arranged the works in order to move the viewer through the work and through the space surrounding it. The works creates corridors with different, unexpected proportions, narrow, compressed, high, and low. The installation includes the time aspect. On one hand, there is the chronological time that it takes to walk through and observe it from beginning to end. On the other, there is the time during which the viewer experiences the fragments of visual and physical memory, which are combined and re-experienced (guggenheim-bilbao.eus). Viewers are encouraged to move around, in, and through the work and encounter it from various perspectives. Serra focus primarily on large-scale, site-specific works that create dialogue with a particular architectural, urban, or landscape setting (guggenheim.org).

### REFLECTION

The work create curiosity and is a place were interaction between people take place. You get the feeling of being somewhere else due to the high walls. The tilted walls plays with the feeling of movement and perception, balace is crucial to not being dizzy. This is also a play with geometrial forms, room in room, form in form. Contrast in color and material. The walk through guide the visitor.

### GEOMETRY

Circle, form in form, room in room.

### SENSE

Contrast in color and material.  
 Sound - The lack of vision, the high walls make you more aware of the sound, sound of silence and footsteps.  
 Vision -Contrast in color and perception of tilting walls. Not seing everything at once  
 Smell- metal  
 Taste- metal  
 Touch- rough surfaces.



46. sound swing, Bernhard Leitner

## Bernhard Leitner

Bernhard Leitners' works deal with the audio-physical experience of spaces and objects which are determined in form and content by movements



47. Le cylindre sonore, paris. Bernhard Leitner

of sound. The focus is the relationship between built structures of sound and the human body (Lopez, 2011).



48. Bone Collection



49. Bone Collection

## Bone Collection, Loïc Bard

Burnt-wood Bone furnitures is a collection of wooden furniture with rounded edges inspired by the sense of touch and the human body. The furnitures have chunky, rounded elements, some are blackened while others are bleached, with milky veins resembling human skin. Bard used the Japanese technique of shou sugi ban, Burnt wood for the

blackening effect. Some of them are very thin while others are more round and chunky.

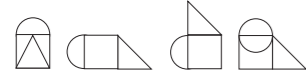
"I tend to create minimalist and pure shapes by drawing sketches at first and incorporate some of my personal emotion in the conception of the objects, something more sensual,"  
 Loïc Bard (dezeen.com).

d e s i g n  
p r o c e s s

DESIGN STUDY: SERIES 1



GEMOMETRIC FORMS



REFLECTION

The different geometric forms create a mix of different expressions, like Adhocism the different forms put together create something new. The combination of different geometric forms is Adhocism could be seen as adhocism (Jencks, Silver, 2013).

The room is interesting when the form is raised 90 degrees and stretched both horizontal and vertical. The meeting between the geometries creates interesting space.

REFERENS:

Follies in Parc de La Villette  
R. Withered (d) stretched differently.

CONTINUE

Test design form in form and connect the form to the senses.  
Test design more similar forms with only small variations (Sol Le Witt) explore different colors (R. Withered)

a The chosen composition from previous iteration.

b Translated to 3D in Rhino. Extruded curves.

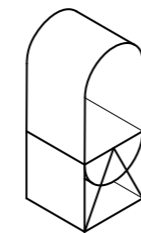
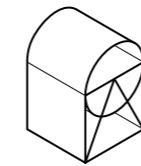
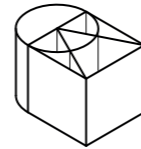
c Extruded curves & raised up 90 degrees

d Extruded curves, raised up 90 degrees & stretched differently (1 color).

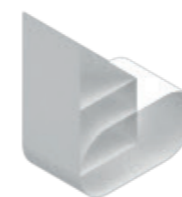
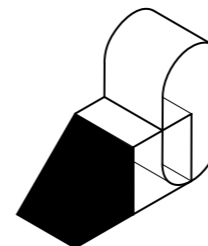
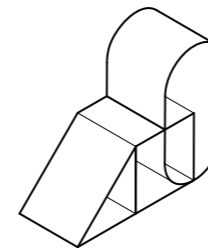
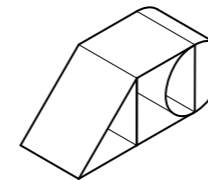
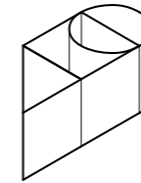
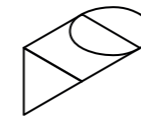
e Extruded curves, raised up 90 degrees & stretched differently. (2 colors).

f Flipped and rendered

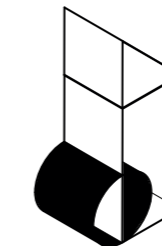
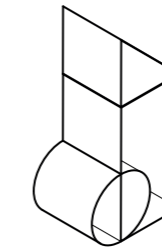
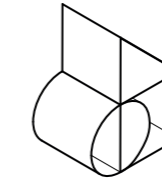
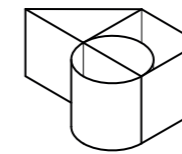
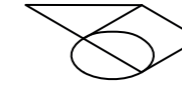
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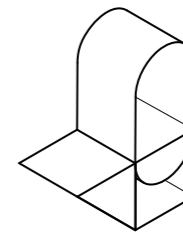
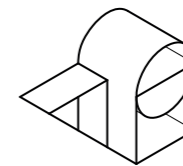
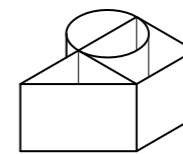
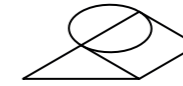
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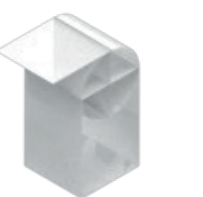
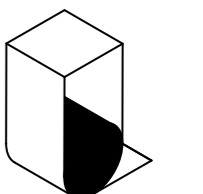
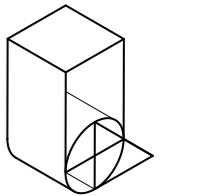
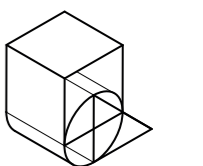
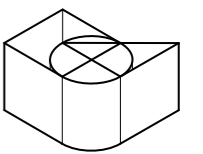
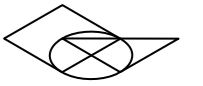
3



4



5





## DESIGN STUDY: SERIES 2



GEMOMETRIC FORMS



### REFLECTION:

The different geometric forms stand out clear when they have different colors (e). When all the forms have the same colors you read the form more as one, instead of different geometric forms (c).

The space becomes more interesting and varied when the form is turned 90 degrees (c). The interior room is more interesting when they are raised up.

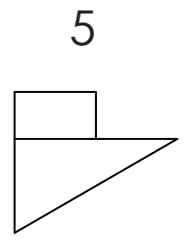
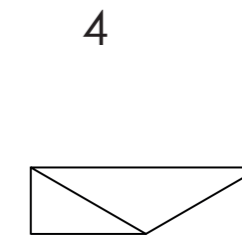
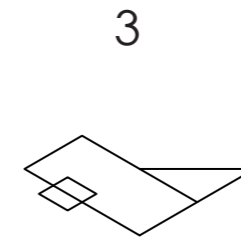
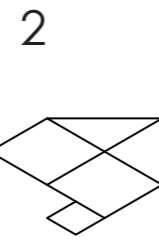
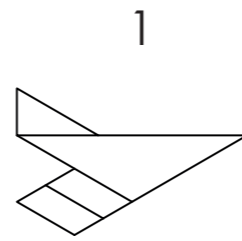
### REFERENS:

Parc de la Vilette (c)

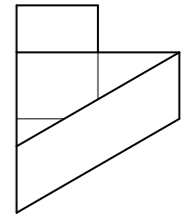
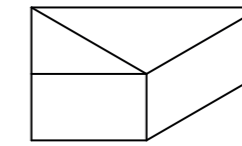
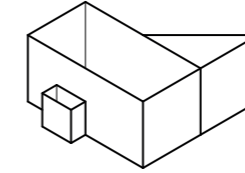
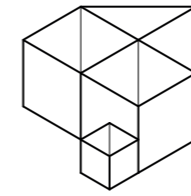
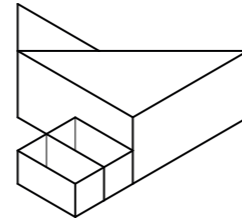
### CONTINUE

Test design form in form and connect the form to the senses. Test design more similar forms with only small variations (Sol Le Witt) explore different colors (R. Withered)

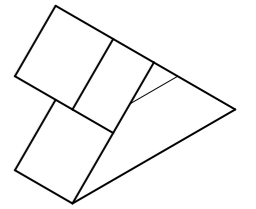
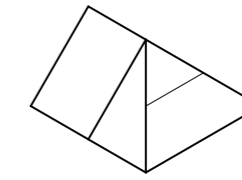
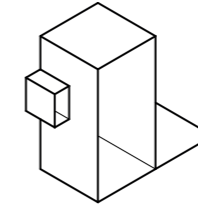
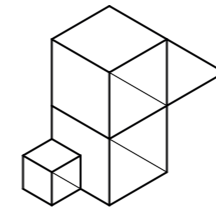
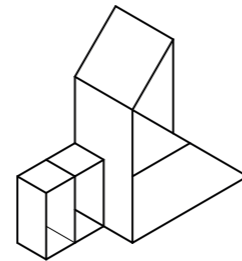
a The chosen cut-outs from previous iteration.



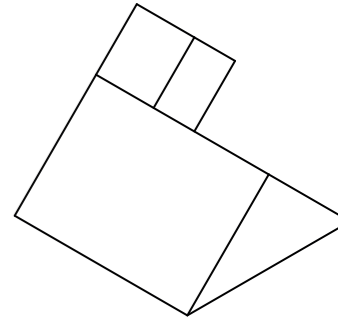
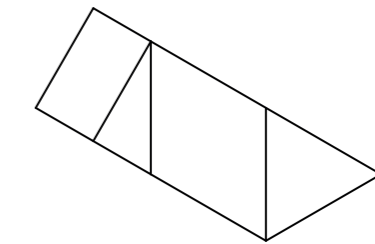
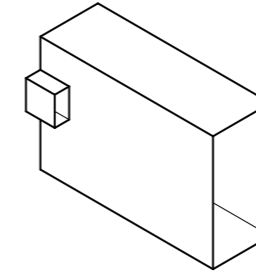
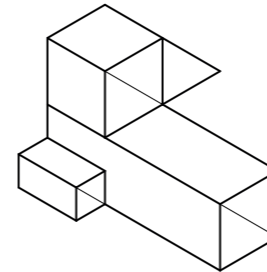
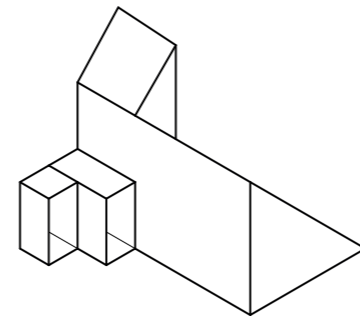
b Translated to 3D in Rhino. Extruded curves.



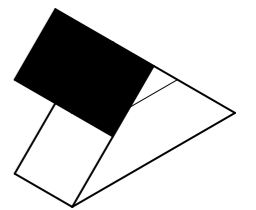
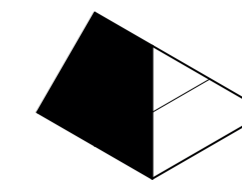
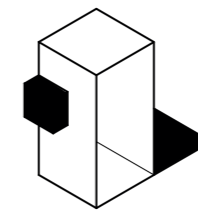
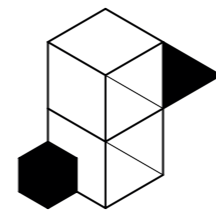
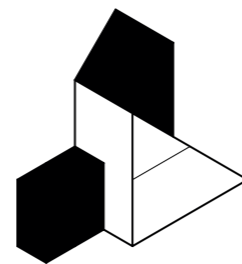
c Extruded curves and raised up 90 degrees (1 color).



d Extruded curves, raised up and stretched differently.



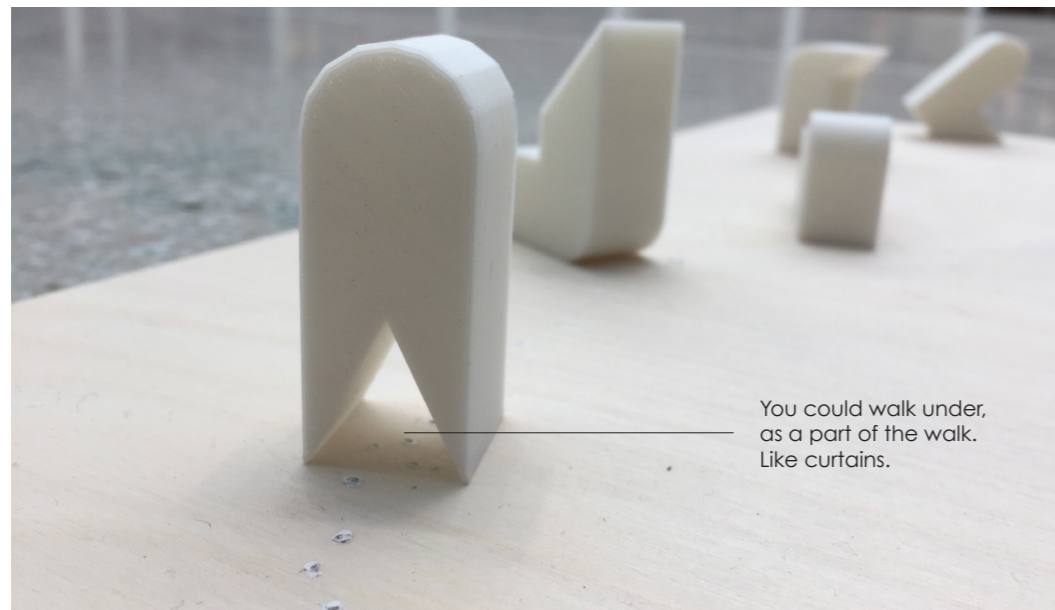
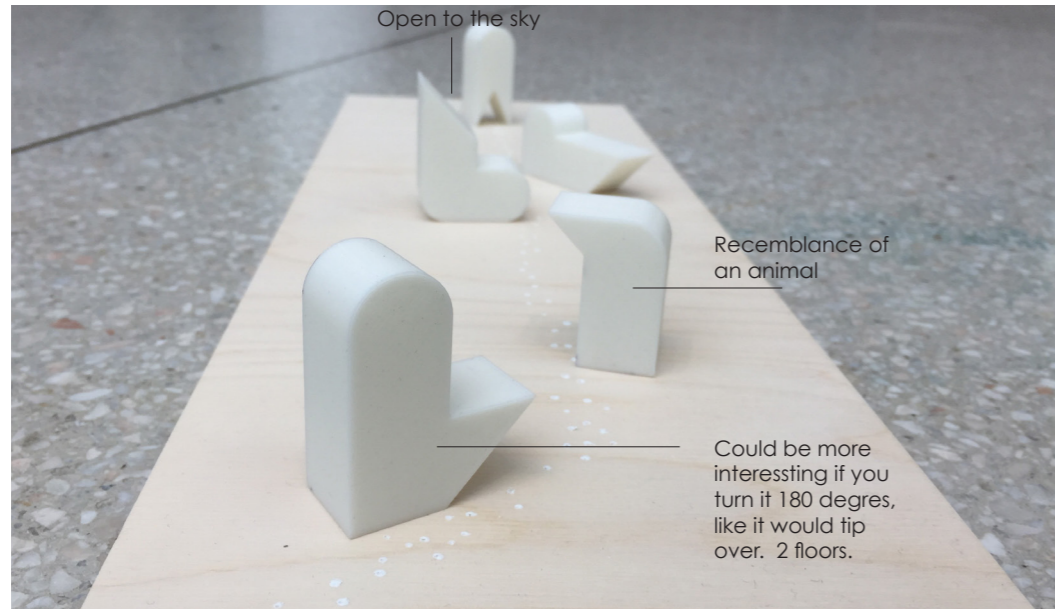
e Extruded curves and raised up 90 degrees (2 colors).



f Flipped and rendered



SERIES 1



Photos of printed 3D models, interim 1.

REFLECTION

The circular form creates a recemblance of animals. I find it a bit interfaing with the design. Tho it fulfills the ambition to create individual characters with diffrent characteristics.

The seams where the difrent geometric forms meet could be seen in the facade. It could also be a part of creating the windows, doors and openings. Like a punctured facade.

It could also help to strengthen the feeling of the geometric forms. Without the seams you read the design more as one volume.

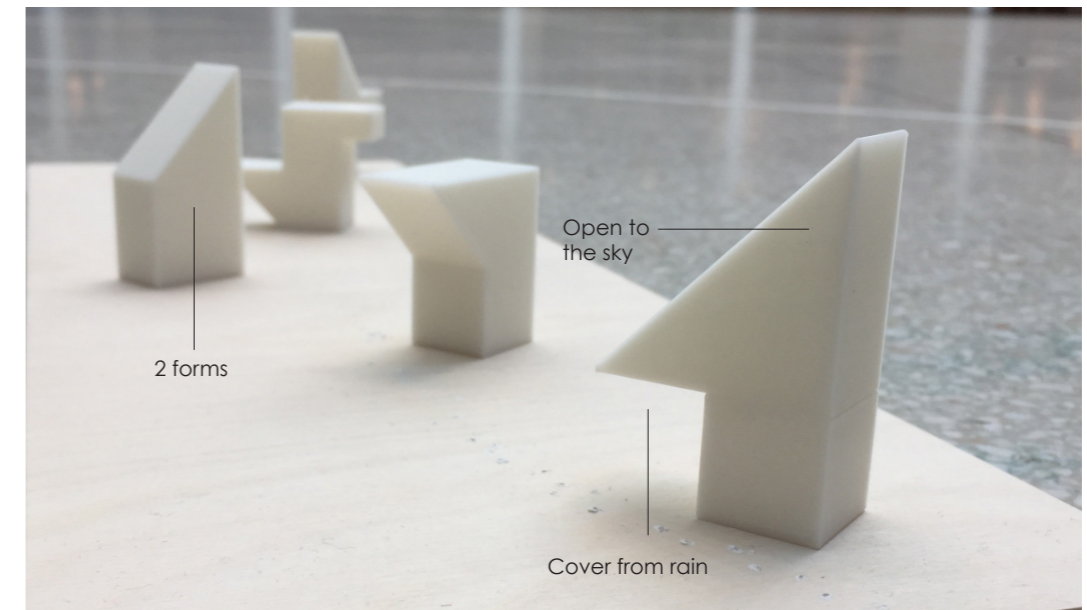
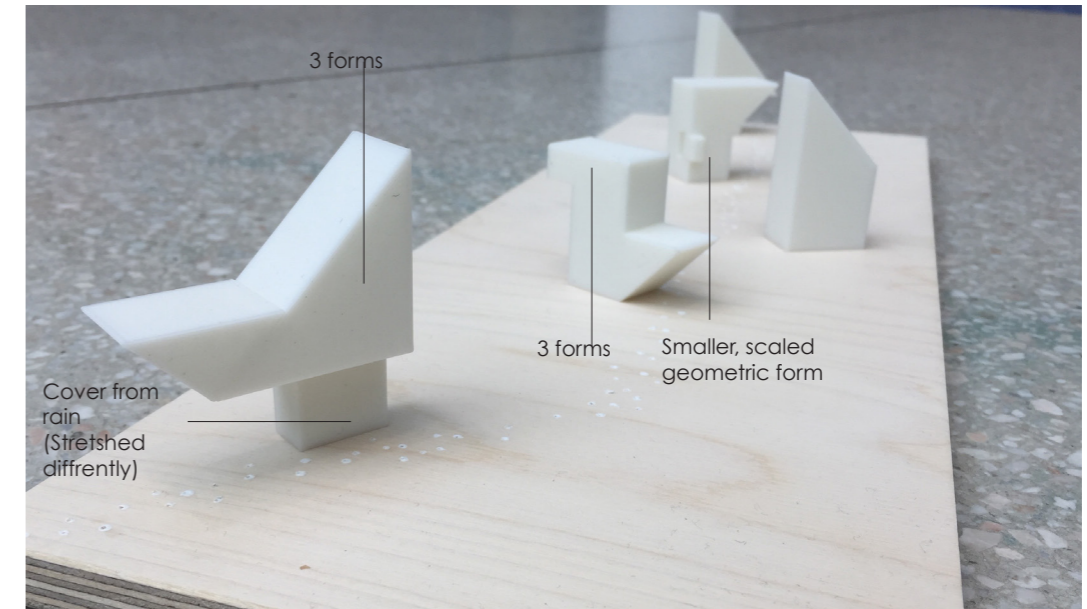
CONCLUSION:

Just as in series 1, I find it interesting when you see them all together, not to spread out.



It could be a difficulty to come up to the second floor. But it could create a spectacular view.

SERIES 2

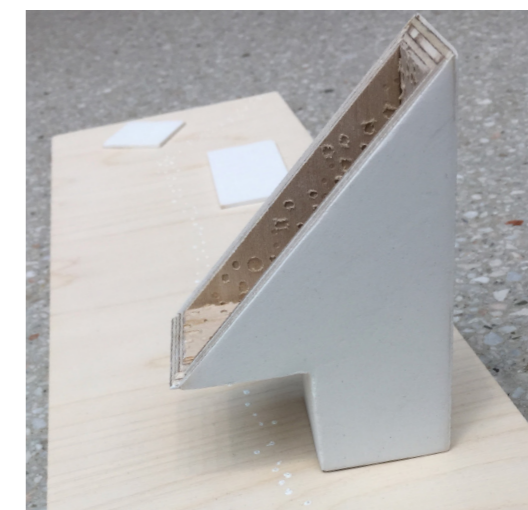


REFLECTION

When it is possible to walk under, it make the architecture a part of the path. Here you can seek cover from rain. The hight create a contact with the sky or it is possible to come up to a second floor, wich create a change of perspective. The pointy angle could be diffucult to make use of. But it contributes to a stong seriality, kinship. The ones that have several directions and the one that has a scales geometric form I find more intresting.

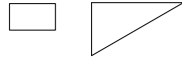
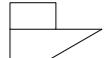



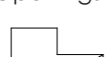



CONCLUSION:

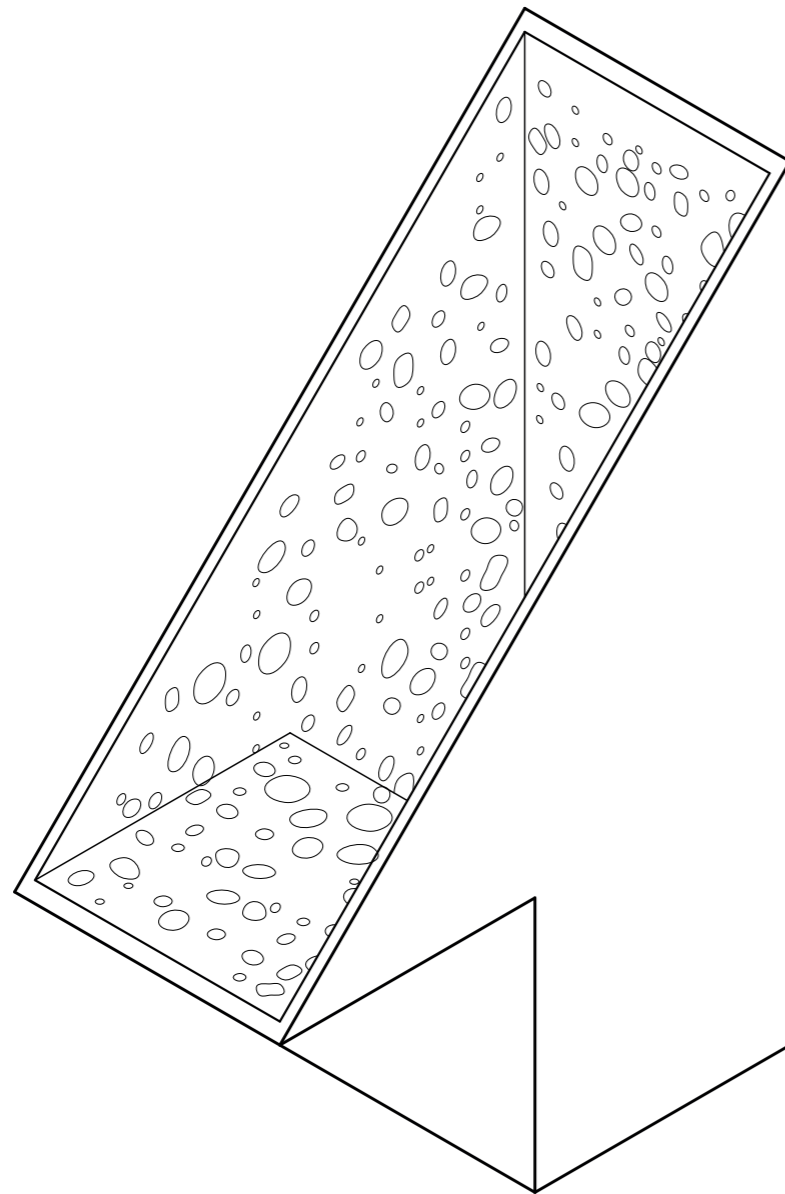
Use 3 geometric form to create intresting charachters. The design fulfills the feeling of individual characters, but I also realise that I find it interessting when you see them all together, not to spread out.



Photos of model (plaster and wood), interim 1.

DESIGN  
STUDY:  
SERIES 2  
5.f

-  Geometric forms
-  Put together
-  Extruded
-  Caped
-  Openings
-  Thickness
-  Raised up
-  Fliped
-  Contrast interior & exterior



**REFLECTION**  
The contrast between the exterior and the interior creates a surprise factor. The exterior is smooth and the interior is rough, tactile. It could also be a contrast in color.



Photo of conceptual model. Extruded geometric forms, architectural mates.

WHAT, WHY & HOW

Five stations, one for each sense, connected through a path. Attraction/ magnet for the site by creating a space where you can explore you're different senses.

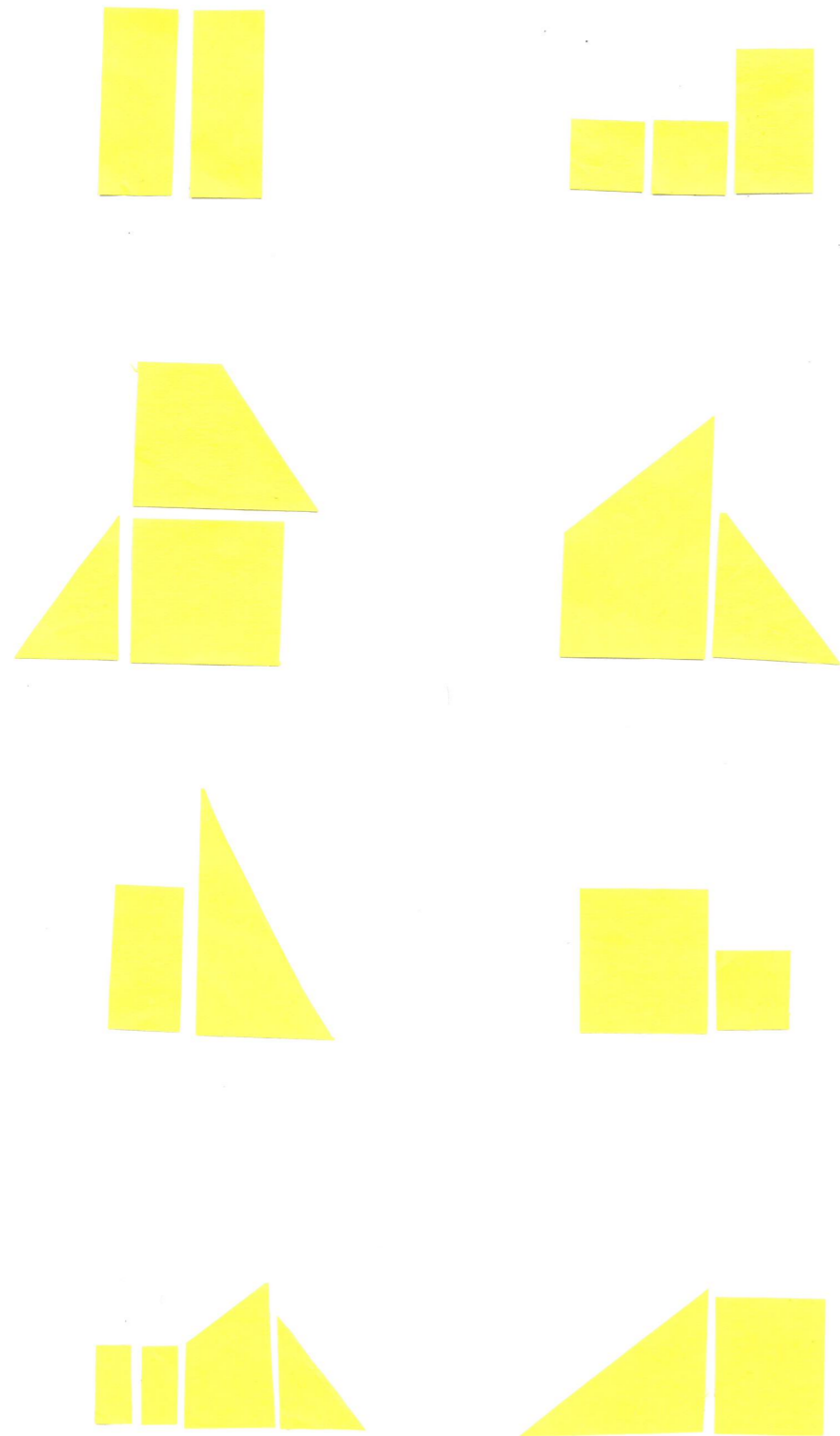
The path is accessible during the whole day. During daytime it is full of life and during night time the stations are like silen satellite.

There is Individual characteristics for each station. They are like own individual that are ordered and arrayed, which makes them a part of something bigger that together create a whole. A line of Architectural mates (Lavin). The visitor discover new things along

the way. The stations are like sculptural objects places in nature- like hoarders placing things in "inappropriate" places. This frees the stations to a conventional use.

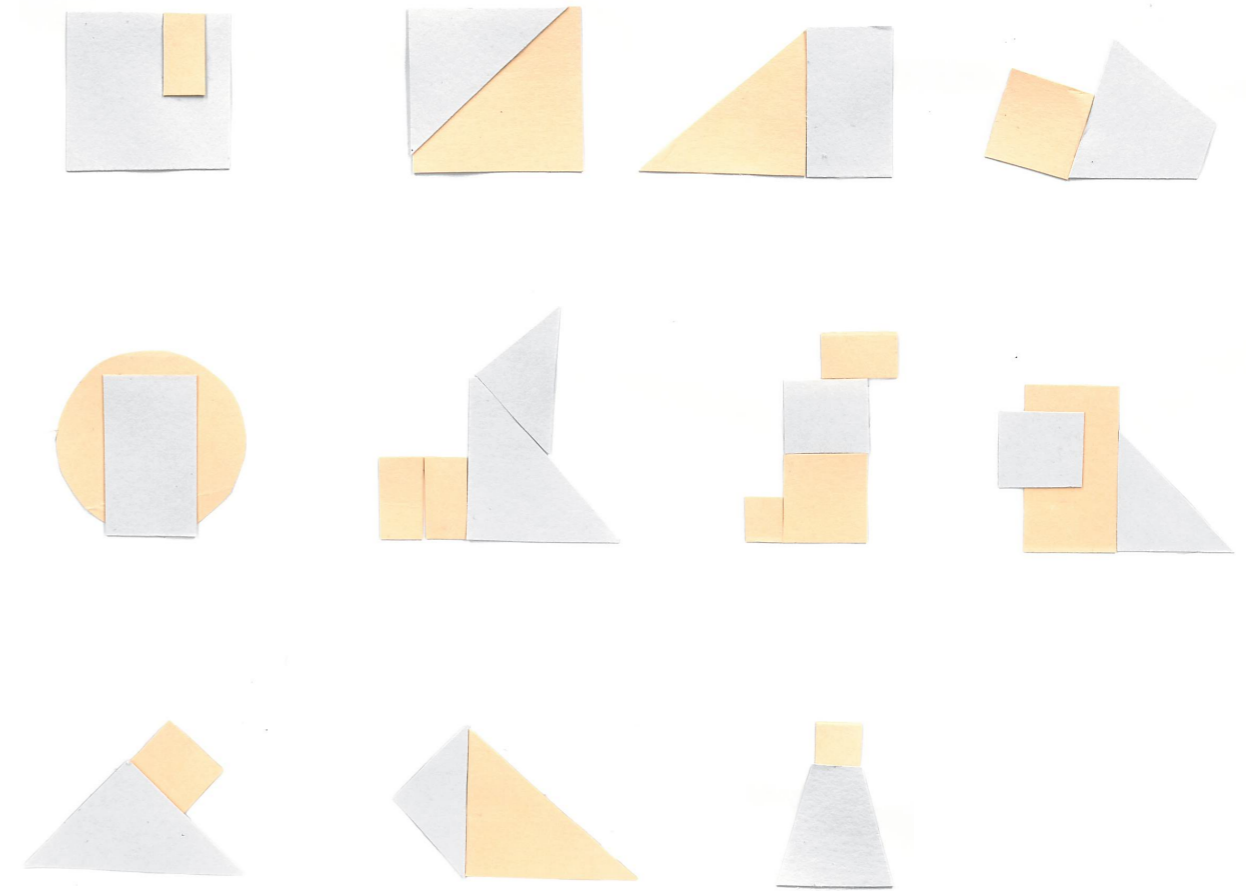
The senses is strengthen through the contrast of senses. The flow of the route is strengthen by the interruption of flow. Like hoarders, interrupt the flow of body in space.

Here the visitor can find the architectural mates. The intension is produced not by walls or other boundaries, but by the order, array and numbers of object. Which coalesce into a perceptible environment (Lavin, 2011).



REFLECTION

Geometric forms, one common color & material. Architectural mates. The seams between the geometric forms makes the individual form, and the concept more clear.



SERIES 2

Geometric forms, variation in 2 color2 &/or materials. Architectural mates.

REFLECTION

The simple geometric forms put in differens compositions allows for more complex forms. The schematic designs is thought as a facade, Could it develop as a plan? The common yet different colors create a high tolerance for different geometric form.

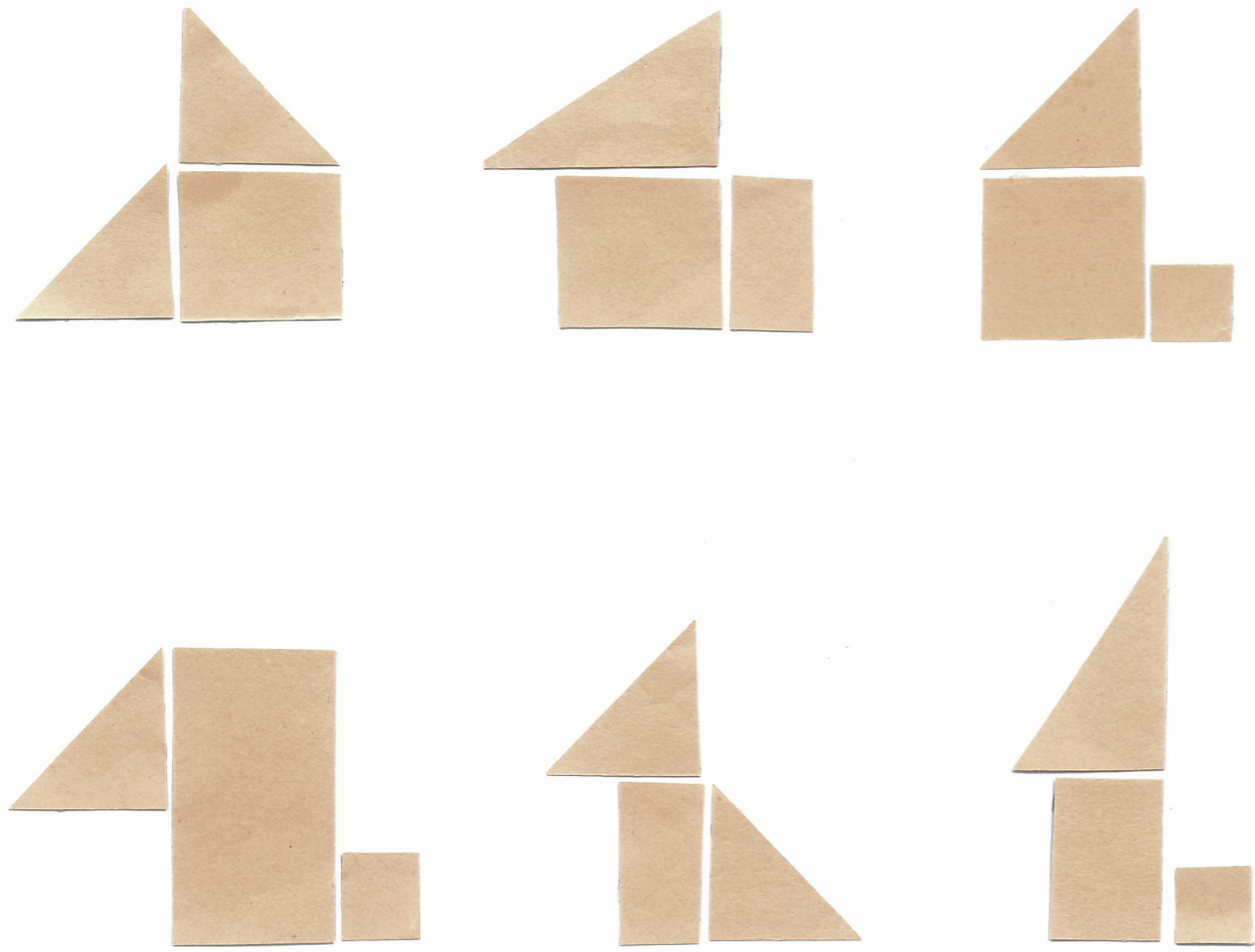
The forms are awakening curiosity and have the possibility to frame specific views. The tilting facade could be used as seating, climbing or as a playground. The exterior could host a staircase. The simple forms and reoccurring colors are easy to recognize and the visitor

know right away that they are a part of the series of mates that forms the walk.

WHAT: Design study of composition by simple geometric forms, put together.

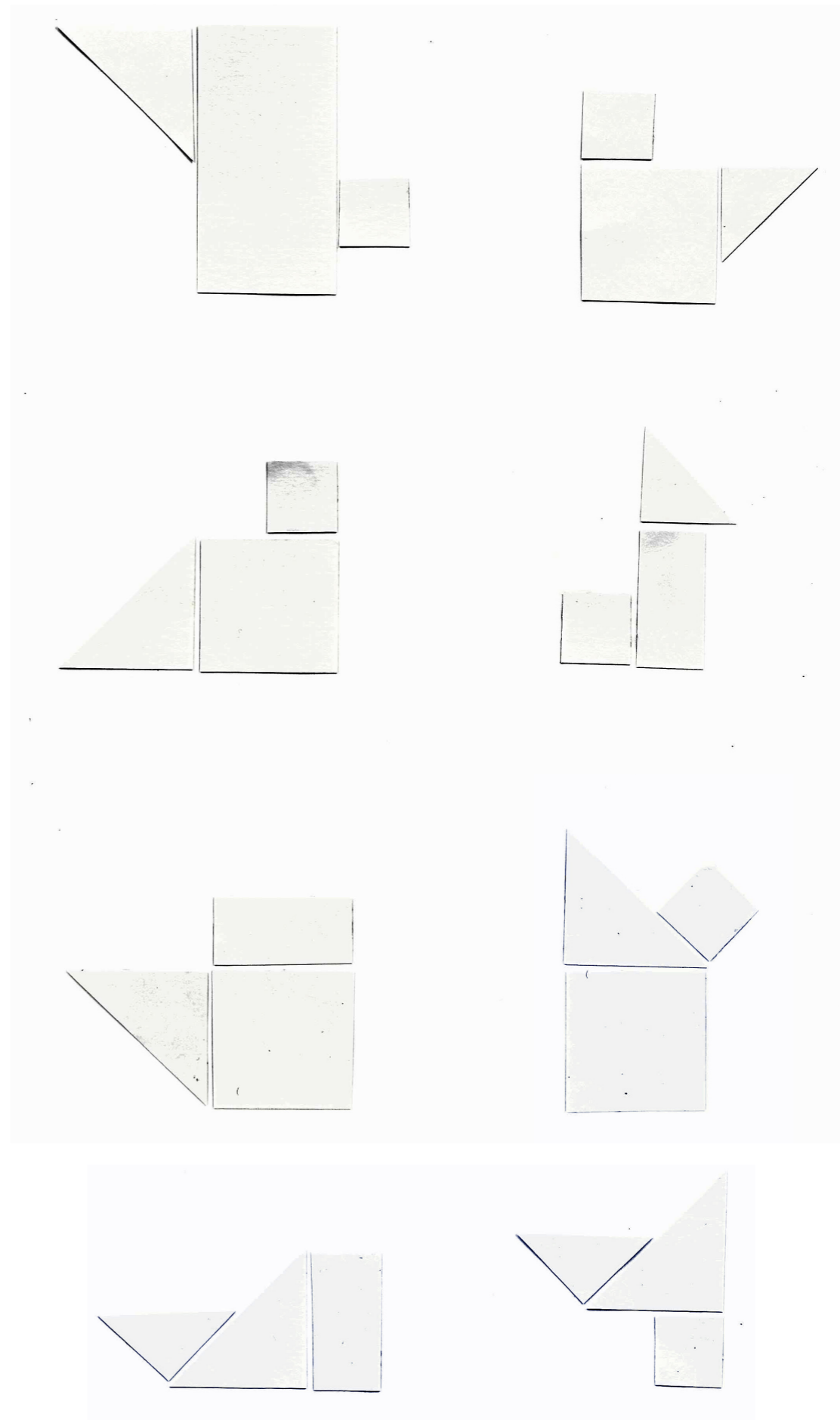
How: Paper cut-outs of simple geometric form. 2 colors.

Why: Create a perception of that they belong together even if the forms are diffrent the two colors create a seriality.

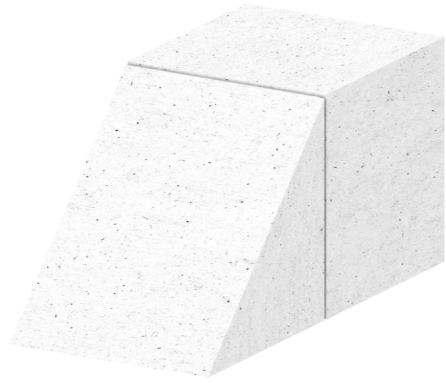
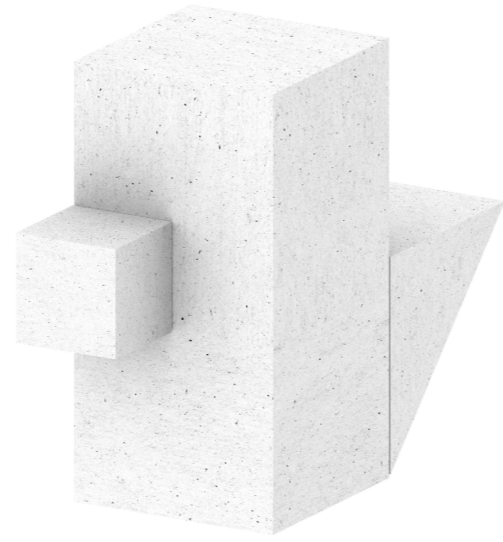
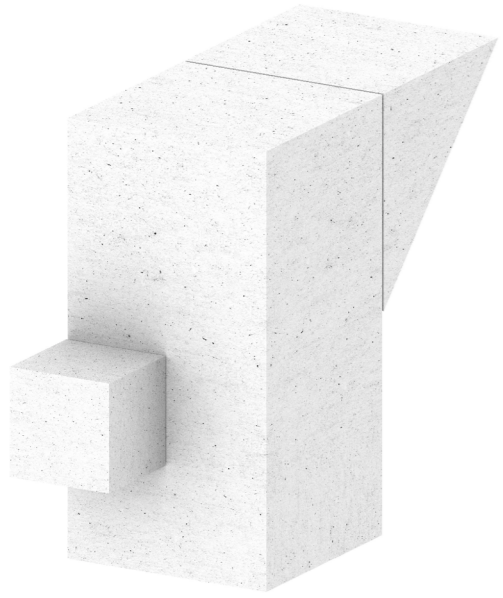


**RULES**

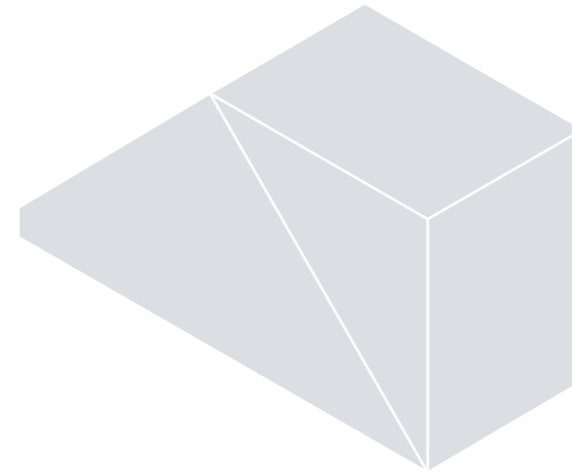
To define the characters they have minimum three geometric parts. Like a torso, head and tail. To create the series they all have one color and repetitive geometric forms.

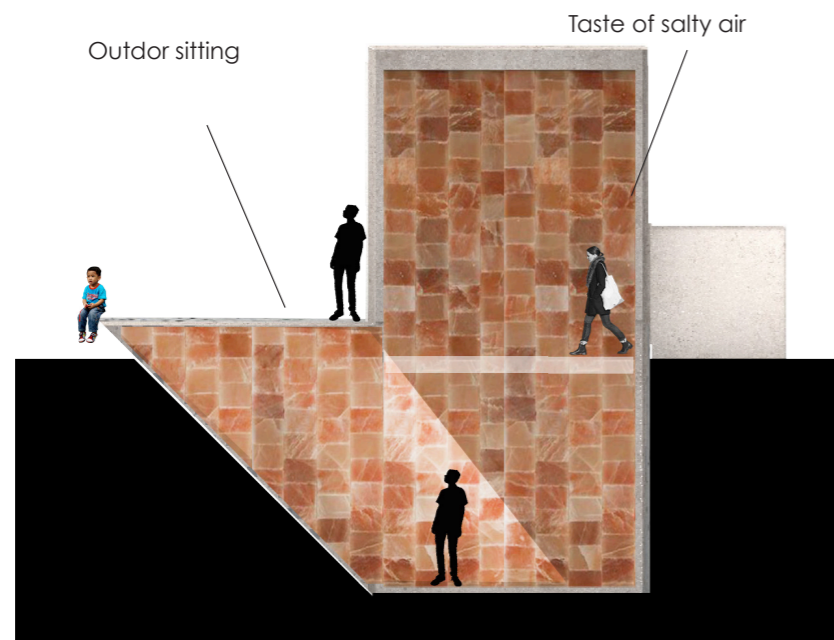


Previous iteration

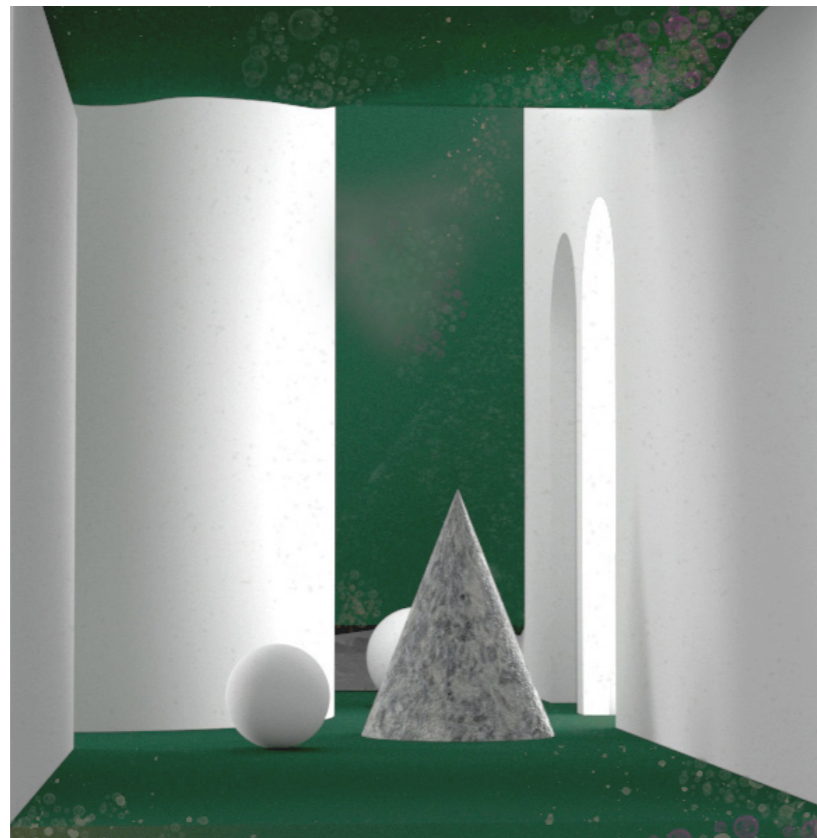


Previous iteration





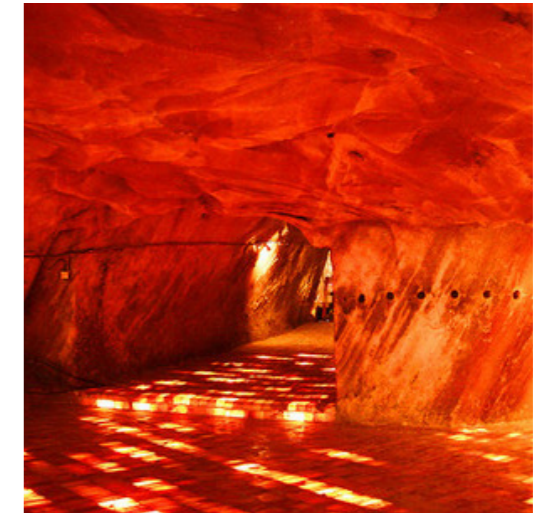
Interior material: salt.



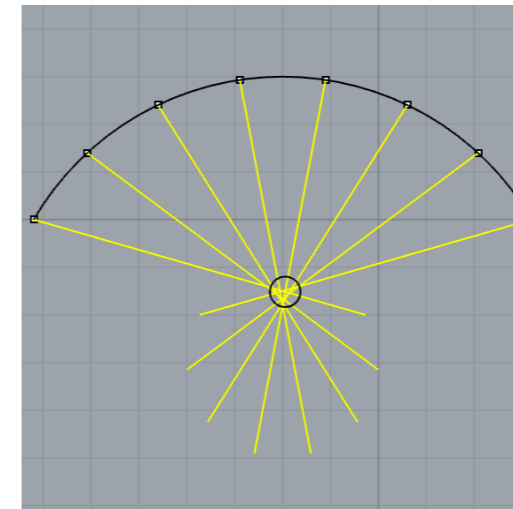
Midcrit: Interior perspective, Taste station.  
Interior material: algaees.



Salt mine, Rumania.



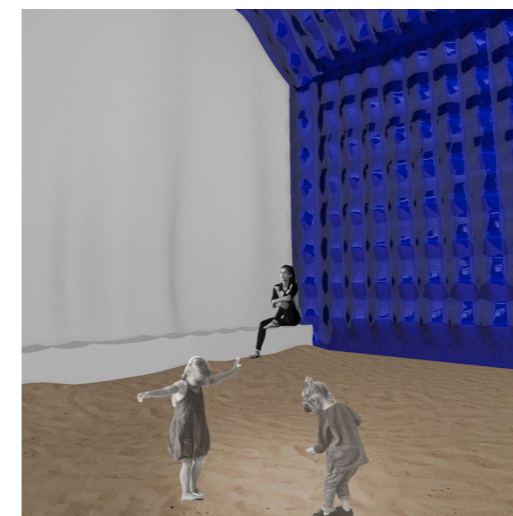
Pink himalaya salt mine, Pakistan, Light.



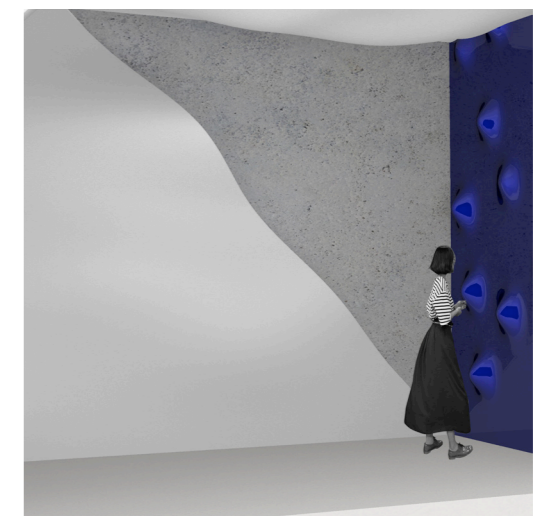
Focus point, sound mirror.

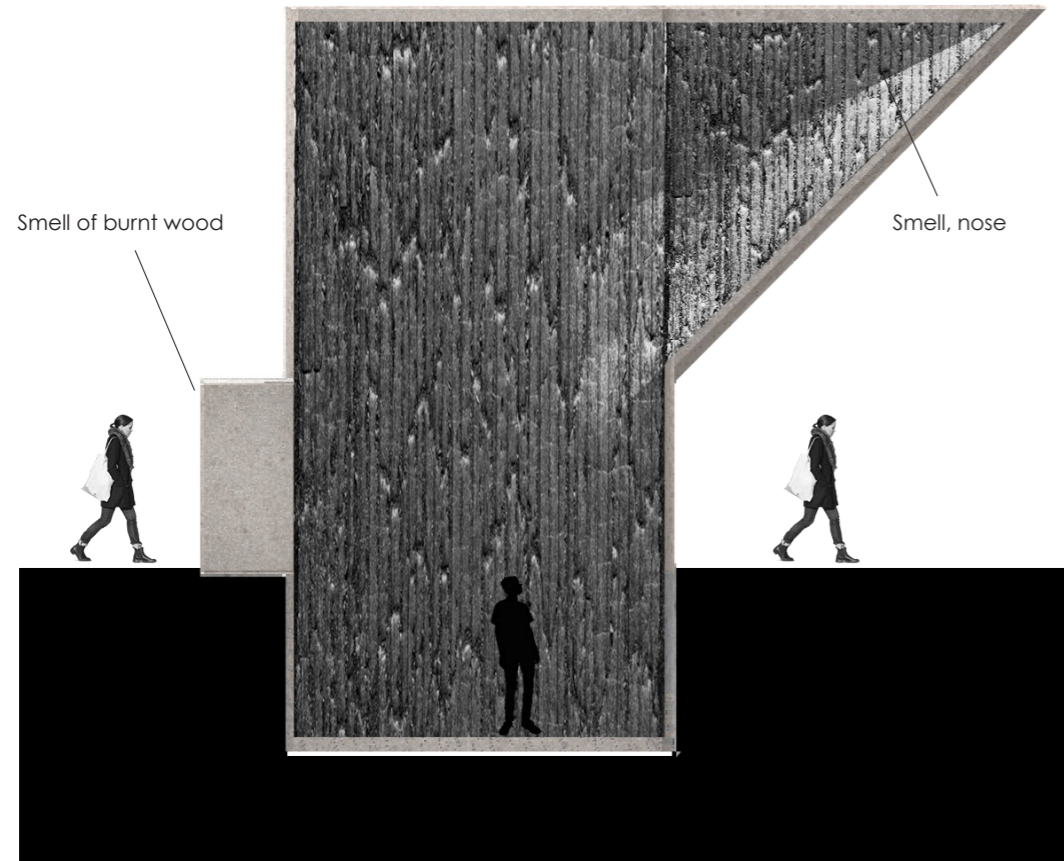


Denge sound mirrors, UK



Previous iteration: Touch station





Smell station:  
Interior material: Burnt wood, Ban sugi Ban



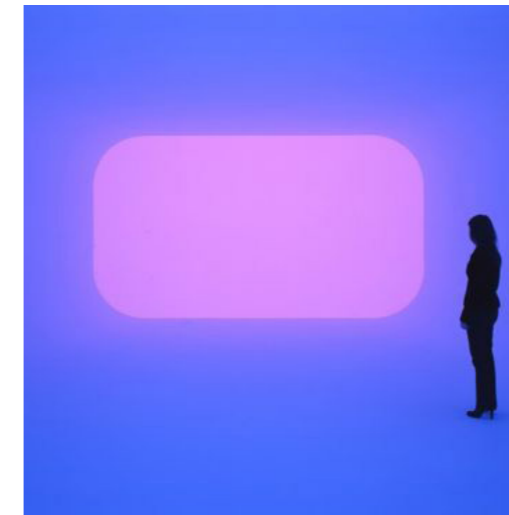
Burnt wood, Ban sugi Ban.



Vision station:  
sunlight and sky (contrast- dark and light) See through- directed vision. Not seeing everything at once, layers, veil. Reflections, prisma, suncatcher, water, mirror, translucent, light, sky window.



Color circle.



James Turell. Color, perspective and light.





r e f l e c t i o n

## REFLECTION

There are many qualities to be gained by using sensory design in the design process. The sense is used within architecture, but it often comes in second or maybe 20th place. Phenomenology is a complex field and it become easier to grasp when combined with something more concrete, something that you can measure. Therefore the way the project is communicated became very important.

Many questions have come up during the design process. Should the stations be permanent or temporary? It would be possible to have chosen to continue in both direction but I decided to make them permanent so that they would be able to contribute to the site and with the idea that a "mates stays".

When designing something that don't have a clear function the question of how you use them the second time you visit came up, if there is different layers of experience or why you should visit them in the first place? In the beginning of the design process I investigate the ability to put a function in the station. They could have been more closed, then you could e.g. book the smell station for a meeting. This could have taken the focus away from the experience of the sense and therefor this was not chosen.

Since the sense is so complex it have been complicated to make a choice how to design the stations. The different senses are strongly connected and therefor it is hard to separate the senses in separate building. One way that could have been explored would be if one sense would have been removed and in this way enhance an other sense. It is also a fact that peoples sensory experiences varies and therefor it could have been interesting to continue to investigate the differences in experience. This also makes it complicated to be sure that e.g. vision station is not to confuse with touch station, especially since our vision is so dominant.

The sensory qualities can be found in many materials and forms and it become interesting in relation to structure and technique. We as architects can give a concrete form based on an abstract thing. I would say that the methods I have used could be applied to other subjects, where to give form to something abstract. A physical form could help us to understand something complex, it could be a tool of discussing other questions. To break something down to it's smallest part and then rebuild it.

Elements like wind and vegetation is also something that affect the sense and the question of how much this would play a role in the project came up. To make some limitations I decided to let the sense be present at the interior. A site that lack sensory experiences could have been interesting to compare. The investigation of form in form would also be interesting to investigate further, to explore how the different geometries meet and how the meeting

could create interesting space. It was important to let the visitor be able to experience the stations with the senses not only be an observer of the sense station. Therefor I have tried to push the stations to it's extreme, e.g. taste station with the salty walls, you can actually taste something. Taste is something that normally don't appear within architecture and that was an challenge. But I would say that the vision station was the most challenging to represent since vision is constantly present.

The project has three different themes, the geometries, the site and the series of mates. It has been challenging to work on all three in parallel and to bring all part to the same level. To set up rules was the key to develop the design.

The knowledge of senses and how to trigger them is very wide and It was challenging to determine how I would communicate the sense therefor references have been important, both as inspiration of different series and design strategies but also of how to deal with the sense. This was also an inspiration of how to communicate the sense through drawings and images.

My take on the senses have been to materialize it in a more concrete way and systematic working forward, to chose a concrete thing that you can measure since the senses is so abstract and lack a physical form. It have been important both during the process to bring the project forward, but also for the reader of the project, to be able to easy communicate it and compare the different senses in a simple way.

Full scale test of the stations could have been good, to be sure of how it really works. This would be interesting to explore, but also very time consuming and thats why this have not been made in this project.

So to conclude I would say that it makes sense to use sensory design in the design process and that there is many qualities to be gained.

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SVT PLAY  
MATMAGASINET  
MAT FÖR ALLA SINNEN  
3 APRIL, 2019

Interview with Per Møller, Associate Professor at Department of Food Science, Faculty of Life Sciences at the University of Copenhagen

Food is not something that you experience only with your taste buds. The first sensation of taste is through the eyes.

Colors have a strong effect on the expected taste and taste is strongly connected to our expectations.

Per Møller, lecturer at University of Copenhagen stresses that expectation and color is of importance to our sensation of taste. Our brain reads the color of red as sweet, as ripe berries. It is something that we have learned in our sense memory. We expect red to be sweet and our expectation affects our taste sensation.

Form and taste  
There is a lot that indicates that the form of food affects our perception of taste.

Example

Chocolate in the shape of a square is perceived as more bitter than a chocolate in the shape of a circle.

A square is hard, edgy something that can cut you, more bitter.  
A circle, round, sweet, kind.

A commercial example is when the candy Cadbury changed owner and the new company changed the form of the chocolate to a more form than the previous edgy form, customers complained about the change of taste of more sugar, when they actually only changed the form, not the content.

Color and taste  
Complement colors awaken expectations and feelings in us. Curiosity.

The expectation and color as a huge importance in our perception of taste. When it tastes as expected, our experience is as good.

We know that a yellow banana is ripe just by its yellow color, because we store our taste experiences. Color can trick us.

## Meeting with Patrik Höstmad 5/4-2019

Dean of Education in Architecture and Civil Engineering | Associate Professor in Applied Acoustics, Architecture and Civil Engineering, Applied Acoustics

Rehearsal room, opera and dance companies. Variable acoustics panels. Movable, interactive. Sections of walls, which you can turn around and get different kinds of effects.  
eg opera house, Oslo by Snøhetta.

Focus point  
Any material works, it is the angle of the concave surface that is important. The sound bounces in the same but opposite angle.

Sound funnel  
Shape of a trumpet, it has to be wide in the openings and quite small in the most narrow parts.

They could be combined with some isolated funnels so that you don't hear the sound, variation of experience. The tube could be around 50 cm deep. quite small diameter 10 cm is enough.

"Visit in sound bouncing room"  
Hard concrete walls, strong reverberation. Experience of the wood floor is strong.

Visit in the echo free room  
Absorption of sound, mineral wool. The walls are around 1.5m thick. To absorb high frequency sound waves. But if you just want to absorb human voices, it needs to absorb around 300-150 (hertz? våglängd) In general, the thickness then has to be 1/4 of the sound waves, so in this case, the walls have to be around 250-500 cm deep/thick. It is important that the walls can host air.

VARIATION OF DIFFERENT TYPES OF

FLOORS.  
Increased distance between the studs to achieve vibrations in the floors.  
Metal, wood, concrete.

The thickness of the metal and wood is of importance, thin but still walkable.

Flutter echo  
Is a phenomenon that occurs when you have two parallel walls, eg. a long corridor.  
High frequency sound. You could enhance the sound with eg. a big heavy door which closes hard.

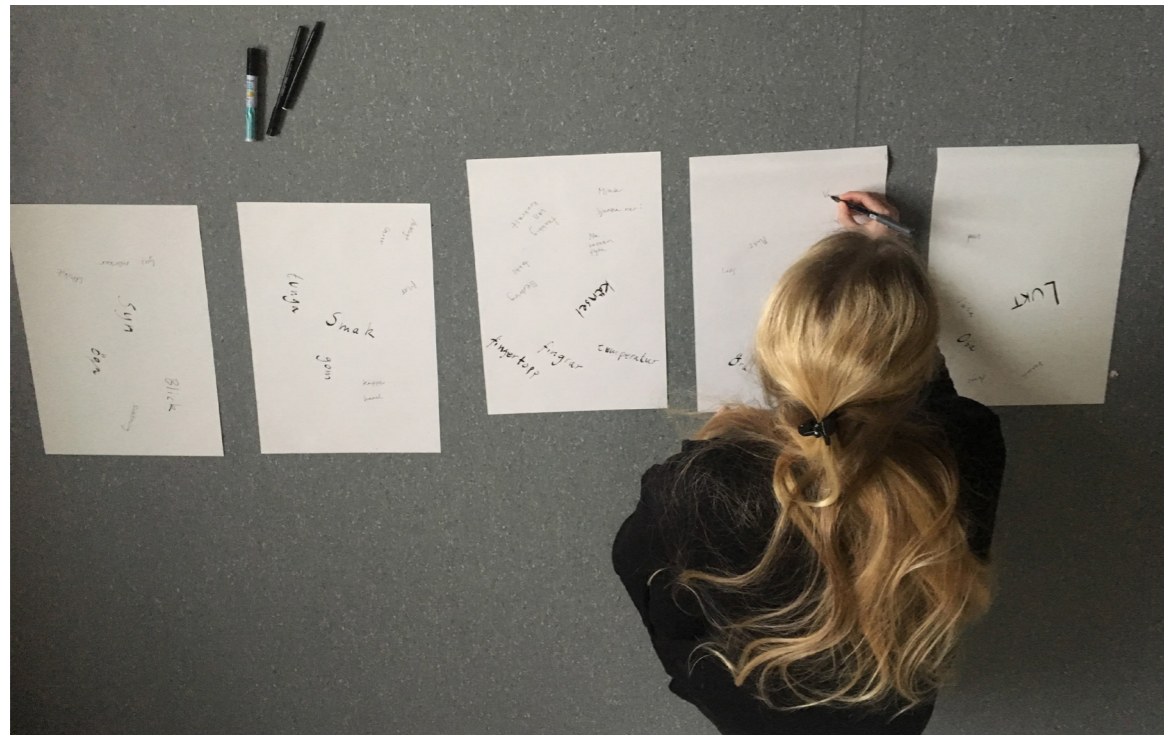
Color and sound?  
Visual impressions strongly affect the sound.  
A dark room could enhance the sound, but it also has a risk of appearing as an artificial environment. For experience, the sound in a neutral environment is preferred.  
eg. video: da da-- da ba--  
There is a strong coherence between visual and auditory stimuli.

"It sounds like you expect from what you see"

If you visit eg. a cathedral, you expect a certain sound and if it then would be a suppressed sound, it would be strange.

Pleasant environment - match what you see  
Unpleasant environment - Don't match what you see.

Rain chatter on metal flooring is a strong sound, the metal has to be quite thin, maybe it's not walkable?



WHAT IS THE SENSE?

Sensory experiences is equal to everyone (Farshid Moussavi).

WORKSHOP:  
TO DESIGN THE ABSTRACT



HOW  
SPECIFIC SENSE

1. WORD
2. 2D FORM
3. 3D FORM
4. NAME

WHY WORKSHOP?

because the experience of sense is individual.

GOAL WITH THE WORKSHOP

Models and words for each sense that is an individual perception of the specific sense. Start a conversation. E.g. Smell in strongly connected to memory and can create a feeling of safety.

Smell      Vision      Touch      Taste      Sound

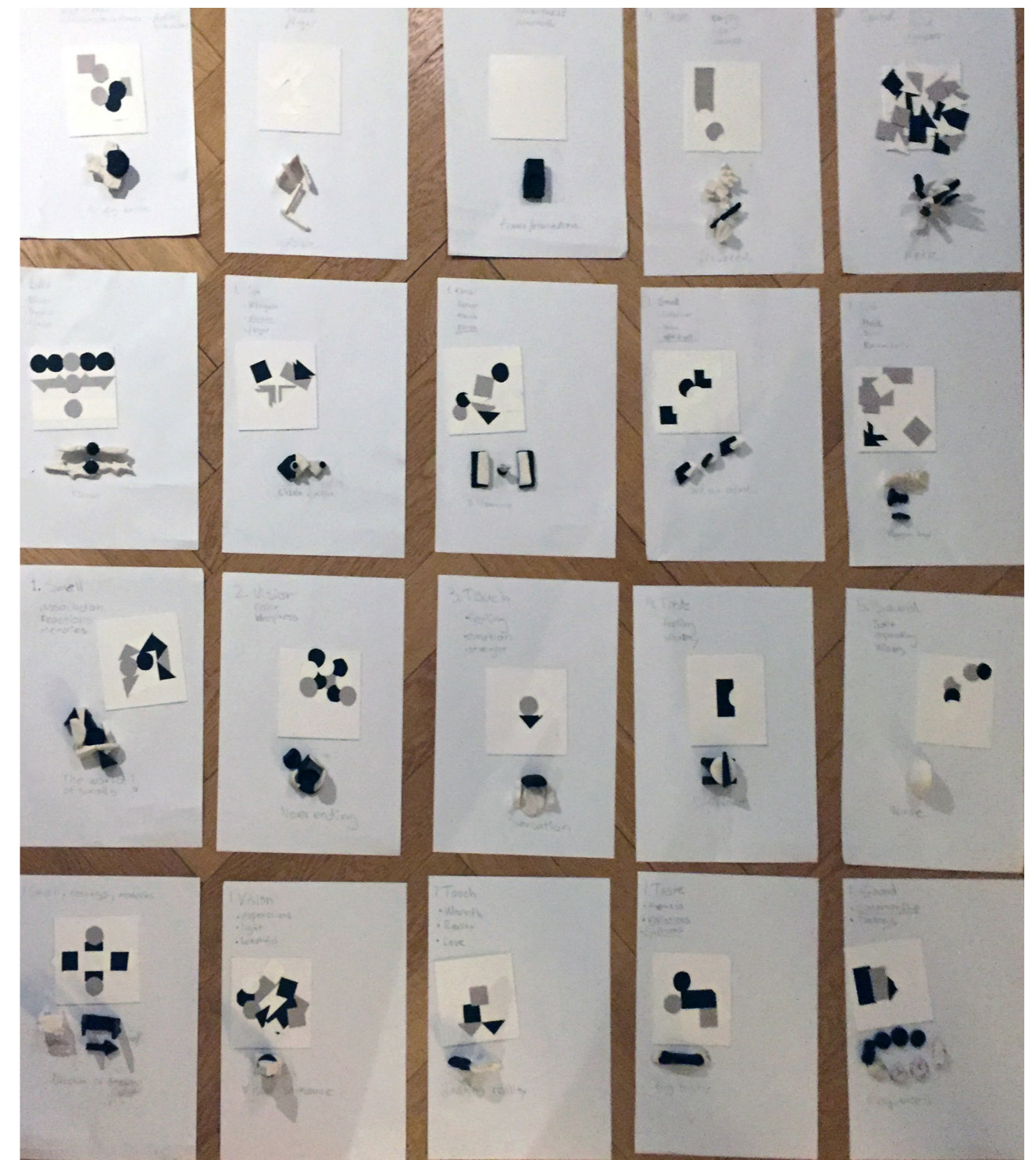


Photo from the workshop

PARTICIPANTS

- 25 Year old woman
- 26 year old man
- 28 year old man
- 54 year old woman

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