

# ENTANGLED

ROTTERDAM ZUID - MAASHAVEN - TARWEWIJK

‘architecture is frozen music’  
Johann Wolfgang von Goethe

‘music is liquid architecture’  
Edward Howard Griggs

GRADUATION REPORT JULKA VEERMAN 4460995







# CONTENT

- A** Process Documentation
  - Individual research book
  - Design Journal
- B** Final Design
- C** Final Reflection

## **DEVELOPMENT OF VISION BASED ON THEMATIC RESEARCH**

### **INTERNATIONAL AND NATIONAL**

- Rotterdam is **innovative, making** city -> Rotterdam. Make it. Happen
- Cultural and architectural capital of the Netherlands
- Important harbour industries

### **URBAN**

- Attention for public spaces, sculptures and art work are everywhere in the city to find
- The harbour districts near the centre is emptying out
- Rotterdam Makers District (RDM +M4H successful urban developments)
- Maashaven is a harbour district with potentials, such as Rotterdam Makers District
- Don't forget the current residents and character of Rotterdam-Zuid

### **PROBLEM STATEMENT**

- City development leads to gentrification
- There is a lot of visual art exhibited in Rotterdam, there are many art genres using other senses than only the visual.

How to tackle these problems?

New innovative form of art: synesthetic art, which is accessible for everyone, housed in a public building in Rotterdam Zuid, which contributes to the Nationaal Programma Rotterdam Zuid.

## GENTRIFICATION

[Def.]

*“Gentrification is a process of social, cultural and economic upgrading of a neighborhood or district, attracting wealthy new residents / users and the accompanying expulsion of the lower classes from the district.”*

Massih Hutak published an interesting book *“Jij hebt ons niet ontdekt, wij waren hier altijd al”*. He took Amsterdam-North as an example to describe the gentrification problem. In the book Massih Hutak explains gentrification as a process of upgrading neglected urban neighbourhoods, in which the current, less wealthy residents and initial small entrepreneurs and pubs, have to move out of the way for the middle class and their catering industries and companies. This process spreads like an oil slick through the capital cities to urban districts that are increasingly distant from the centre.

I recognized that this phenomenon takes place around the whole world, and is also happening in Rotterdam-Zuid.

I want to keep the current character of Tarwewijk, and her residents. However, criminality, low education, bad housing qualities are serious problems in Rotterdam-Zuid and fortunately, the “Nationaal Programma Rotterdam Zuid” (known as NPRZ), is established to tackle these problems. In a period of twenty years the city wants to achieve better education, more job opportunities and better housing conditions.

A neighborhood with little chances can be re-wired through a public building, e.g. a museum. A museum that is able to contribute to an improvement of social conditions in a neighborhood. And where current residents from the direct surroundings are stimulated and included.



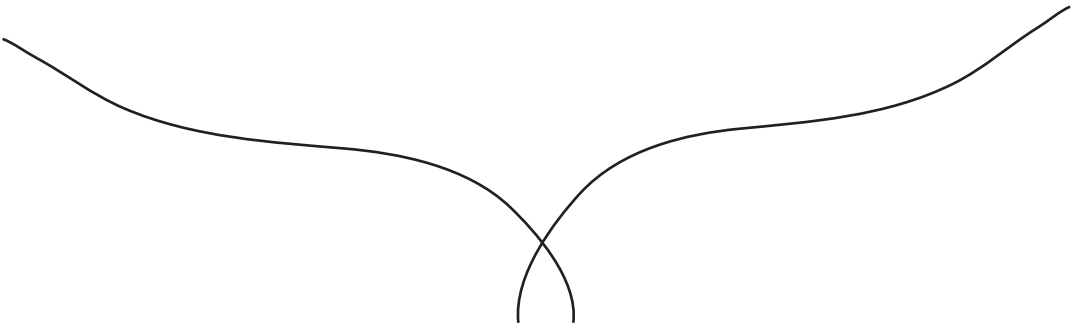
SYNESTHETIC ART

Synesthesia  
[Def.]

- 1. A condition in which one type of stimulation evokes the sensation of another, as when the hearing of a sound produces the visualisation
- 2. A sensation felt in one part of the body as a result of stimulus applied to another, as in referred pain
- 3. The description of one kind of sense impression by using words that normally describe another

Synesthetic  
[Def.]

Relating to or experiencing synesthesia; involving more than one sense; “synesthetic response to music”



ENTANGLEMENT OF SENSES  
STIMULATION OF SENSES

During a experience of synesthetic art, sounds and tectonics are assembled. In this way, visually handicapped people will be included within the cultural art scene.

I visited the “MuZIEum” in Nijmegen. A museum where I experienced how it feels to be visually handicapped. During the visit in the museum, my visual sense was taken away. An aesthetic experience without vision is totally different from an experience with the visual sense.

I mentioned how important thouching things, and sound is for visually handicapped people.

Therefor, the exhibited synesthetic art in my museum should consist of a lot of sounds and tectonics, they will lead the visitor.

SYNESTHETIC ART How to addapt on my museum?

Synesthesia  
[Def.]

- 1. A condition in which one type of stimulation evokes the sensation of another, as when the hearing of a sound produces the visualisation
- 2. A sensation felt in one part of the body as a result of stimulus applied to another, as in referred pain
- 3. The description of one kind of sense impression by using words that normally describe another

Stimulation - positive domino effect  
The condition of the new museum stimulates the solidarity of the neighbourhood. Which again stimulates progress and improvement of the neighbourhood.

The museum stimulates the residents from Tarwewijk in several ways, and the other way around. Also the residents should stimulate the museum!

Synesthetic  
[Def.]

Relating to or experiencing synesthesia; involving more than one sense; “synesthetic response to music”

During a specific experience of synesthetic art, sounds and tectonics are assembled. In this way, visually handicapped people will be included within the cultural art scene.

Entanglement of senses  
Vision, sound, smell, tectonics, taste, the senses are combined and work togheter

Residents of Tarwewijk and other Rotterdammers or new residents will be brought together

## **CONCLUSION DESIGN RESEARCH**

My aim is to re-wire Tarwewijk through a synesthetic art museum. A museum that is able to contribute to an improvement of social conditions in a neighborhood. And where current residents from the direct surroundings are stimulated and included.

The synesthetic art museum, which is a public building, has strong relationships with its context. The public building influences its direct surroundings and the people who are living in the neighborhood. A neighborhood with little chances can be re-wired through a public building, e.g. a museum. Furthermore, a public building should be accessible for everyone.

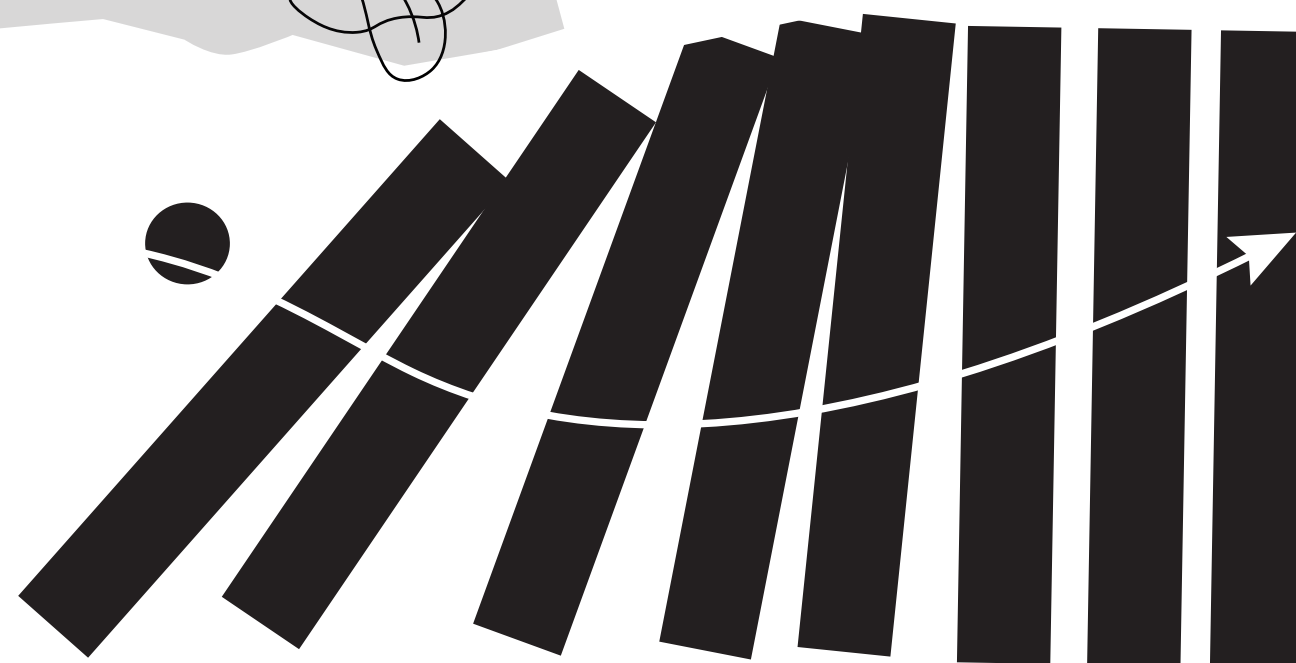
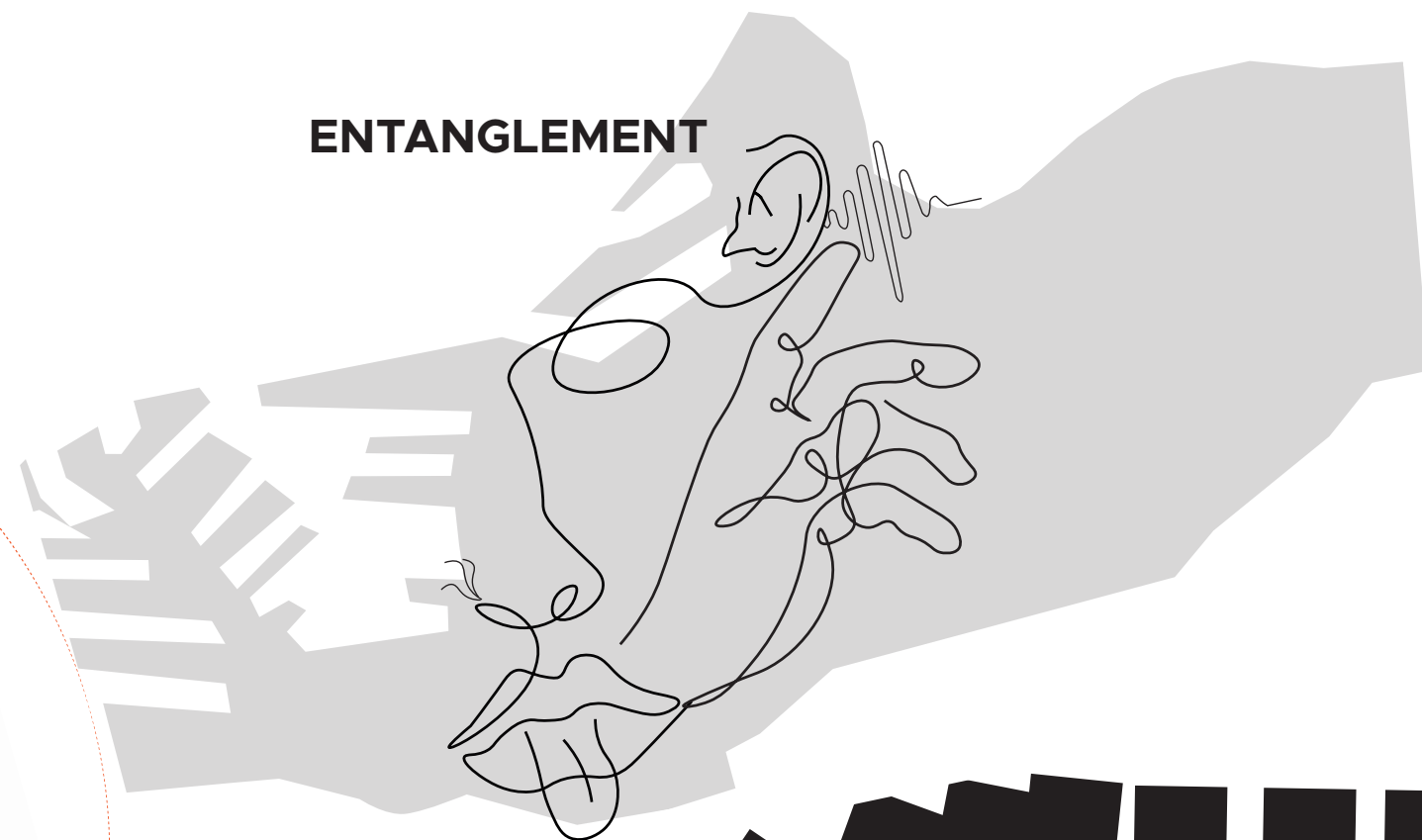
By giving the museum a specific programme of synesthetic art, which will include visually handicapped people as well, and at the same time approachable for everyone, a node of multiple scales (urban and social) will be created in my design.

My design should serve as a model which is adaptable on already existing museums. Thus my concept could be studied, improved and applied on museums through the Netherlands, and maybe through the whole world.



**INCLUSIVITY**

**ENTANGLEMENT**



**SYNESTHESIA**



## REQUIREMENTS

### Aim

A museum accessible for everyone **including** : visually handicap  
impairment of hearing  
wheelchairs

### 1 AWARENESS

### 2 REACHABILITY

### 3 ACCESSIBILITY

### 4 USABILITY

### 5 TREATMENT

## BARTIMEUS

Interview with Guus Janssen

**Bartiméus**  
Voor alle mensen die slechtziend of blind zijn

### Three main components:

Physical  
Social  
Digital

### 2 REACHABILITY

- > visitor should be **leaded by something**
- > easily reachable by public transport etc. - Navilens
- > information on the websites etc.

### 3 ACCESSIBILITY

- > visitor should be **leaded by something**
- > orientation!
  - Right angles
  - Closed Stairs
- > Elevators
- > Not too many different voices/sounds
- > Marked routing
- > Smooth lightning, contrast
- > Bootcamp route

### 4 USABILITY

- > toilets
- > garderobe

### 5 TREATMENT

- > feel welcome
- > website information

REQUIREMENTS

VISUAL HANDICAP

- > Leading route
- > - Right angles
  - Closed Stairs
- > Elevators
- > Not too many different voices/sounds
- > Marked routing
- > Smooth lightning, contrast

HEAR IMPAIRMENT

- NO** smooth walls
- NO** Hallow spaces / high and open
- NO** noisy/crowdy

- > talk out loud
- > Visual / colourful spaces
- > Demonstrate miscommunication

WHEELCHAIR

- Ramps
- Art display low
- Big spaces, for more wheelchairs



RESEMBLANCE

- > LEADING ROUTE
- > LIGHTNING
- > SOUNDPROOFING

DIFFERENCE

- > RAMPS VS STAIRS
- > TALKING OUT LOUD VS NOT TO NOISY
- > VISUALSPACES VS NON VISUAL

## SYNESTHETIC ARTISTS

Based on the “Training the senses” programme in the MARRES Museum, Maastricht. This is an overview of potential art that could be exhibited in the Synesthetic art museum, what I made for myself .

KUNSTcreate a fantasy for people

WAT IS TRAINING THE SENSES?

Kennis wordt niet alleen visueel op school verworven, via taal en lesboeken. We leren met al onze zintuigen, door middel van luisteren, proeven, ruiken en aanraken – en zelfs door onze intuïtie te gebruiken. In Training the Senses verkennen en ontdekken deelnemers een nieuw vocabulaire voor al hun zintuigen en nieuwe manieren om ervaring te delen en kennis te verwerven. Training the Senses is een doorlopende serie van Marres, waarbij een indeling tussen de sprekers/performance en het publiek wordt vermeden. Iedereen is welkom om mee te doen.

Het Training the Senses programma van Marres wordt financieel ondersteund door de Overvoorde Gordon Stichting – Pauwhof Fonds.

1. Building Music

Espen Sommer Eiden, Marie Kvien brunvoll, Martin Taxt

Geïnspireerd door de roman The Waves van Virginia Woolf, maakt de Noorse componist Espen Sommer Eide een gelijknamig ruimtelijk muziekalbum voor Marres dat zowel in het huis zal ‘leven’ tijdens de tentoonstelling, als op vinyl verkrijgbaar is. In het voorafgaande jaar aan de opening van The Waves, tussen de lopende tentoonstellingen door, zijn in de verschillende ruimtes van het huis van Marres nachtelijke optredens opgenomen in samenwerking met de stem Mari Kvien Brunvoll en Martin Taxt op microtonale tuba. Eide componeert met deze opnames een serie werken die elkaar opvolgen in de ruimte en zowel apart als gezamenlijk te beluisteren zijn. In deze Training The Senses sessie nemen Sommer Eide, Kvien Brunvoll en Taxt je mee door het gehele totstandkoming van de tentoonstelling.

ESPEN SOMMER EIDE, MARIE KVIEN BRUNVOLL & MARTIN TAXT

Espen Sommer Eide (1972) is een componist en kunstenaar uit Bergen, Noorwegen. Hij gebruikt muziek en geluid als methode en medium: zijn artistieke werk verbindt zich met specifieke landschappen, archieven, talen en ritmes, met lokale en belichaamde kennis. Naast het maken van installaties en performances, is Sommer Eide een prominent figuur in de experimentele, elektronische muziek in Noorwegen. Met zijn groep Alog en onder pseudoniem Phonophani, lanceerde hij een reeks albums bij de labels Rune Grammofon, FatCat en Hubro.

2. Beyond taste – Katja Gruijters & ArtEz Product Design arnhem

Kunnen we de grenzen van de smaak overschrijden?

In deze sessie verkennen we via een reeks vragen de associaties en grenzen van onze zintuigelijke wereld. Hoe slaan we zintuigelijke indrukken op in ons geheugen? Wat betekent zoiets als een zintuigelijke overdaad? Prikkel en seks en eten ons op dezelfde manier?

Onder supervisie van food designer Katja Gruijters, behandelen studenten van ArtEZ Product Design Arnhem deze vragen in een verrassende hands-on avond vol zintuigelijke ervaringen.

OVER KATJA GRUIJTERS

Na haar studie aan de Design Academy Eindhoven besloot Katja Gruijters zich te specialiseren in food and drink design. Sinds 2001 werkt ze in haar eigen studio in Amsterdam, waar ze experimenten, concepten en producten op het gebied van voeding ontwerpt. Katja maakt gebruik van langetermijntrends die voortkomen uit menselijke verlangens. Ze ontwikkelde projecten voor bedrijven in Nederland en daarbuiten – Iglo Mora, Albron PP, RBV Leaf, Heinz, Seafood Partners, Sara Lee DE, Riedel Drinks, De Bijenkorf, Sorbo, Unipro en Servex. Katja Gruijters ontwikkelde een nieuw lesprogramma, Food Design and Innovation, aan HAS Hogeschool, Den Bosch. Daarnaast schrijft zij een maandelijkse column over haar visie op food design in Food Magazine, een vaktijdschrift voor de Nederlandse voedingsindustrie.

3. Authentic movement

Vertrouw jij jouw lichaam?

Weet je waar in jouw lichaam jij verschillende emoties opstaat?

Wat vertelt jouw zenuwstelsel je?

Sta jij het jouw lichaam toe jouw dagelijkse gedachten en trauma’s uit het verleden te verwerken?

Wat communiceert jouw lichaam met je, dat jouw geest niet wil horen?

In deze workshop richt Alexis Blake zich erop onze lichamen naar een staat van zijn te begeleiden waarin zich vrijelijk kunnen bewegen en eerlijk kunnen reageren, zonder filters. Daardoor kunnen we emoties traceren die in het lichaam opgeslagen zijn, en beginnen ruimte te creëren voor expressie en reflectie. De workshop is onderdeel van het grootschalige project Anthology of Anger van de kunstenaar. In dit project verkent zij hoe cultuur, geschiedenis en DNA invloed uitoefenen op onze uiting of onderdrukking van emoties, tegenover de authentieke beweging van deze emoties in het lichaam.

ALEXIS BLAKE

Alexis Blake heeft een multidisciplinaire praktijk waarin beeldende kunst, beweging en performance worden gecombineerd. Ze verkent de manier waarop het lichaam wordt gerepresenteerd en als een archief wordt behandeld, een perspectief dat zij vervolgens kritisch onderzoekt, doorbreekt en herziet. Haar werk verhoudt zich direct tot de representatie en subjectificering van het vrouwelijk lichaam, dat ze tegelijkertijd activeert als een locatie en een middel voor sociaal-maatschappelijke verandering. In dit proces brengt zij ruimtes aan waarin systemen van representatie en macht kunnen worden blootgelegd en vermeden.

Blake behaalde een MA in Fine Art aan het Piet Zwart Institute, Rotterdam (2007) en was artist-in-residence bij de Delfina Foundation, Londen (2016) en de Jan van Eyck Academie, Maastricht (2014–15). Haar werk is gepresenteerd op locaties als de Riga Biennial 2018, BOZAR (Brussel), Performatik19 (Brussel), Rijksmuseum (Amsterdam), British Museum, Block Universe Performance Festival (Londen), ExtraCity (Antwerpen) en La Triennale di Milano XXI (Milaan).

## SYNESTHETIC ARTISTS

4. Sounds of homes & Cities

Elise 't Hart, Soundtackity, Annelies Jacobs, Marc Alberto

Geluiden van huizen en steden

Welke geluiden bepalen ons dagelijks bestaan?

We registreren ons dagelijks bestaan voornamelijk visueel. Toch is onze oriëntatie net zo afhankelijk van geluid. We luisteren aandachtig naar geluiden van auto’s, fietsen, bussen en metro’s als we door de stad navigeren, en we luisteren misschien nog subtieler naar het geluid van koffiepotten, wasmachines en bewegende stoelen als we thuis zijn. Deze geluiden zijn ons zo bekend, dat ze ons bewustzijn niet bereiken. Maar als ze wegvallen, missen we iets. In deze sessie verkent Marres de geluiden van het alledaagse leven met kunstenaressen Elise 't Hart, onderzoeker Annelies Jacobs, collectief Soundtrackcity en muzikant Marc Alberto.

ELISE ‘T HART, SOUNDTRACKCITY, ANNELIES JACOBS & MARC ALBERTO

Elise 't Hart is geluidskunstenaar die muziek, geluid en beeldende kunst met elkaar combineert. In 2013 richtte ze het Instituut voor Huisgeluid op, een groeiende verzameling van geluiden die ze registreert, manipuleert, imiteert, omschrijft en verbeeldt: een krakende vloer, een zoemende koelkast, een tikkende verwarming, het kletterende douchewater, de blazende afzuigkap, tsjilpende vogels, of een rinkelende deurbel. 't Hart verbeeldt geluid ook in film, foto's, installaties en notities. Liefhebbers van haar huisgeluiden kunnen wekelijks een geluidsabonnement afnemen.

Annelies Jacobs is opgeleid als architect, softwareontwerper en sociaal wetenschapper en is geïnteresseerd in de relatie tussen (gebouwde) omgeving, technologie, sociale praktijken en culturele overtuigingen. Haar onderzoek richt zich op de relatie tussen stedelijk geluid, de toe-eigening van de openbare ruimte en de perceptie van het stadsleven en bouwt voort op stedelijke- en milieugeschiedenis en sound studies. Jacobs' onderzoeksresultaten zijn verwerkt in een interactieve geluidsinstallatie in het Amsterdam Museum. Soundtrackcity is de naam waaronder Renate Zentschnig en Michiel Huijsman sinds 2009 geluidskunst maken, produceren en verspreiden. De projecten van Soundtrackcity zijn een gezamenlijke verkenning van de publieke klankruimte, met als uitgangspunt dat deelnemers door middel van luisteren een verbintenis aangaan met de stad. Soundtrackcity werkt samen met lokale (burger-)initiatieven en maatschappelijke instellingen, om zo de kloof tussen kunst en wetenschap te dichten. Urban Sound Lab, Sonic West en Crowdsourcing Mr. Visserplein zijn drie voorbeelden van Soundtrackcity projecten.

Marc Alberto is in variërende volgorde componist, saxofonist, en geluidskunstenaar. Uit een kenmerkende combinatie van traditie in media en techniek met experimentele technieken en processen wordt zijn fascinatie met klankkleur en textuur zeer duidelijk.

5. Sounding Bodies

Aart Strootman, Genevieve Murphy

We zijn gewend om muziek te definiëren als een gezamenlijk product van lichaam en instrument. Terwijl wij ons lichaam trainen om te spelen en luisteren, traint ons lichaam het instrument om geluid te produceren. Het idee van meesterschap in de muziek komt voort uit het naadloos aansluiten van instrument op lichaam. We bespreken de voorwaarden van zo'n naadloze aansluiting of hoe deze kan worden bereikt, ampere, waardoor we op zoek moeten naar de gebreken en uitzonderingen van deze ervaring.

Wat als het lichaam niet goed genoeg functioneert om het instrument te kunnen trainen, een instrument specifieke aandacht vereist of als diverse manieren van het instrument bespelen effect hebben op de uitkomst? Wat als we het lichaam als instrument zien, het stemmen en samenvoegen met andere lichamen? Deze vragen staan centraal in de eerste Training the Senses Fall Session, Sounding Bodies, met Aart Strootman en Genevieve Murphy.

GENEVIEVE MURPHY & AART STROOTMAN

Genevieve Murphy (1988, Schotland) combineert visuele performance met hedendaagse klassieke muziek, haar concepten vaak gebaseerd op psychologie en invaliditeit. Na haar studie in de richting piano en compositie aan het Royal Conservatoire of Glasgow, Royal Birmingham Conservatoire en het Koninklijk Conservatorium Den Haag, werkte ze onder andere samen met vrije improvisatoren en choreografen, en toerde ze internationaal met beeldend kunstenaar Martin Creed uit Londen. Murphywerd in 2018 lid van Standplaats Utrecht, een interdisciplinair performance platform dat wordt ondersteund door verschillende organisaties en bedrijven waaronder Utrecht SPRING Festival and Het Huis Utrecht. Op 7 september 2019 ging de compositie They Move Differently Here in première op de Gaudeamus Muziekweek in Utrecht.

Gitarist en componist Aart Strootman (1987) is een pionier op het podium van hedendaagse muziek. Hij studeerde klassieke gitaar, muziektheorie en muziekwetenschappen, en is momenteel promovendus aan de Universiteit van Leiden via het DocArtes programma. Hij onderzoekt de fysieke modificaties van instrumenten om zo nieuwe geluiden te ontdekken, startende vanuit de basisakoestiek. Aart is momenteel docent muziekgeschiedenis, (gevoerde) gehooroefening, analyse, filosofie, en performance studies aan Fontys Hogeschool voor de Kunsten in Tilburg. Na het winnen van de Gaudeamus Award in 2017, schreef hij W.A.L.L., waarvoor hij zelf op maat maakte instrumenten ontwikkelde. De première van W.A.L.L. zal op 4 september plaatsvinden. Op zaterdag 7 september 2019 ontving Aart de prestigieuze Matthijs Vermeulen Prijs tijdens de Gaudeamus Muziek Week in Utrecht voor zijn werk Shambling Emerge – after after party.

6. Smell Dating

Klara Ravt, Anna d'Errico

We zijn ons er niet altijd van bewust, maar de rol van onze reukorganen is cruciaal bij het maken van grote beslissingen. Geur vertelt ons welk eten goed of slecht is en waarschuwt ons voor giftige gassen, maar het helpt ons ook bij het kiezen van onze geliefdes. In deze Training The Senses sessie Smell Dating, onderzoeken we lichaamsgeuren. Na een intensieve aerobische oefening worden deze in glazen potjes verzameld, genummerd en doorgegeven om zo iedereen de kans te geven zijn of haar ideale match te vinden. Wat er na deze Training The Senses sessie gebeurt, ligt helemaal bij jou...

Ondertussen converseren de deelnemers met geurkunstenaar Klara Ravat en neurologe Anna D'Errico over de aantrekkingskracht van lichaamsgeuren en de relatie tussen ons brein, onze neus en ons hormonale systeem.



HEARING

CLOSED SPACE

Does the space needs to be closed off?  
Yes, rather (sounds should not escape)

TIME

Does the the artwork have a certain duration?  
Yes with music it is possible

PROPORTION SPACE

Does the room have to be narrow, high, low or something like that?  
Yes :  
The spaces must have a certain height, it must be possible for the artist to make the space lower.

Right angles are a must, it is important for the orientation of visually impaired or blind people.

Stairs are also needed.

MATERIALS

Should the space be provided with or avoid certain materials?  
Yes :  
For the hearing impaired, it is important not to use too many hard materials in order to resonate / bounce less in this way.  
But for some artists who work with sounds, it must be able to echo. Concrete must be covered with wood veneer, which allows vibrations to pass through a space - necessary for blind people to navigate their environment. These practices form the basis for the design of Gallaudet's campus extension, which is expected to be groundbreaking in 2019.

HEIGHT DIFFERENCES

Should there be height difference for the particular sense?  
No

MOVE OR STAY

Does the visitor have to move in order to experience / experience the work of art?  
No

LIGHT OR DARK

Does the room have to conform to light or dark in order to better experience a certain sense?  
No

INSIDE OR OUTSIDE

Does the space necessarily have to be inside for the sensation to be experienced?  
No

QUIET OR CROWDY

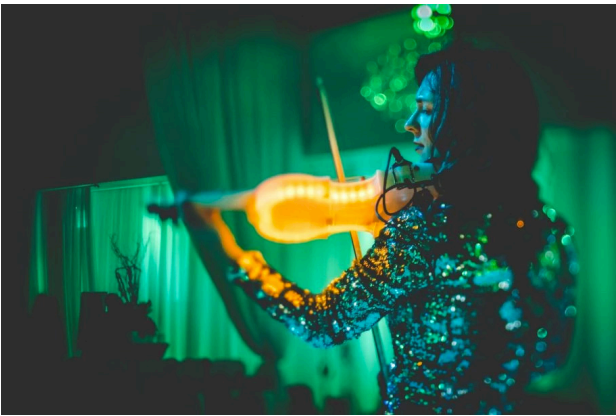
Does the visitor have to experience the art alone or with a few people at the same time, or does it have to be busy?  
Yes not too much people and too much different sounds

ARTISTS & EXHIBITIONS

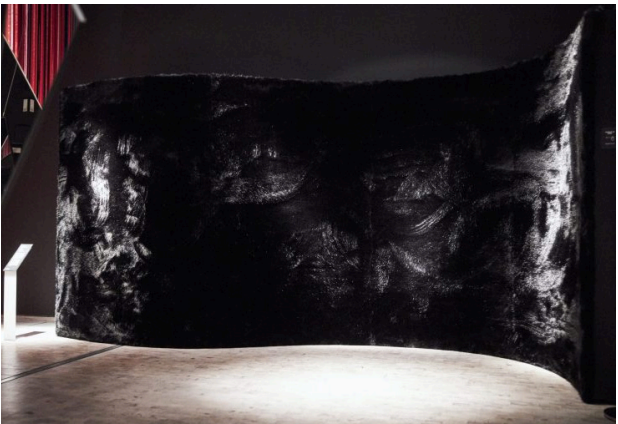
Olga Benedicte - ASMR



Kaitlyn Hova



Filip Studios



Omer Polak



Espen Sommer



VISION

CLOSED SPACE

Does the space needs to be closed off?

No

TIME

Does the the artwork have a certain duration?

Not really, only video

PROPORTION SPACE

Does the room have to be narrow, high, low or something like that?

Yes interessante verhoudingen, dus heel smal en hoog, laag en breed. Ruimtes zoals lokalen moeten in een U-vorm proberen te worden ontworpen, zodat iedereen elkaar goed kan zien.

Important for people with a hear impairment!

MATERIALS

Should the space be provided with or avoid certain materials?

Colours, visually interesting materials

HEIGHT DIFFERENCES

Should there be height difference for the particular sense?

Yes, orientation

MOVE OR STAY

Does the visitor have to move in order to experience / experience the work of art?

Both

LIGHT OR DARK

Does the room have to conform to light or dark in order to better experience a certain sense?

Light

INSIDE OR OUTSIDE

Does the space necessarily have to be inside for the sensation to be experienced?

Both

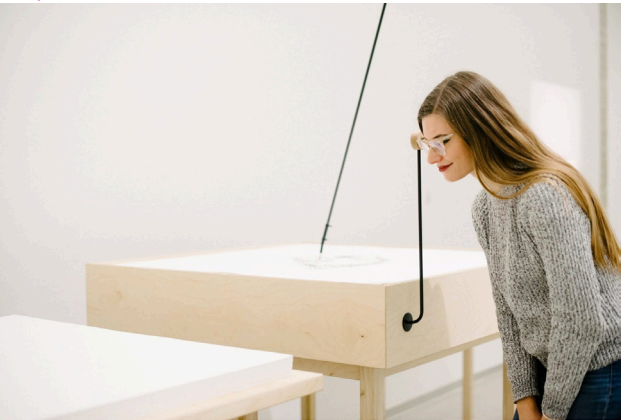
QUIET OR CROWDY

Does the visitor have to experience the art alone or with a few people at the same time, or does it have to be busy?

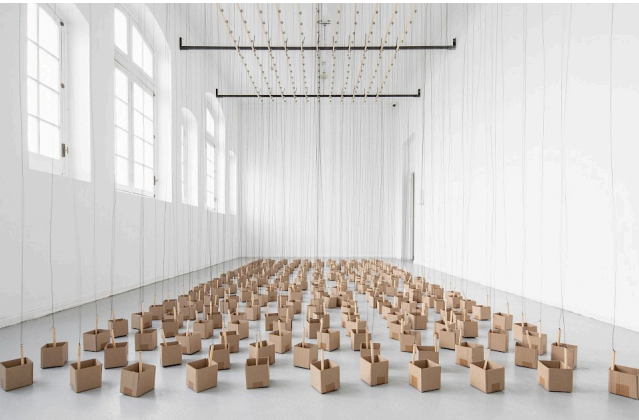
Does not matter

ARTISTS & EXHIBITIONS

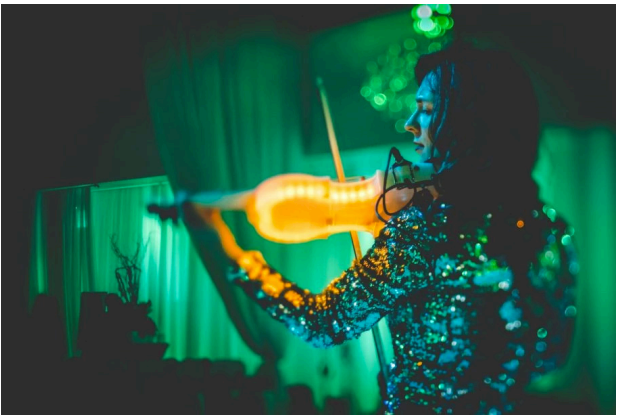
Filip studios - vocode



Studio Zimoun



Kaitlyn Hova



Anne Peterson



Margerethe Odgaard



SMELL

CLOSED SPACE

Does the space needs to be closed off?

smells shouldn't escape

TIME

Does the the artwork have a certain duration?

No

PROPORTION SPACE

Does the room have to be narrow, high, low or something like that?

No

MATERIALS

Should the space be provided with or avoid certain materials?

No

HEIGHT DIFFERENCES

Should there be height difference for the particular sense?

No

MOVE OR STAY

Does the visitor have to move in order to experience / experience the work of art?

Both:

Stay, be with your feelings for a while, possibility to think

Move, from smell to smell

LIGHT OR DARK

Does the room have to conform to light or dark in order to better experience a certain sense?

No

INSIDE OR OUTSIDE

Does the space necessarily have to be inside for the sensation to be experienced?

Inside

But also possibility to smell that you are outside

QUIET OR CROWDY

Does the visitor have to experience the art alone or with a few people at the same time, or does it have to be busy?

Yes not too much people and too much different smells

ARTISTS & EXHIBITIONS

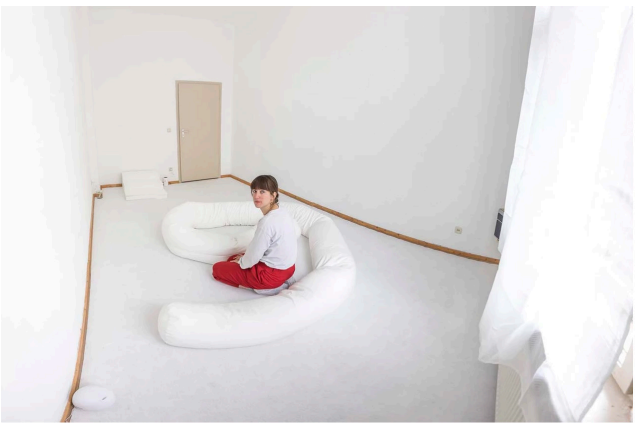
Sissel Tolhaas



Peter de Cupure



Klara Ravat



Omer Polak





TOUCH

CLOSED SPACE

Does the space needs to be closed off?

NO

TIME

Does the the artwork have a certain duration?

Yes, in combination with music

How long does it take to touch and feel the whole artwork?

PROPORTION SPACE

Does the room have to be narrow, high, low or something like that?

Yes : narrow and low, to feel the whole space, for example when you spread youre arms?

Orientation!

MATERIALS

Should the space be provided with or avoid certain materials?

Yes : for the orientation it is very important! Soft and hard materials.

For emotion and imagination in combination with for example, smell, sound or taste.

HEIGHT DIFFERENCES

Should there be height difference for the particular sense?

Yes, orientation! Where am I? Upstairs!

MOVE OR STAY

Does the visitor have to move in order to experience / experience the work of art?

Move with your arms and whole body

LIGHT OR DARK

Does the room have to conform to light or dark in order to better experience a certain sense?

Both, dark makes it more intense.

INSIDE OR OUTSIDE

Does the space necessarily have to be inside for the sensation to be experienced?

Both, feel the difference between outside and inside!

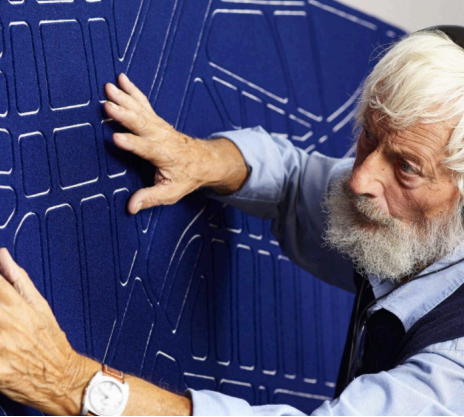
QUIET OR CROWDY

Does the visitor have to experience the art alone or with a few people at the same time, or does it have to be busy?

-

ARTISTS & EXHIBITIONS

Filip Studios



DS+R Blur Building



Martyna Barbara Golik



## EXHIBITION SPACES PRINCIPLES

The artworks all have a separate space, as they will often be installations.  
The artist will therefore be assigned a space in which the art will be exhibited.

### TRADITIONAL MUSEUM:

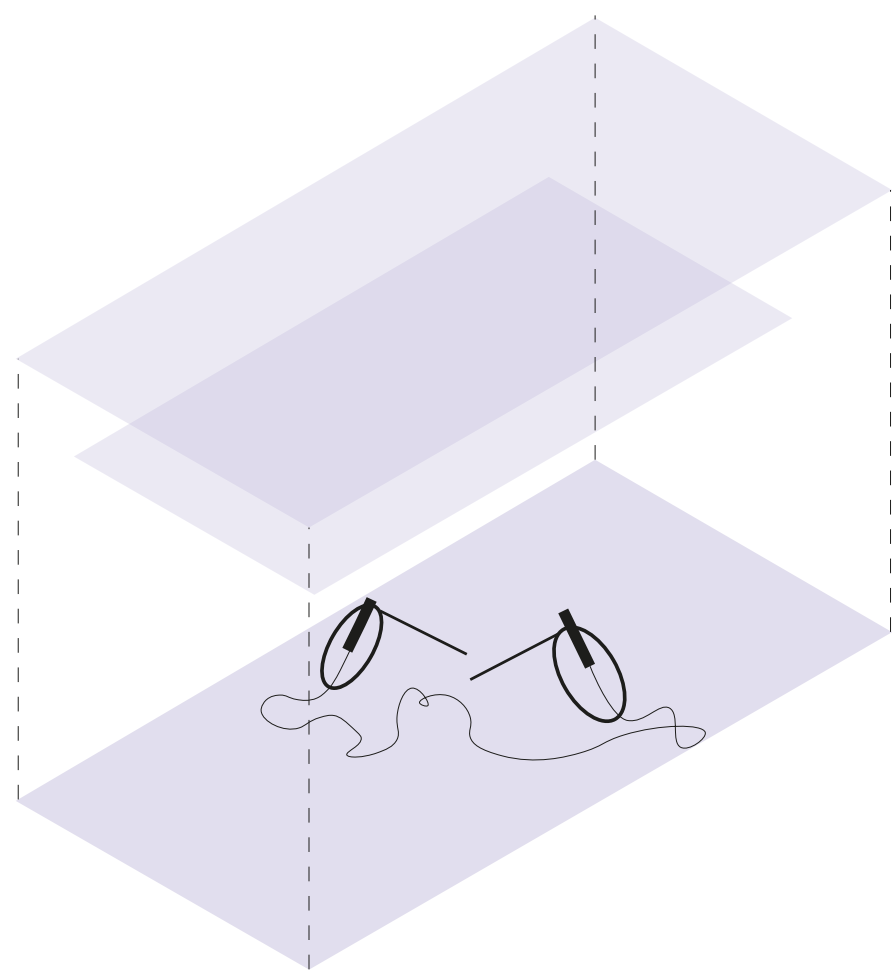


### SYNESTHETIC MUSEUM - TOUCH:

- staan in de vrije ruimte.
- van kunstwerk naar kunstwerk
- aan één schakelin.

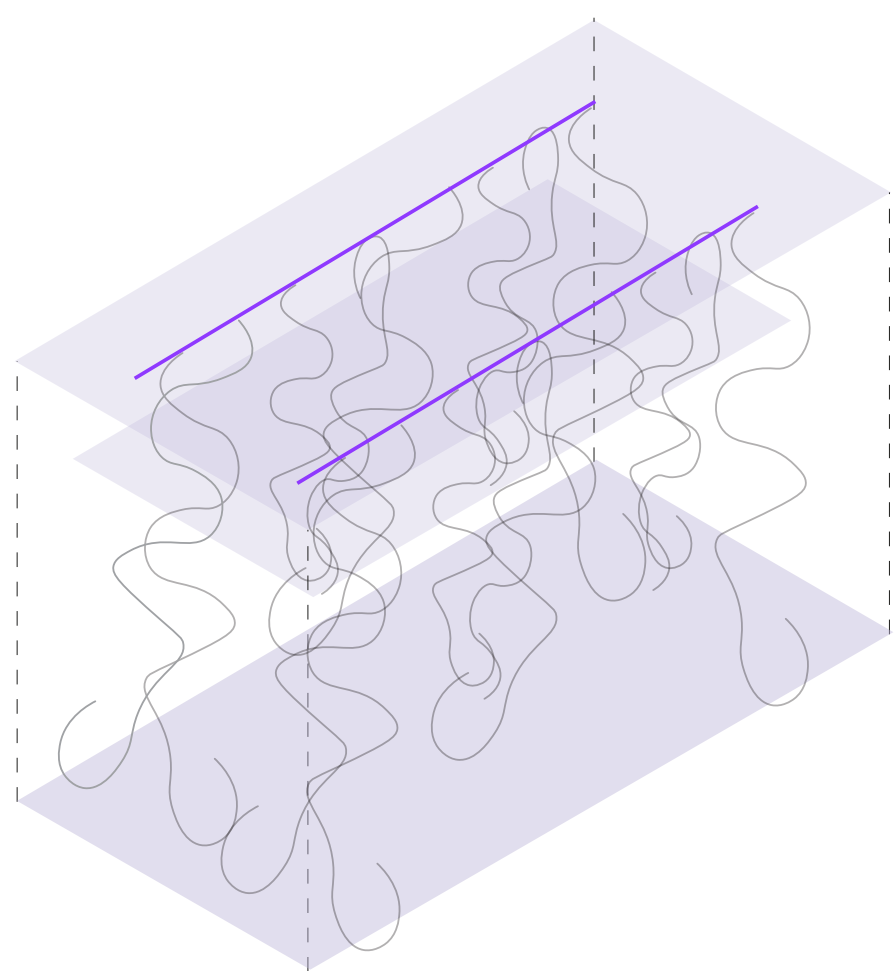


DISPLAY OF ART



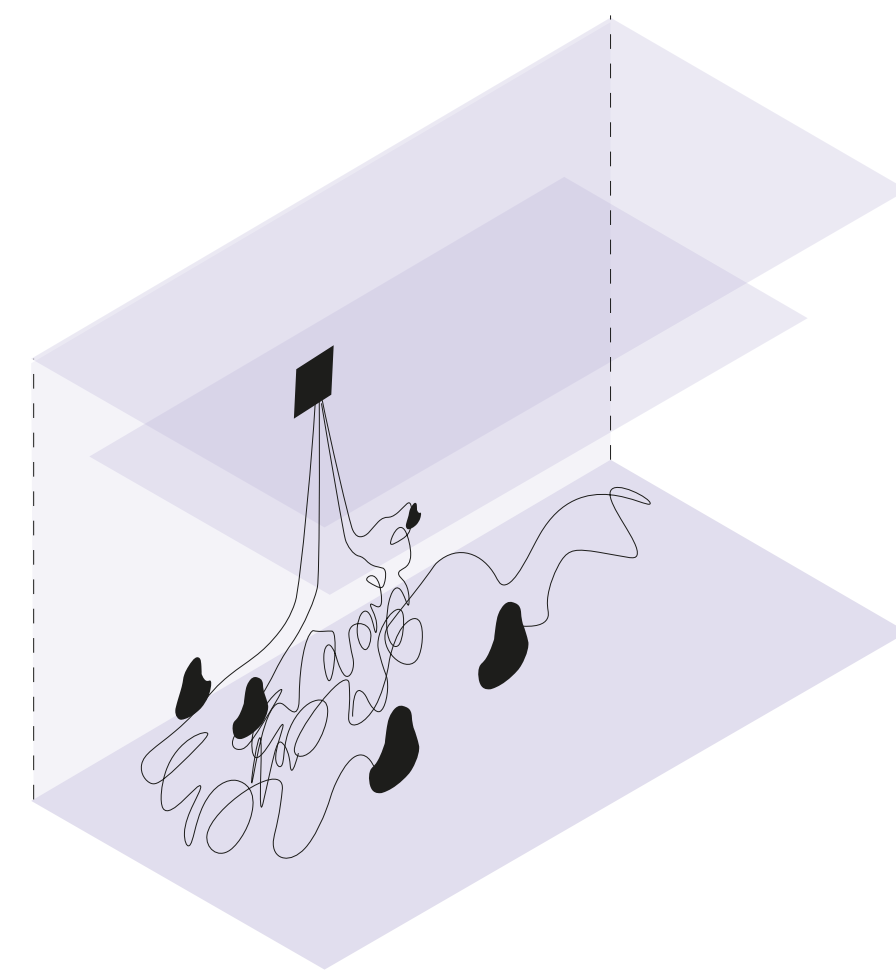
Method of display

**Medium** Installations  
**Description** Adapted to exhibition space  
Directly on the ground



Method of display

**Medium** Installations  
**Description** Adapted to exhibition space  
Hanging on rails



Method of display

**Medium** Installations  
**Description** Adapted to exhibition space  
Directly on the ground and wall



synesthetic art experience  
the entanglement of senses



synesthetic art experience  
the entanglement of senses









URBAN CONCEPTS

MAINTAIN

- > Harbour character
- > Introduce waterfront to Tarweijk
- > Quacker Oats Complex re-use (sustainable)
- > Buidling height max. 20 m

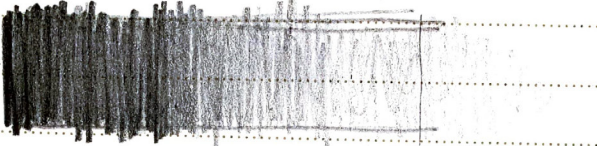
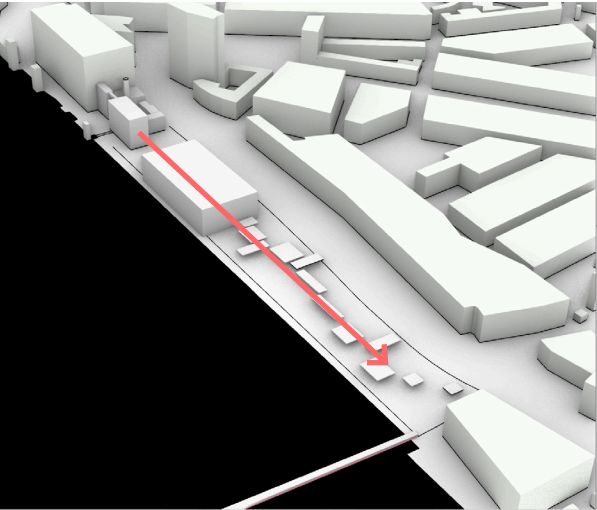
FRAGMENTATION

- > From closed to open, from dark to light
- > Include the Tarweijk - Katendrecht connection
- > Entangle with the context

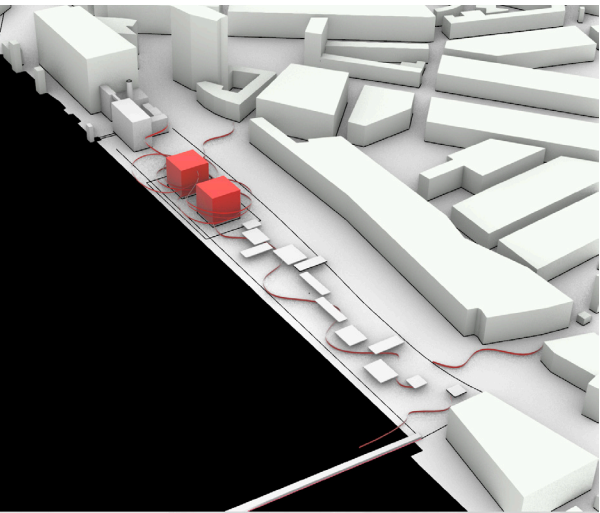
PREVENT GENTRIFICATION

Developped harbour district nearby living area, Tarweijk.

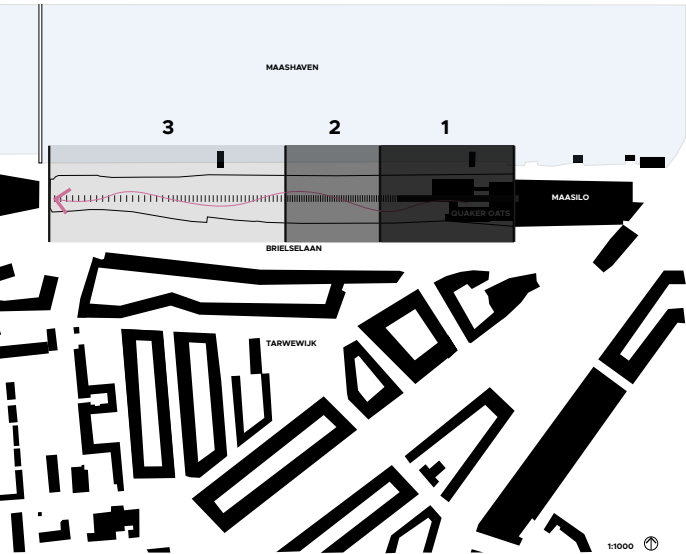
FRAGMENTATION



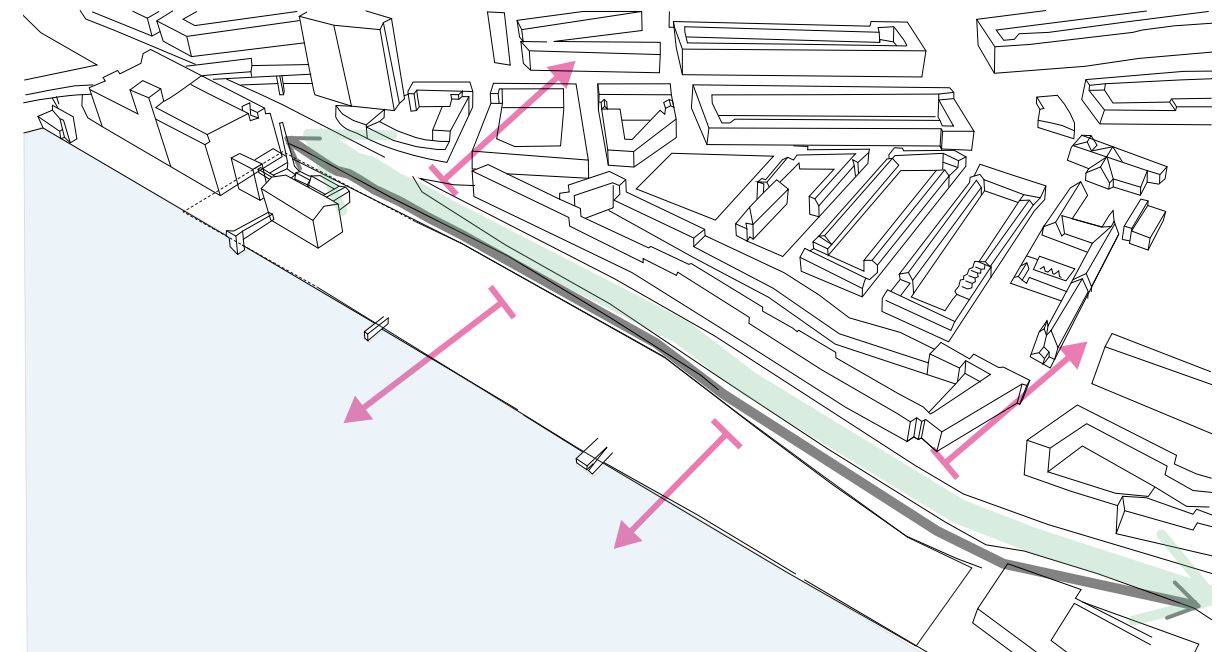
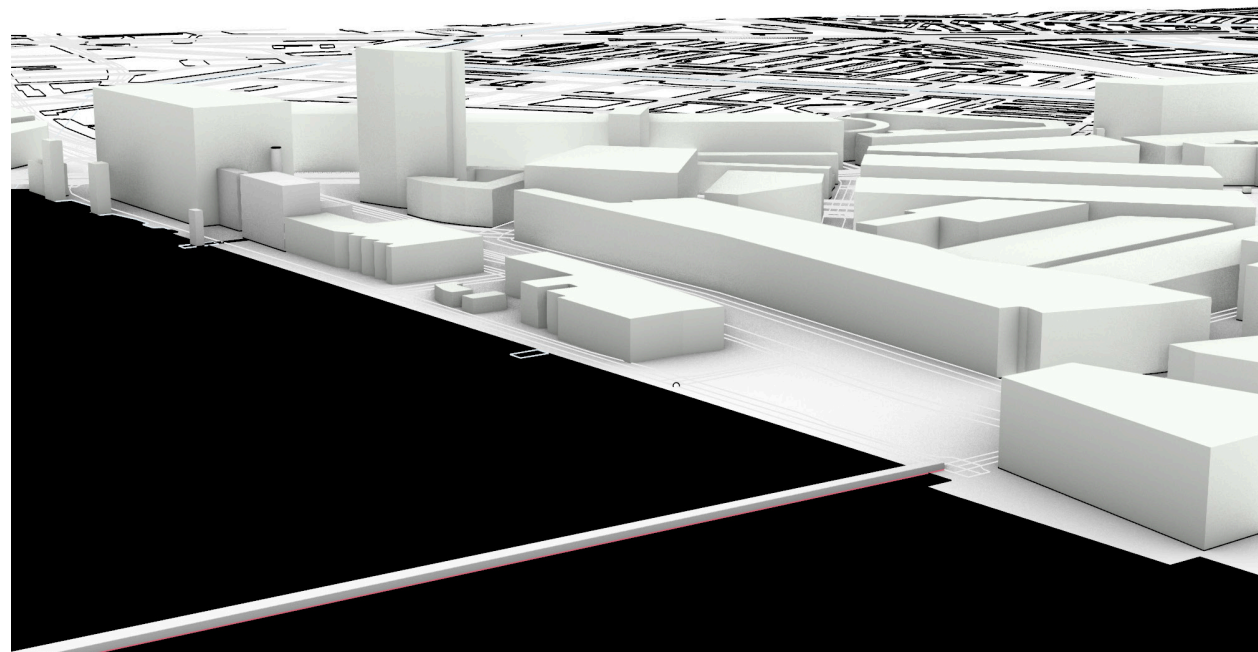
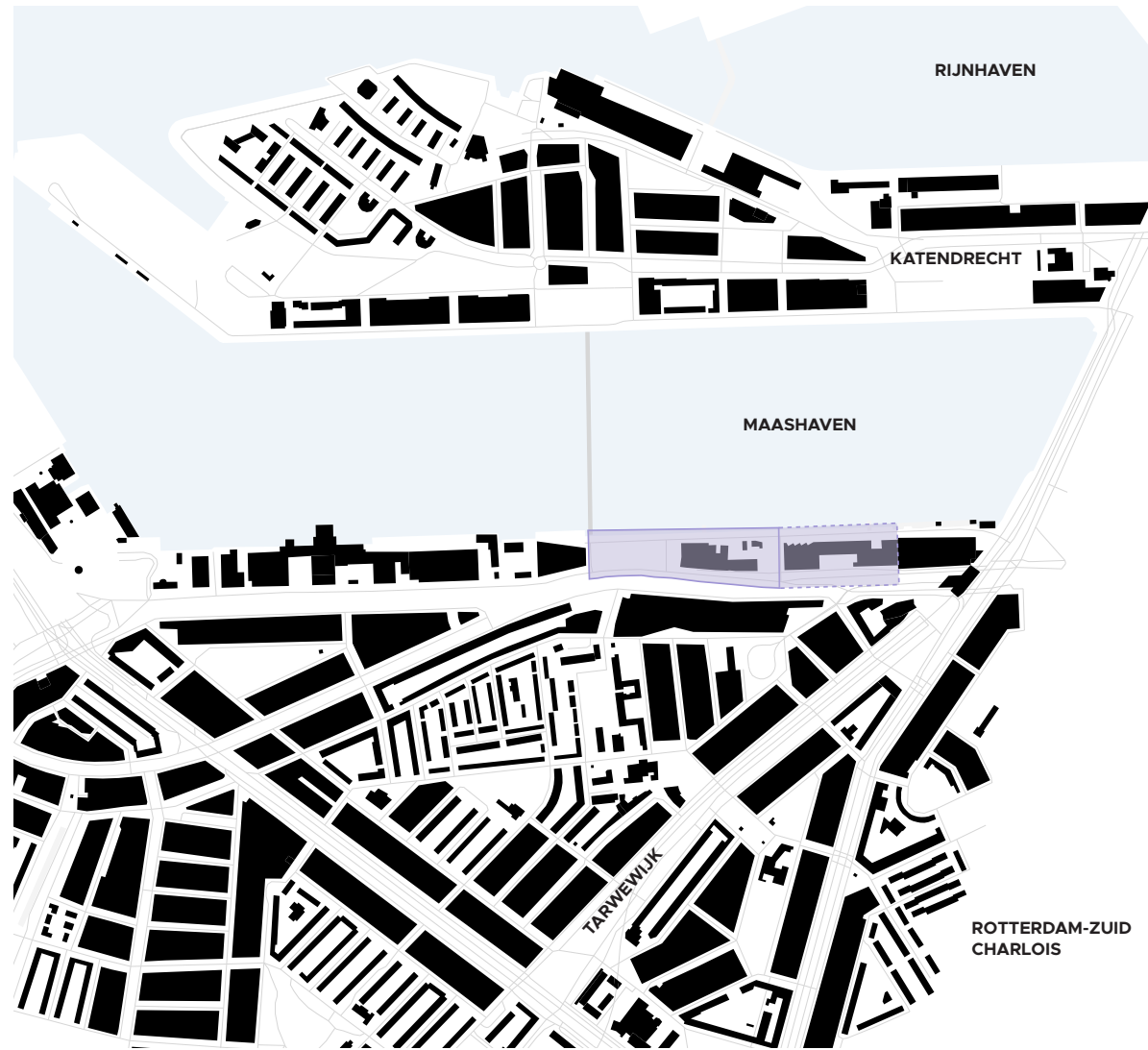
ENTANGLEMENT

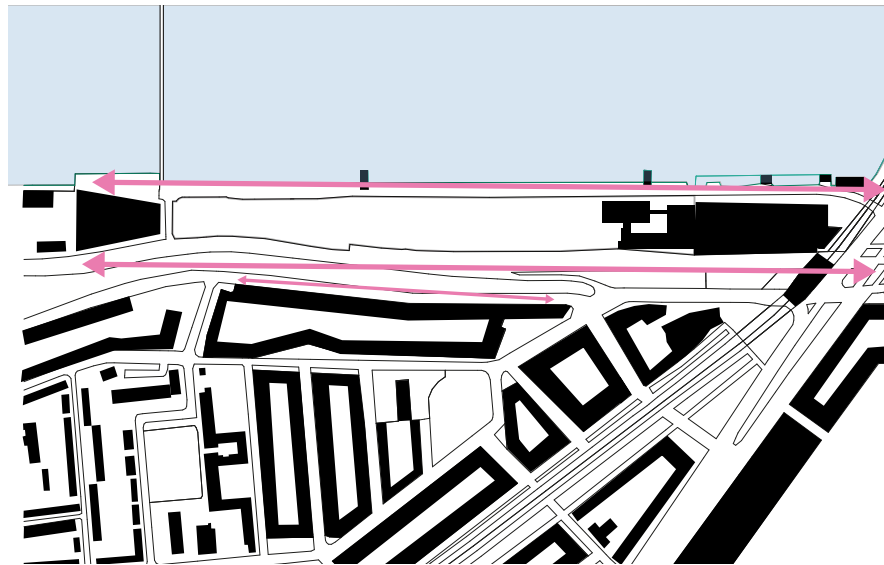


Route entangles the new museum building and the site

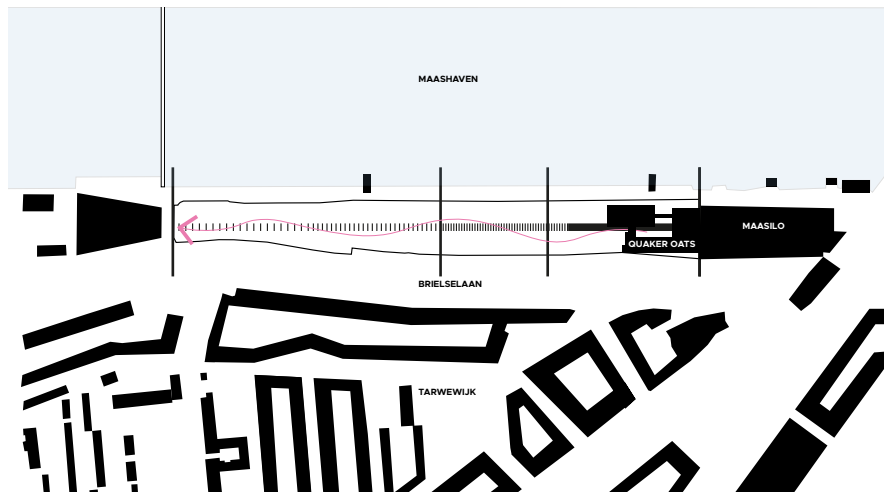


## URBAN SITUATION



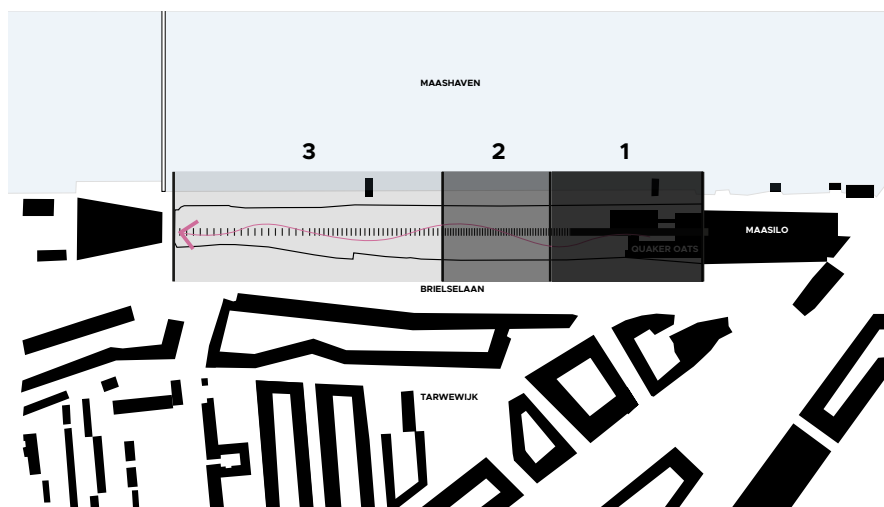


Too straight and longitudinal,  
cut the site!



Try to create more openings  
to the Maashaven, and intro-  
duce the harbour to Tarwe-  
wijk.

A less strict and closed site  
entangles into Tarwewijk and  
Katendrecht



Division into three parts  
From closed, dark buildings  
to an open and light public  
space



Because of demolishing a few buildings in the  
middle of the site, a new division is possible.

The first part consist of a part of the existing  
Quaker Oats Complex. The second one will fa-  
cilitate a new museum building, the third area  
willbe ddesigned as a public open space.

More subtile connections between the Maas-  
haven and Tarwewijk are possible because of  
more openings.

By placing the new museum building in the  
middle and filling the areas differently, the  
strict main directions will be less strict and  
dominant.

Although the dike and the Brielslaan are broad  
and heavy traffic, the harbour character will  
entangle slowly into the neighborhood by the  
views.

## **MUSEUM CONCEPTS** INTERNATIONAL/SOCIAL

### **AIM**

NO GENTRIFICATION  
MORE SYNESTHETIC ART MUSEUMS

### **INCLUDE**

- > The residents of Tarwewijk (work, programs, public space)
- > Visually handicapped people to the art scene

### **ENTANGLE**

- > Residents of Rotterdam-Zuid and Tarwewijk with new residents
- > Vision, sounds, smells, tectonics, tastes, all senses through the museum experience

## **URBAN CONCEPTS** ROTTERDAM-ZUID/TARWEWIJK

### **MAINTAIN**

- > Harbour character
- > Introduce waterfront to Tarweijk
- > Quacker Oats Complex re-use (sustainable)
- > Buidling height max. 20 m

### **SEQUENCE**

- > The huge straight site
- > Grid
- > Division in three

### **FRAGMENTATION**

- > From closed to open, from dark to light
- > Include the Tarwewijk - Katendrecht connection
- > Entangle with the context

## **BUILDING CONCEPTS** ARCHITECTURE

### **ENTANGLE**

- > Exhibition and circulation space

### **ROUTING LEADS VISITOR**

- > Different routes in the museum
- > Through the exhibitions

### **RAMPS**

- > Include visually handicapped people

### **DARK TO LIGHT**

- > Old Quacker Oats complex
- > New Museum
- > Sound Pavilions in Park

BRIEF

GUGGENHEIM MUSEUM HELSINKI

ASSIGNED AREAS

	Netto Square Meters		Netto Area	Gross Area
Exhibition	3.920	qm	56%	32%
Programs and events	565	qm	8%	5%
Multi-purpose Zone	300	qm	4%	2%
Visitor Services	190	qm	3%	2%
Retail	300	qm	4%	2%
Dining	700	qm	10%	6%
Offices	500	qm	7%	4%
Collections Storage and Management	350	qm	5%	3%
Maintenance and Operations	230	qm	3%	2%

Total Assigned Areas                      7.055    qm                      100%                      58%

UNASSIGNED AREAS

assumes generous  
social/circulation spaces                      5.045    qm                      42%

TOTAL BUILDING AREA

museum netto + unassigned                      12.100 Gross Square Meters                      100%

SYNESTHETIC ART MUSEUM ROTTERDAM-ZUID

ASSIGNED AREAS

	Netto Square Meters		Netto Area	Gross Area
Exhibition	3.000	qm	15%	12%
Multifunctional Hall (concerts&auditorium)	500	qm	2%	2%
Public Sound park	11.500	qm	57%	45%
Outside podium	500	qm	2%	2%
Visitor Services	290	qm	1%	1%
Retail	300	qm	1%	1%
Cafe	300	qm	1%	1%
Ateliers (sound&tectonics)	500	qm	2%	2%
Education rooms (music)	300	qm	1%	1%
Offices	400	qm	2%	2%
Collections Storage and Management	200	qm	1%	1%
Maintenance and Operations	300	qm	1%	1%
Parking (cars&bikes)	2.000	qm	10%	8%

Total Assigned Areas                      20.090 qm                      100%                      78%

UNASSIGNED AREAS

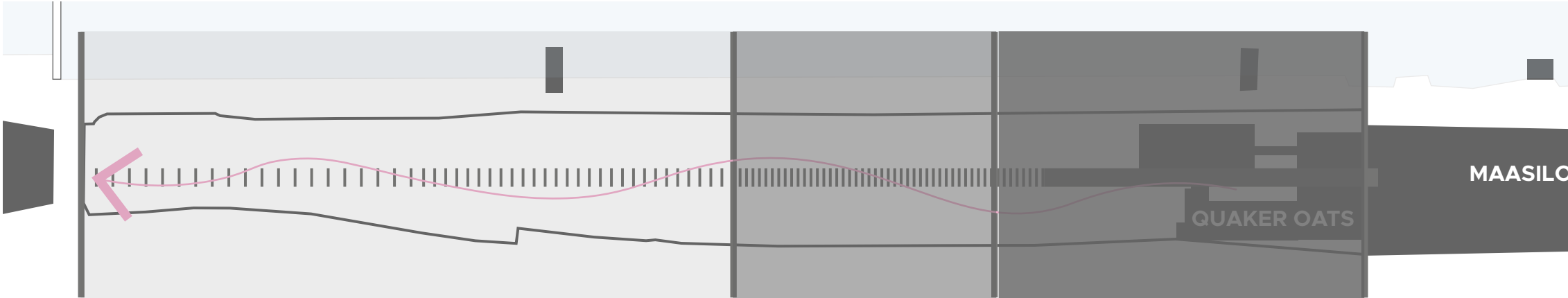
assumes generous  
social/circulation spaces                      5.640    qm                      22%

TOTAL BUILDING AREA

museum netto + unassigned                      25.630 Gross Square Meters                      100%



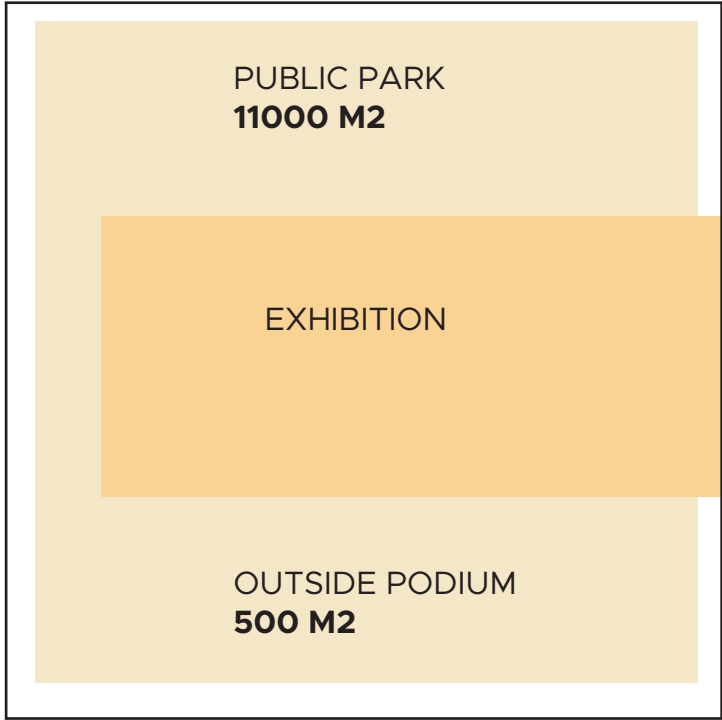
PROGRAMME



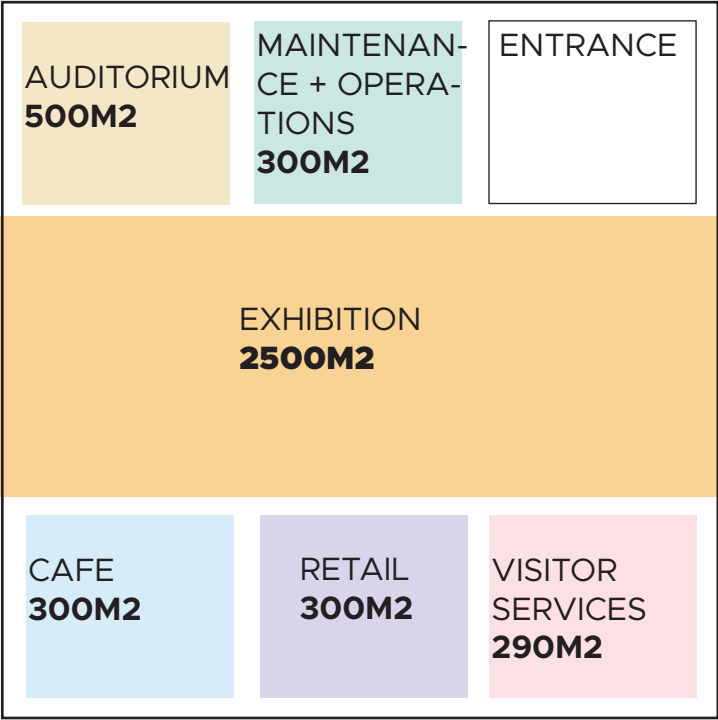
3

2

1



min 115000 sq m



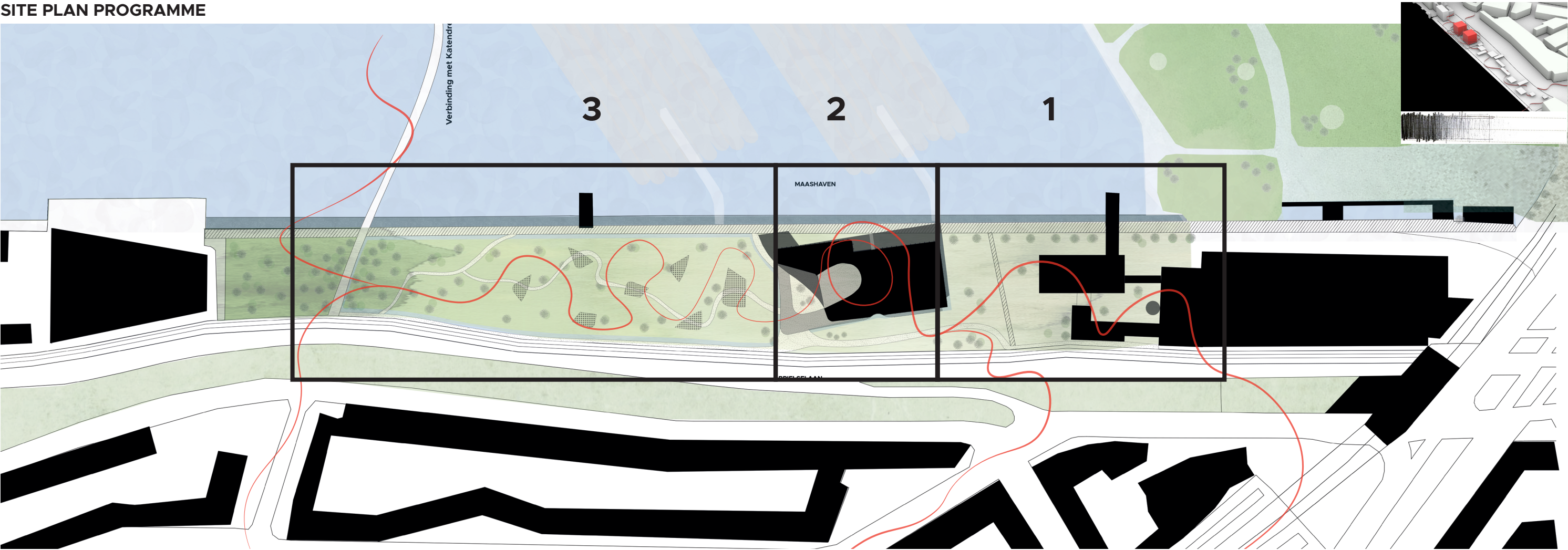
min 4190 sq m  
without circulation



min 2000 sq m  
without circulation



SITE PLAN PROGRAMME



The programme of the Synesthetic art museum is spread through the whole site, and divided into the three areas.

The Quaker oats complex consists of a few very closed buildings, here there will a permanent dark experience will be offered. The visual sense is totally take away here. Furthermore the old “Molenhuis” will be re-used for the offices, ateliers and education rooms.

The second area is formed by a new building, with the main entrance of the synesthetic art complex. The new building will offer the temporary exhibitions and the visual sense will take part in the art experience.

A public park, where an outside sound exhibition through little pavilions, forms the third area.

In conclusion, from a very closed and dark ambience, the museum will lead the visitor gradually to an open and light ambience.

**3 PUBLIC SOUND PARK**  
Public functions  
Free entrance - regulated by museum  
(open from 08.00-23.00)

Outside sound experience	11500 m²
Outside podium	500 m²
Sound Pavilions	
Cafe	100 m²

**2 THE NEW MUSEUM**  
Public functions  
Paid experience

Temporary exhibition	2200 m³
Auditorium (multi functional hall)	500 m²
Cafe	200 m²
Retail	300 m³
Visitor services	290 m²
Maintenance and Operations	300 m²

**1 QUAKER OATS COMPLEX**  
Semi public - semi private functions  
Paid experience  
Offers extra rooms for programmes of NPRZ

Permanent exhibition	800 m³
Art Storage	200 m²
Ateliers	500 m²
Education rooms	300 m²
Offices	400 m²

POSITIONING

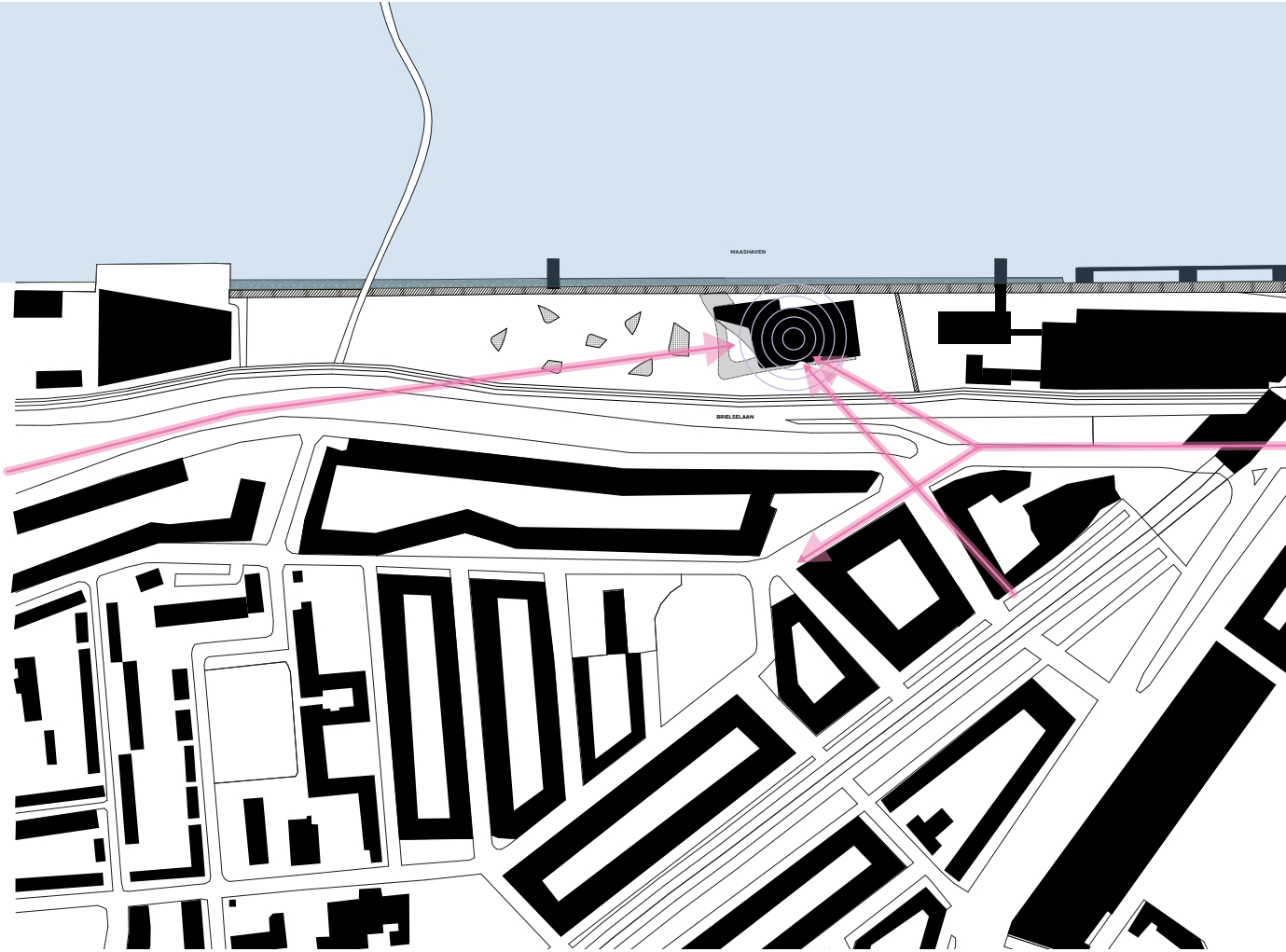


By twisting the volume, new oppurtunities for public spaces arise. Furthermore, the strict di-  
rections are being less dominant. You will almost  
always see the new museum in combination with  
the quaker oats complex and the park. They en-  
tangle.



PEOPLE FLOW

POSITIONING

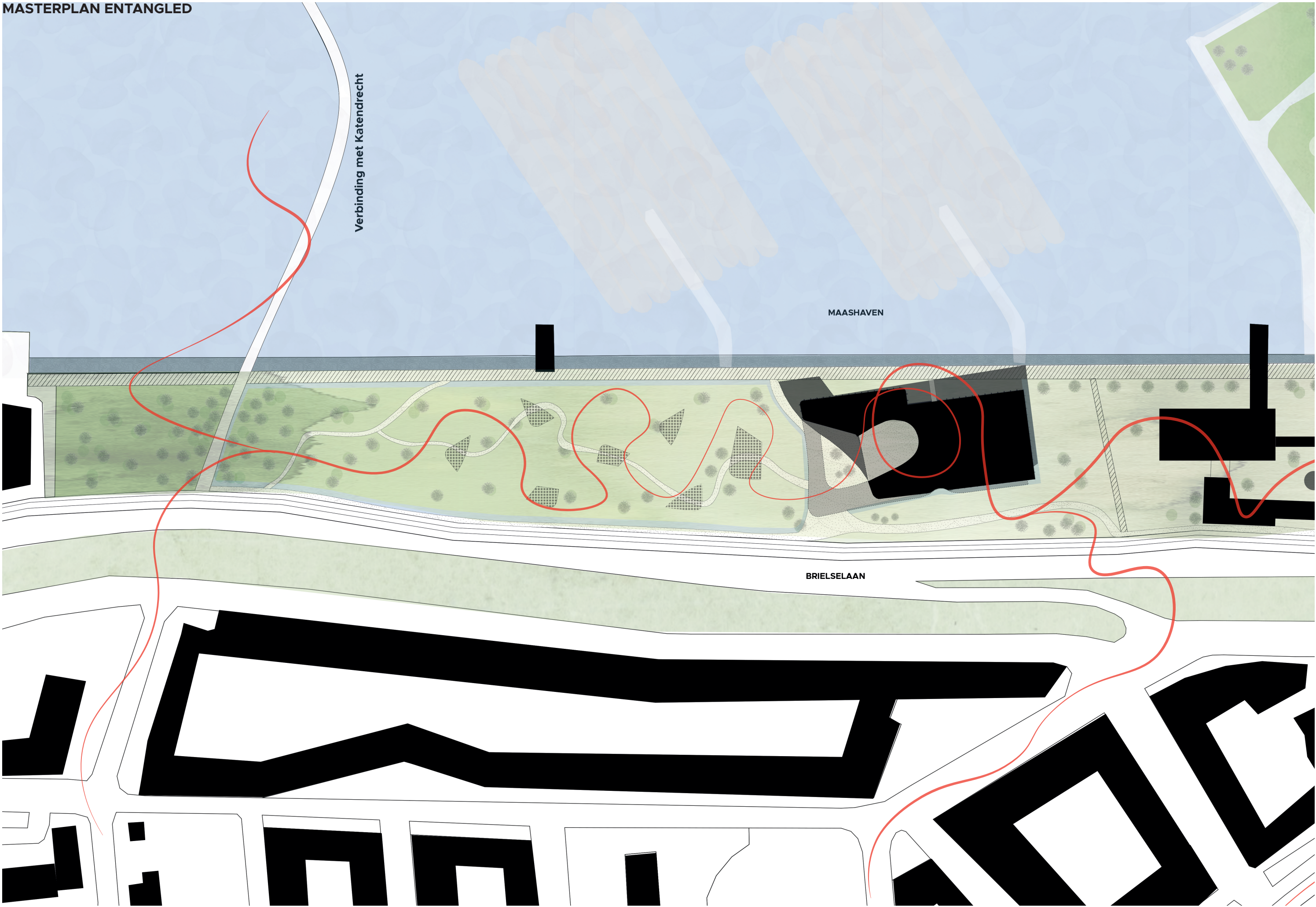


The new museum building functions as an impuls.  
The building stands as sculptural volume and a  
transition from close to open.  
The themes of Entanglement and fragmentation  
are projected in the design of the new museum  
building, and define the sculptural form.



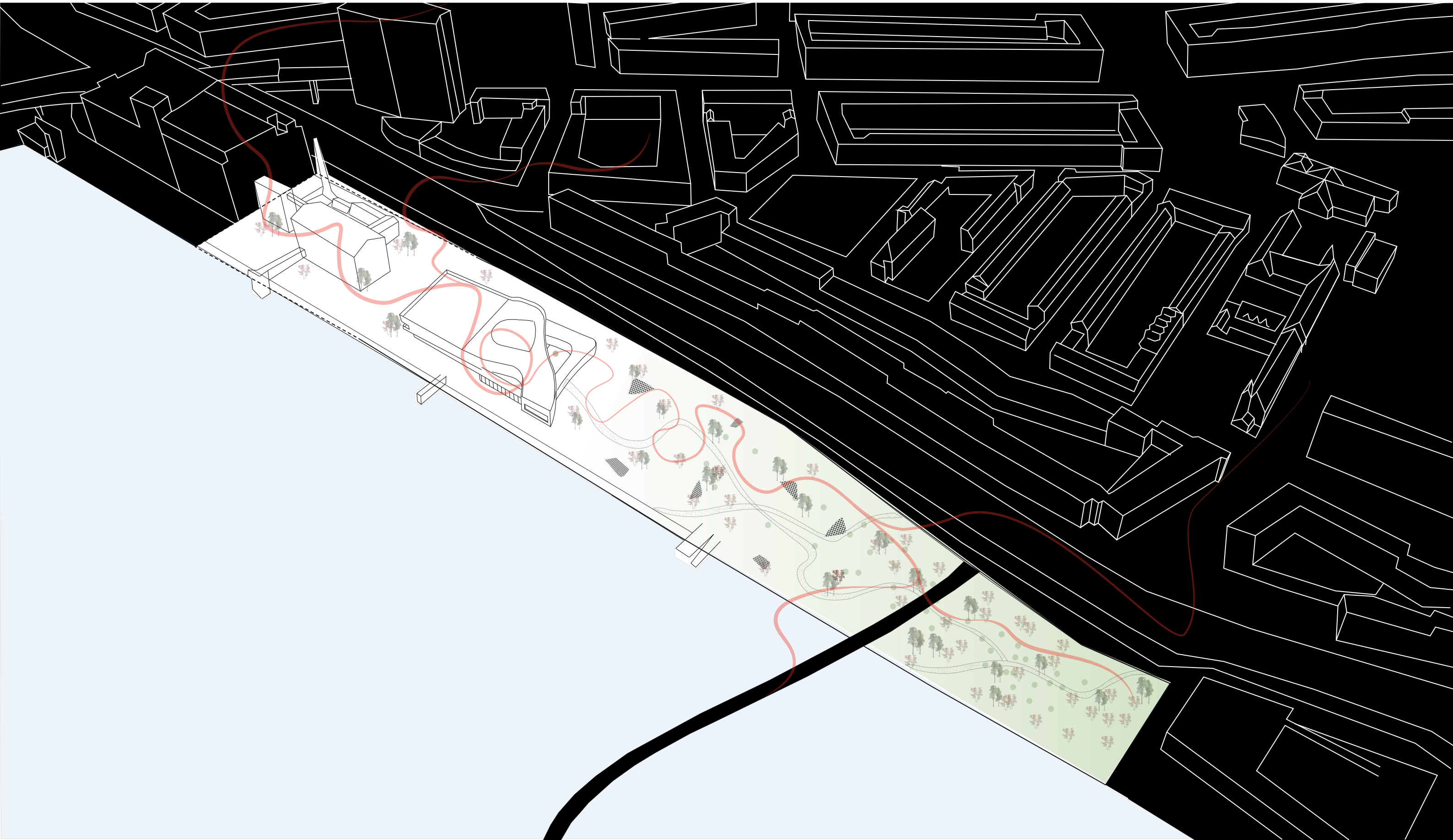


MASTERPLAN ENTANGLED





# MASTERPLAN ENTANGLED



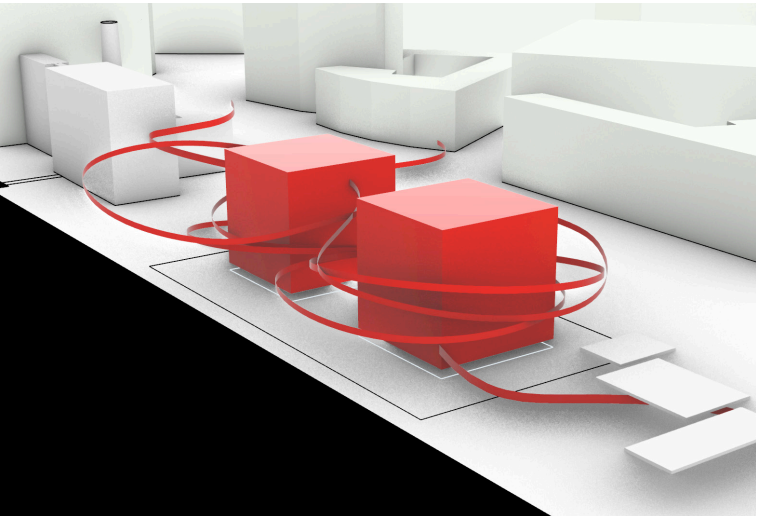
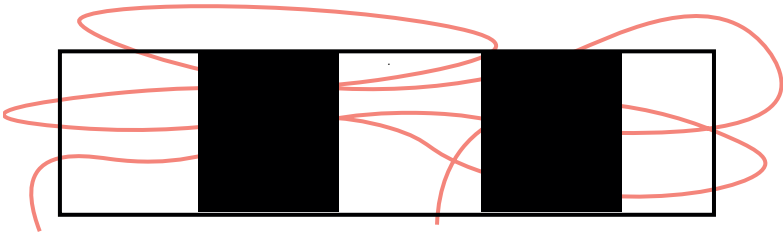
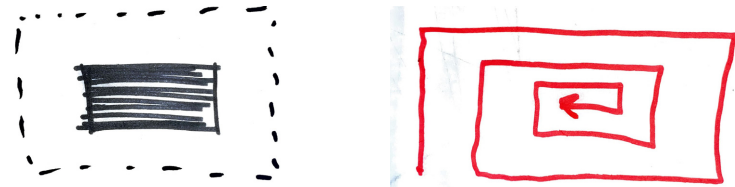
ENTANGLE

> Exhibition and circulation space around two cores

ROUTING LEADS VISITOR

- > Different routes in the museum
- > Through the exhibitions

ENTANGLED CIRCULATION SPACE AROUND CORE

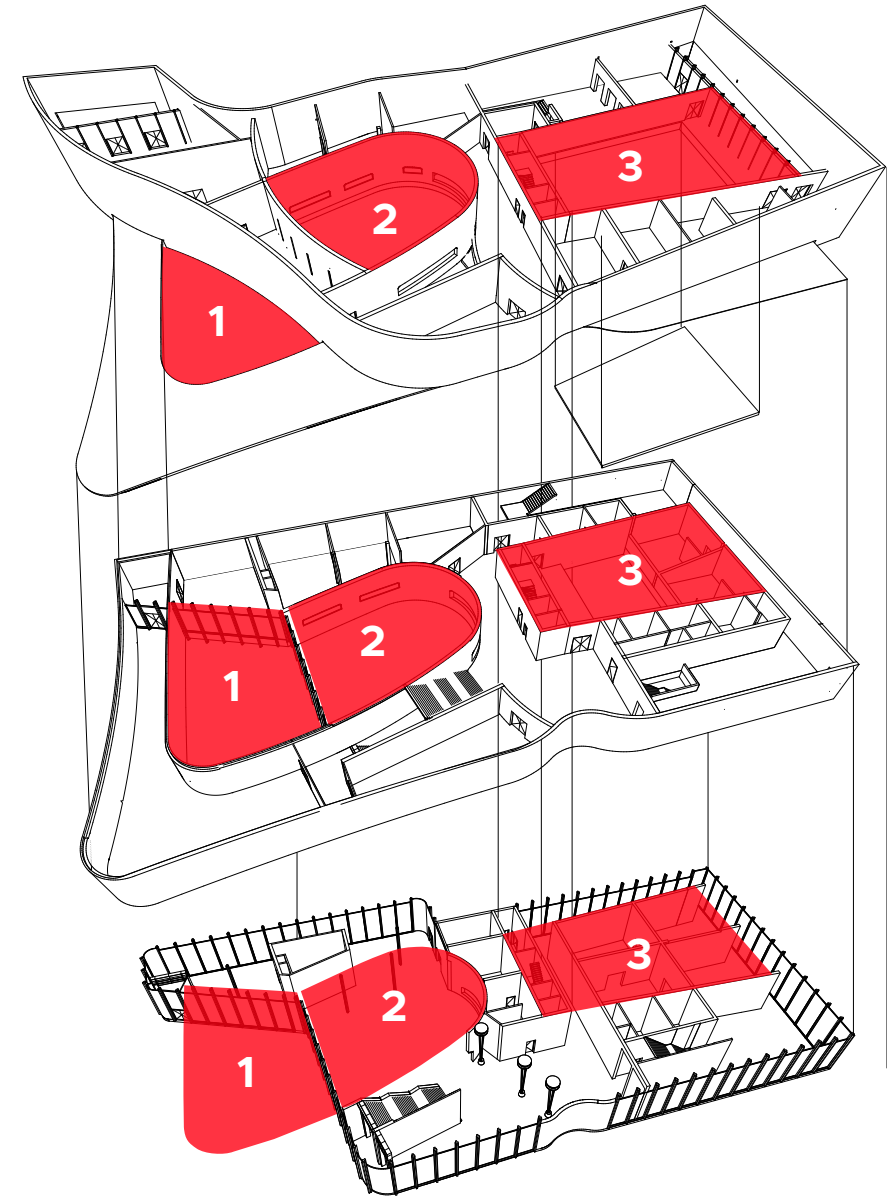




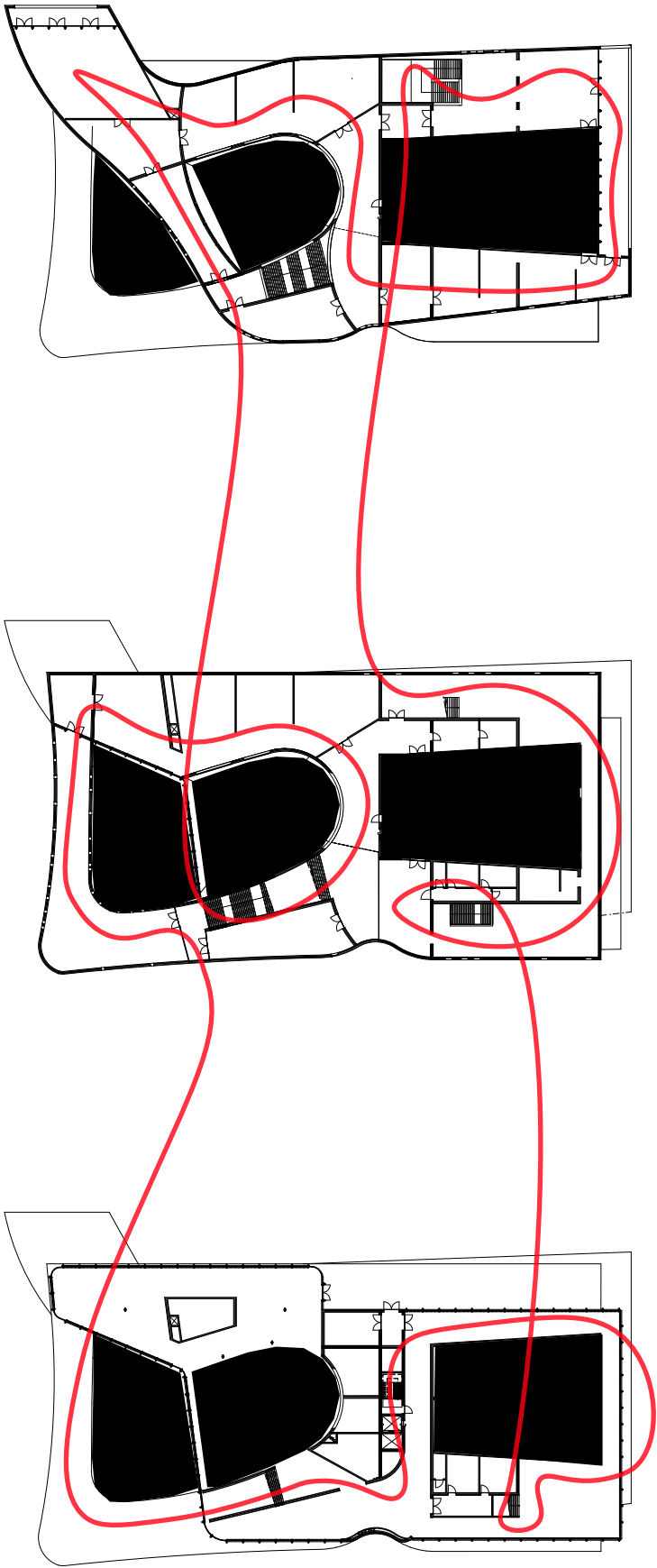
## BUILDING CONCEPTS AXO : THREE CORES

THE ROUTE LEADS THE VISITORS THROUGH THE EXHIBITION, WHICH ARE ENTANGLED AROUND TWO CORES.

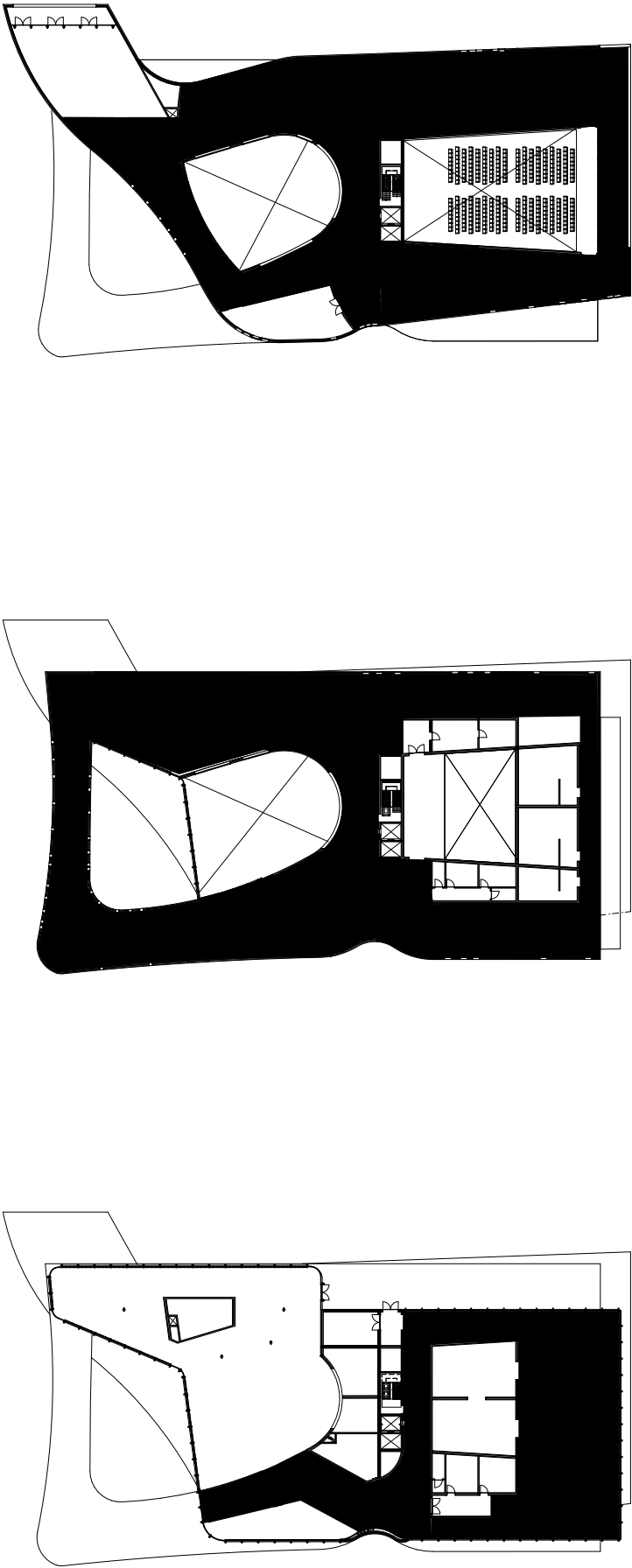
A LIGHT CORE :THE PATIO AND THE ATRIUM, AND A DARK CORE: THE AUDITORIUM.



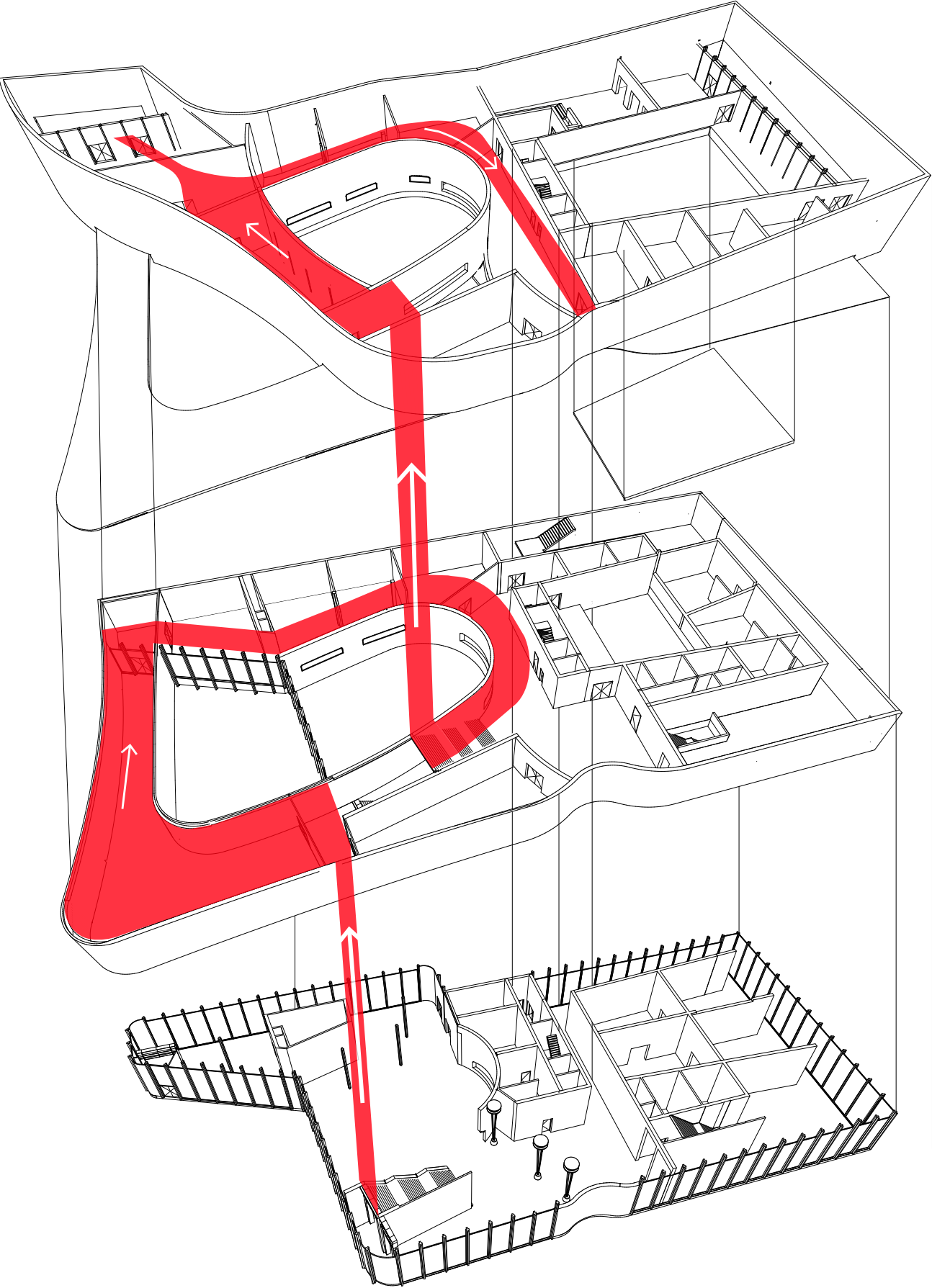
BUILDING CONCEPTS THREE CORES



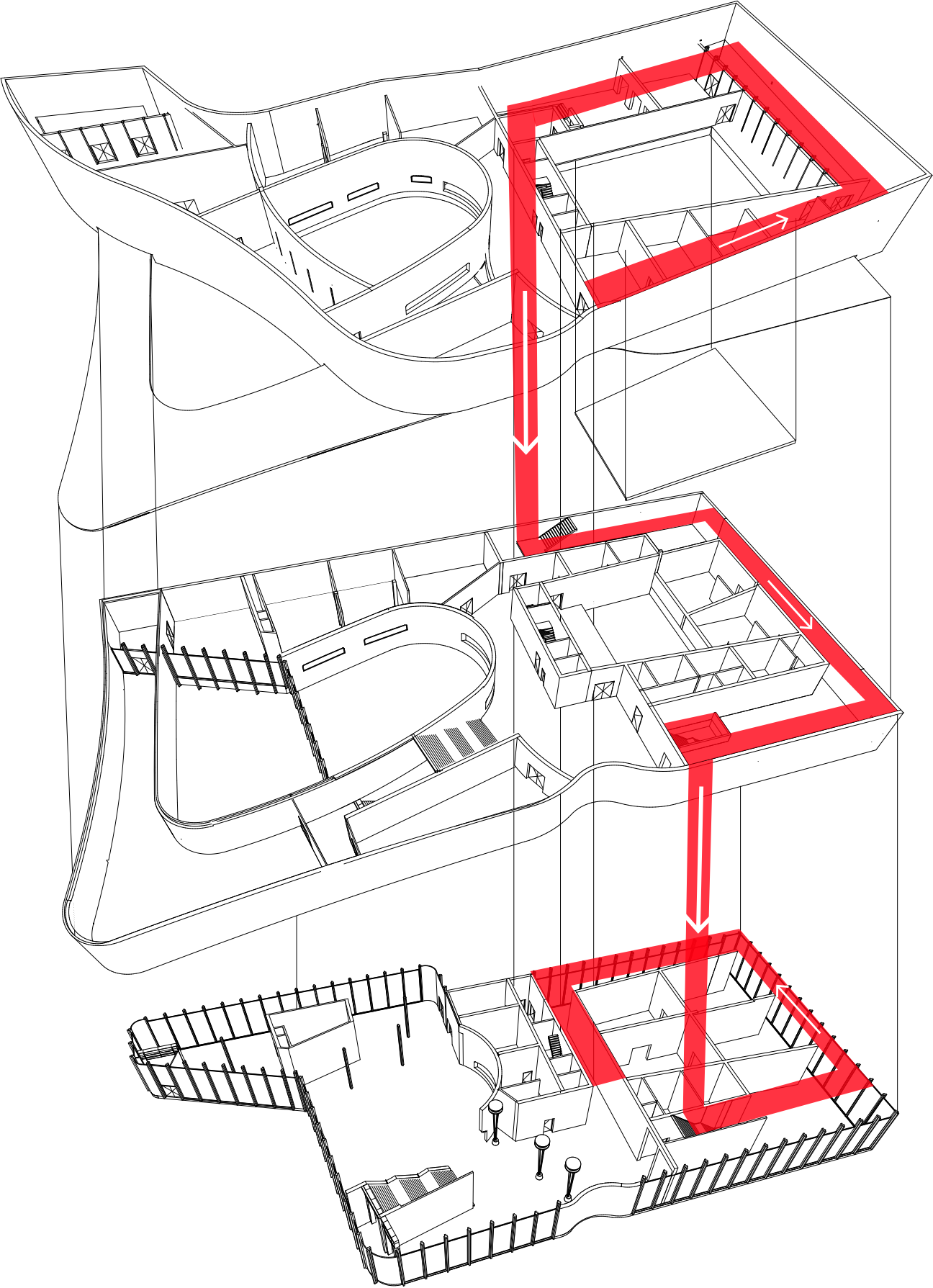
BUILDING CONCEPTS CIRCULATION & EXHIBITION SPACE



**BUILDING CONCEPTS AXO : THREE CORES**



**ROUTE UP**

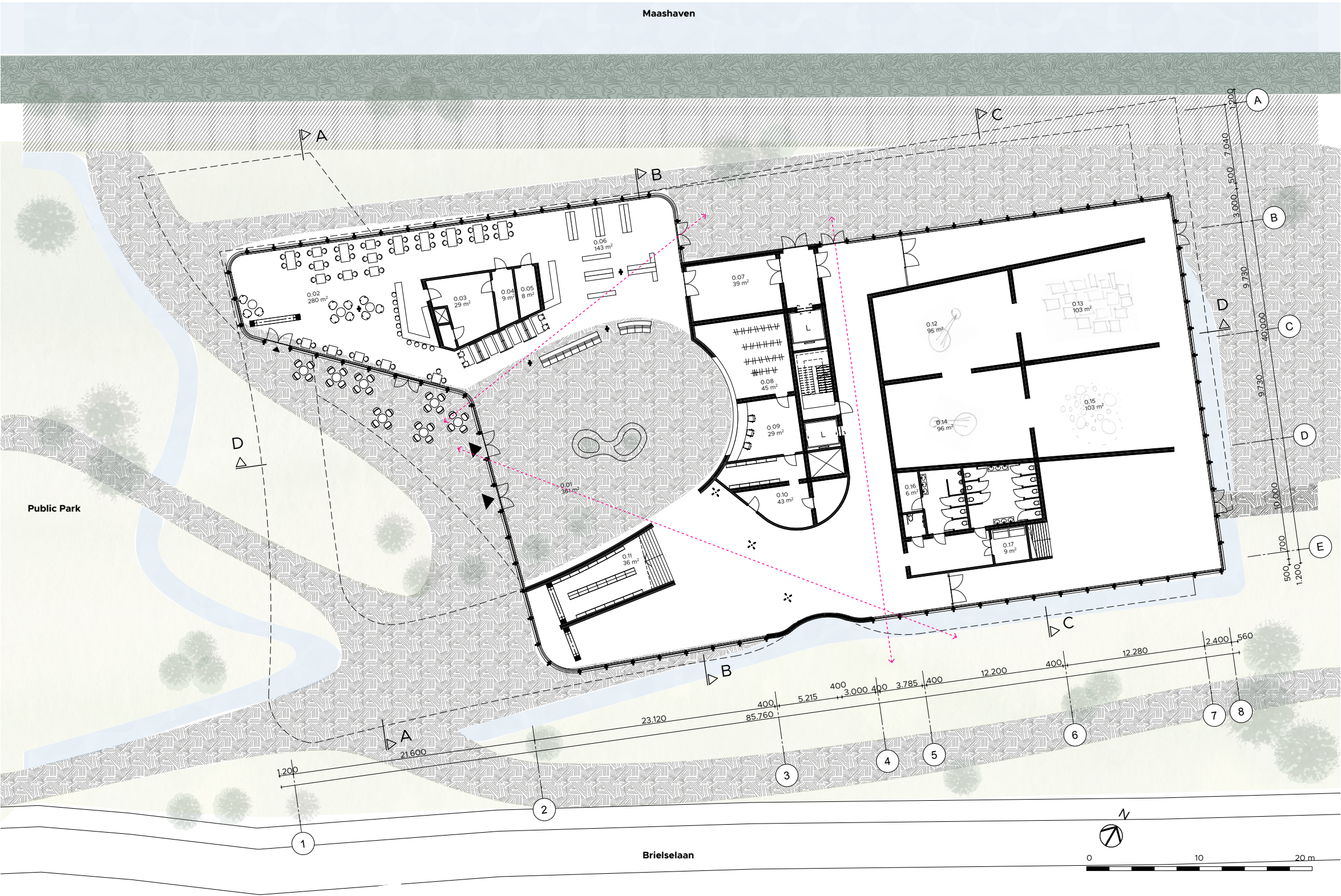


**ROUTE DOWN**

**PLANS 1:200**

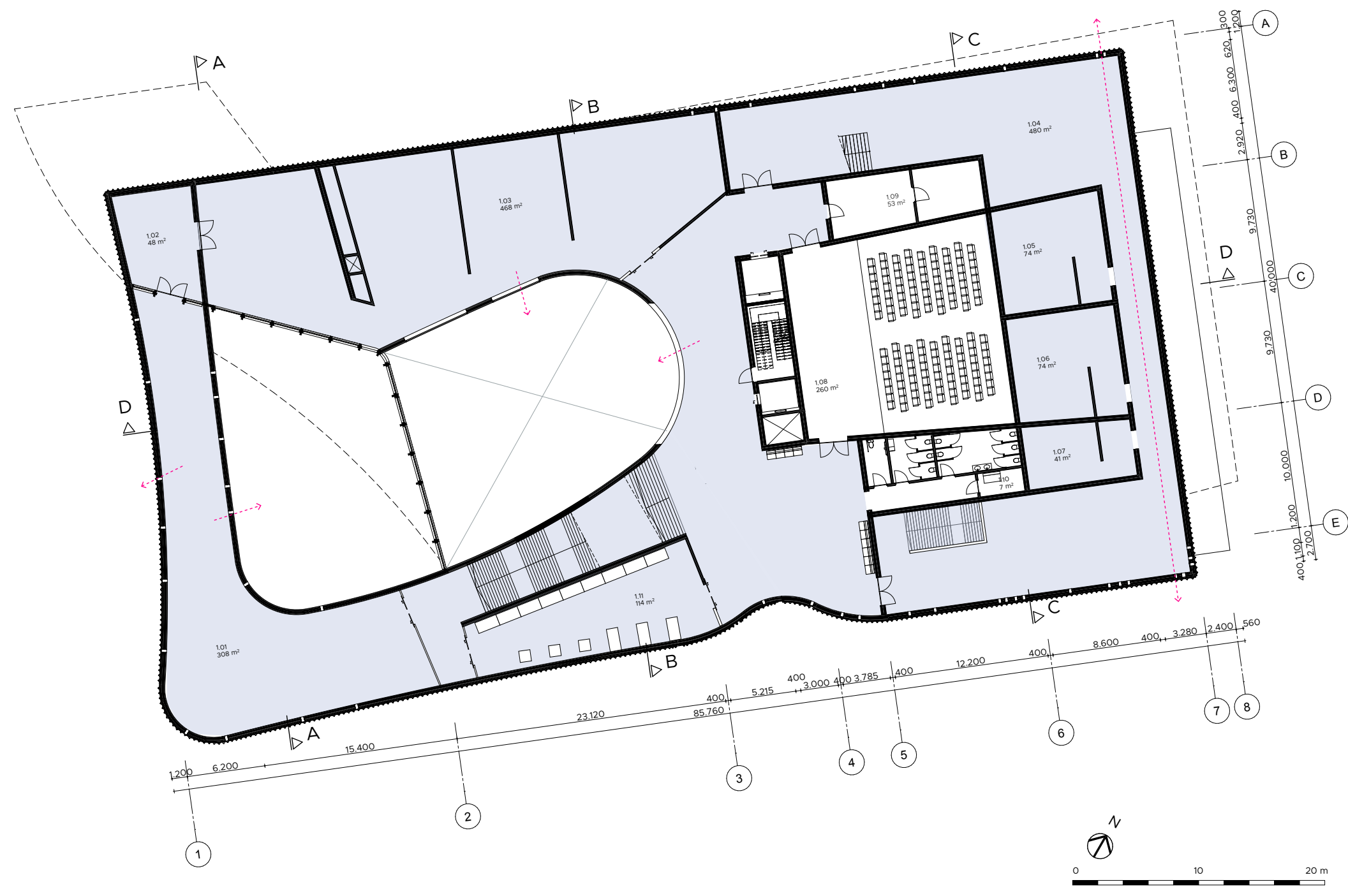


GROUND FLOOR



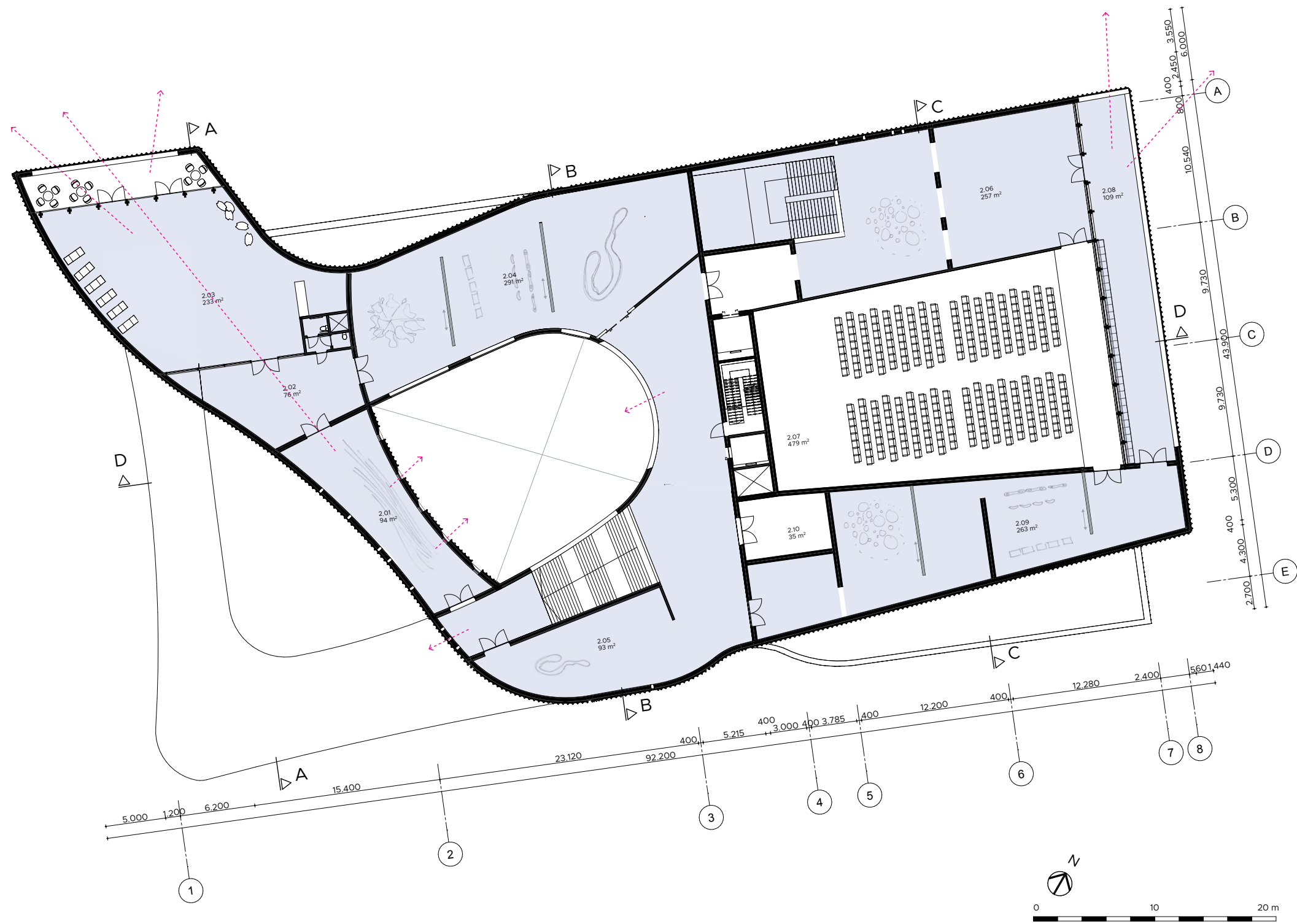
	FUNCTION	m <sup>2</sup>
0.01	Entrance hall	361
0.02	Cafe	280
0.03	Kitchen	29
0.04	Kitchen services	9
0.05	Kitchen services – changing room	8
0.06	Retail	143
0.07	Storage	39
0.08	Cloakroom	45
0.09	Tickets	29
0.10	Service staff, first aid	43
0.11	Locker room	36
0.12	Exhibition	95
0.13	Exhibition	103
0.14	Exhibition	96
0.15	Exhibition	103
0.16	Service	6
0.17	Service, waste bins	9
0.18	Exhibition Toilets	130

FIRST FLOOR



FUNCTION		m2
1.01	Exposition	361
1.02	Exposition	280
1.03	Exposition	29
1.04	Exposition	480
1.05	Exposition	74
1.06	Exposition	74
1.07	Exposition	41
1.08	Multifunctional Hall	479
1.09	Service, storage	53
1.10	Service, waste bins	7
1.11	Flexible workshop space	114
Toilets		

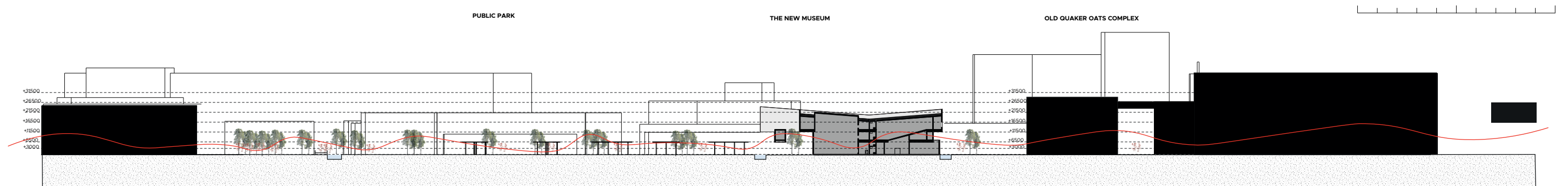
SECOND FLOOR



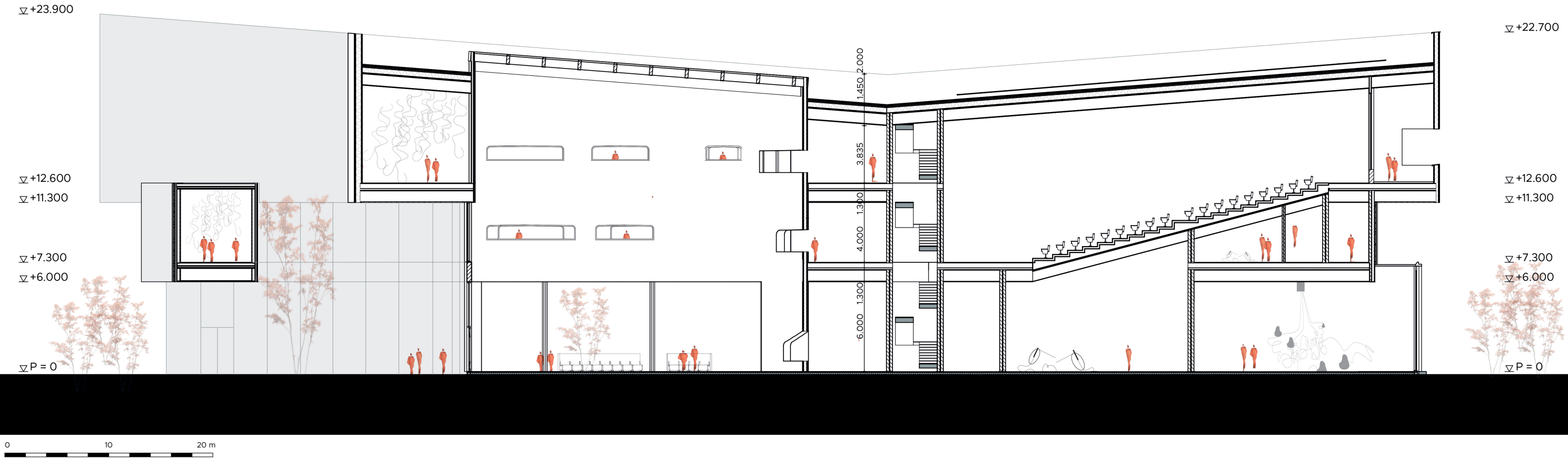
	FUNCTION	m2
2.01	Exposition	94
2.02	Exposition	76
2.03	Recovery exposition , cafe	233
2.04	Exposition	93
2.05	Exposition	74
2.06	Exposition	257
2.07	Multifunctional Hall	479
2.08	Balcony	109
2.09	Exposition	263
2.10	Service Toilets	35



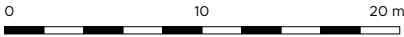
# SECTIONS 1:200



SECTION A-A



SECTION B-B PATIO





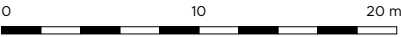
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_


$$\nabla P = 0$$
$$\nabla P = 0$$

SECTION B-B ATRIUM



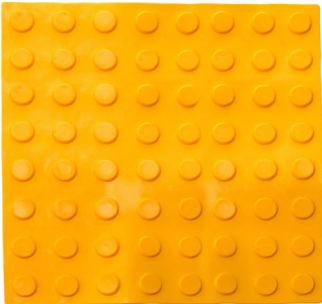
**FLOOR FINISH**



RESEARCH QUESTION:

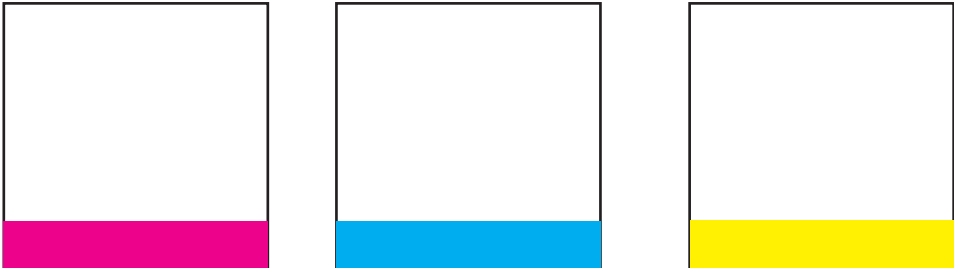
What architectural means are essential to provoke and reinforce our imagination while experiencing synesthetic art?

Orientation  
Differences in experience of circulation zones and exhibition zones



Floordesign for a leading route

general concept finish of spaces:  
walls and ceiling equal and varying floor surfaces

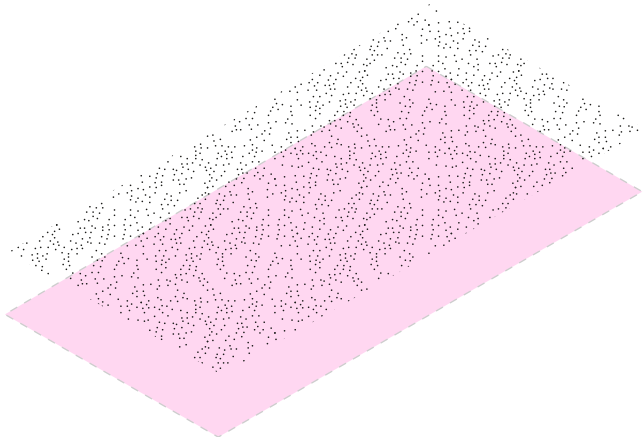


Exceptions:  
The atrium and the auditorium are not finished and have a timber look, with acoustic perforations

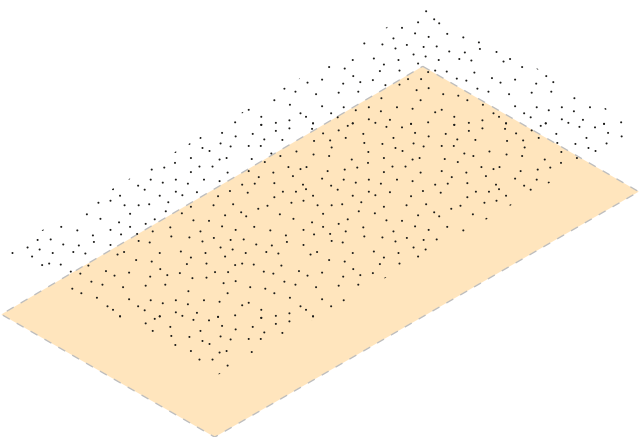
Continuous space: experience by moving  
Sequence of spaces without a corridor  
Closed of rooms, exit of the route

**FLOOR FINISH**  
STRATEGY TO LEAD VISITORS

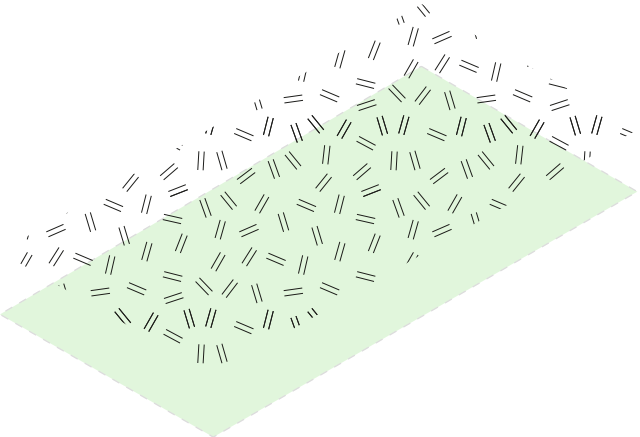
**Exposition spaces**



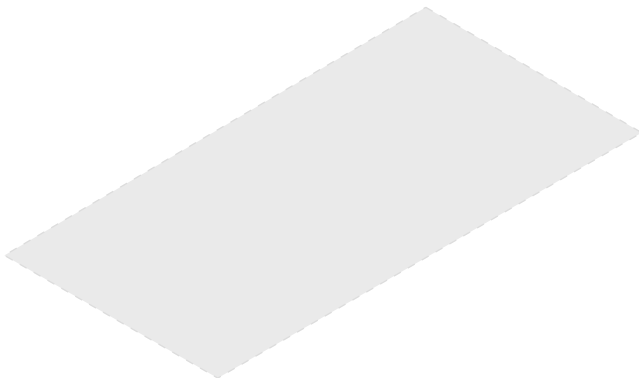
**Medium**  
**Description** Super soft - carpet  
Adapted in the Cabinets



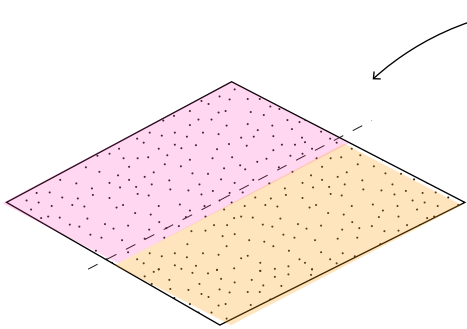
**Medium**  
**Description** Soft - rubber  
Adapted in the Flexible rooms



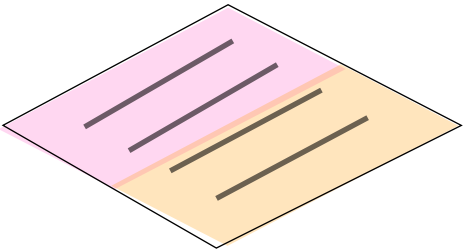
**Medium**  
**Description** Profiled material - pebbles  
Adapted in the Tubes



**Medium**  
**Description** Smooth - hard materials  
Adapted in non- exposition spaces  
(circulation/services)



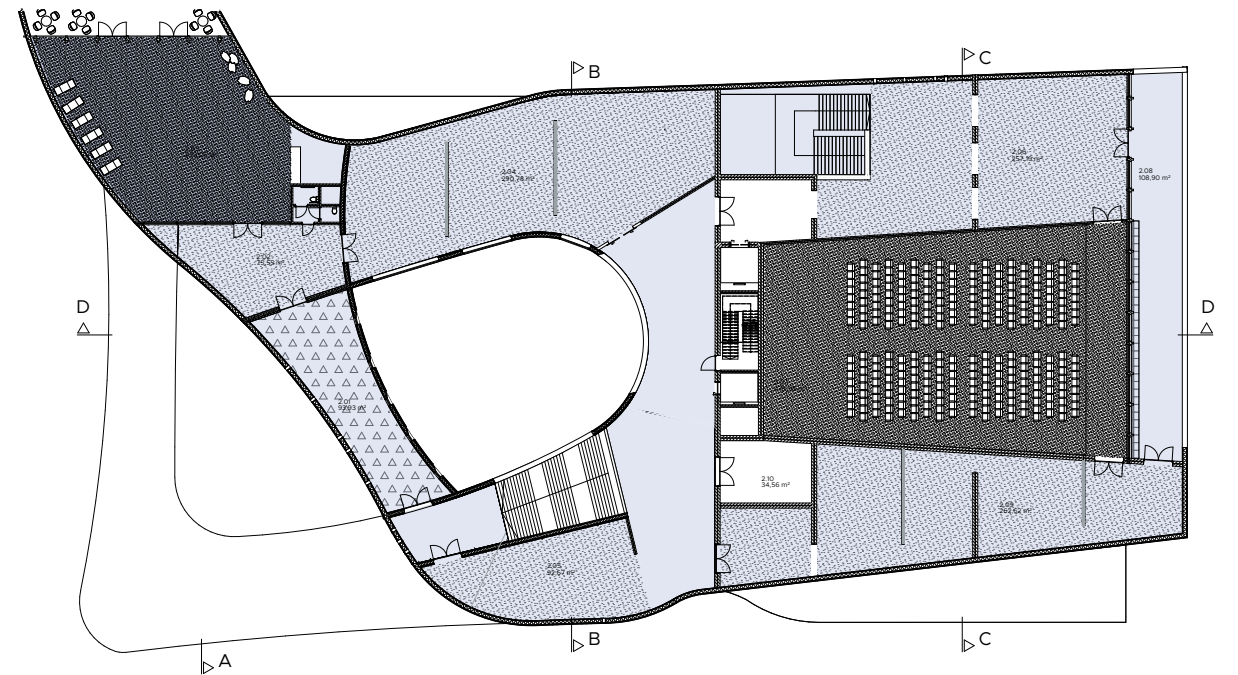
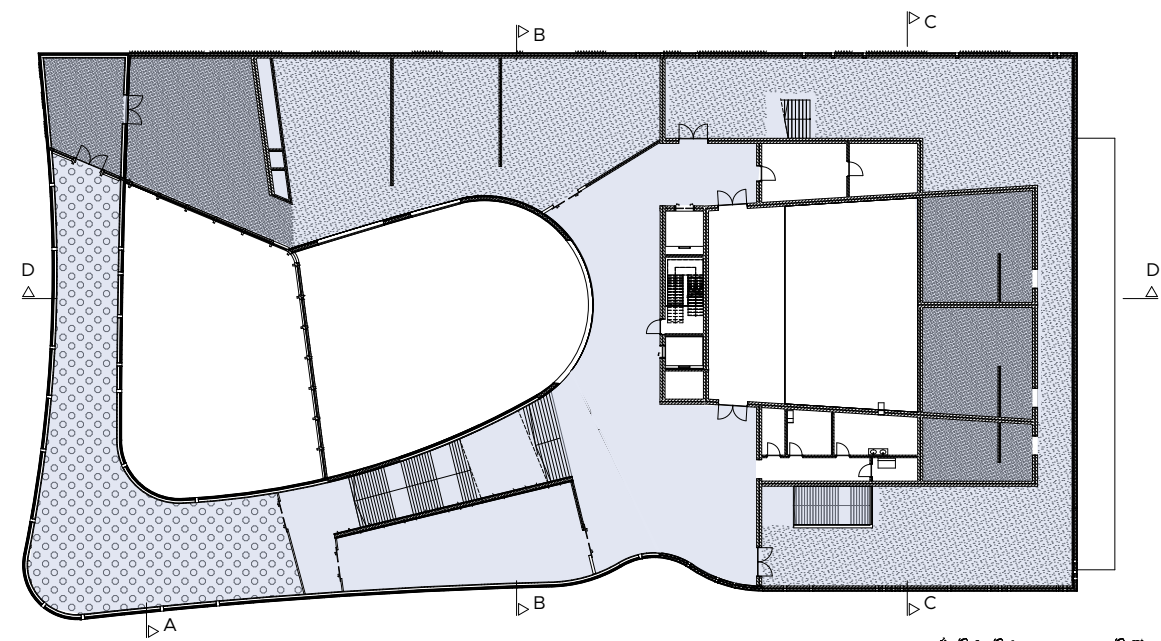
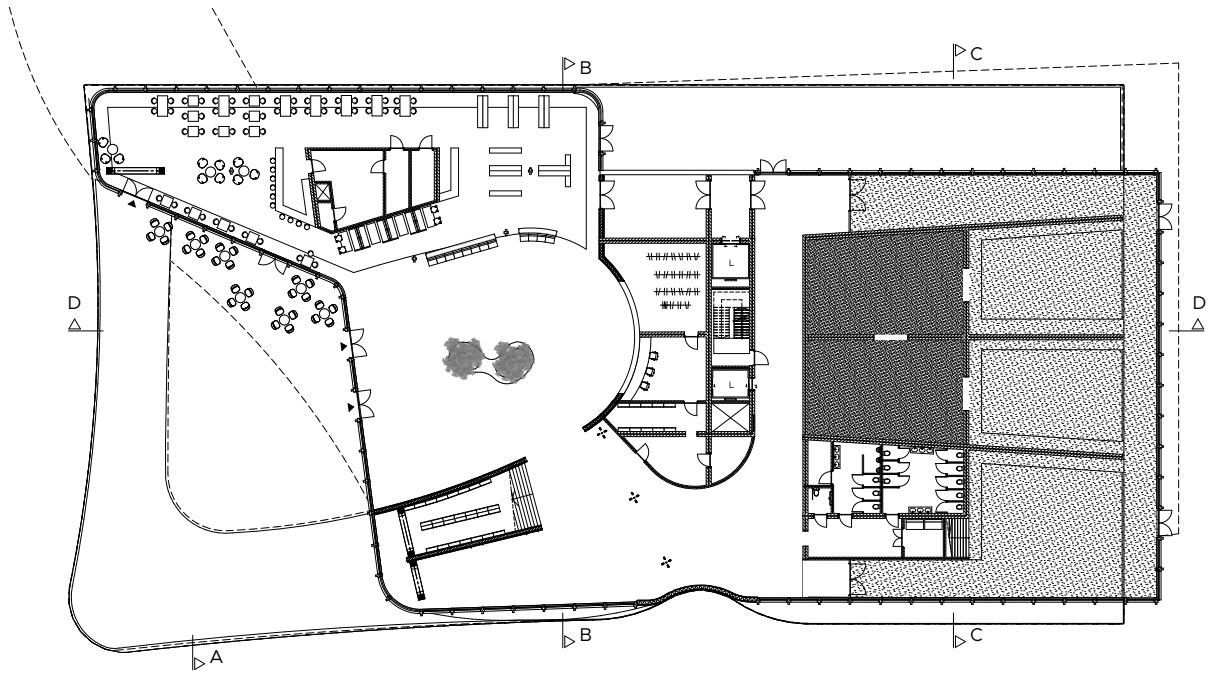
Flip tile!



Tactile guiding tiles



**Spaces with moveable path**

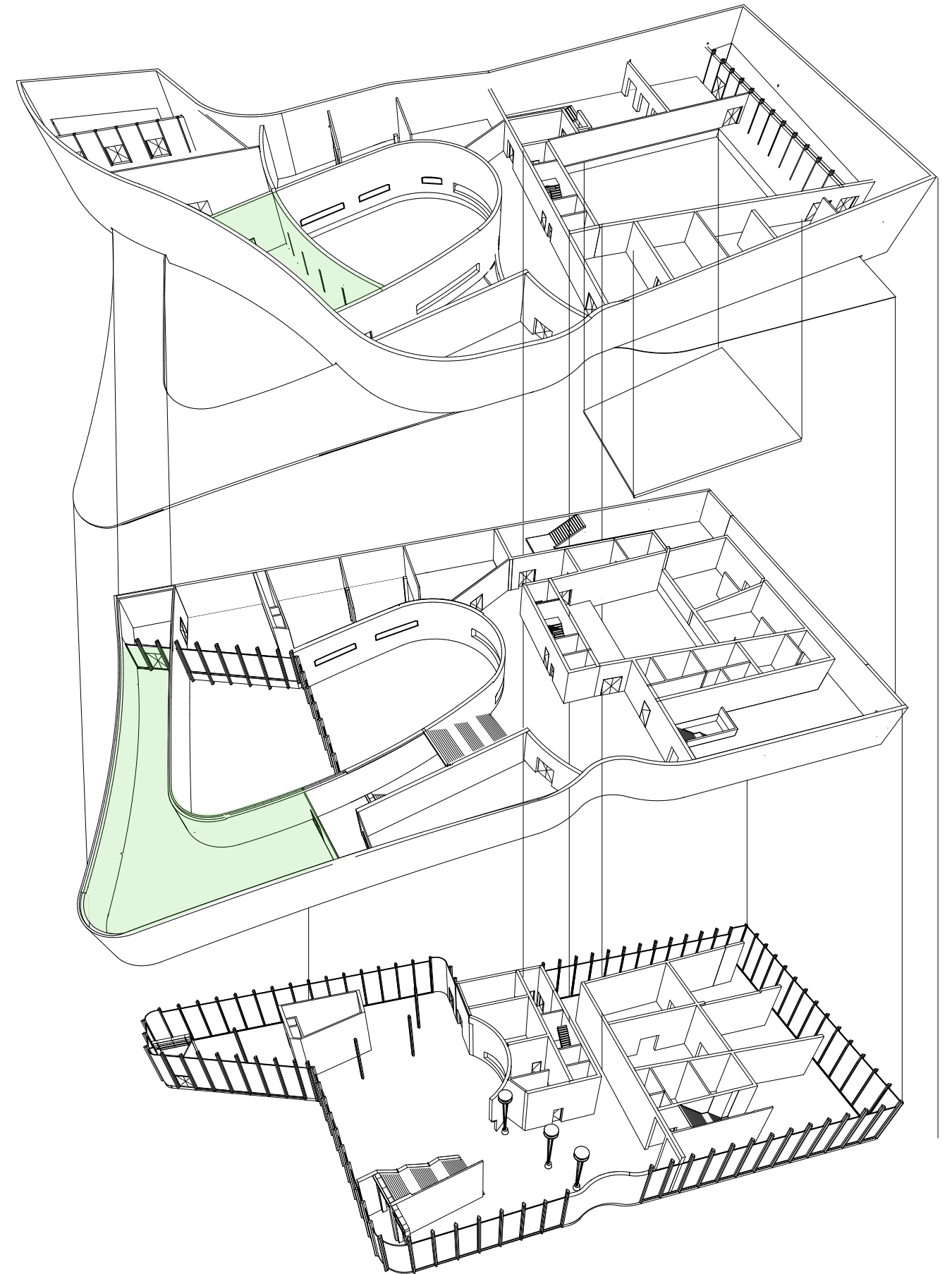
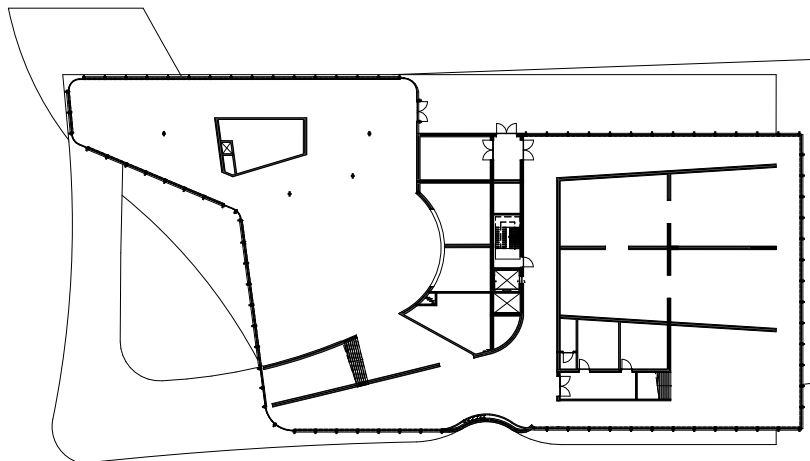
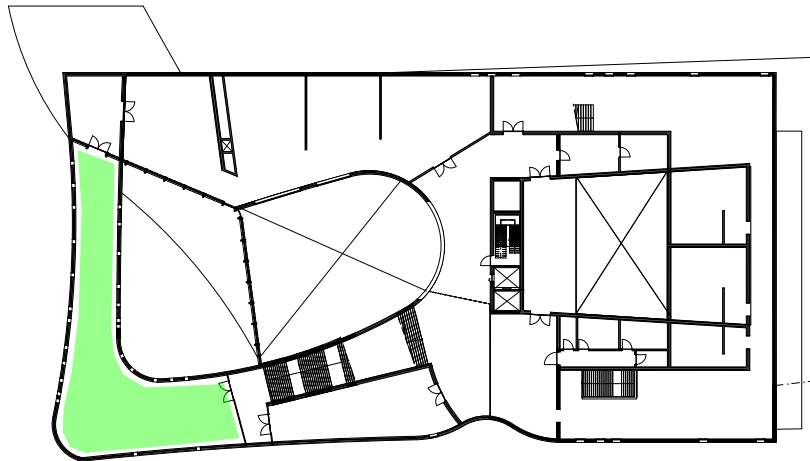
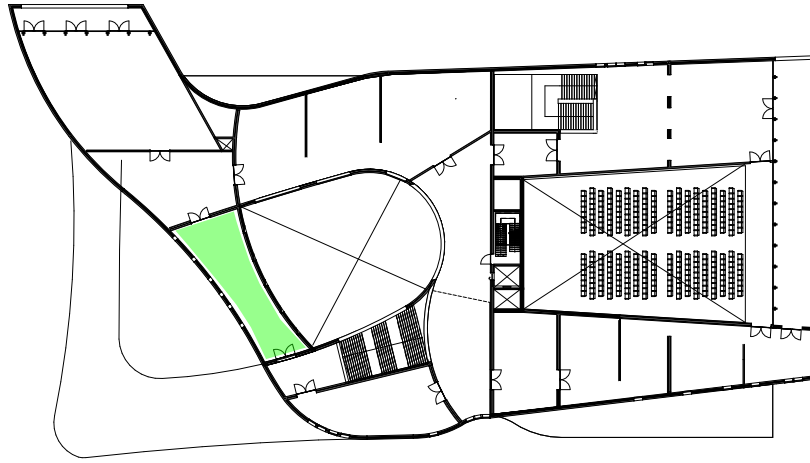


**FLOOR FINISH**  
STRATEGY TO LEAD VISITORS



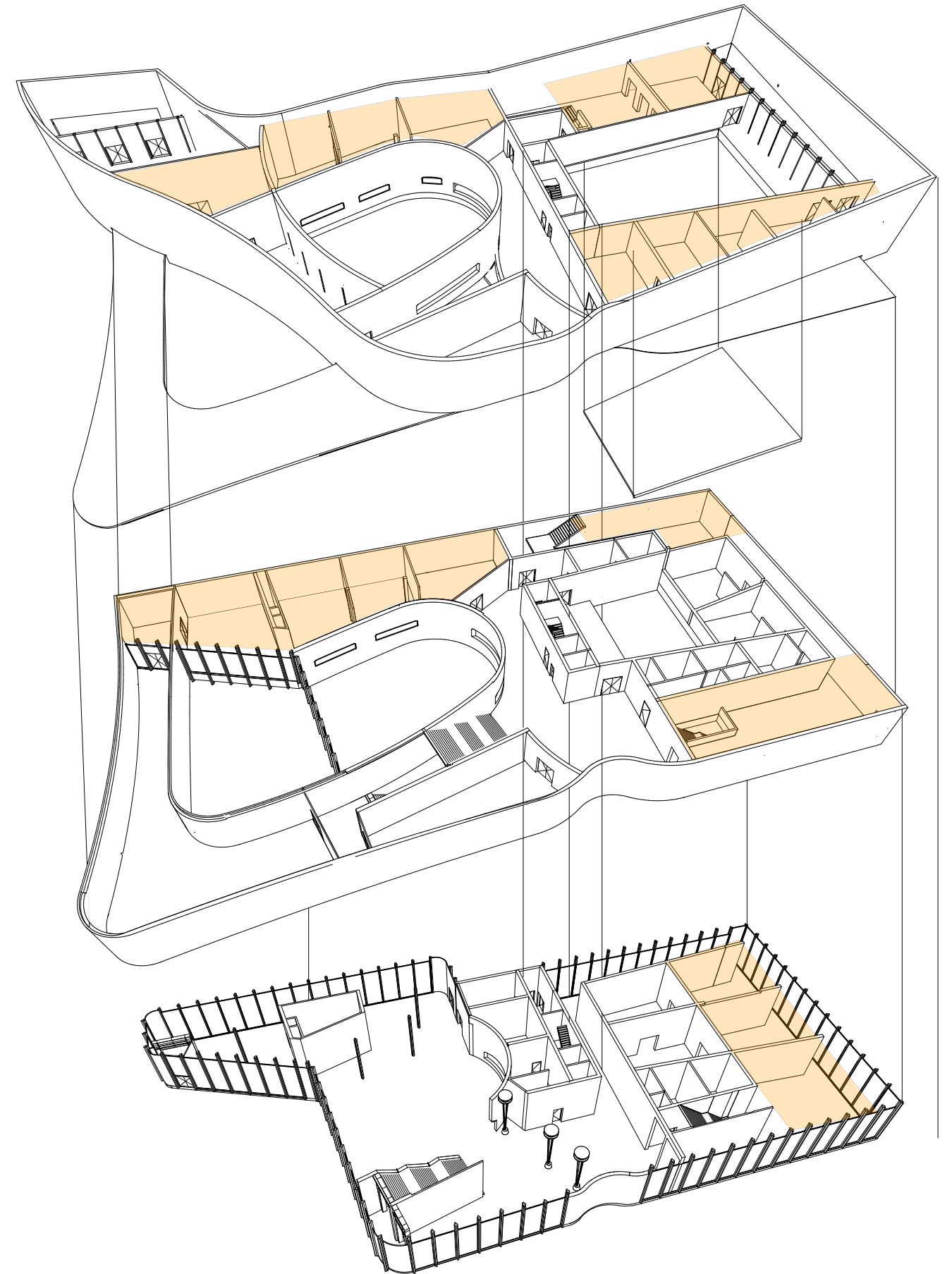
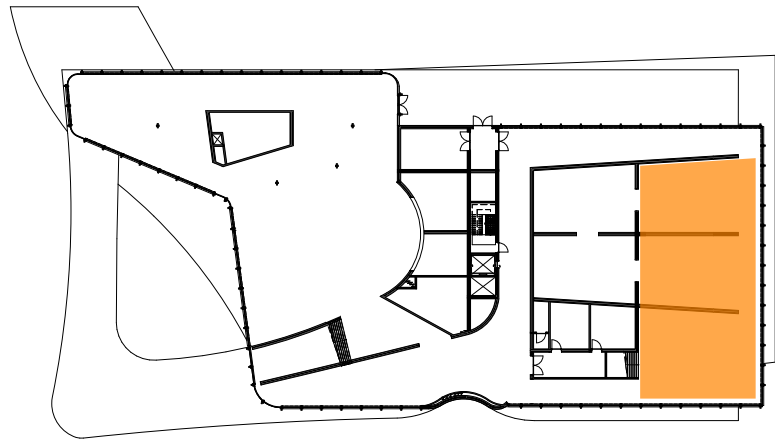
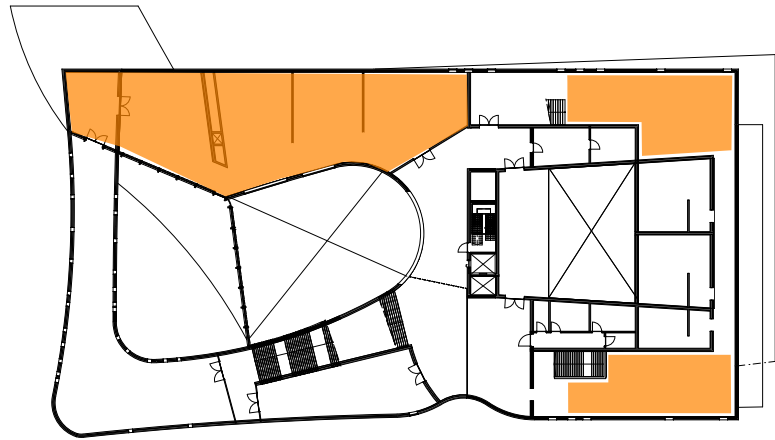
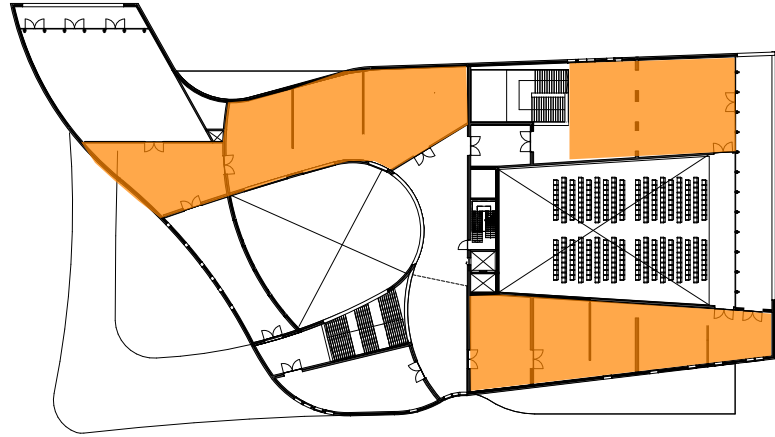
# EXPOSITION ROOMS

## THE TUBES - OUTSIDE CLIMATE & MOVING EXPERIENCE



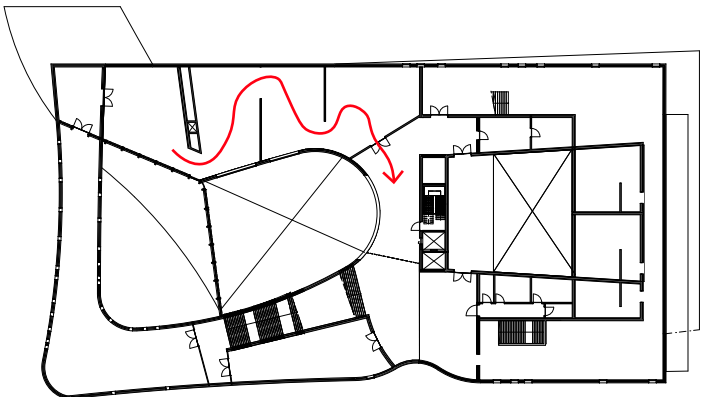
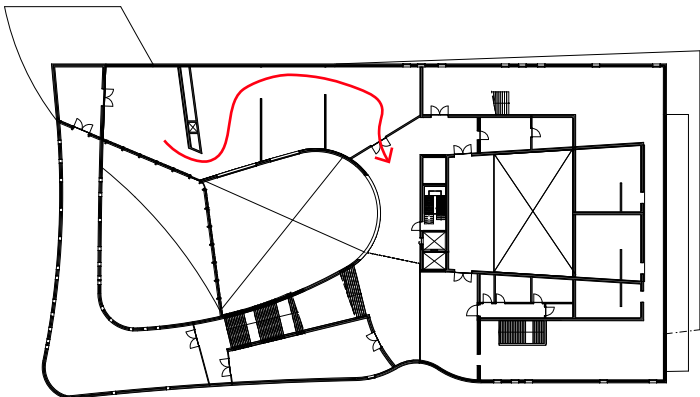
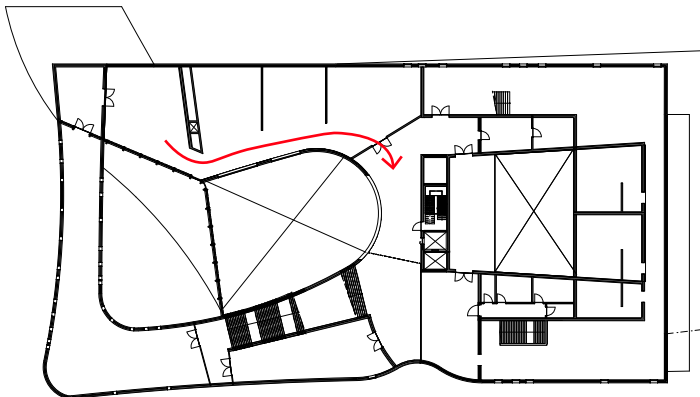
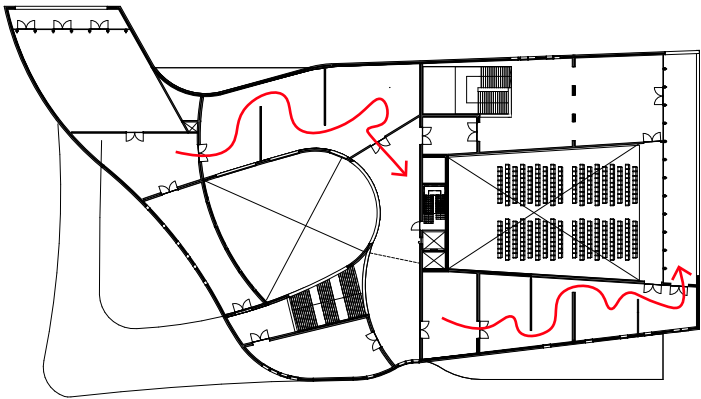
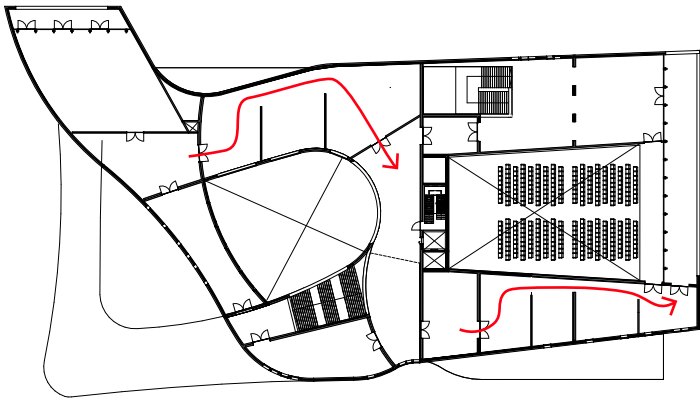
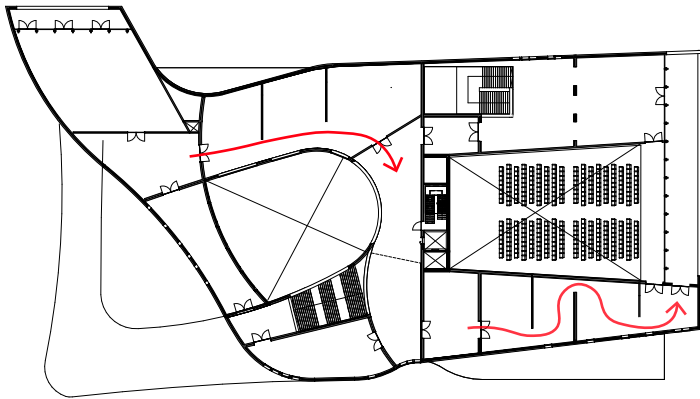
## FLEXIBLE ROOMS

SEQUENCE OF EXPO ROOMS - ENTANGLED ROUTE & EXPO

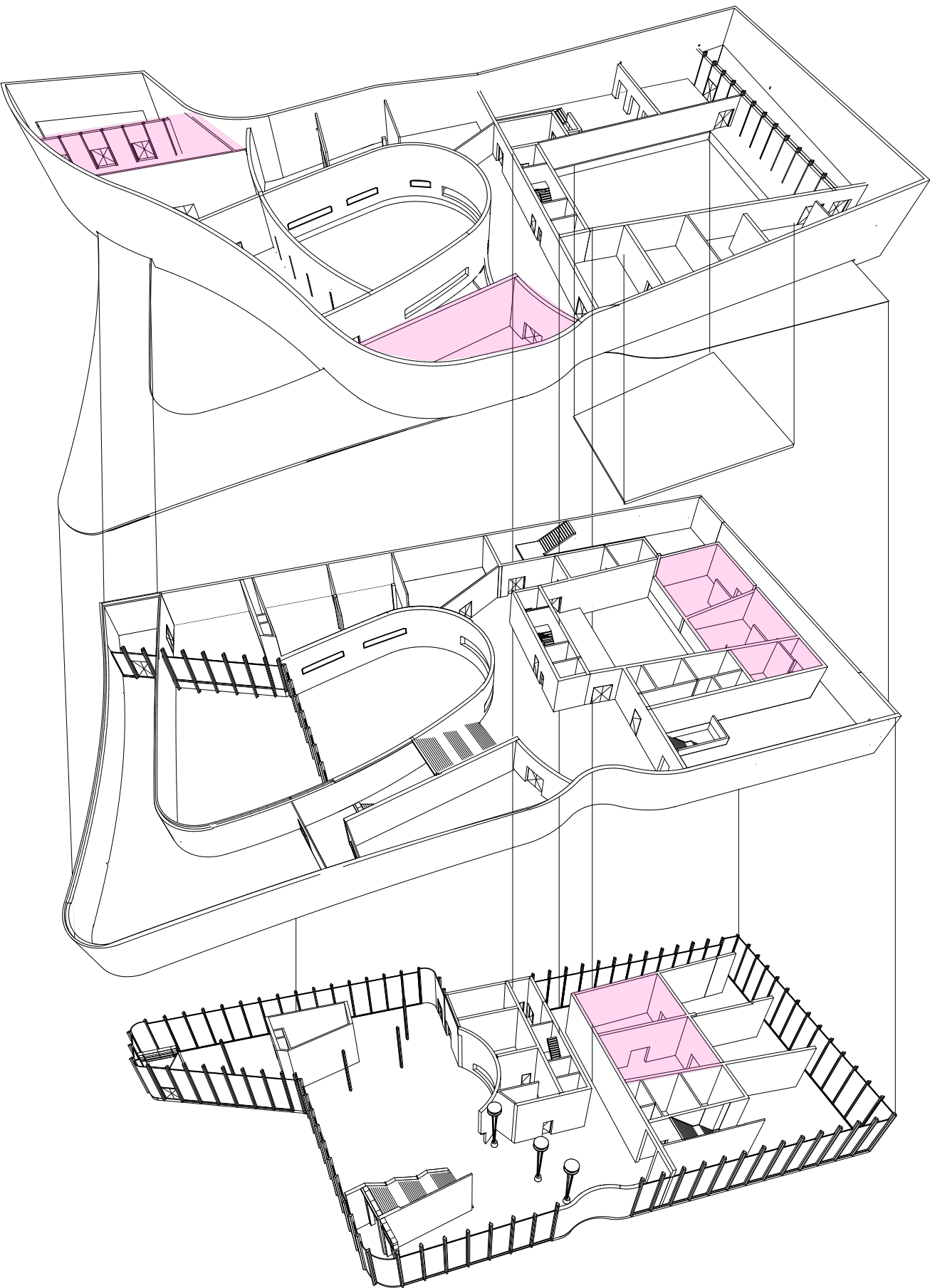
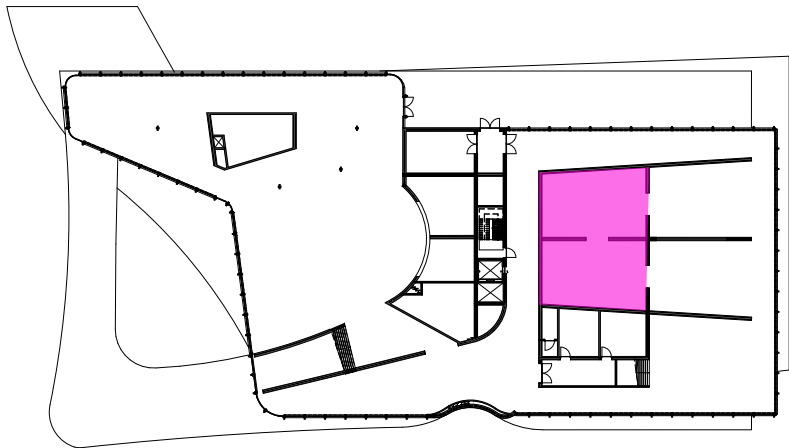
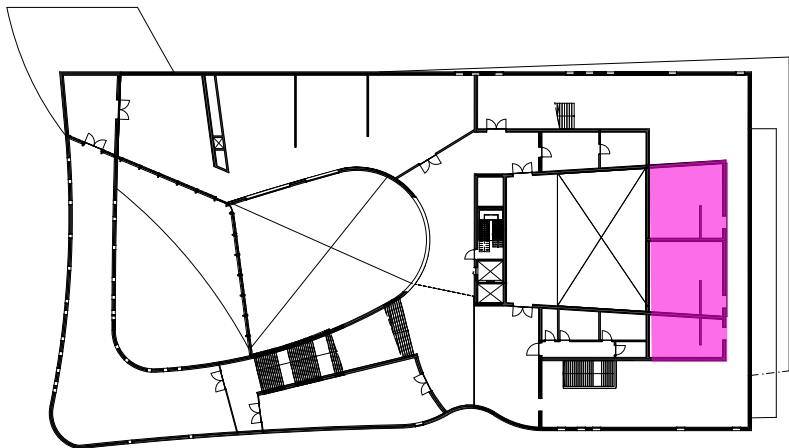
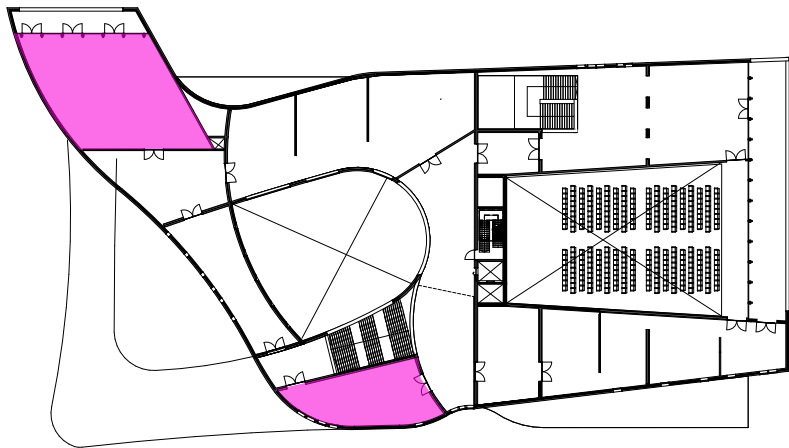




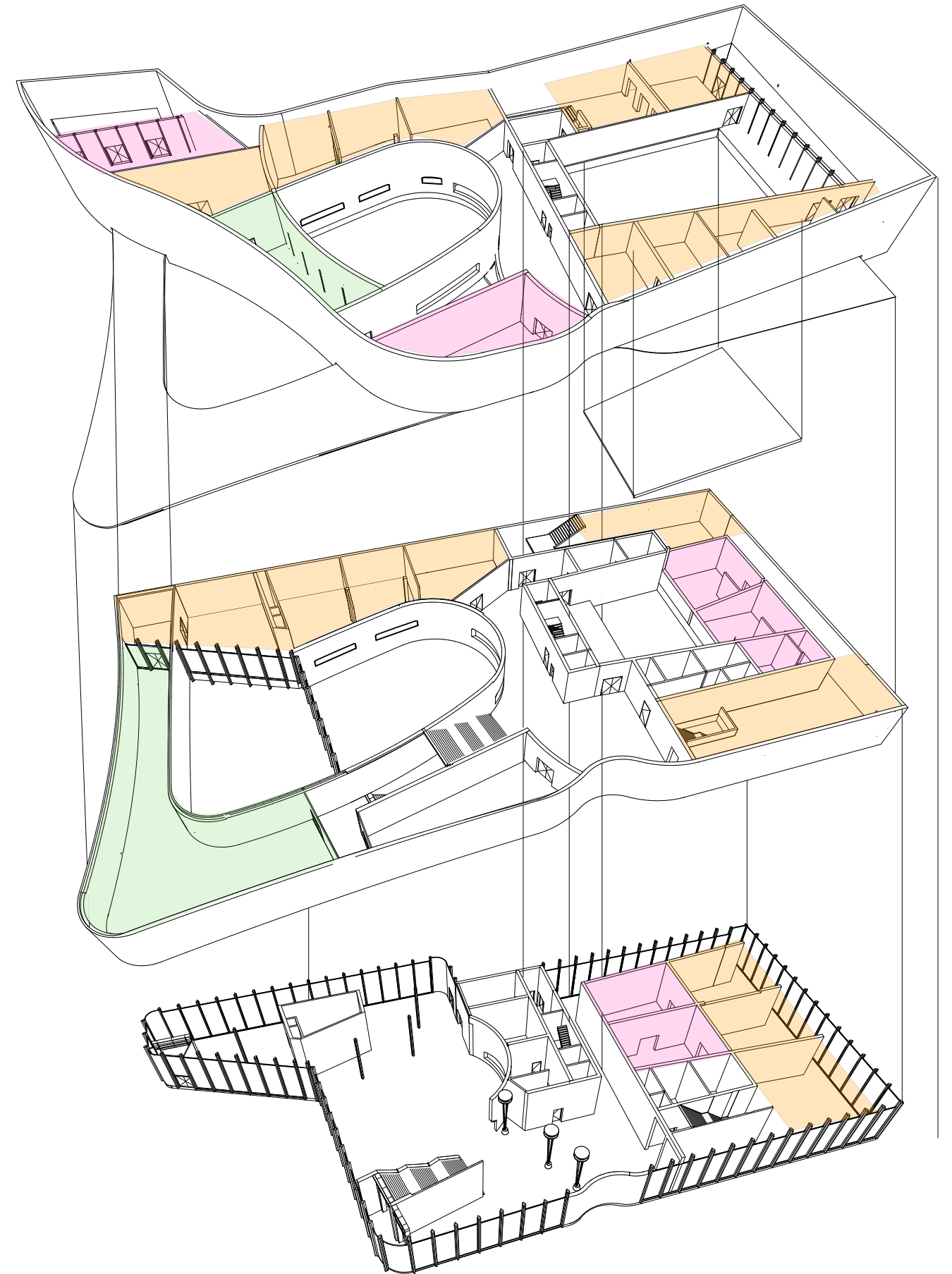
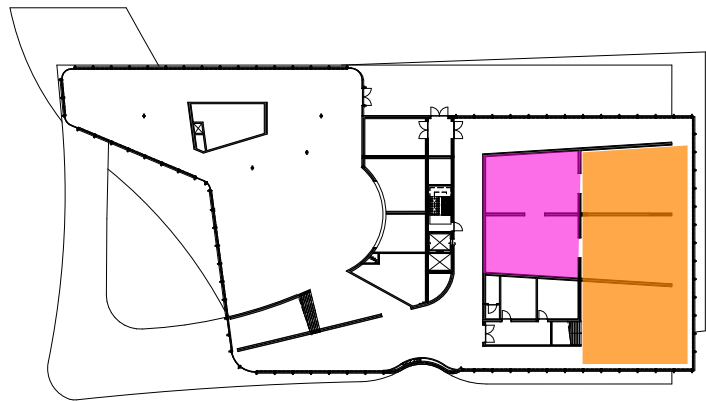
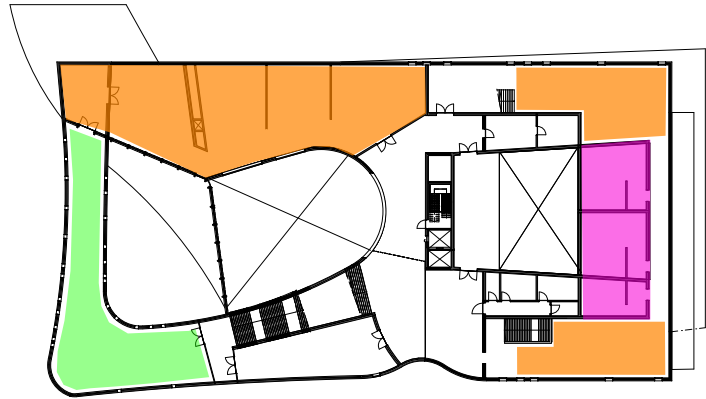
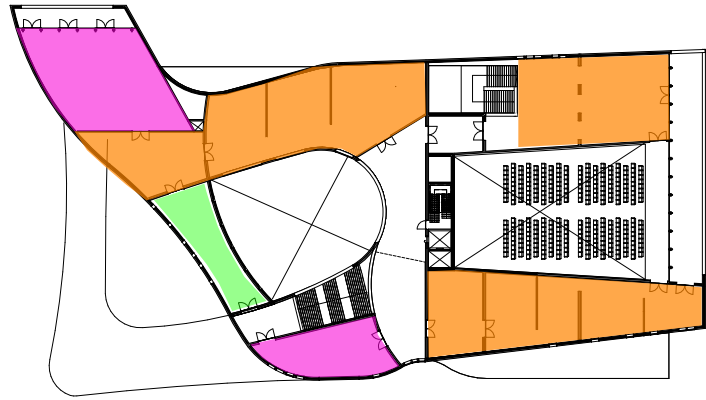
**FLEXIBLE ROOMS**  
FLEXIBLE ROUTING - CHANGEABLE



THE CABINETS : OFF ROUTE EXPO



## OVERVIEW EXPOSITION ROOMS



**ELEVATIONS 1:200**



N-E ELEVATION QUAKER OATS



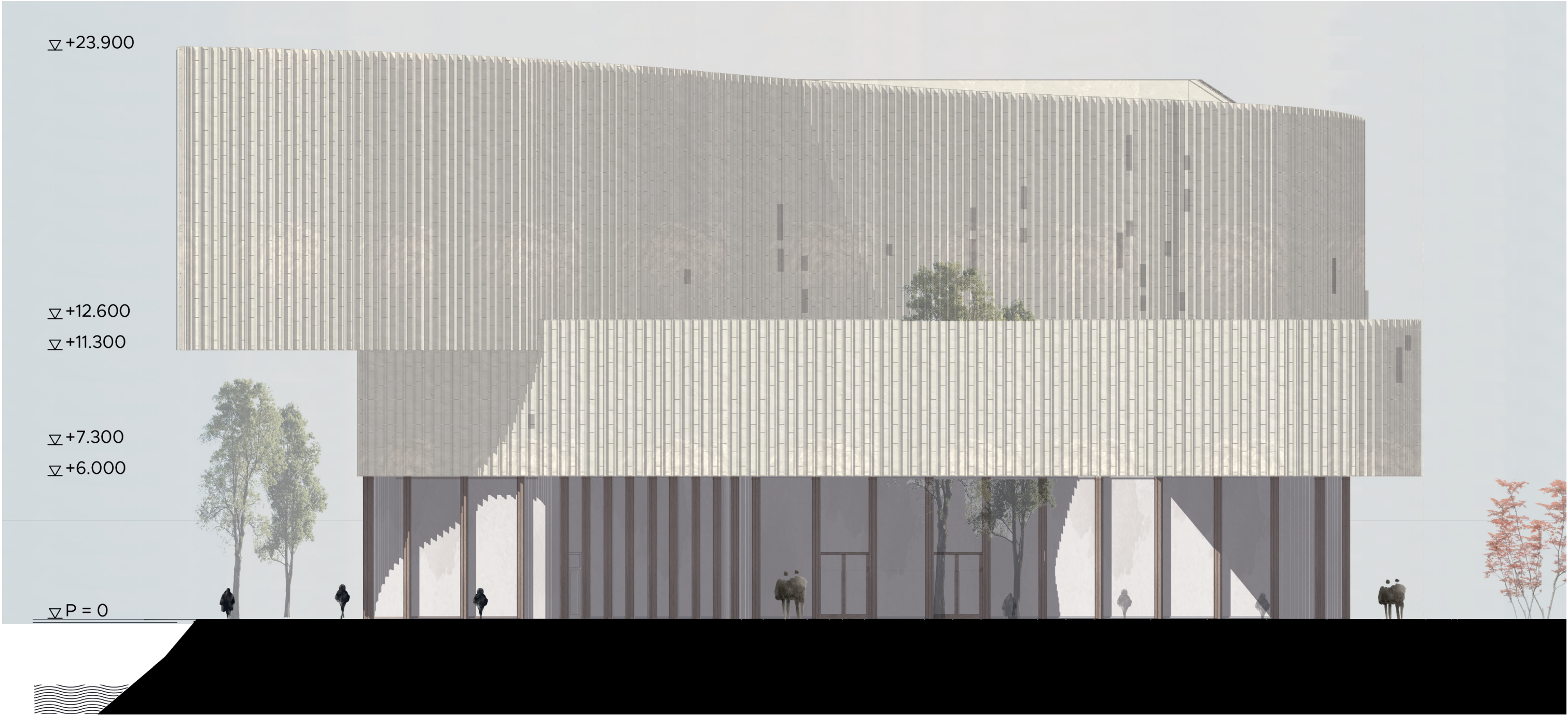


S-W ELEVATION BRIELSELAAN



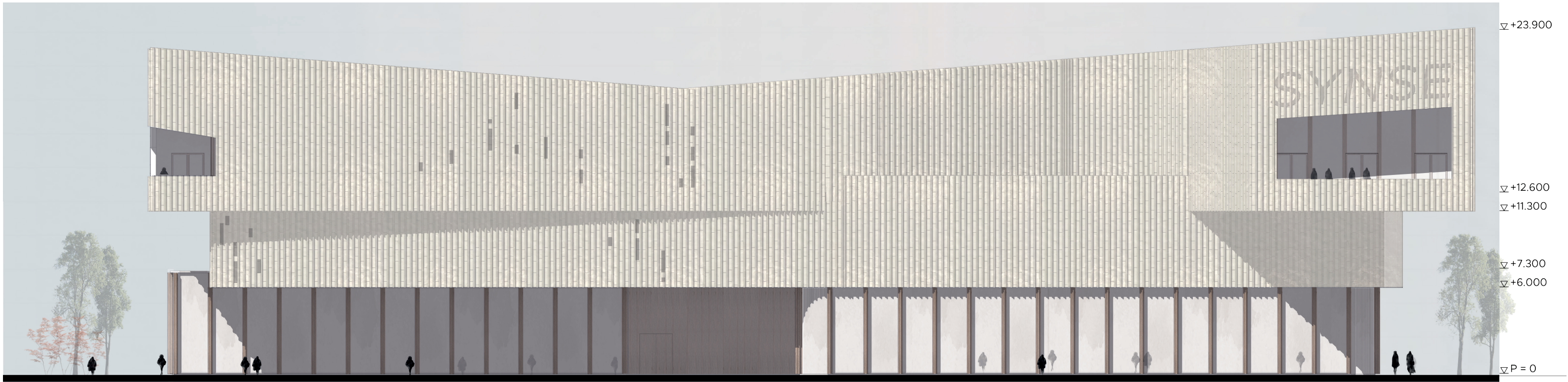


W-S ELEVATION PUBLIC PARK

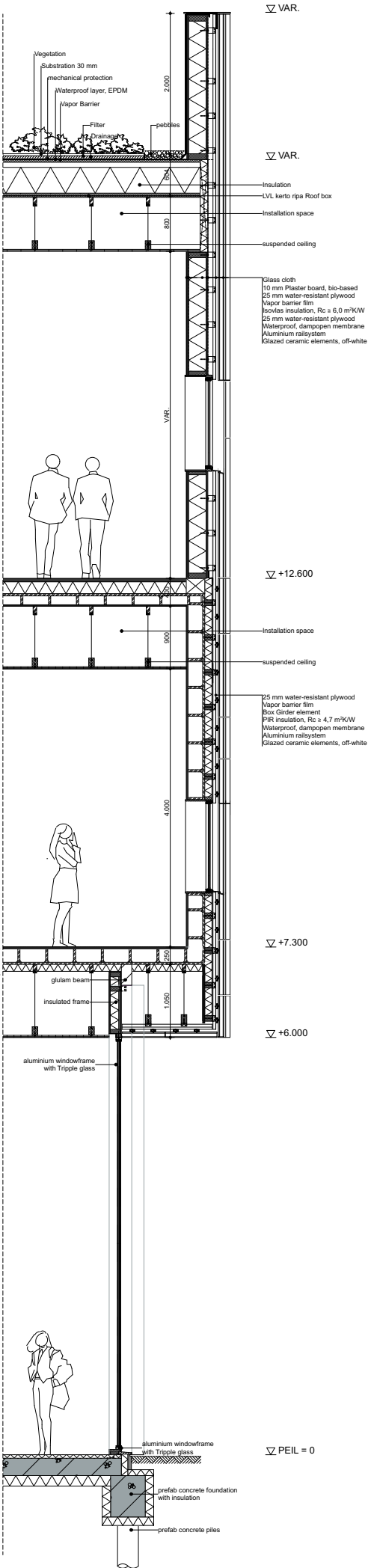
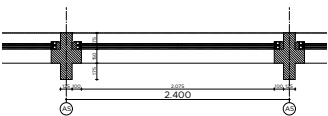
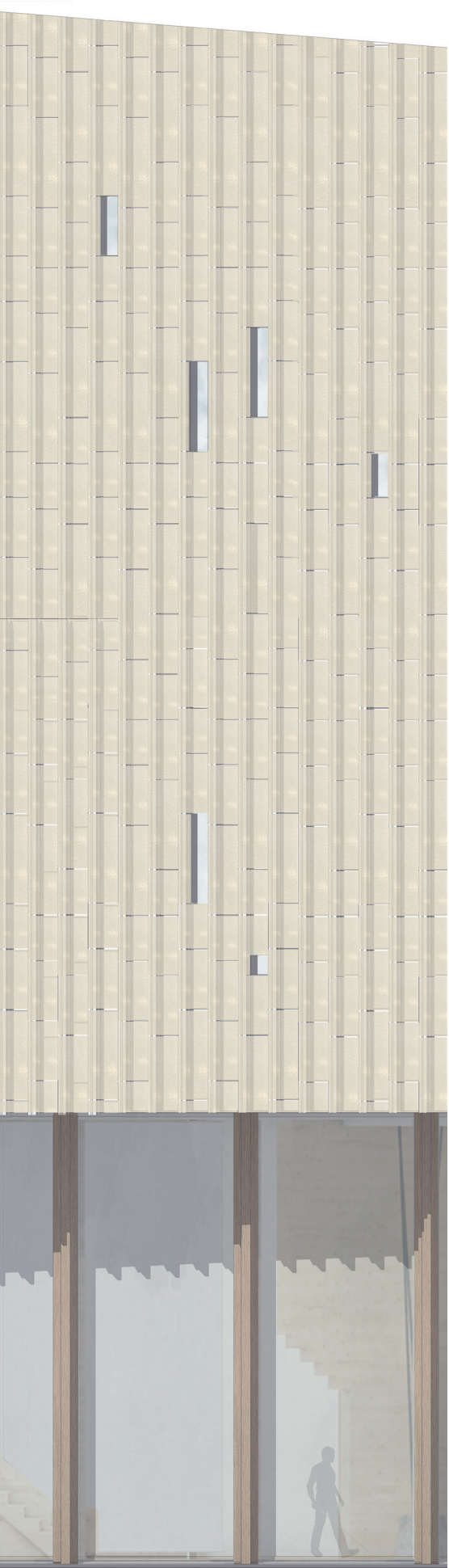




N-W ELEVATION MAASHAVEN

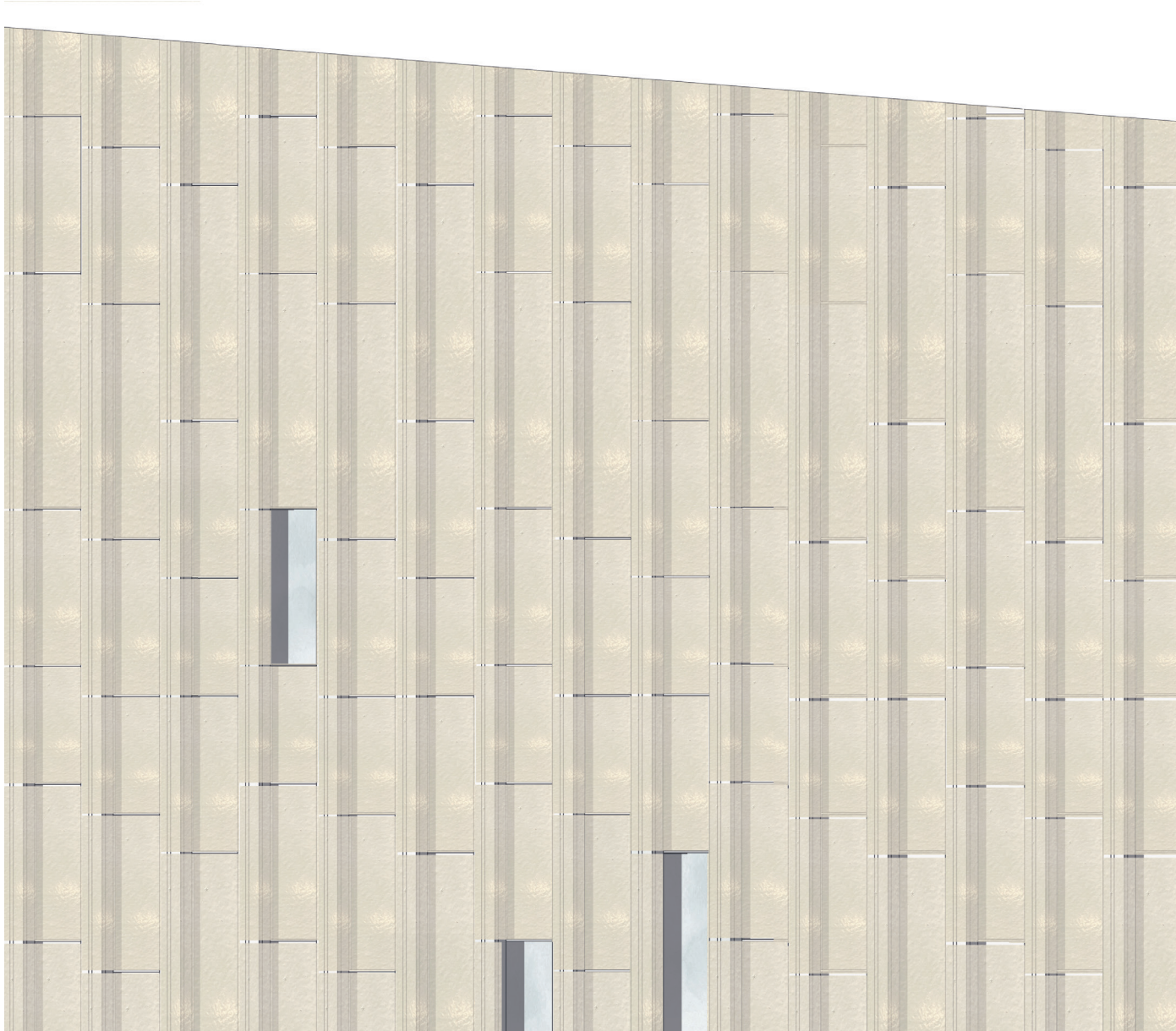


**1:50 Fragment**

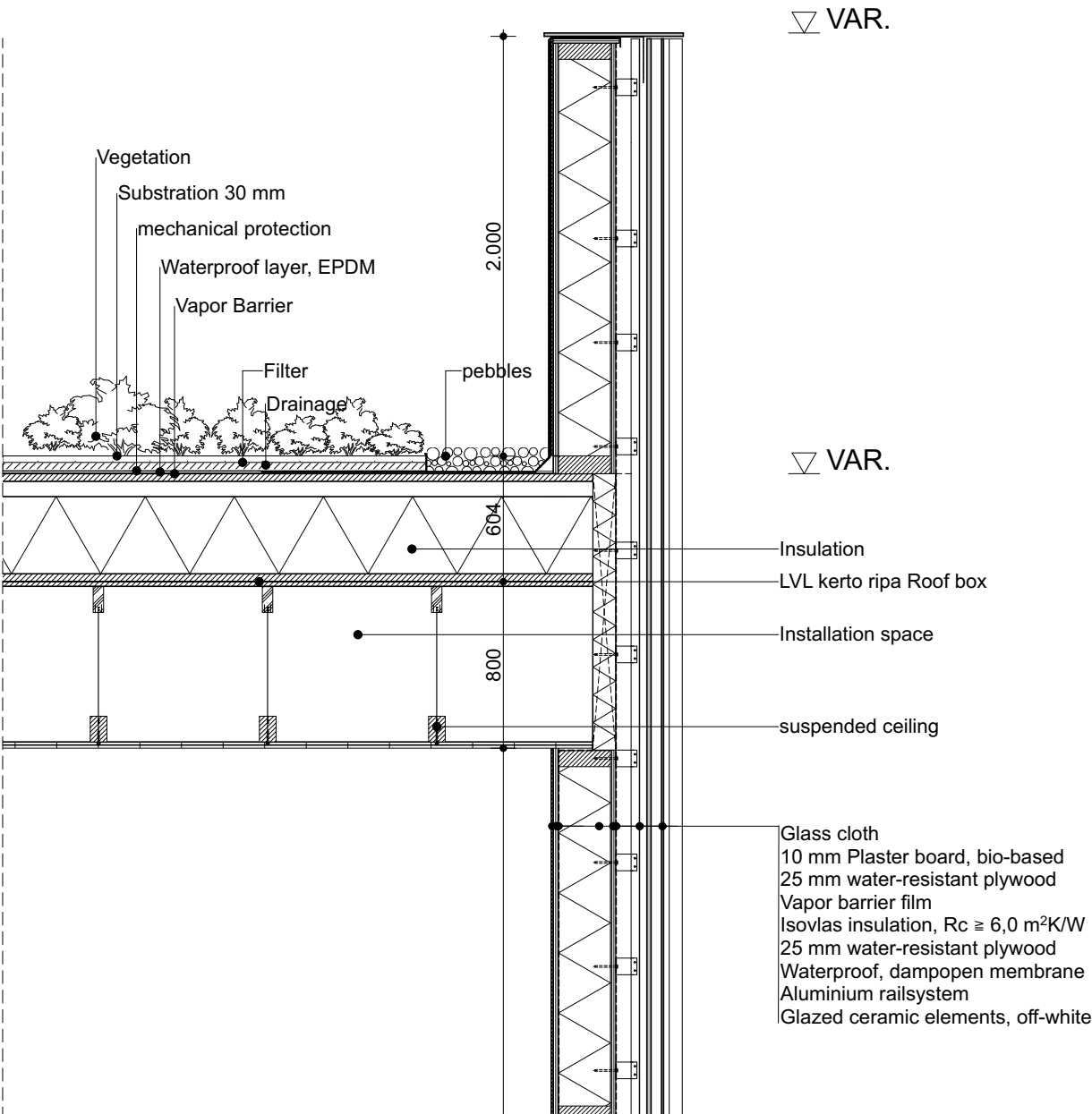




Section fragment

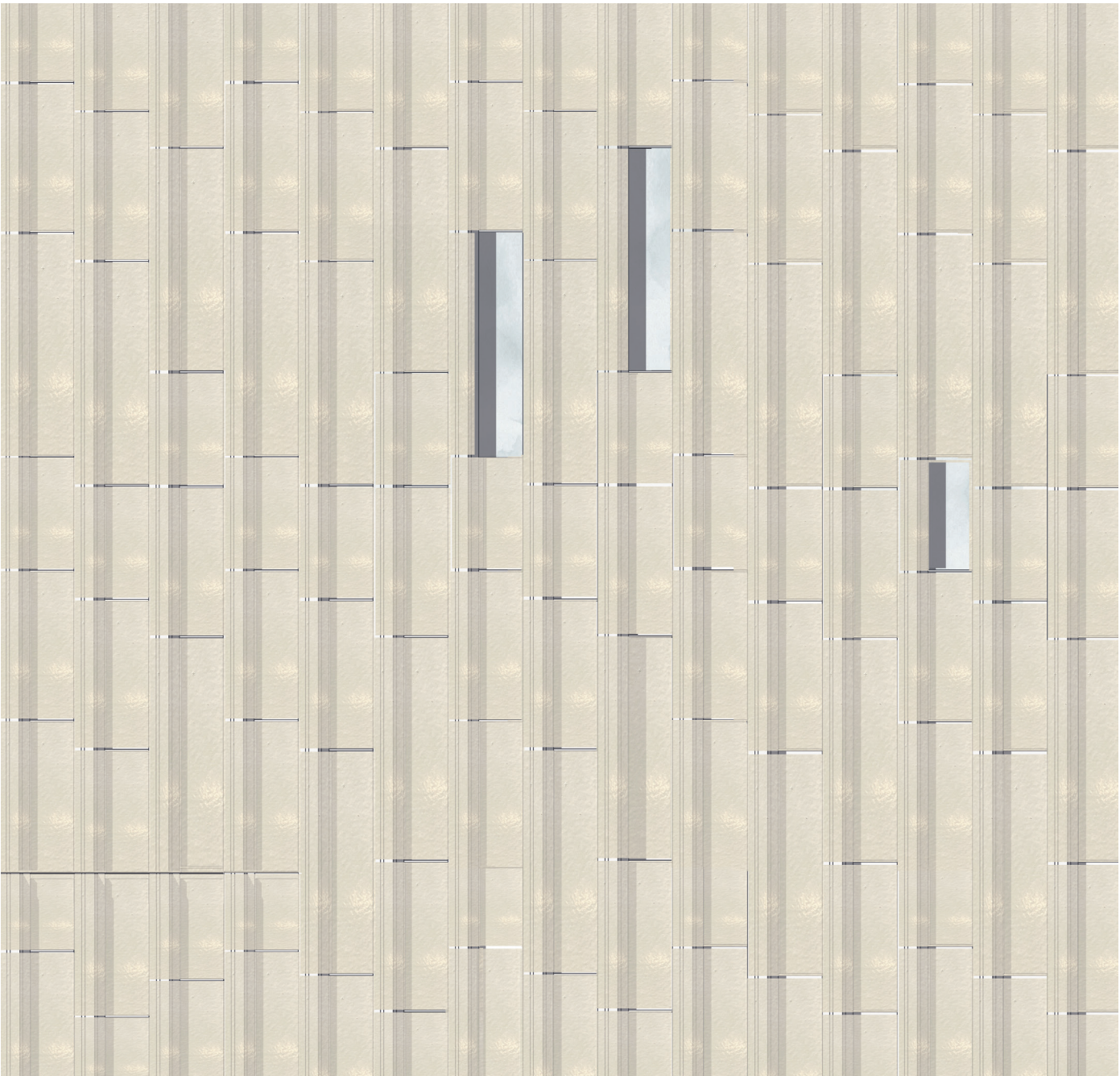


Elevation fragment

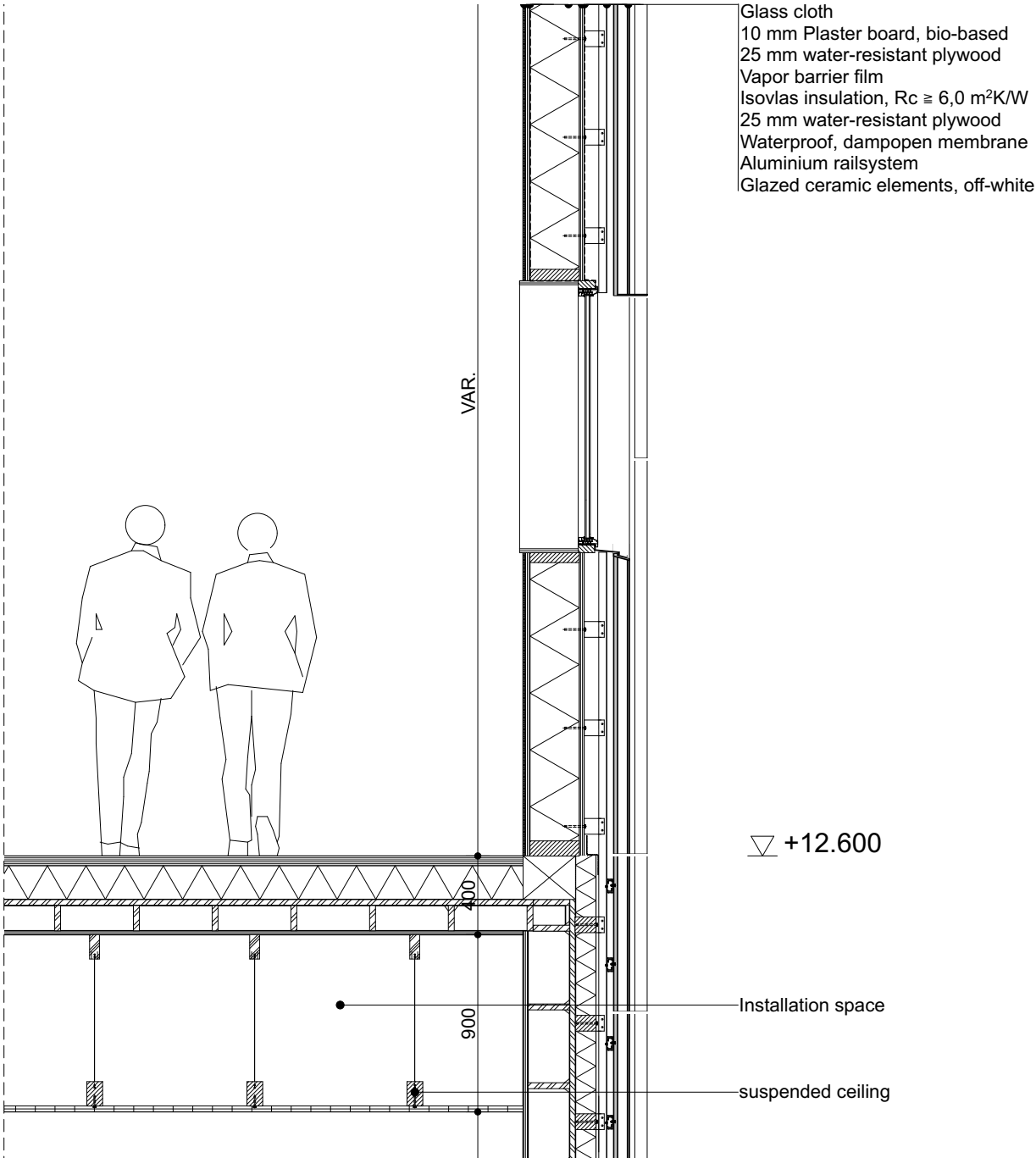




Section fragment



Elevation fragment



- Glass cloth
- 10 mm Plaster board, bio-based
- 25 mm water-resistant plywood
- Vapor barrier film
- Isovlas insulation,  $R_c \geq 6,0 \text{ m}^2\text{K/W}$
- 25 mm water-resistant plywood
- Waterproof, dampopen membrane
- Aluminium railsystem
- Glazed ceramic elements, off-white

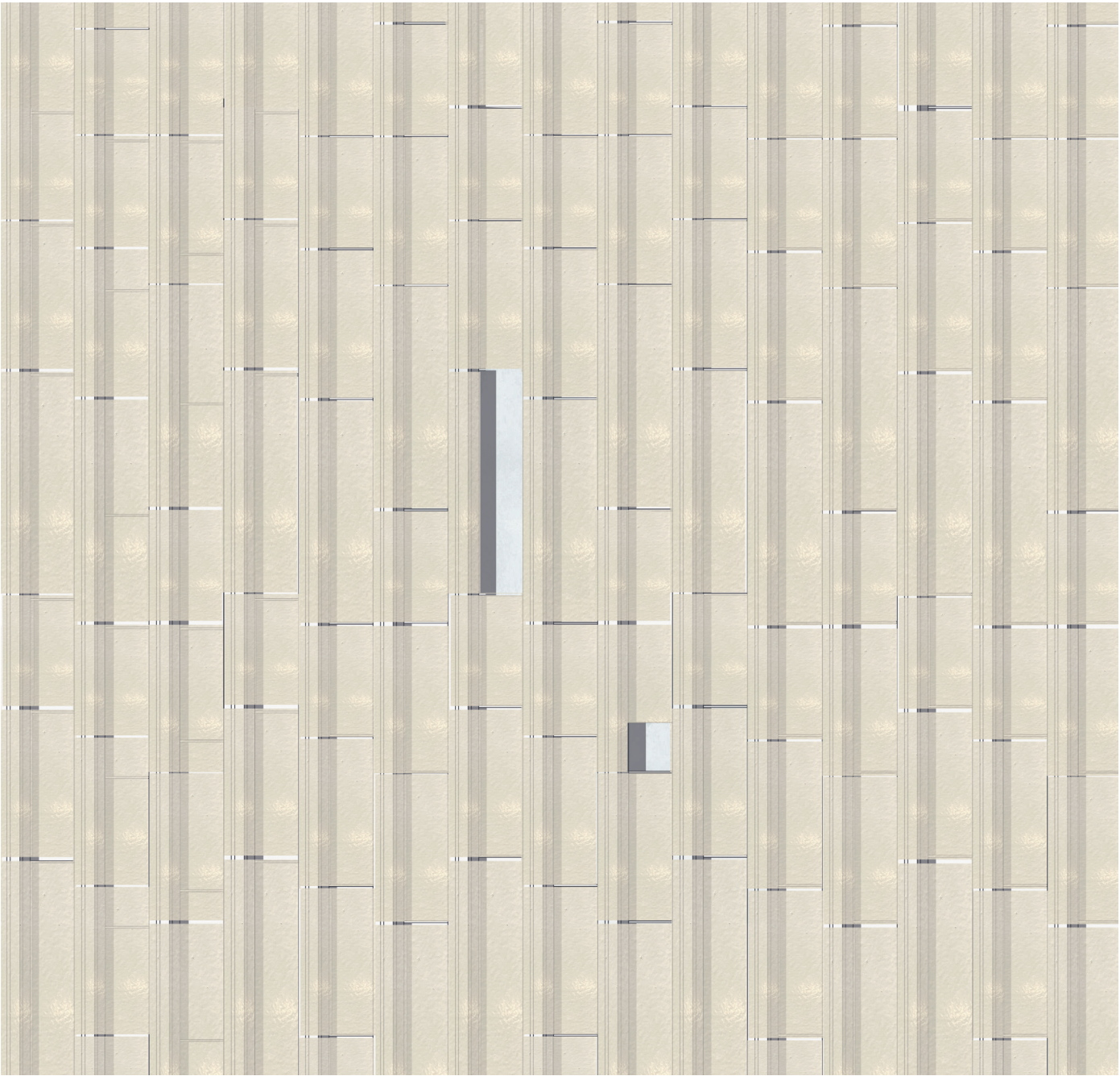
▽ +12.600

Installation space

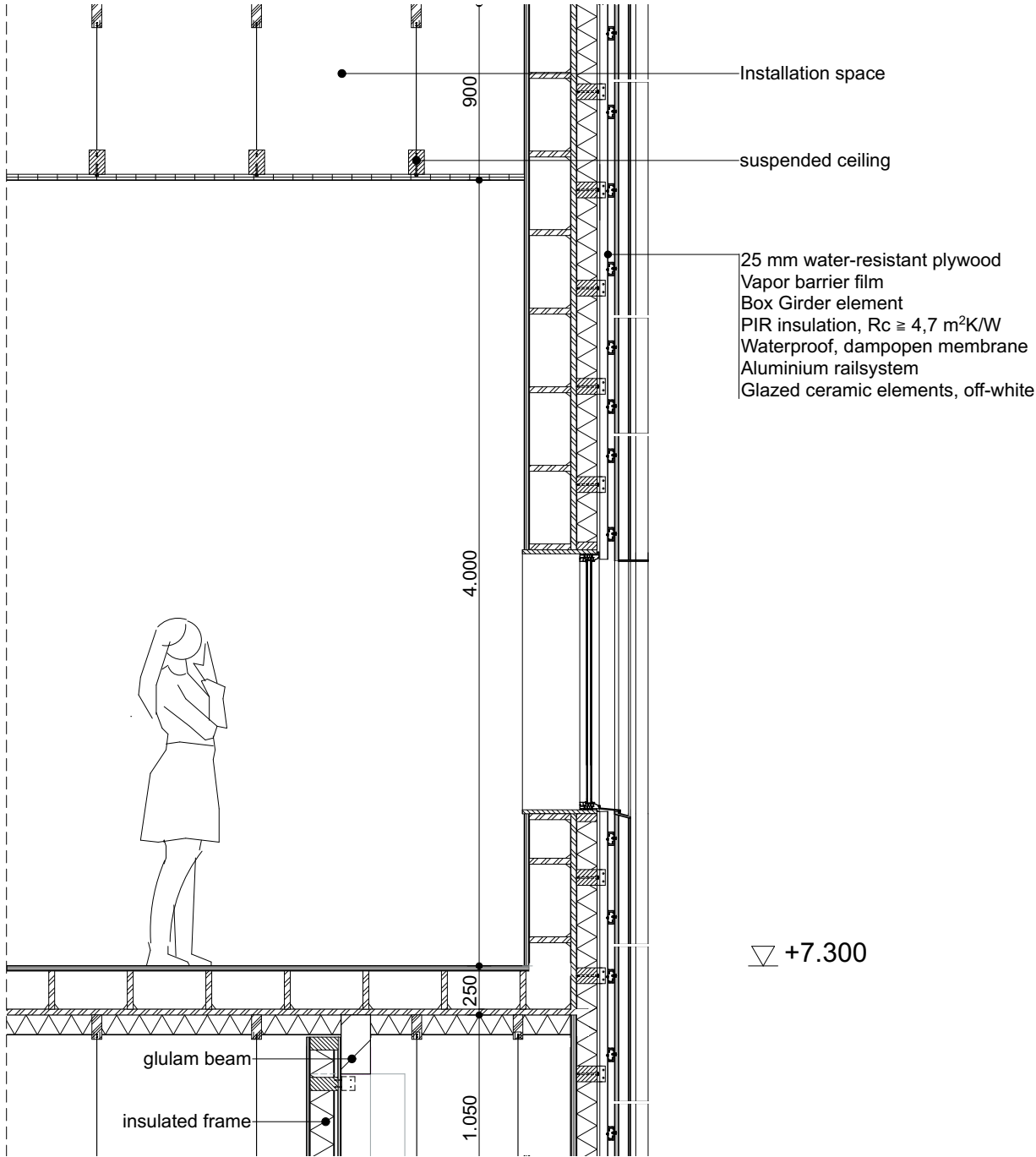
suspended ceiling



Section fragment



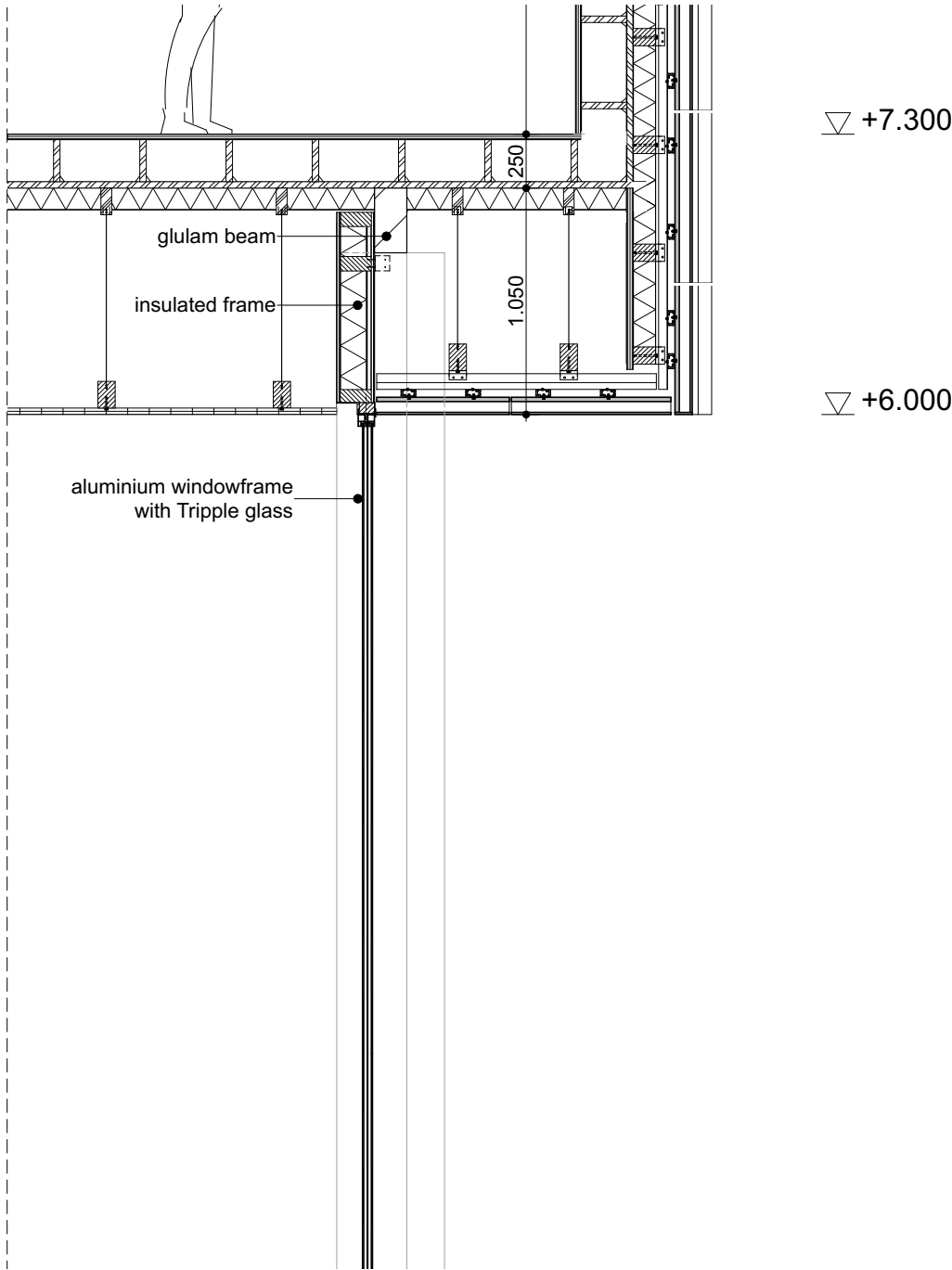
Elevation fragment



Section fragment



Elevation fragment

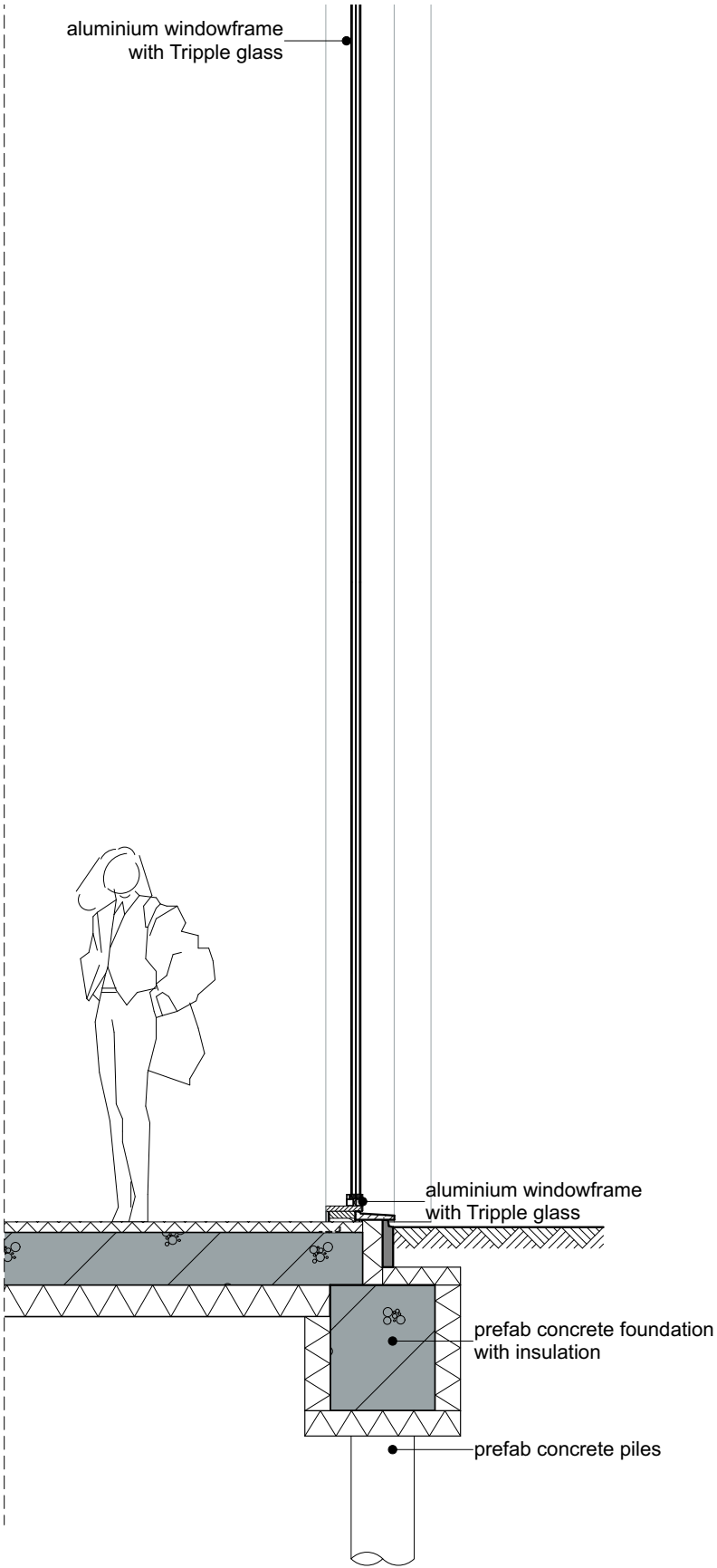




Section fragment



Elevation fragment



∇ PEIL = 0





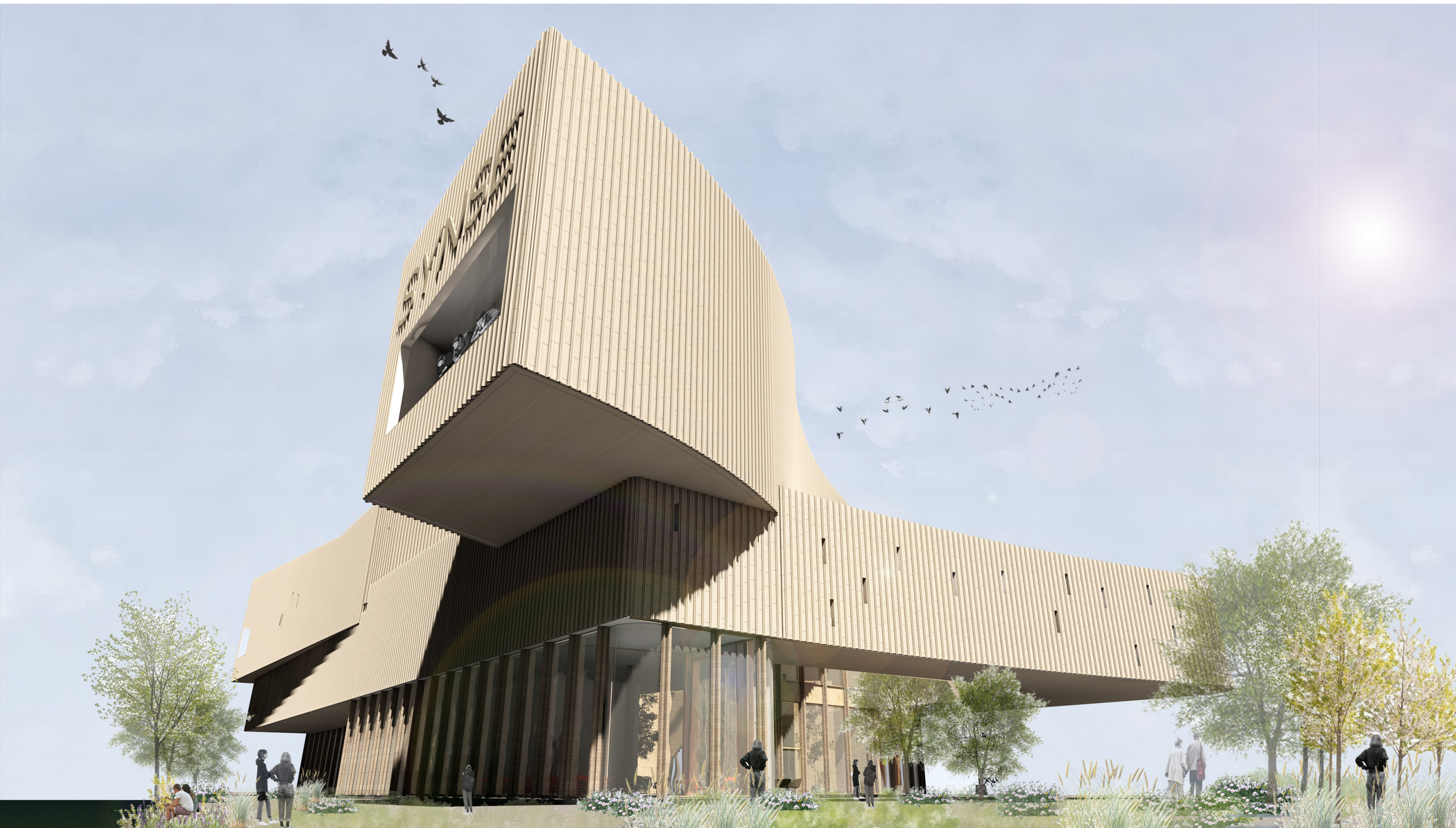














# CLIMATE CONCEPT



## OVERVIEW

### The Quacker Oats Complex

- Box in box concept  
*Inspired by Van Nelle Fabriek (by Claessen Erdmann)*

- Energy neutral:
  1. Low energy requirements
  2. Generate energy

- Supporting New Museum building
- Hydrogen Battery Support

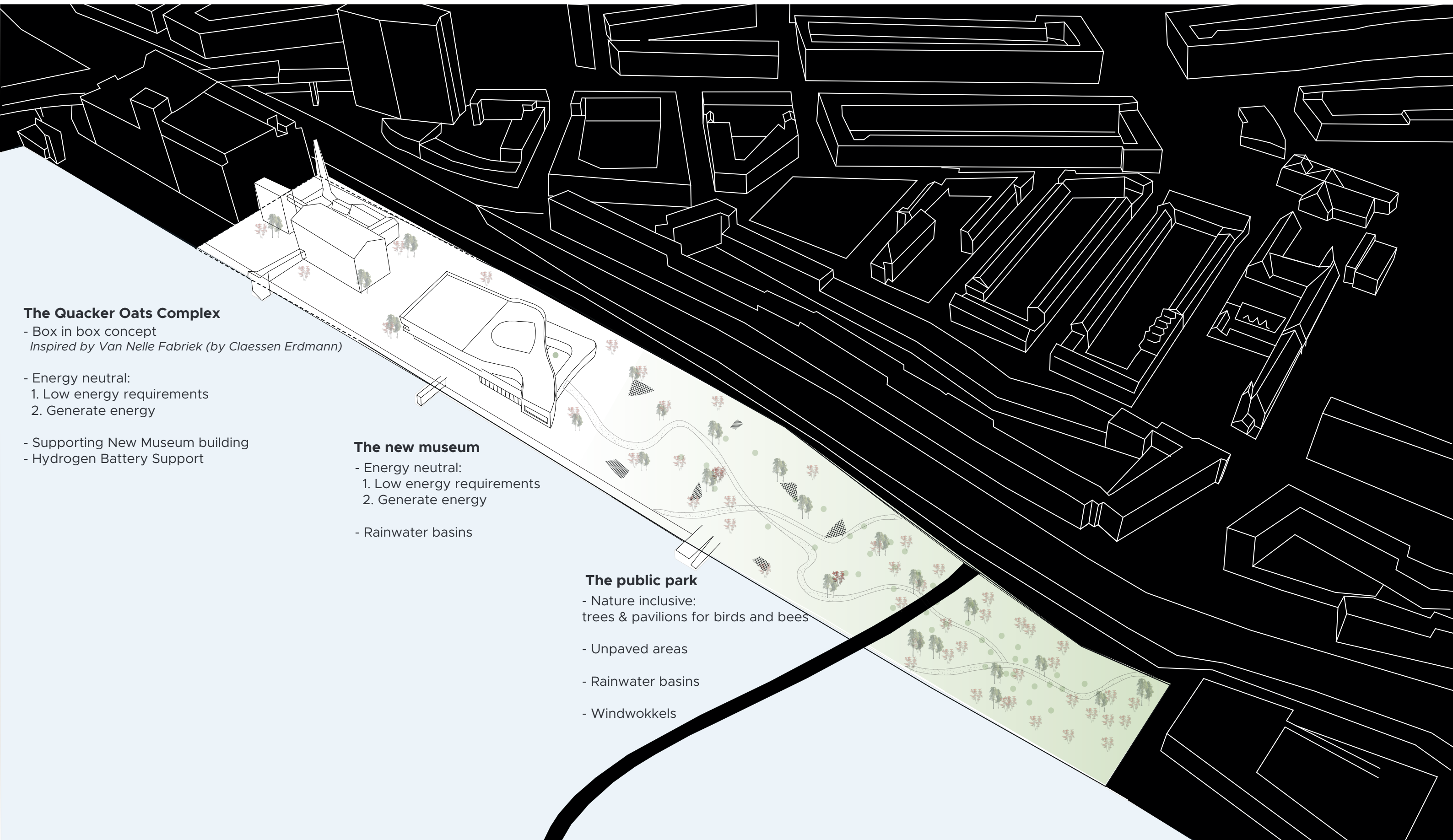
### The new museum

- Energy neutral:
  1. Low energy requirements
  2. Generate energy

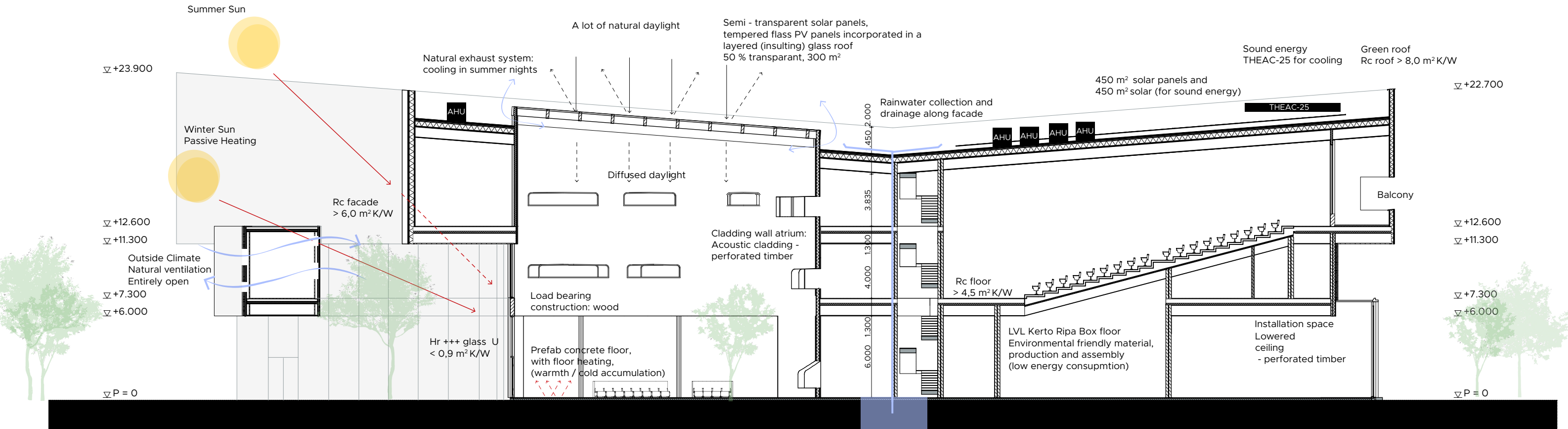
- Rainwater basins

### The public park

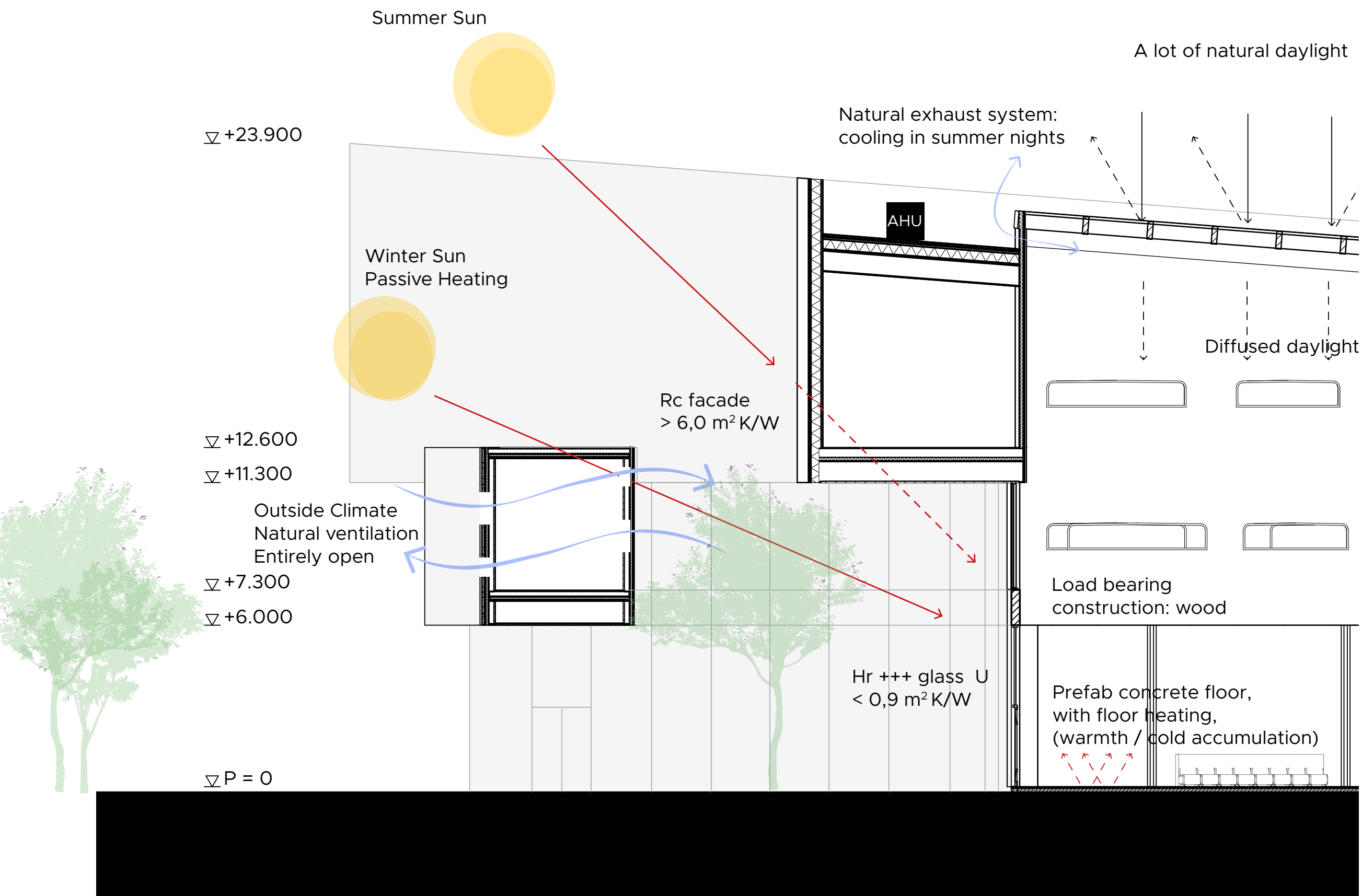
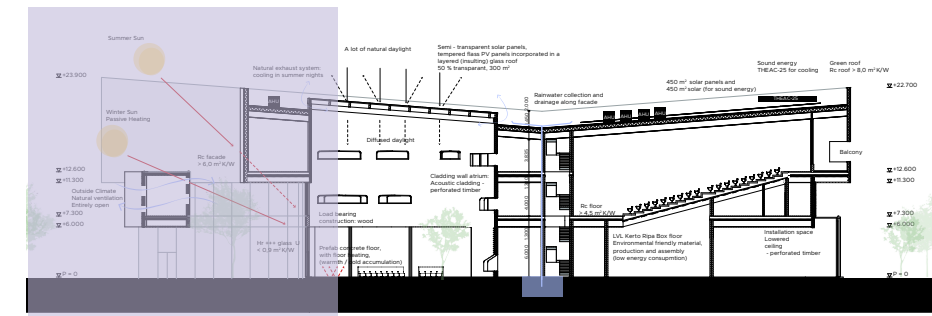
- Nature inclusive:  
trees & pavilions for birds and bees
- Unpaved areas
- Rainwater basins
- Windwokkels



SCHEME

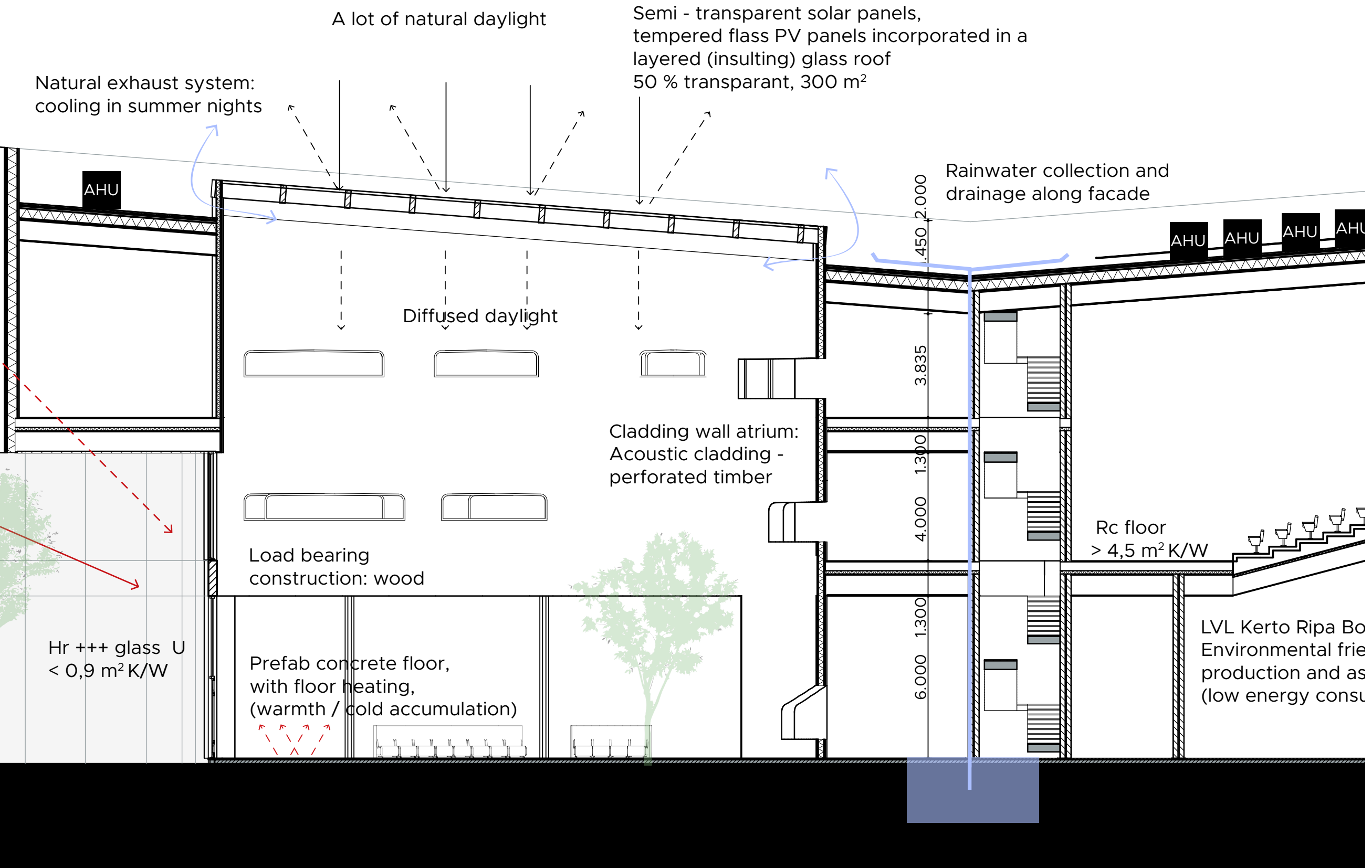
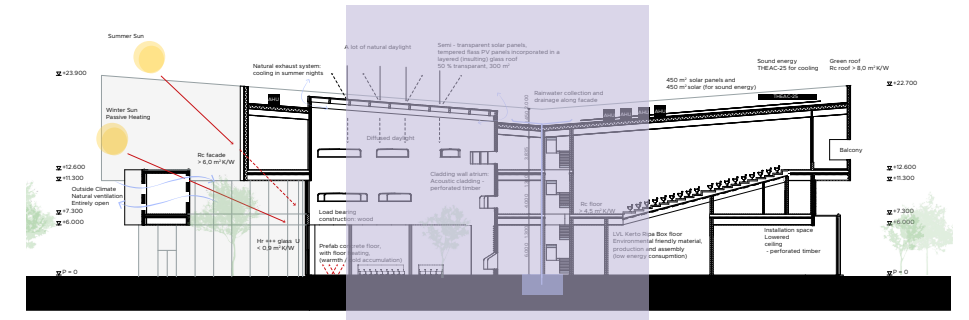


# SCHEME

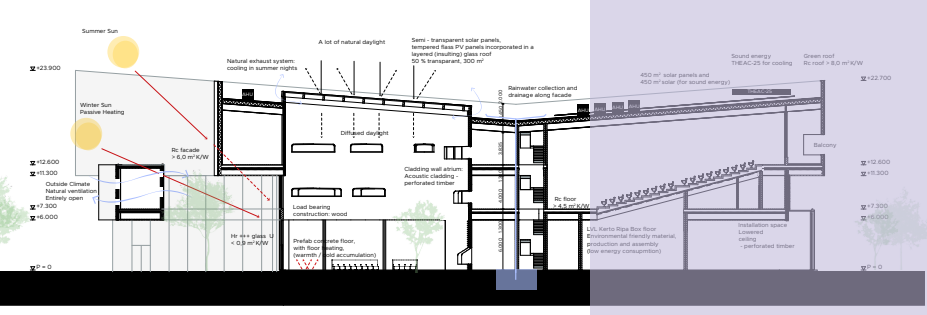




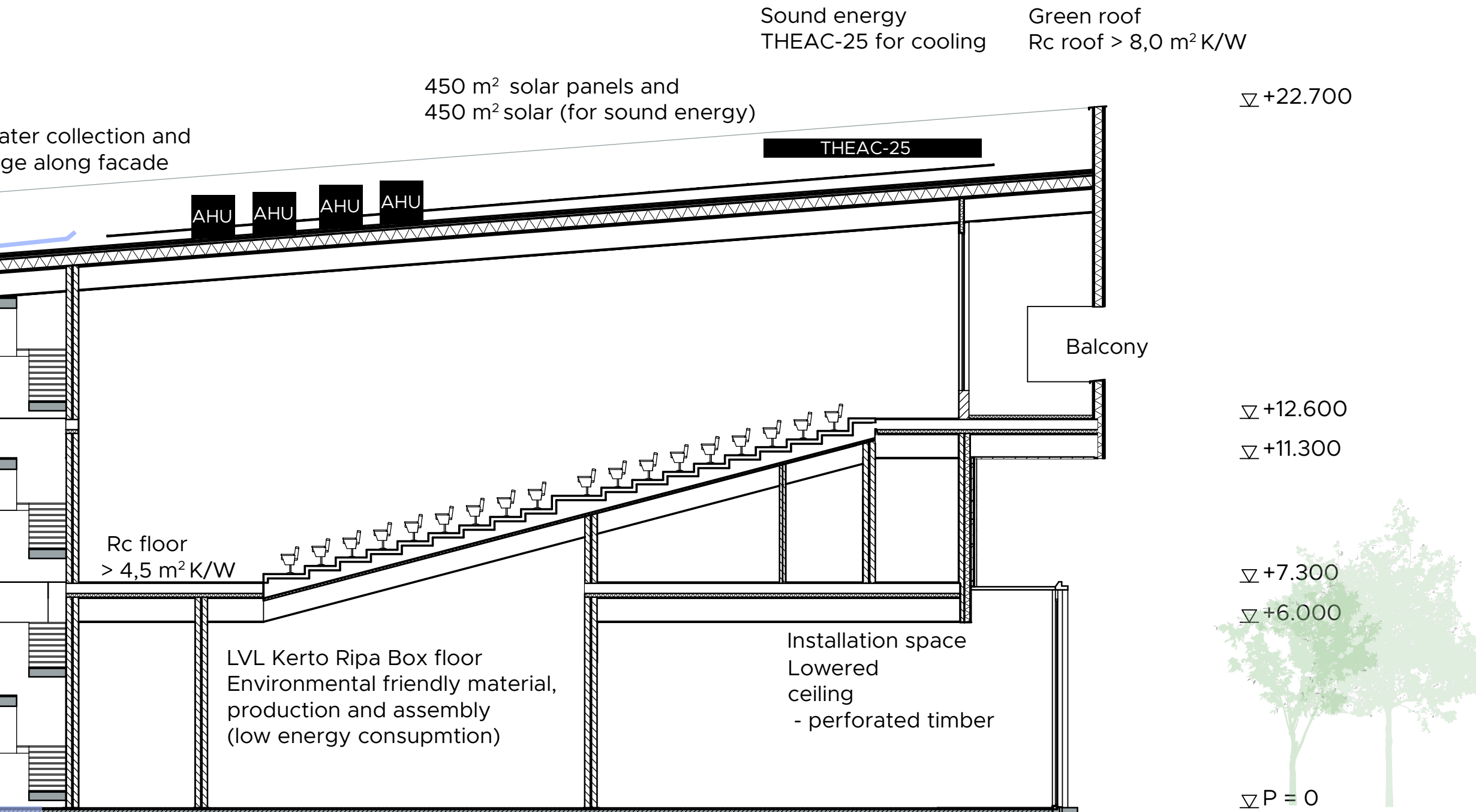
# SCHEME



SCHEME



n a



## SCHEME

The glass roof of the patio supplies the entrance hall and corridors with daylight.

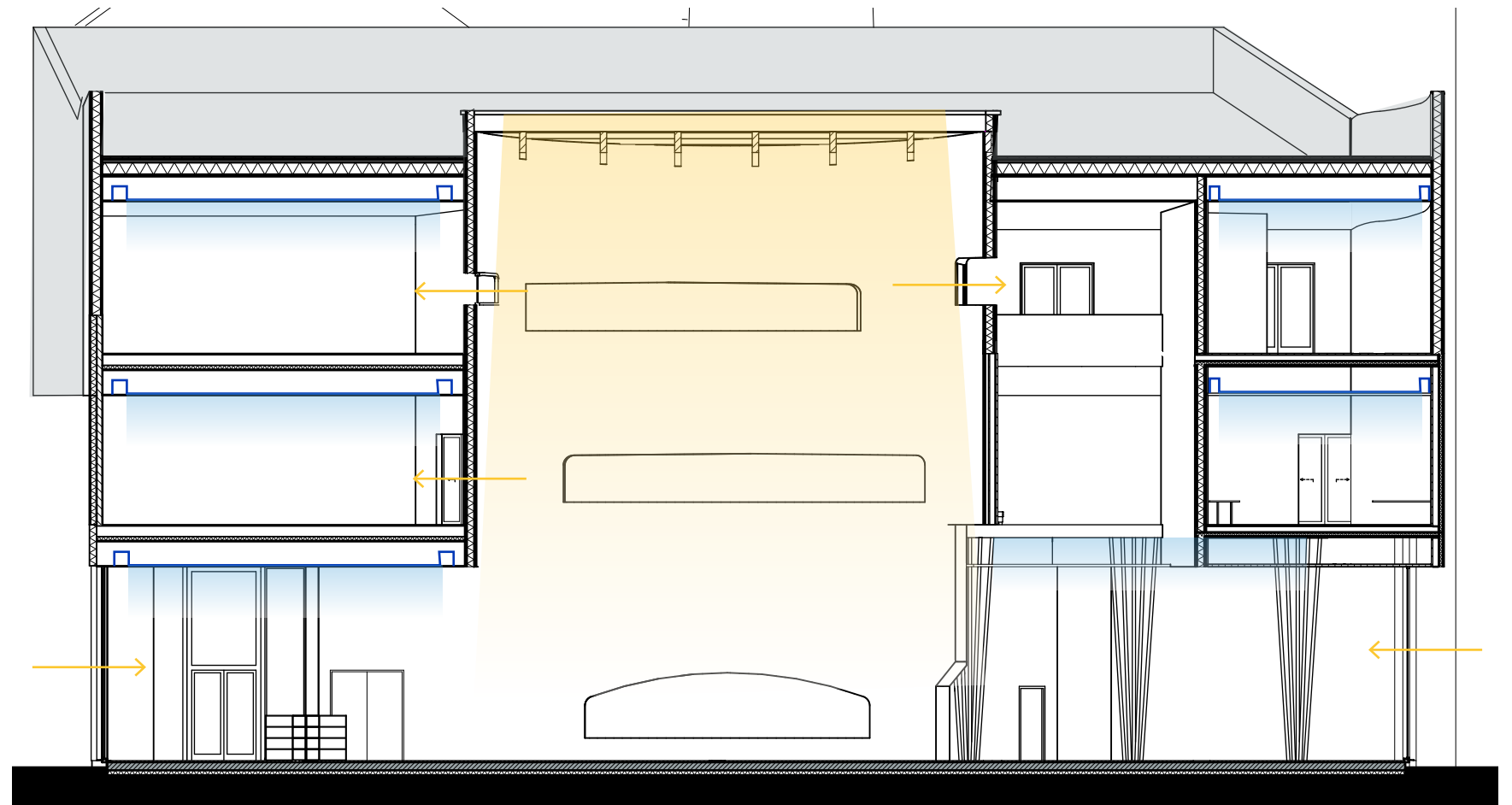
The ground floor is very light thanks to the transparent facade. The upper floors are darker. Overthere are just a few, strategically placed, large windows with gorgeous views.

Also on the upperfloors many small windows and gaps are placed in the faced. The ceramic tiles are left out at these specific places.

The exposition rooms are aquipped with artificial light. In the suspended ceilings, lightning with diffuse effects is intergrated.

In a jam/cove a long the walls a suspension system is placed. This can be used for spot lights and to fix or hang art works if needed.

Also some of the rooms, for example the “cabinets” are totally dark. The art is experienced in the dark there.





CONCEPT

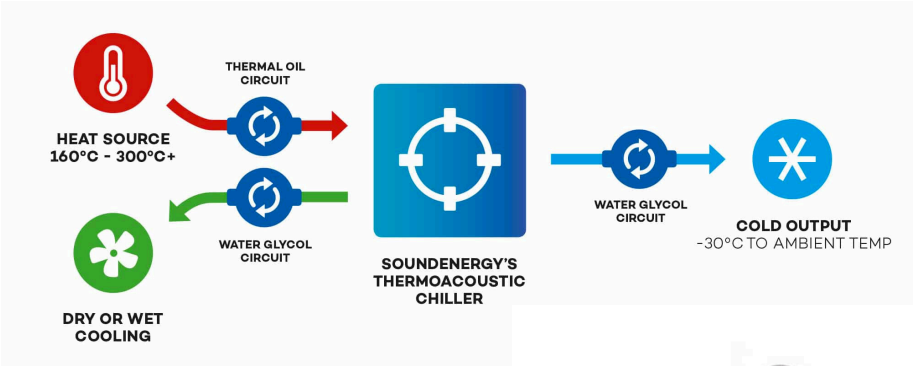
Starting point of the climate concept follows the well known trias energetica. Aspects of nature inclusivity can be find in the park, which is mostly an unpaved area suitable for waterin-filtration. Windwokkels are standing along the park and generate energy. The new museum building should is energy neutral. It has low energy requirements and generates its own energy need. For the Quaker Oats counts the same, furthermore the building has room for the Hydrogen Battery to support the new mu-seum. I will zoom in on the climatic and sustain-able aspects of the design.

Low energy consumption is integrated in the sculptural volume of the building. Passive de-sign elements are the overhangs at the south and west sides function as sun protection and provide shade in summer. And in winter it ser-ves a bit for heating.

In the atrium roof, 300 m2 semi transparent PV panels are placed. They reduce 50% day-light and keep out solar heat. Furthermore, natural ventilation during the night is possible by openings in the roof. The building needs to be ventilated mechanically and floor heating is applied. A lowered ceiling which covers the installations is made of perforated timber, for pleasant acoustics in the building. The roof collects rainwater, that can be used for the plants in the park.

Sound energy system in combination with solar collectors on the roof is used to cool the building. An extra hydrogen battery in the Quaker oats supports this system.

THEAC-25 SOUND ENERGY



WINDWOKKELS

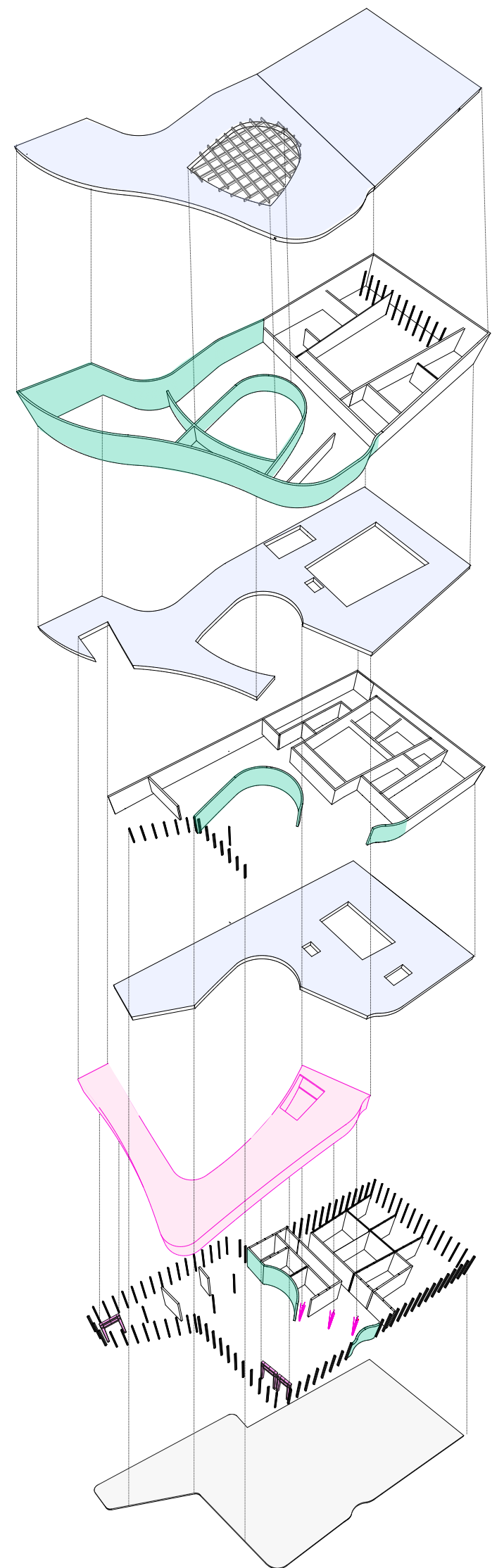
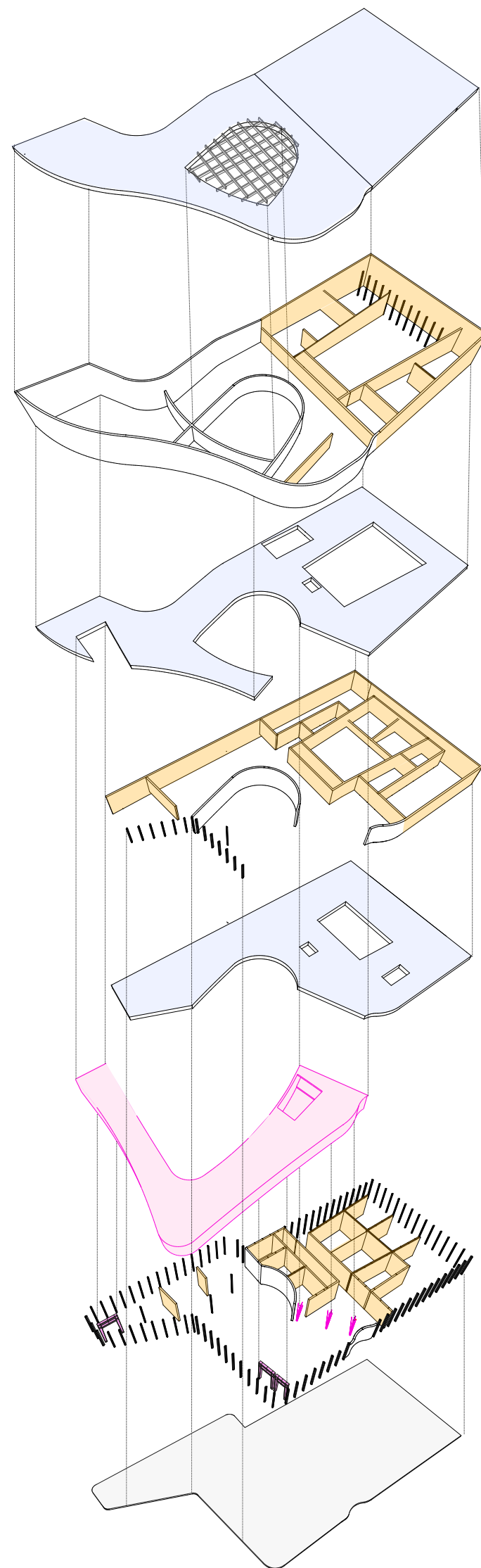
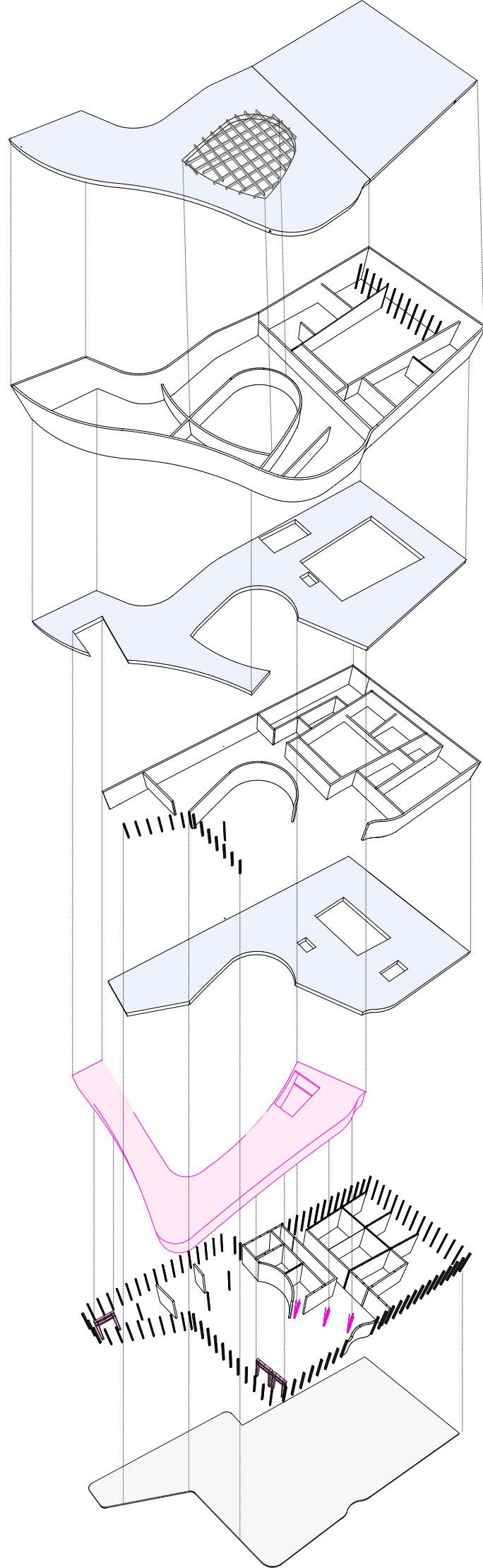


# STRUCTURE CONCEPT

## STRUCTURE CONCEPT

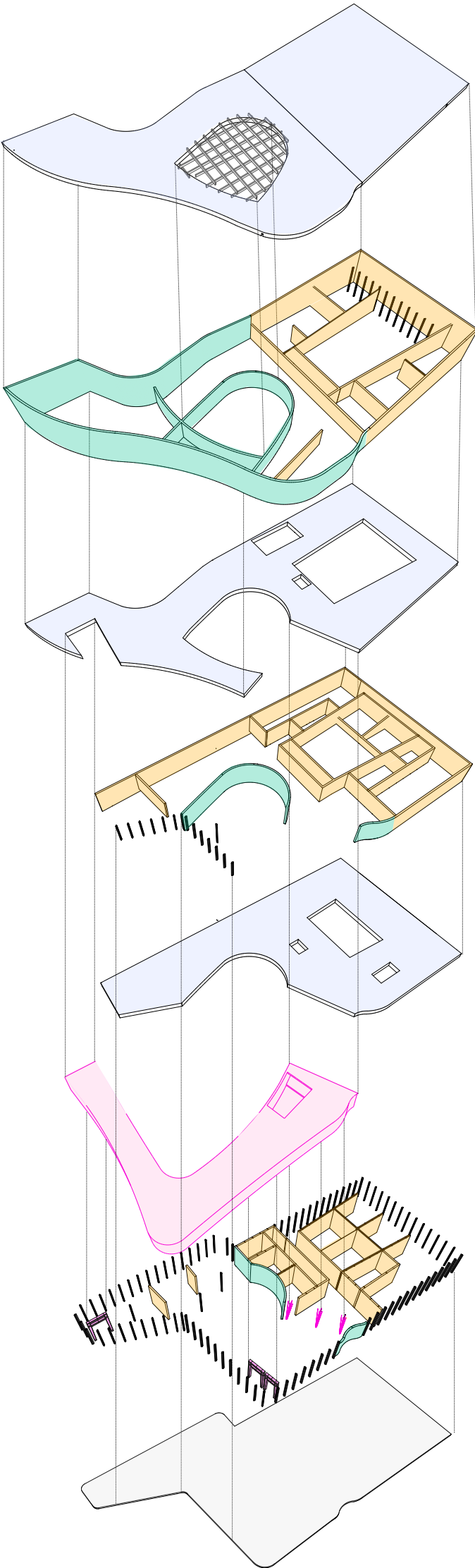
An attempt has been made to construct the building from wood. And as demountable as possible. The facades are load bearing. Cross columns from glulam at the groundfloor. At the organic side de elevation facades are constructed from of timber frame construction and on the straight side I used Cross Laminated Timber. Furthermore for the upper floor levels and the roof, wooden prefab LVL keto ripa box elements are used. This is to achieve the large spans. The only Exception of this wooden structure, is the big cantilever made out of steel.

This part of the building floats above. The cantilever is constructed as a box-girder principle. A very stif tube is made out of stiffness and plates. To carry this cantilever a huge backspan is needed. Steel portals and cabels at the ground floor hold the huge tensile forces of this big span.





STRUCTURE CONCEPT



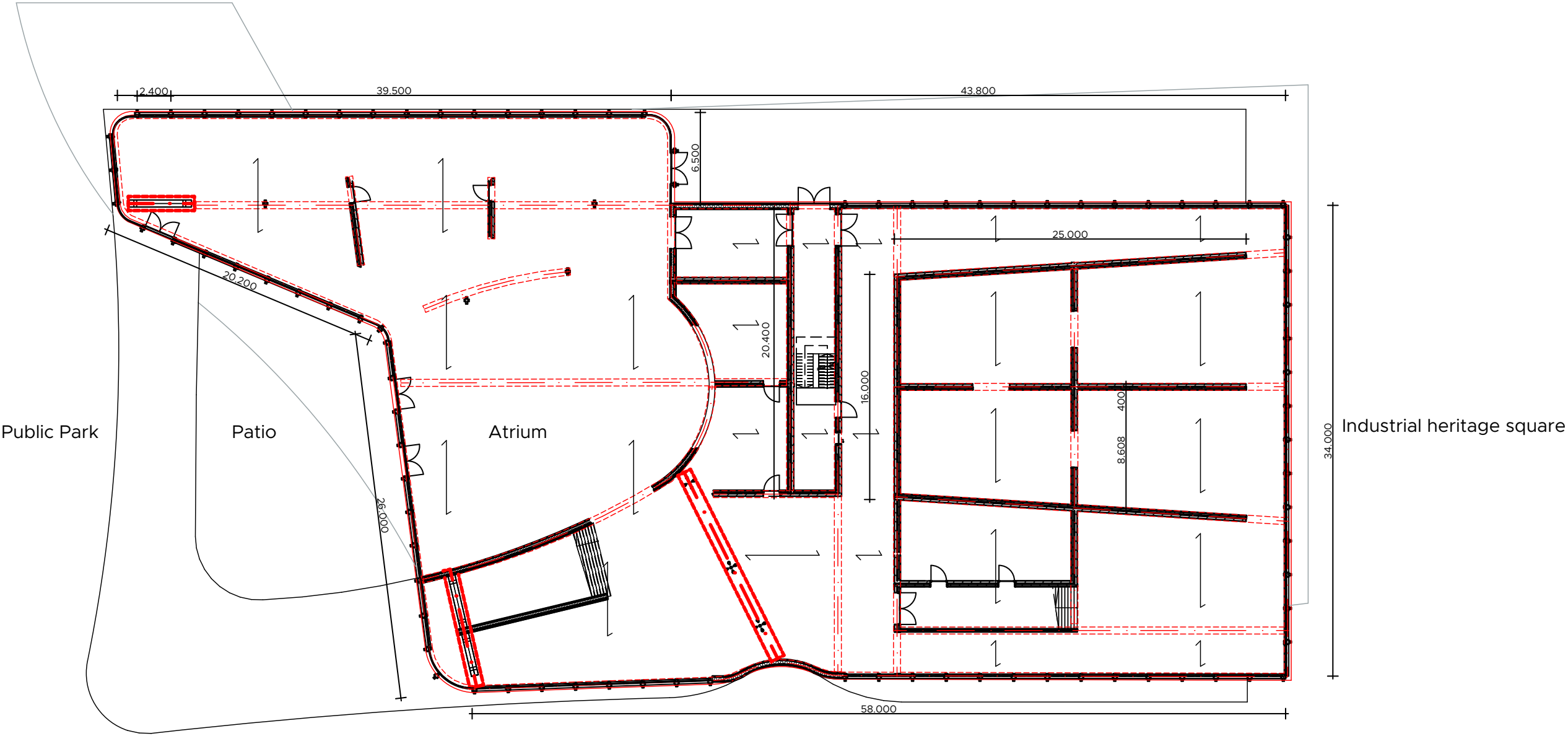
TIMBER FRAME STRUCTURE  
CROSS LAMINATED TIMBER

TIMBER FRAME STRUCTURE  
CROSS LAMINATED TIMBER

BOX GIRDER - STEEL

CROSS COLUMNS GLULAM

Spans



The Synesthetic Art Museum

Public Building Graduation Studio  
THE NEW MUSEUM | Art + the City Re-wired

Adress: Brielselaan, Maashaven  
Rotterdam, The Netherlands

Layoutnummer: -Structure

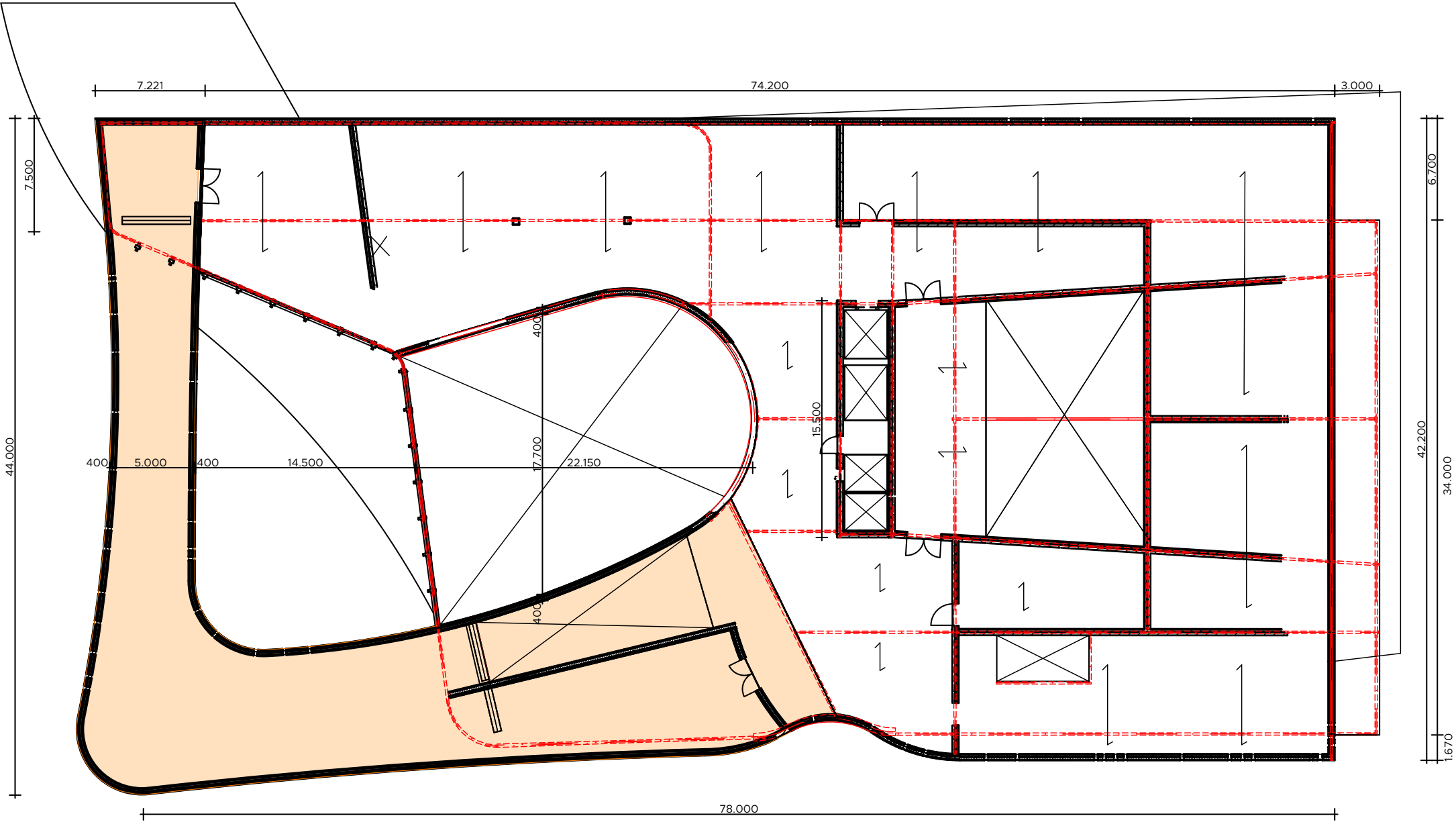
Layoutnaam: Groundfloor

Schaal: 1:500

Status: Final Design

Modelleur: Julka Veerman 4460995

Spans



The Synesthetic Art Museum

Public Building Graduation Studio  
THE NEW MUSEUM | Art + the City Re-wired

Adress: Brielselaan, Maashaven  
Rotterdam, The Netherlands

Layoutnummer: -Structure

Layoutnaam: First Floor

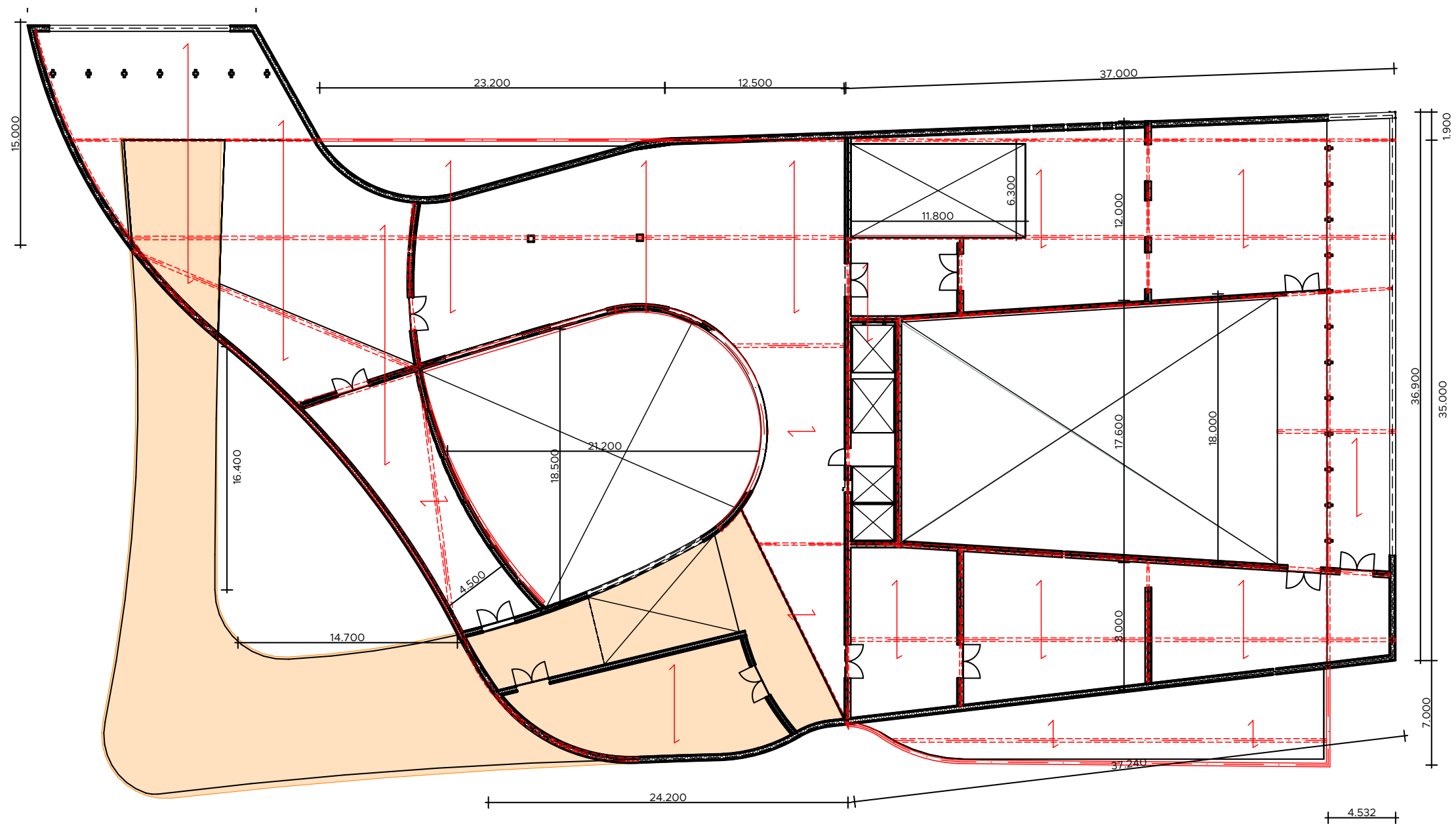
Schaal: 1:500

Status: Final Design

Modelleur: Julka Veerman 4460995



Spans



The Synesthetic Art Museum

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THE NEW MUSEUM | Art + the City Re-wired

Adress: Brielselaan, Maashaven  
Rotterdam, The Netherlands

Layoutnummer: -Structure

Layoutnaam: Second Floor

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Spans



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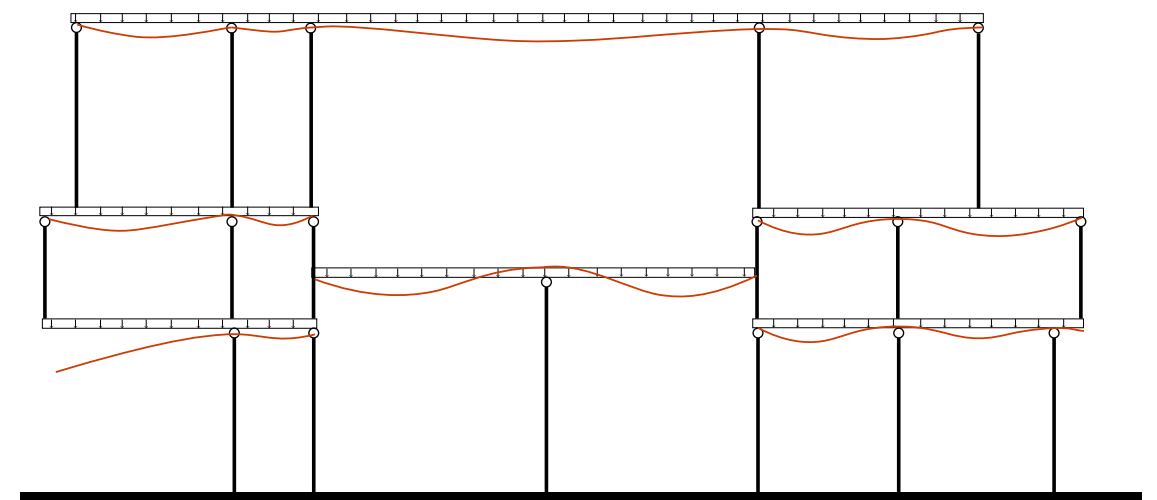
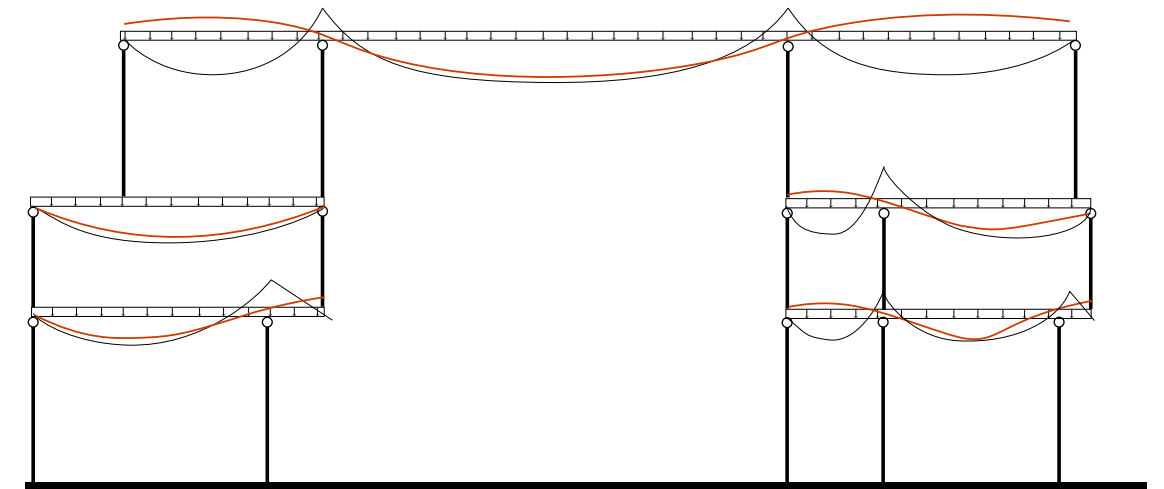
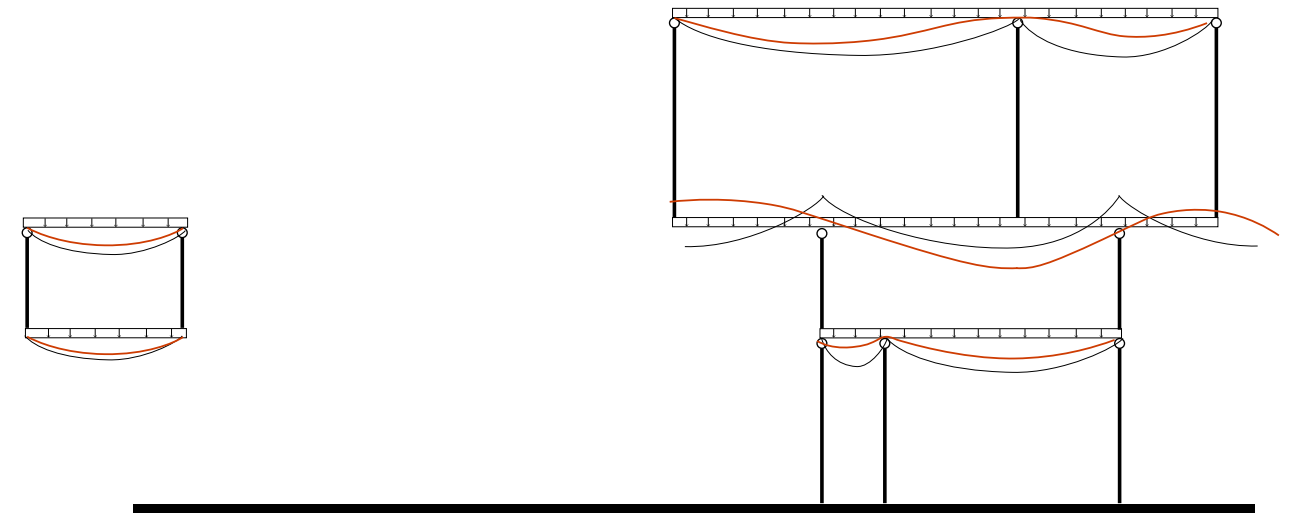
Layoutnummer: -Structure

Layoutnaam: Roof

Schaal: 1:500

Status: Final Design

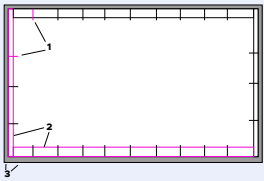
Modelleur: Julka Veerman 4460995



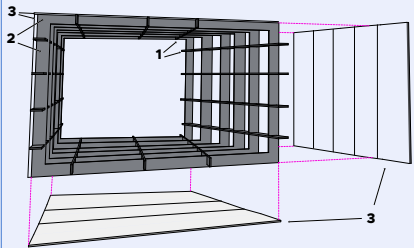


# STRUCTURE BOX GIRDER

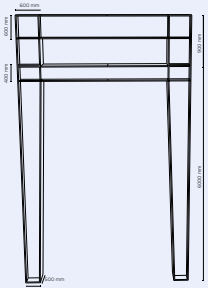
## THE TUBE



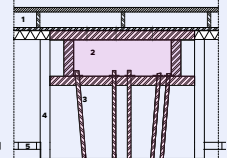
1. Longitudinal stiffeners
2. Transverse stiffeners
3. Steel plates



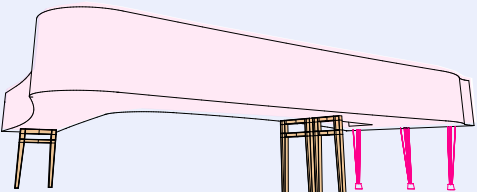
## STRUCTURAL PORTAL material : cortensteel



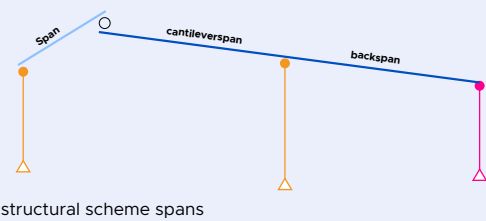
## STEEL CABLES FOR TENSILE FORCE



1. Floor - Box girder structure
2. Mounting plate
3. Steel cables
4. Space for lightning
5. Lowered ceiling



TUBE supported by steel portals and cables



structural scheme spans

## 3. Roof

- LVL kerto ripa box
- Glulam Beams with semi-transparent PV panels

Demontable walls  
CLT and Timberframe  
construction

## 2. Second floor

- LVL Kerto Ripa box

Demontable walls  
CLT and Timberframe  
construction

## 1. First floor

- LVL Kerto Ripa box
- width 2400
- max span. 11.35 m

The box girder

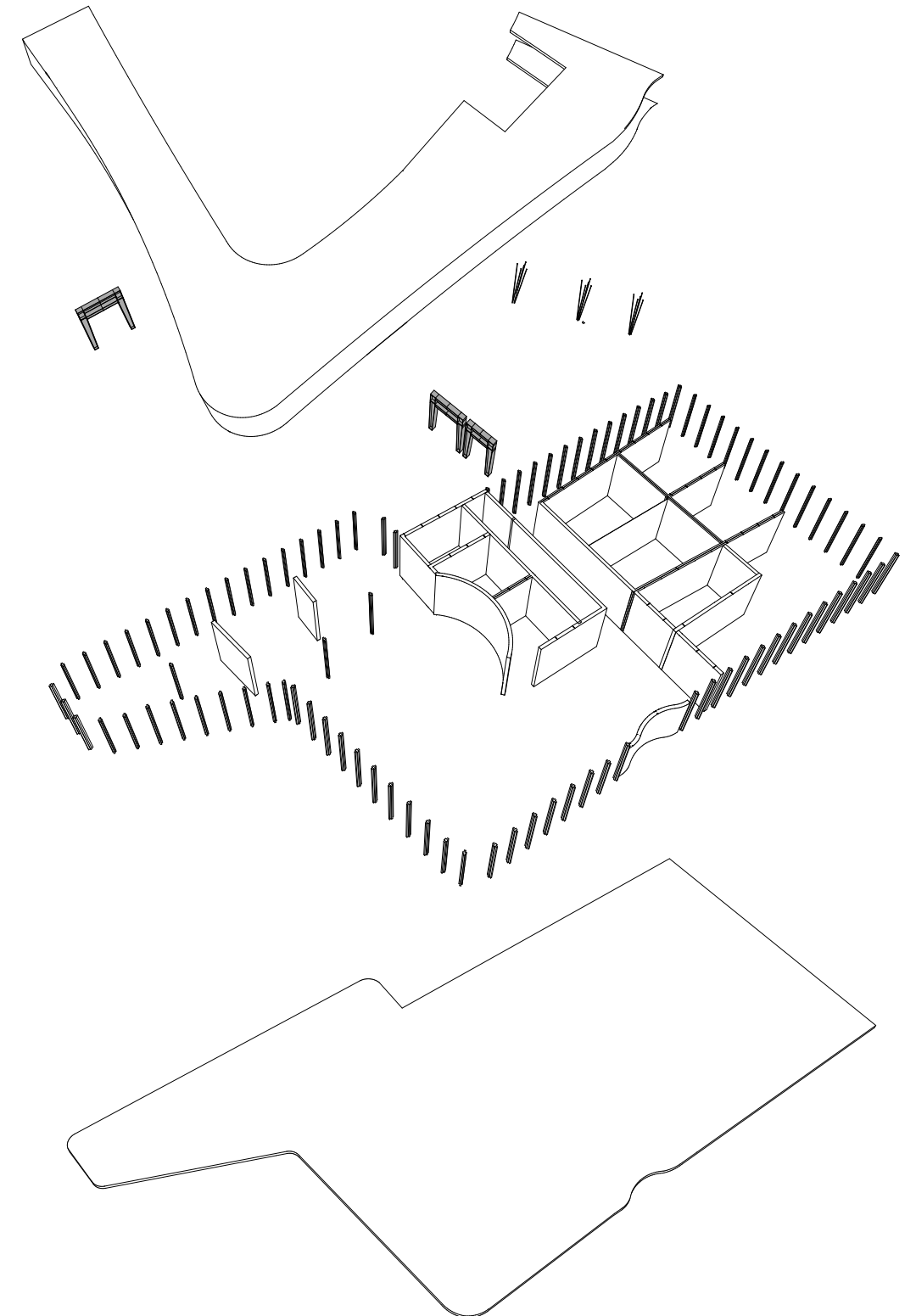
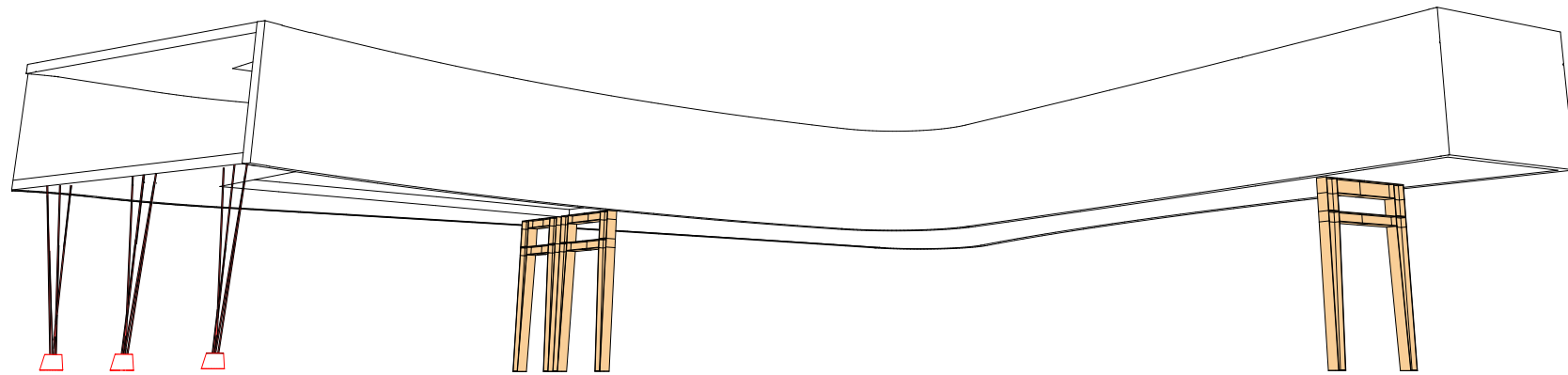
- Cross columns glulam  
along facade
- structural

## 0. Ground floor

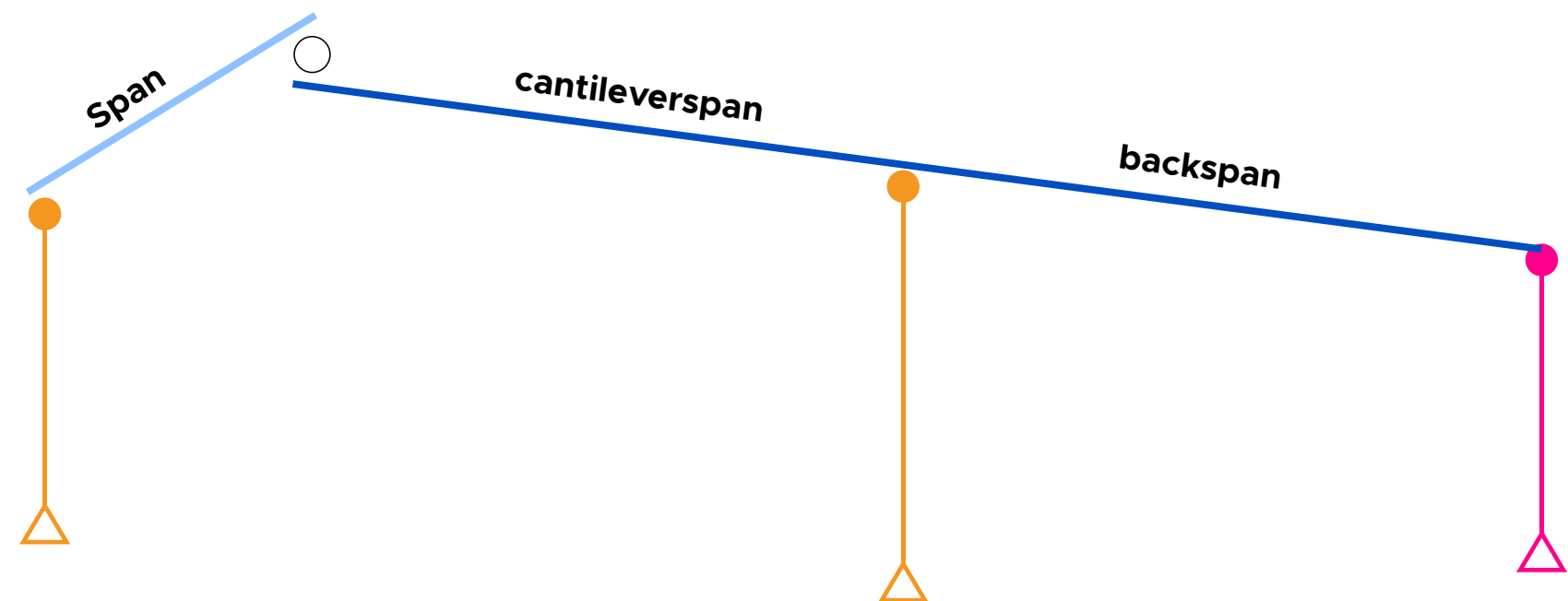
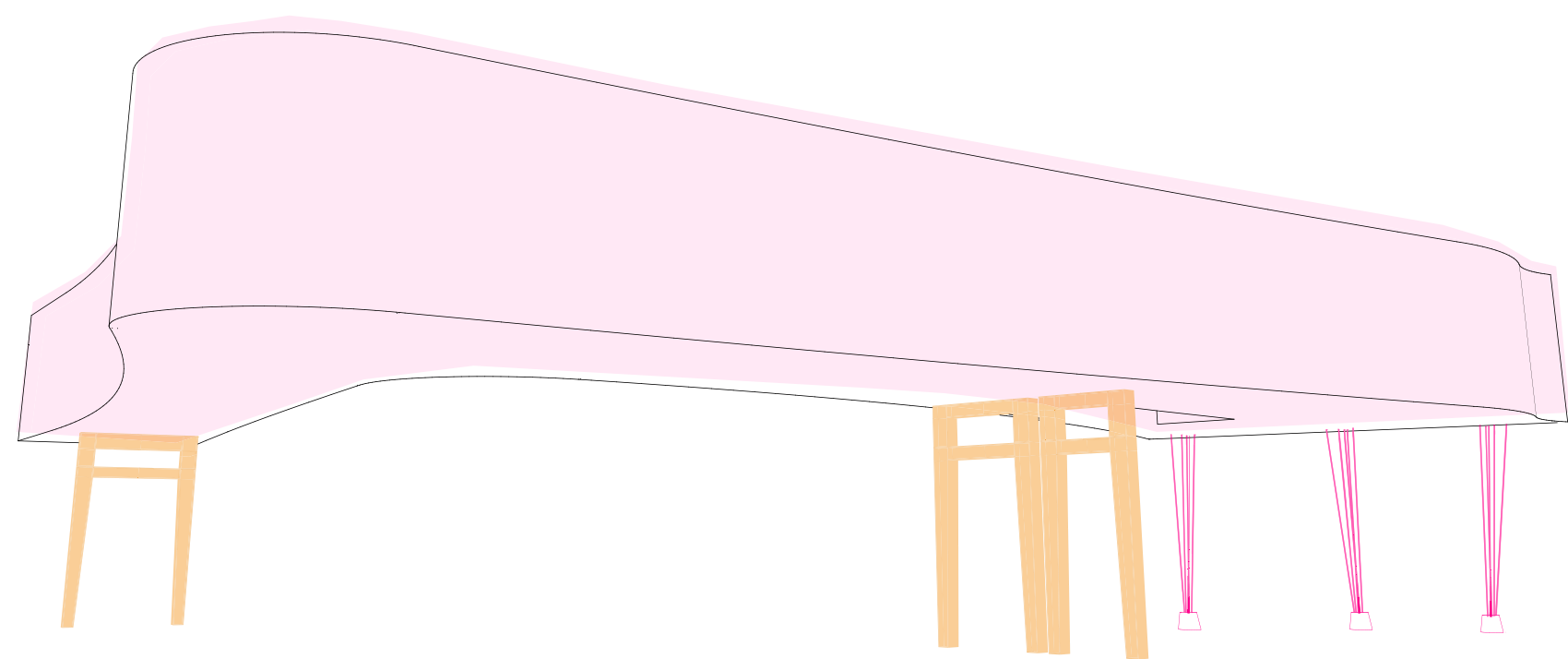
- prefab hollow core slab

STRUCTURAL ELEMENTS

## The box girder

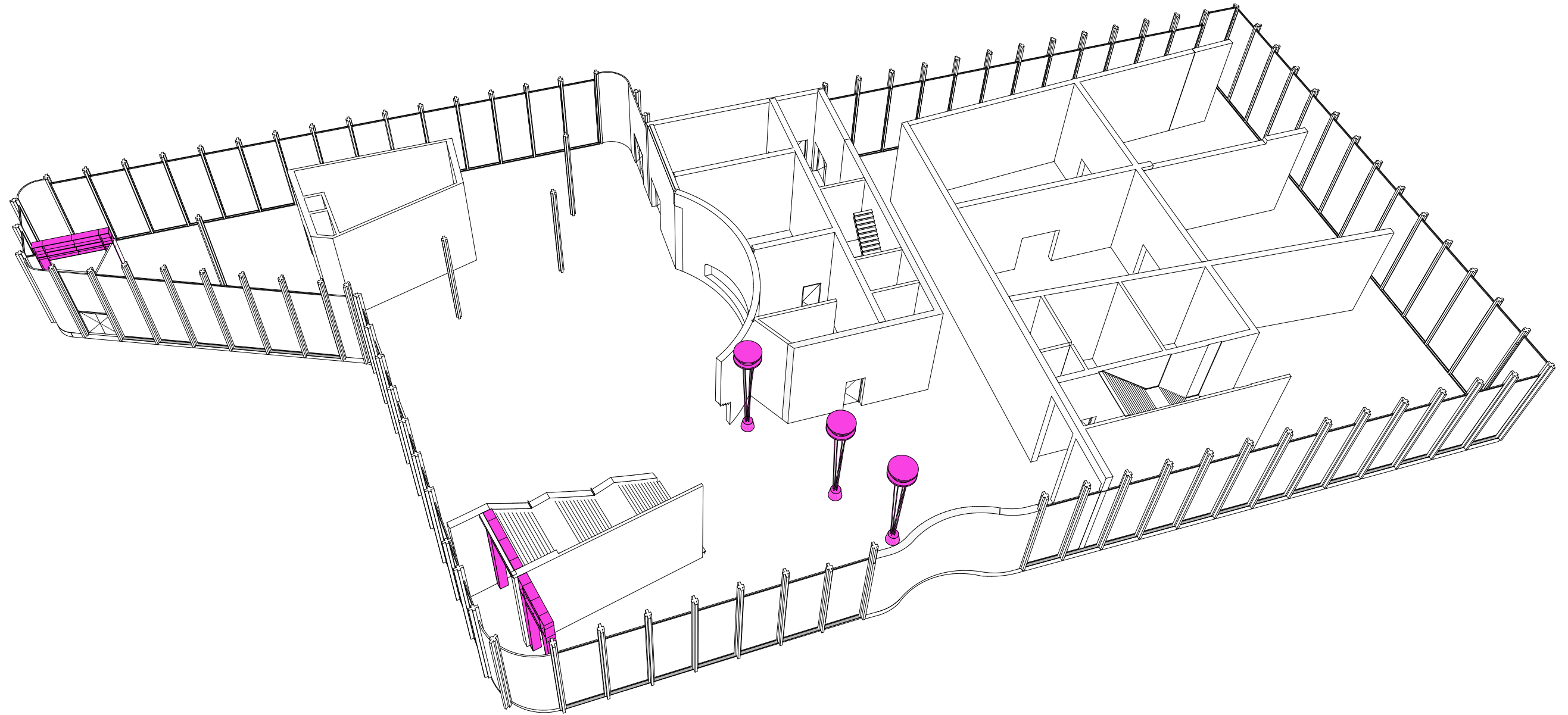


The box girder

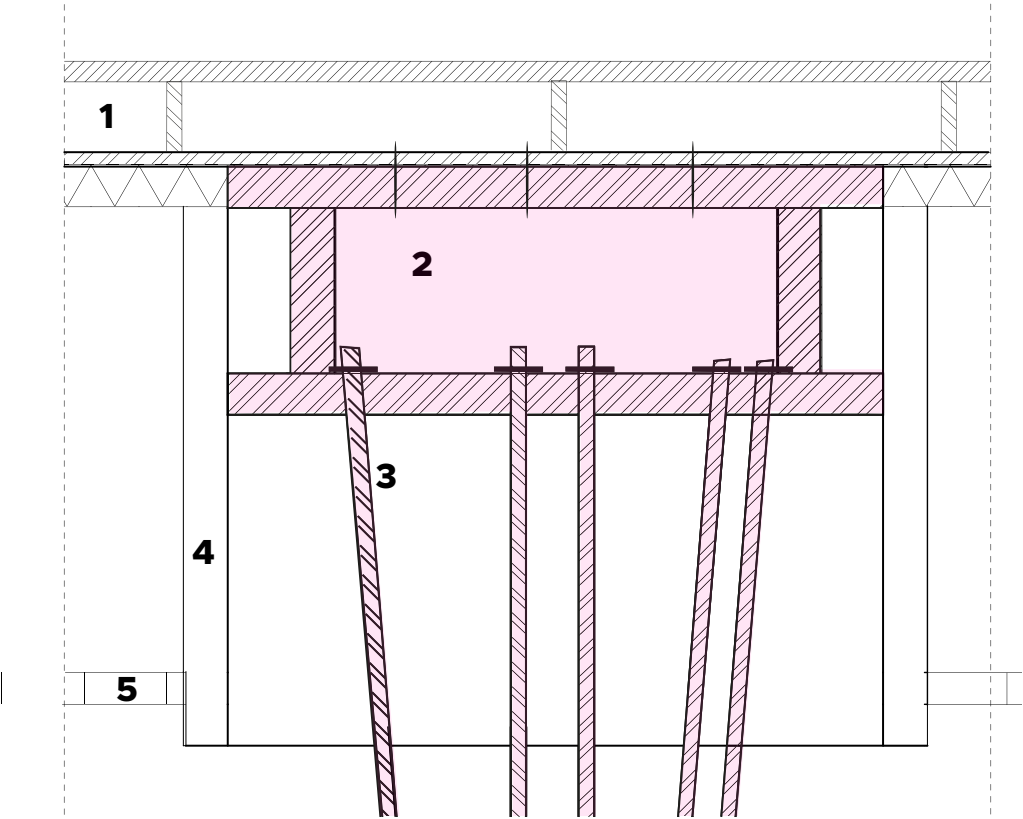
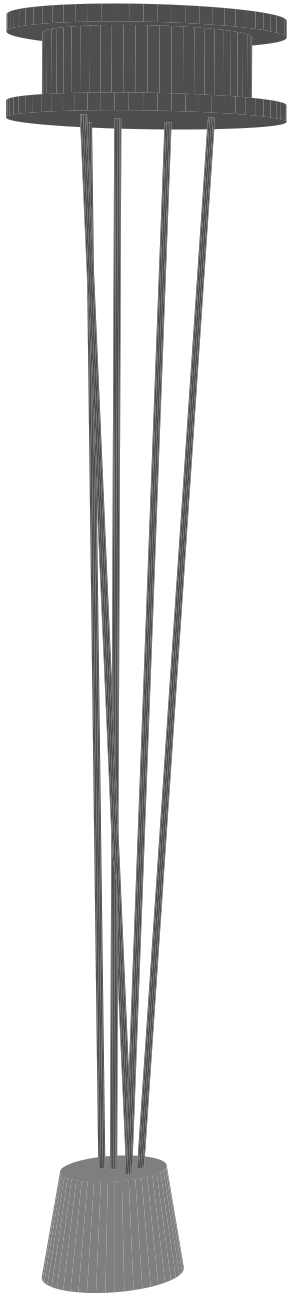
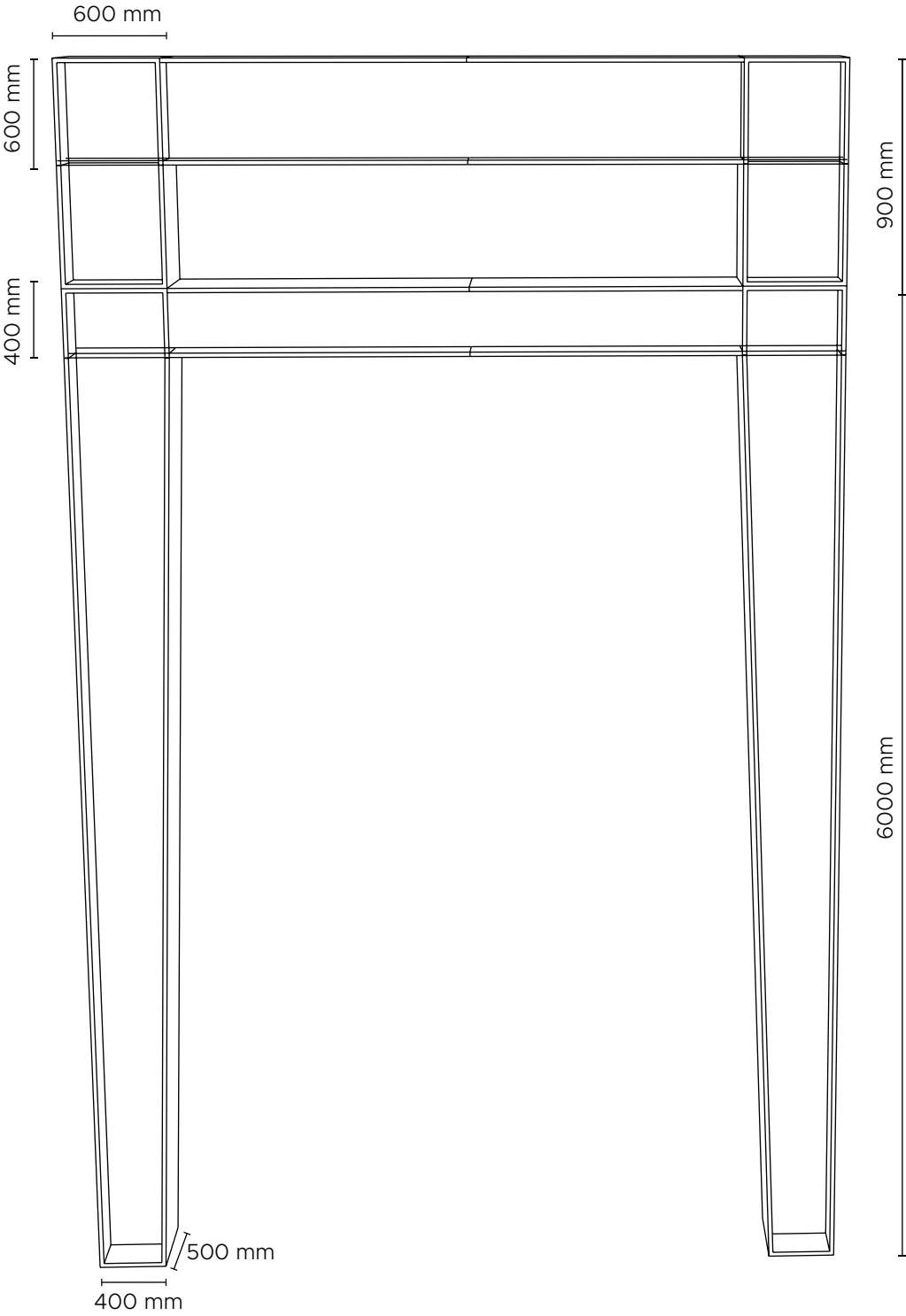




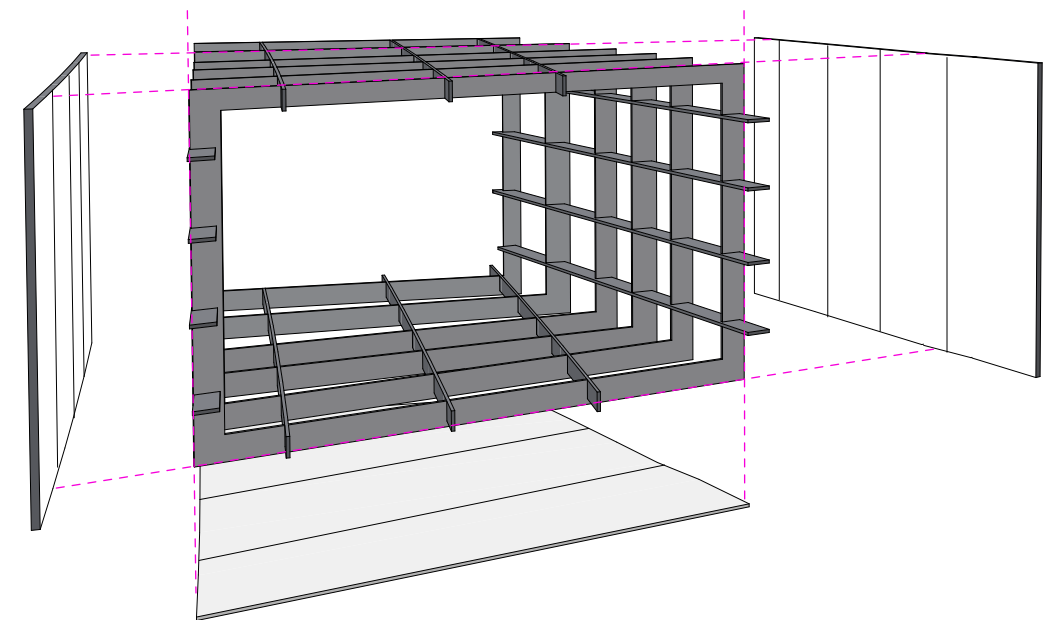
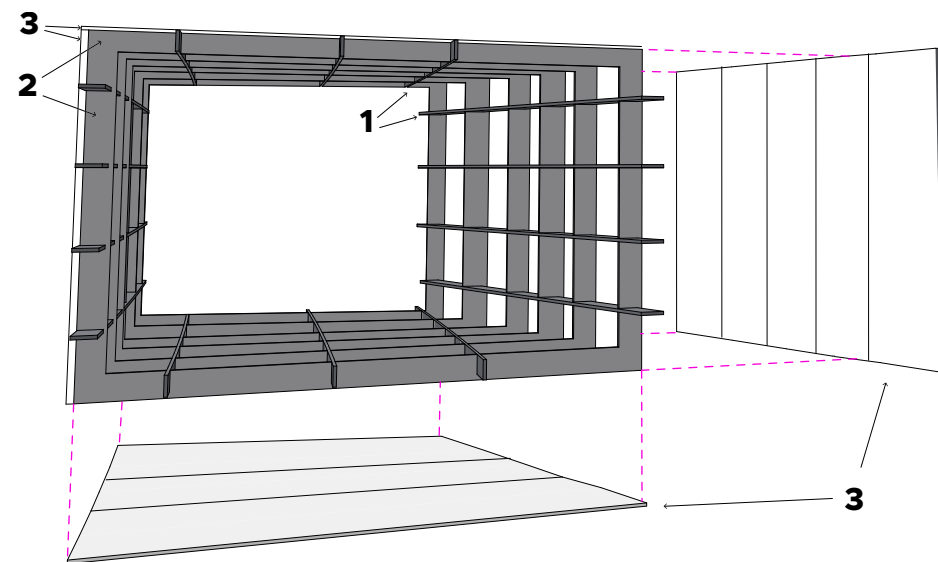
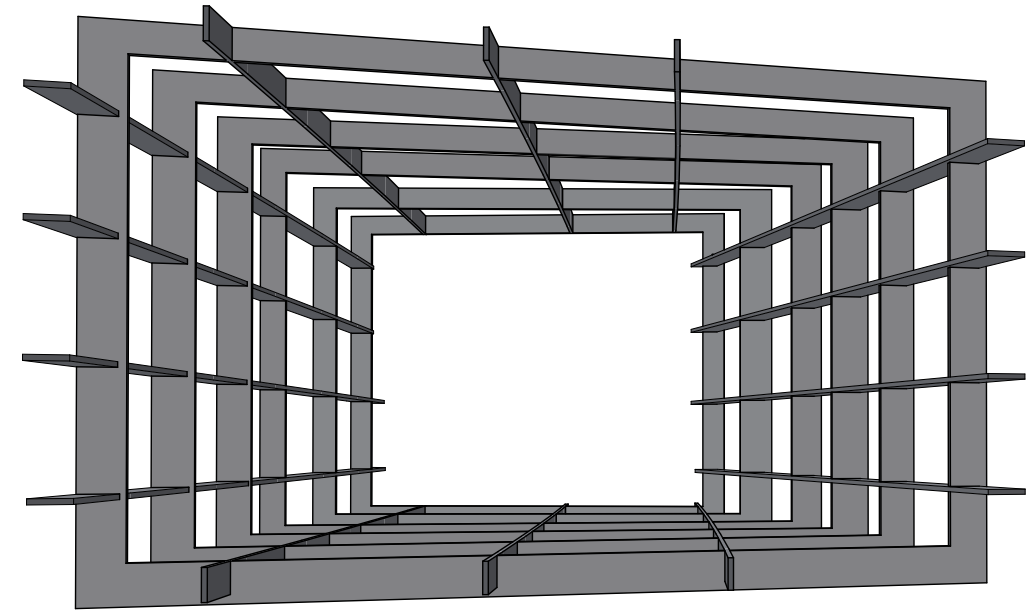
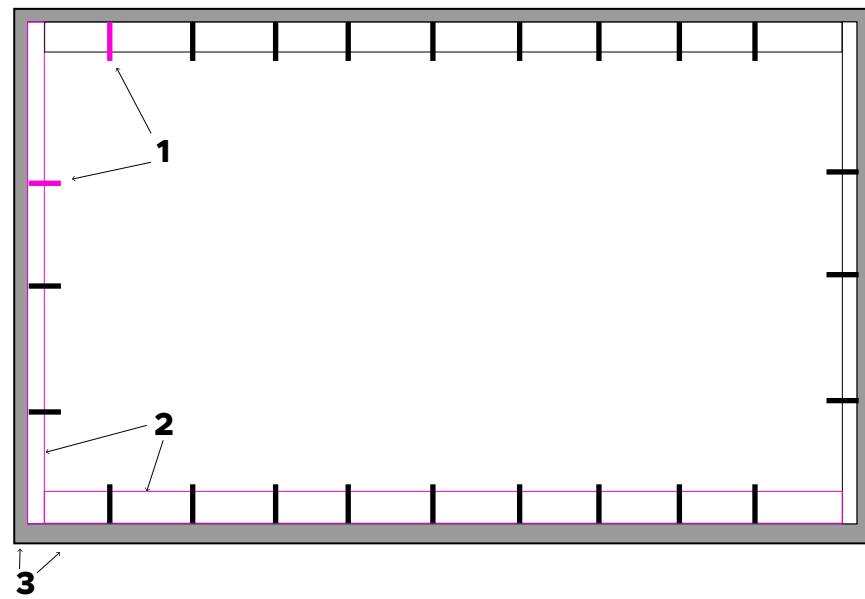
## The box girder



BOX GIRDER PRINCIPLE



## BOX GIRDER PRINCIPLE



- 1. Longitudinal stiffeners
- 2. Transverse stiffeners
- 3. Steel plates



**IMPRESSIONS**





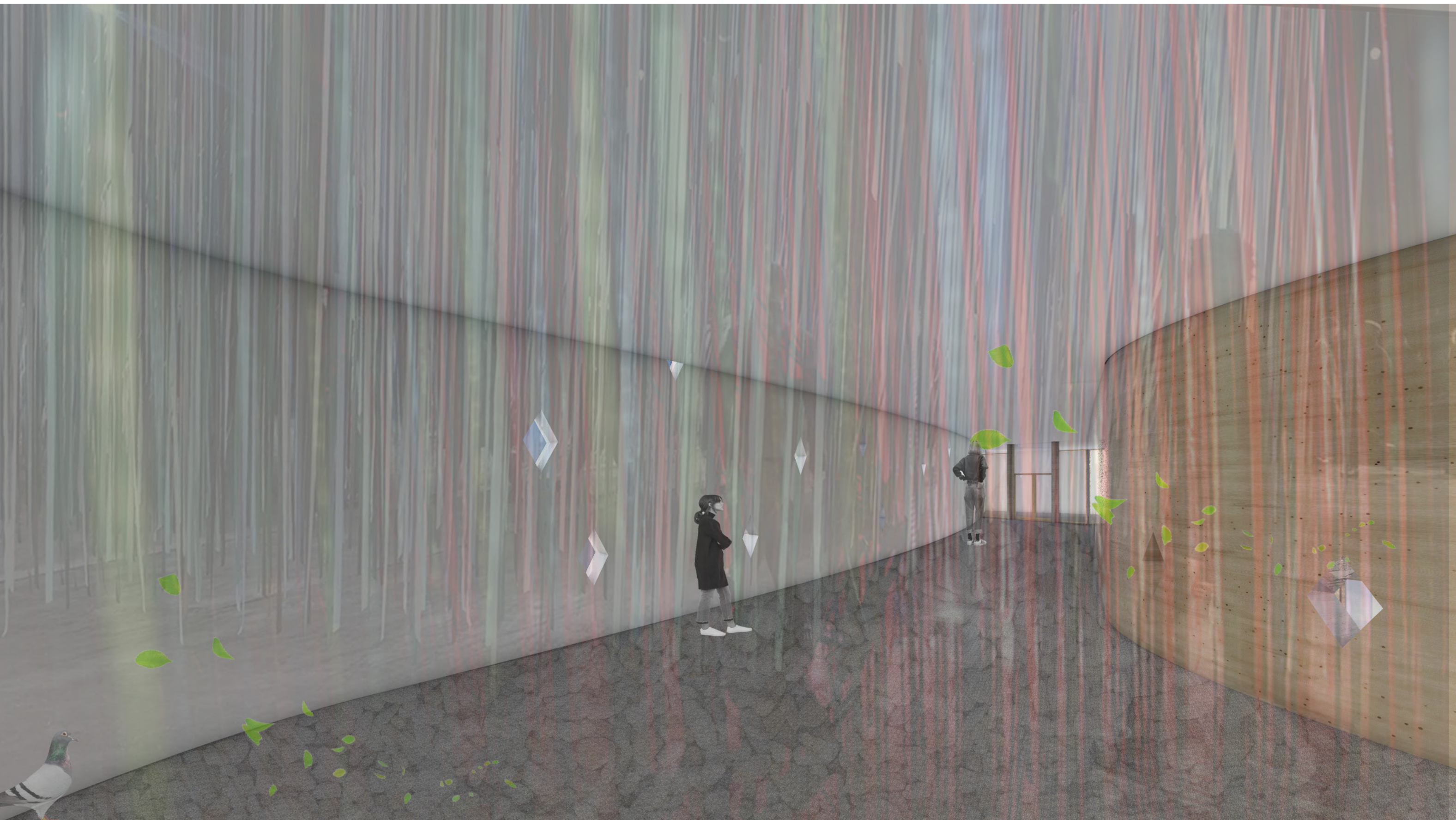




















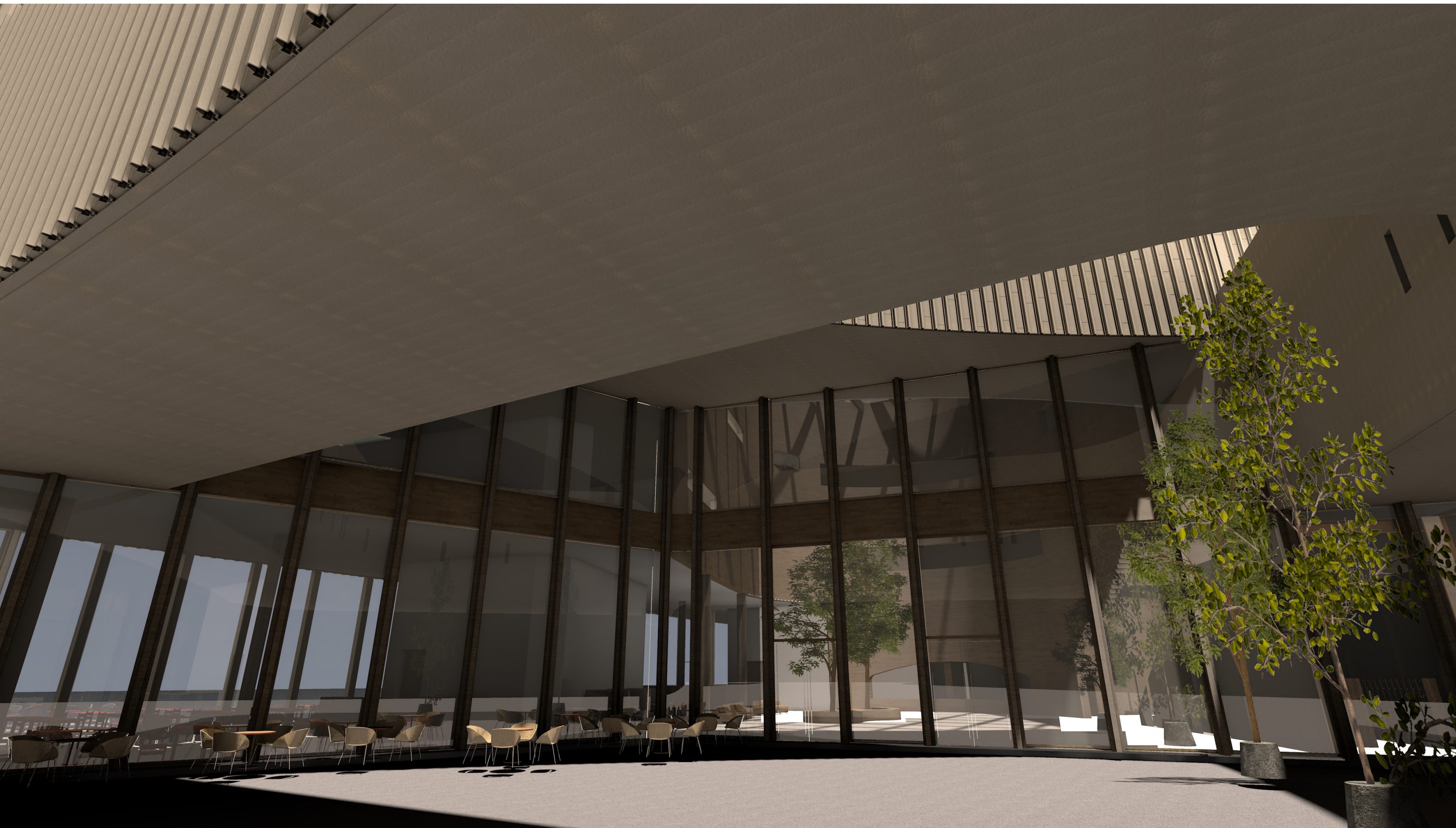














# FINAL REFLECTION

## Introduction

The aim of my graduation project is to re-wire Tarwewijk, Rotterdam-Zuid, through an art museum. A museum that is able to contribute to an improvement of social conditions in a neighborhood. And where current residents from the direct surroundings are stimulated and included.

Architecture is not limited to the more representational or monumental buildings, but encompasses the total built environment (Vermeersch & Heylighen, 2012). A museum, which is a public building, has strong relationships with its context. It influences its direct surroundings and people living in the neighborhood. Furthermore, a public building should be accessible for everyone. A neighborhood with little chances can be re-wired through a public building, a museum. But is also very sensitive for Gentrification. A process of social, cultural and economic upgrading of a neighborhood or district, attracting wealthy new residents or users and the accompanying expulsion of the lower classes from the district. This process spreads like an oil slick through the capital cities to urban districts that are increasingly distant from the centre (Hutak, 2020).

## The new museum

ENTANGLED introduces synesthetic art: an unique form of art where more than one sense, contributes to the experience of an art work. As described in my research plan, a museum experience can be seen as the experience of life: a multi-layered journey. Museums are centres of learning, community centers and social hubs. They do more than only serve as repositories of ancient artefacts to be preserved for the future. The journey through a museum could be described as proprioceptive, sensory, intellectual, aesthetic, and social. Perception, imagination and experience is for everyone different and very personal.

During the experience of synesthetic art, sound, smell, taste and tectonics are assembled. ENTANGLED leads the visitor by the multisensory artworks of Sissel Tolhaas, Espen Sommer, Klara Ravat and many more. A fascinating experience of the combined and complex interactions between visual, auditory, olfactory is provoked and will slowly sleek into Tarwewijk. In this way, people with impairments will be included within the cultural art scene. This can be felt on multiple levels in a museum; in the exhibited art where the senses are entangled during the experience, furthermore an entanglement of people with a disability and people without disabilities. And last but not least, the people living nearby the museum and people from further-away will meet each other. For me, synaesthesia symbolizes inclusivity and entanglement.

The main concept of my graduation project is to achieve the entanglement and inclusivity through a leading route. A leading red wire. The focus for the design of a synesthetic art museum lies in the perception of art. I have considered the main question of my theory research also as guiding for my design, which is:

*What architectural means are essential to provoke and reinforce our imagination while experiencing synesthetic art?*

My design process evolves from rough to fine, from large to small scale. A thoroughly study and analyze of the context was taken as starting point. This provided insight into the current situation and an idea of the possibilities and opportunities that exist in this specific place. The current situation consist of an elongated shape with one main direction and very little connection between the Maashaven and Tarwewijk. There is a possibility to create different spaces for different experiences of art and the location. I designed ENTANGLED where the site is fragmented into three parts. ENTANGLED is a composition of a public park, a new museum and the current Quacker Oats complex.

## Design criteria

During the theory research I learned that harmony in the museum will be achieved when light, soundproofing and the routing will be in proportion, as are the parts of the human body. I investigated how people with impairments, like visually handicapped people, people with an impairment of hearing or people in a wheelchair, can experience art in a pleasant way. Also the studies on the different senses and forms of synesthetic art where essential in my design process. By means of a matrix I combined all this information, and it allowed me to take conclusions on what requirements the spaces in my synesthetic art museum must meet. For example, I concluded from my matrix that I want to create a series of enclosed spaces for synesthetic art. The works are not like traditional paintings which hang next to each other on the wall. The synesthethic artworks often consist of quite large installations and use a whole space. Moreover, it is important that the visitor cannot be distracted or disturbed during the experience of a particular work of art from stimuli that are not related to the work of art.

Furthermore, it was very clear that ramps are very suitable for people in wheelchairs. However, for visually impaired people, the use of stairs is extremely important. Visually handicapped people benefit from orientation. When they walk up stairs, they are consciously engaged in “going up”. Hollow spaces, high areas with a hard wall materials, like glass, should be reconsidered, since these are not pleasant for people with hearing problems. Touching the art in should not be forbidden in this type of museums.

## Design style

My architectural style is characterized by the search for exciting, expressive and new forms of a building. Zaha Hadid’s architecture is an example of a great source of inspiration for me. I want to create a present and autonomous building for the new museum. A building that provides stimulation and incentives. To fit the new museum building in her context, only a limited number of square meters of the site is used. So to meet the necessary square meters for my museum program a building with several floors and a certain height would be the result. It is visible that in the early stage of my design process I focused on a guiding and accessible route.

To explain my ideas, I made an illustration showing two massive volumes where around a guiding route of art experience takes place. I literally used this illustration for the spatial translation of my concepts: “entanglement and leading route”. My main tutor Paul also pointed this out to me earlier, and recommended to let this illustration go a bit. In combination with the wheelchair-friendly requirement of my museum, the design developed into an art route made out of ramps who brings the visitors from one level to the other and so on. Between each level I wanted to create a height different of 6.5 meters. To bridge this distance with ramps, they needed to have a length of minimum 120 meters. Also cantilevers of more than 50 meters were designed. In retrospect I clearly see that that design did not become a whole. My concepts and starting points were added one by one to the design. And did not fit together as puzzle pieces do. The pieces remained separate form each other instead of entering combinations and relationships. I involved the structural design too late in finding the appropriate form for my expressive building. As a result the construction nullified my expressive form and a completely different expression of the building emerged. In addition, the design included some lacks which made the design unrealistic, for example fire escape routes where almost impossible to integrate.



## Insights

Preparing and developing the P3, made me recognize that my design did not come together as a puzzle, but as a collection of separate elements that were picked together and fell apart earlier. This has been the moment where I juxtaposed and overlaid the purpose, concepts and various studies. In retrospect, I conclude that I have not tested and reflected the design enough on it during my process. I therefore had to take a few steps back. I see the initial design as part of my design process, not as a failure. I've come up with things, figured and tried out a lot. I have not only seen what is wrong, but it has also given me very important insights and (re)starting points.

After the realization at stage P3, I started designing an expressive and exciting form for the new museum building in a different way. In this stage I mostly designed traditionally by sketching in 2D and 3D on paper. Later on, I tested the shapes in a 3D model in Rhino, and placed it in its context to see what was happening.

I used a simpler volume of three stacked layers and I placed three cores in it: the patio, the atrium and the auditorium. These have been placed next to each other both horizontally and vertically, creating interesting spaces around the cores in three directions. Subsequently, different shapes were cut from the three layers to create an exciting and dynamic shape that contrasts with the environment and visually emphasizes the synaesthetic experience.

For the dimensions and size of the building I took the minimum dimensions of the auditorium and a core containing shafts, elevators and an escape staircase.

The synesthetic program of the building gives the opportunity to design extraordinary spaces in and outside the new building. For example, it is possible that exhibition spaces can be expanded to the outside areas, towards the park for example. The initial design gave me the idea of creating subtly enclosed spaces made out of cantilevers. Interesting spaces where you as a visitor are in a phase between inside and outside. A transition between a building and no building. This is a very important part of my final design in which a clear transition from closed to open is visualized.

As I mentioned the site is fragmented into three parts, to make it attractive as well as for the residents of Tarwewijk as for people from further away. To breakthrough the current straight and long directions, in the middle part an impulse will be placed that resonates over the whole location. The site goes from dark and closed spaces to an open and light park, and different ambiances are created. The form of the museum can be seen as a transition between the quaker oats complex and the public park.



Even though I now included the construction and climate design of the building at an earlier stage, I encountered new difficult questions to get the shape of my building exactly as I would like with the construction methods. Circularity and sustainability are not the main concepts of my project, but they play a very important role today. After all, I have discovered that circular and pre-fab construction is now mainly applied to stacked and rectangular designs, making it quick and easy to build. That is why an attempt has been made to design a building out of timber that is as demountable as possible, despite the organic elements and shapes.

By making the facades load bearing, the interiors of the building can be constructed in a very flexible way. The first and second levels are supported by a series of columns on the groundfloor in combination with stable cores within the building. As a result, freely arranged space arises. The load bearing structure is designed as generic properties of the building. The same counts for the floors structure. The possibility of transforming these spaces is realized, so they can accommodate multiple functions over time.

The construction of the cantilever, “the trunk”, on the first floor took a lot of study. I started to dissect and analyze the building. After several consultations and also after questions to a constructor, it seemed that I would still need a column under “the trunk”. But I would prefer not to, it would invalidate my concept of gradual transition and subtle boundary. Natalie de Vries said to me: you need a good constructor! And brought me into contact with Mauro Overend. He explained to me that I can realize the shape of my cantilever by means of a box girder construction. That made me very enthusiastic and again led to many hours of studying, understanding and applying the box-girder principle. And even this cantilever (which is the exception in the wooden structure since it is constructed out of steel, needs steel columns as support and also needs a big “back-span” could be used in the future for different purposes, e.g. it might function as a bridge element!

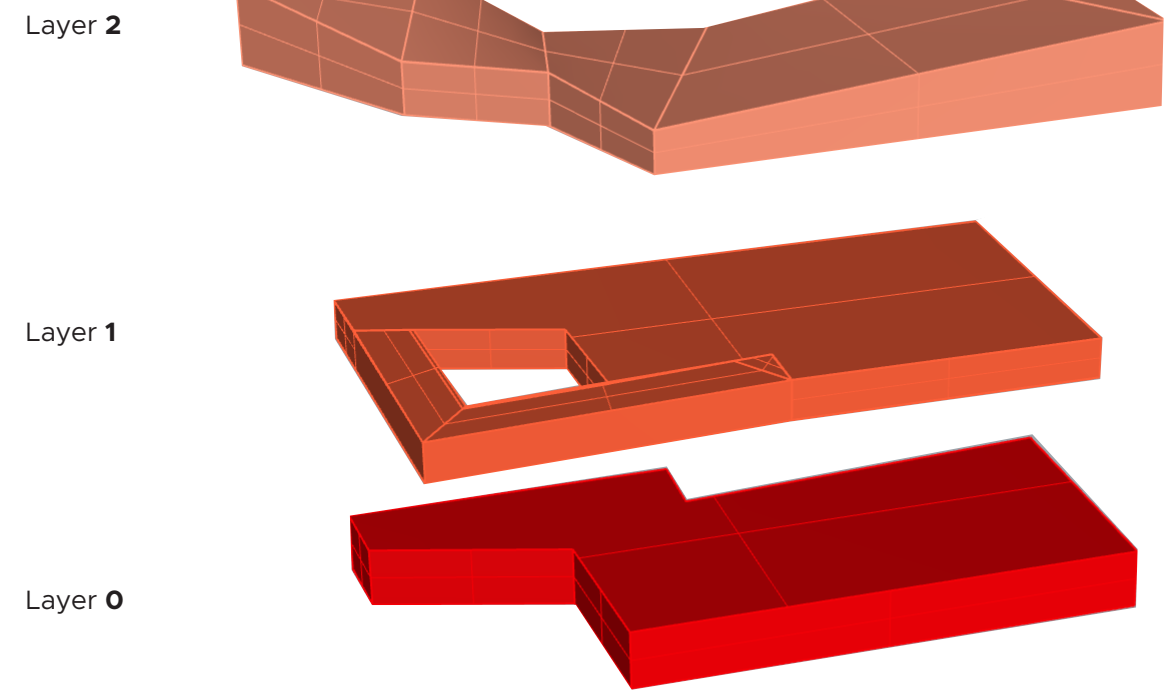
Reflecting on my design process, I mentioned that it is difficult to make decisions. I got confronted by the fact that when I get unsure about certain knowledge, I am not confident enough to make a decision. I need a lot of time to study on a good and well-founded reason for my decisions that are related to my entire design. This leads to constant back and forth designing. One day I want wooden floors, the next it doesn't seem convenient and I go for reinforced concrete. The other day, by looking into the material again, I come to the conclusion that I can still construct them from wood. And so on.

This means that I learned that in the future I need to have more trust in my decisions, so the design can proceed. For example, I should have been clear about the fact that I absolutely wanted a cantilever which is not supported by a column. I mentioned that when structural advisers see my uncertainty, they will advise me to do something what seems good to them, and thereby my design get influenced too much by other people's opinions, which could lead to a distraction of my original ideas and intentions.

However, from a broader perspective, I tried to keep my original ideas in mind. In that sense, I benefited greatly from the amount of work I put in the extensive research of the underlying idea of the entangled building. This shows that good and precise substantiation, in order to fit all types of synesthetic art in a linked route that resulted in this building, conclude in a comprehensive framework where details can be relatively easily adjusted. A good start is half the work.

# FORM STUDIES

VOLUME LAYERS



LAYERS ENSEMBLED

