

BEYOND BUILDINGS

THE FUTURE OF MARITIME LEFTOVERS

P5

GRADUATION STUDIO: REVITALISING HERITAGE

DELFT UNIVERSITY OF TECHNOLOGY

23 JUNE

2025

MSC ARCHITECTURE, URBANISM AND BUILDING SCIENCES
TRACK ARCHITECTURE

HERITAGE AND ARCHITECTURE

AR3AH115

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BUILDING TECHNOLOGY TUTOR: KOEN MULDER
RESEARCH TUTOR: WIDO QUIST

THE FUTURE OF MARITIME LEFTOVERS

*focusing on non-building structures that have defined
maritime landscapes.*

INTRODUCTION

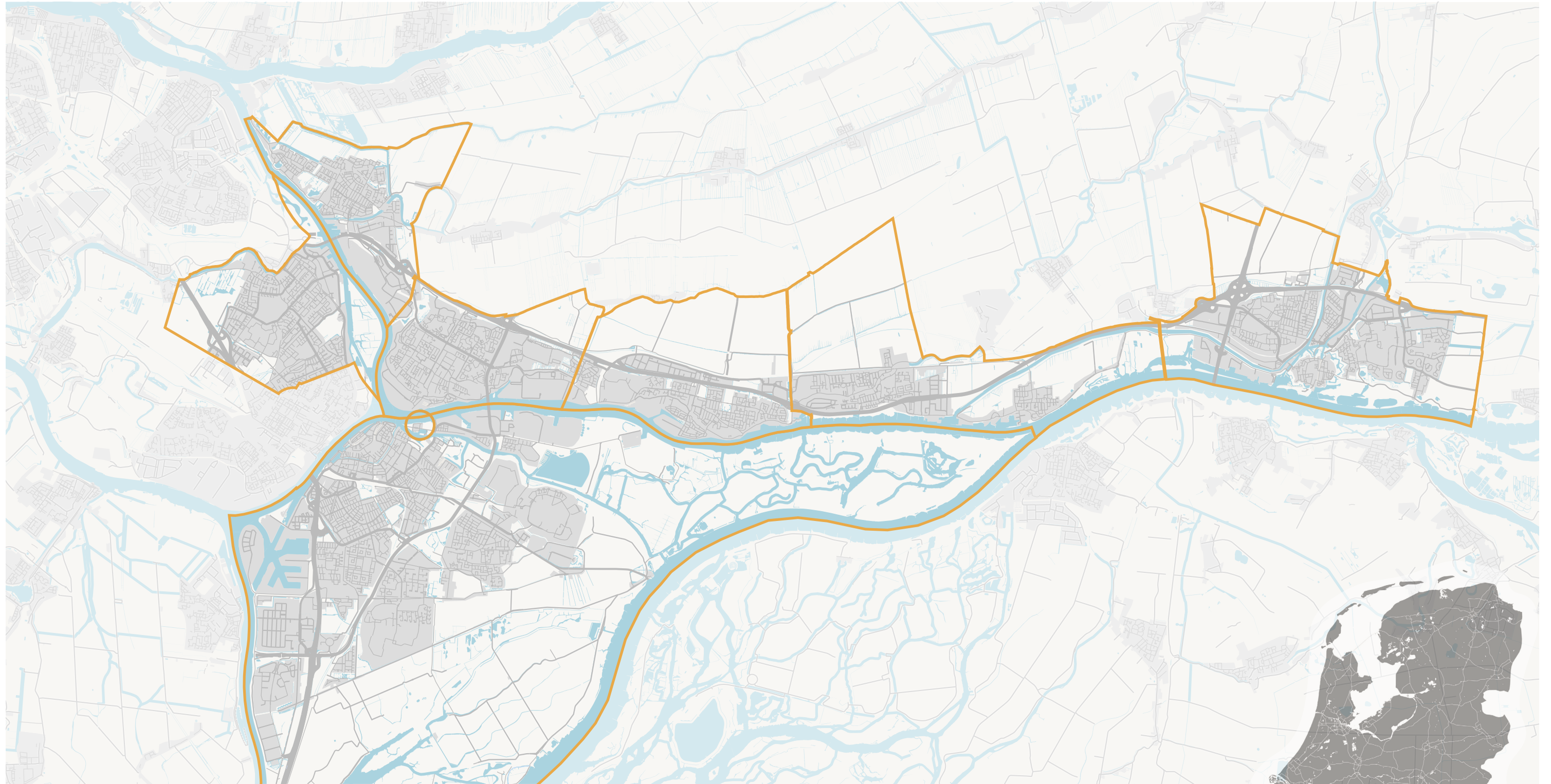


Figure 1: The waterdriehoek and the concerning municipalities
Own image

SITE VISIT

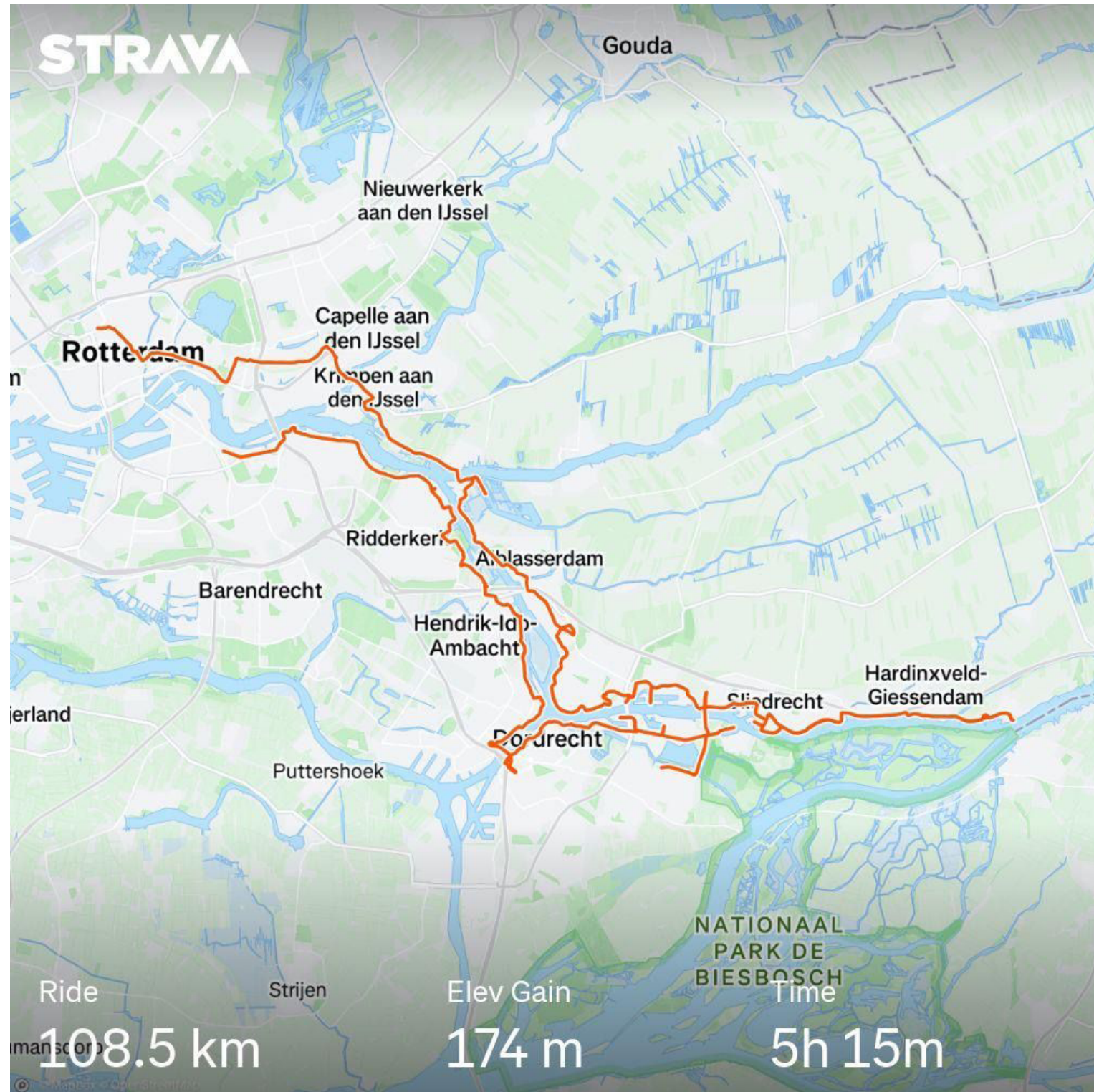


Figure 2: Strava route 4 September 2024
Own image



Figures 3-8: Possible locations-Strava route 4 September 2024
Own images

POINT OF INTEREST



Figure 9: Strava route 14 September 2024
Own image



Figure 10-14: Strava route 4 September 2024
Own images

NON-BUILDING STRUCTURE

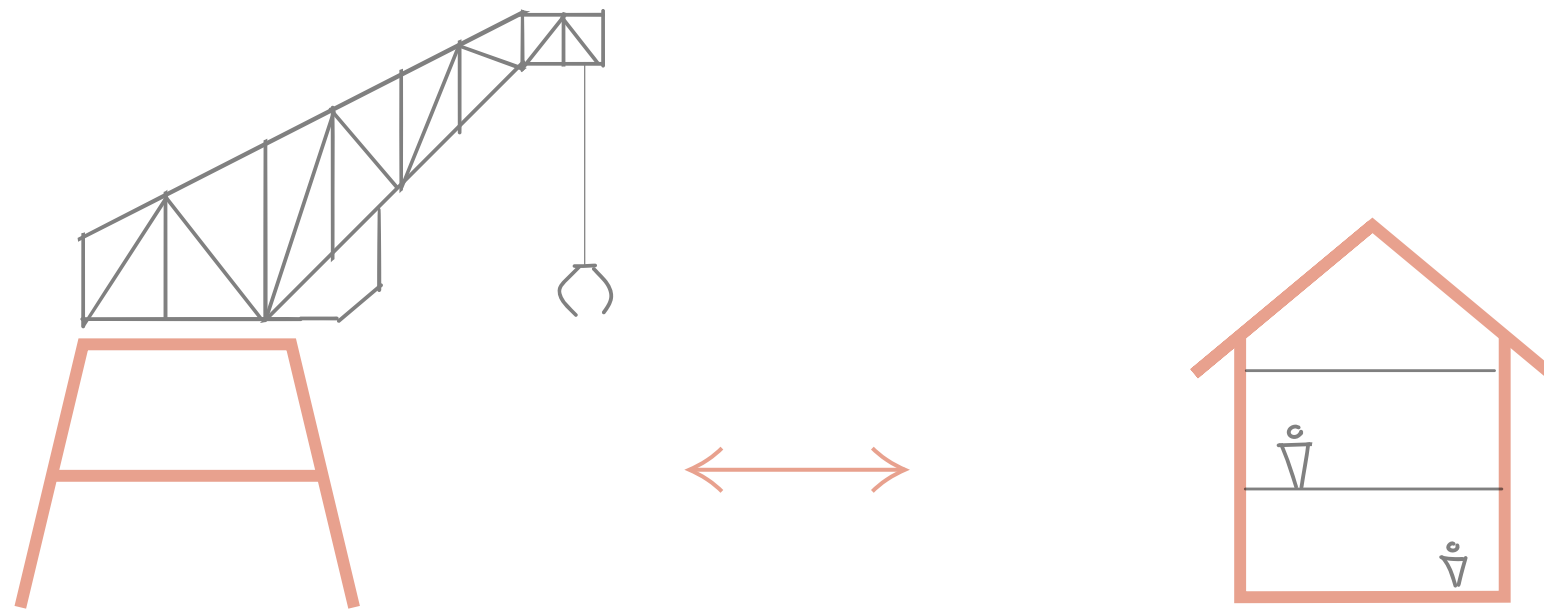


Figure 15: Non-building structure vs building
Own image

PROBLEM STATEMENT



Figure 16: De Hef Rotterdam
Infrasite. (2022, 4 februari). *Veel Hef-ophef om niets: iconische brug (voorlopig) niet uit elkaar voor superjacht Bezos* | Infrasite. <https://www.infrasite.nl/bruggen/2022/02/04/veel-hef-ophef-om-niets-iconische-brug-voorlopig-niet-uit-elkaar-voor-superjacht-bezos/?gclid=accept>



Figure 17: Entrepothaven Rotterdam
Blankestijn, H. (2021, 29 juni). *Boten in de Entrepothaven, Kop van Zuid • Rotterdam, Make it Happen*. Rotterdam. Make It Happen. <https://rotterdammakeithappen.nl/media-objecten/boten-in-de-entrepothaven/>

“As the industry declines, followed by the population shift, the original purpose of these buildings has been lost. Instead of demolishing them and rebuilding from scratch, many have been renovated to serve as the bases for revitalizing the regions.” (Hernández, 2022)



Figure 18: Long Museum (West Bund)
WEST BUND. (z.d.). http://www.westbund.com/en/index/POPULAR-VENUES/detail_aa8Ec.html



Figure 19: Kraanhaven Amsterdam
OTH Architecten. (2021, 1 oktober). *Kraanspoor - OTH*. OTH. <https://oth.nl/projecten/kraanspoor>

RESEARCH QUESTION

Main question

How can non-building structures that have lost their original functions be valued, investigated and transformed for contemporary use?

WHY NON-BUILDING STRUCTURES CAN BE HERITAGE

What type of (industrial/maritime) non-building structure is valued and therefore suitable for transformation for contemporary use?



Figure 20: Schoorsteen Wienerberger, Venlo
xxx BOEi. (2024a, juli 30). Schoorsteen Wienerberger: een lichtbaken van Venlo | BOEi.
<https://www.boei.nl/projecten/schoorsteen-wienerberger/>

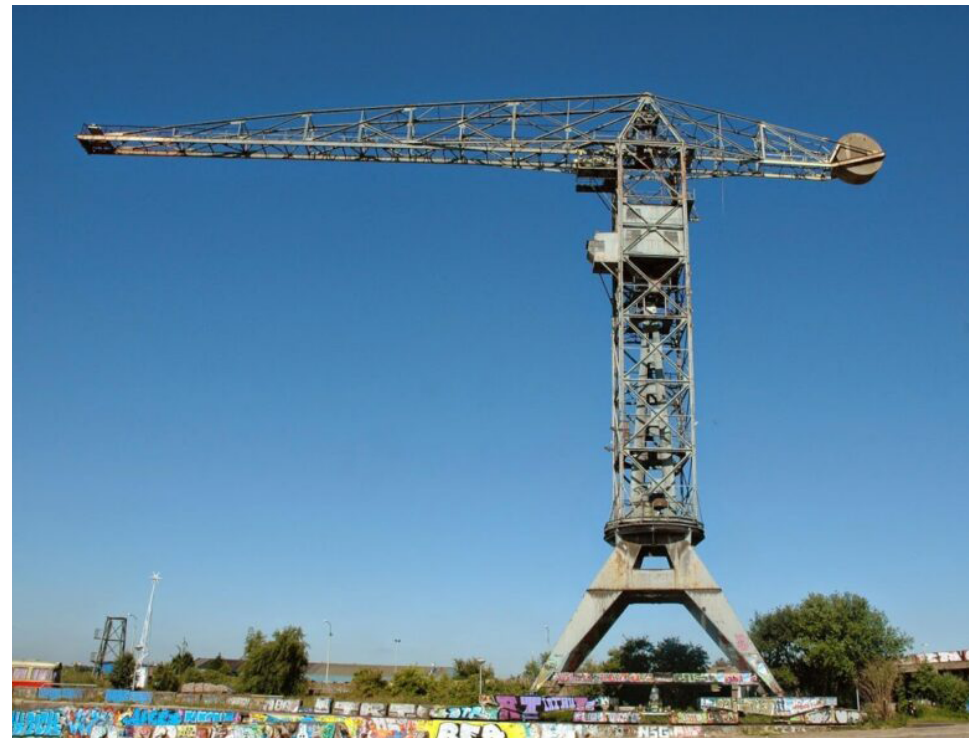


Figure 21: Kraan 13, Amsterdam
Luxueus 3-kamer hotel in Amsterdam-Noord. (z.d.). IAA Architecten. <https://www.iaa-architecten.nl/projecten/6-faralda-crane-hotel/>

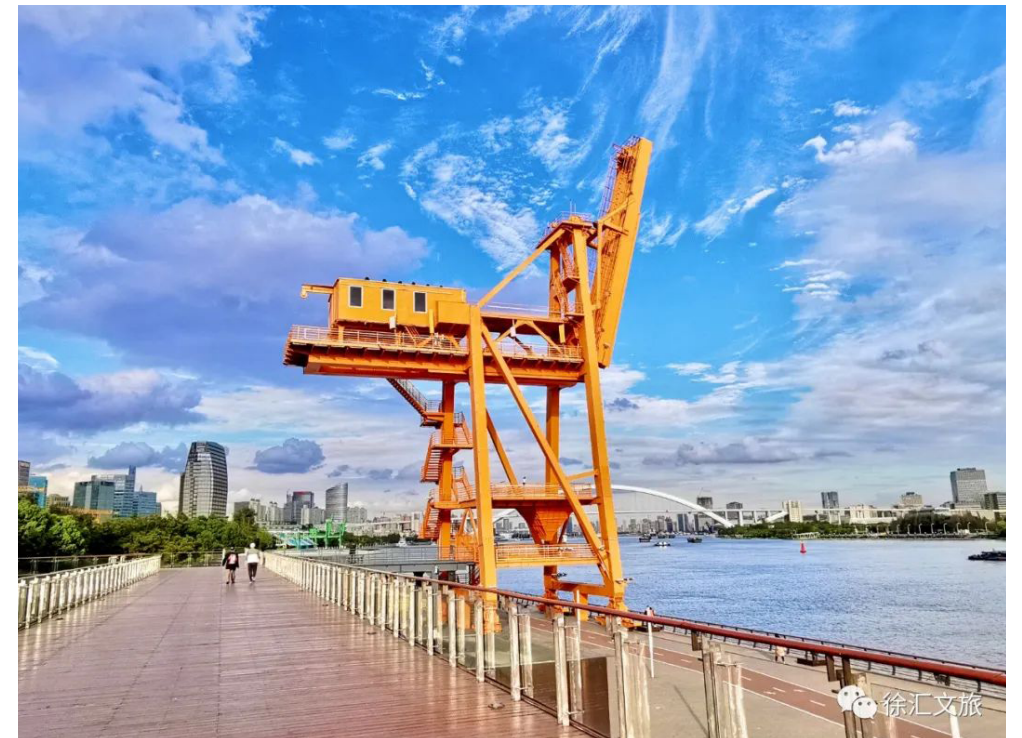


Figure 22: Structures Shanghai
Lessen uit Shanghai voor de financiering van moeilijke projecten. (z.d.). Gebiedsontwikkeling.
nu. <https://www.gebiedsontwikkeling.nu/artikelen/lessen-uit-shanghai-voor-de-financiering-van-moeilijke-projecten/>

VALUE ASSESSMENT OF NON-BUILDING STRUCTURES

What are the key values (historical, aesthetic, functional, technical) associated with maritime (non-building) structures that extend beyond their functional use and how can they be investigated considering historical preservation and modern needs?

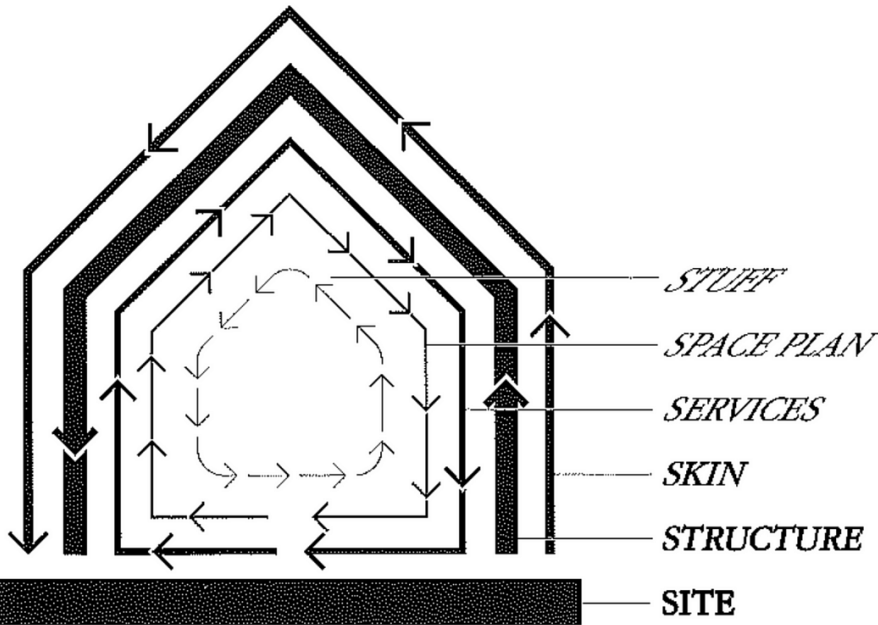


Figure 23: Shearing Layers - Stewart Brand
Brand, S. (1997). How buildings Learn: What happens after they're built. <http://ci.nii.ac.jp/ncid/BA23638003>

BRAND/RIEGL	AGE VALUE	HISTORICAL VALUE	DELIBERATE COMME- MORATIVE VALUE	UNINTENDED COMMEMO- RATIVE VALUE	USE VALUE	NEWNESS VALUE	ART VALUE	TECHNICAL VALUE	SYMBOLIC VALUE	OTHER VALUES
SITE										
SKIN										
STRUCTURE										
SPACEPLAN										
SERVICES										
SPIRIT OF PLACE										

Table 1: Matrix
Own image

THE TRANSFORMATION OF MARITIME LEFTOVERS

What are examples of transformation projects of industrial and maritime non-building structures, and what strategies have been employed in these cases?



Figure 24: TanArt Community, Xi'an
Chen, C. (2024, 10 juni). TanArt Community / Nomos Architects. ArchDaily. https://www.archdaily.com/995048/tanart-community-nomos-architects?ad_medium=gallery



Figure 25: Long Museum West Bund, Shanghai
Aguilar, C. (2024, 9 juli). Long Museum West Bund / Atelier Deshaus. ArchDaily. <https://www.archdaily.com/554661/long-museum-west-bund-atelier-deshaus>



Figure 26: Feralda, Amsterdam
Luxueus 3-kamer hotel in Amsterdam-Noord. (z.d.). IAA Architecten. <https://www.iaa-architecten.nl/projecten/6-faralda-crane-hotel/>



Figure 27: Beijing 751 Library, Beijing
Luo, A. (2024, 18 september). Beijing 751 Library / Do Union Architecture. ArchDaily. https://www.archdaily.com/1020683/beijing-751-library-do-union-architecture?ad_source=search&ad_medium=projects_tab



Figure 28: Suspended Pavilion, Shenzhen
Chen, C. (2024b, juli 2). Suspended Pavilion / TJAD Original Design Studio. ArchDaily. https://www.archdaily.com/959276/suspended-pavilion-tjad-original-design-studio?ad_source=search&ad_medium=projects_tab



Figure 29: Victorian Gasholders, London
Fakharany, N. (2024, 23 juli). RSHP Transforms 150-Year-Old Victorian Gasholders into a Mixed-Use Residential Hub in London, UK. ArchDaily. https://www.archdaily.com/1018768/rsdp-transforms-150-year-old-victorian-gasholders-into-a-mixed-use-residential-hub-in-london-uk?ad_source=search&ad_medium=projects_tab&ad_source=search&ad_medium=search_result_all

CONCLUSION

How can non-building structures that have lost their original functions be valued, investigated and transformed for contemporary use?

DESIGN QUESTION

How can the Kraanbaan be transformed for contemporary use in a way it remains relevant in its urban landscape?

LOCATION

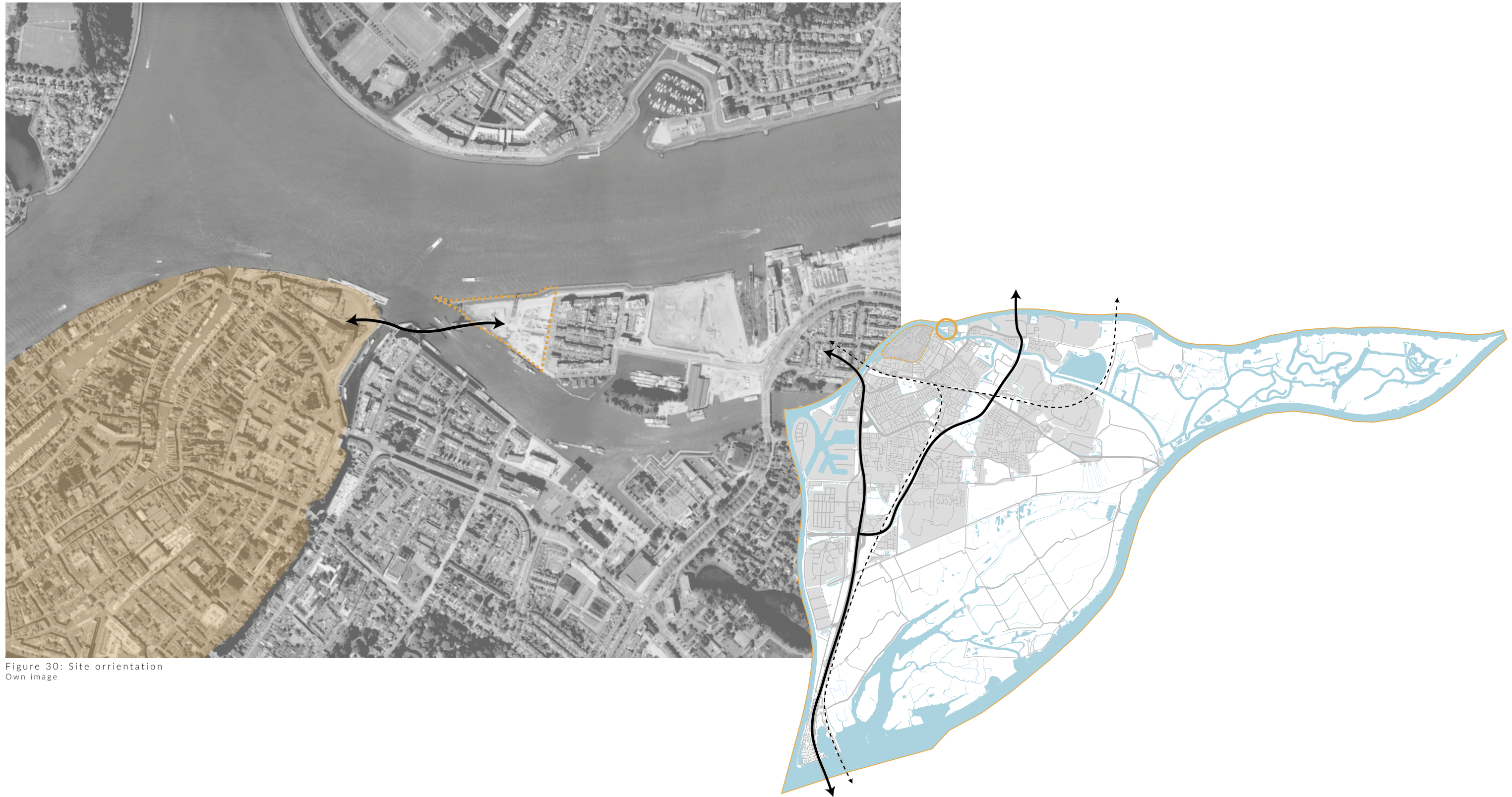


Figure 30: Site orientation
Own image

THE KRAANBAAN

And why the Kraanbaan is heritage

Adress: Werf van Gips (Before at Maasstraat 6)
Postal code, City: 3313 CR Dordrecht
Kadastraal: DDT00I 2781 (partly)
Neighbourhood: Noordflank/Stadswerven

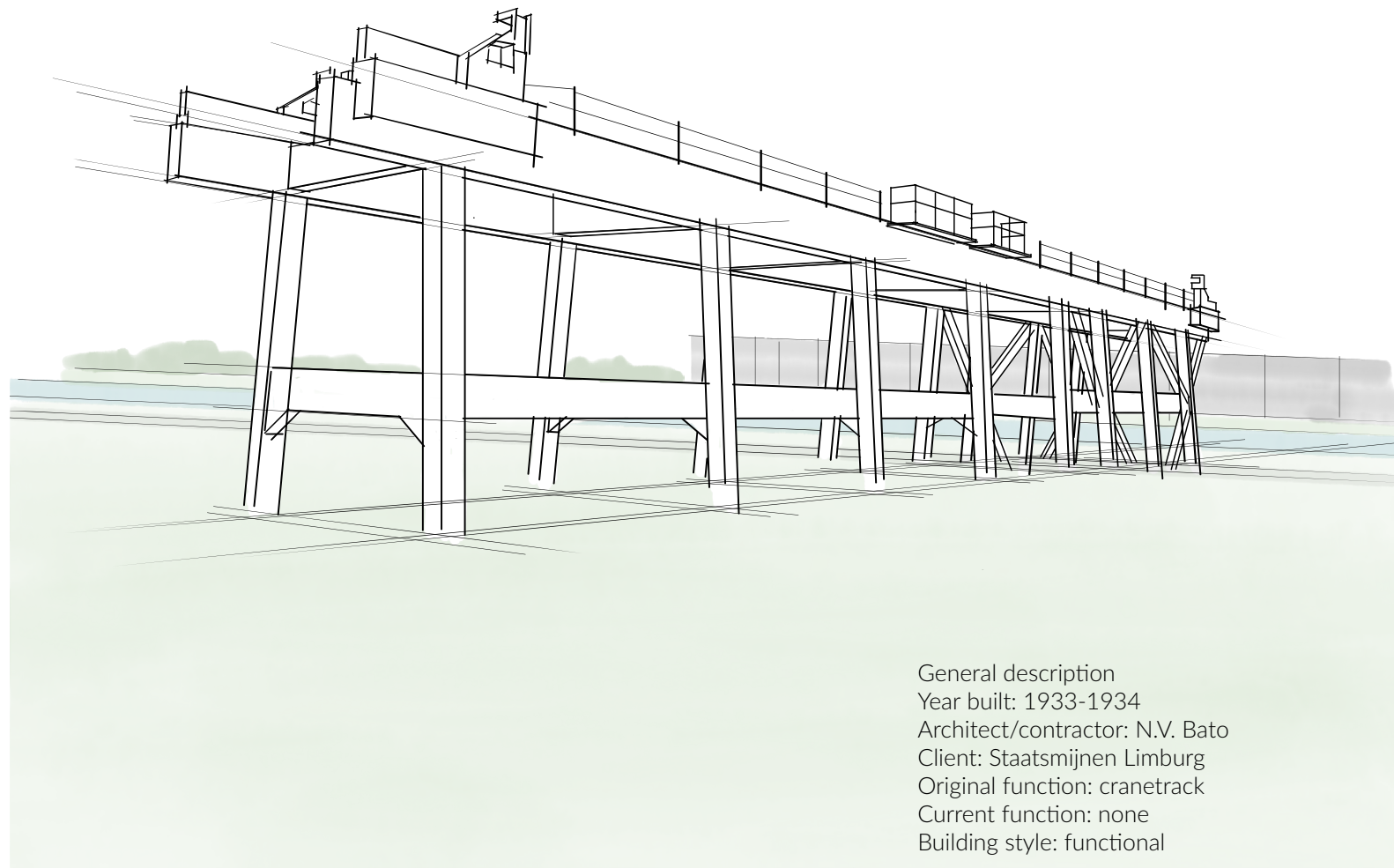


Figure 31: Sketch Kraanbaan
Own image

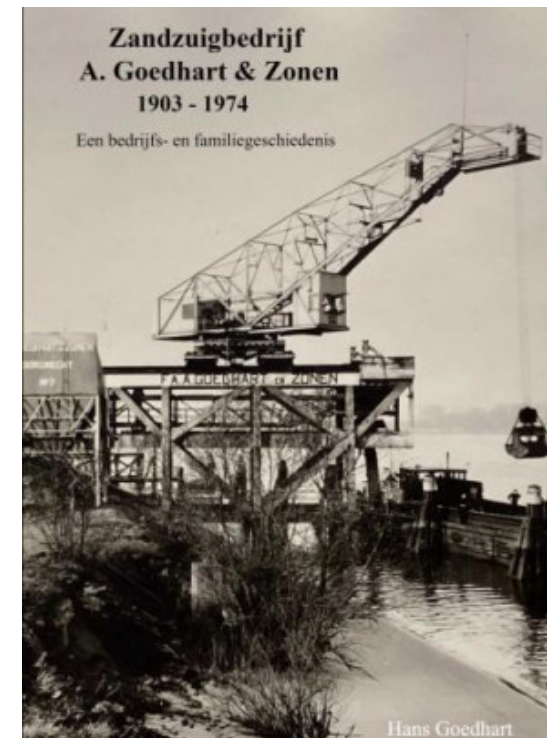


Figure 32-34: Images Kraanbaan
Zoeken in de archieven. (z.d.). <https://www.regionaalarchiefdordrecht.nl/>



STADSWERVEN

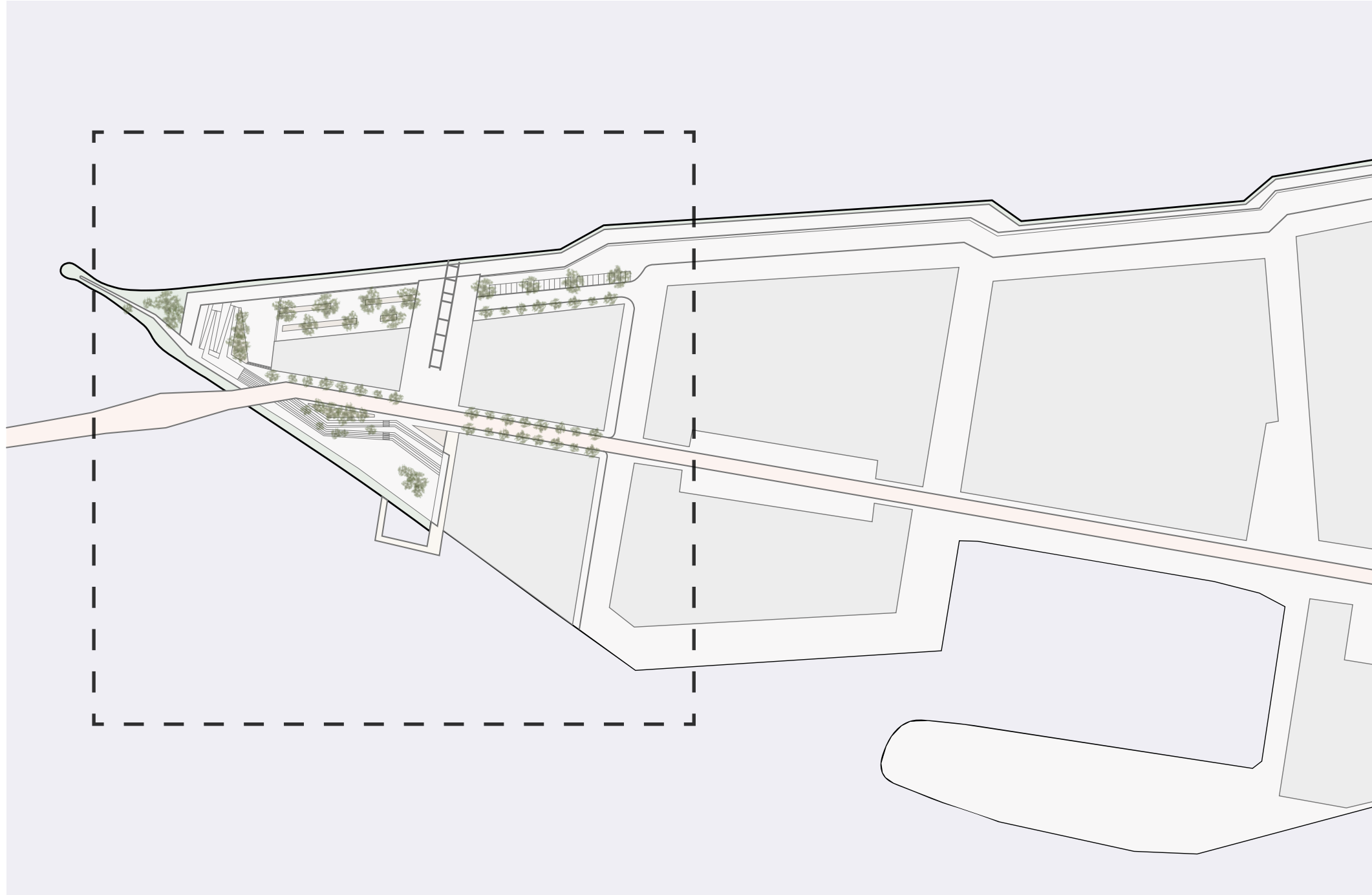


Figure 35: Stadswerven (plan)
Own image



Figure 36: Biesbosch harbour
Dordrecht archive

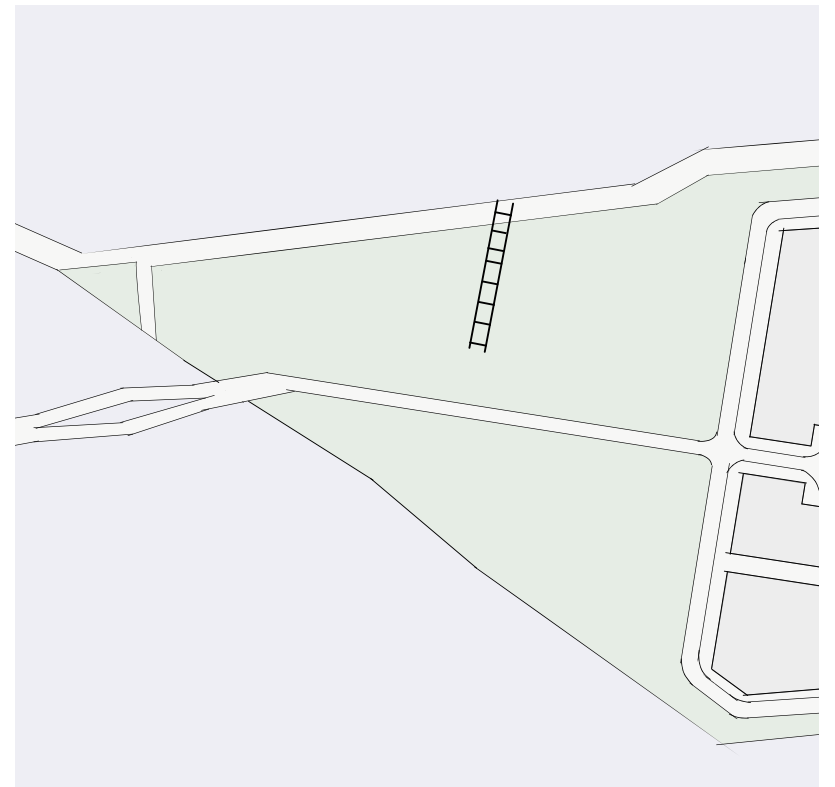


Figure 37: Stadswerven Subarea A (now)
Own image

VISION

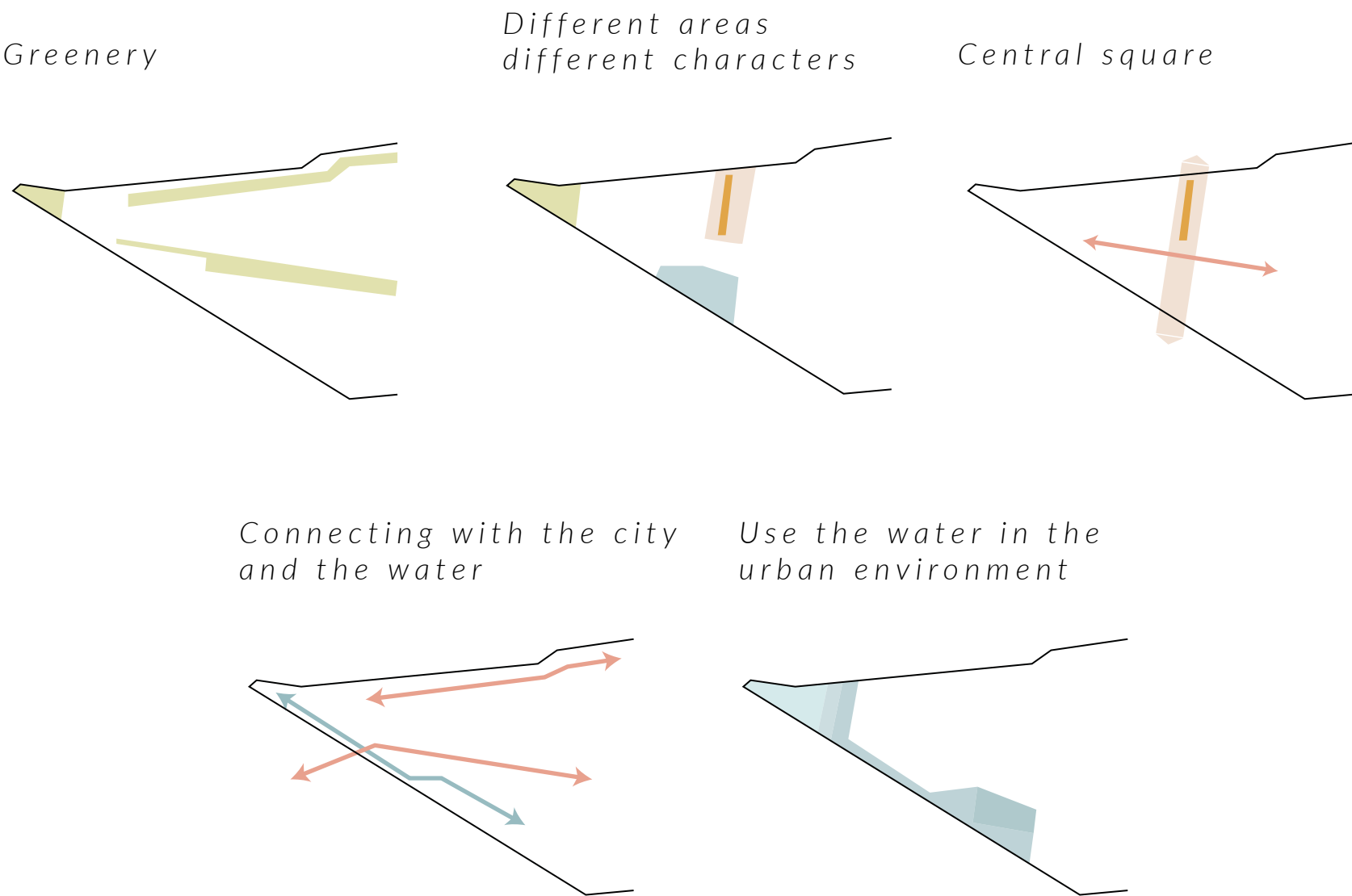


Figure 38: Stadswerven vision
Own image based on the vision of the municipality

VISION

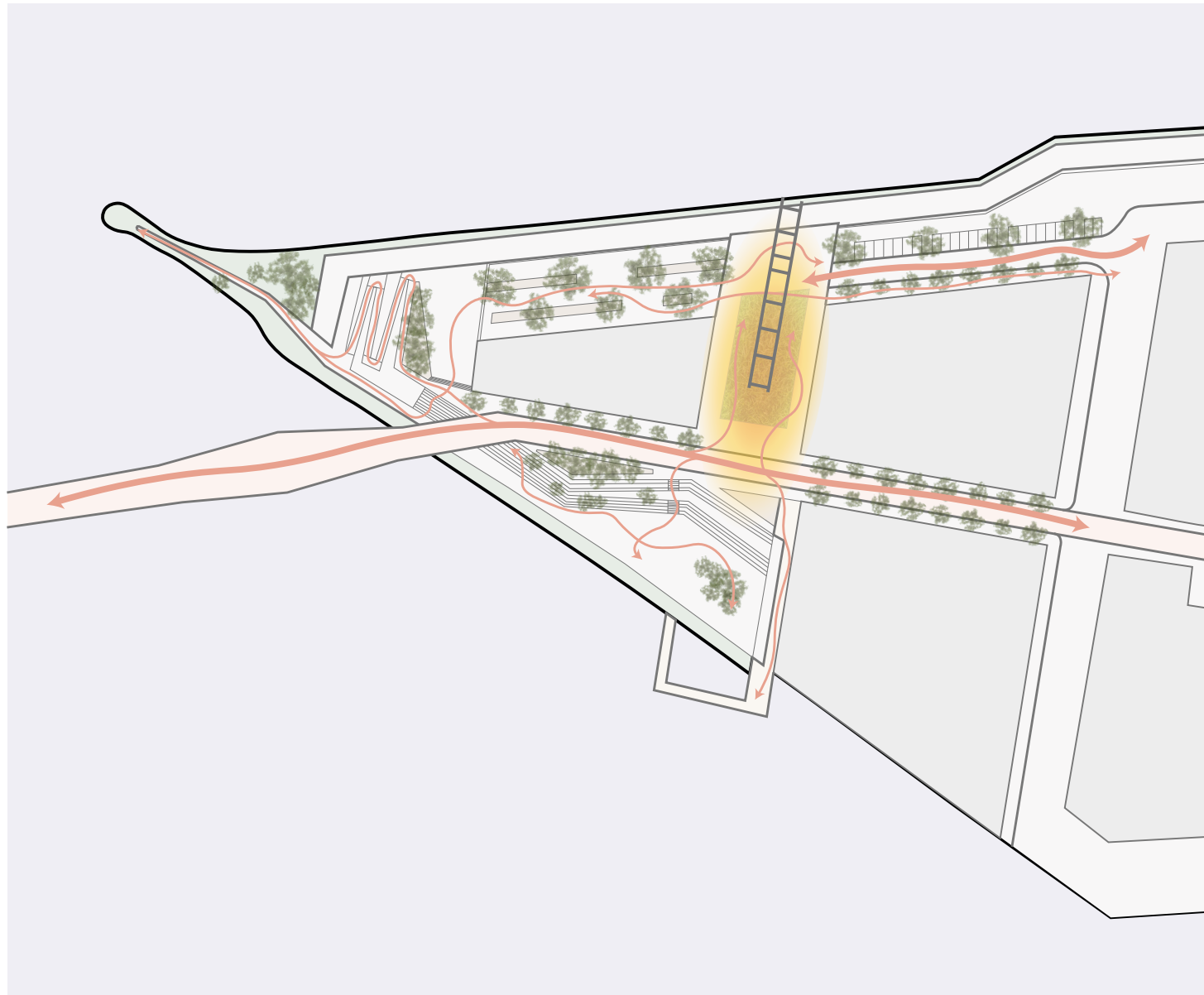


Figure 39: Stadswerven Masterplan
Own image



Figure 40-41: Stadswerven Masterplan
Images AM

VISION



Figure 42: Stadswerven Masterplan
Own image

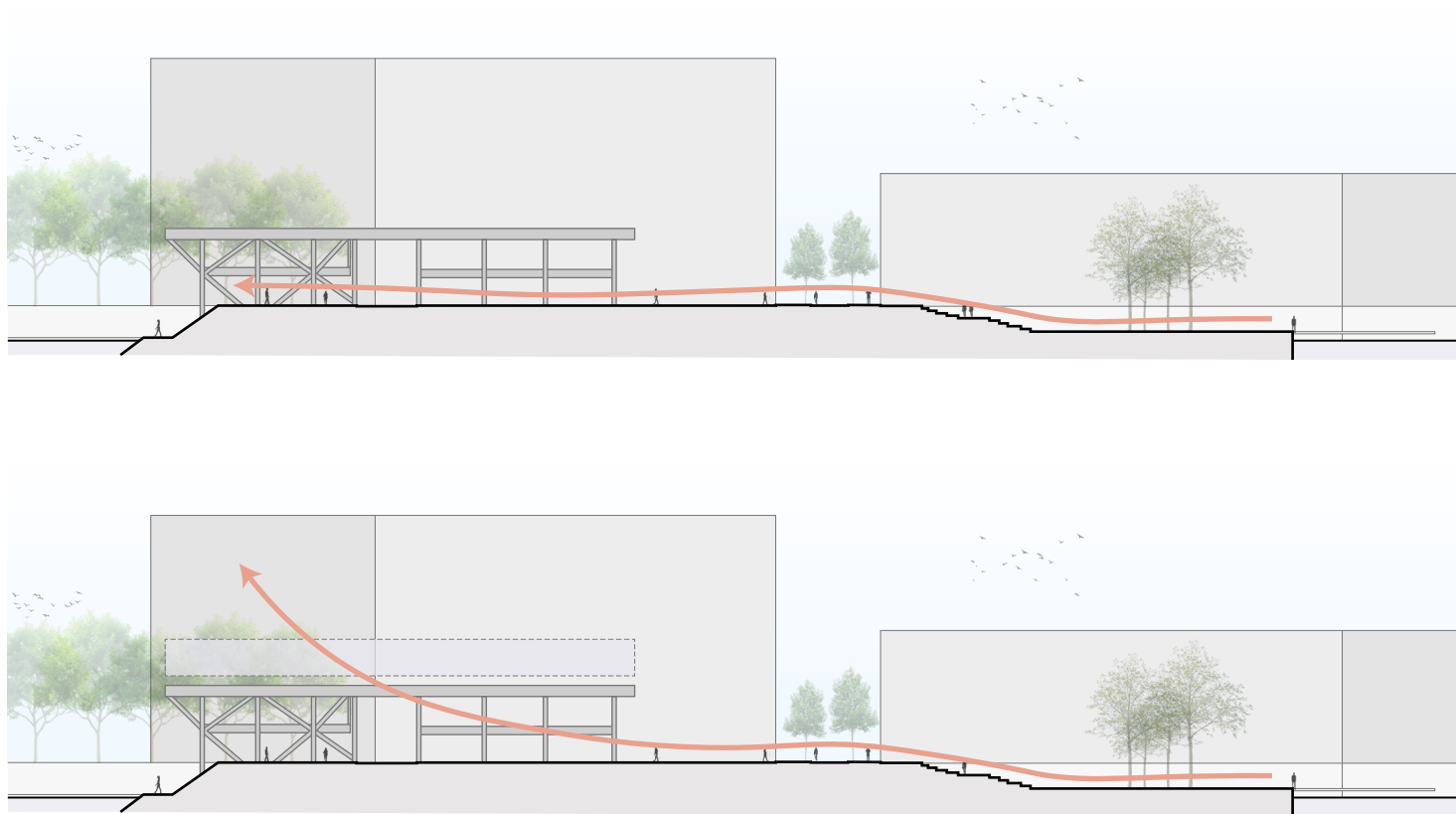


Figure 43: Stadswerven Masterplan Sections
Own image

STRATEGY

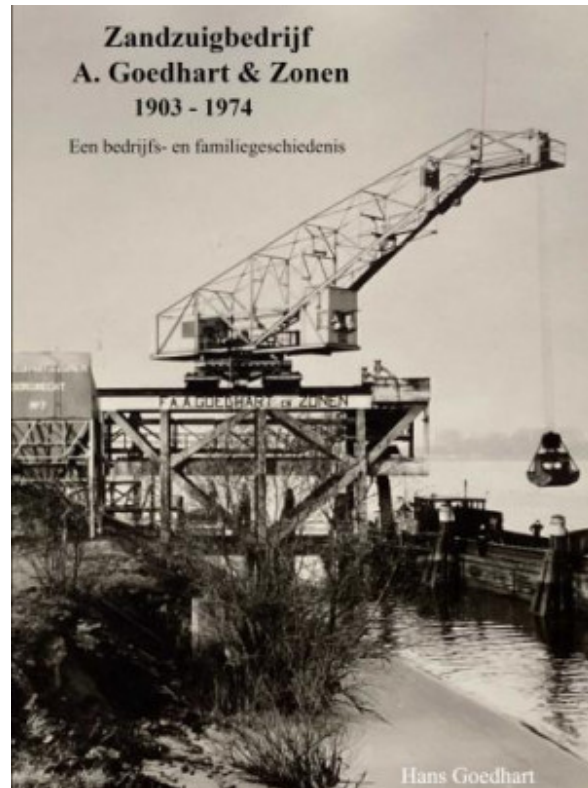


Figure 44-47: Images Kraanbaan
Zoeken in de archieven. (z.d.). <https://www.regionaalarchiefdordrecht.nl/>

VISION KRAANBAAN

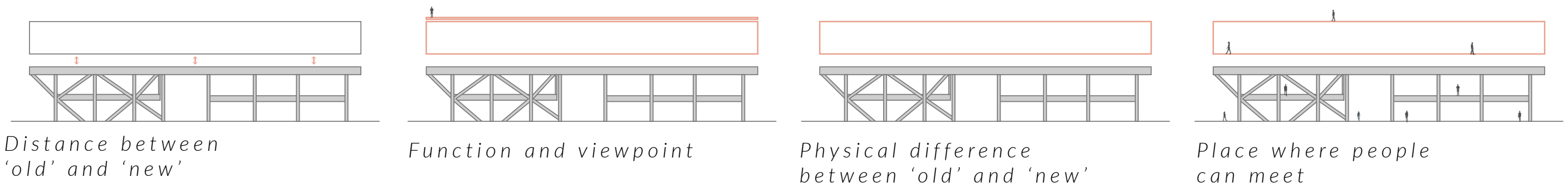


Figure 48: Vision Kraanbaan
Own image

CONCEPT STAIRS



Figure 49: Image Kraanbaan
Zoeken in de archieven. (z.d.). <https://www.regionaalarchiefdordrecht.nl/>

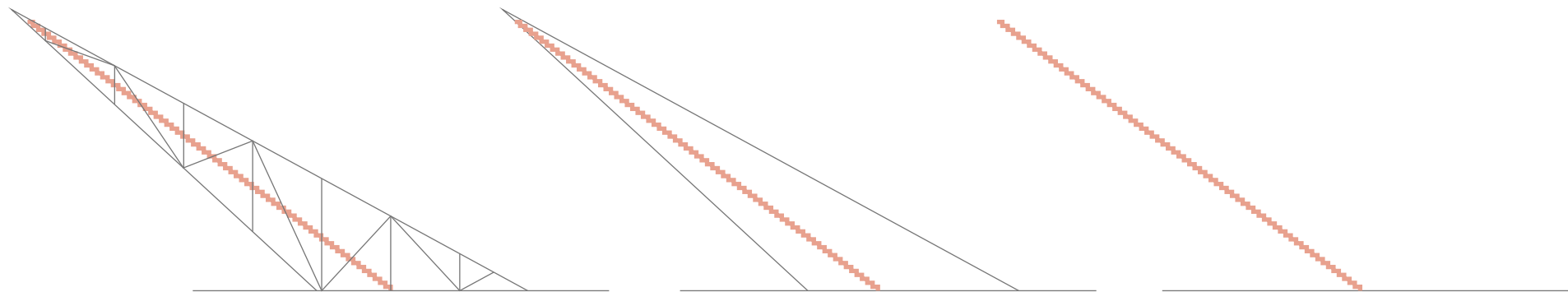
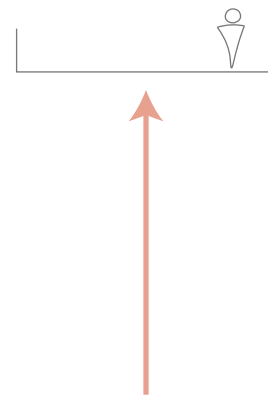
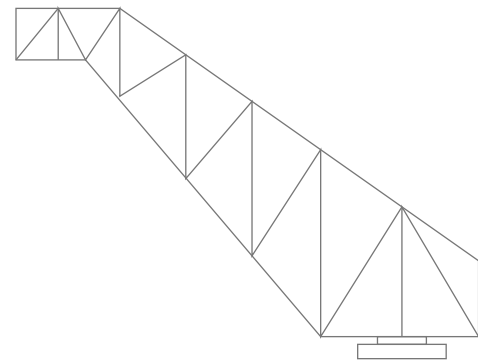


Figure 50: Staircase - kraan van Piet
Own image

THREE LAYERS

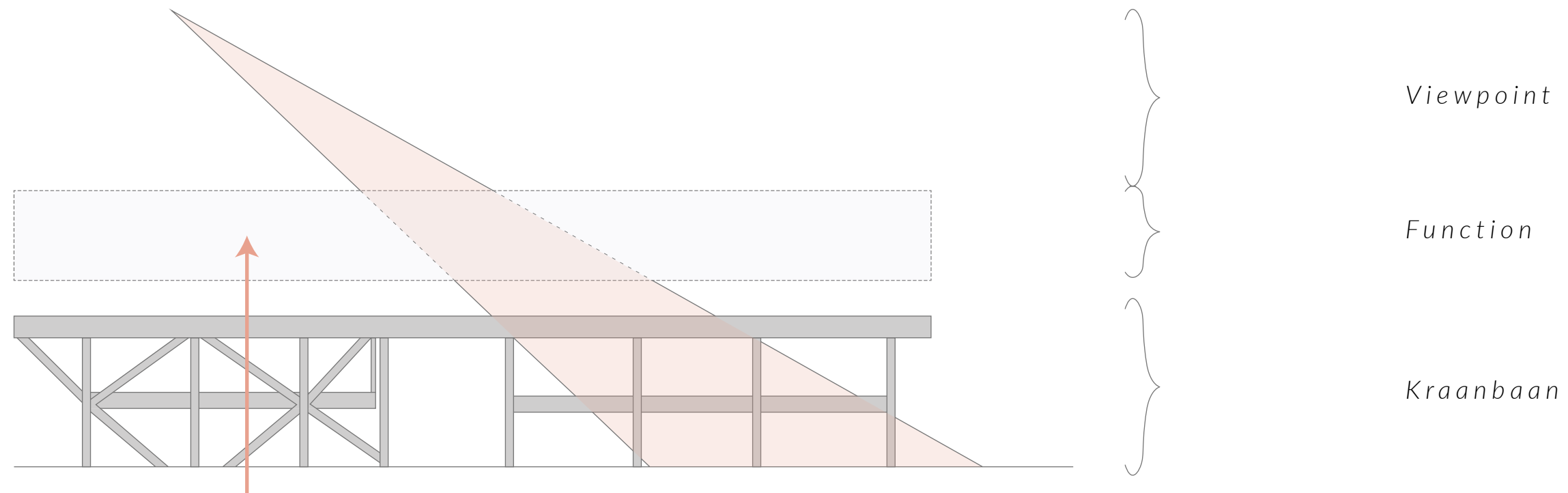


Figure 51: Three layers
Own image

FUNCTION STAIRS

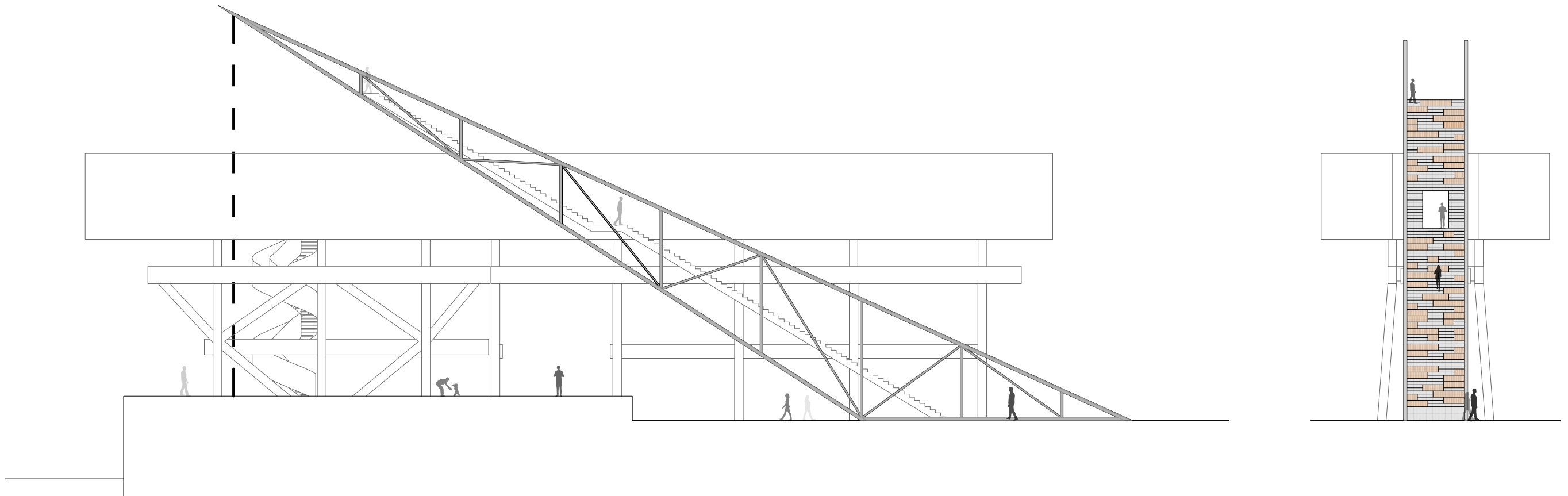


Figure 52: Stairs
Own image

SECTIONS

Figure 53: Sections in floor plan
Own image

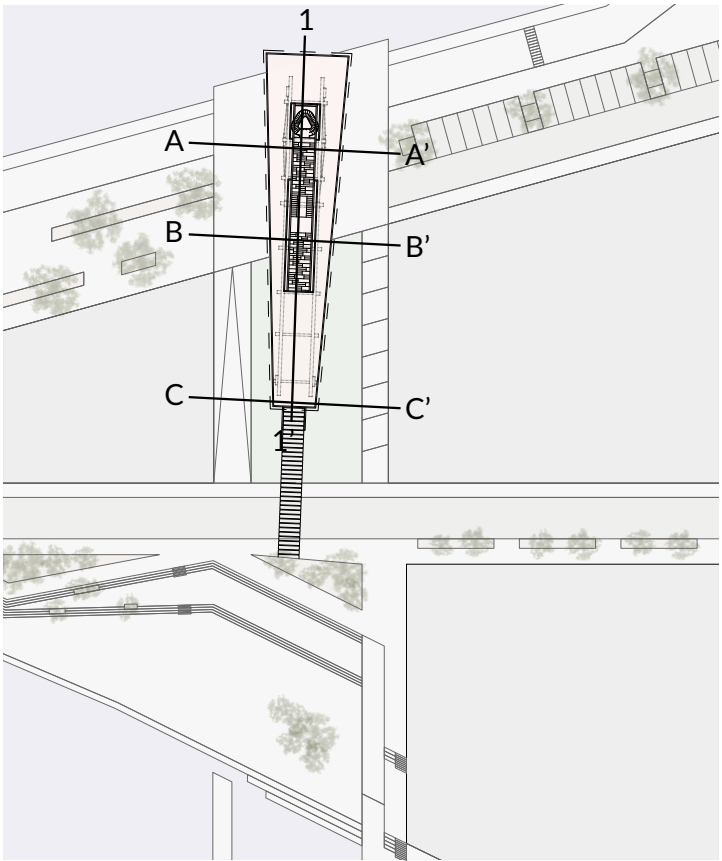
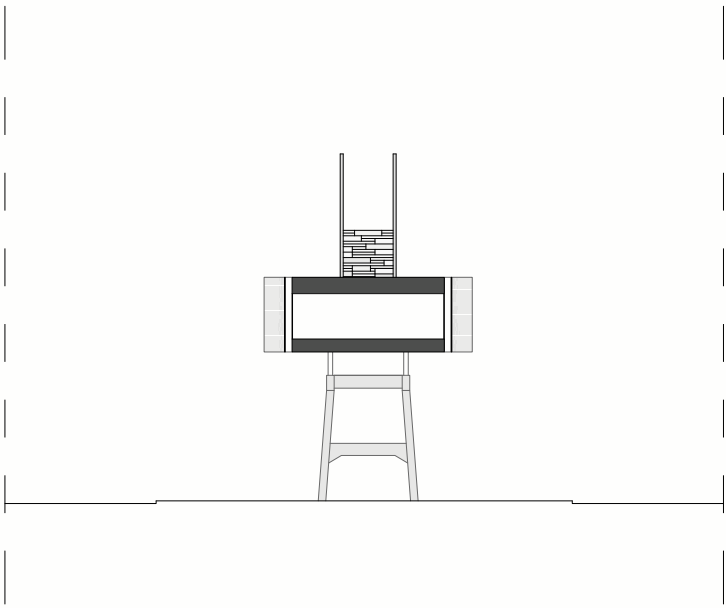
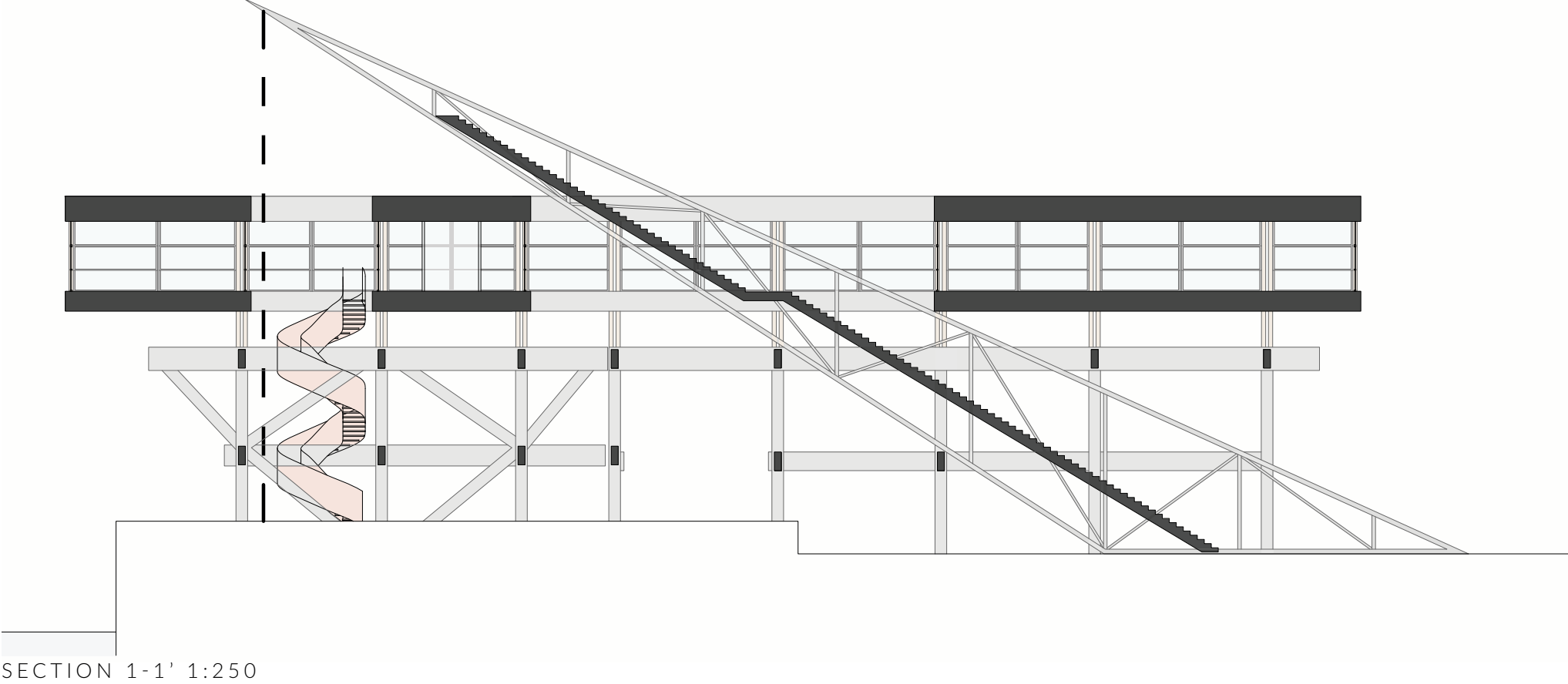
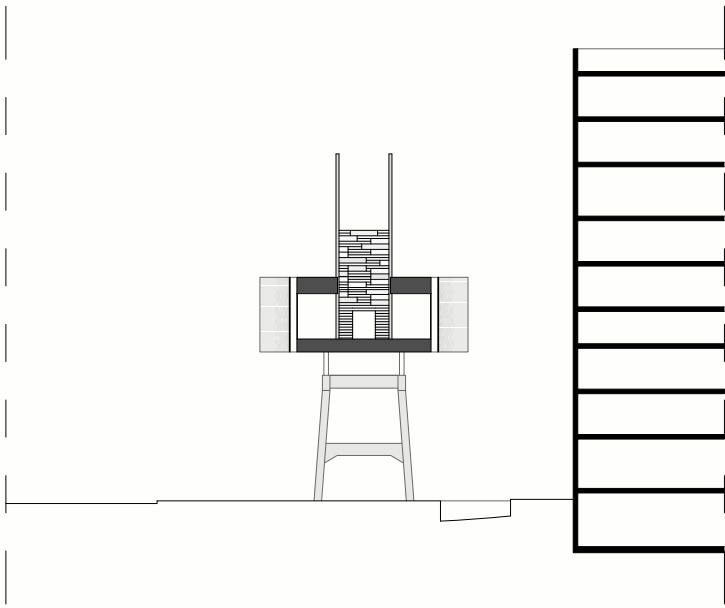


Figure 54: Section
Own image

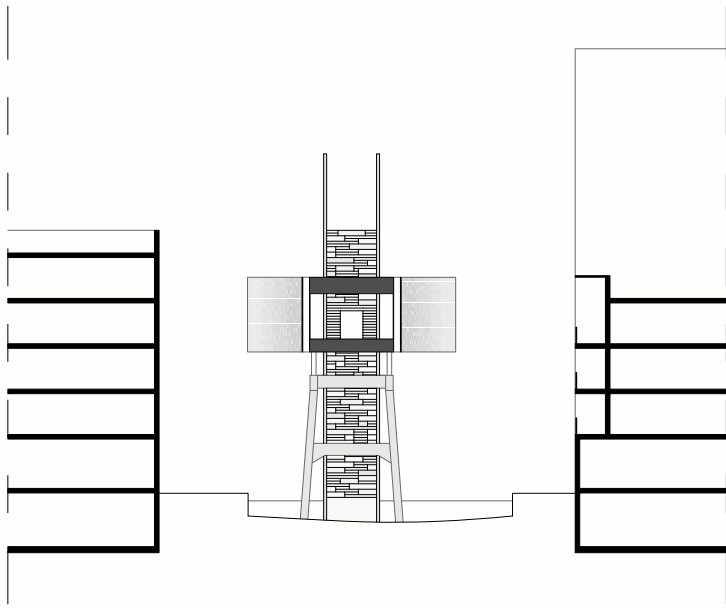


SECTION A-A' 1:500

Figure 55: Sections
Own image



SECTION B-B' 1:500

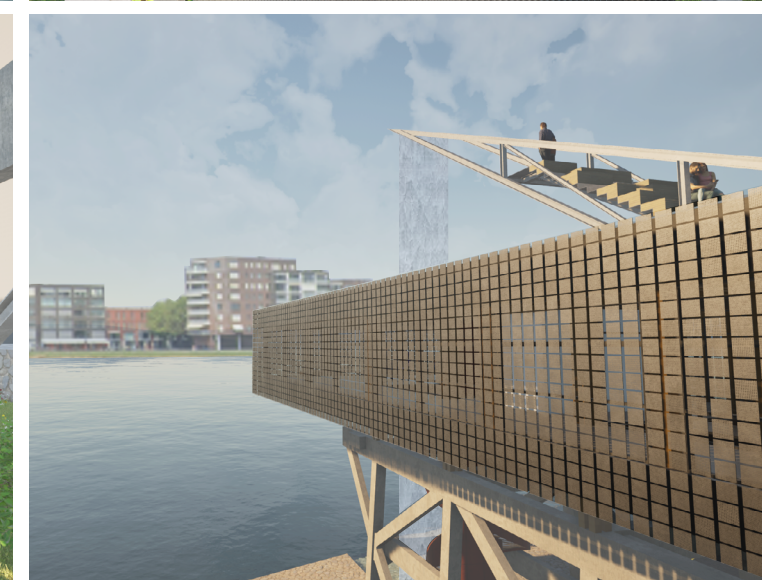


SECTION C-C' 1:500

THE STAIRS



Figure 56-60: impressions stairs
Own image



VOLUME

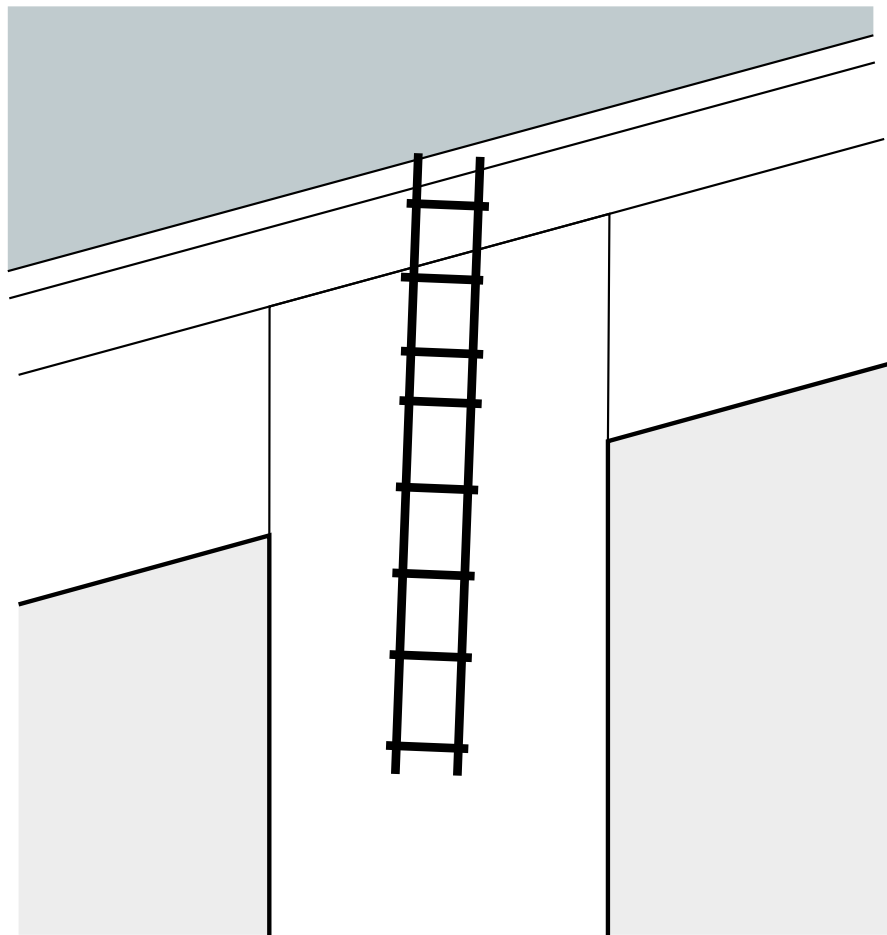


Figure 61: Site
1:750
Own image

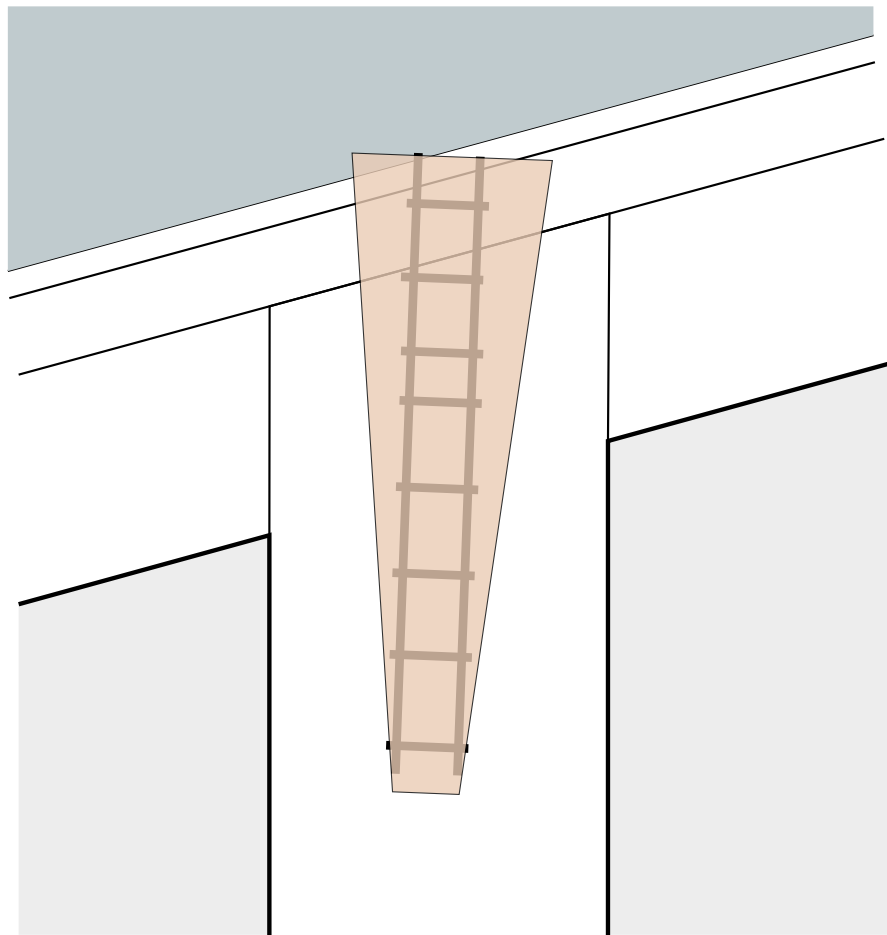
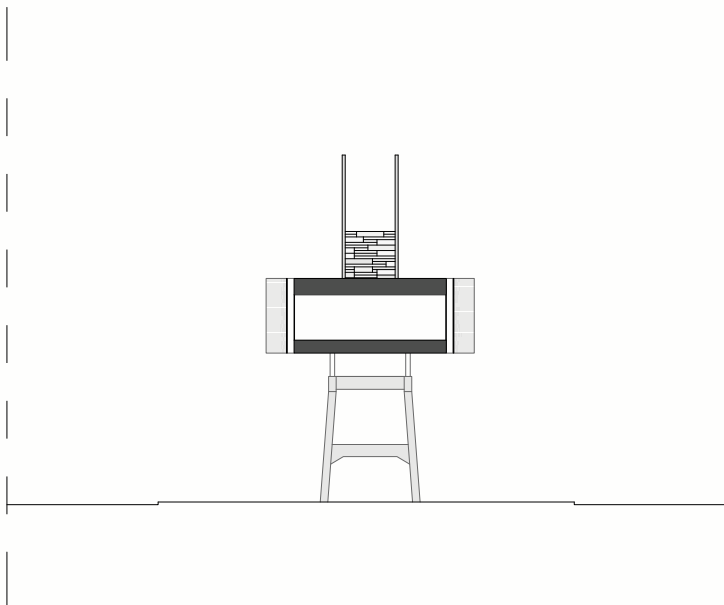
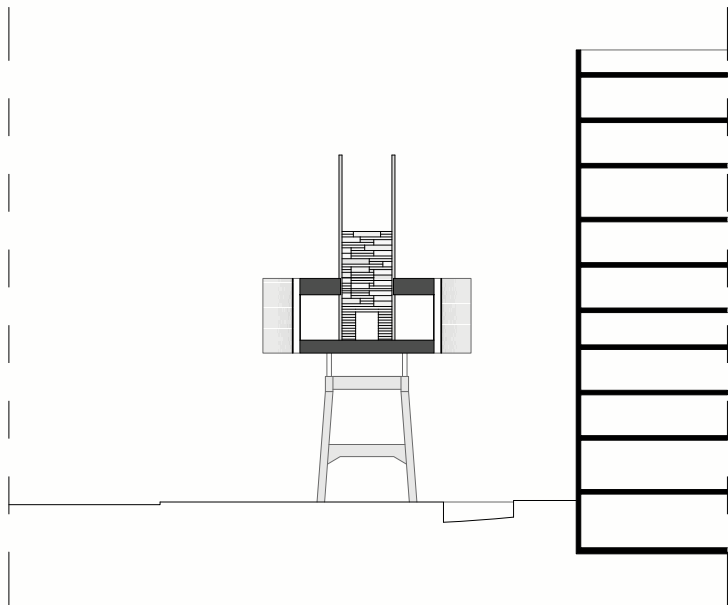


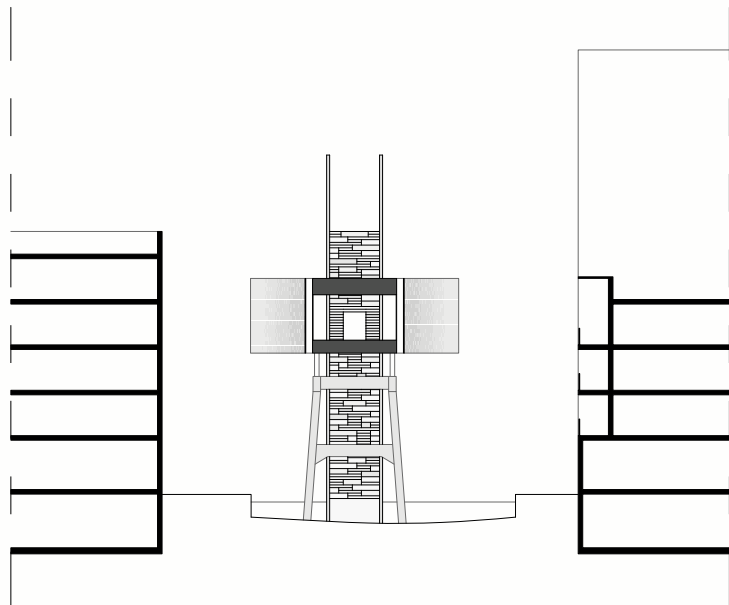
Figure 62: Site concept
1:750
Own image



SECTION A-A' 1:500



SECTION B-B' 1:500



SECTION C-C' 1:500

Figure 63: Sections
Own image

SITE

1:750

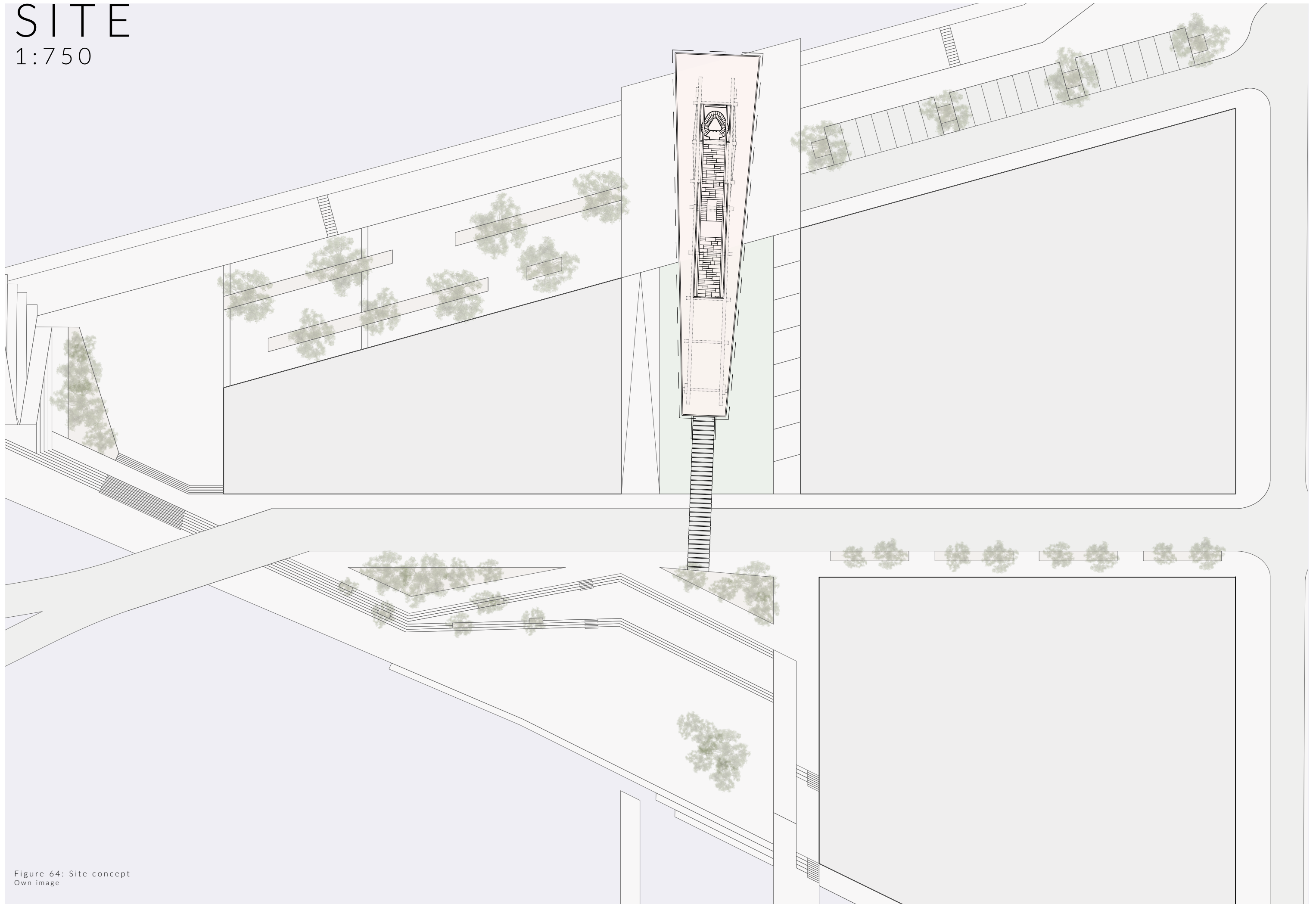


Figure 64: Site concept
Own image

FLOOR PLAN

GROUND FLOOR 1:250

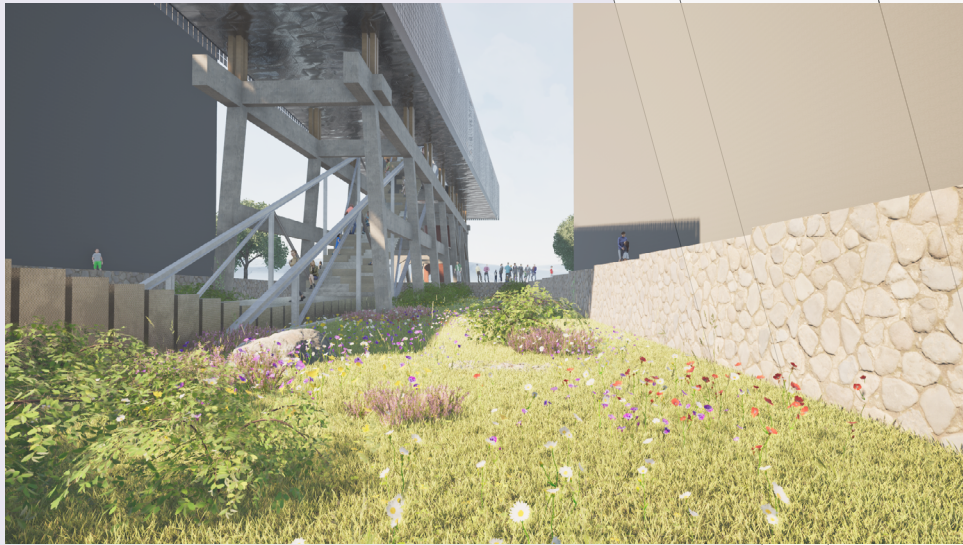
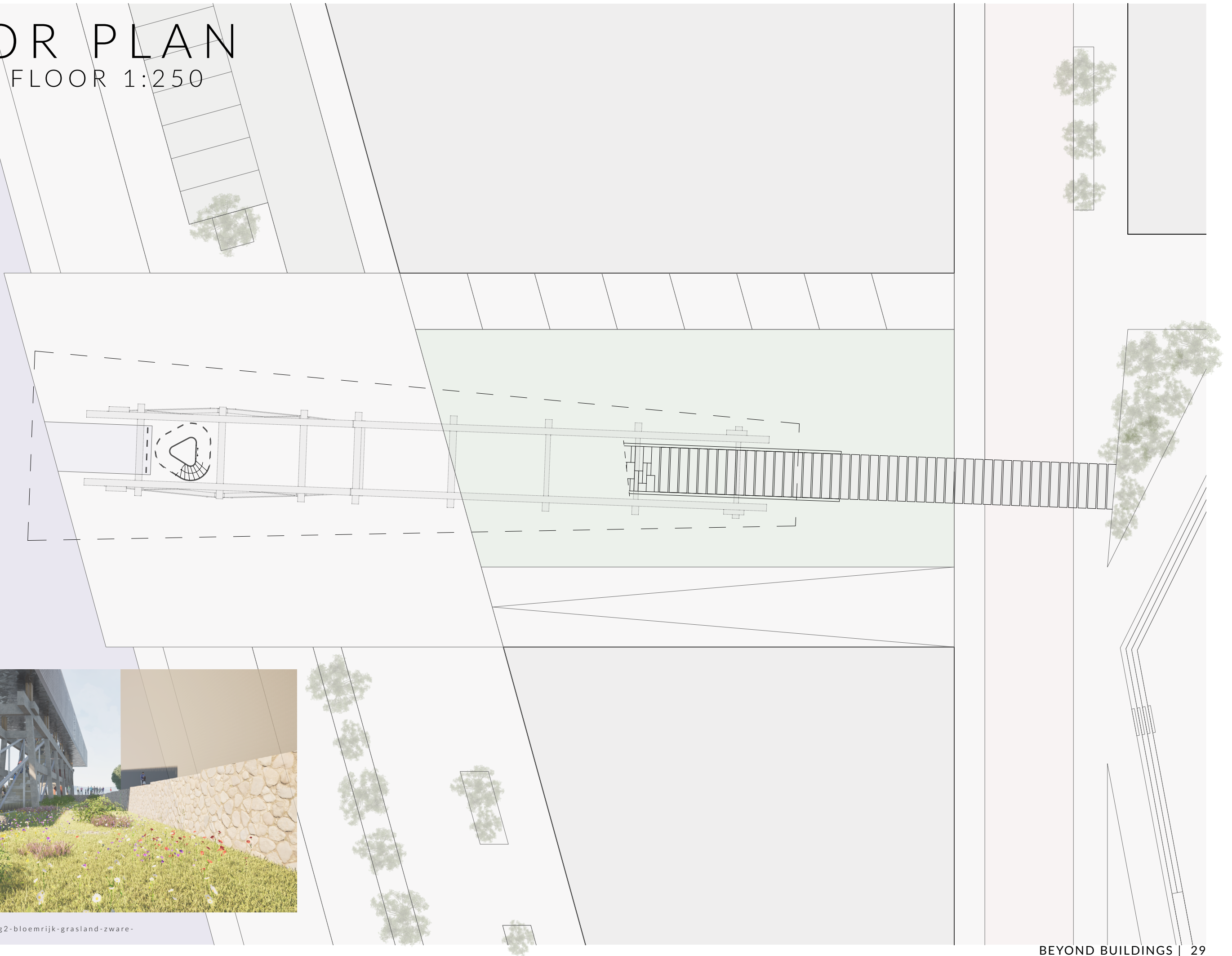
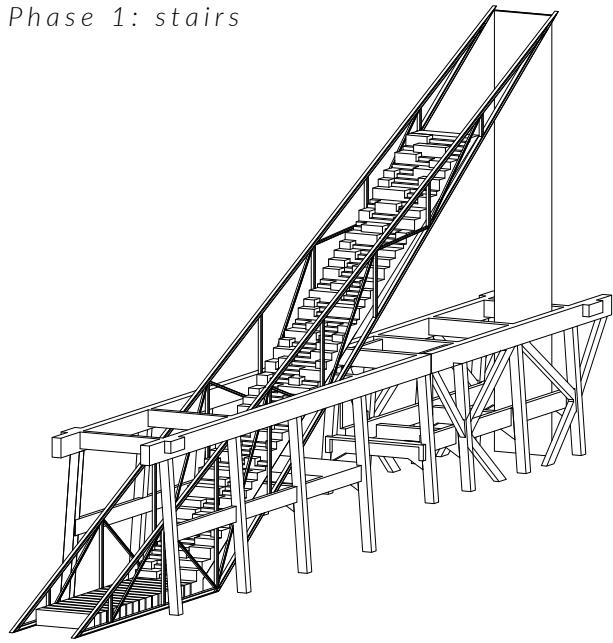


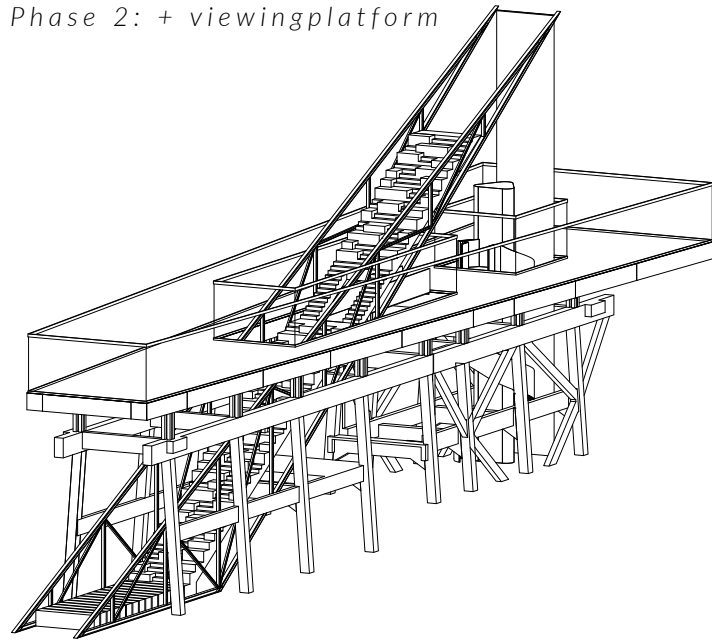
Figure 65: Flowerfield
<https://www.cruythoeck.nl/g2-bloemrijk-grasland-zware-grond>

PHASES

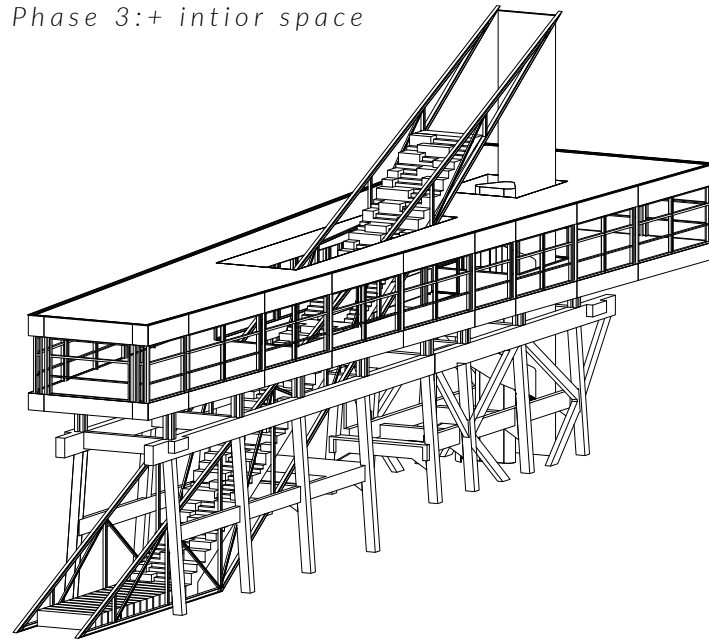
Phase 1: stairs



Phase 2: + viewingplatform



Phase 3: + interior space



Phase 4: + exterior facade

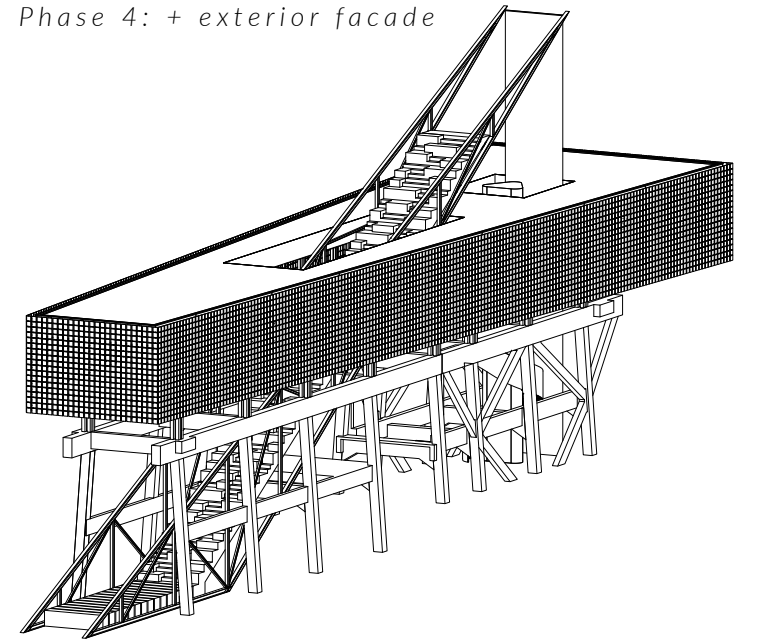
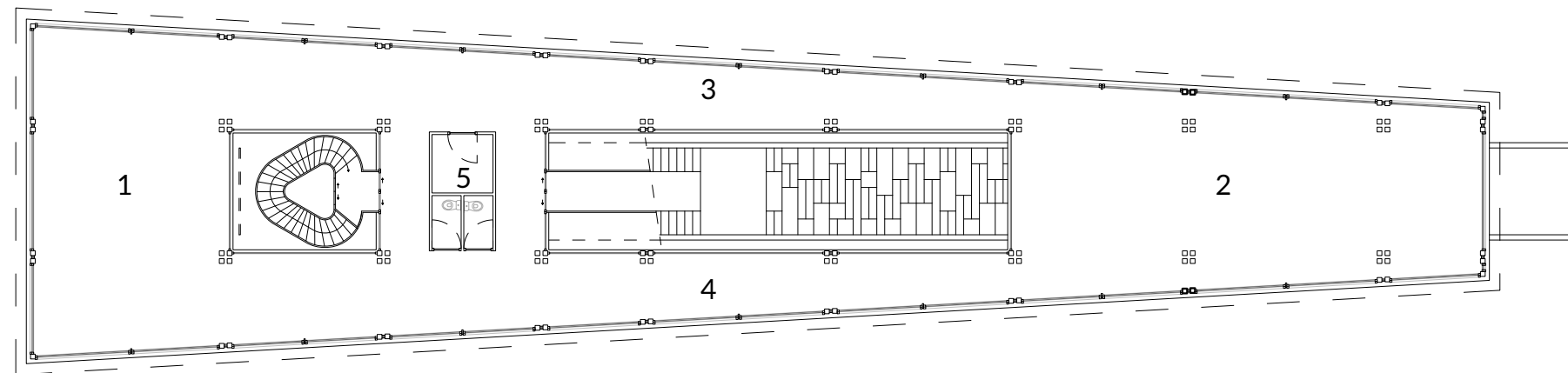


Figure 66: phases to built
Own image

FLOOR PLAN

FUNCTION FLOOR 1:250



1. Sitting area water side
2. Sitting area + terrace square side
3. Corridor east
4. Corridor west
5. Functional space

Figure 67: Floorplan conceptual - zones
1:250
Own image

FUNCTION



Figure 68-70: Impressions interior
Own image

FLOOR PLAN

ROOF 1:250

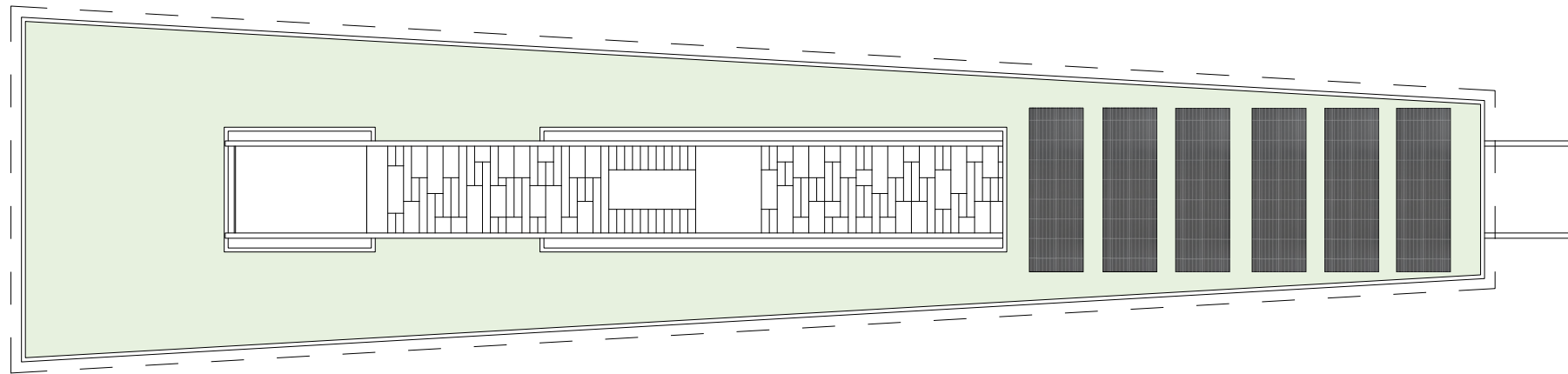


Figure 71: Floorplan conceptual - roof
1:250
Own image



Figure 72: Roof - inspiration Solar panels
Inspo kraanbaan. (z.d.). Pinterest. <https://nl.pinterest.com/akikkert0265/inspo-kraanbaan/>

IMPRESSIONS



Figure 73-76: impressions building in context
Own image

FACADE

PRINCIPLE

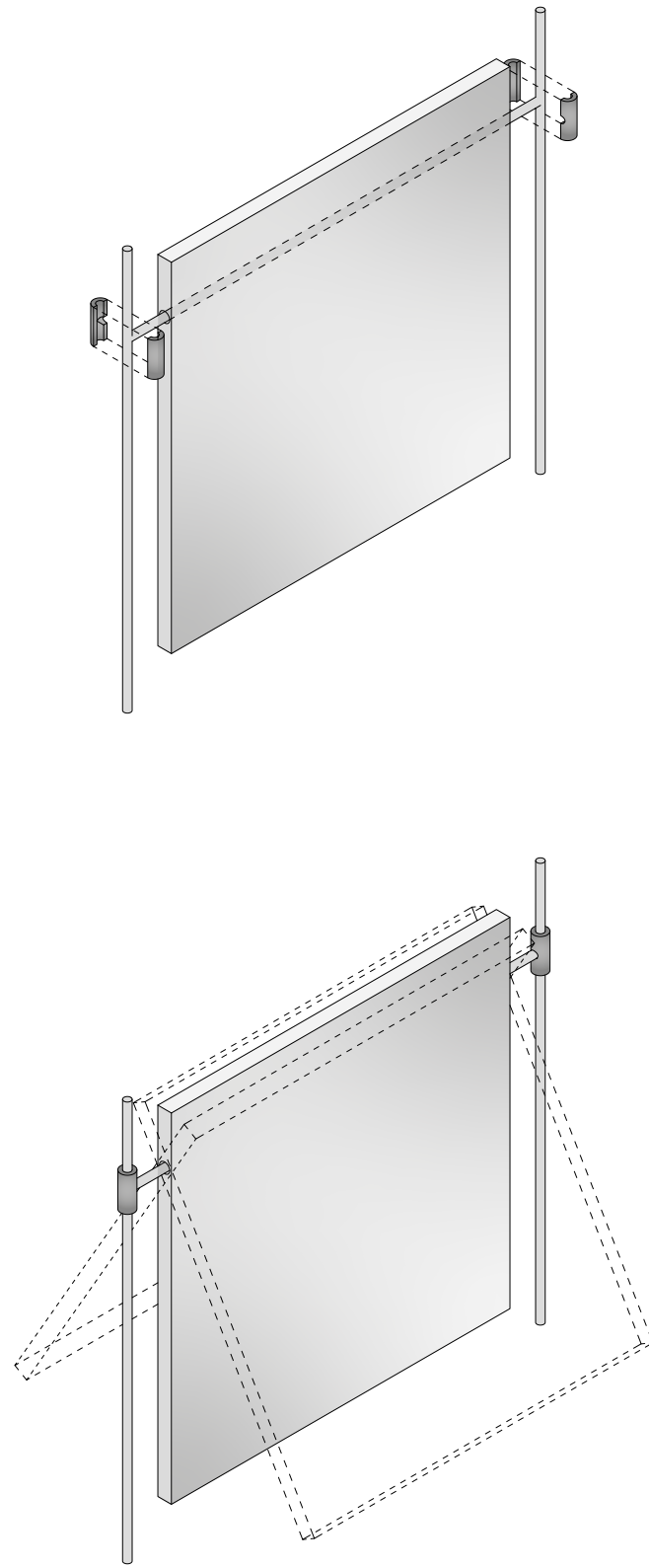


Figure 77: Principle individual panels
Own image

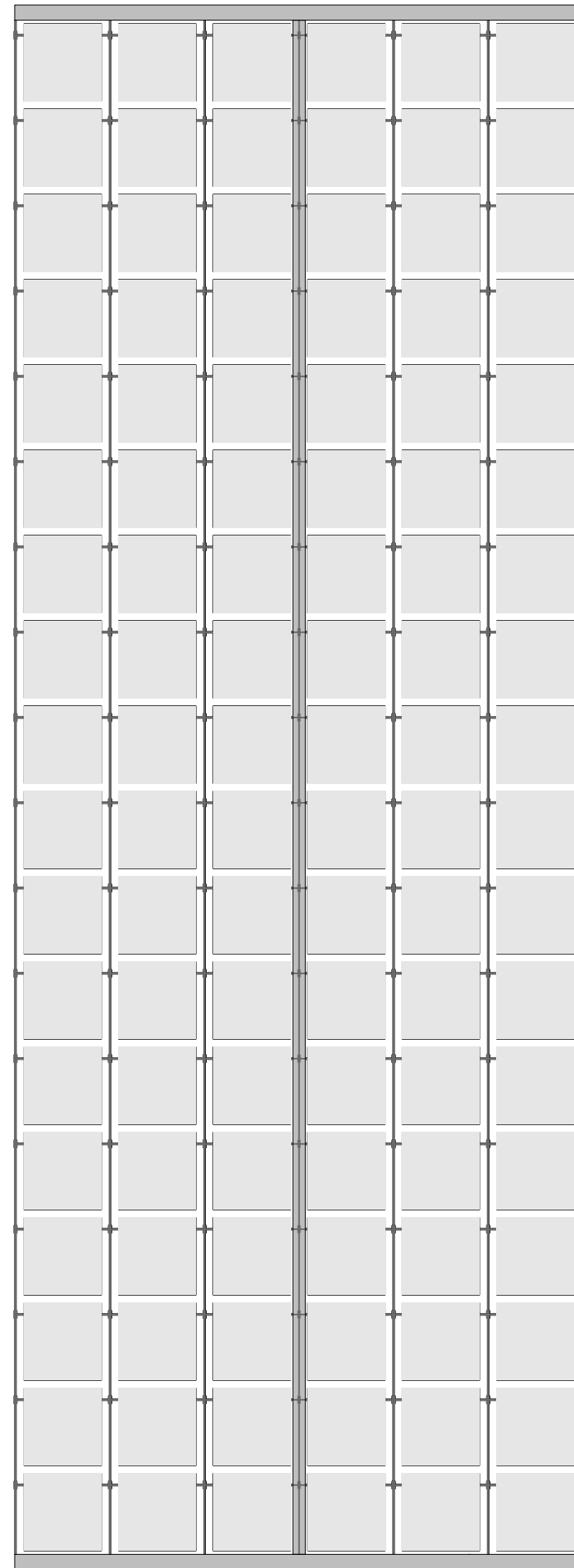
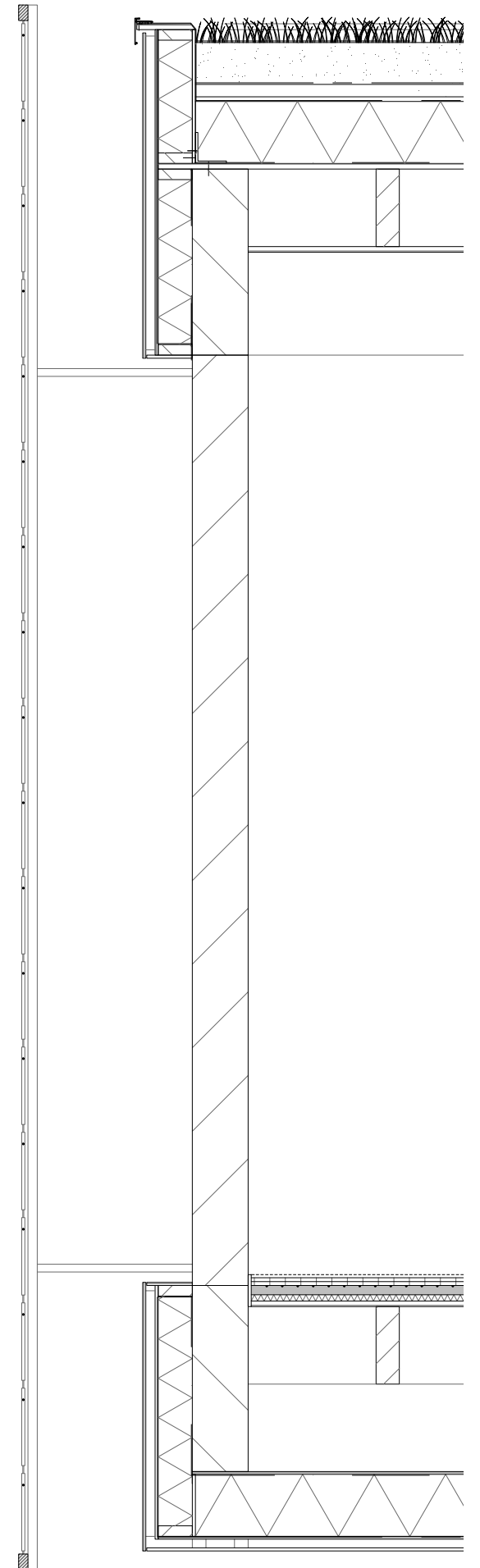


Figure 78: 1:20 (scaled)
Own image

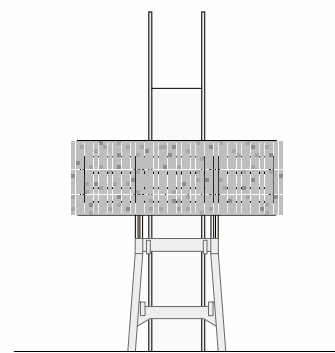


FACADE

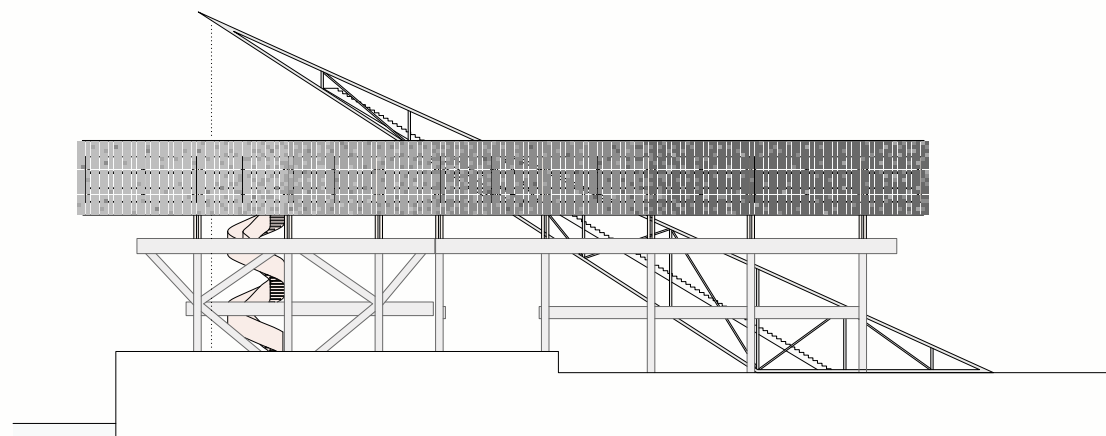
PRINCIPLE



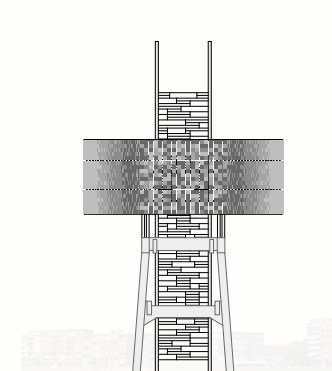
Figure 79: Ned Kahn facade
<https://nedkahn.com/portfolio-category/wind>



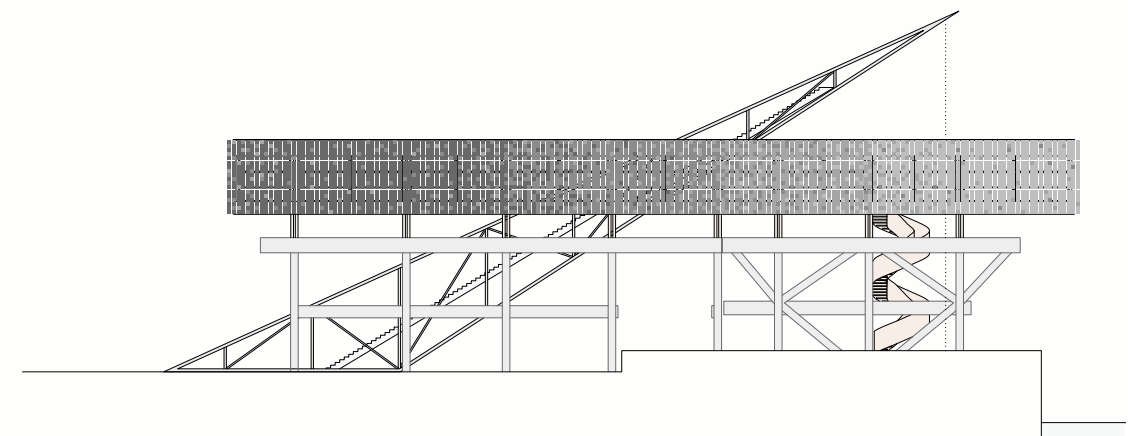
NORTH



WEST



SOUTH

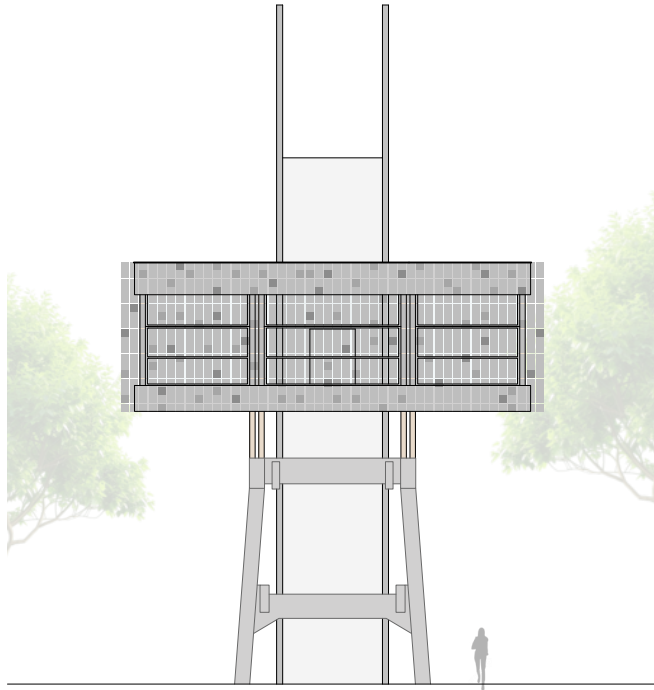


EAST

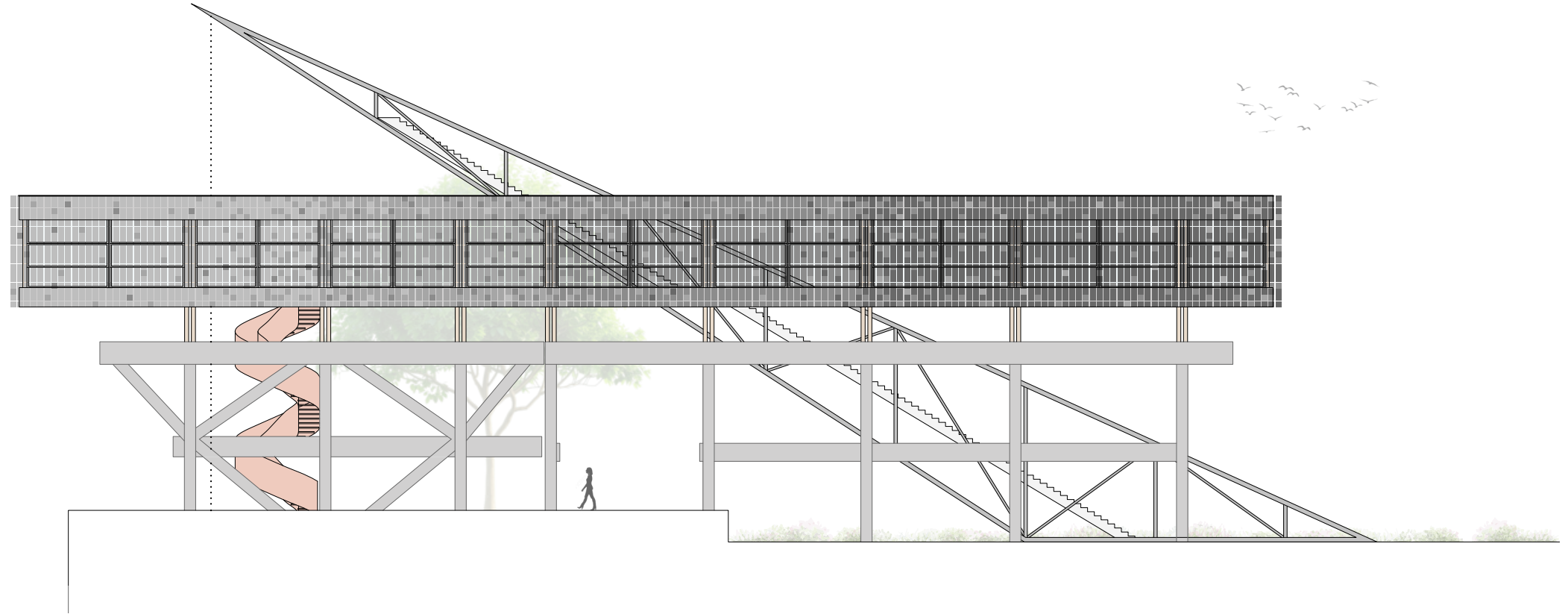
Figure 80: Transparency panels
 Own image

ELEVATIONS

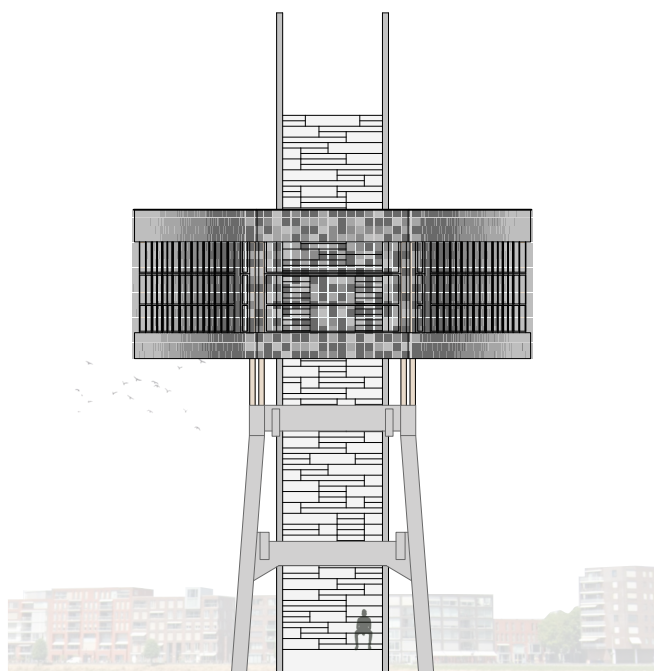
1:250



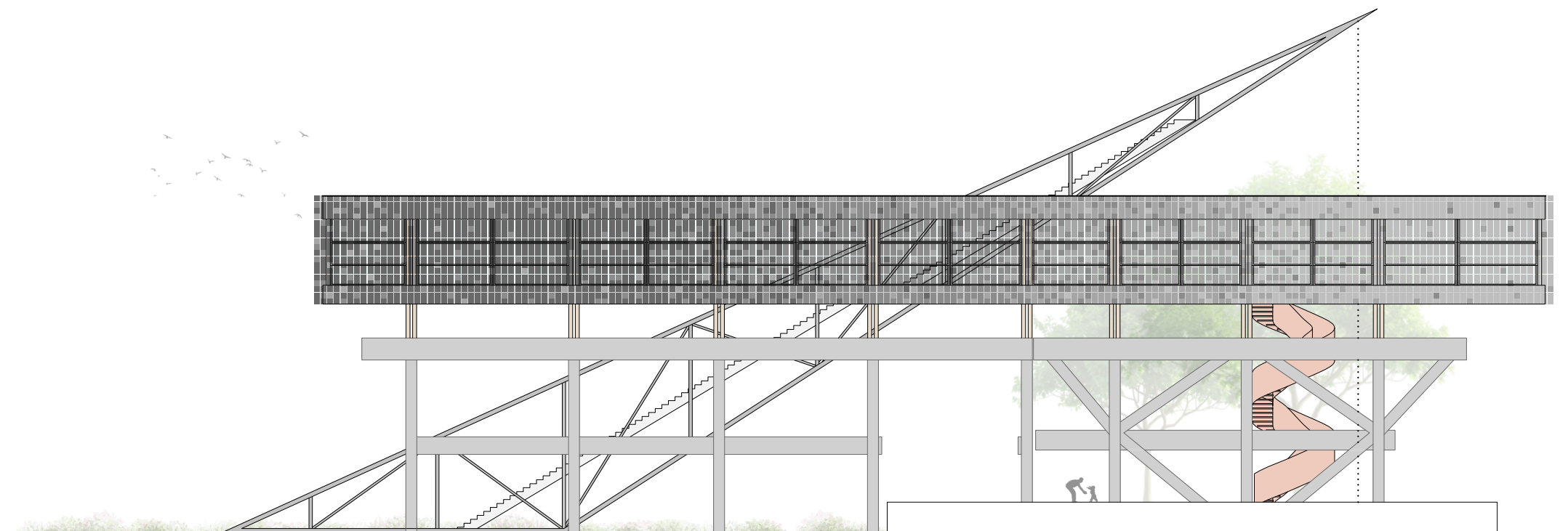
NORTH



WEST



SOUTH



EAST

STRUCTURE

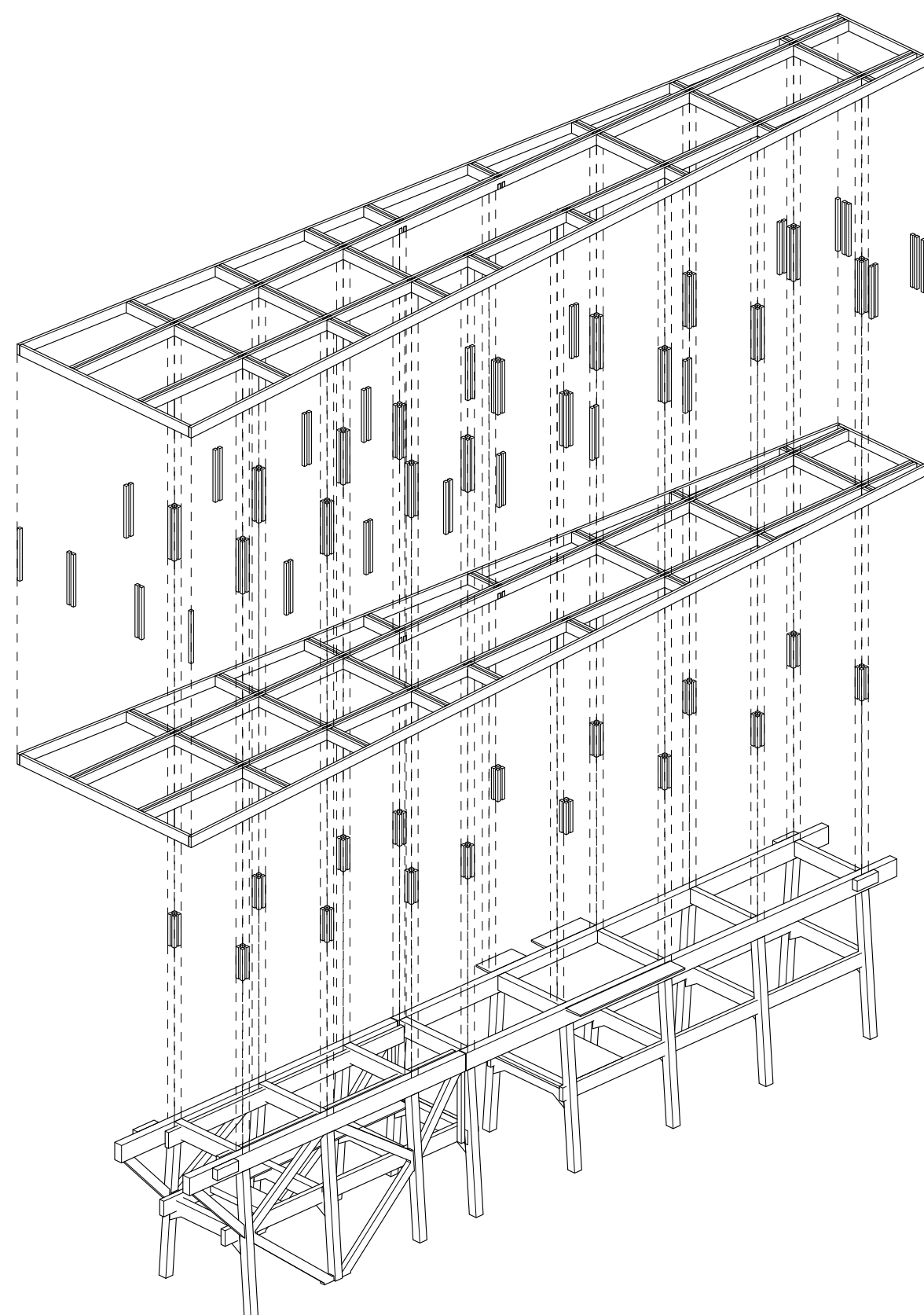


Figure 82: Construction exploded - isometric view
Own image

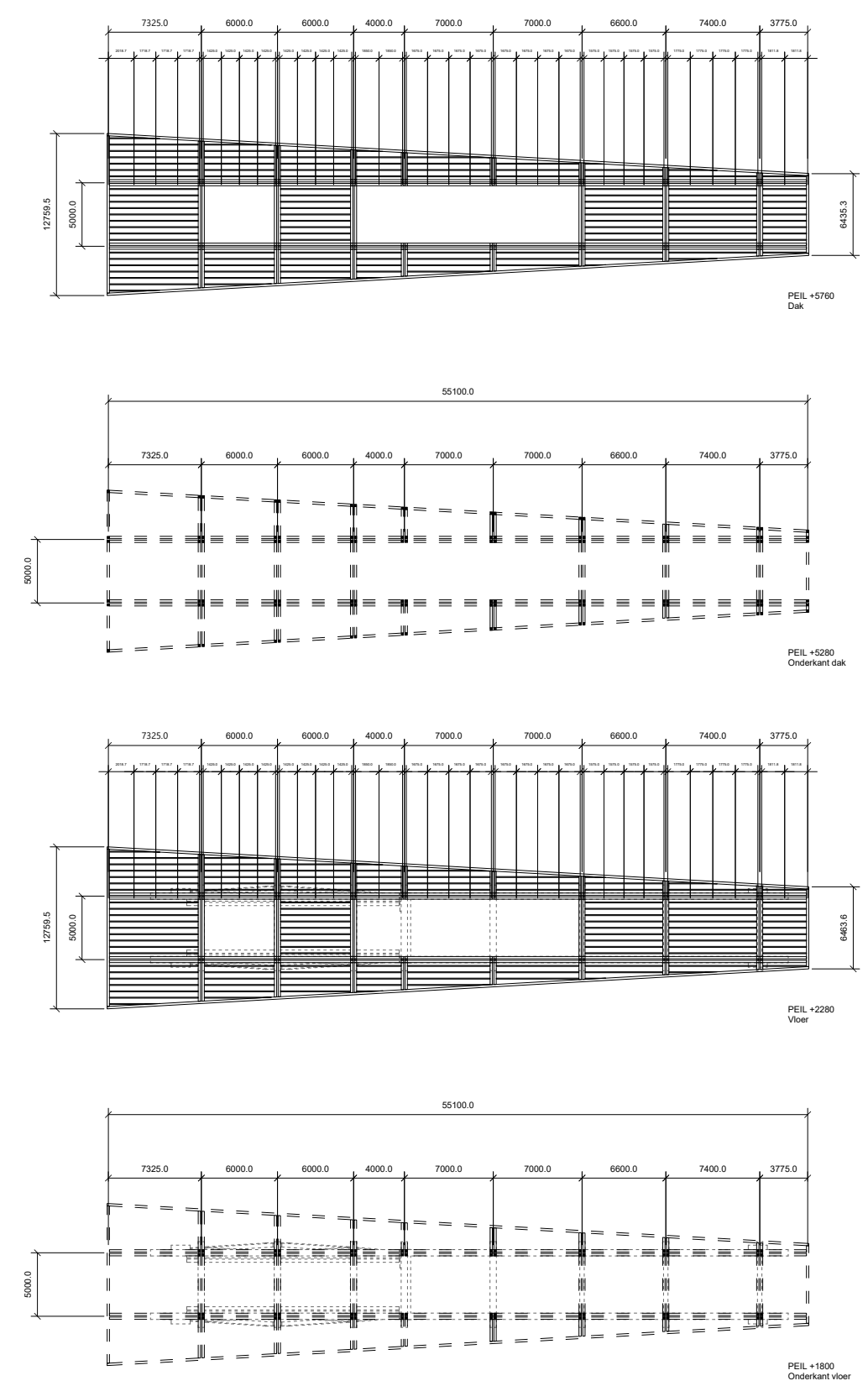


Figure 83: Floor plans construction
1:500
Own image

STRUCTURE

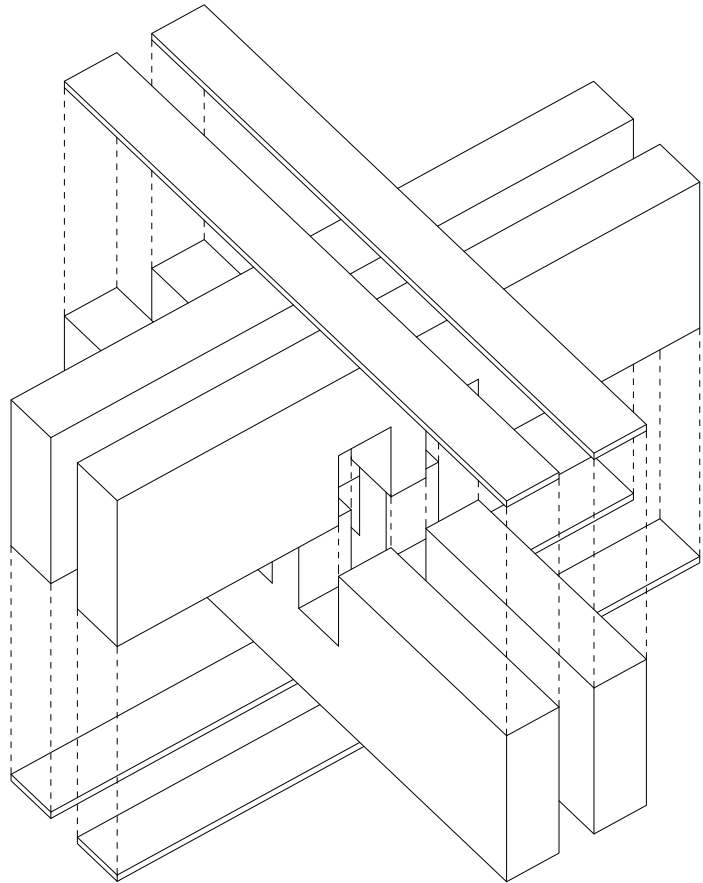


Figure 84: Principle beams
Own image

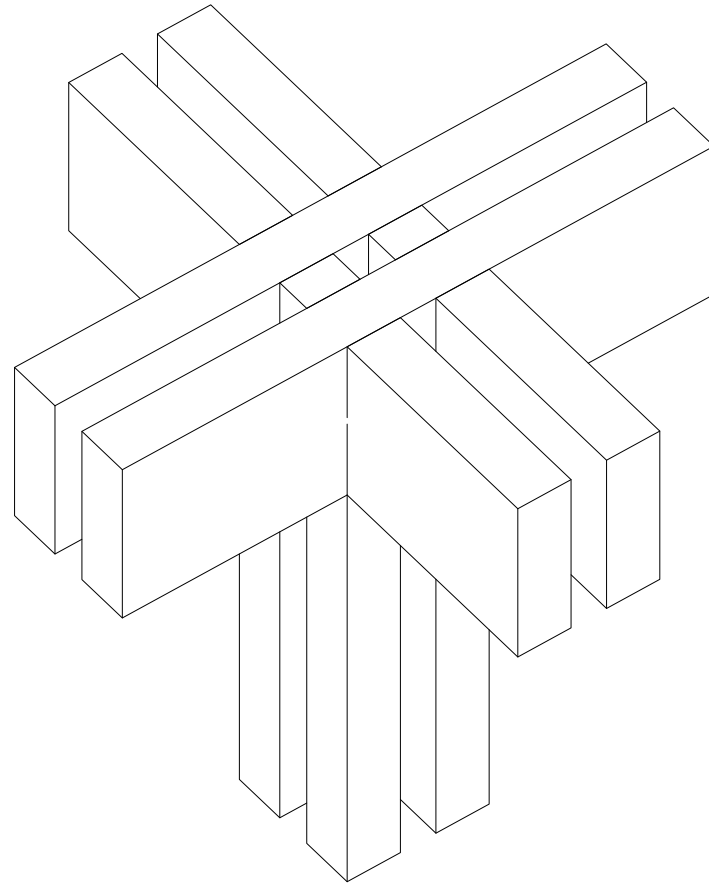


Figure 85: Principle beams and columns
Own image

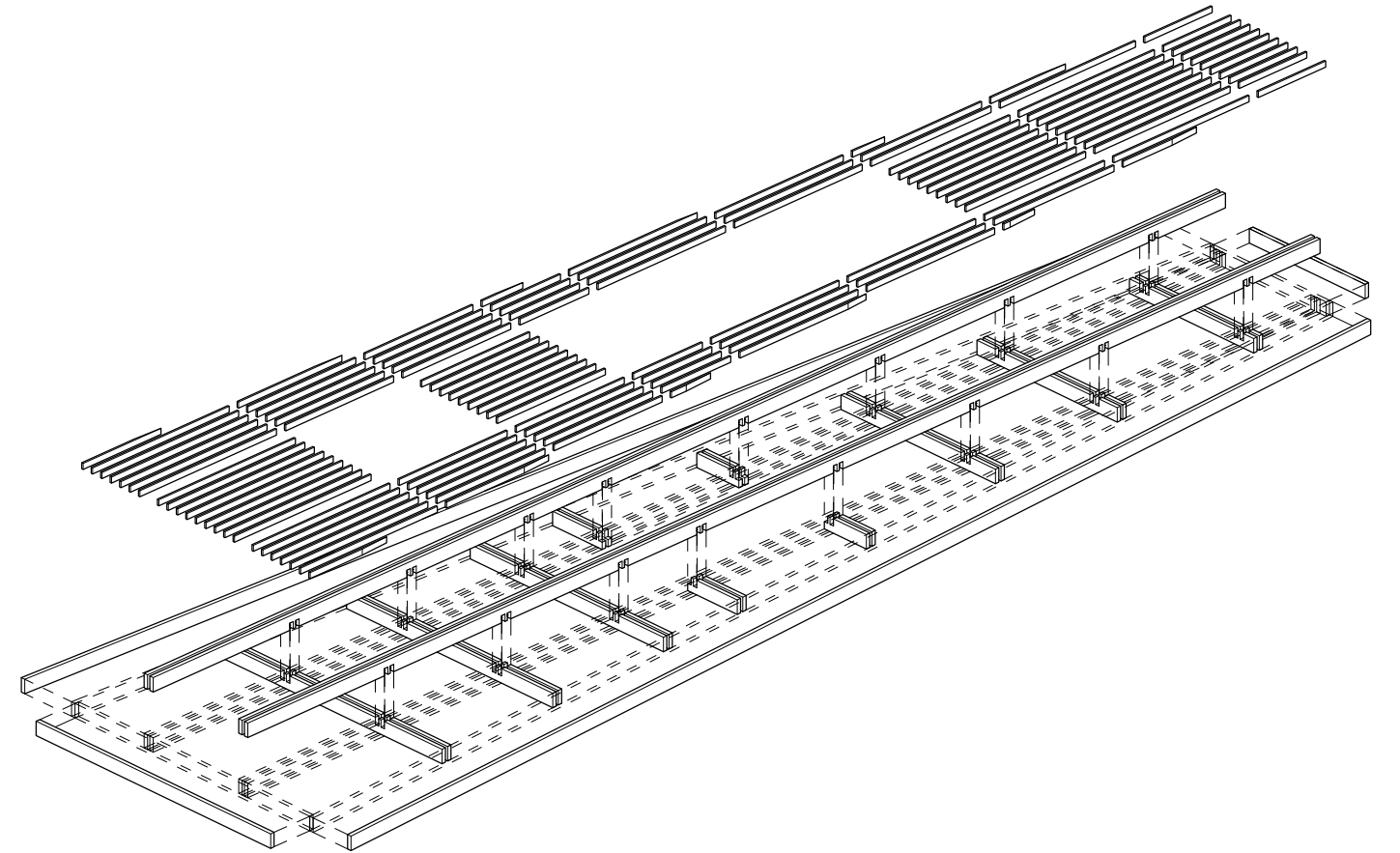


Figure 86: Exploded view floor
Own image

CLIMATE

AIRFLOW

Figure 87: Principle airflow
Own image

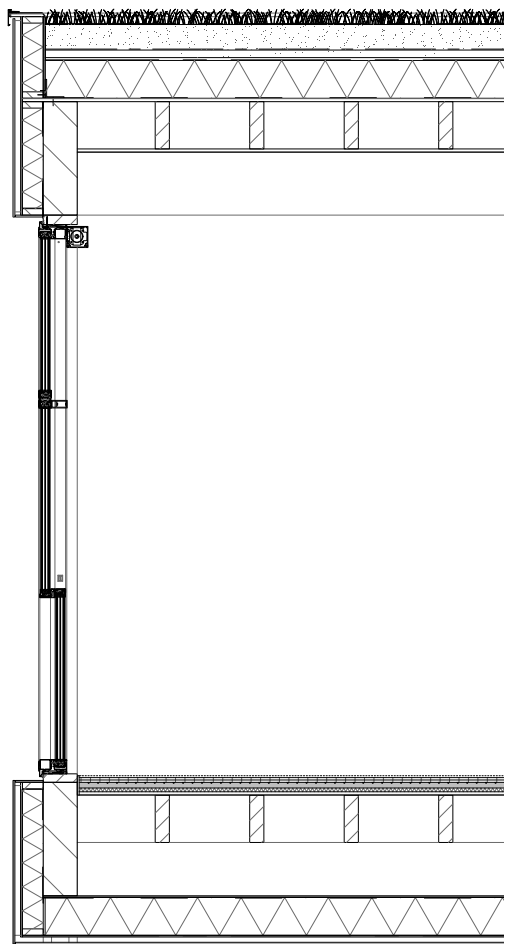
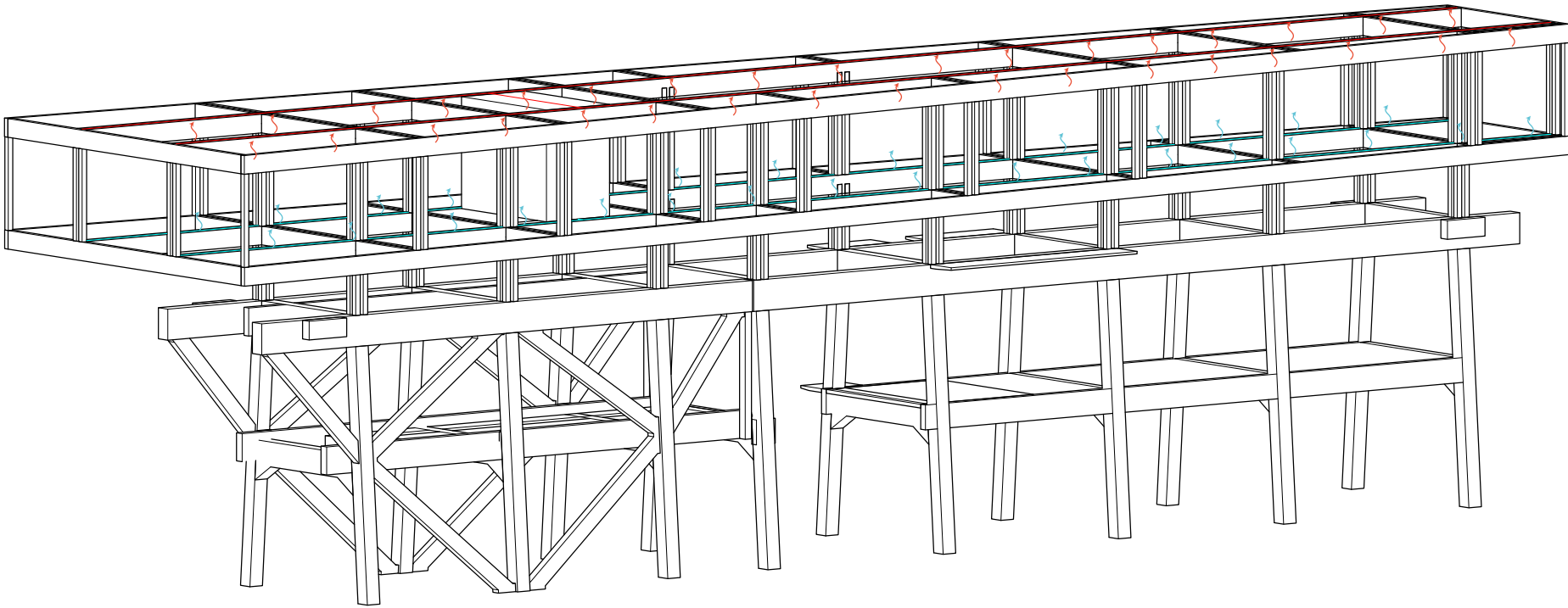


Figure 88: Winter situation
Own image

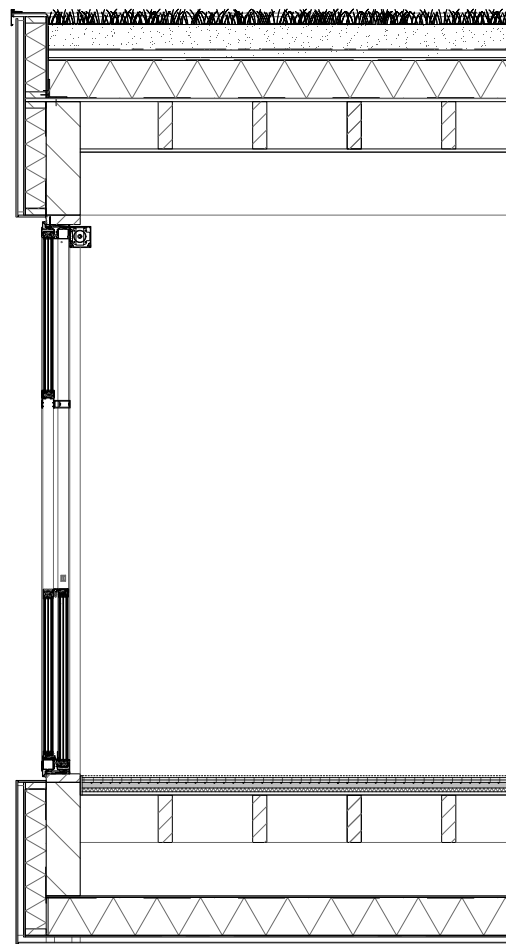


Figure 89: Summer situation
Own image

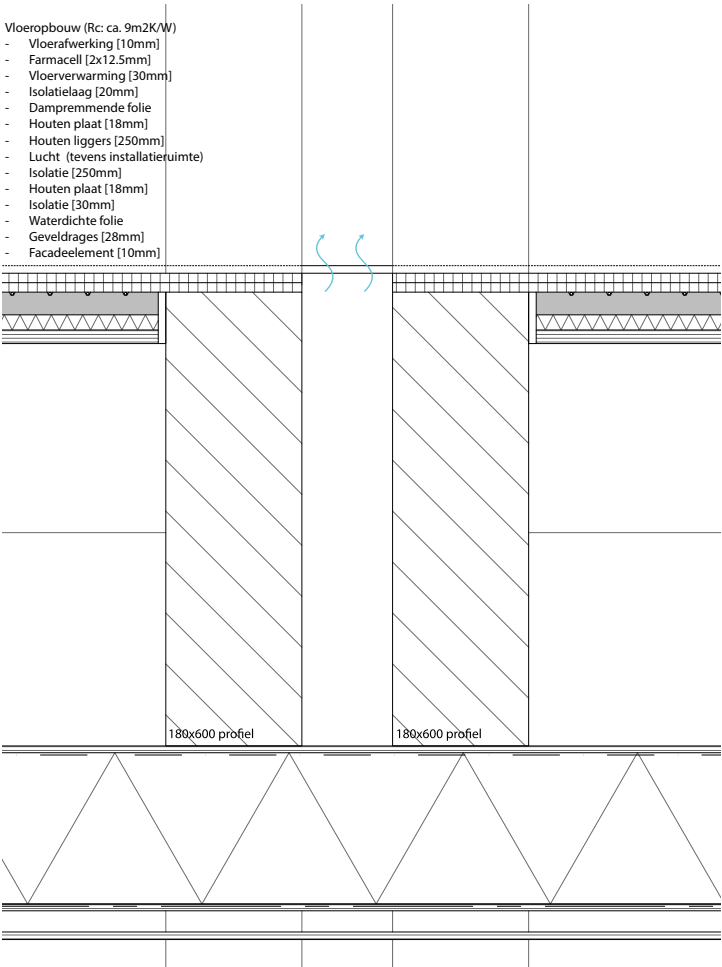


Figure 90: Detail (V) ventilation
1:5 scaled to 1:10
Own image

CLIMATE

ELECTRICITY

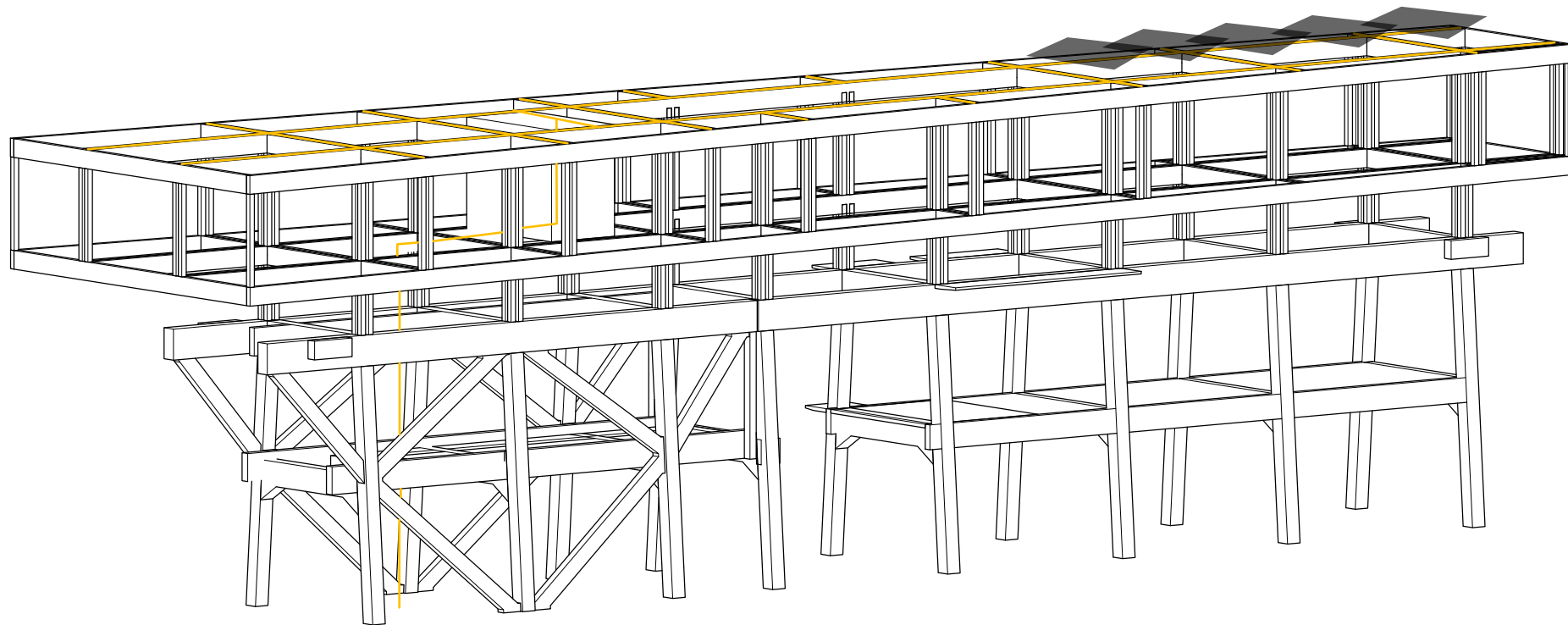


Figure 91: Principle electricity
Own image



Figure 92: Green roof with solar panels
Own image

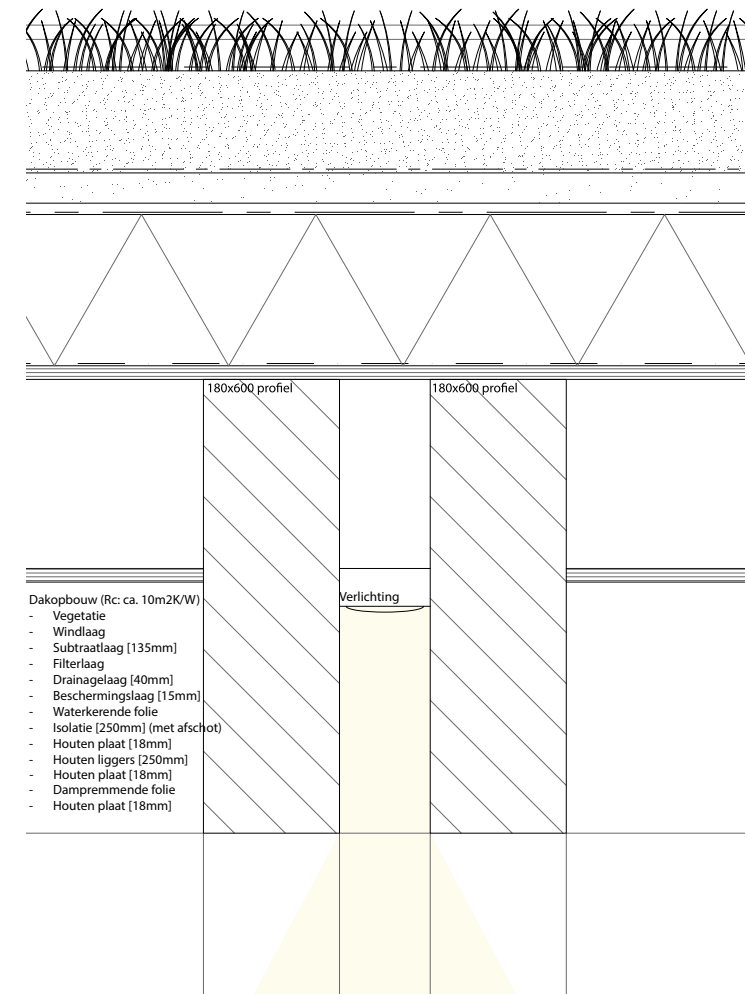


Figure 93: Detail (V) light
1:5 scaled to 1:10
Own image

CLIMATE

HEATING (AND COOLING)

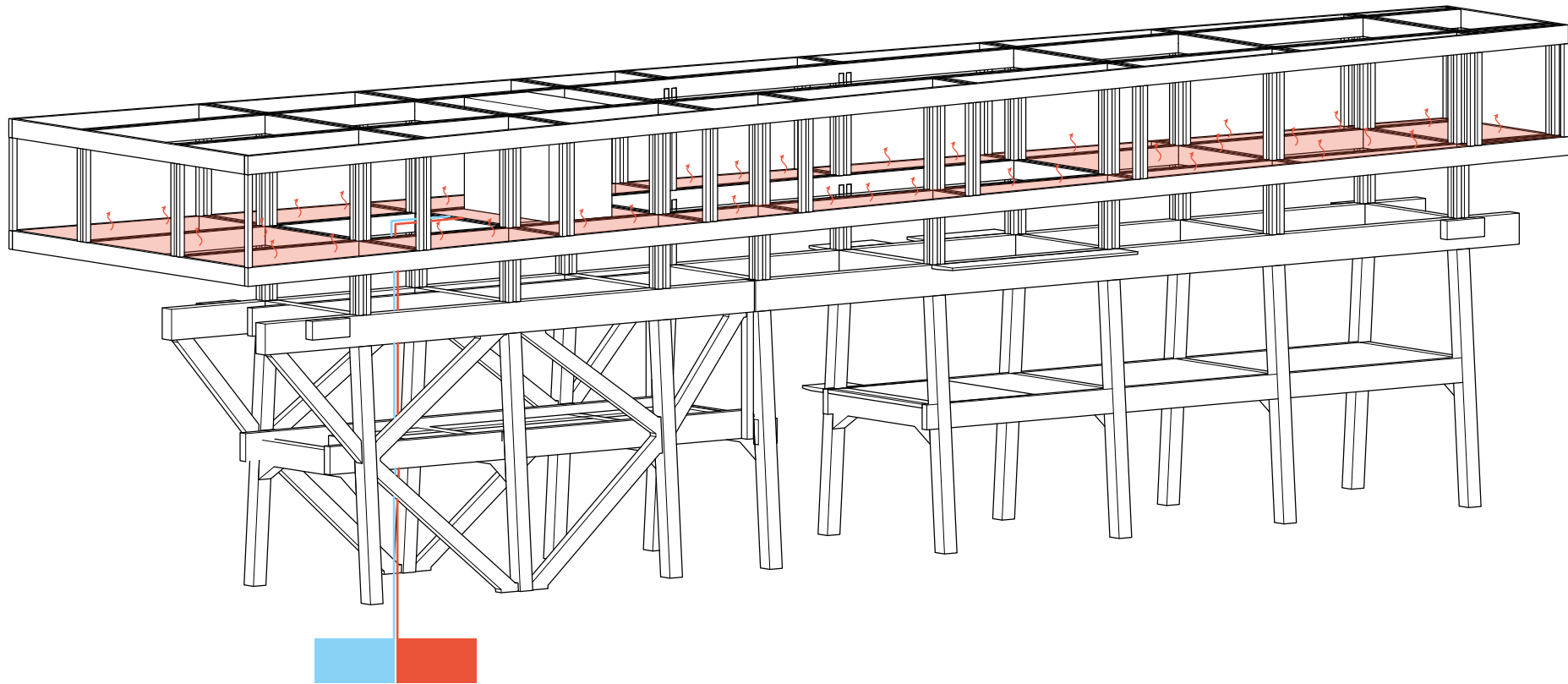


Figure 94: Principle heating and cooling
Own image

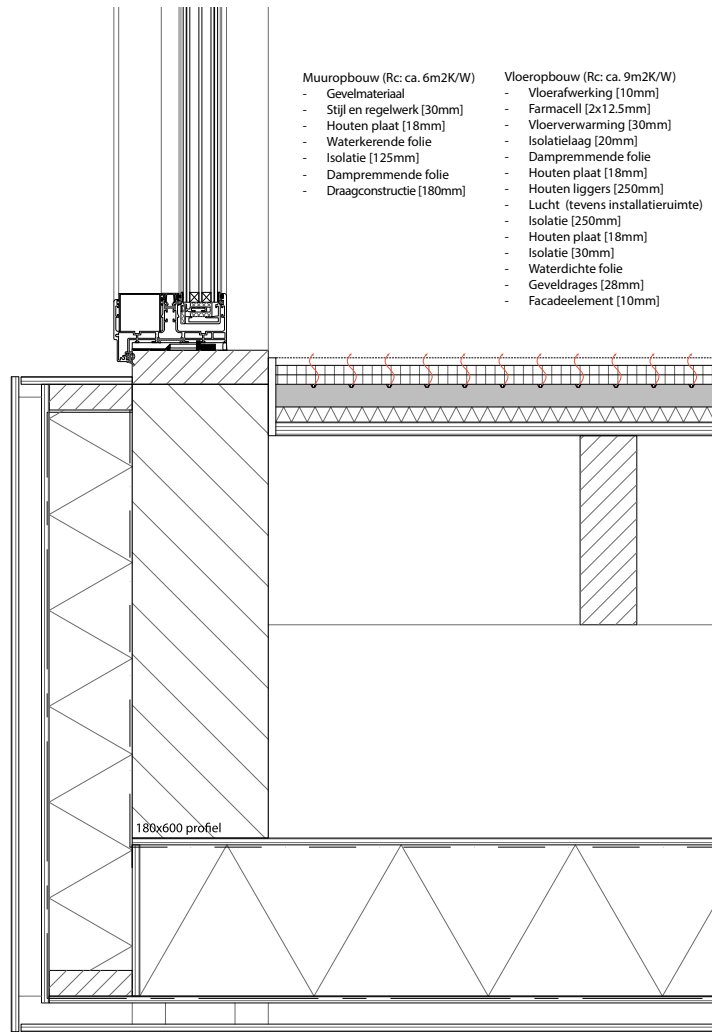


Figure 95: Detail (V) floor
1:5 scaled to 1:10
Own image

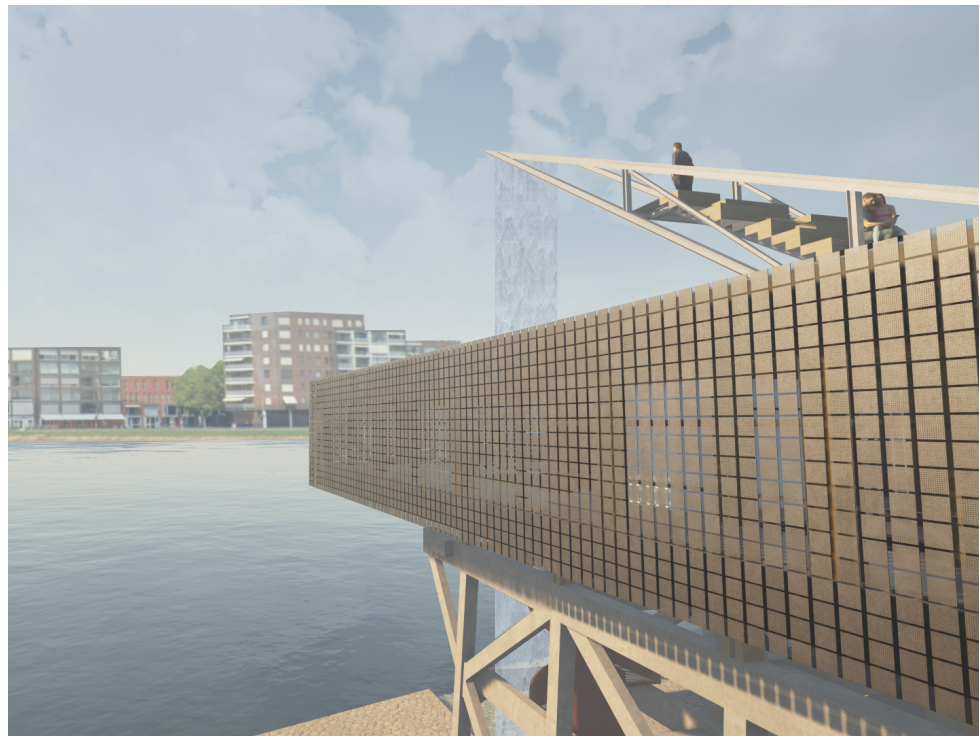


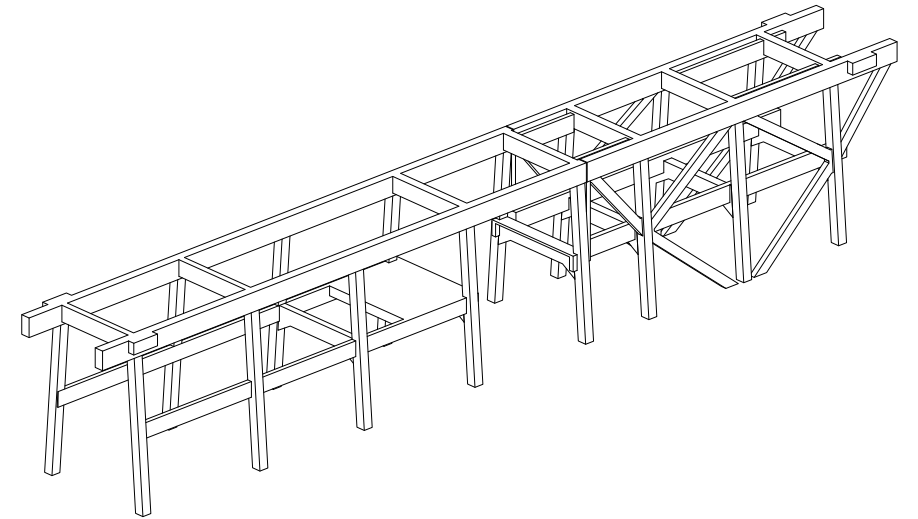
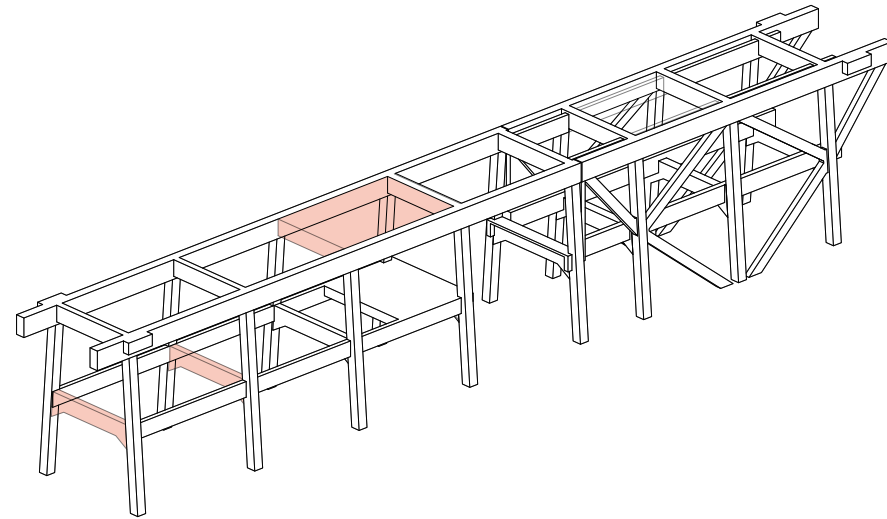
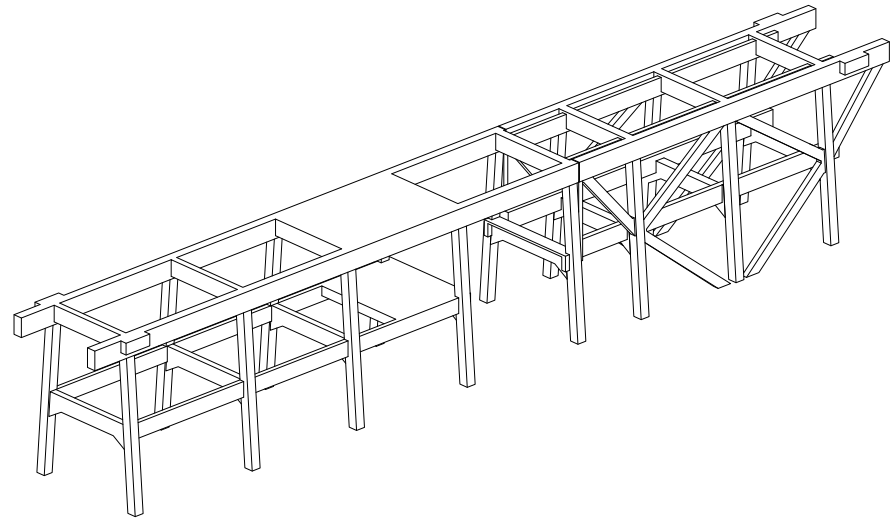
Figure 96-101: Impressions
Own image

THANK YOU!

Questions?

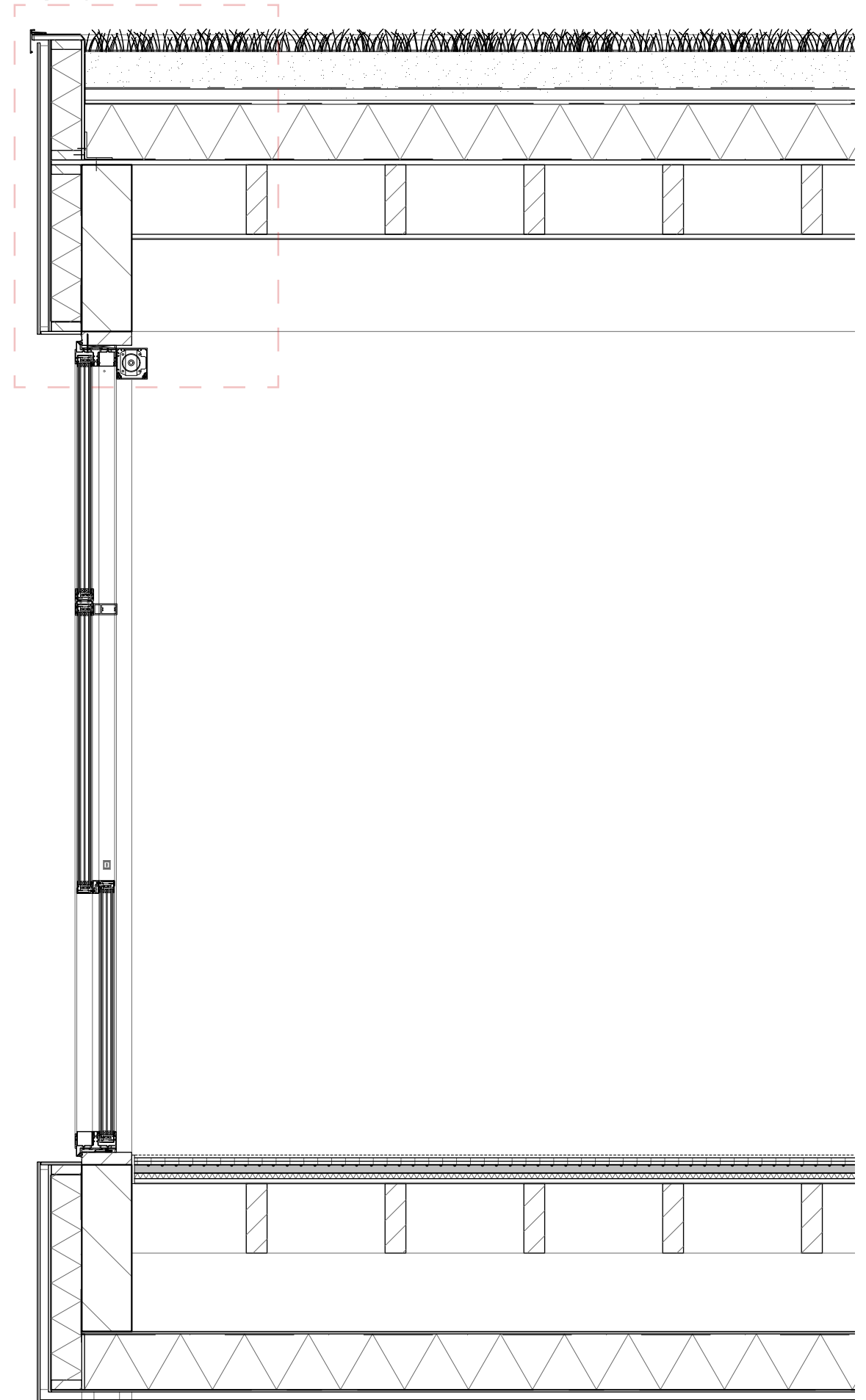
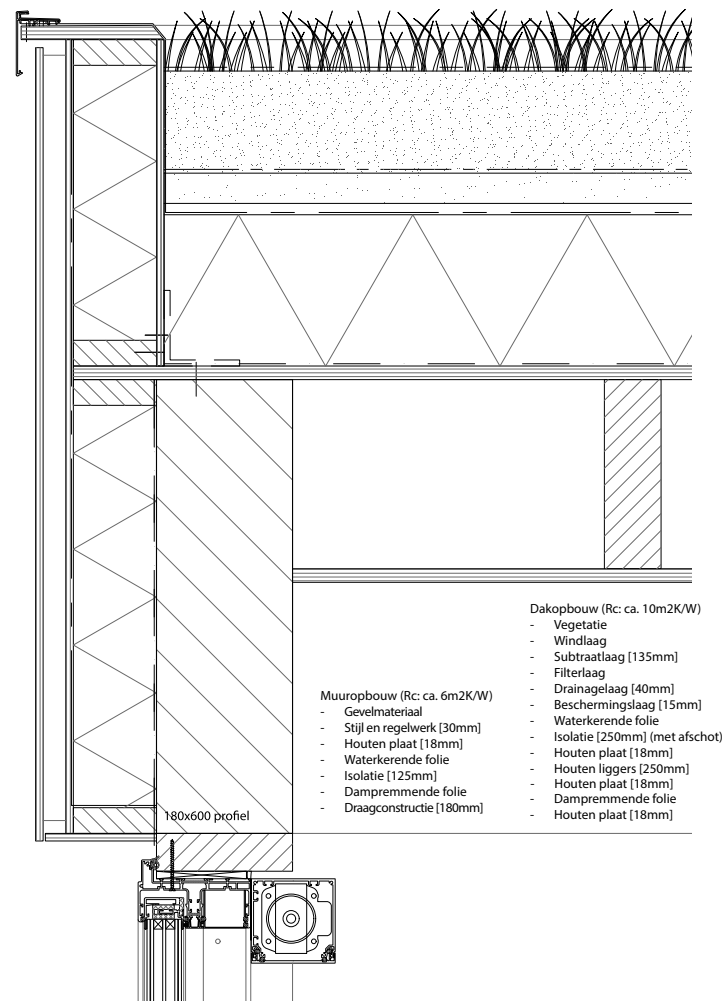
REMOVED

PARTS OF THE CRANETRACK



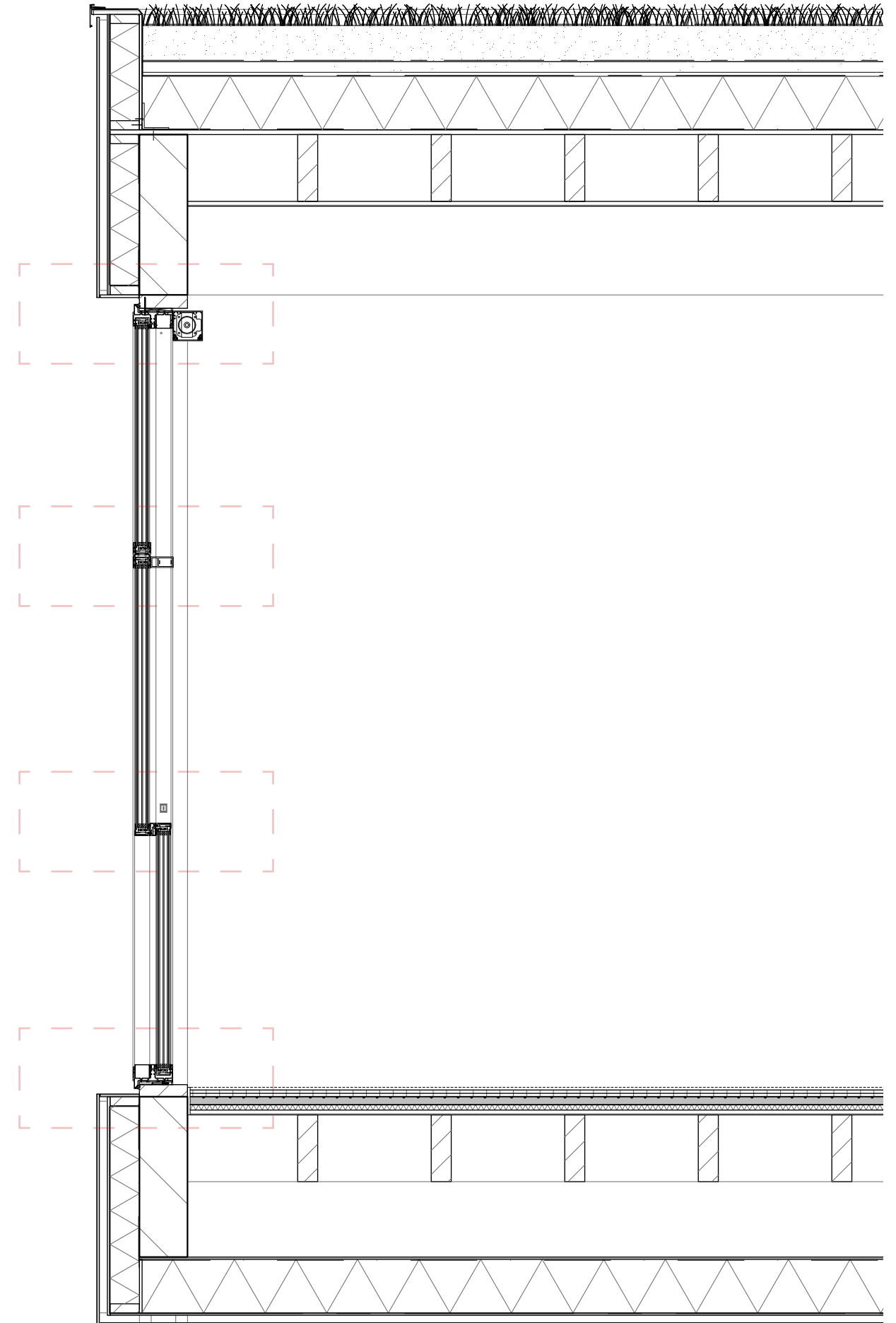
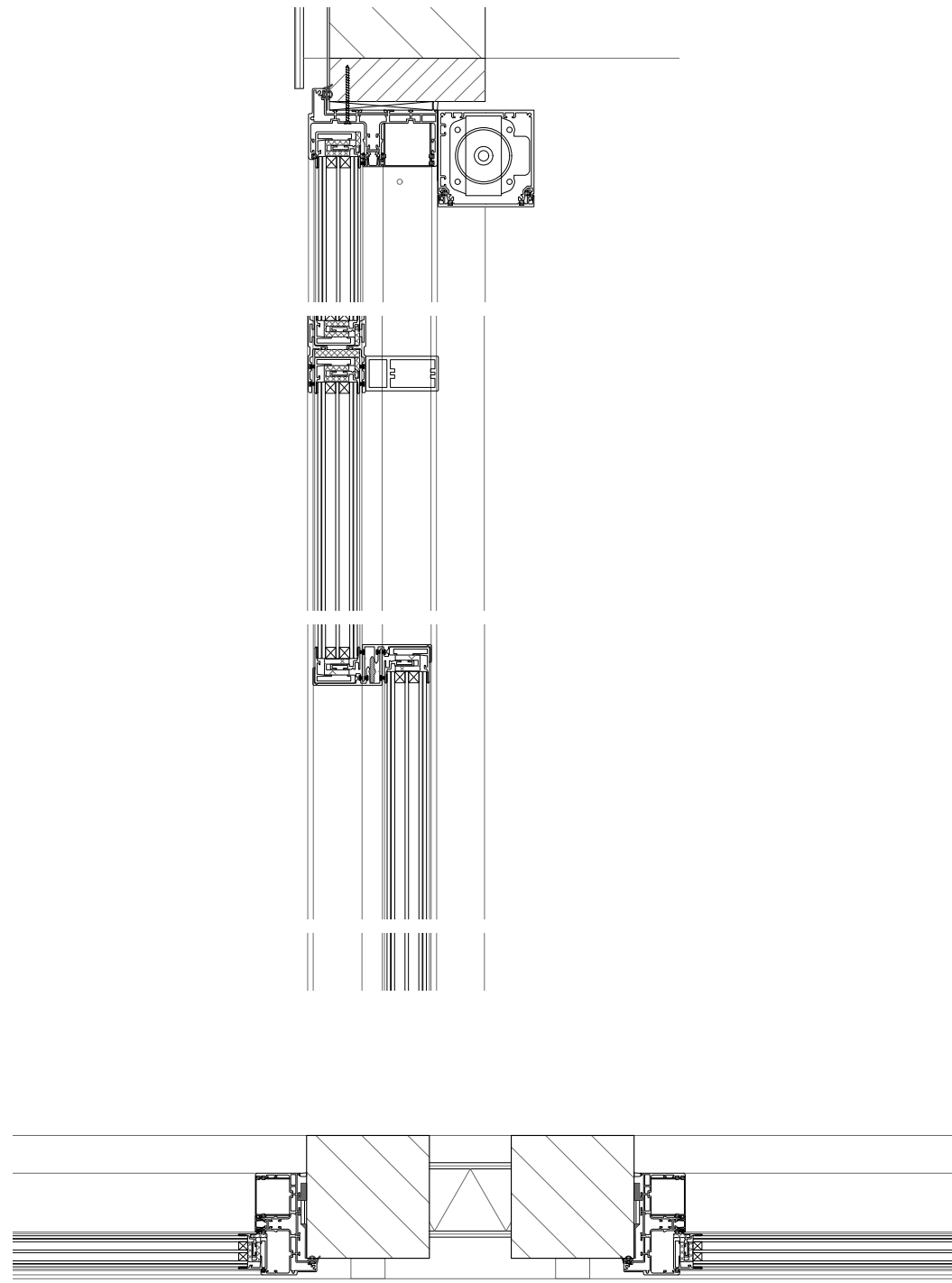
BUILDING CONSTRUCTION

ROOF



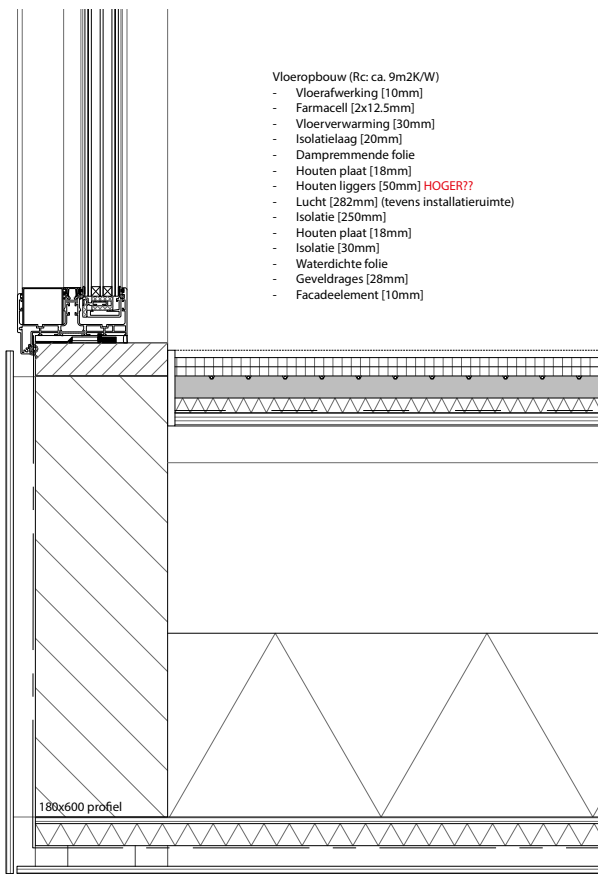
BUILDING CONSTRUCTION

WINDOW

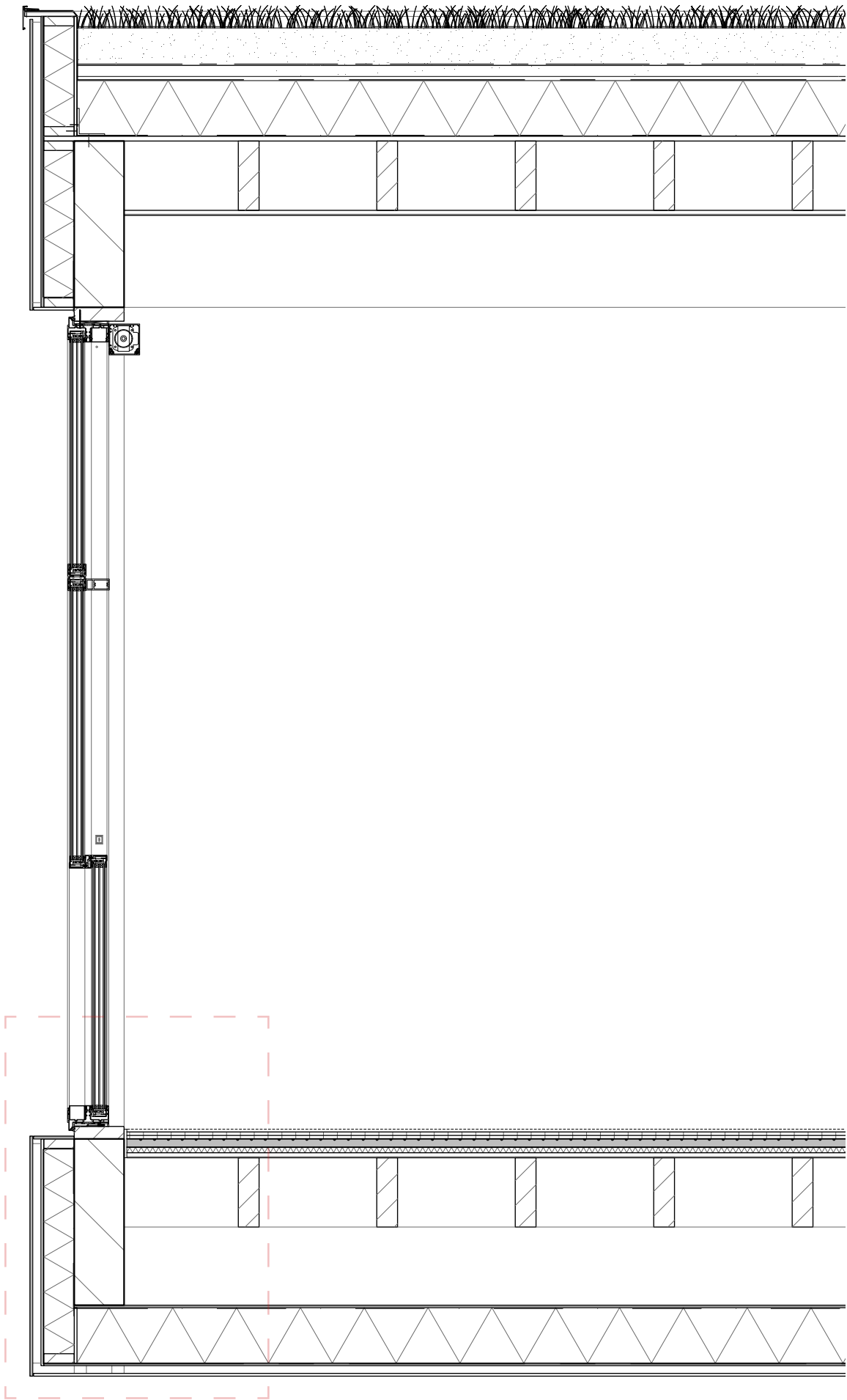


BUILDING CONSTRUCTION

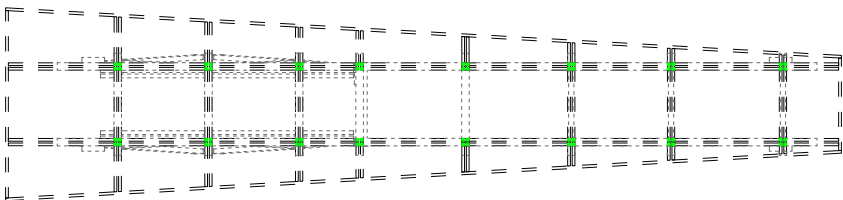
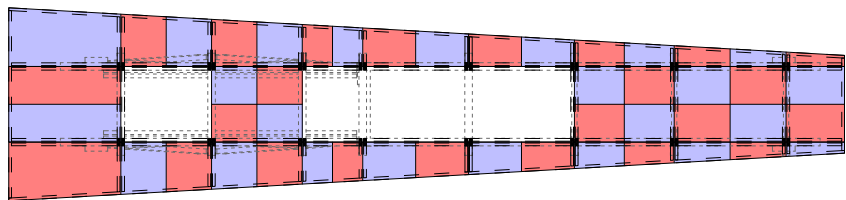
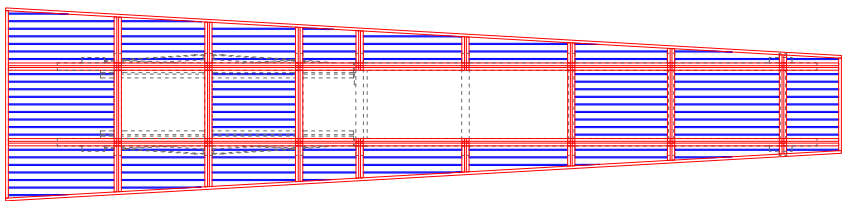
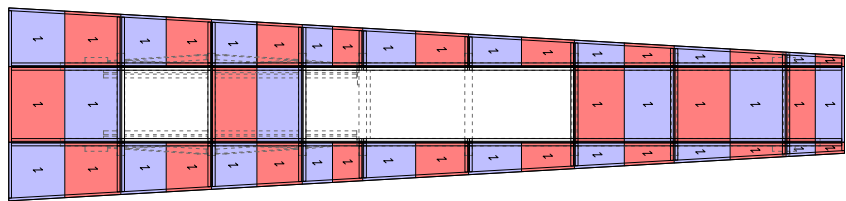
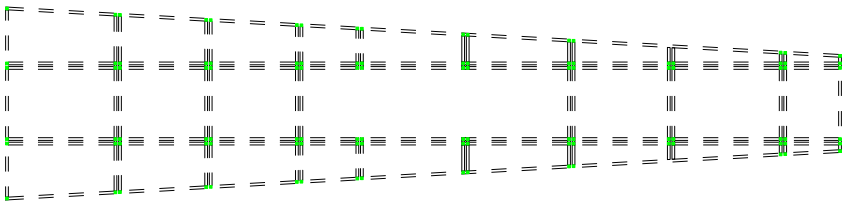
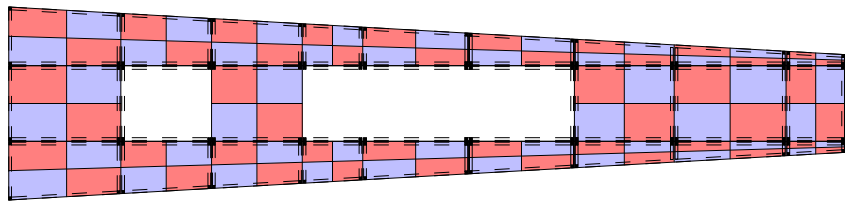
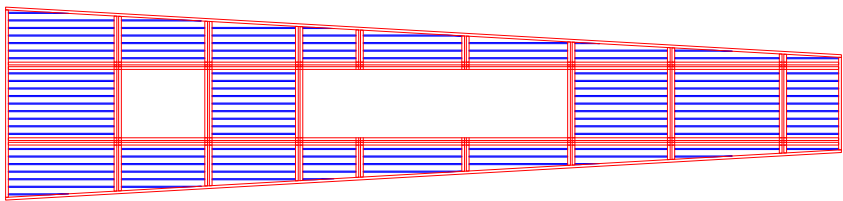
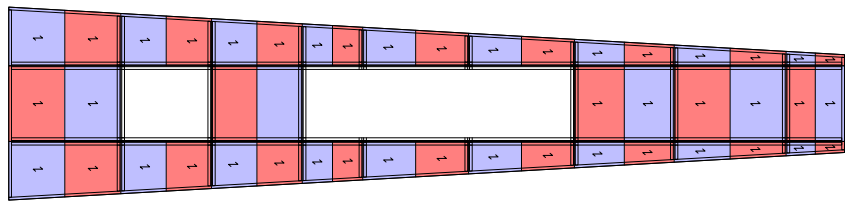
FLOOR



V1: Vloerrand 1:5



STRUCTURE



— Draagconstructie (180x600)
— Secundaire liggers
■ Kolommen (180x180)

Onderkant vloer

Profiel	leedte b (mm)	hoogte h (mm)	oppervlakte A (mm²)	gewicht (kN/m)	I _y (mm⁴)	W _y (mm³)	kerfklasse	d (mm)	E (N/mm²)
180x600	180	600	108000	0,43	3240000000	1080000	GL28h	21	11000
180x180	180	180	32400	0,13	87480000	9720000	GL28h	21	11000

VISION KRAANBAAN MUNICIPALITY

Programme on top of the Kraanbaan

Aspiration:

- accessible for the public
- emphasize the industrial character
- do not block the view on and to the Kraanbaan

Option 1 - viewing platform

Rehabilitation of the Kraanbaan due to a viewing platform to look over the surrounding landscape

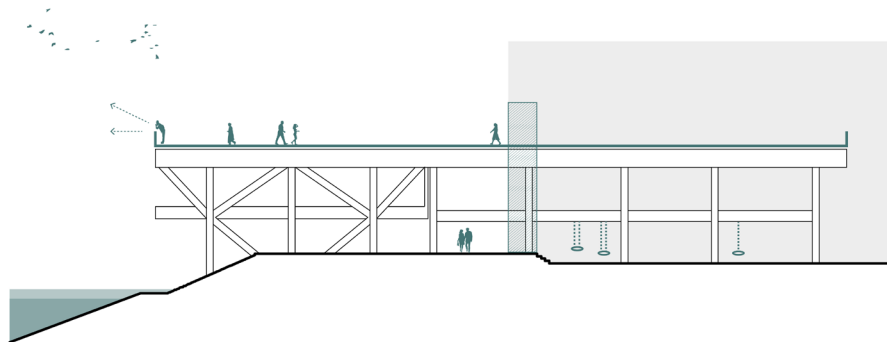
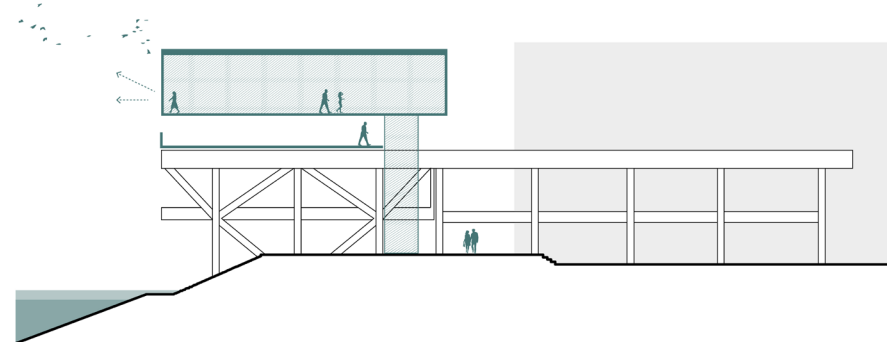


Figure 36: Kraanbaan plan municipality
ORKA Voorlopig ontwerp 20 april 2020

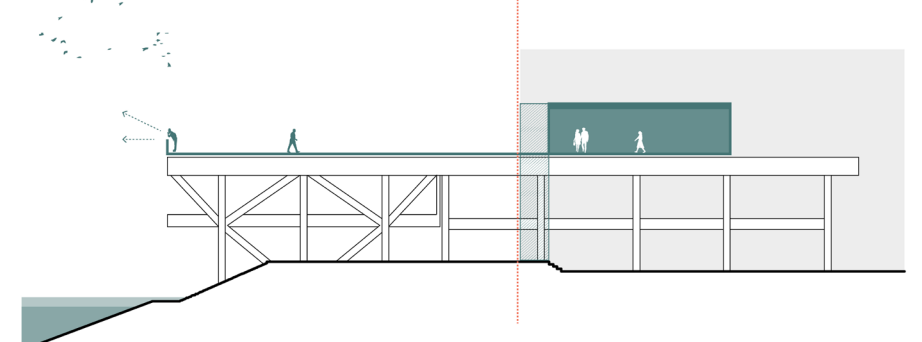
Option 2 - cube from glass

Glass element detached from the Kraanbaan with programme and view over the Merwede



Option 3 - hybrid structure

Built structure in alignment with buildings edge and elevated viewing platform over the landscape



THREE LAYERS

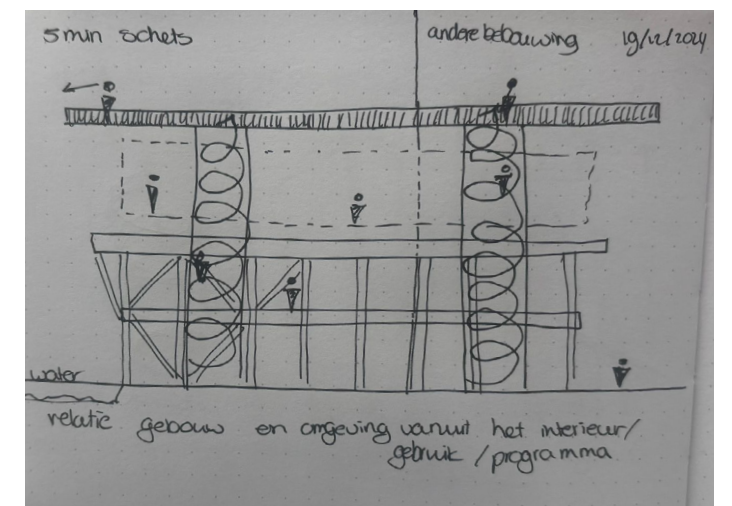
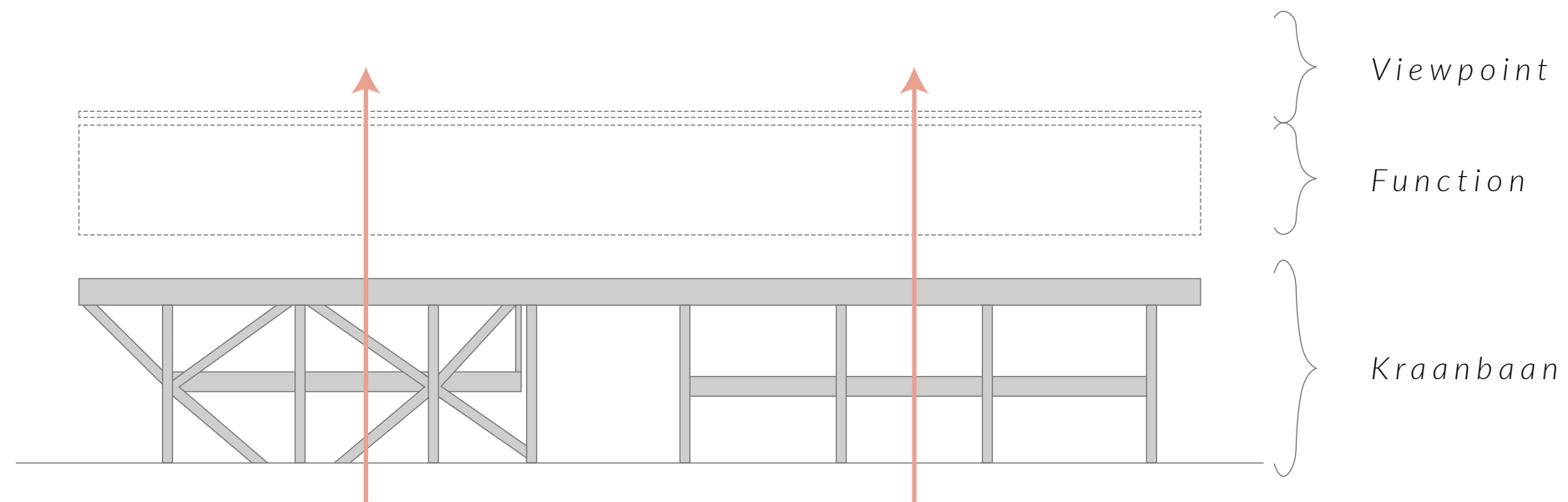


Figure 37: 5 min sketch
Own image