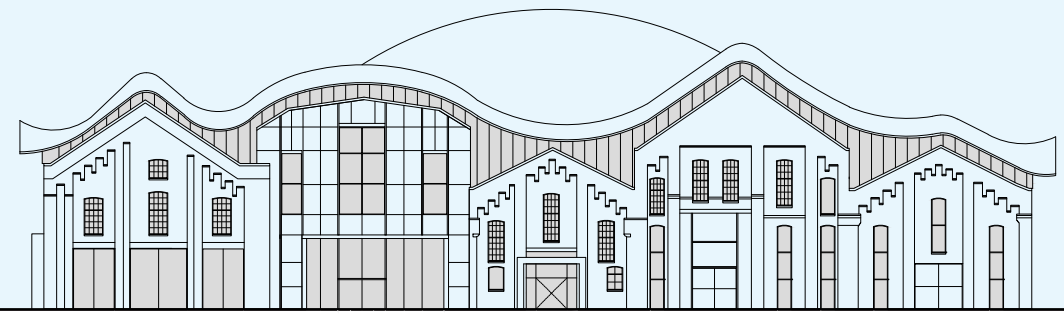


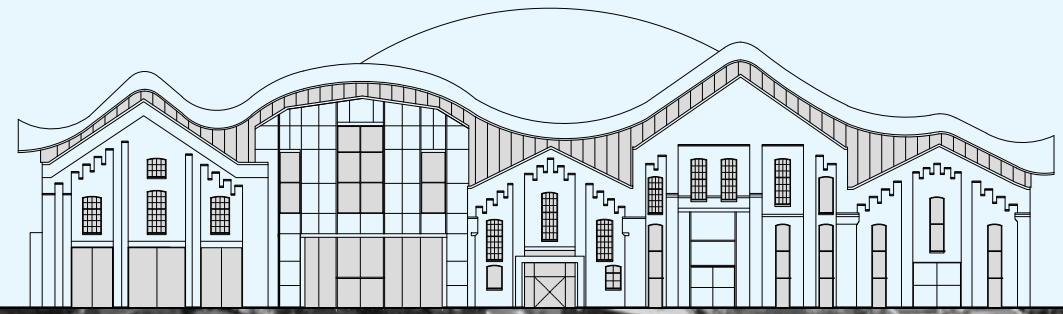


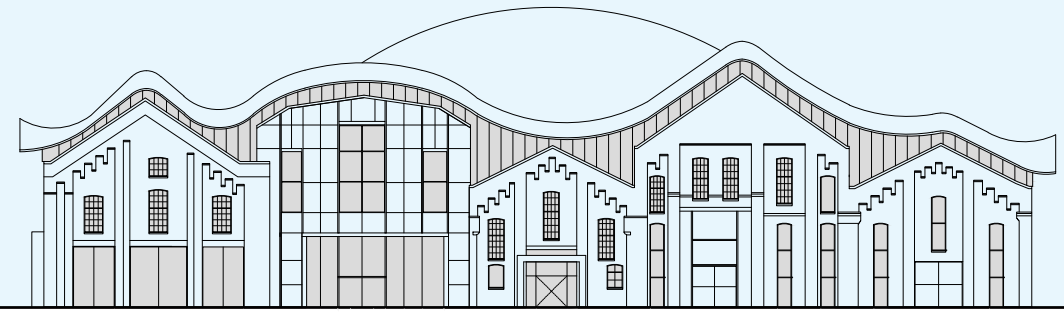
Architectural Engineering: **The Sports Factory**

Peter Polhuijs - 1378414 - 03/11/2015

02/49

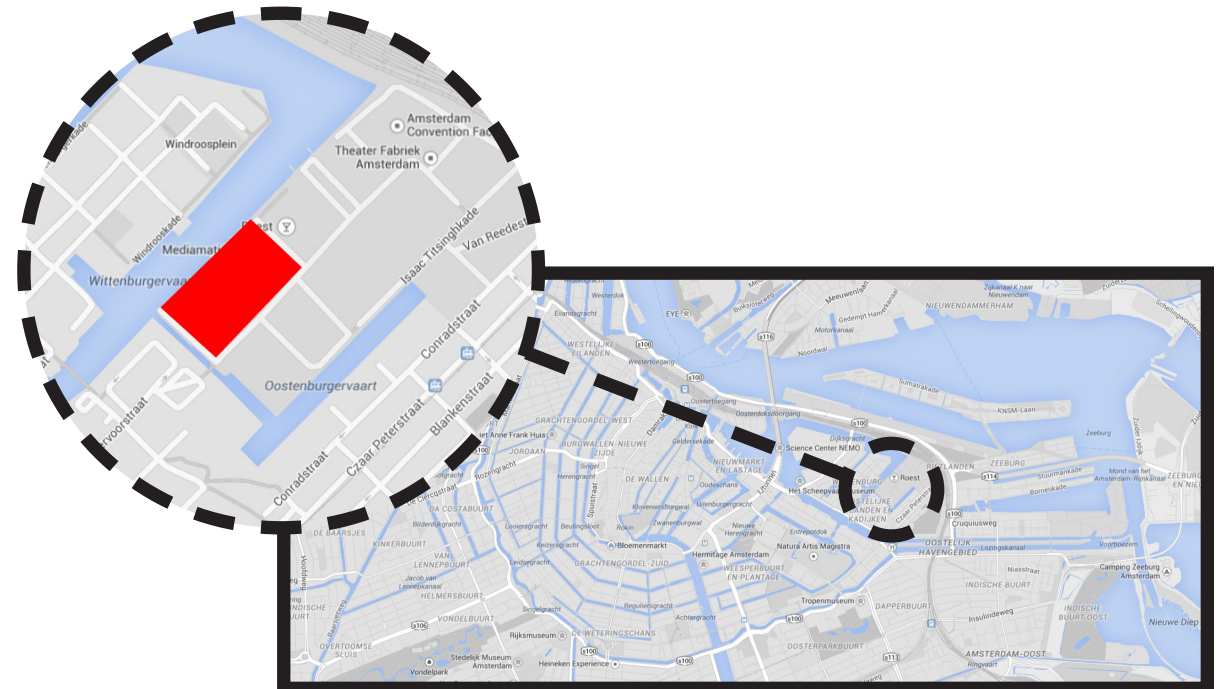
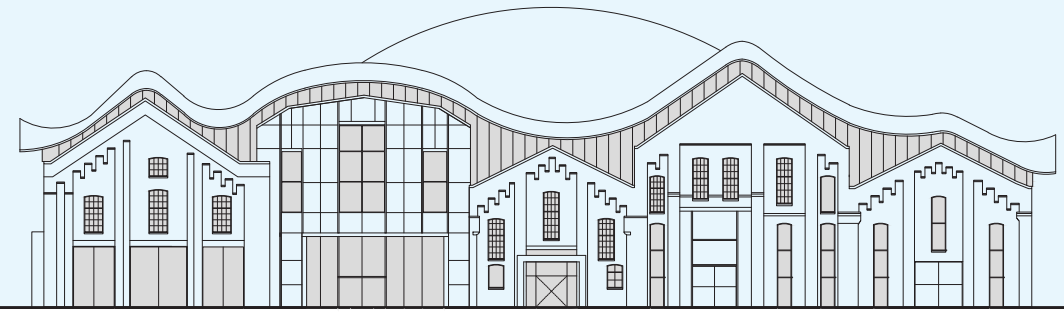
Van Gendthallen

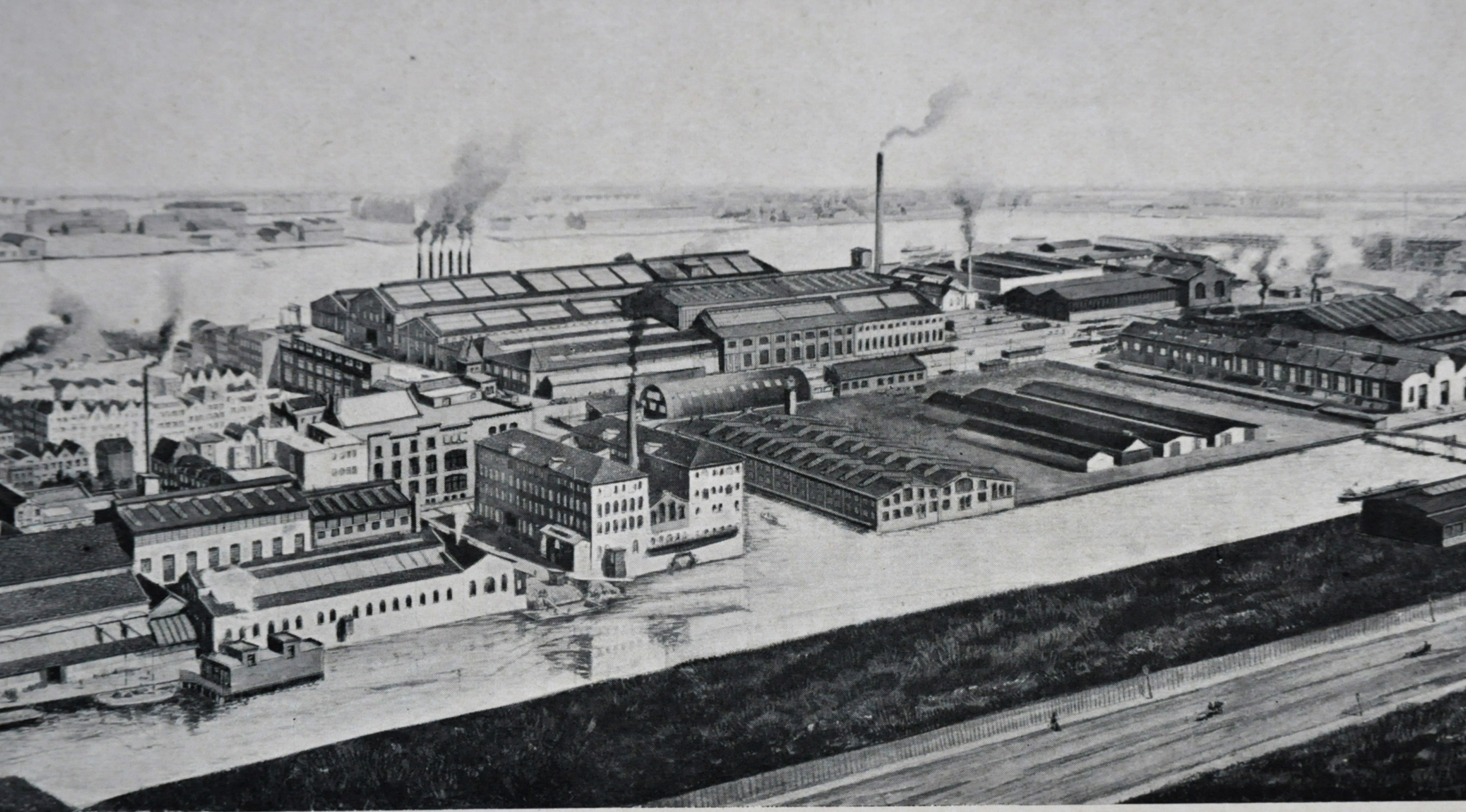
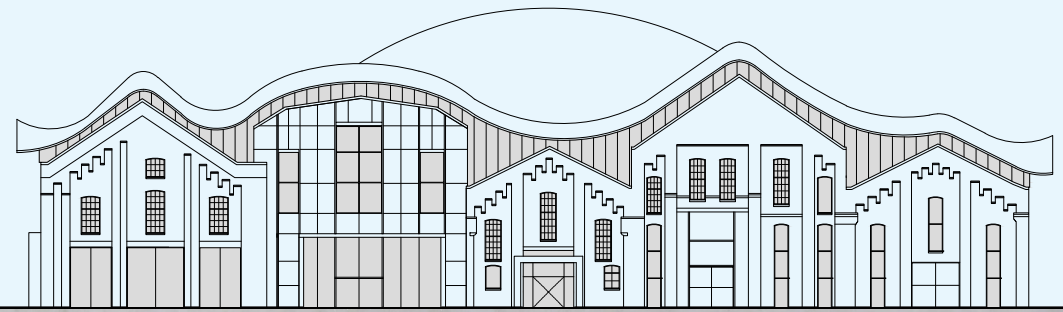




1. Introduction
2. Fascination and Research
3. Design

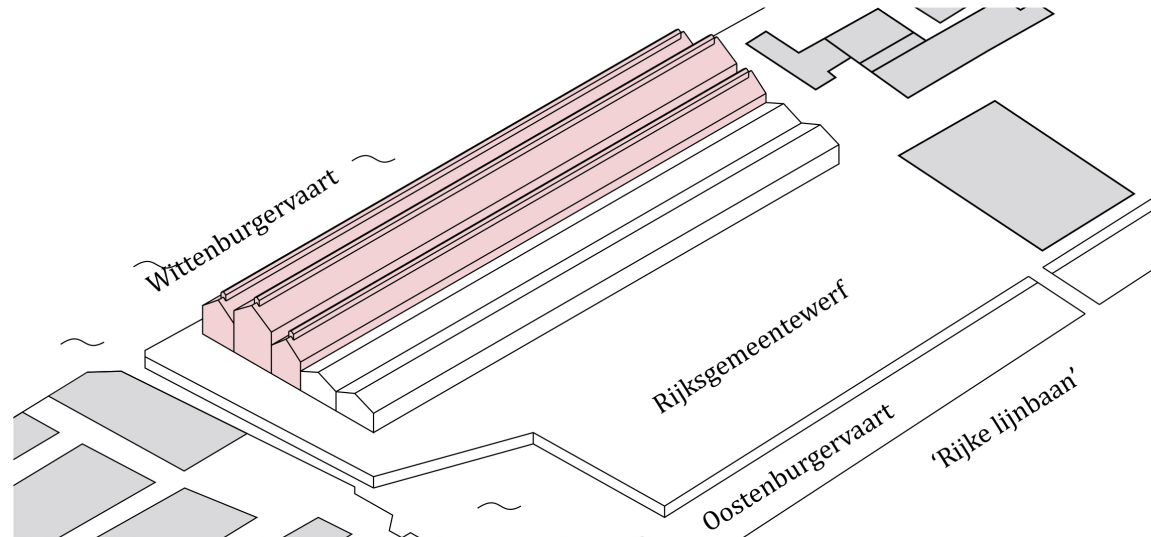
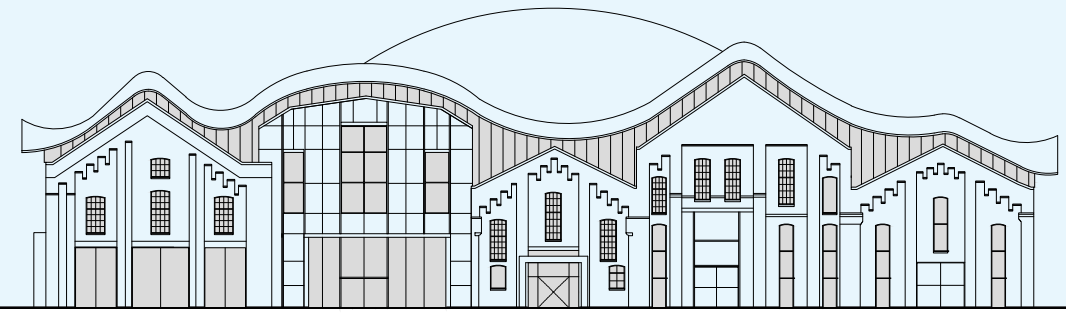
Assignment: Van Gendthallen



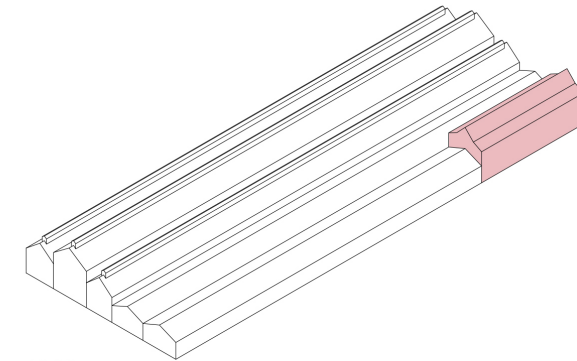


PANORAMA DER FABRIEK TE AMSTERDAM.

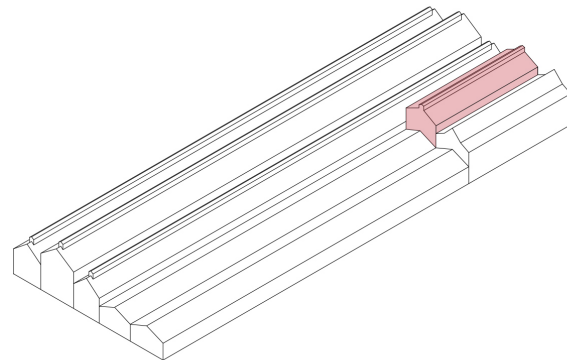
History: Development



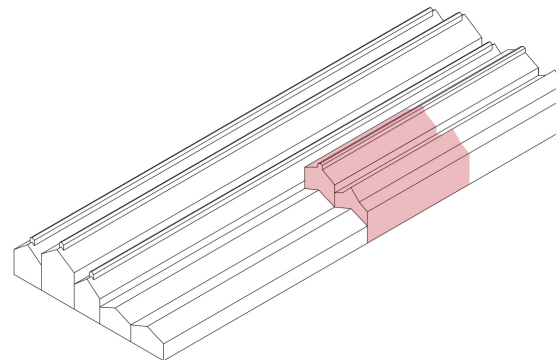
1898 - the first part of the van Gendhallen was built



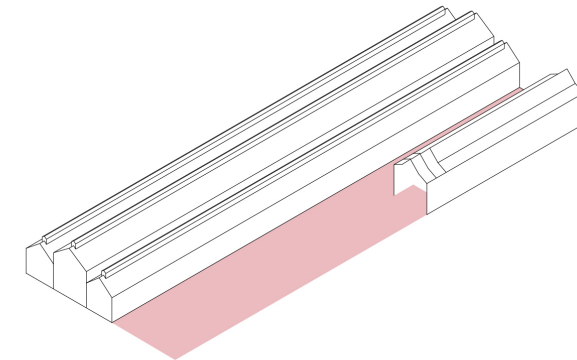
1903



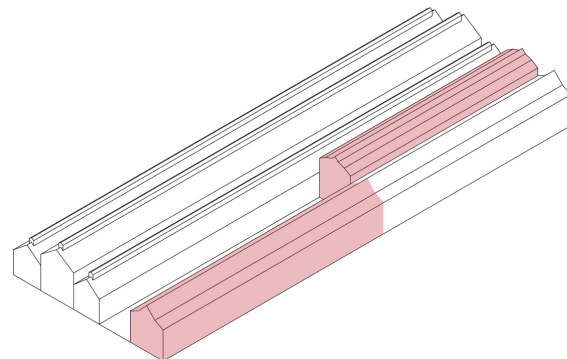
1905



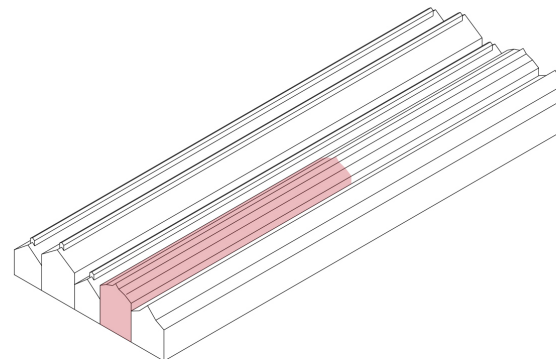
1910



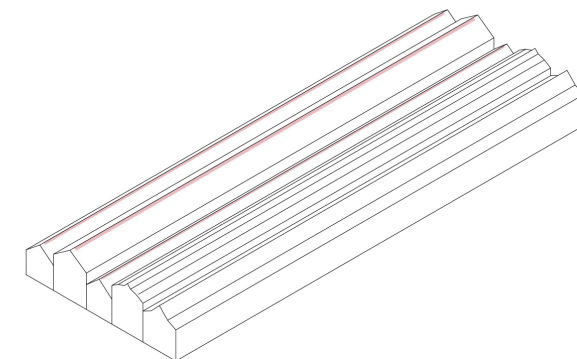
1922



around 1923



1924

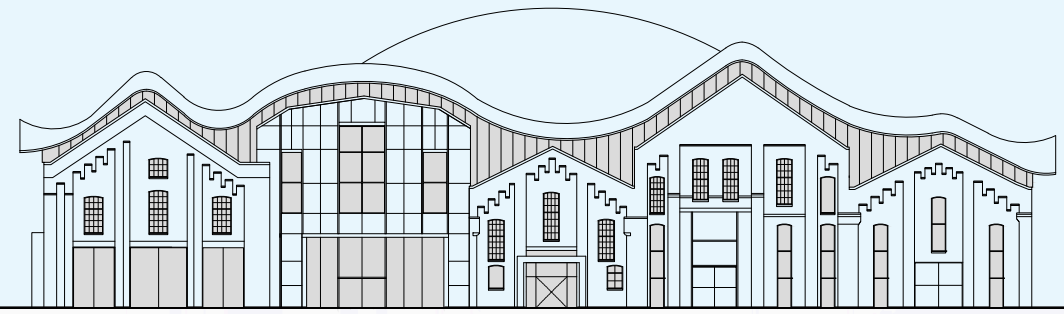


...

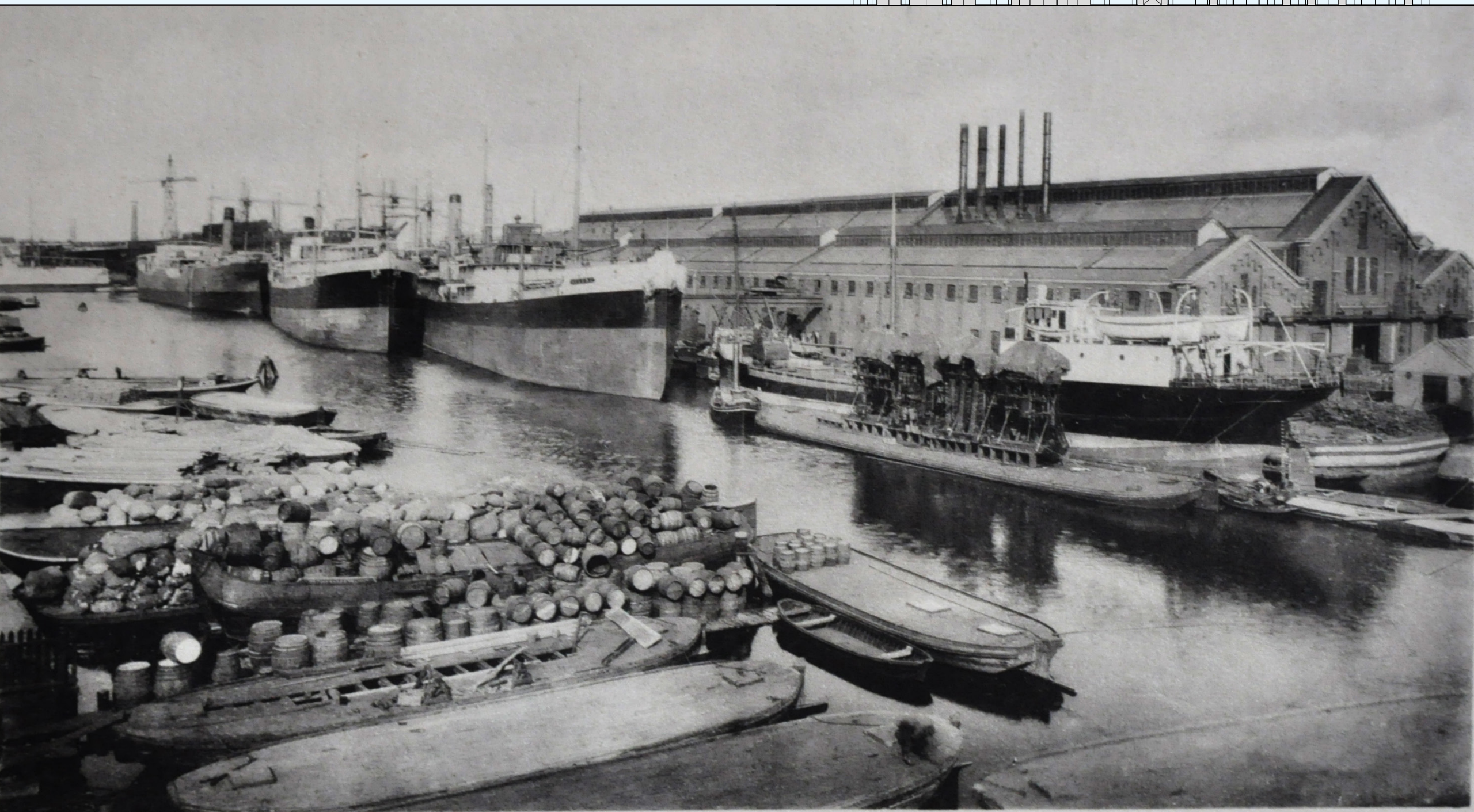
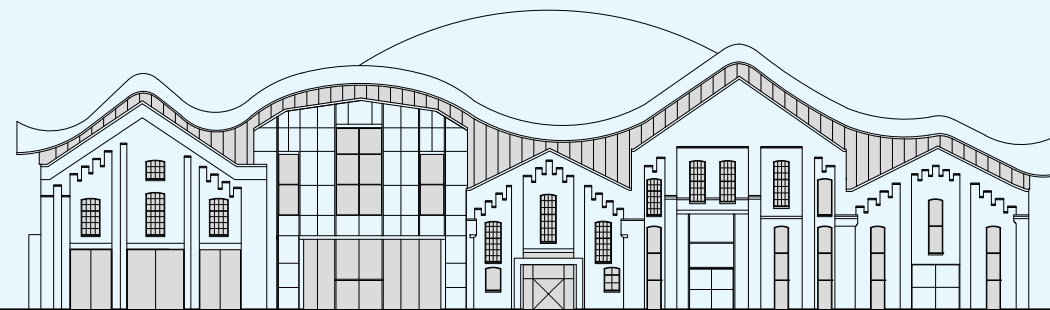
1
/ 3

07/49

History: Building Locomotives



History: Building Ship Engines

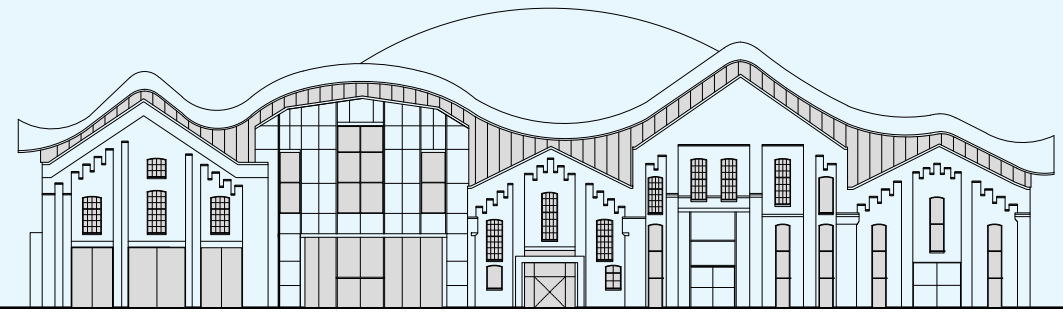


DIESELMOTORSCHEPEN LIGGENDE LANGS HET FABRIEKSTERREIN TER INBOUW DER MOTOREN.

1
/ 3

09/49

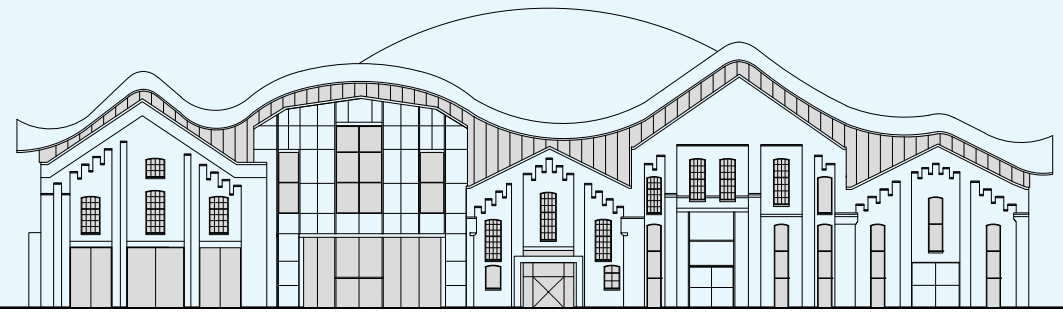
History: Unused



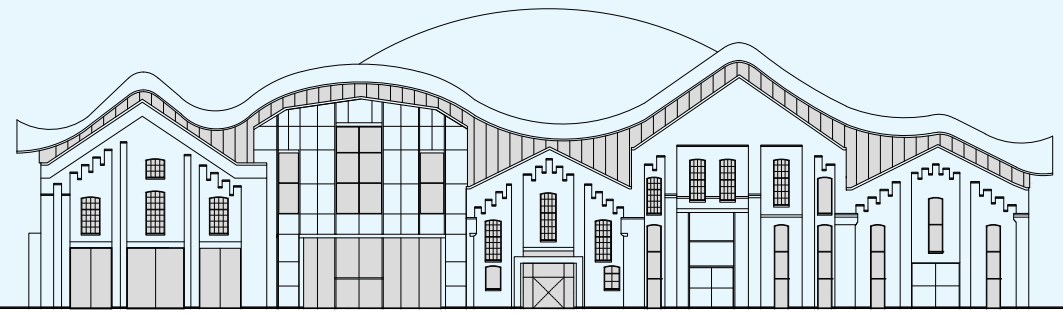
1
/ 3

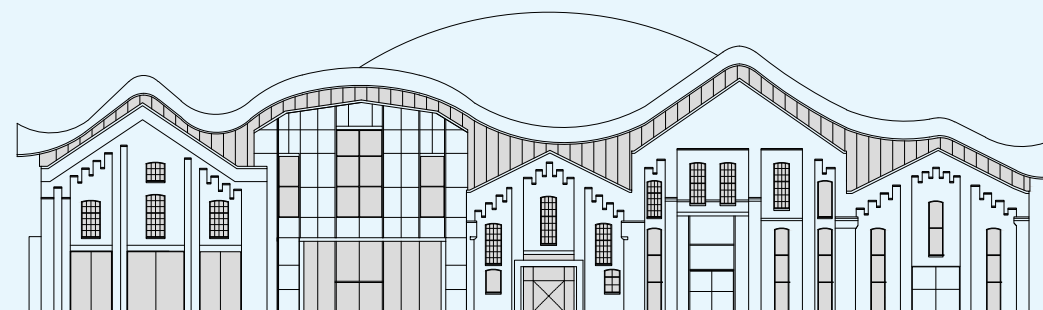
10/49

History: Mediametic



History: Interventions





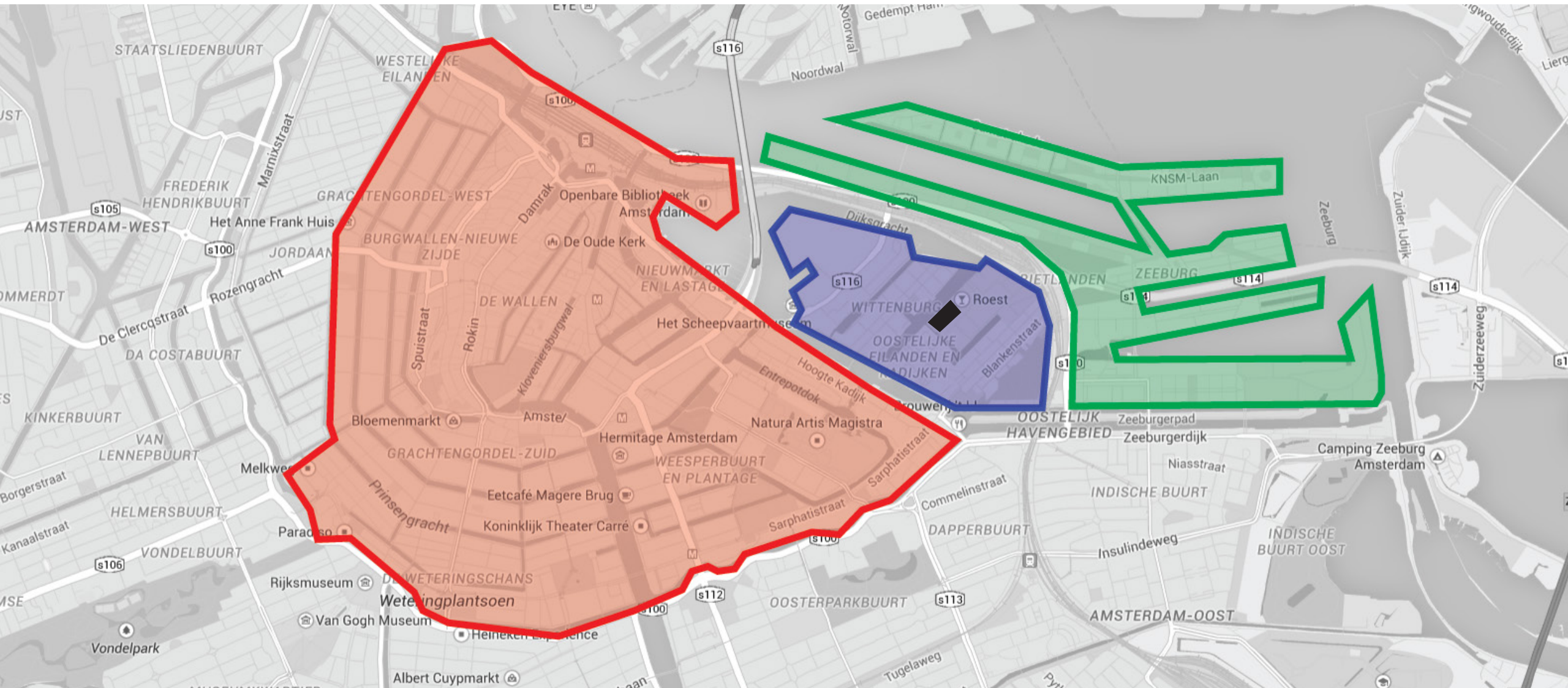
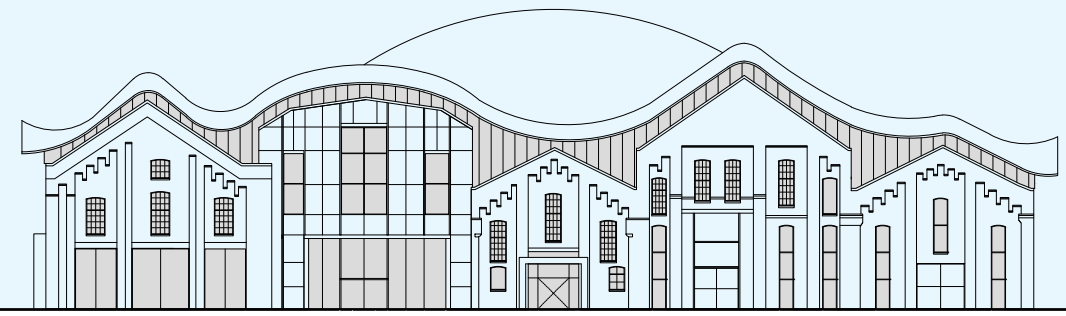
Roof Management, roof analysis conclusion:
(date of inspection: April 2012)

Onderdeel	1 Uitstekend	2 Goed	3 Redelijk	4 Matig	5 Slecht	6 Zeer Slecht
Houten dakbeschot			X			
dakpannen			X	X		
Zinken goot VOC kade			X	X		
Zinken goot Tussen Hal 1 – Hal 2				X		
Draadglasramen						X
Algemene beoordeling				X	X	

2.1.7 Te verwachten technische levensduur

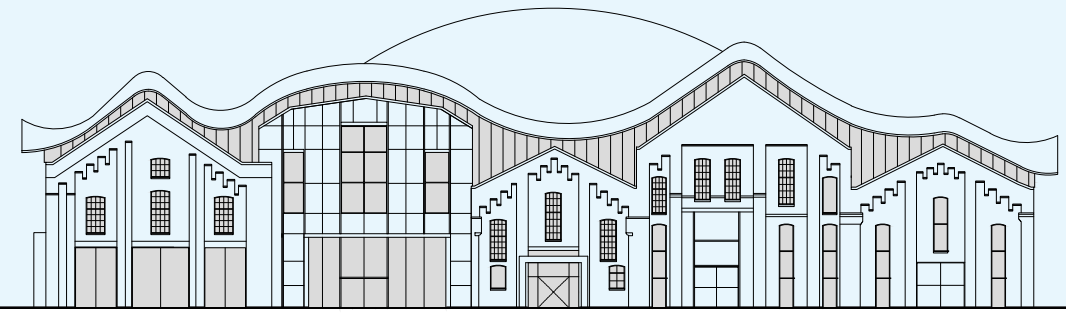
>10 jaar	Tussen 7 en 10 jaar	Tussen 5 en 7 jaar	<5 jaar
			X

*In bovenstaande indicatie zijn de eerder genoemde onderhoudswerkzaamheden meegenomen.

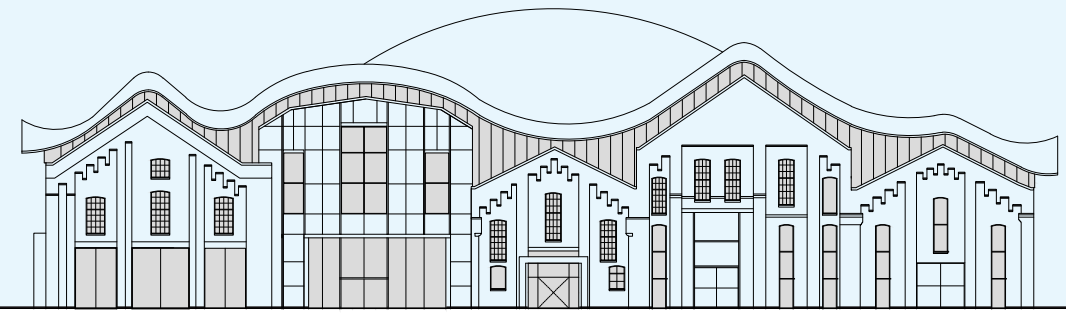


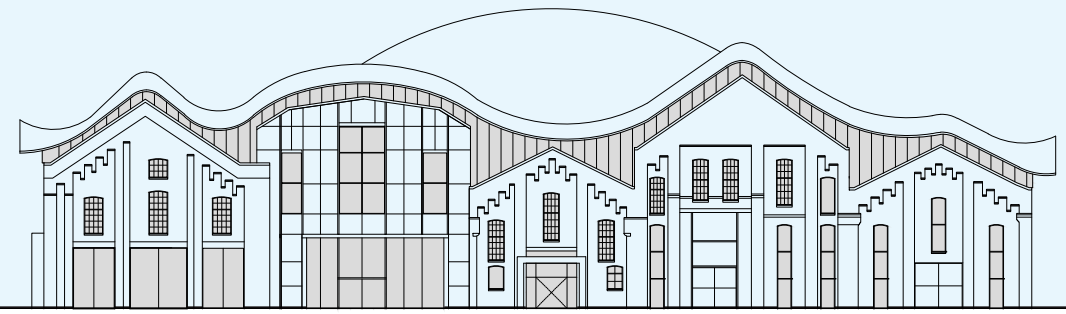
- Blue = Oostelijke Eilanden
- Red = Amsterdam Centrum
- Green = Oostelijk Havengebied

Context: Amsterdam Centrum



Context: Oostelijk Havengebied



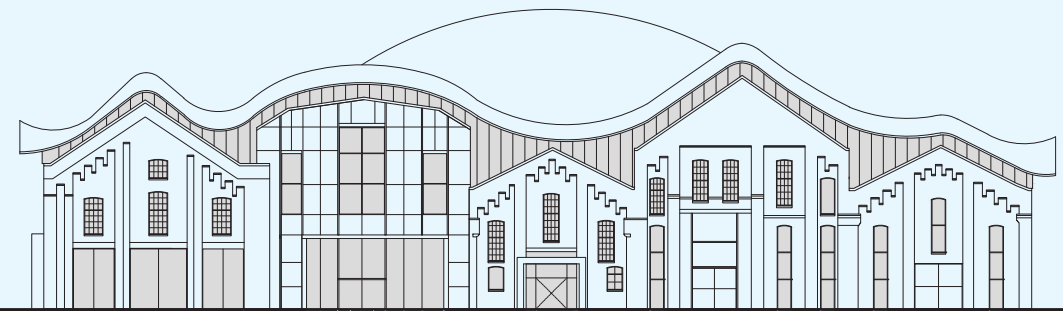


South Boundary



West Boundary





Oostenburg:

- heritage
- low density
- low quality

Oostelijke Eilanden:

- average density
- average quality

Amsterdam Centrum:

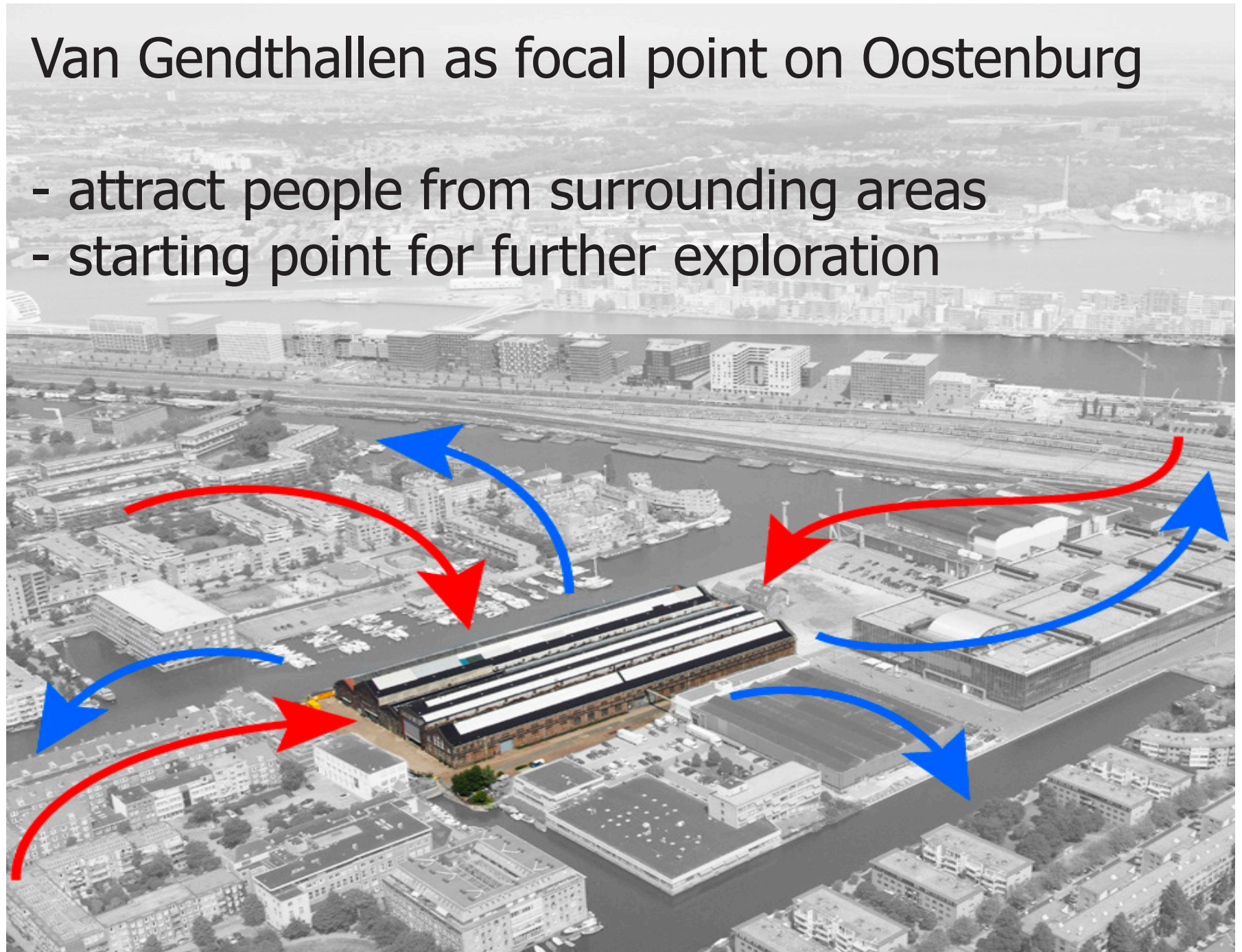
- heritage
- high density
- high quality

Oostelijk Havengebied:

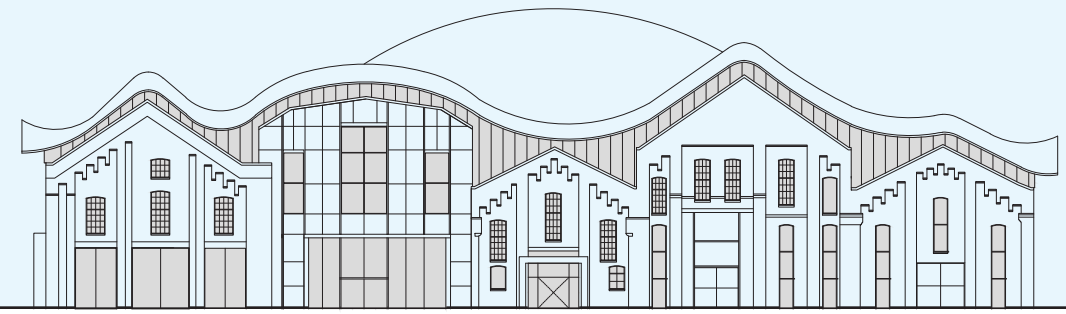
- new
- high density
- high quality

Van Gendthallen as focal point on Oostenburg

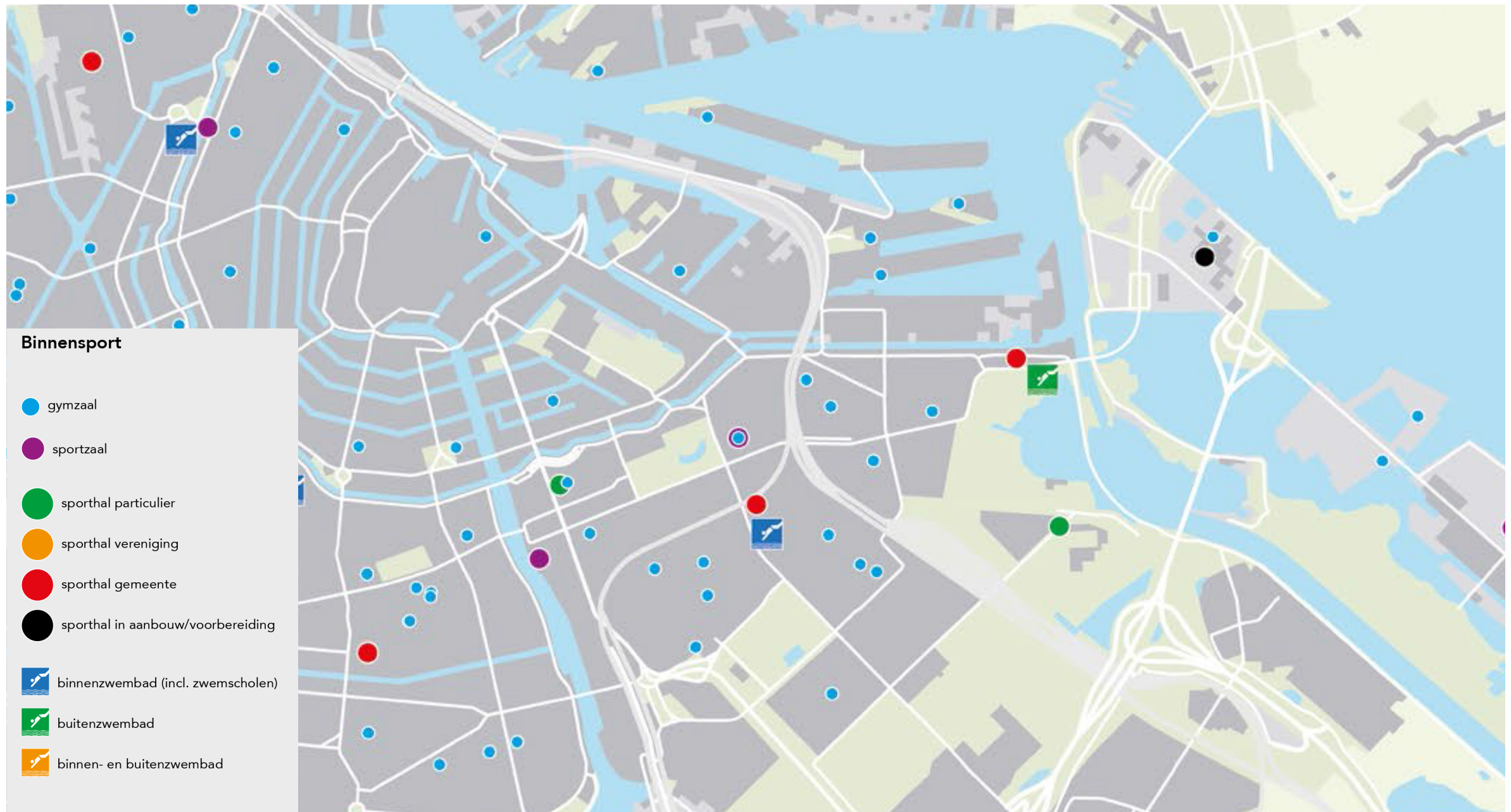
- attract people from surrounding areas
- starting point for further exploration

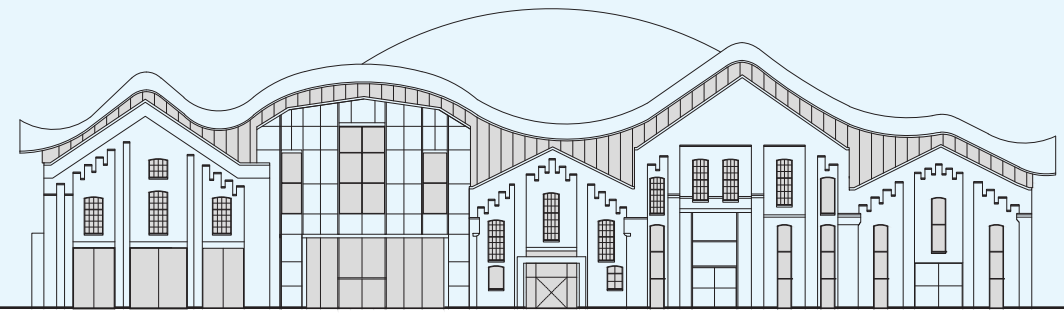


Concept: The Sports Factory



Existing indoor sports facilities in Amsterdam



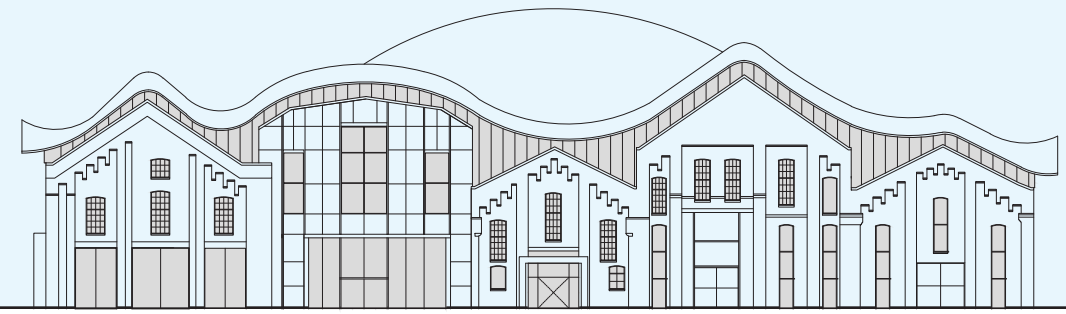


Structuurvisie Amsterdam 2040

“Aandachtspunt qua sportaanbod blijft een goede geografische spreiding over de stad, ook qua diversiteit, opdat het aanbod beter aansluit op de lokale behoefte.”

“Sportparken moeten ruimte gaan geven aan een veel gevarieerder sportaanbod,”

“Verschillende vormen van recreatie spreiden en aansluiten op het netwerk van routes, knelpunten wegnemen en zorgen voor recreatieve samenhang (met horeca, fietsen en wandelen).”



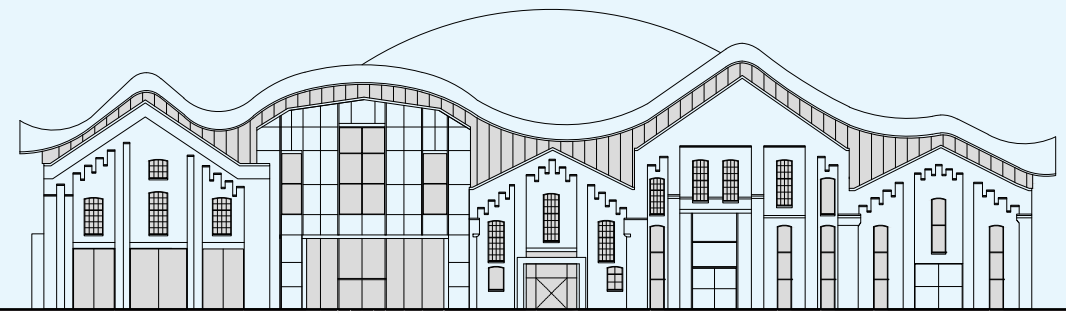
Sportaccommodatieplan 2015-2022

“de ambitie om van Amsterdam een bewegende stad te maken”

“Er zijn in totaal 29 sporthallen in Amsterdam verdeeld over 23 accommodaties...
... zijn er in 2020 36 hallen nodig en in 2025 37 hallen.”

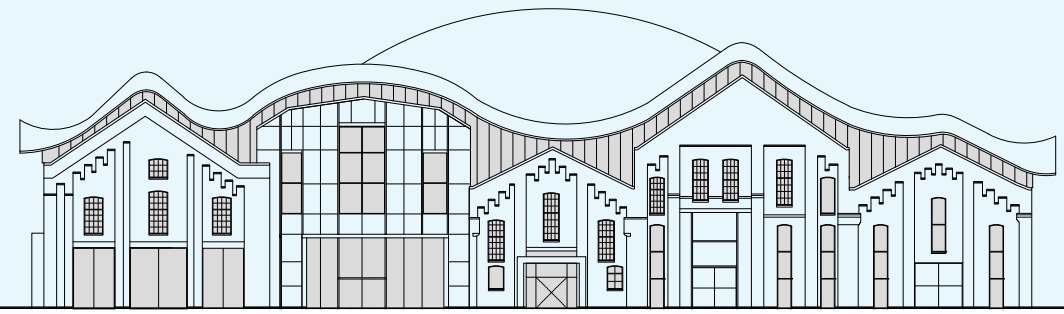
“We gaan meer geld steken in sportaccommodaties. De eenderderegeling voor de financiering van verenigingsgebouwen, zoals kantines en kleedkamers, wordt uitgebreid. Er komt een sportaccommodatiefonds, waarmee sportvelden, zwembaden en andere terreinen worden gefinancierd.”

“Sportaccommodaties moeten voor iedereen toegankelijk en bereikbaar zijn. Bereikbaarheid betreft de evenwichtige spreiding van voorzieningen.”



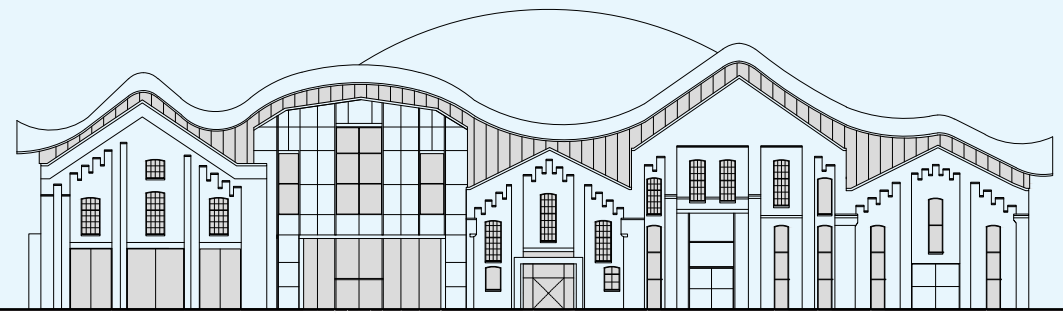
Fascination: Shell Structures, from very dramatic....





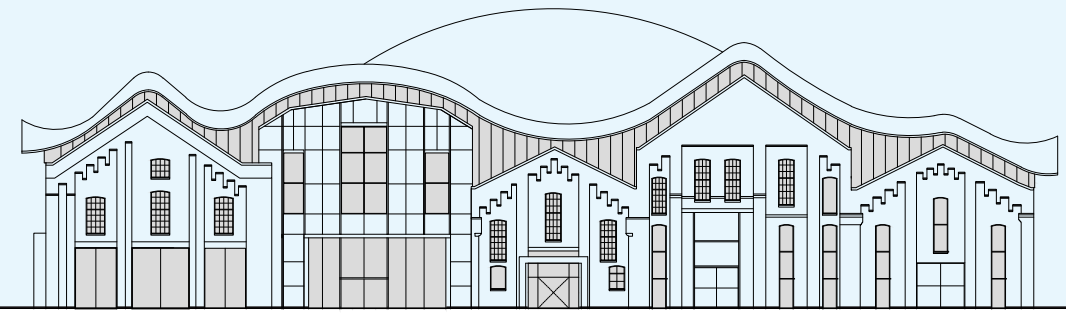
... to quite modest.



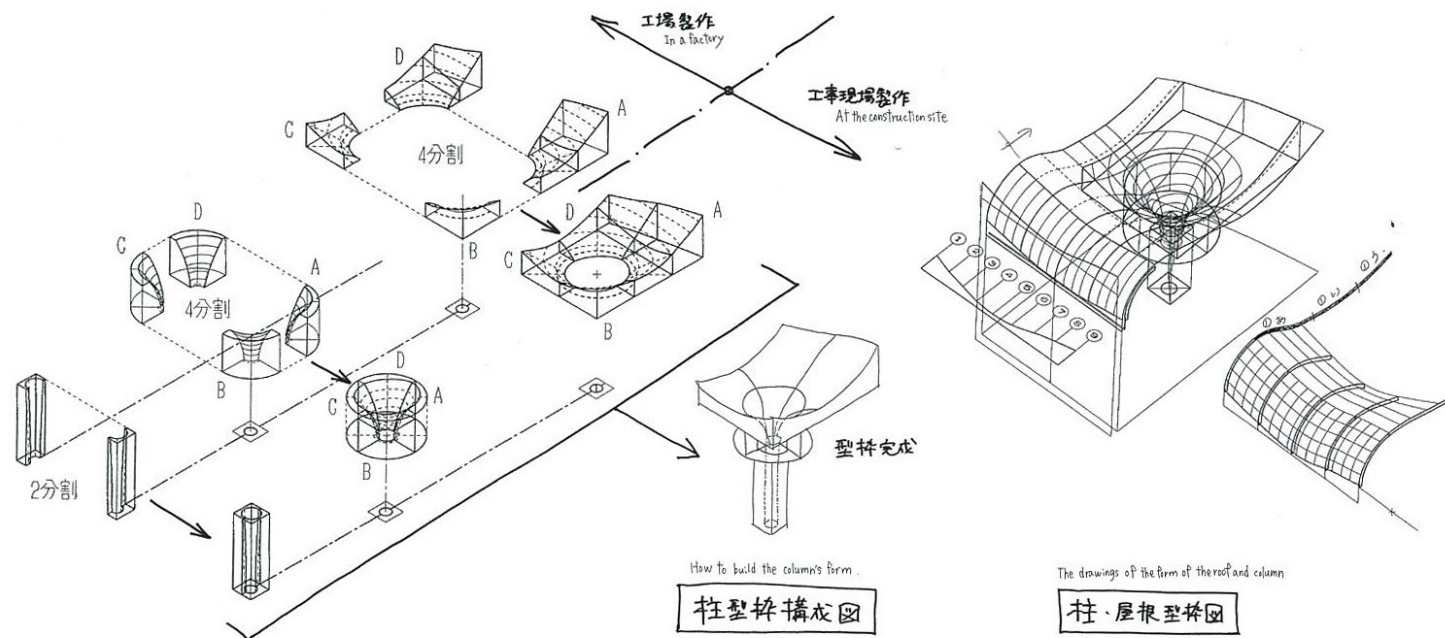
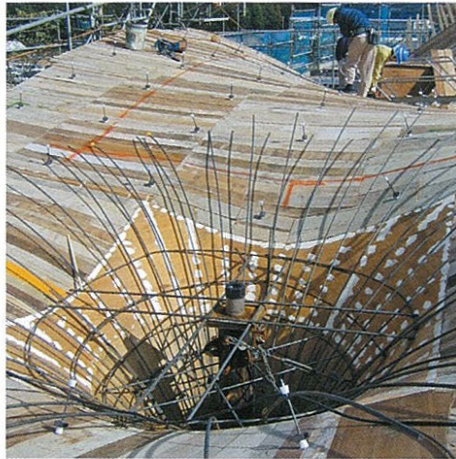


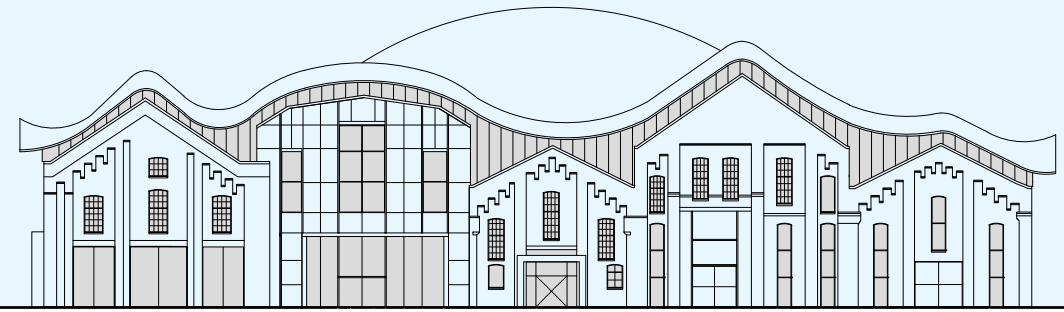
Noticeable difference between thickness of the structure:





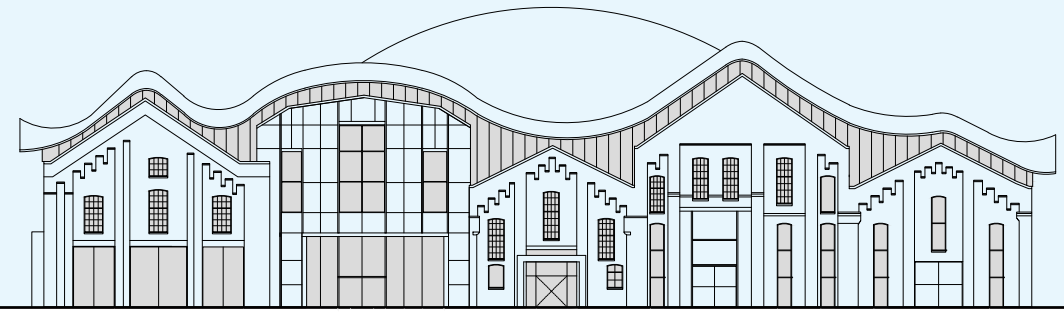
No longer economically viable to make with moulds like this.





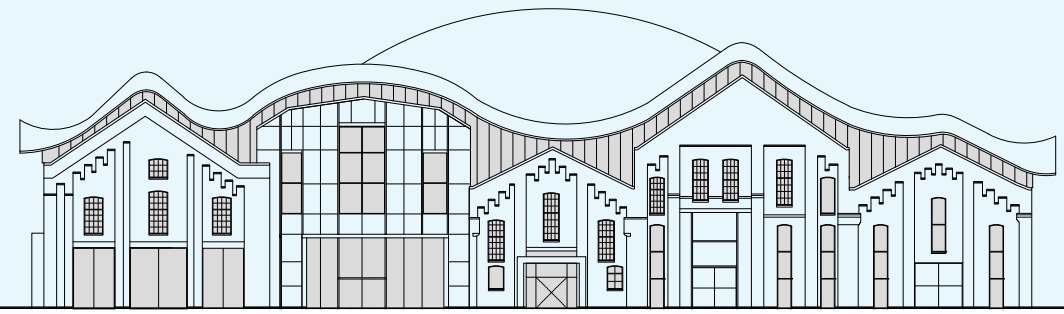
Alternative: make prefab elements



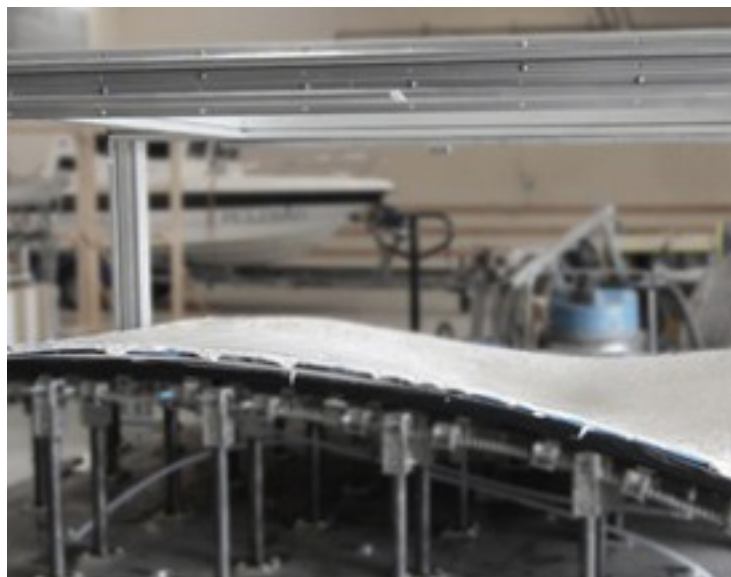
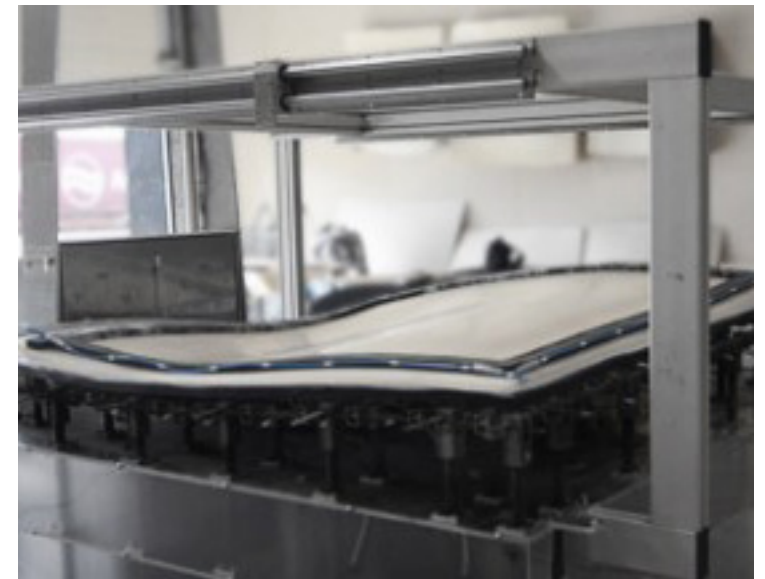
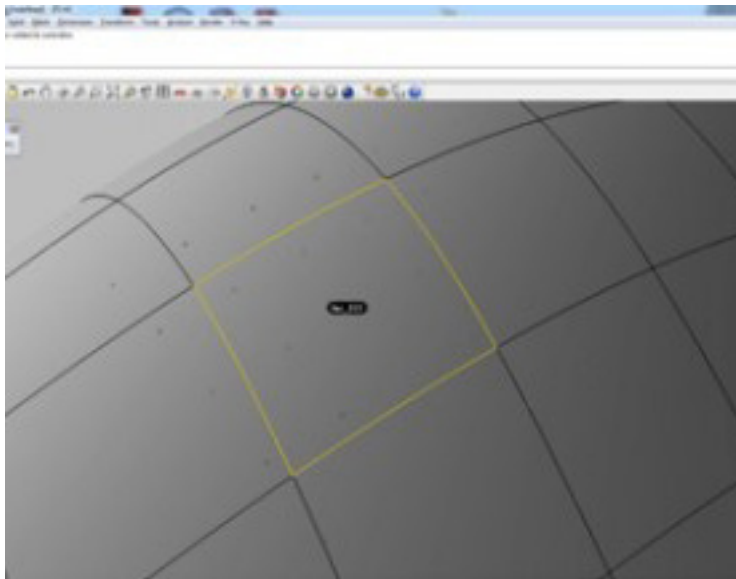


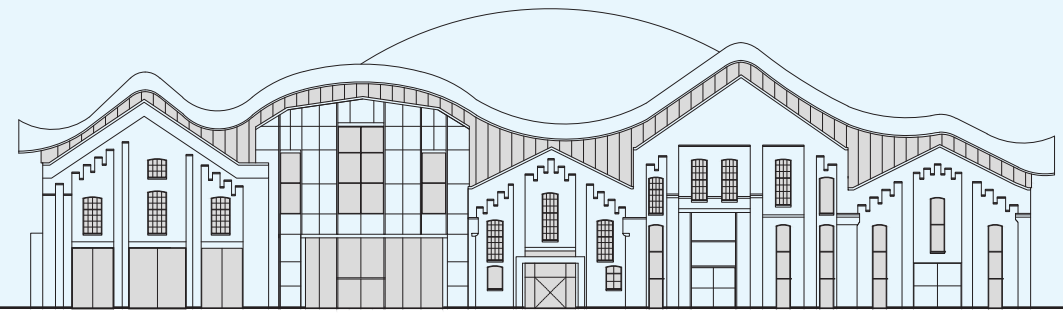
Research Question:

How to use curved concrete panels,
made with a flexible mould,
in a structural manner?

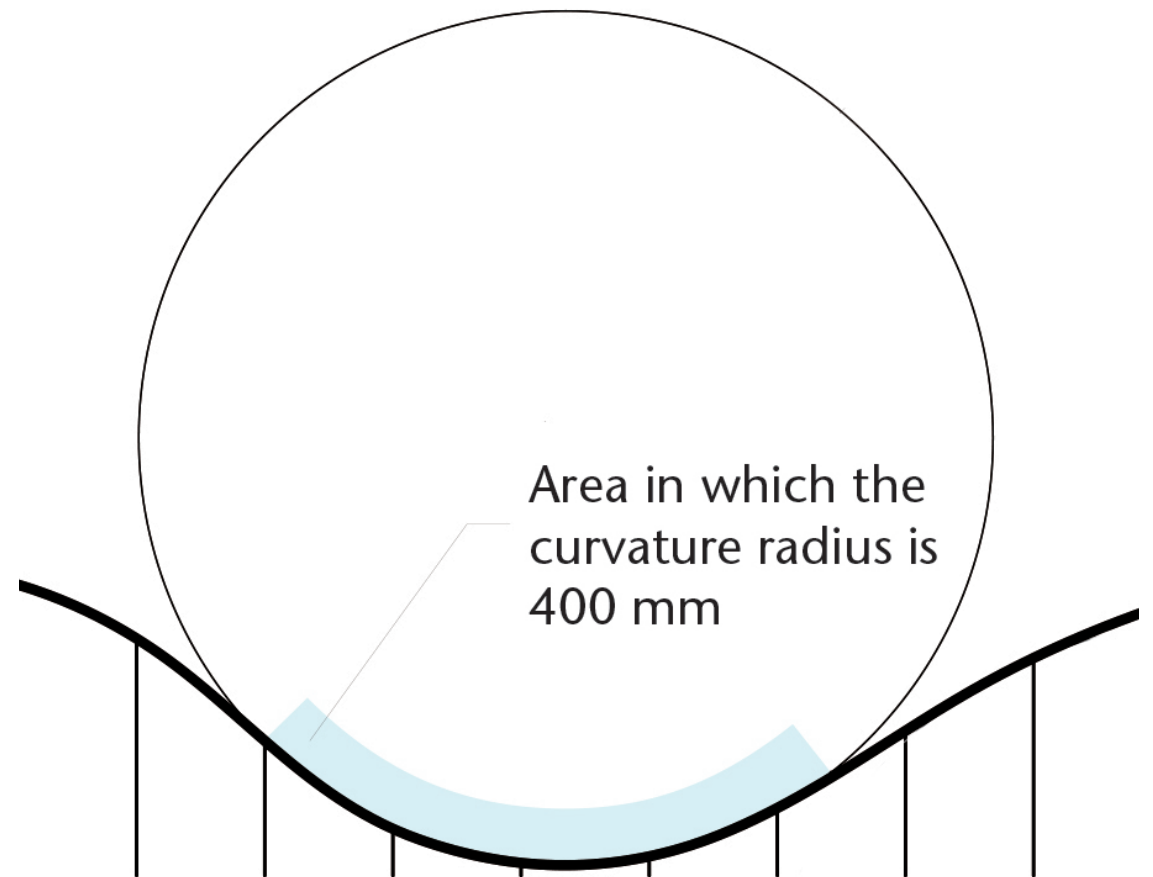


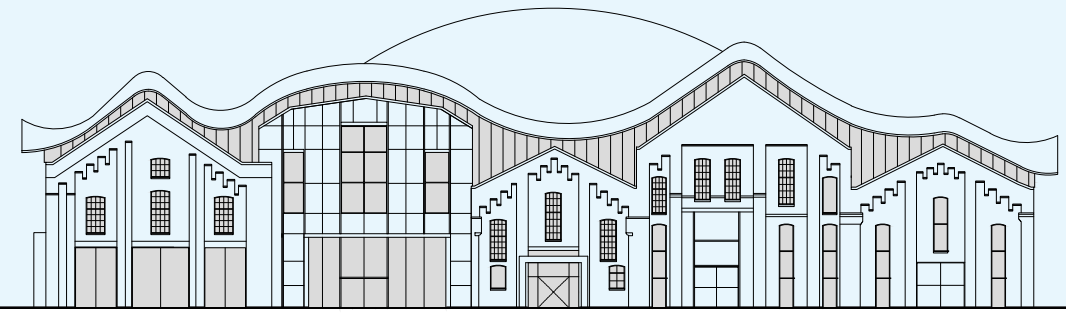
Flexible mould:



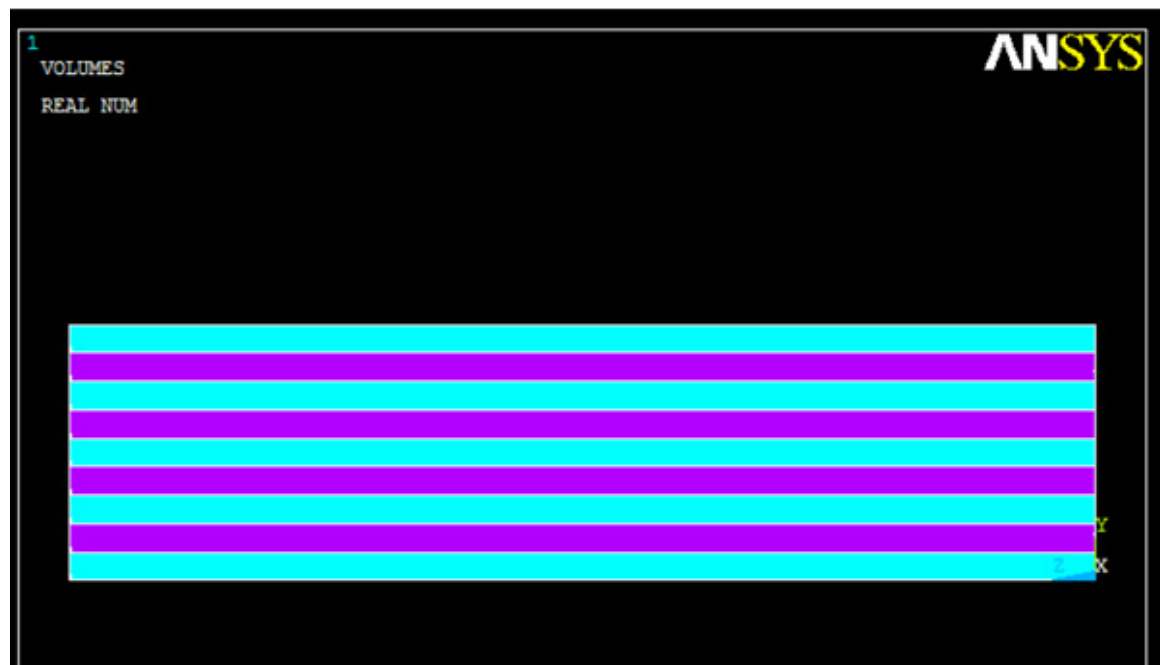
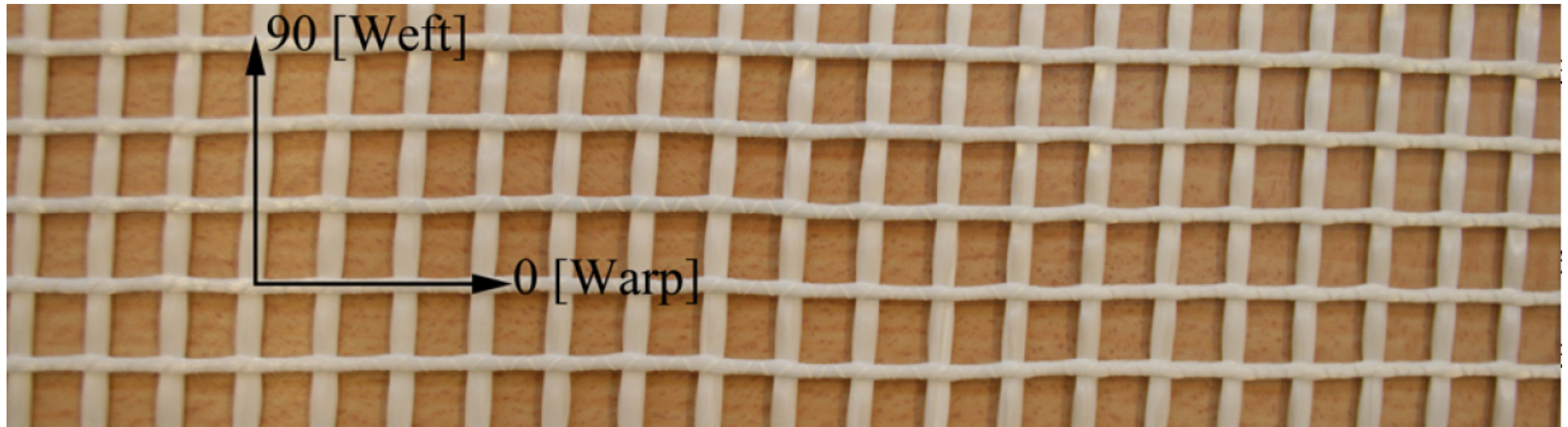


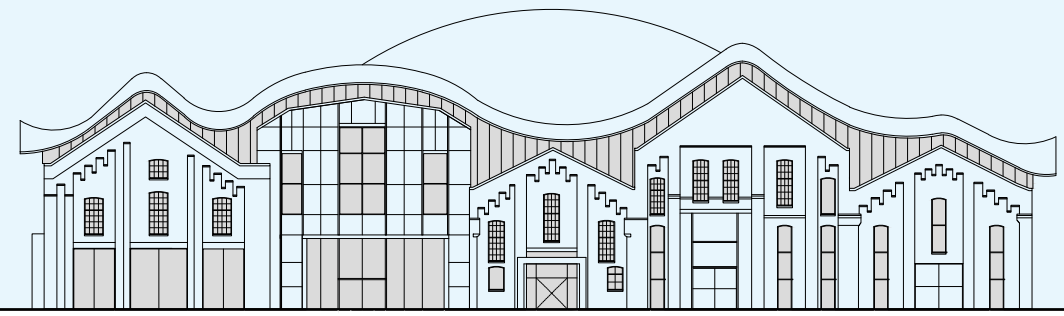
Flexible mould:



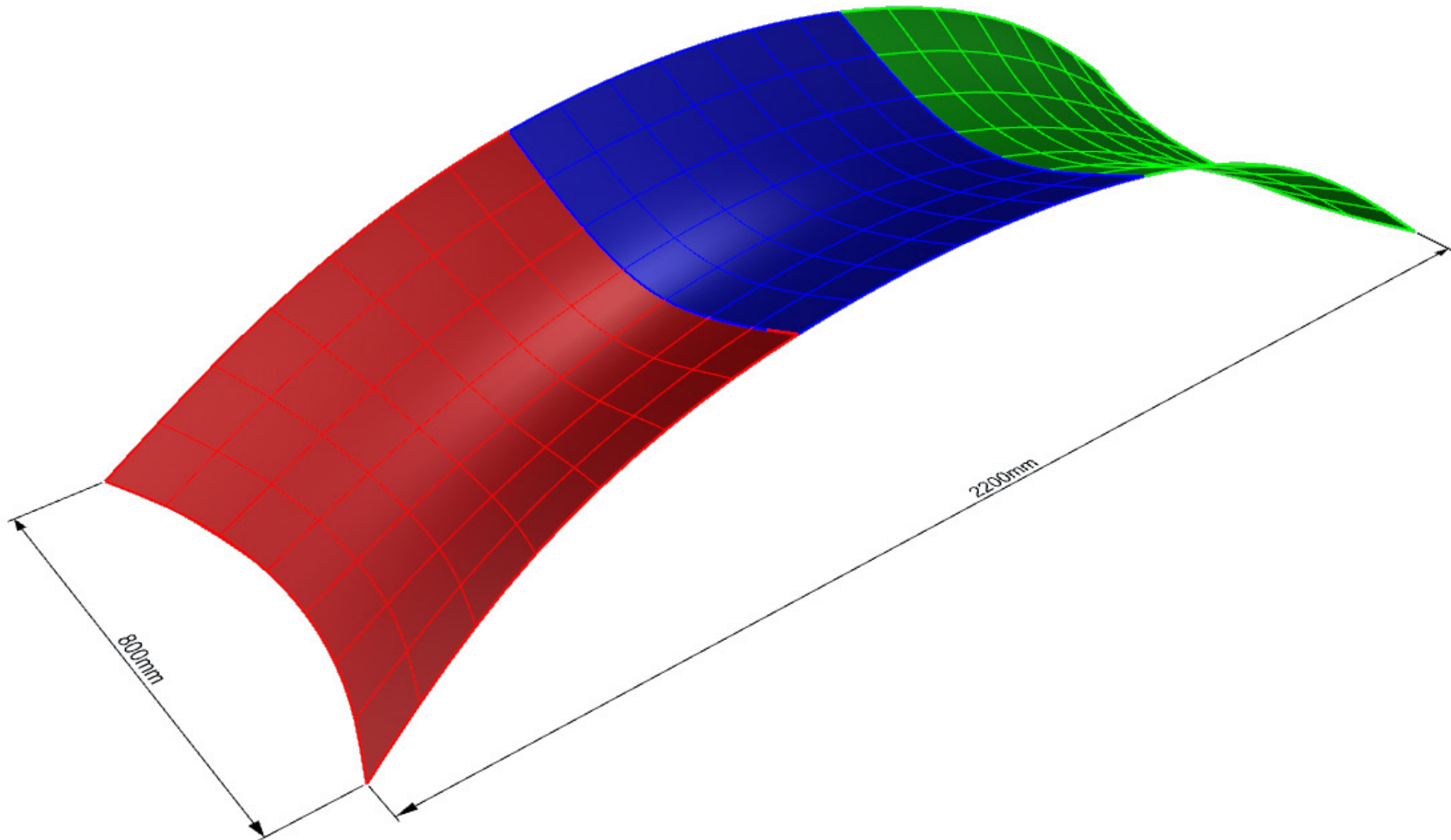


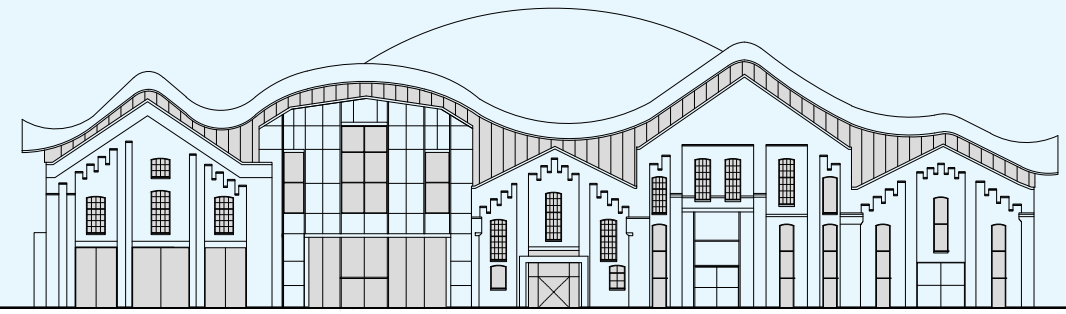
Textile Reinforcement:





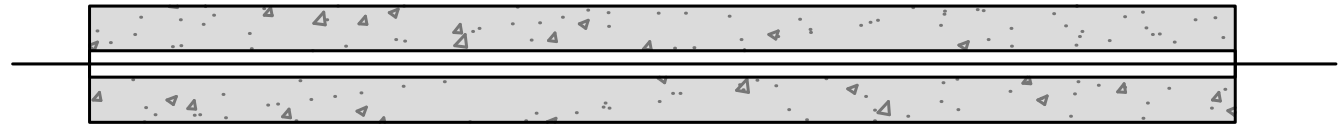
Case Study A



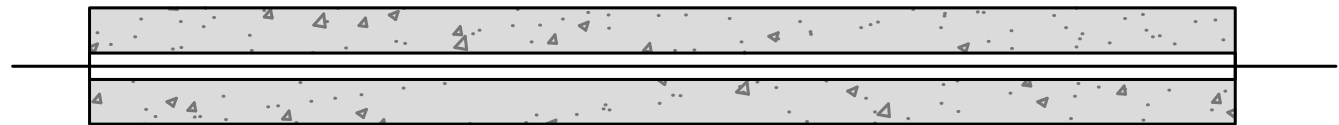


Applying post-tension:

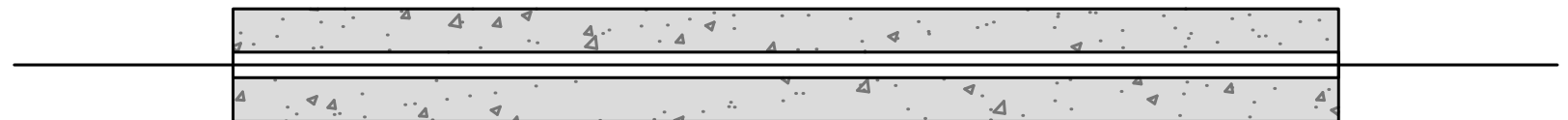
a) run a steel cable through a duct in a concrete panel



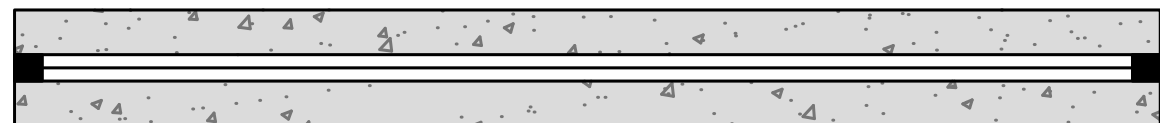
b) apply tension to the cable



c) the cable elongates

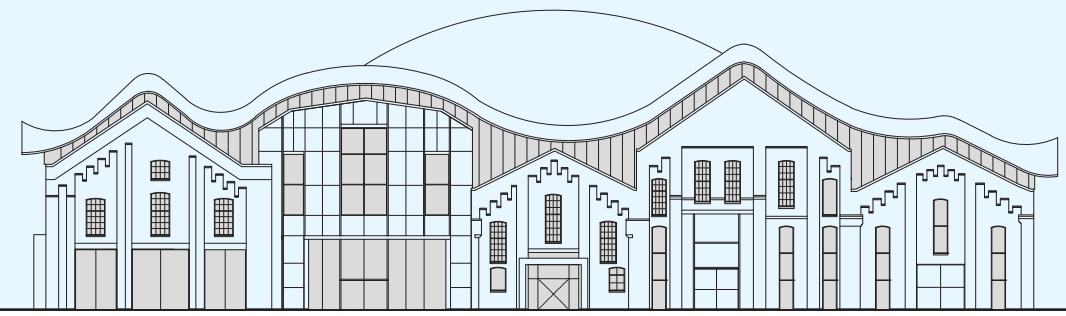


d) clamp cable to the panel, cut the cable to size



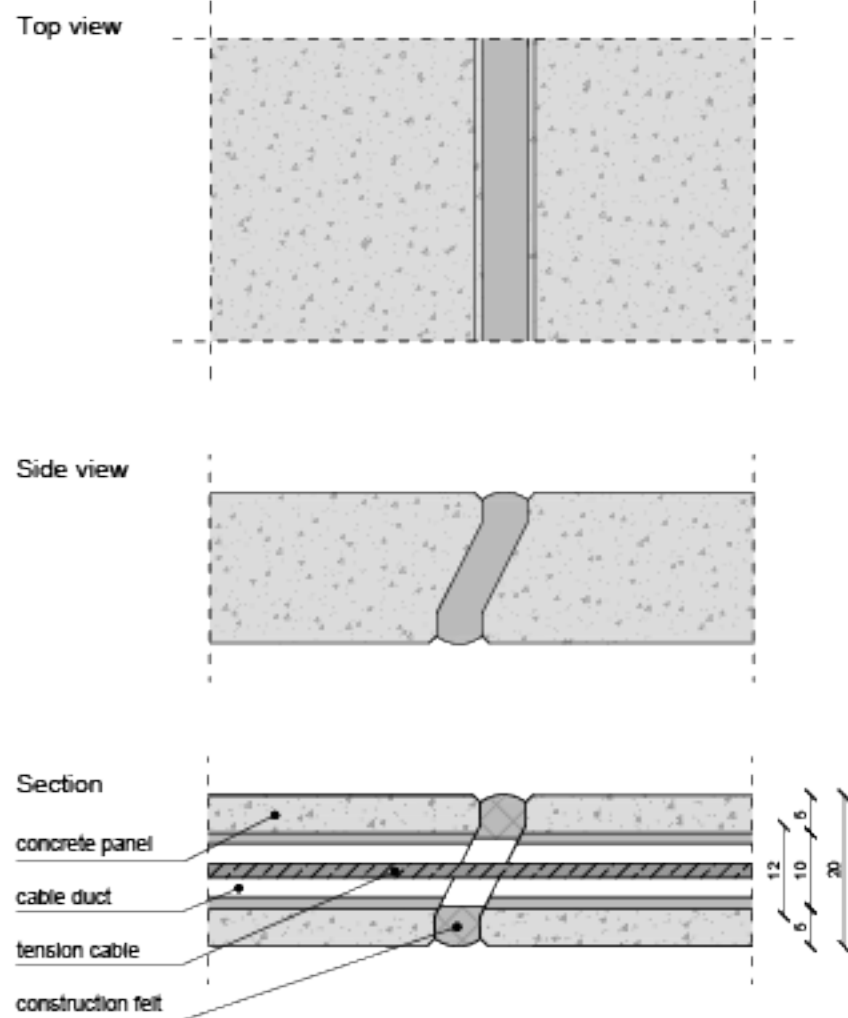
e) concrete panel is now premanently experiencing compression stress



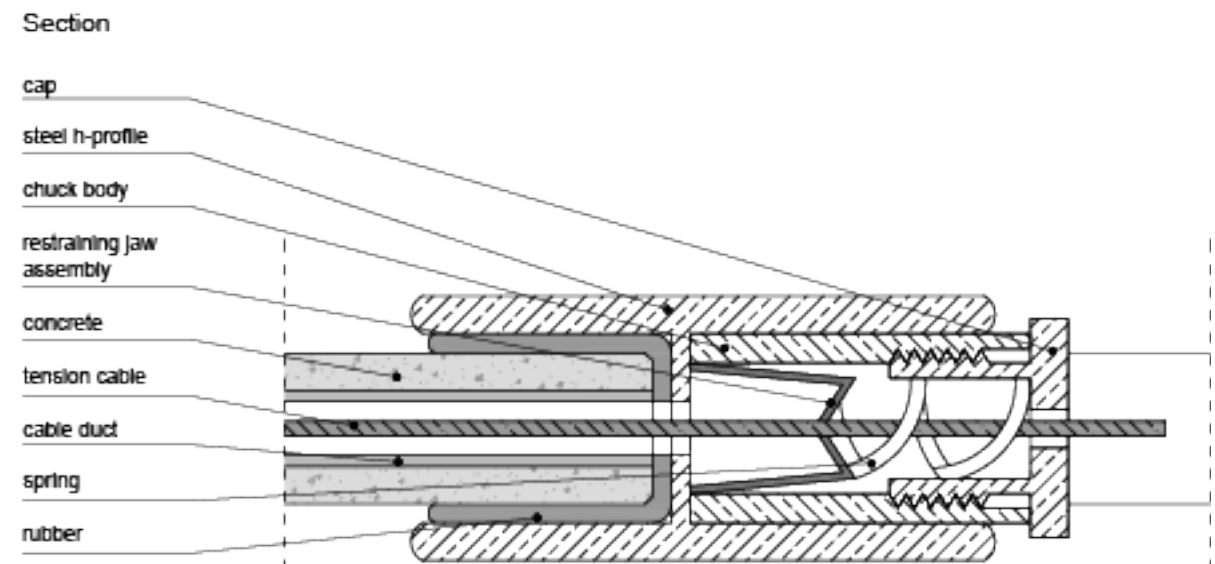


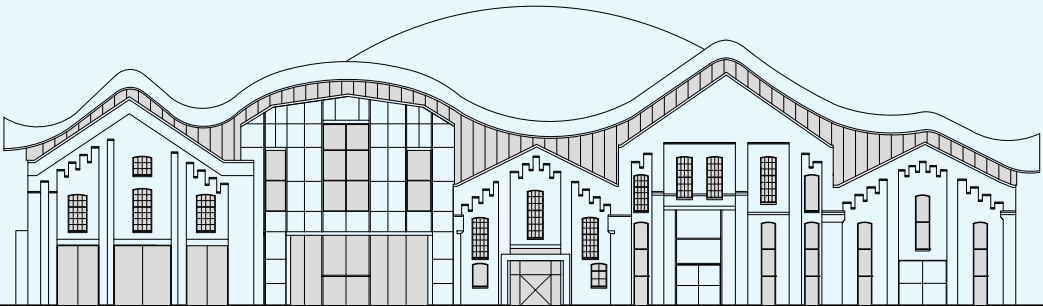
Case Study A

Detail: connection between two panels

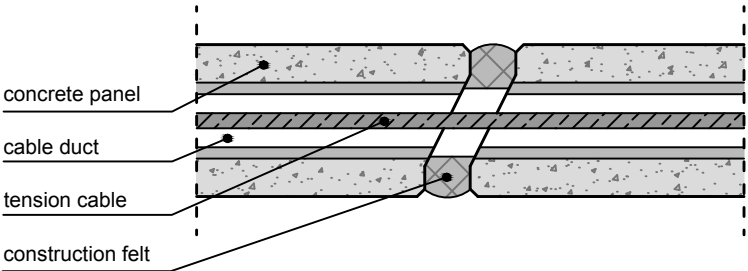


Detail: anchorage chuck detail

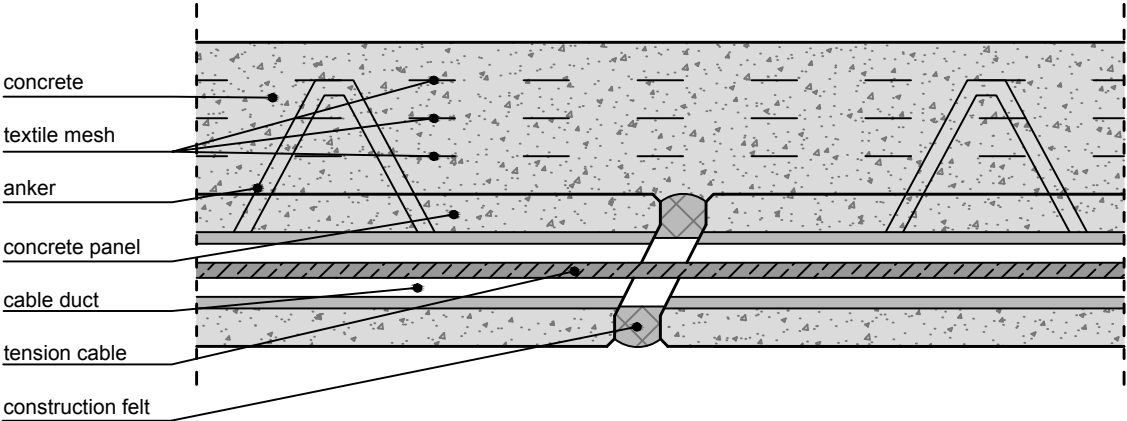




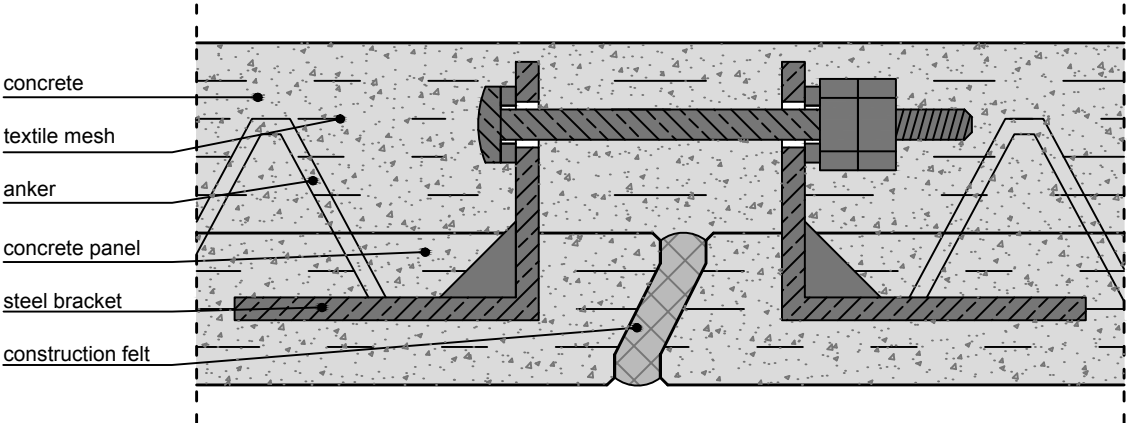
Detail A, 20mm



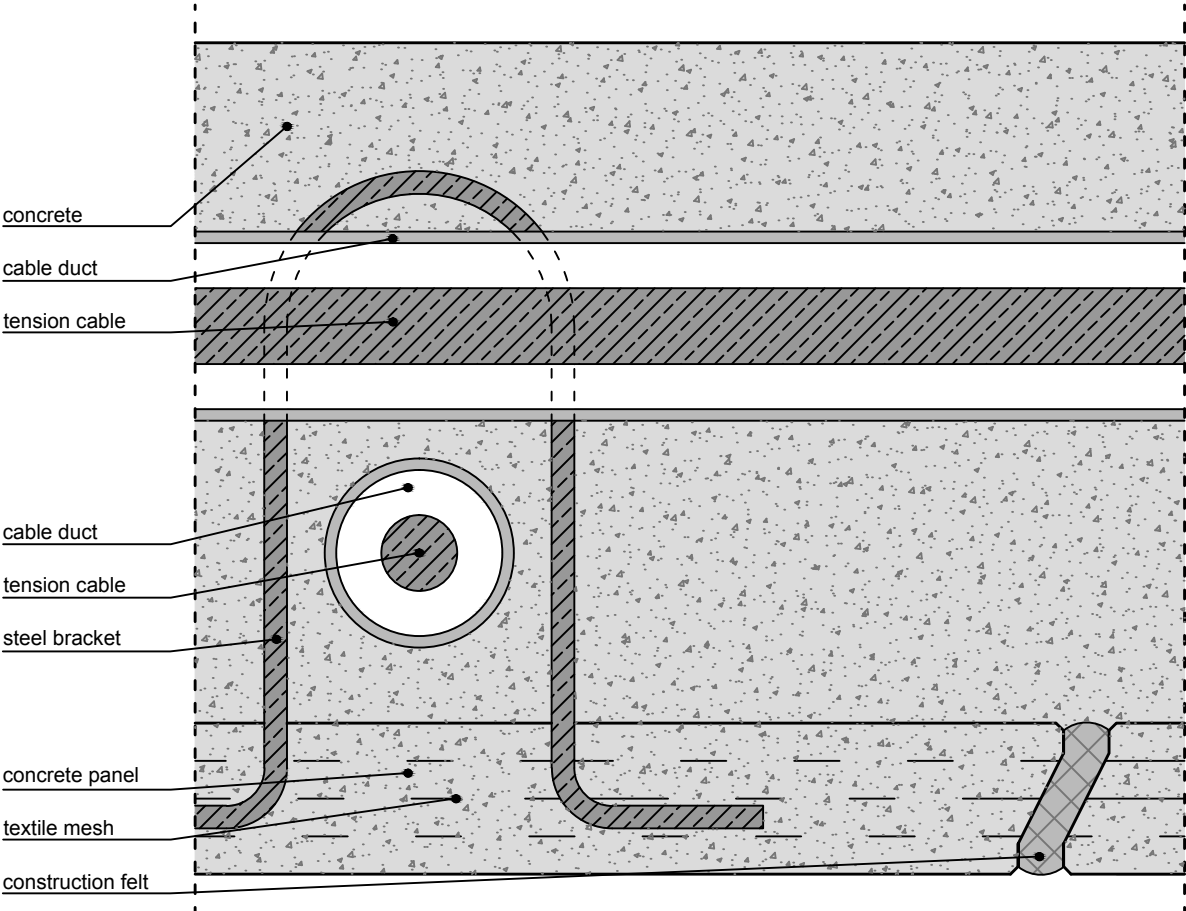
Detail B, 40mm

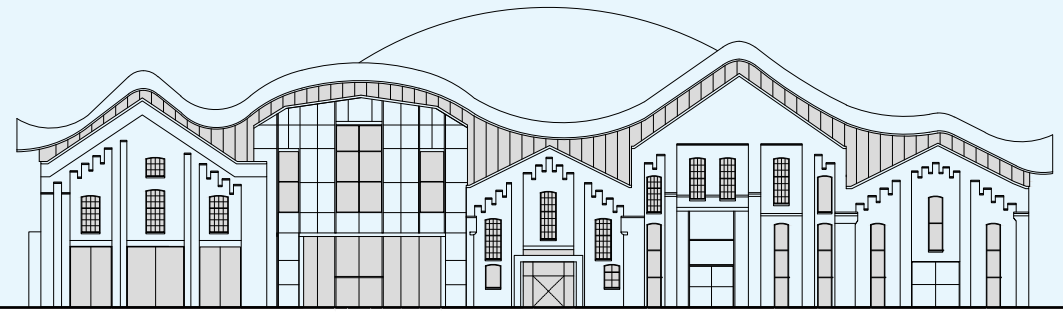


Detail C, 45mm



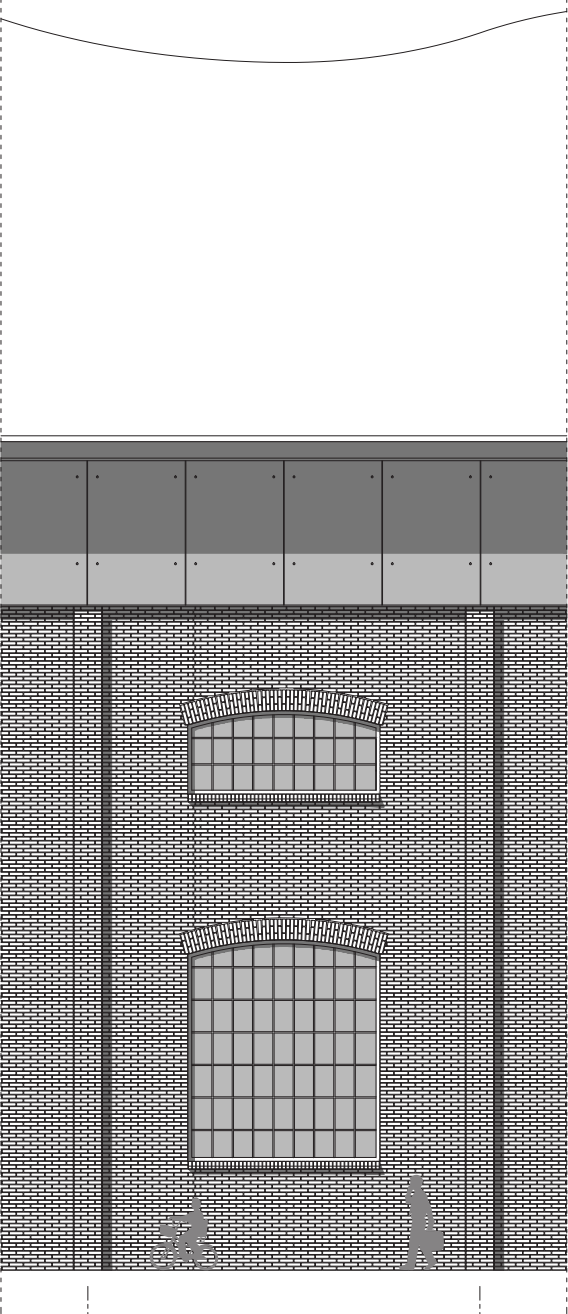
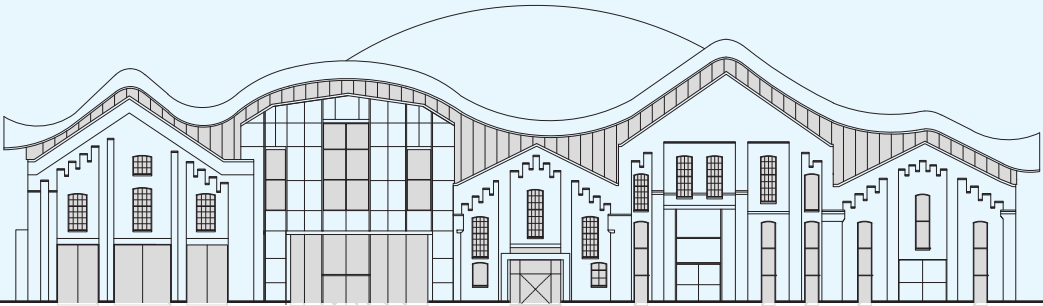
Detail C, 110mm





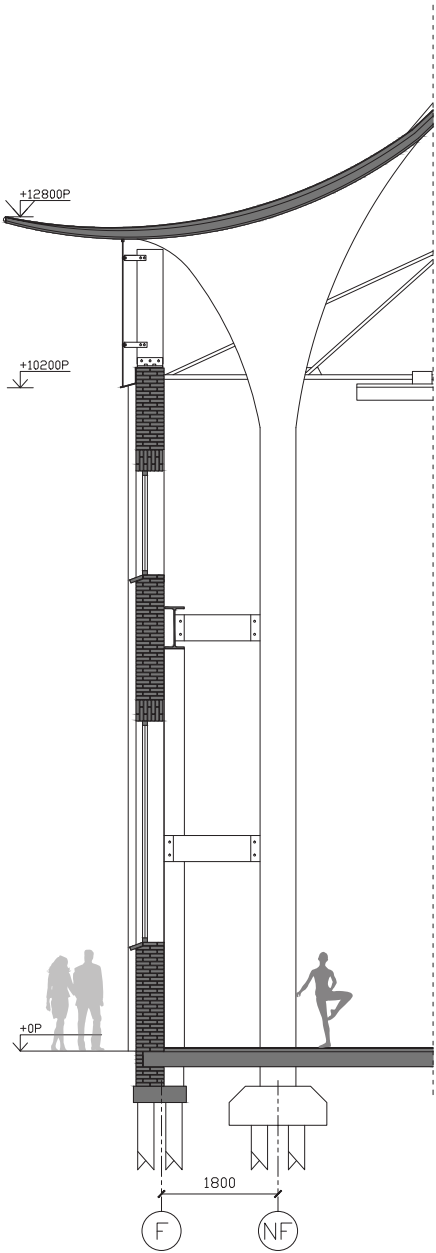
The Sports Factory

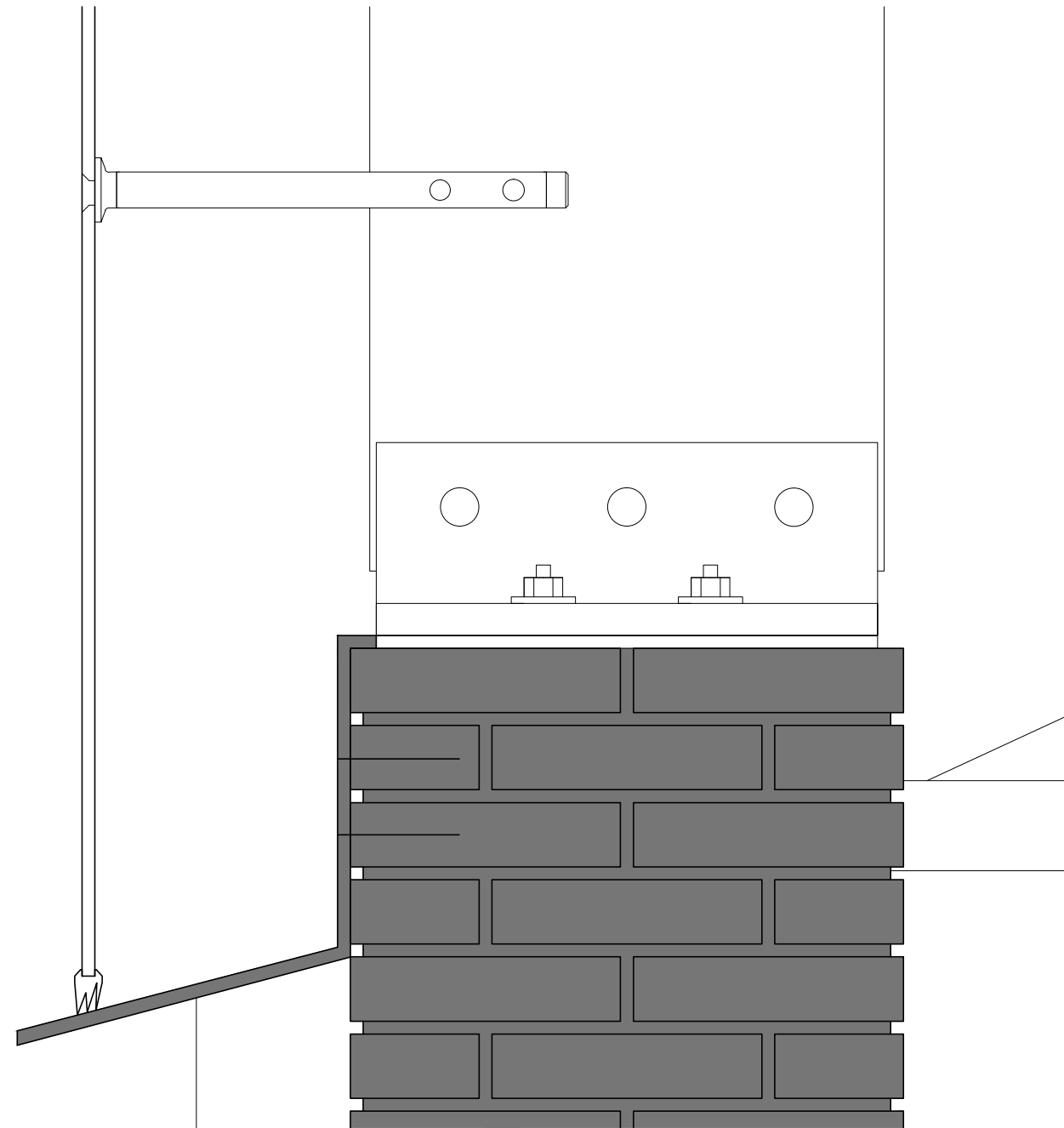
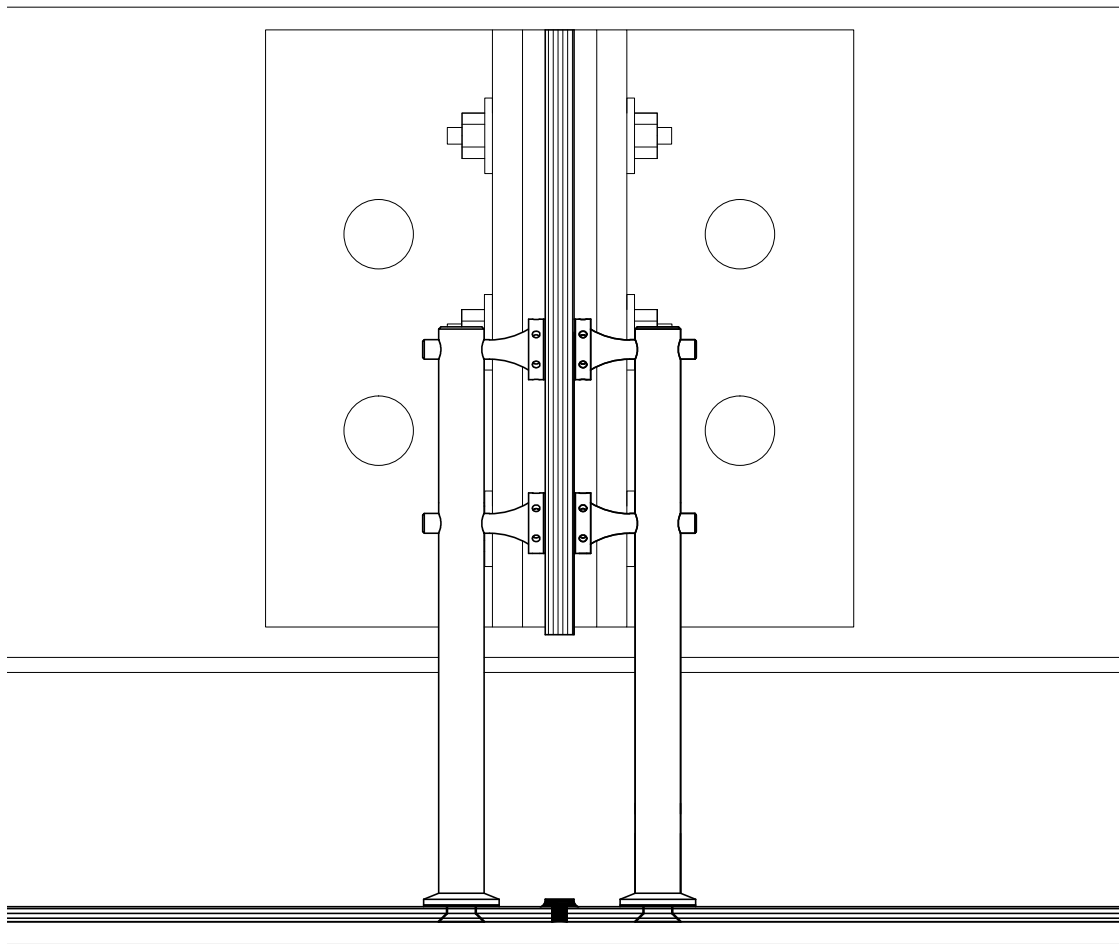
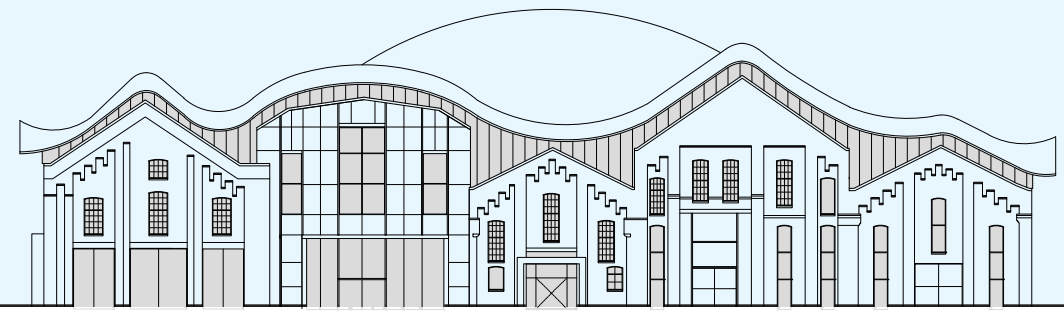




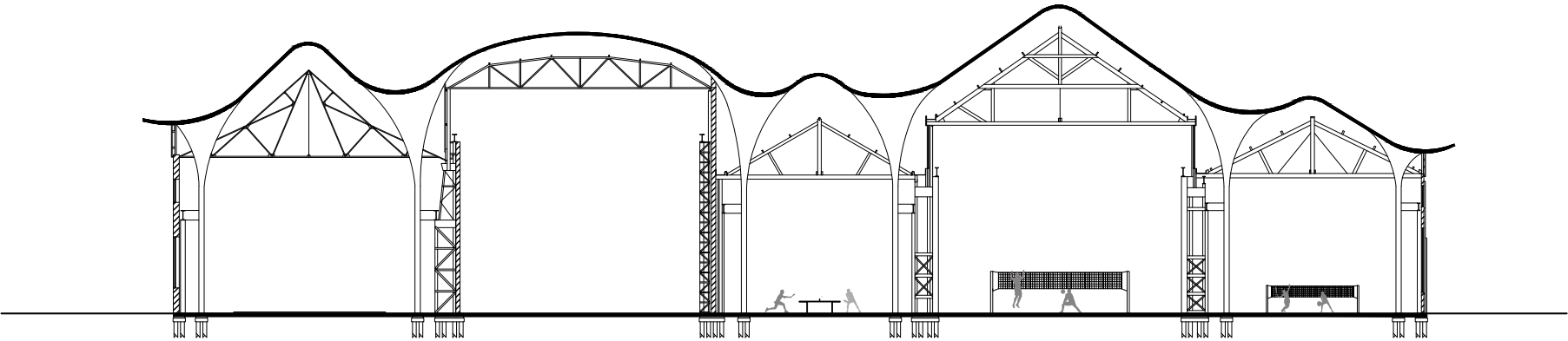
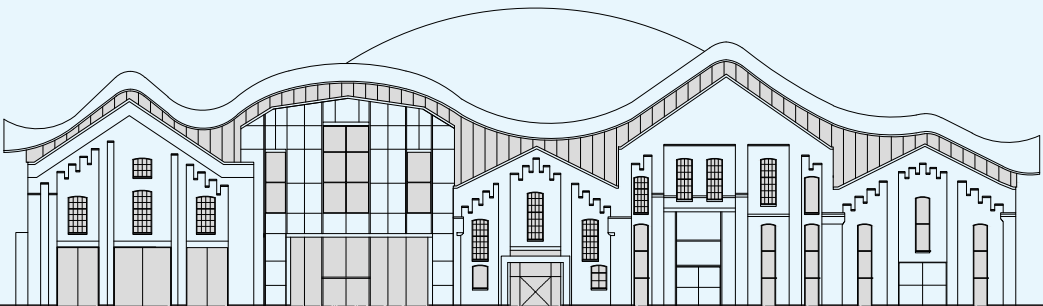
4 5
6000

Fragment: Gevel Ketelmakerij
Scale 1:20

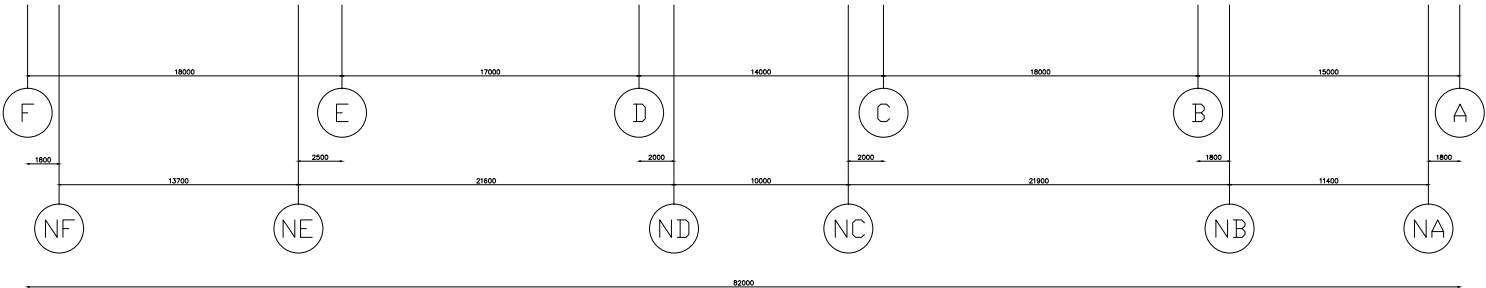
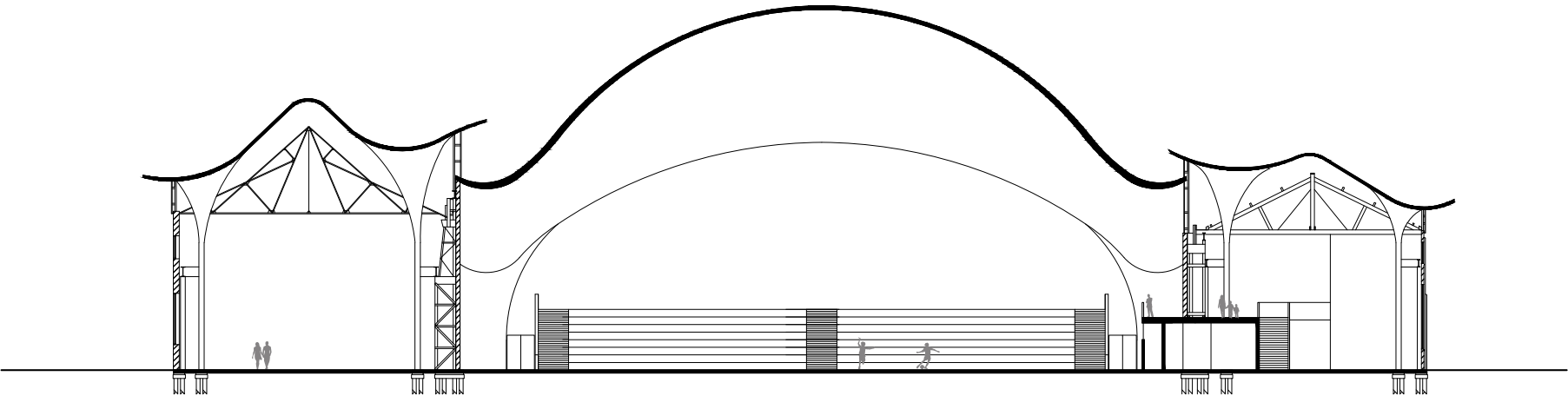




Design: Roof

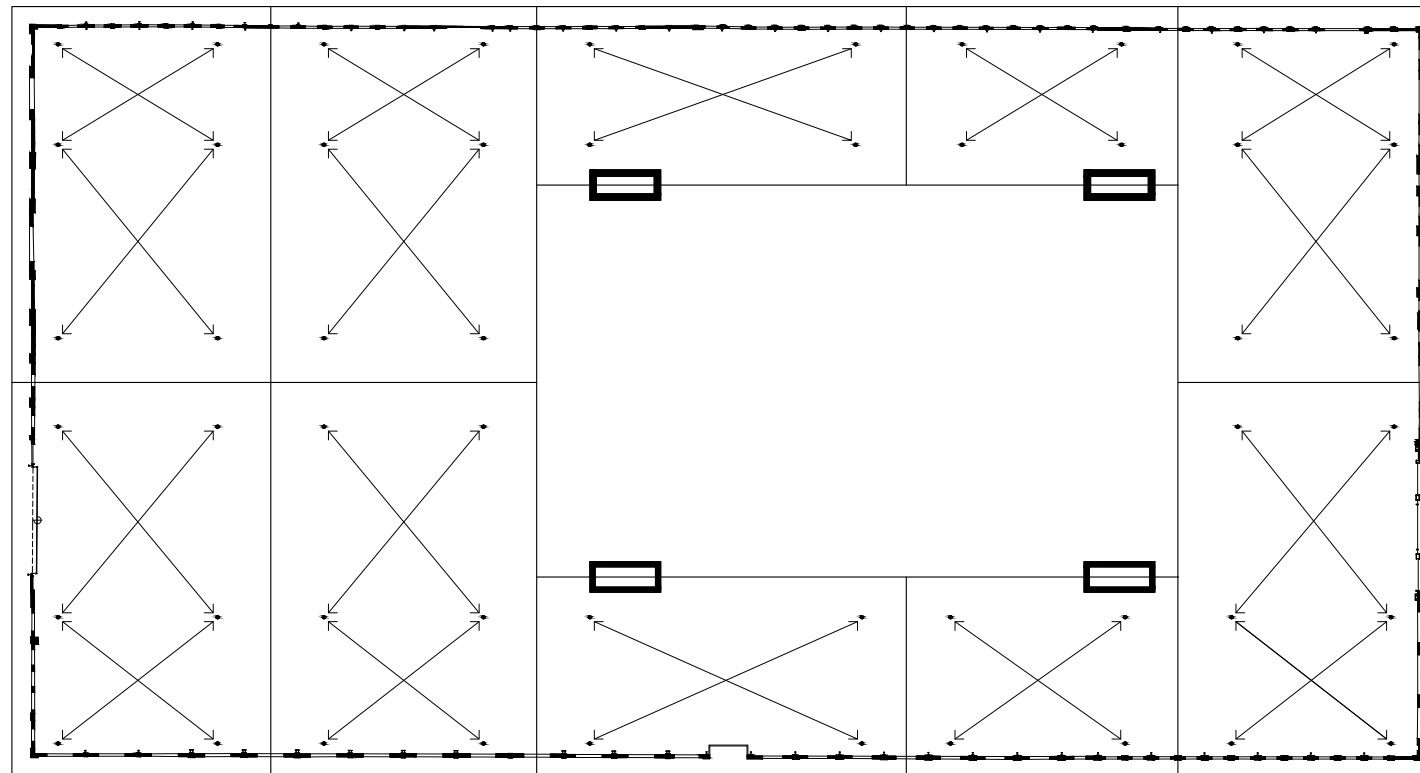
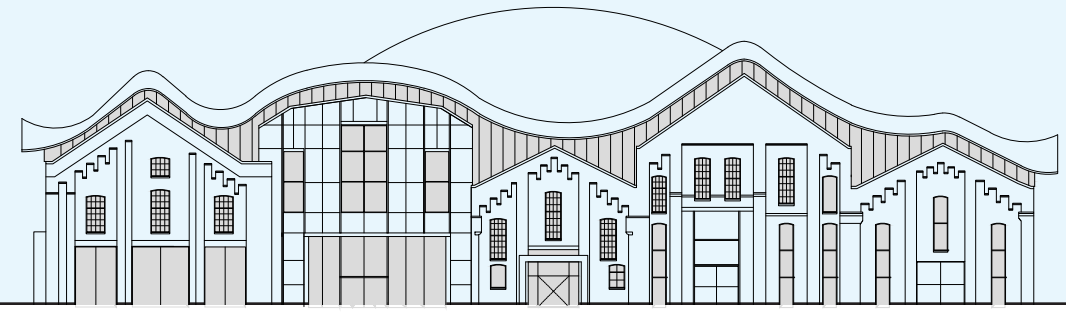


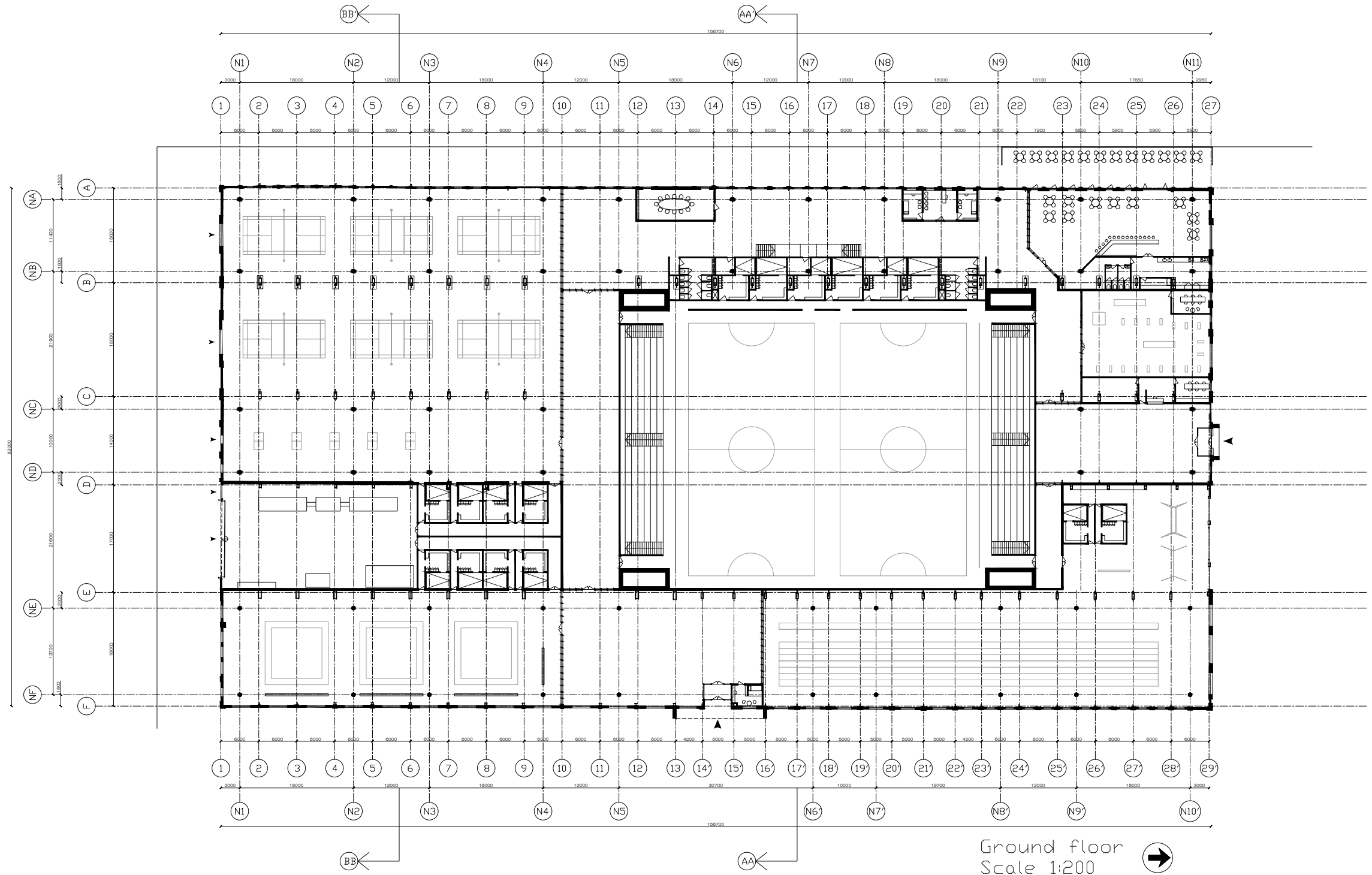
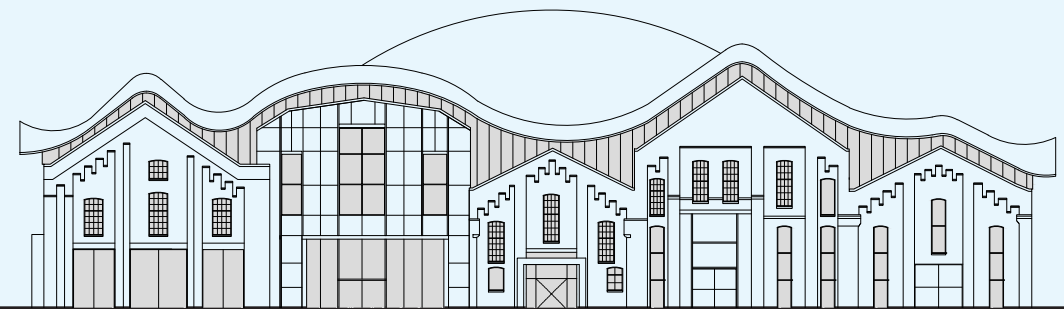
Section B-B'

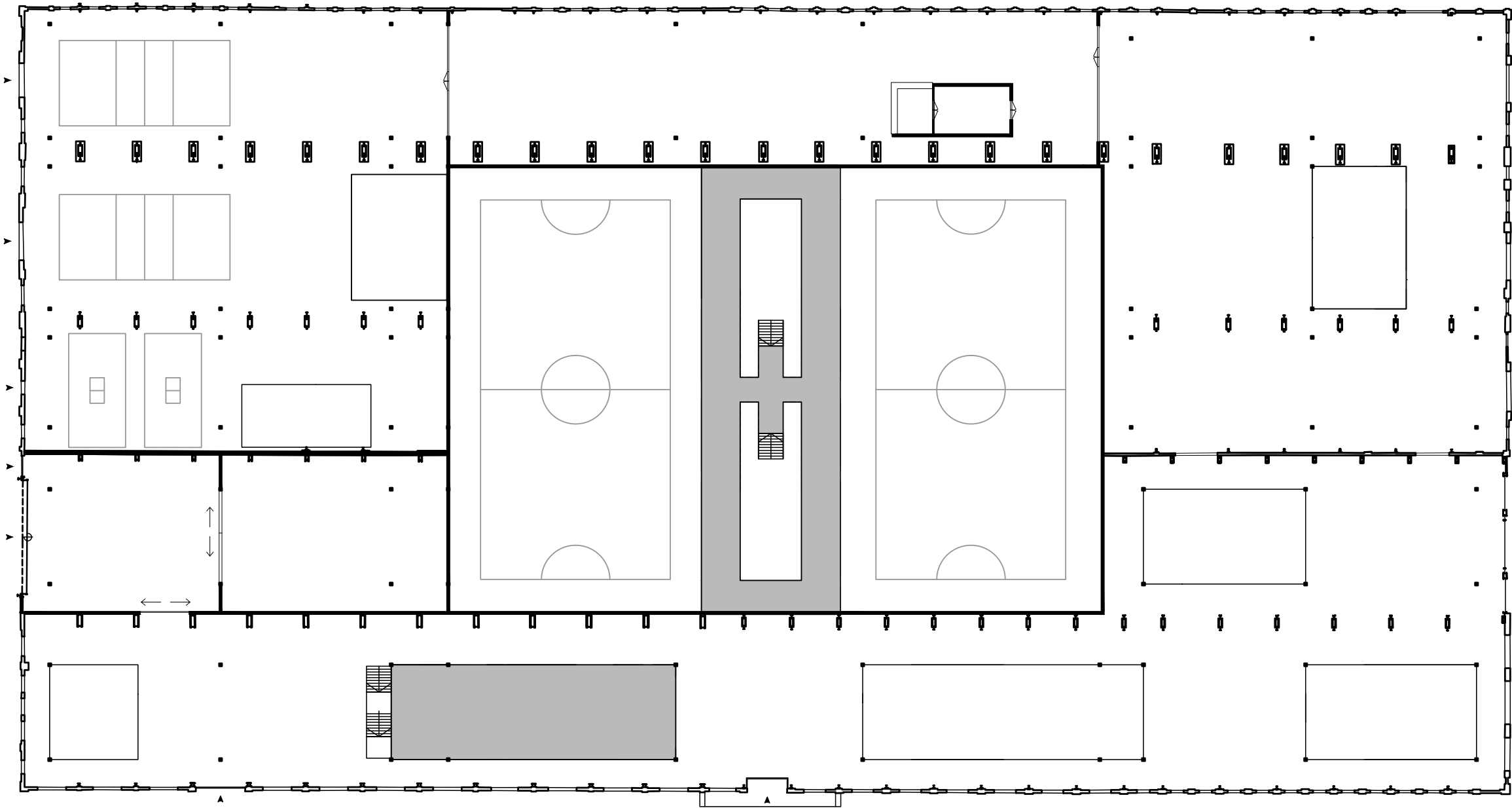
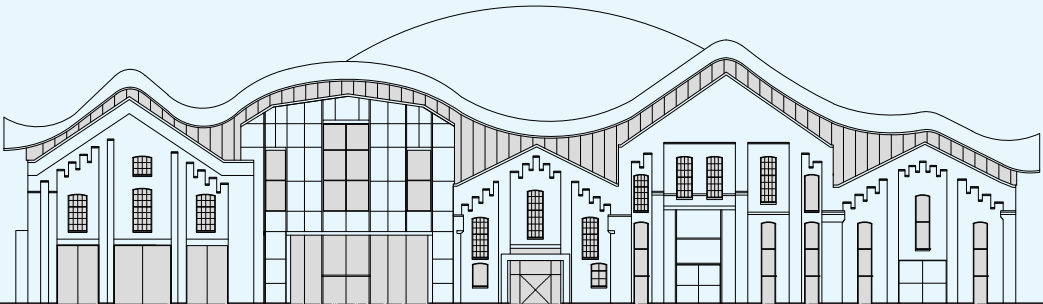


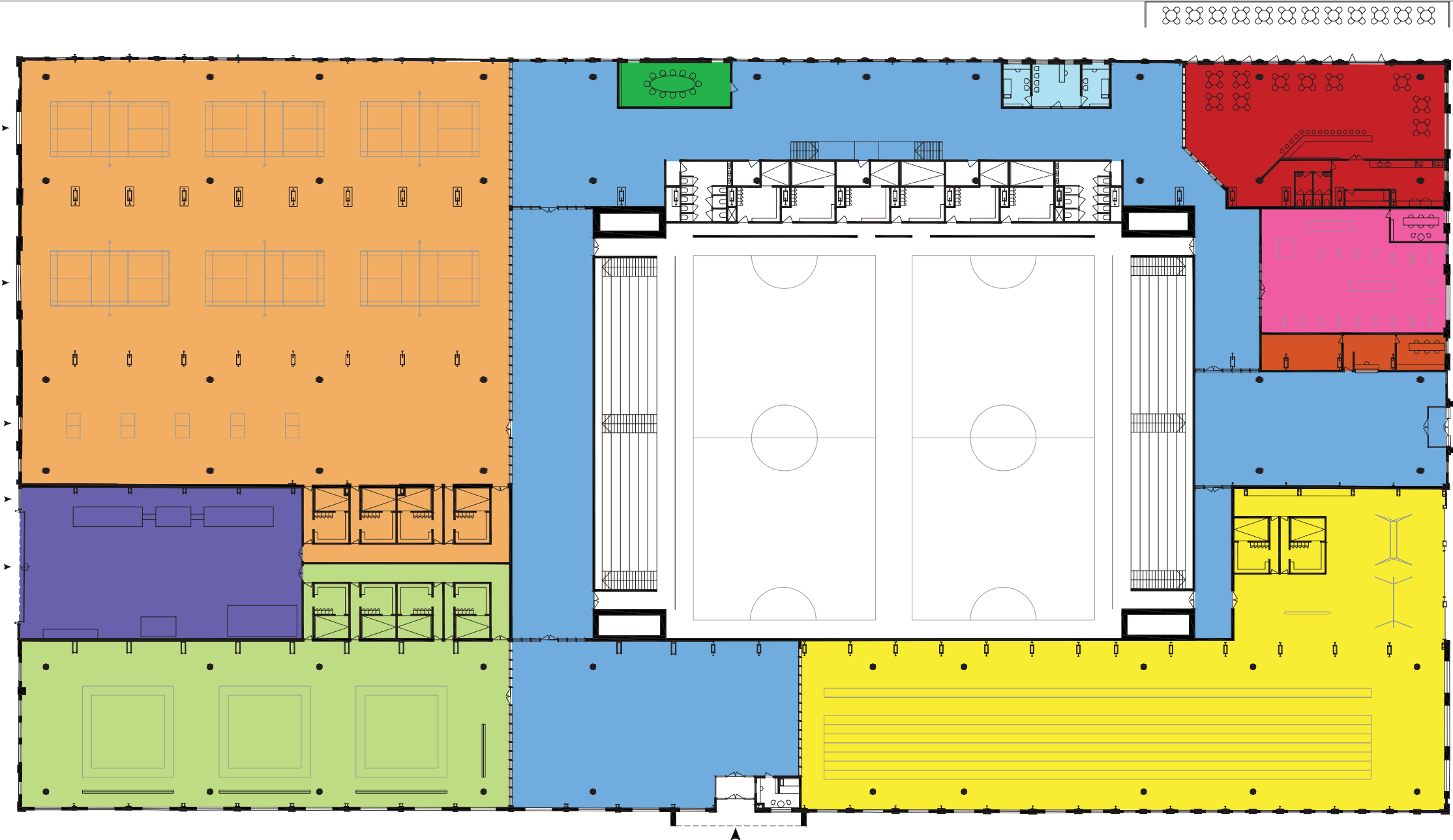
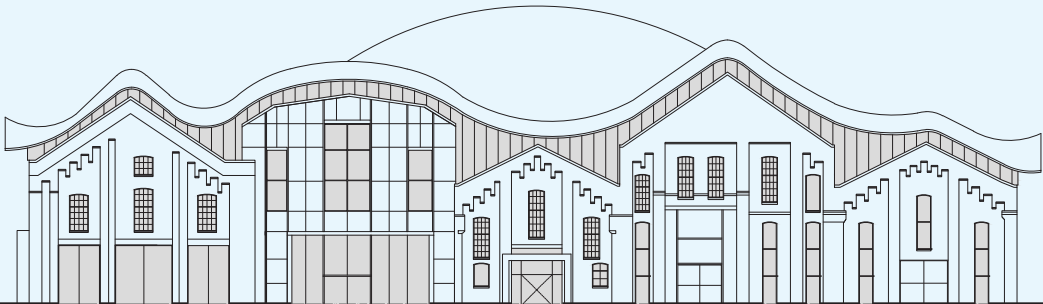
Section A-A'
Scale 1:200

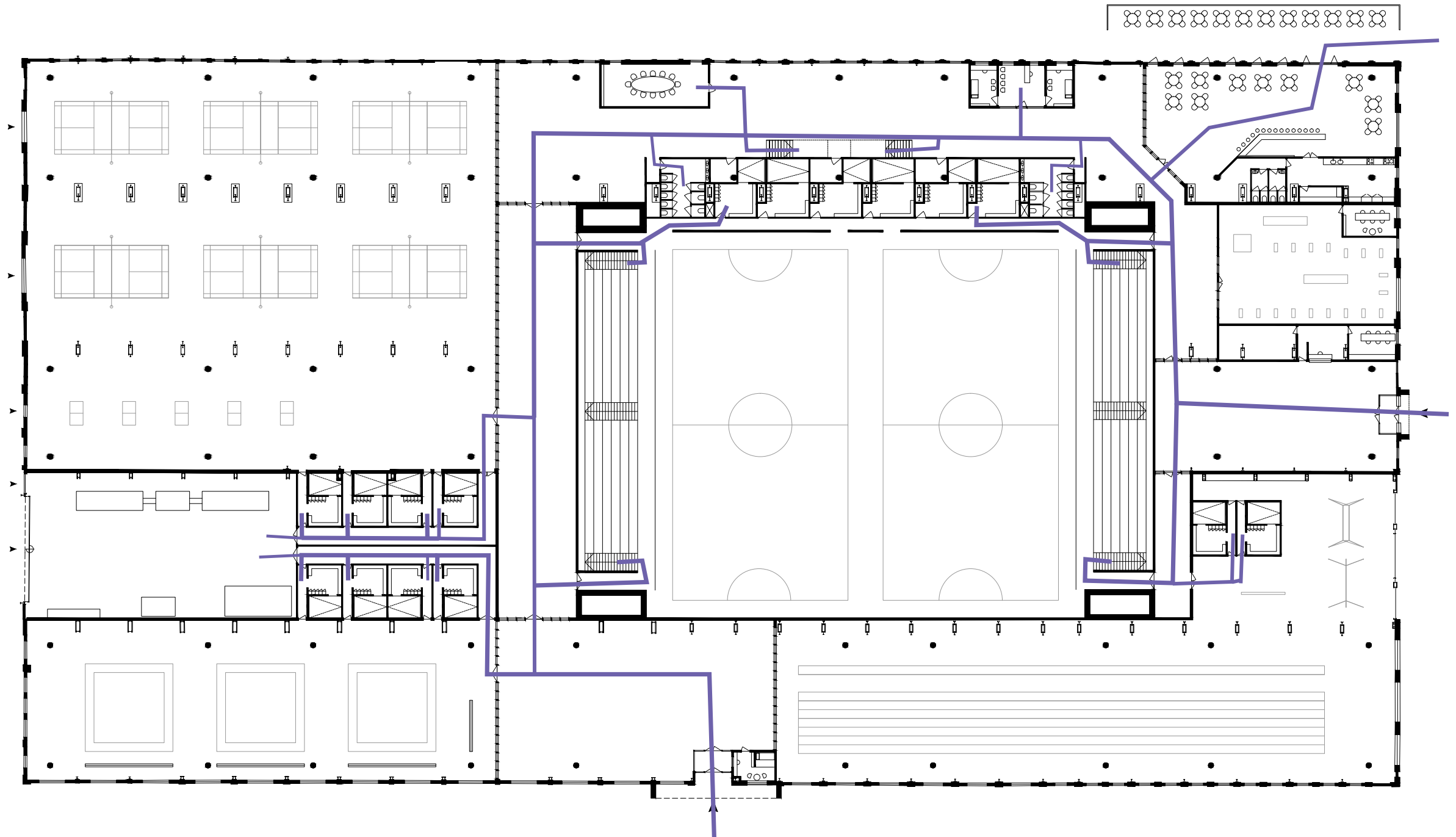
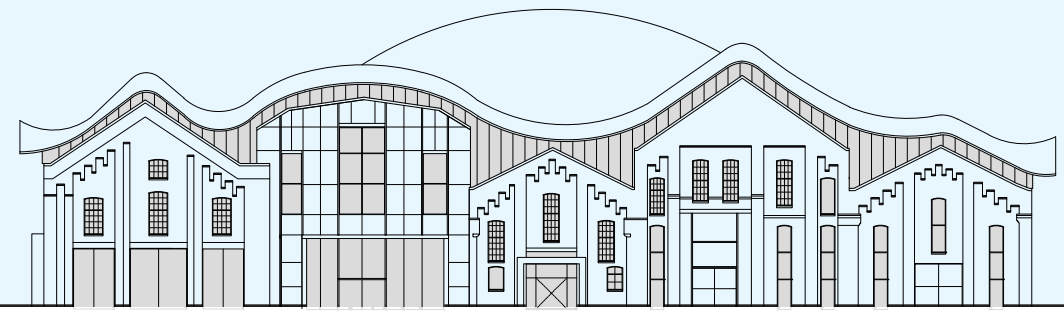
Design: Roof Elements

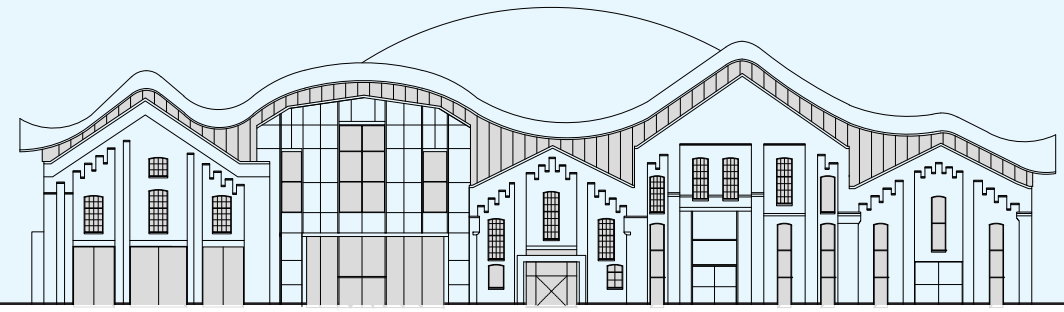




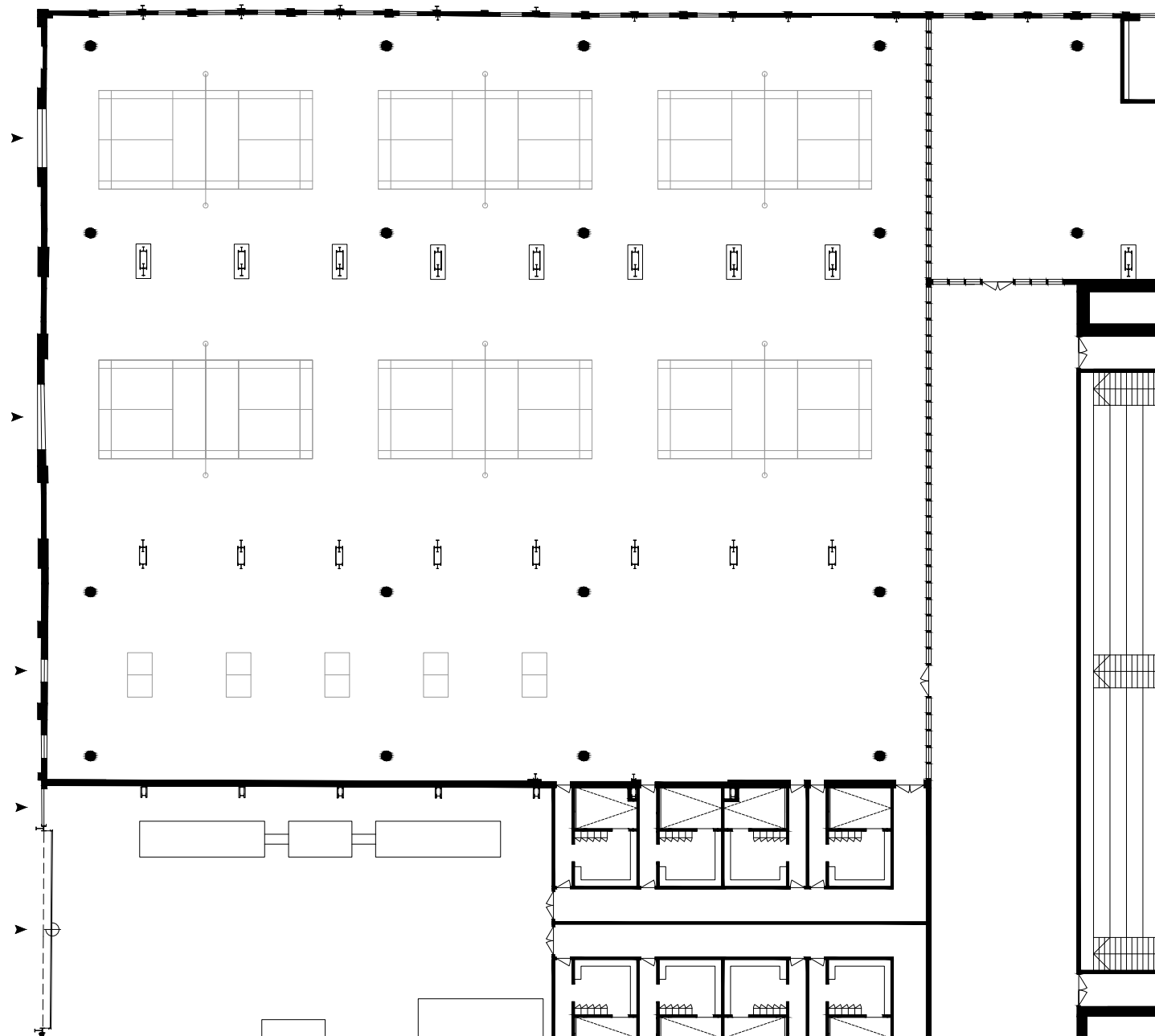
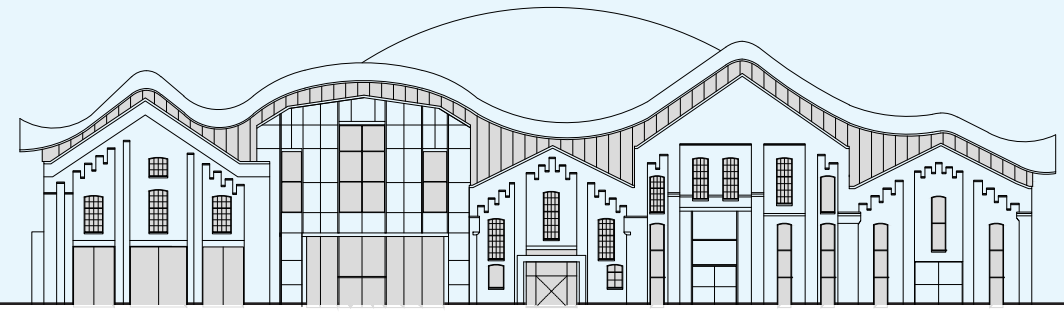




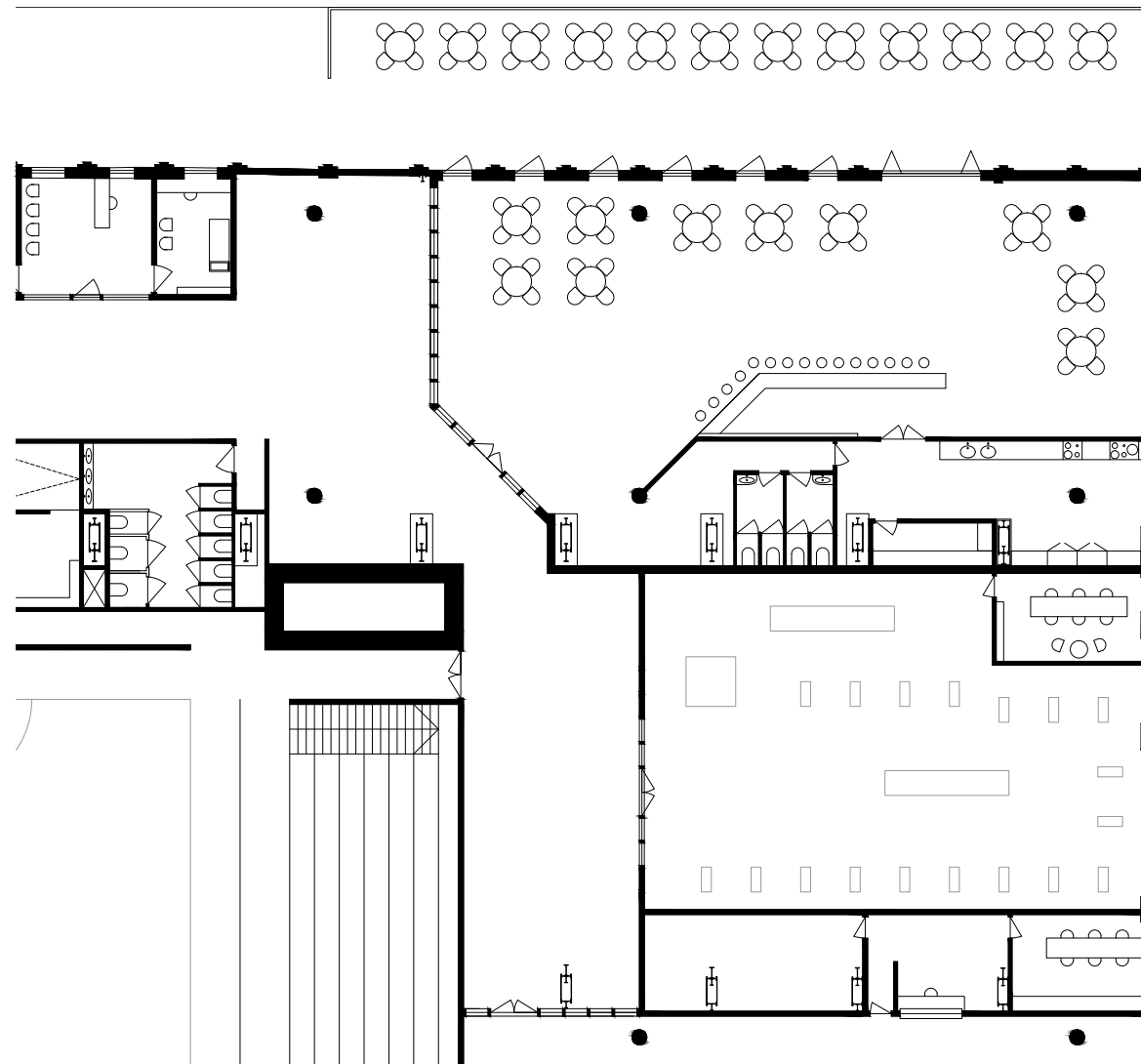
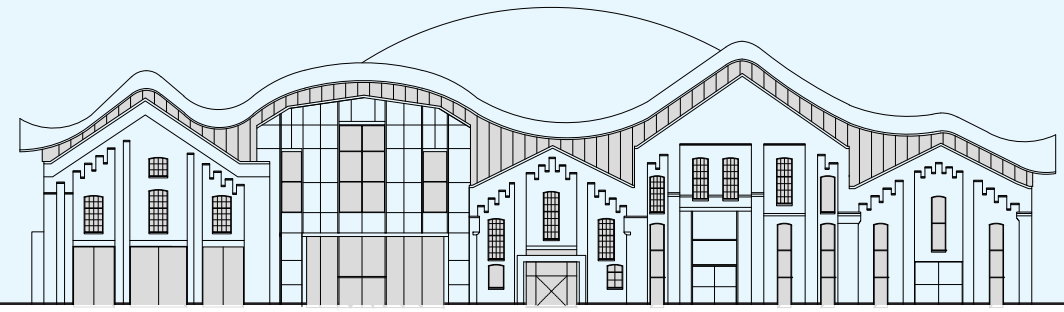


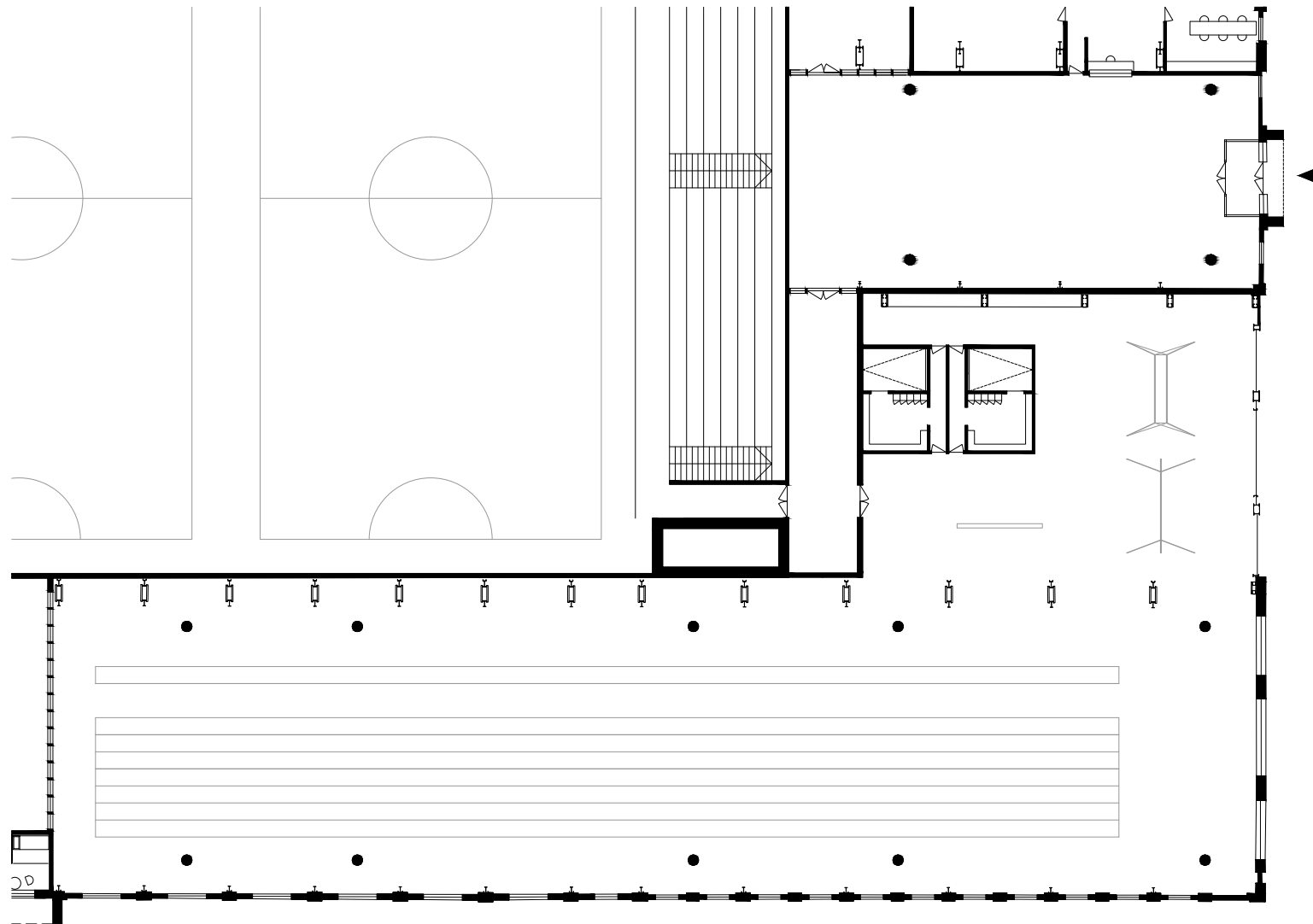
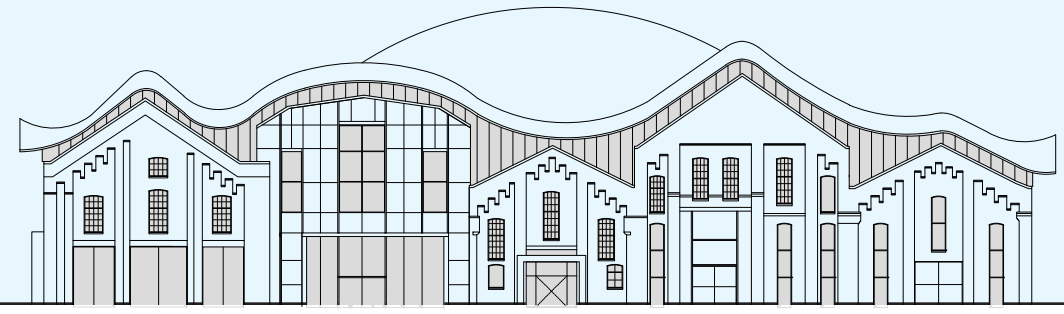


Design: Racket Club

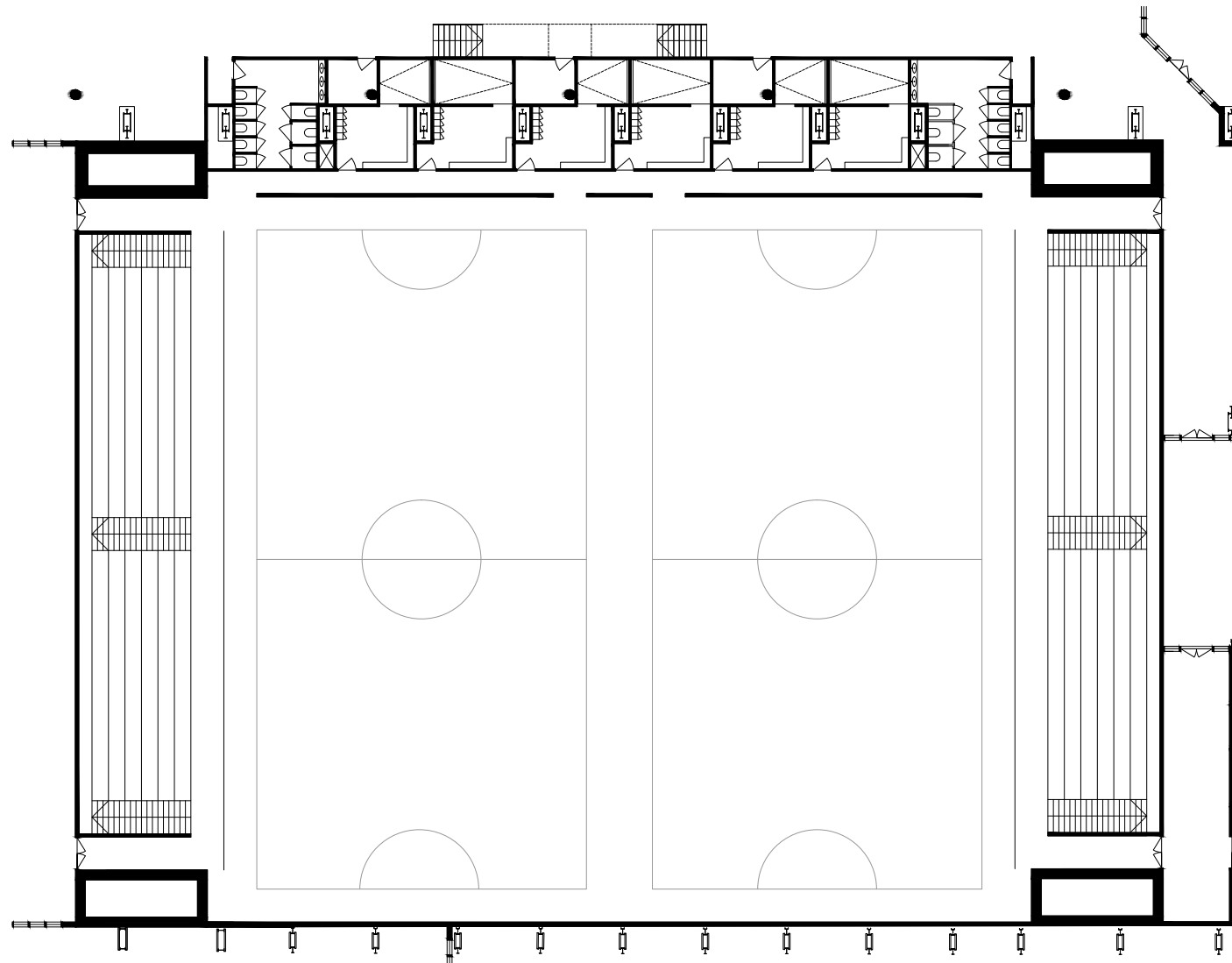
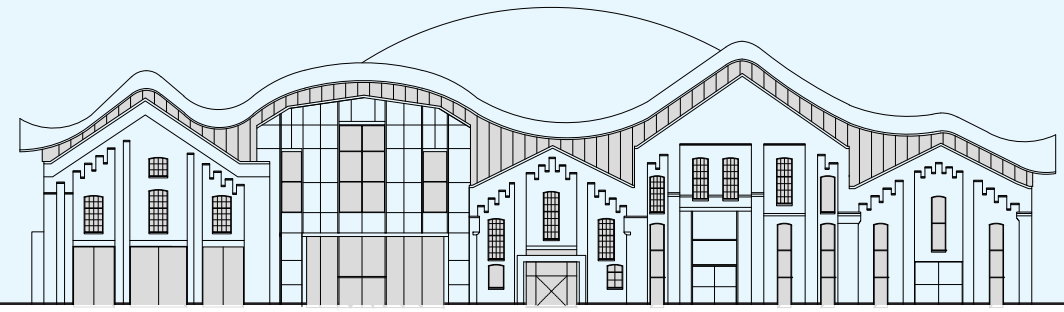


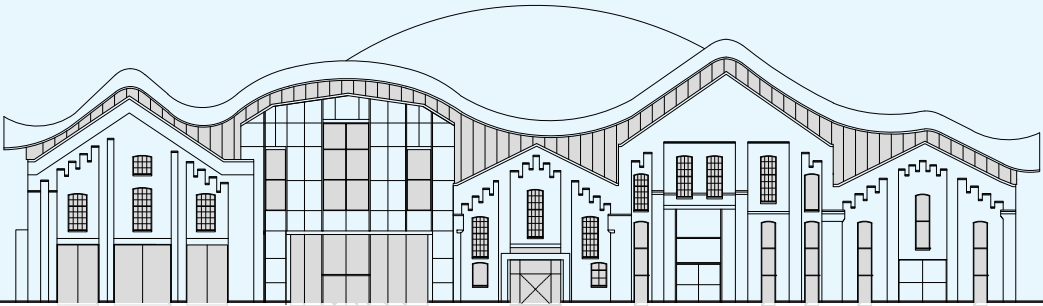
Design: Restaurant, Rehabilitation and Office Space





Design: Main Fields





Questions?

