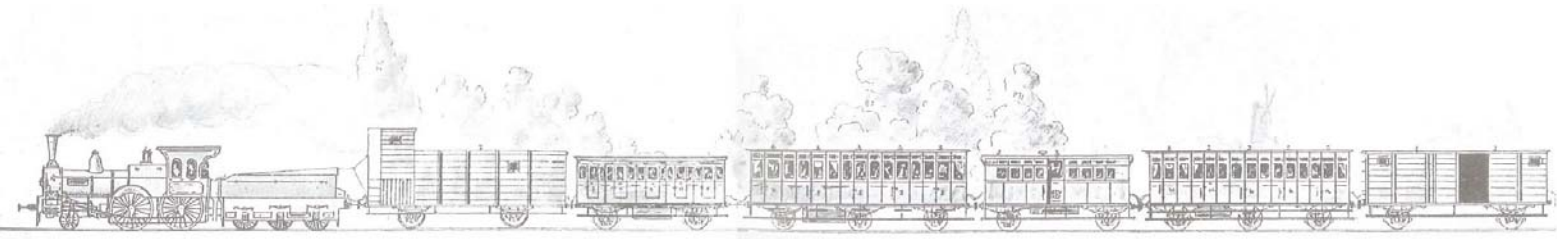


Source

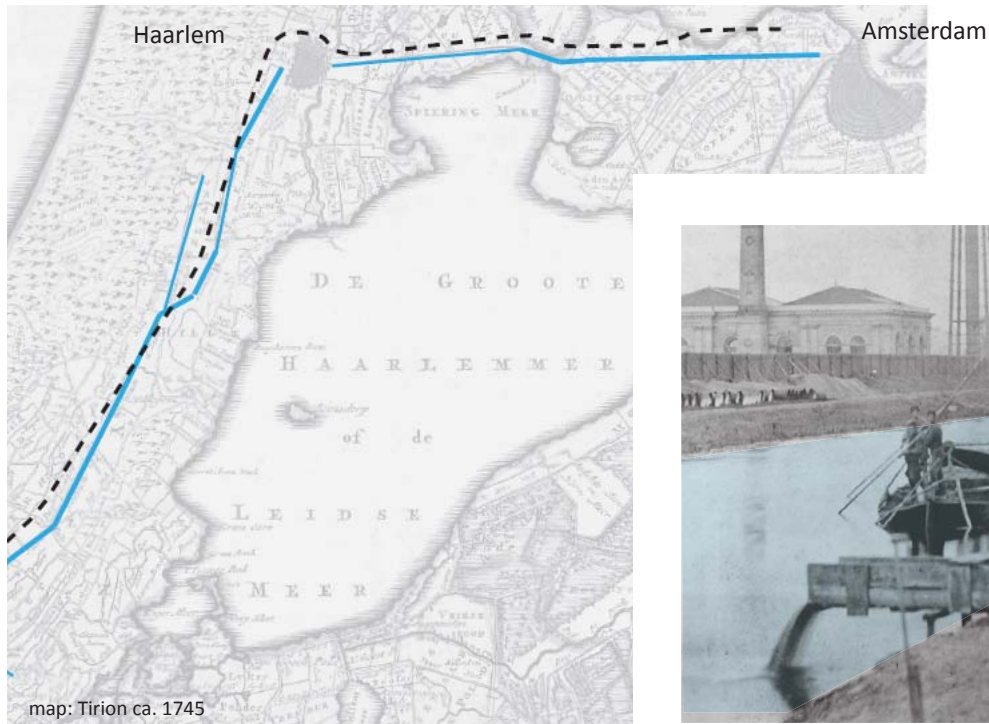
Pumpstation

The old railway line from Amsterdam to Roosendaal crosses the dutch landscape.
Along this line several possible rMIT projects are situated.

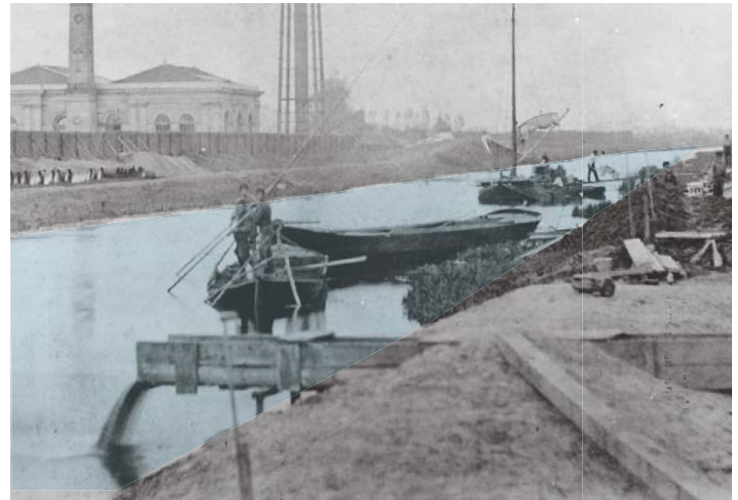


INVESTIGATION → CHOICE OF PROJECT → PROBLEM STATEMENT → CONCEPT → DESIGN → * COSTS *

"The primary objective is no longer to build the new, but to add to the existing structures"
Prof. dr. ir. Jo Coenen



- Treckvaart ca. 1745
- - - Railway track ca. 1842

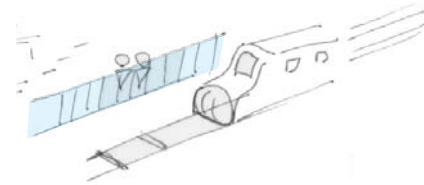


The location of the old line was defined by its former traffic and bussiness route the 'Leidse trekvaart'.

This connection date back to the 17th century.



experience from the train



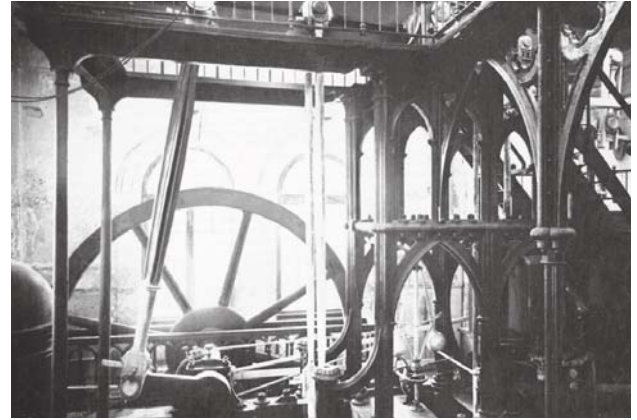
train as a barriere

'The old line' is one of the features of the 19th century Industrial Revolution.

This 'dike' in the landscape served as a connection from A to B, and as a barriere from C to D.

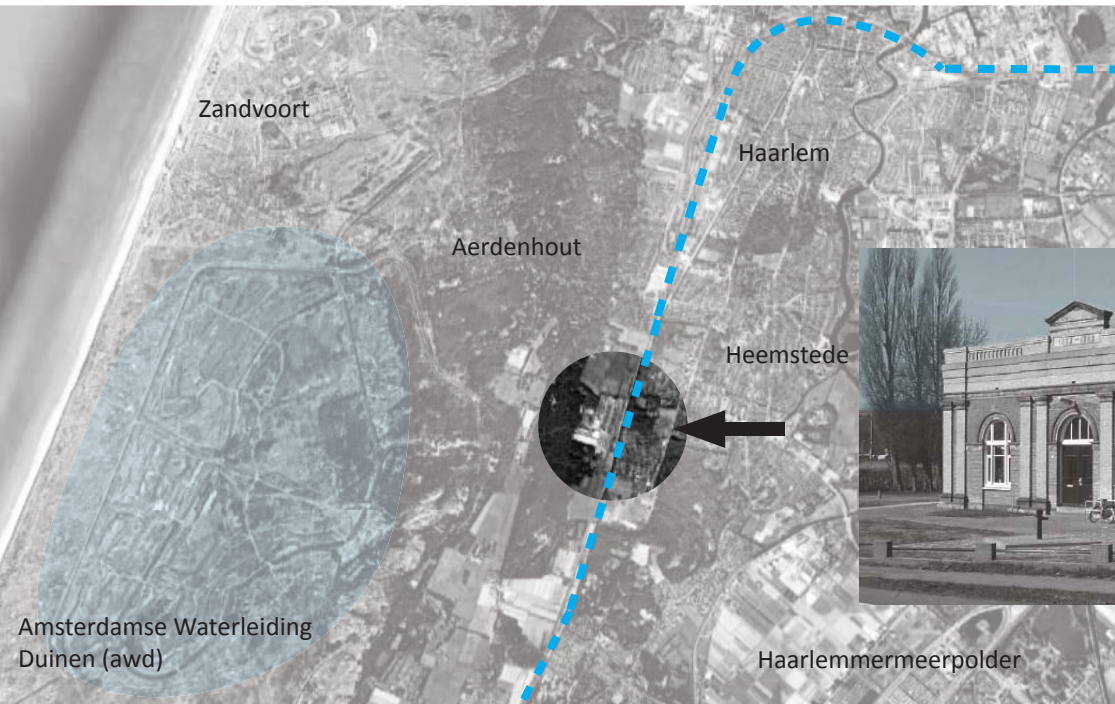


'Waterstaat' architecture:
neoclassical typology
stations and other industrial buildings
standard designs from the ministry of Waterstaat



British technology:
railway track
steamengined technology
steel constructions

Along with the rail way industrial architecture and british technology was introduced in the Netherlands.



PUMPSTATION 1853



Motivation of choice: relation with the old line - industrial complex - rich history - need for intervention

Choice of building: Pumpstation 1853, at Leiduin, Heemstede. Property of Waternet.



Jacob van Lennep



The Belvedere

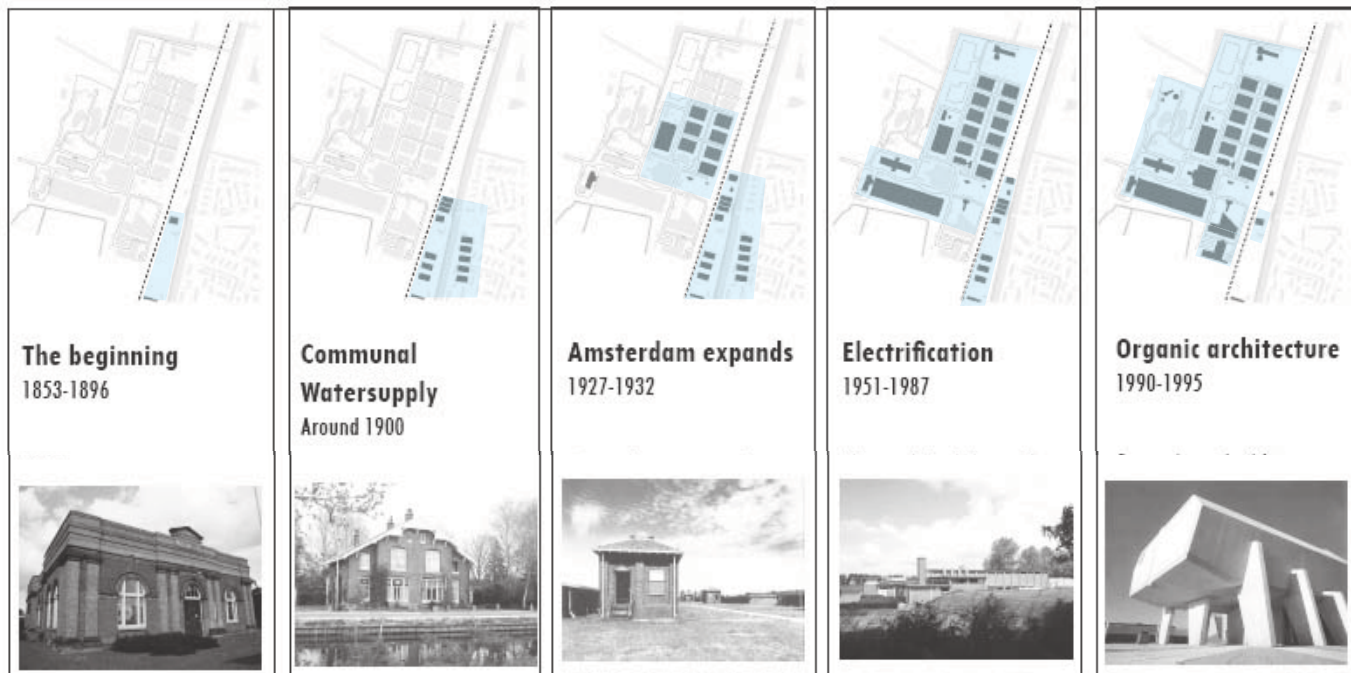


The Mansion



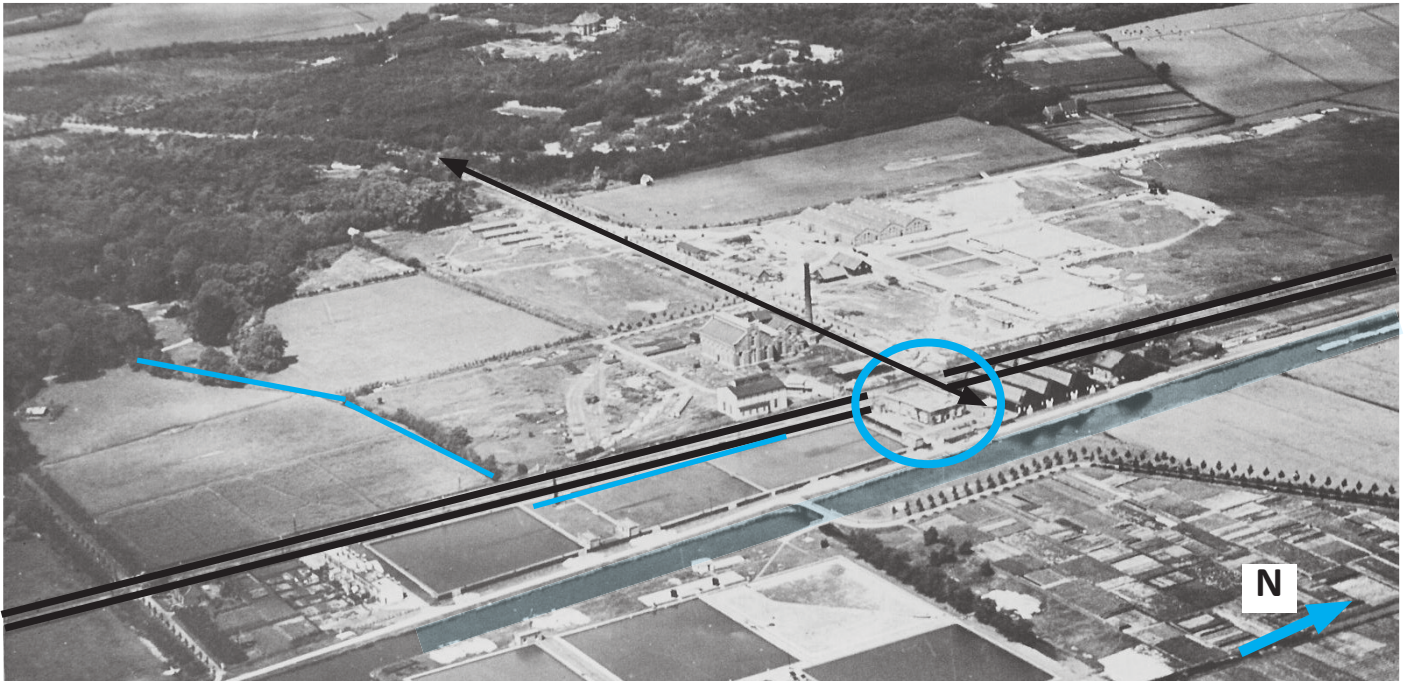
Jacob van Lennep initiated the Dune water society to enjoy dune water in Amsterdam.

Jacob van Lennep, Dutch literator, initiated the Dune Water Society. In 1851 the Oranjekom was dug by Willem van Oranje.



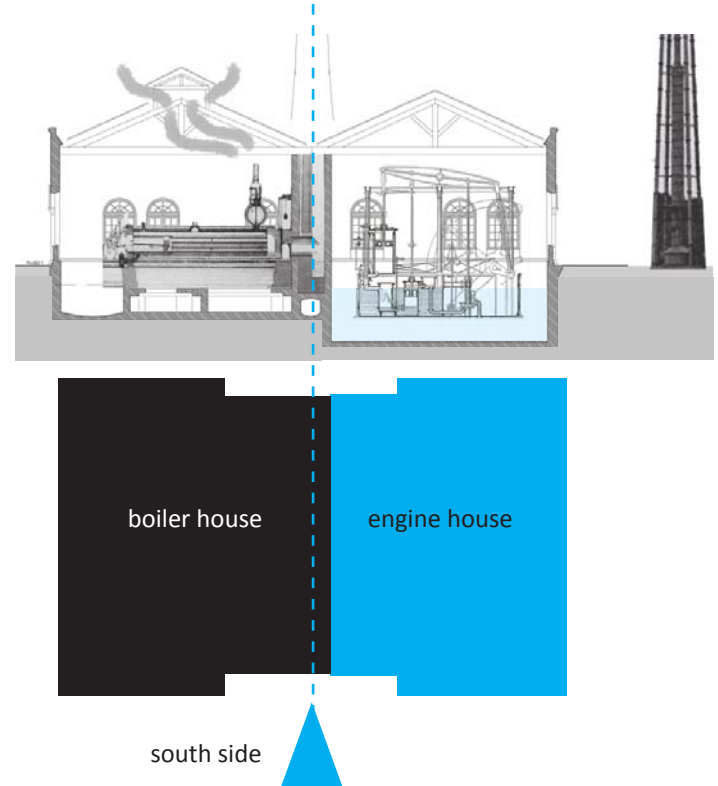
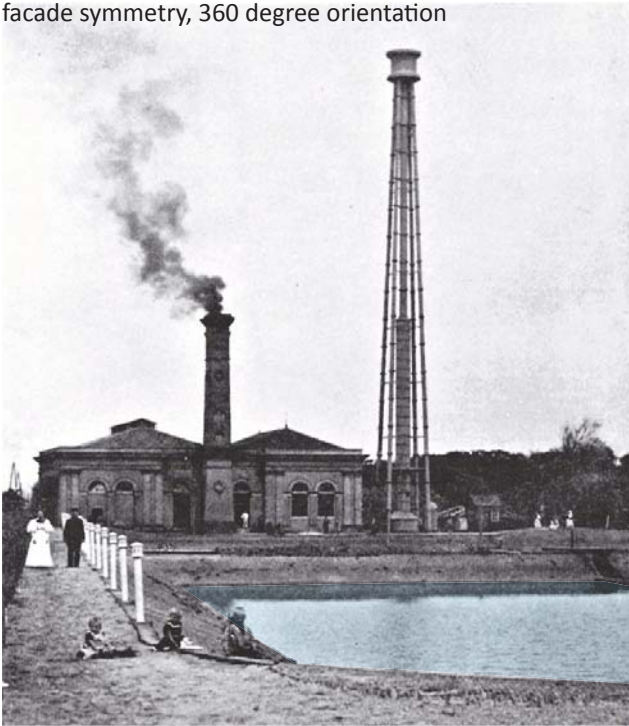
During the the 20th century, the complex expands and shifts to the westside of the track.

A complex full of 150 years architecture and art grows.



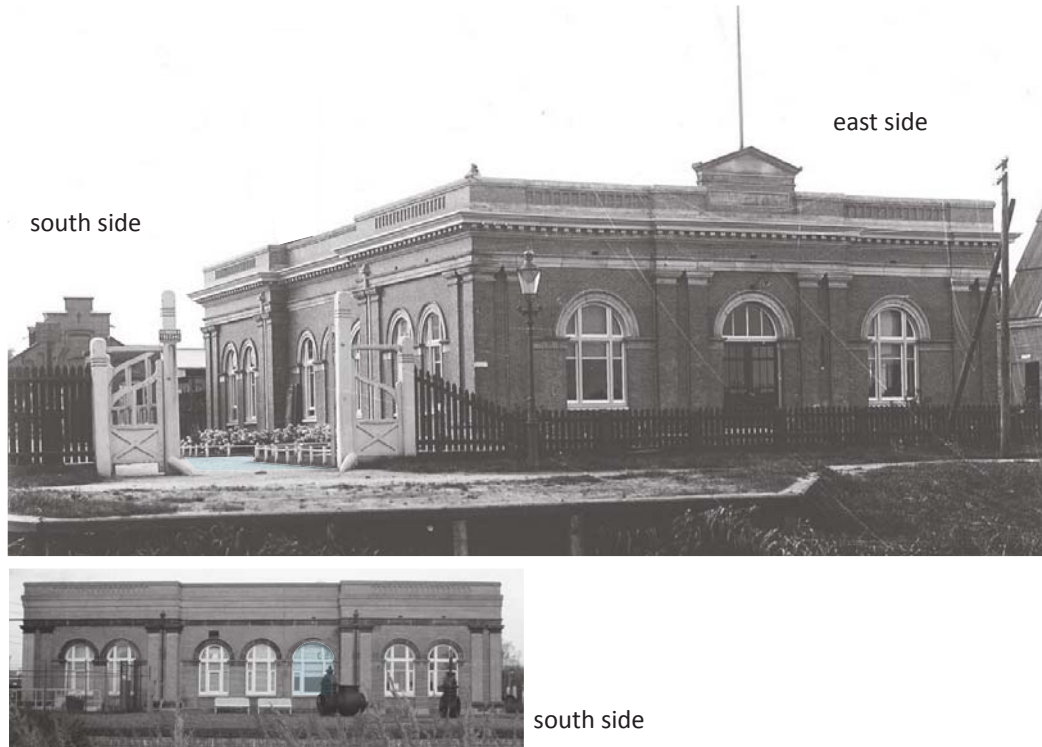
The shift from East to the West around 1909.

facade symmetry, 360 degree orientation



Two main halls, the boilerhouse and the engine house.

Functional asymmetry in the foundation.



technicians

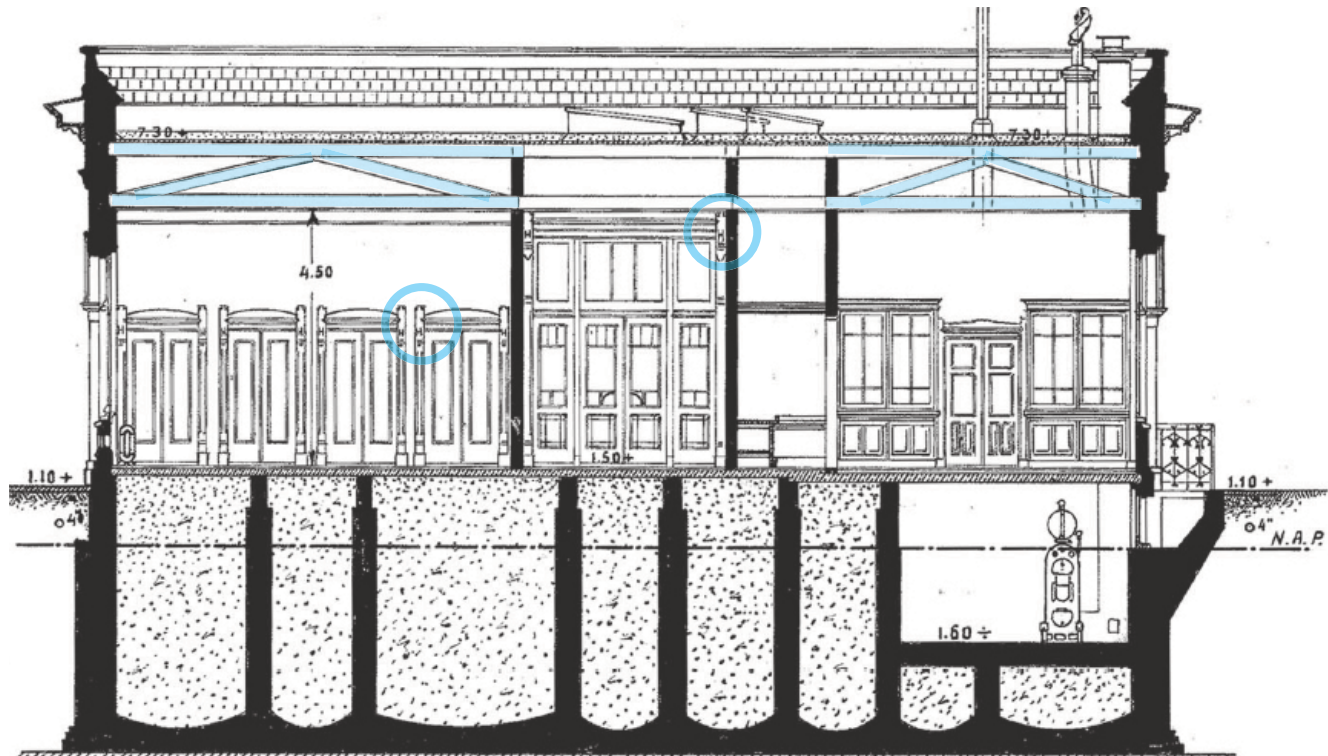
directors

east side

Functional change of 1909: laboratory and directors office.

Change of orientation.

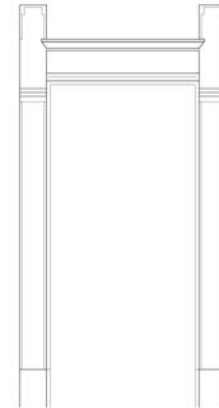
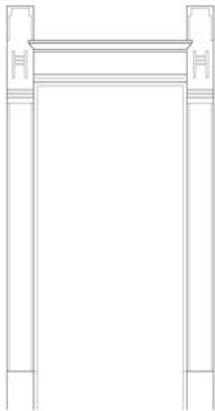
Also the directors room was widened.



From industrial to a classical building.

Period features: Doorposts, showing the rooms of the 'Heeren'.

Rare constructive ceilings.



Historical hierarchy between de 'Heeren' and the technicians.



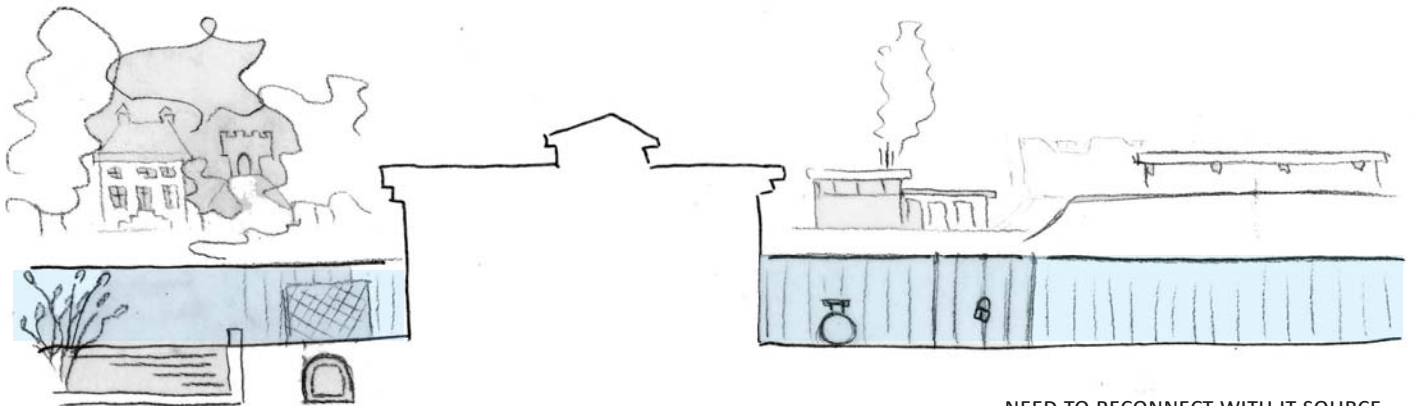
the roof

one of the
current
expositions

open museum day

Current function: company museum.

It is in a bad esthetical and technical condition.



NEED TO RECONNECT WITH IT SOURCE



The connection with the Amsterdamse Waterleidingduinen is lost.



The connection with the complex is lost.



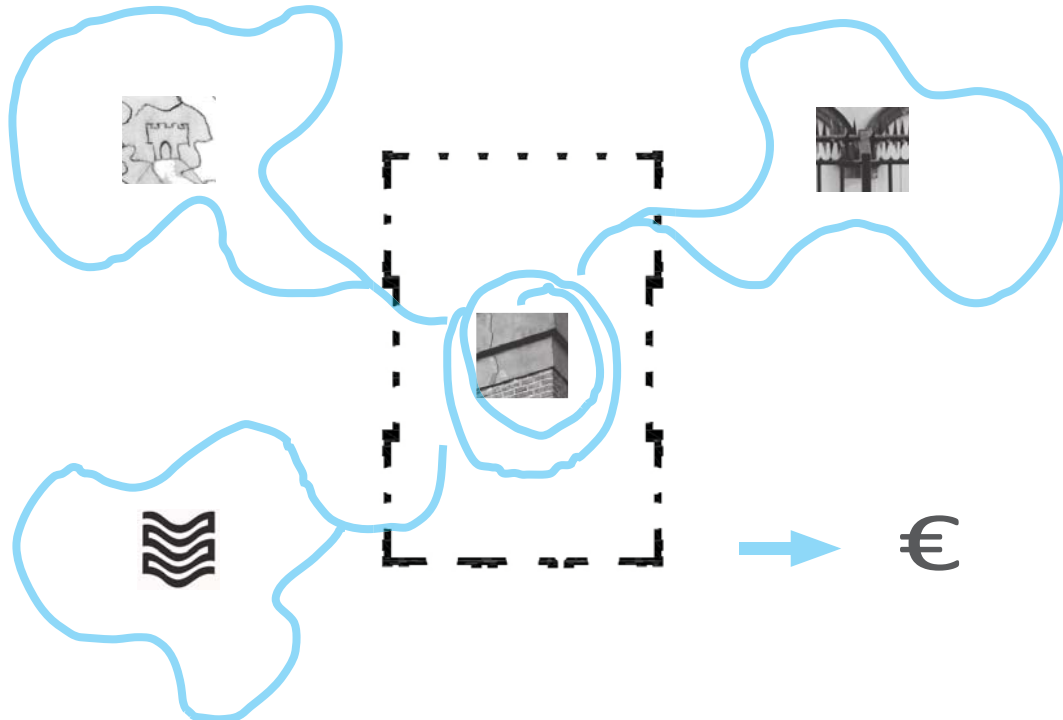
The connection with water is lost.



The museum is unattractive in this condition.



Plans were rejected because of lack of funding.



MUSEUM + WATER

To reconnect the museum to its source, introduce several routes, guided by water.
This will happen on all scale levels.



Introduction

studio 'the old line'
history pumpstation 1853
problemstatement & concept

Interventions

urbanism
architecture
building technology

Research

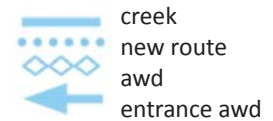
feasibility

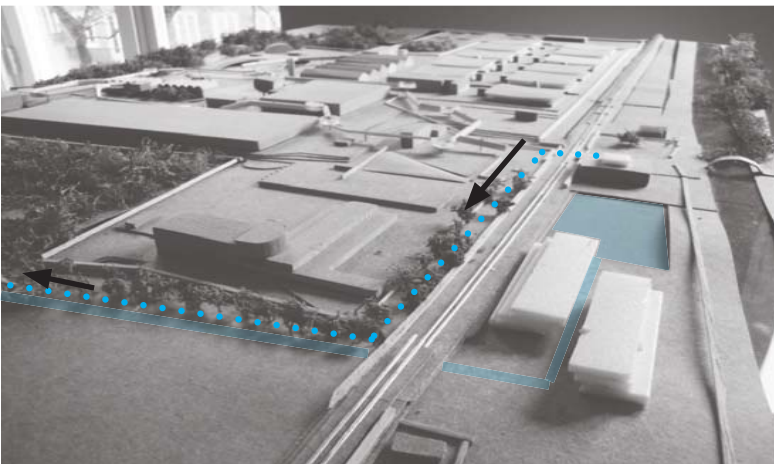
Reflection



Alternative route: The old creek forms a natural connection and a addition to the museum showing the history of the site.

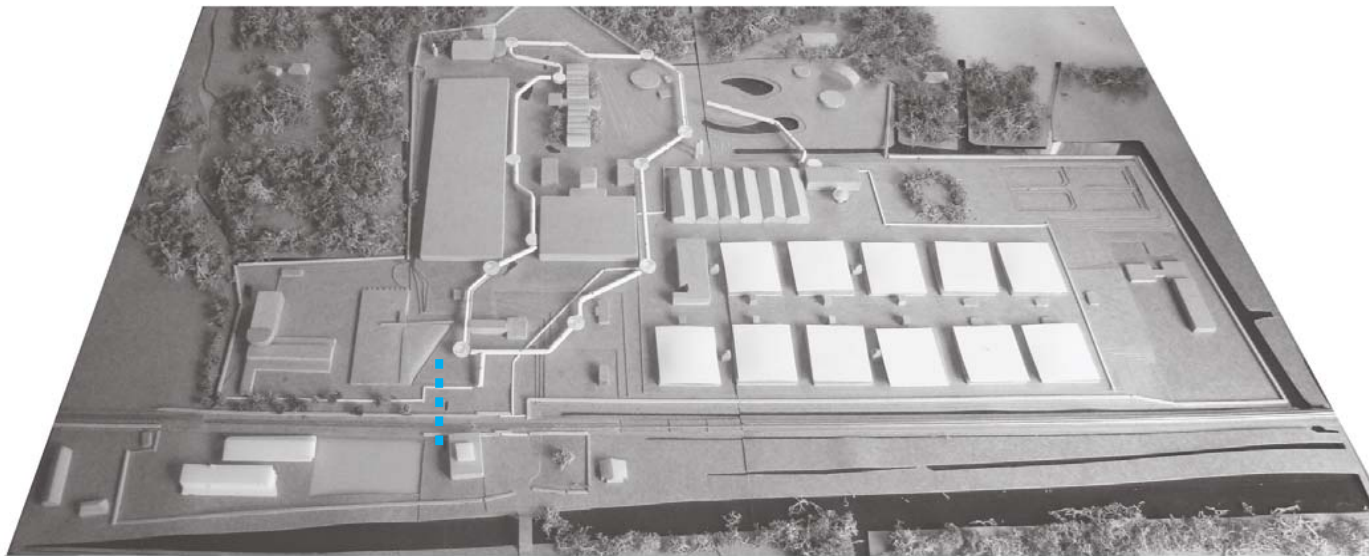
Make Pumpstation 1853 the starting point.





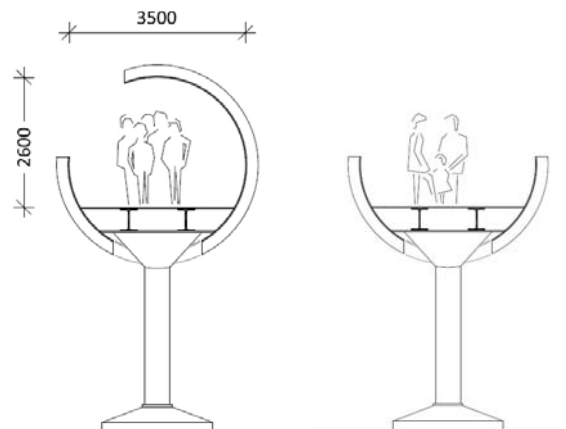
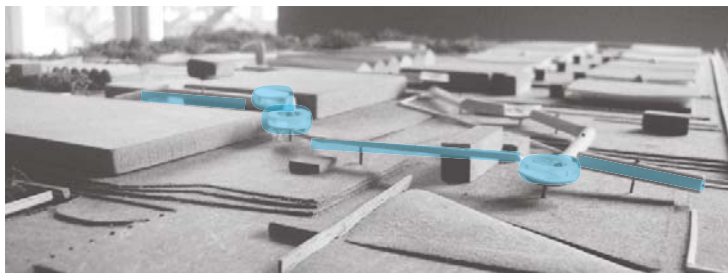
Accompany the route with sand from the dunes. Let trees guide you into the woods.





Create a secured tube route through the terrain.

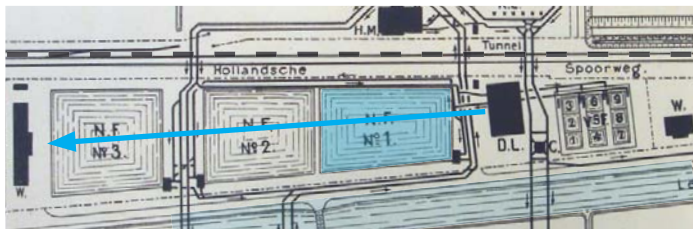




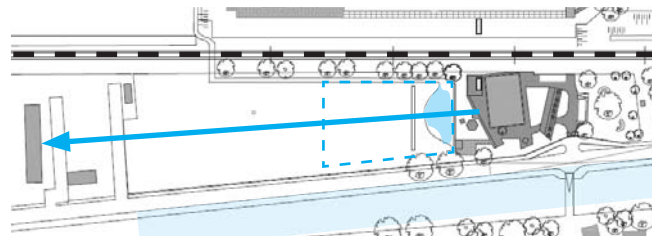
Create a secured route through the complex showing the company and creating exhibition space.

Use the existing tunnel as entrance.





situation around 1900

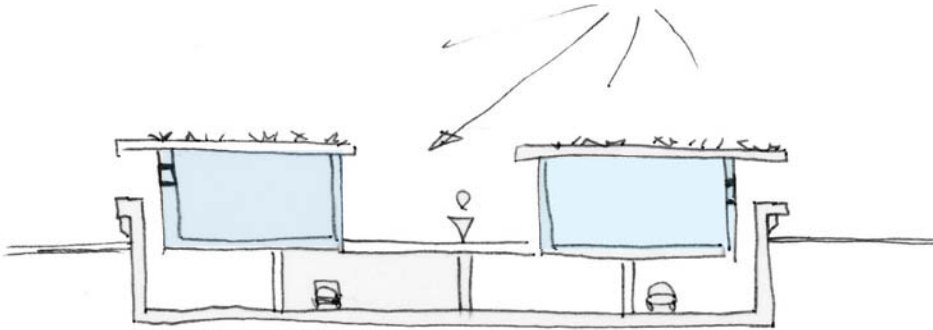


current situation

The relationship with water is lost.

Reopen the waterfilter n.1, develop a spa, keep historical sightline.

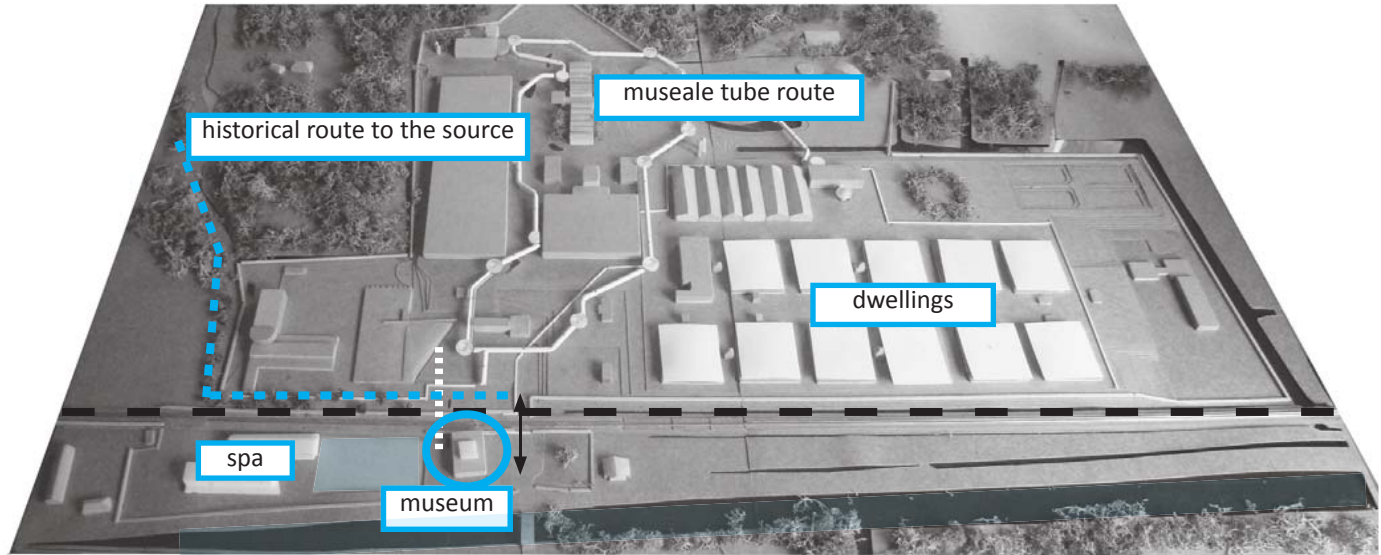




Develop housing in the waterfilters to make the plan feasible.

They will become available when the complex intensifies due to new technologies.





the Masterplan

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urbanism
architecture
building technology

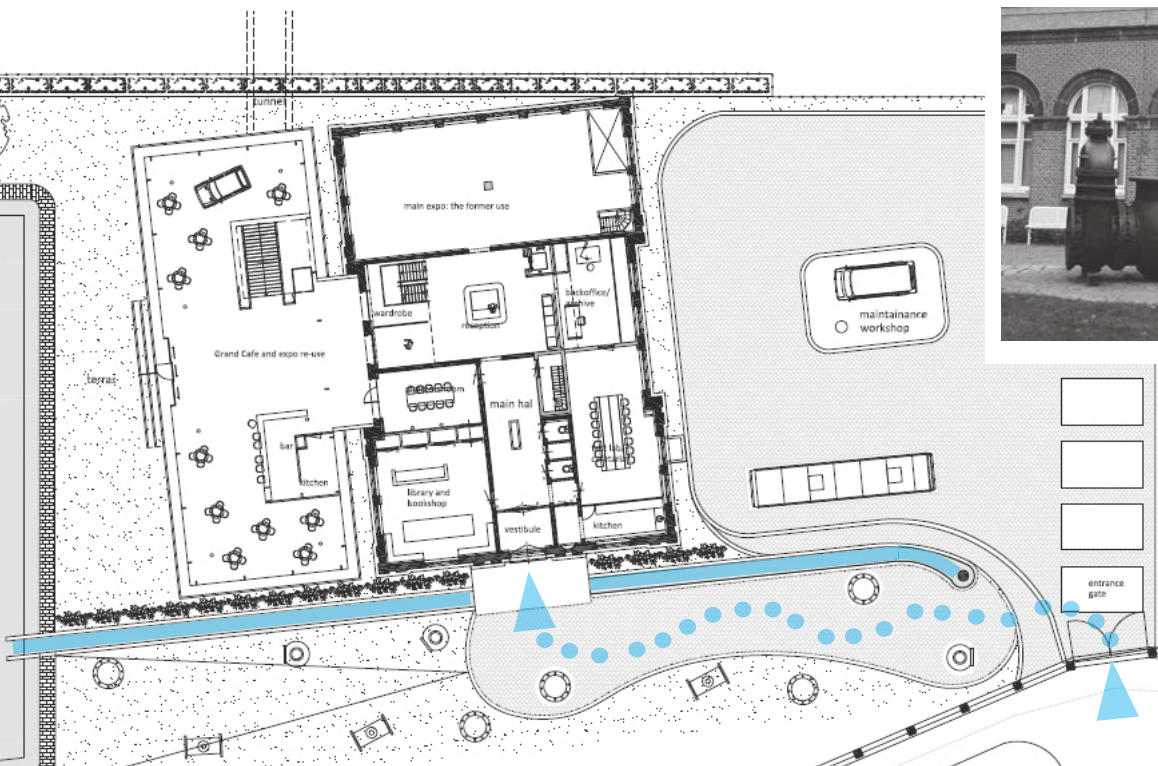
Research

feasibility

Reflection



The entrance to the waterroute leaving Heemstede.



Accompany the main entrance with water. Use the existing pump and pipes.



Exterior value: Preserve the monumental facade.

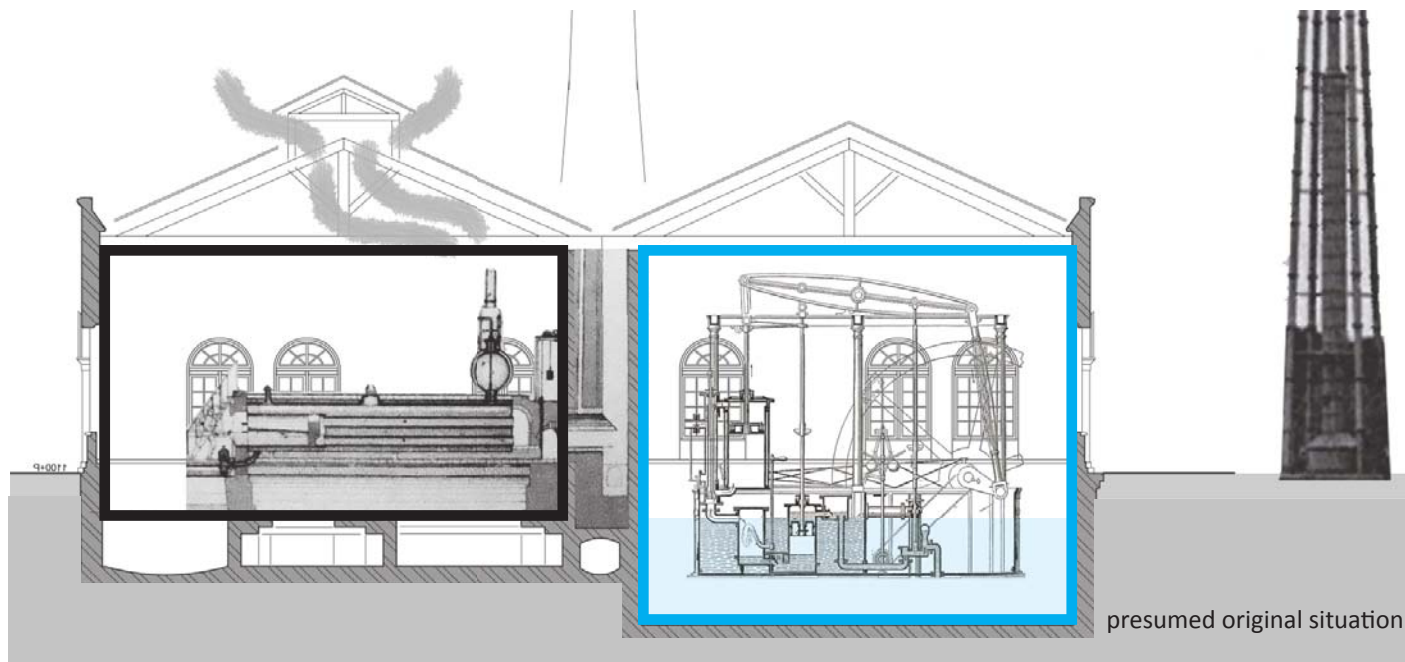
The facade suits its museal function. It is a grand shell with a 360 degree orientation.



MAIN VALUE: MONUMENTALITY OF THE BUILDING

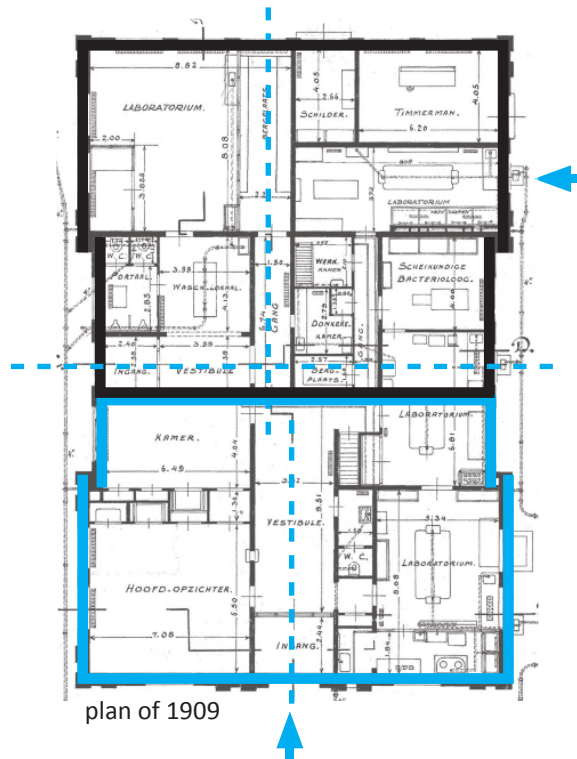
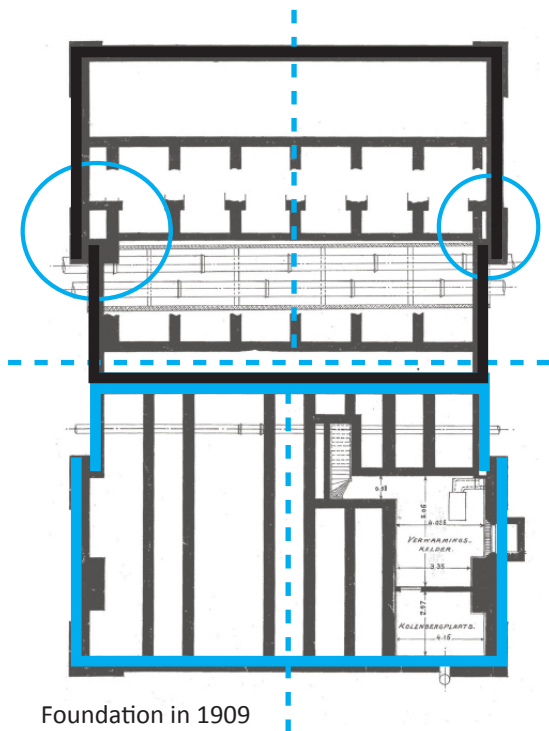
- vertical orientation
- temple like mass
- big proportions
- apparent symmetry





Interior value: the open structure.





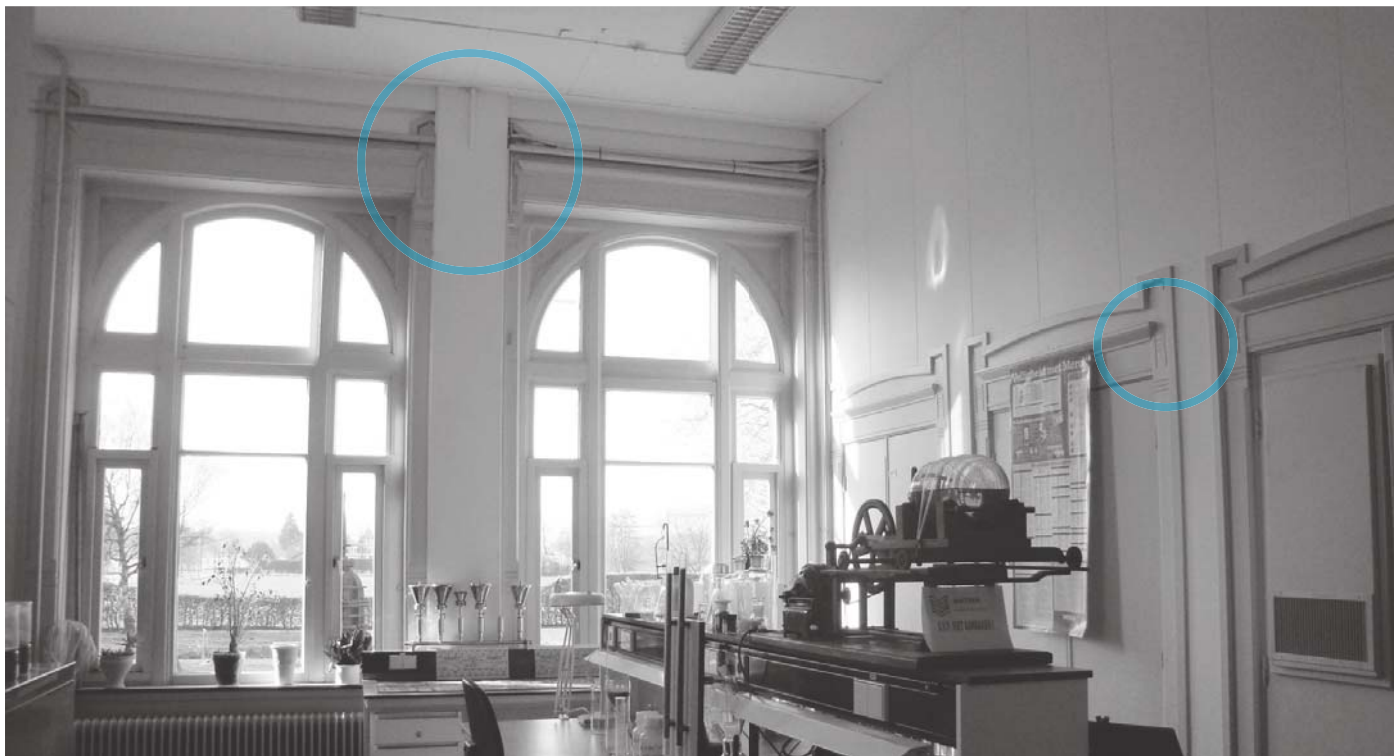
Interior value: the imperfect symmetry.





Interior value: the monumental hall.



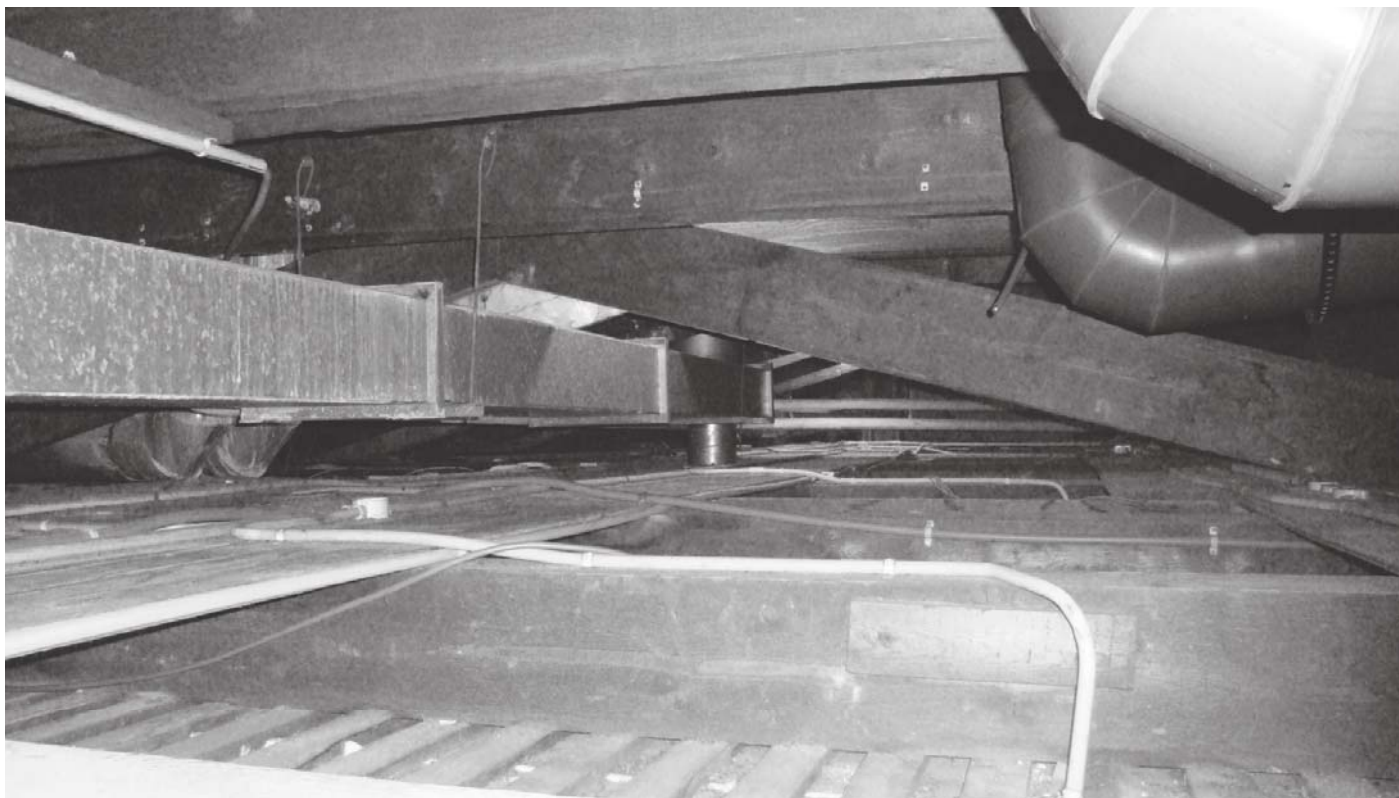


Interior values: the monumental features.





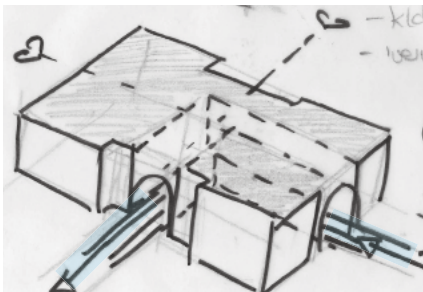
Interior negatives: the monumental windowframes are hidden.



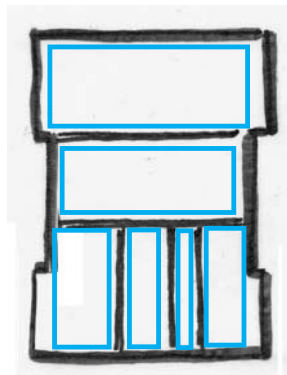
Interior negative: the rare constructive ceiling is cluttered.

Sealed windows.

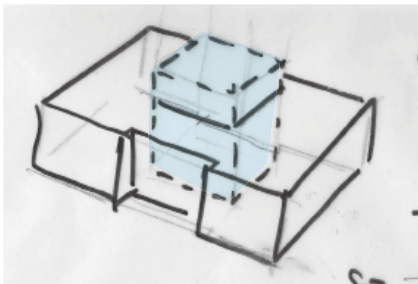




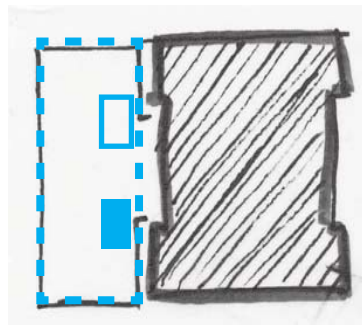
1. Connect to the water with orientation



2. Strengthen monumentality by opening up the structure



3. Connect to the terrain with roof terras

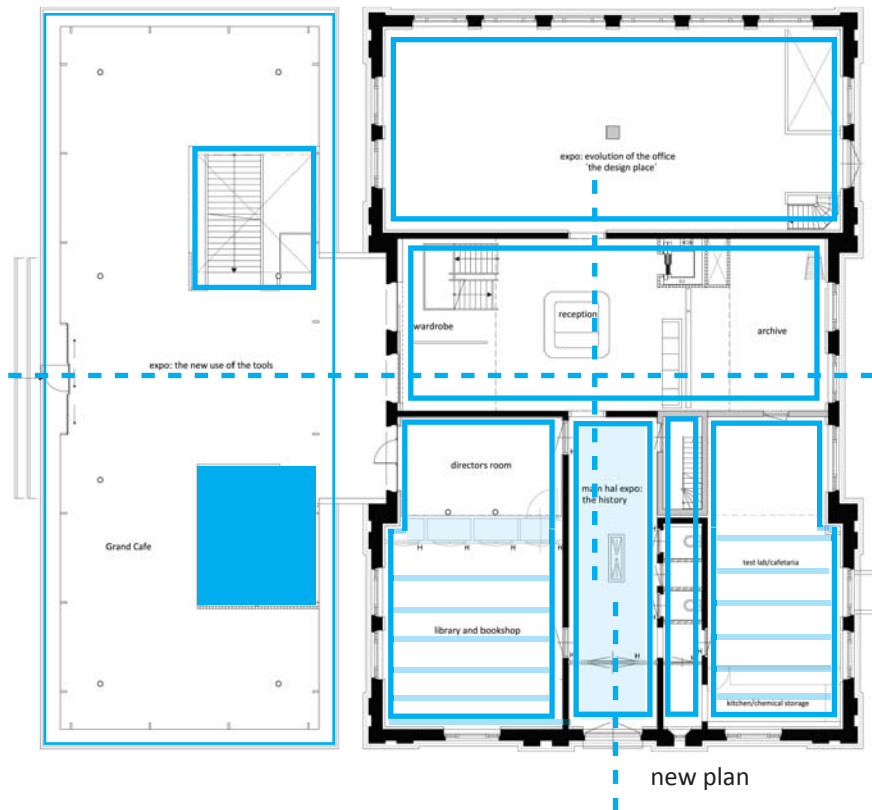


4. Connect to the water and terrain with expansion

Four main interventions

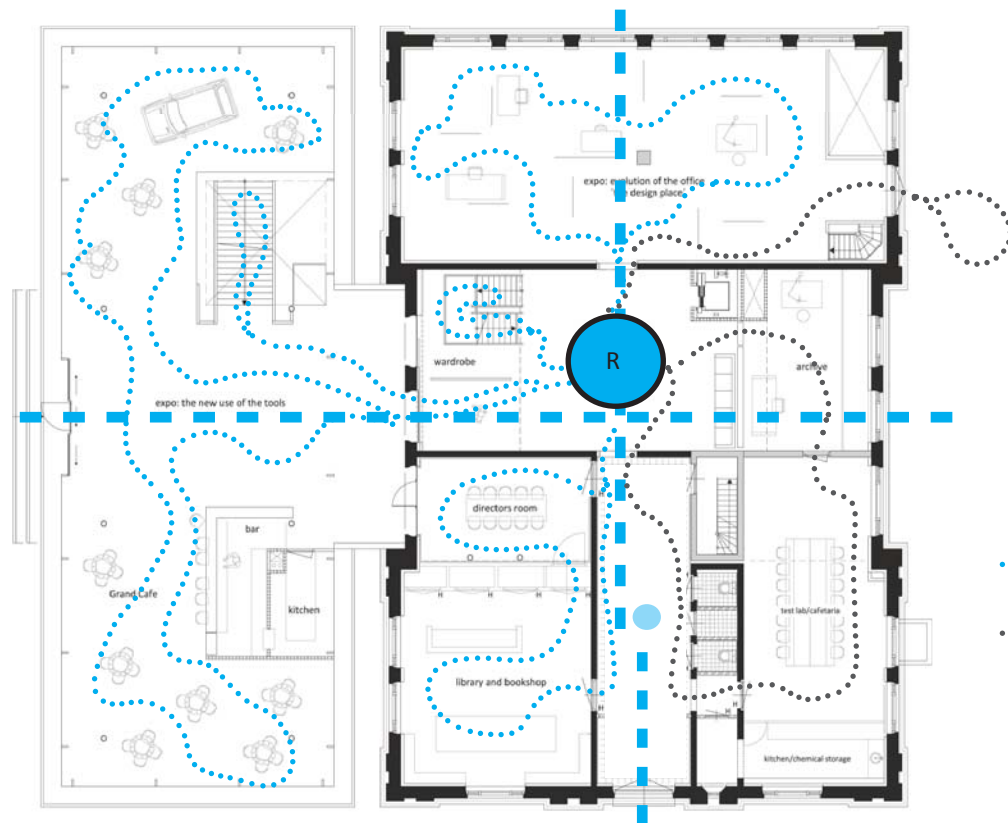


existing plan

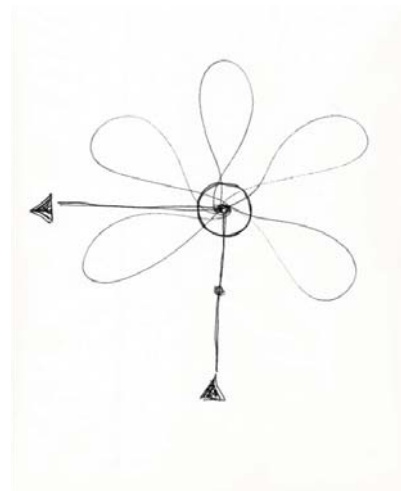


new plan

Reopen the building keeping the monumental character and the historical open structure.



A central reception on the entrance axe and the water axe.



- public route
- guided route

This is the starting point for the expositions.





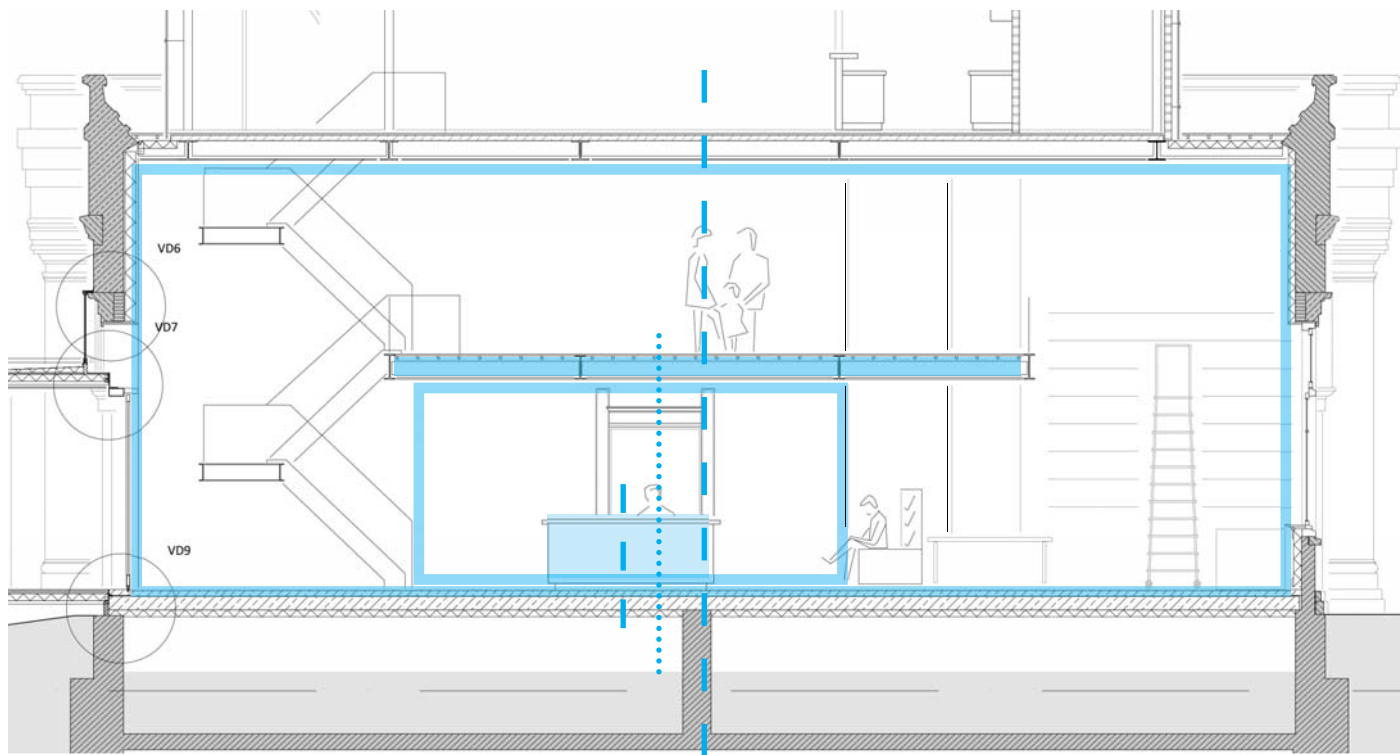
the current entrance hal

visible reception - keep historical structure - guide with water element - preview expo history





visible reception - keep historical structure - guide with water element - preview expo history



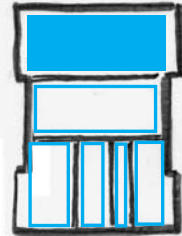
Reception hall: open up the structure, continue the typical symmetry/asymmetry.



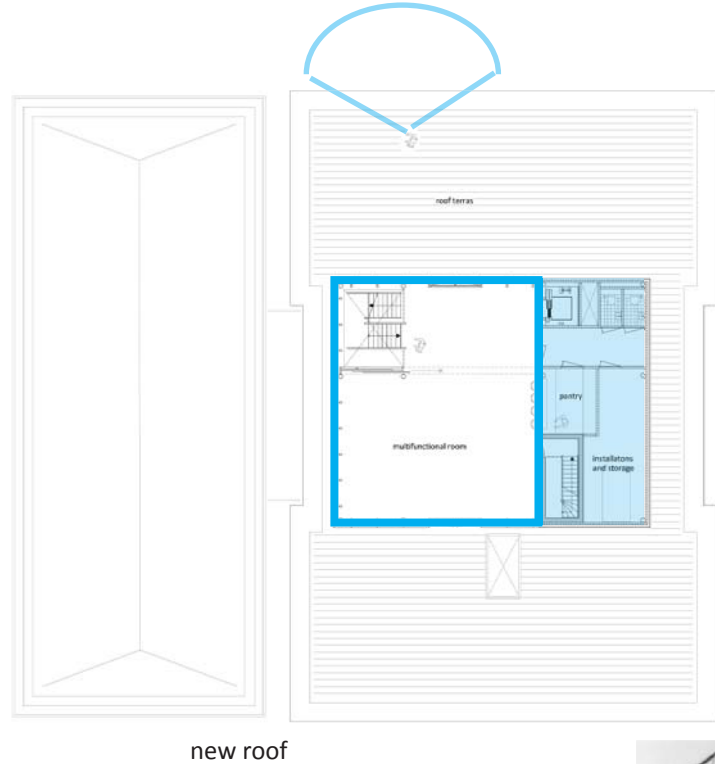
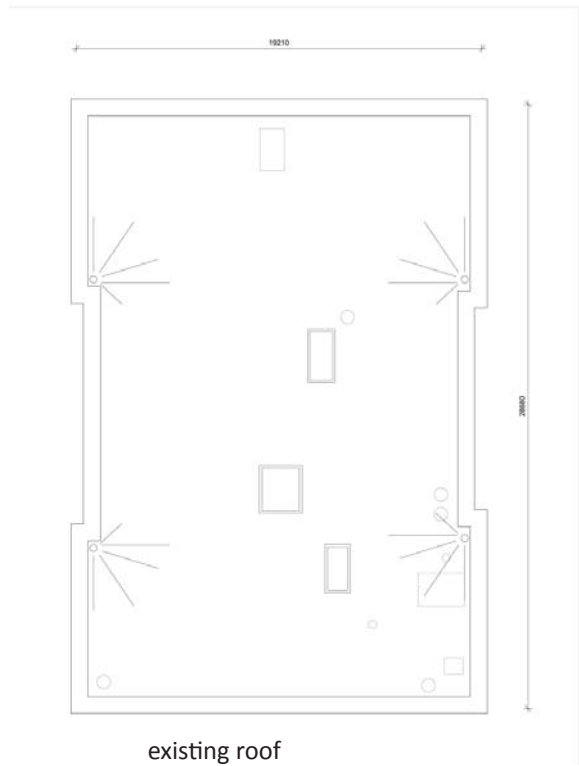


Reception hall: open up the structure, continue the typical symmetry/asymmetry.



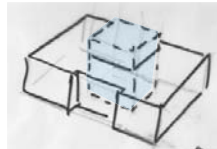


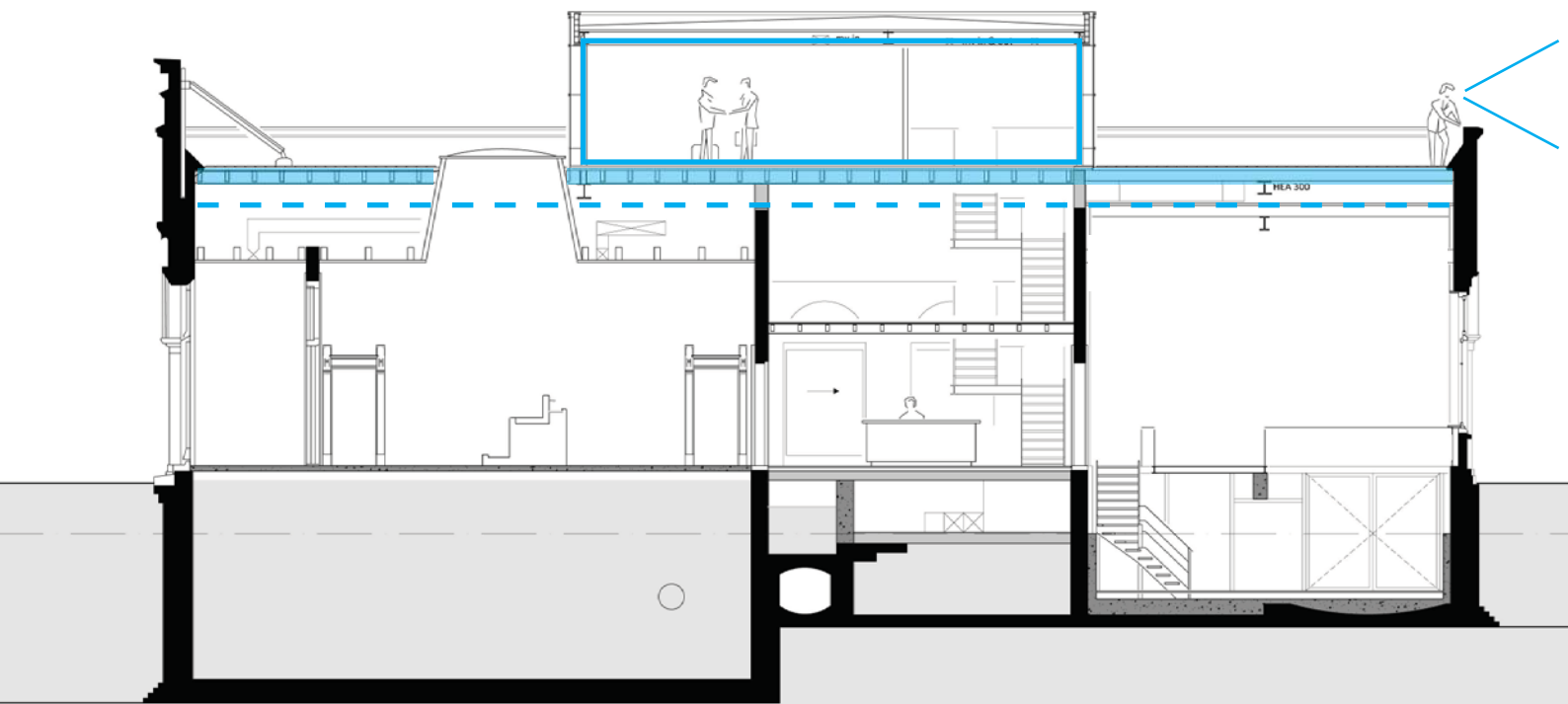
Expo 'The evolution of the design place': open up the structure



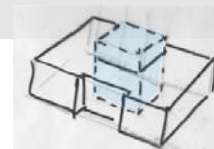
A new roof terras to view the terrain.

A multifunctional room where the current directors can meet



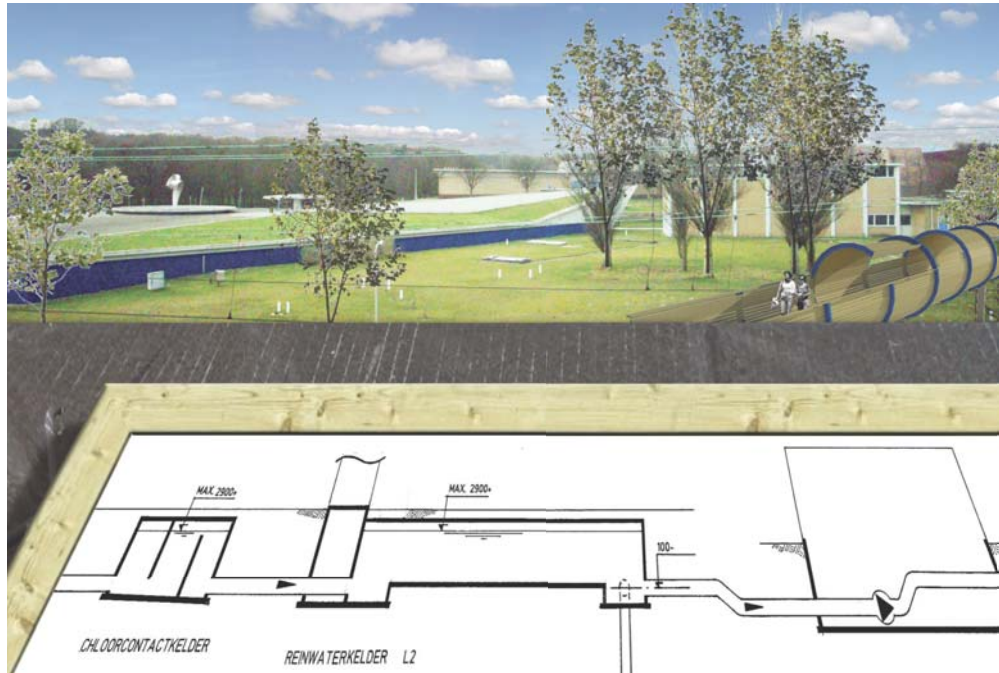


create a new roof terras to view the terrain.



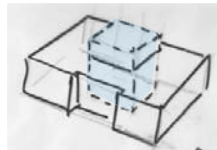


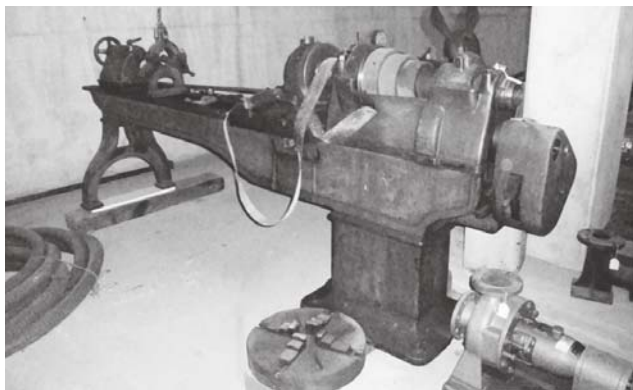
current roof



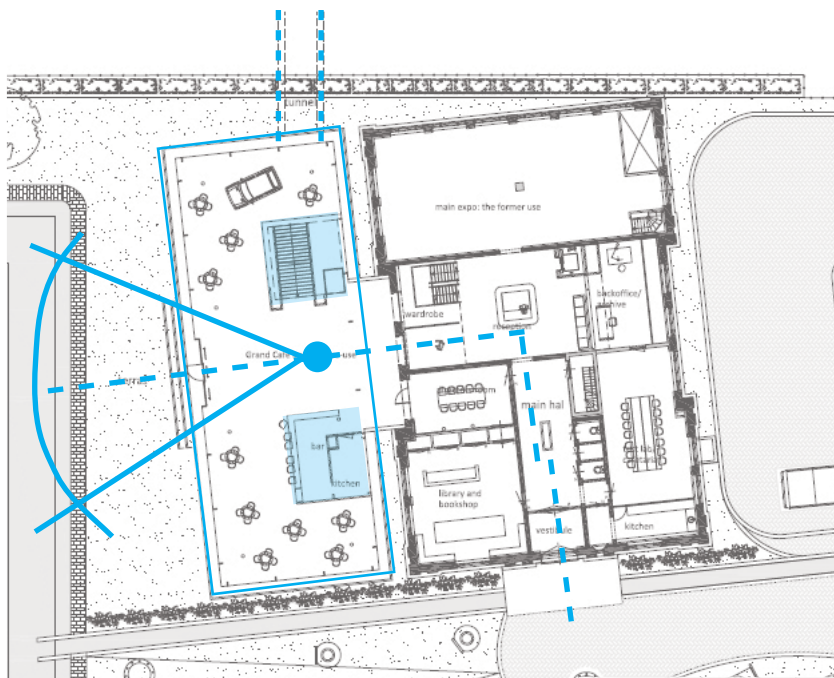
Expo: the current company.

show the tube route.

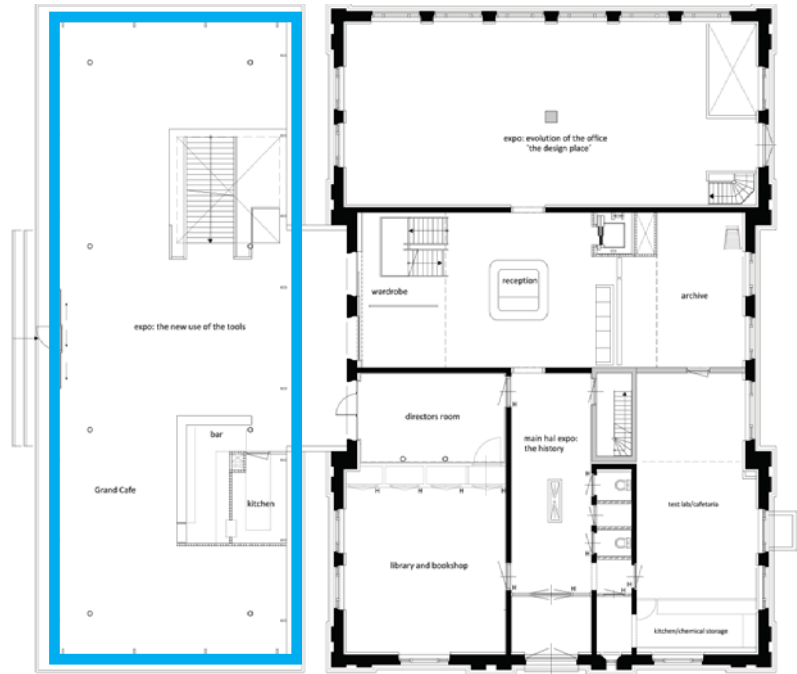




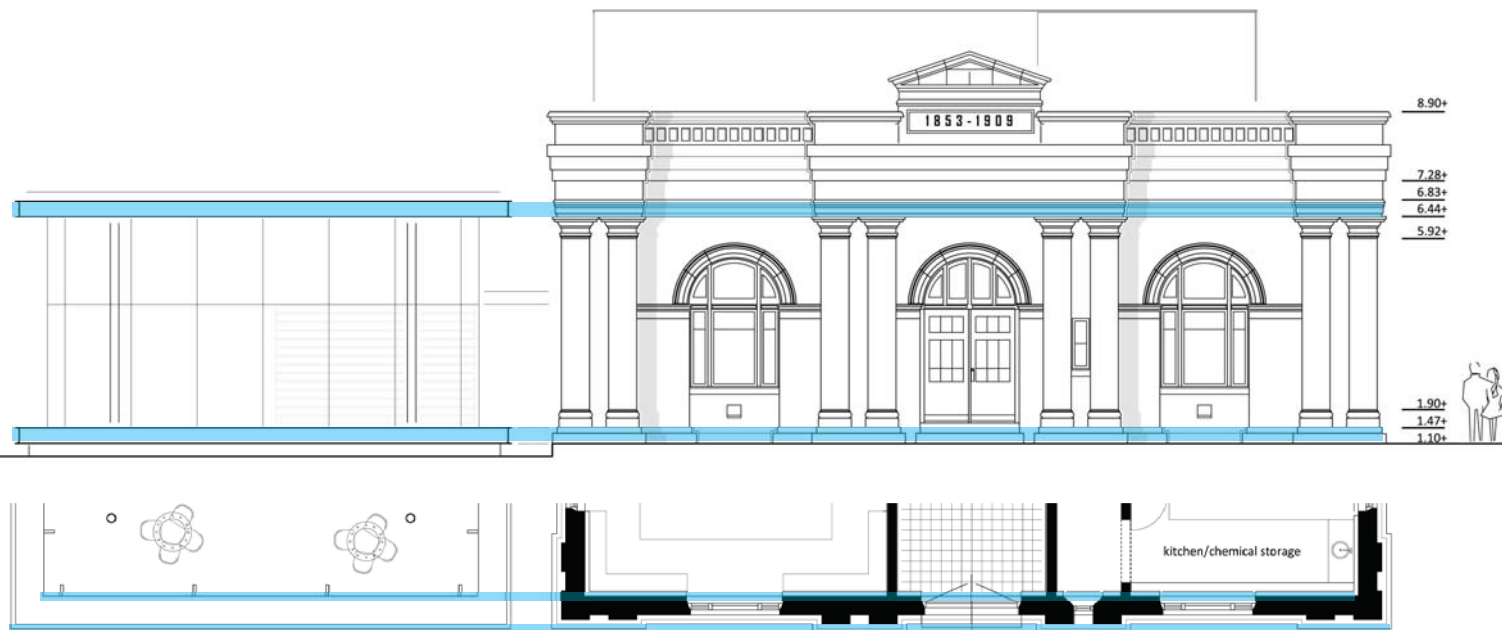
expose used machinery



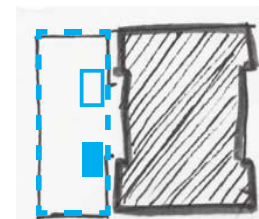
Strengthen the connection to the water and to the terrain.

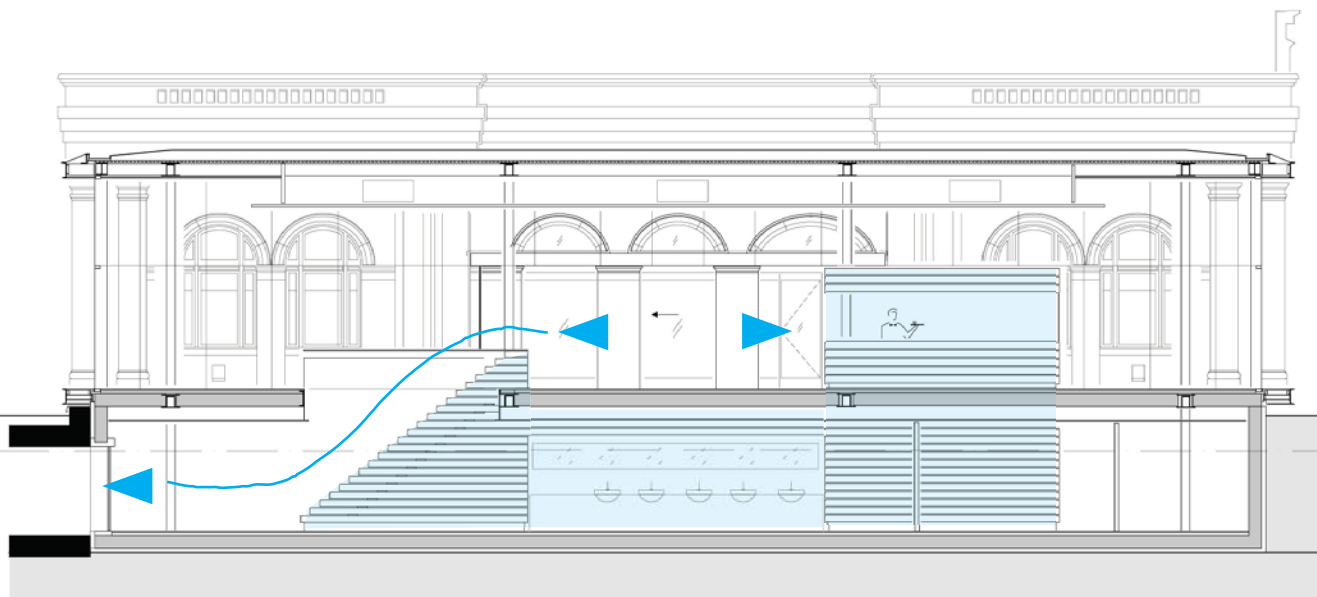


The new building should strengthen the relationship with water. Therefore a steel and plankbridge detail is chosen.



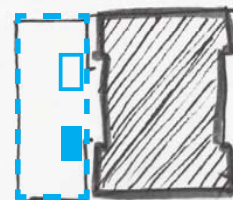
Use the horizontal lines of the existing facade.





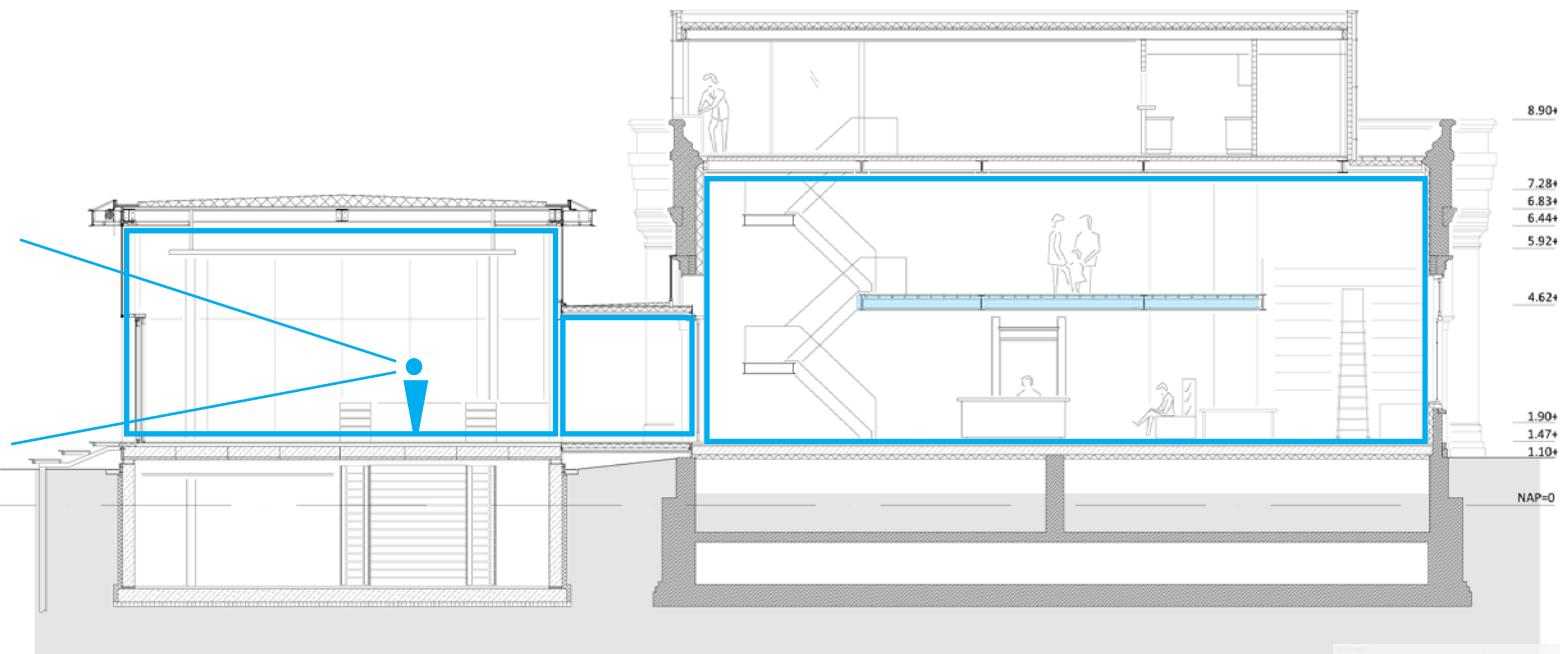
Connect to the terrain wit element one.

Connect to the tap with element two.

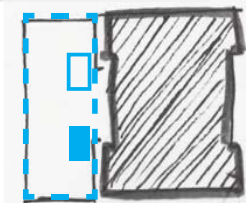




Two elements strengthening the wide view

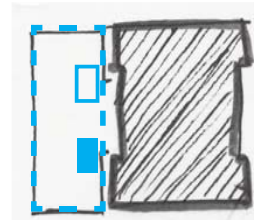


Make the connection lower and use two elements to strengthen the wide experience





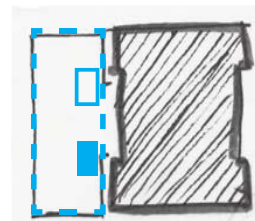
The lower part between the buildings.



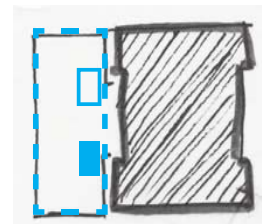


The view on the wateraxe.

Use the larger elements as interior furniture.

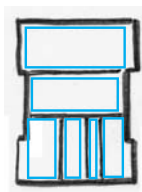
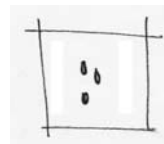


MOVIE

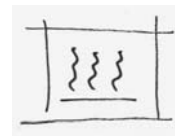
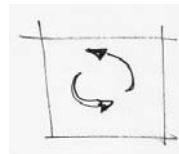




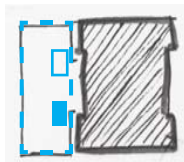
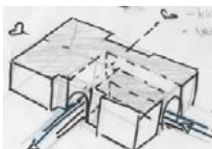
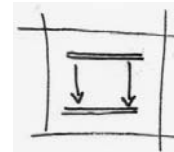
main problem bad state: water damage



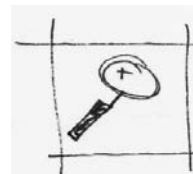
physics: revive the building with water system

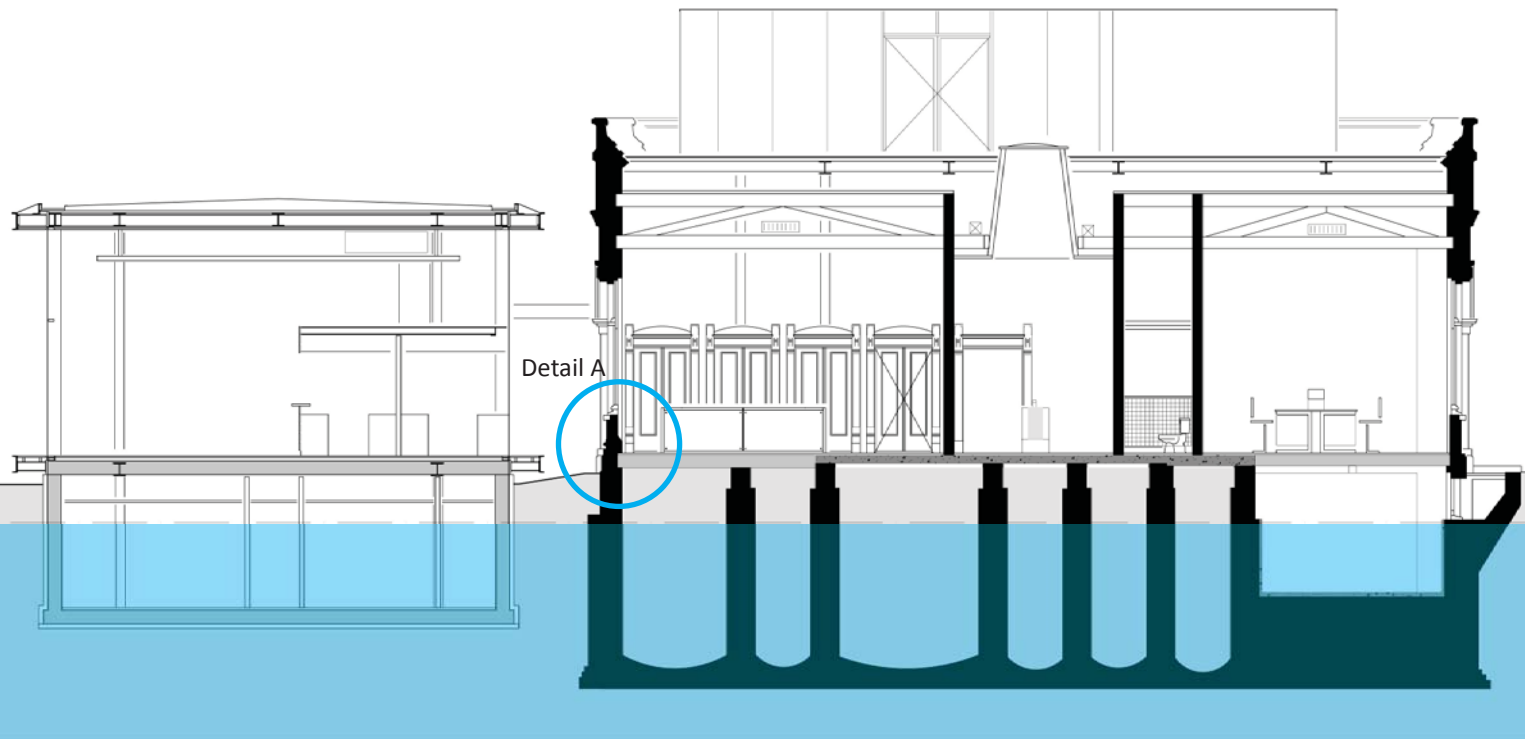


constr: preserve old structure

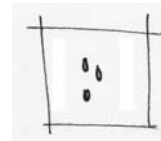


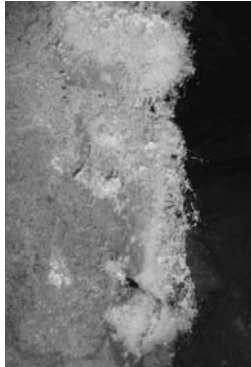
details: preserve monumental facade
connection to water





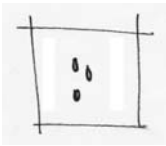
Problem: with his feet under water.

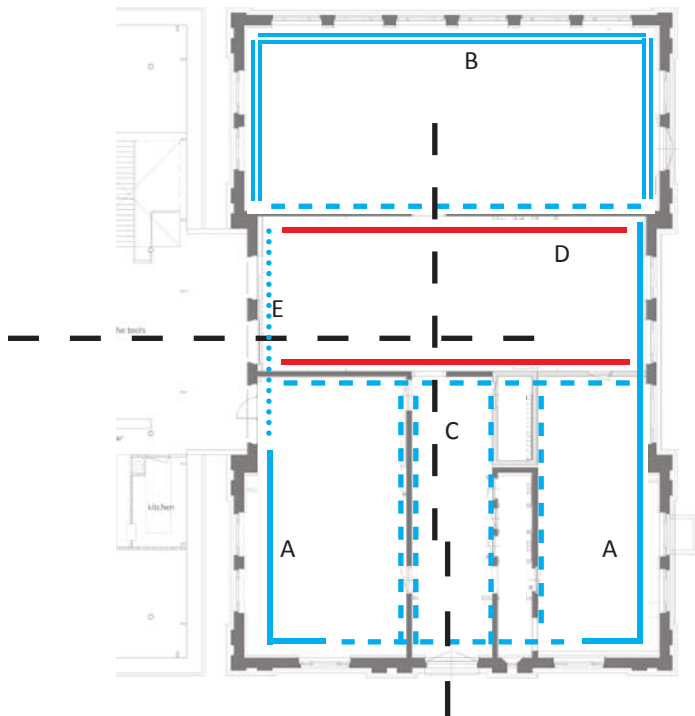




Interior moist problems: raising damp and fungus.

Exterior moist problems: solved by cement based plaster





A: isolate exterior walls, double glazing,
restore sash windows

B: isolate exterior walls, internal posting windows
(acoustic and anti-burglary)

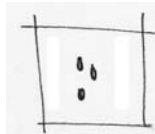
C: non isolated damp open plastered walls,
mechanical ventilation

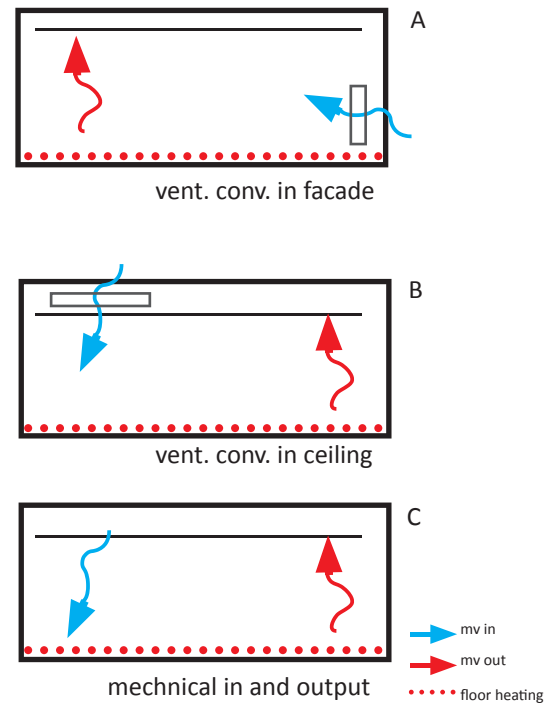
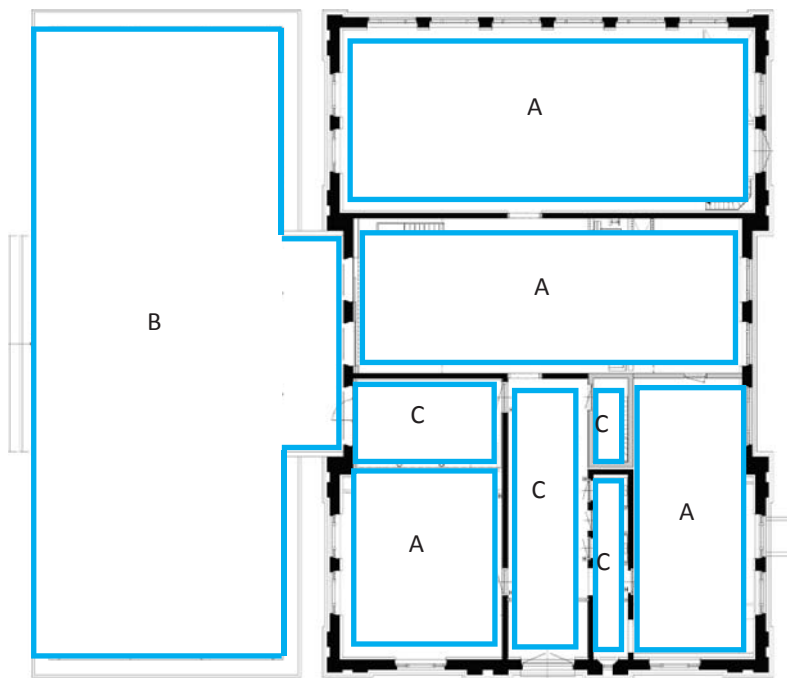
D: non isolated bare wall,
strengthening the water axe.

E: connection old vs. new

All cement based plaster will be removed to dry the walls to the outside.

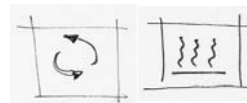
To preserve monumentality not all the walls will be isolated. To connect to the water two internal walls will be bare.

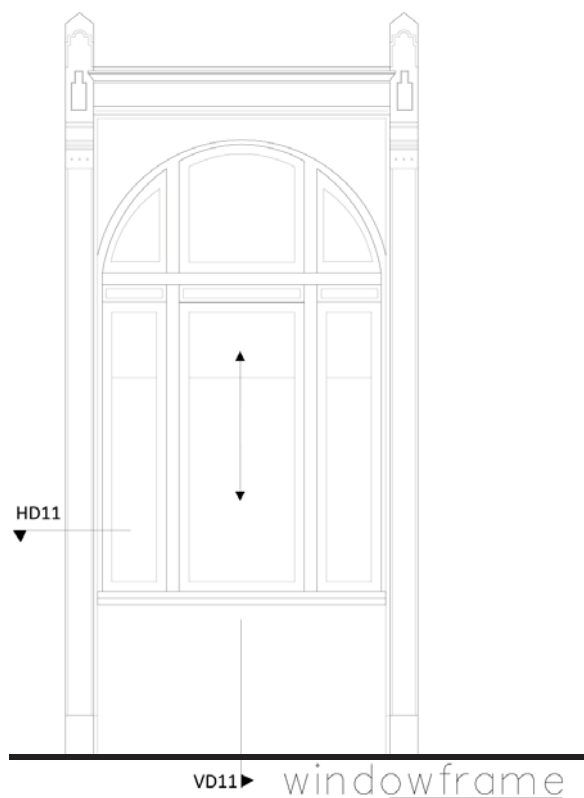




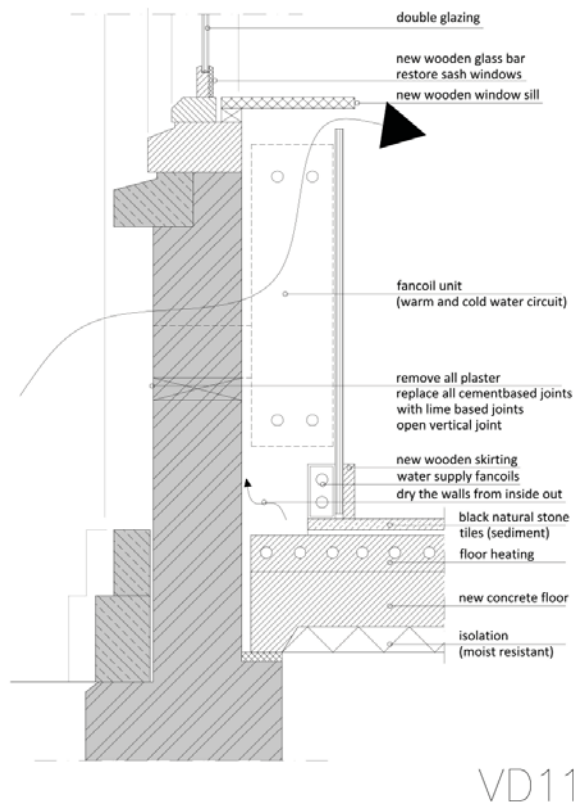
Revive the building: use water to ventilate and heat.

Ventilation: natural and mechanical input (ventilator convector units) and mechanical output.
Heating: floor heating and preheated air (through convection).



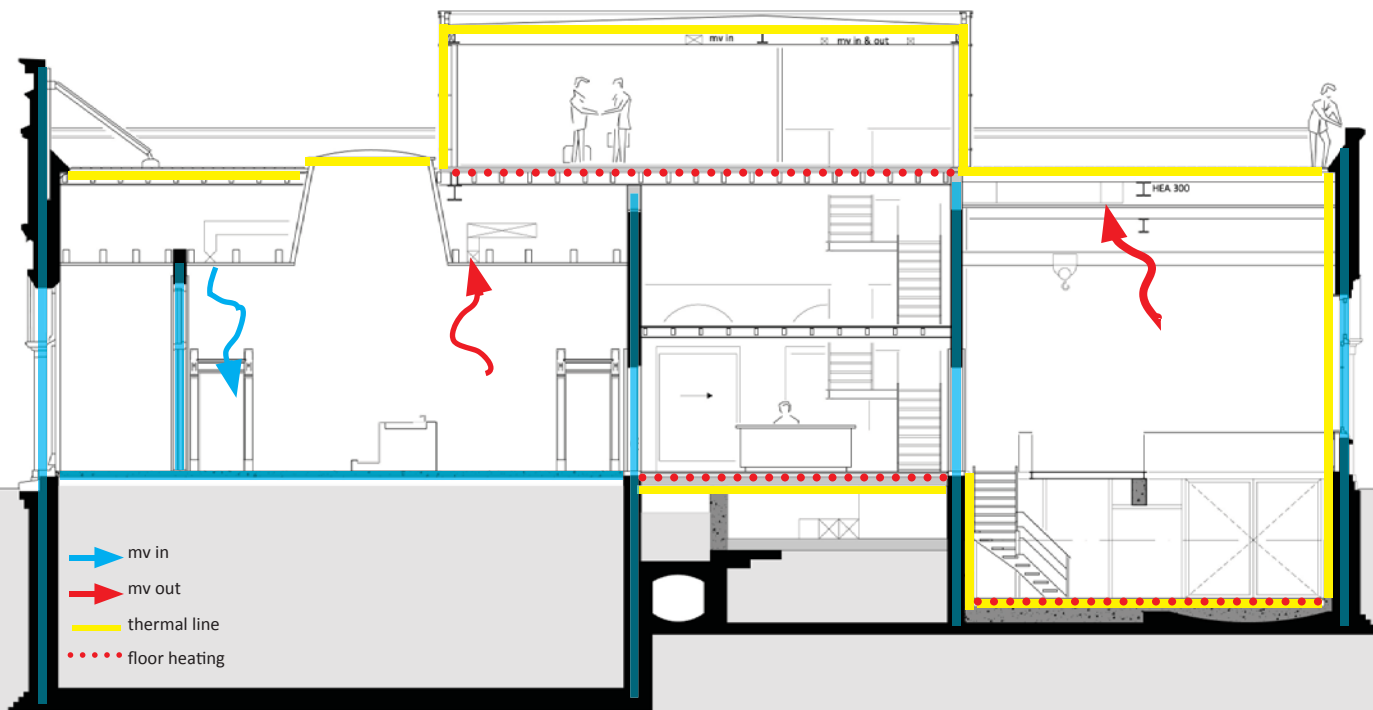


Use floor heating to dry from inside out. Keep walls ventilated.

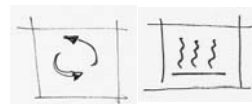


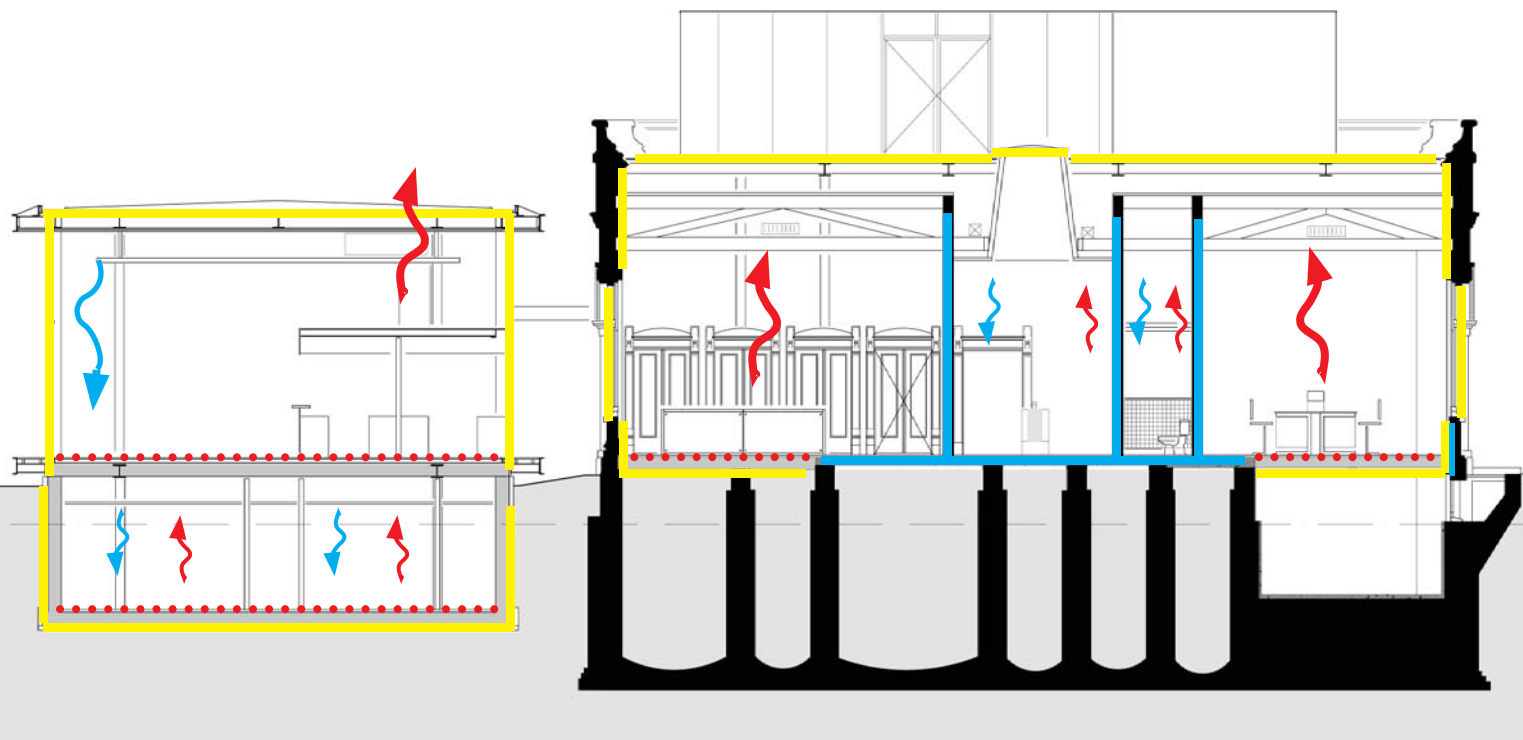
situation A

Replace all vapour barriers (joint and plaster) with damp open ones.







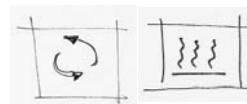
Keep the monumental features and structures.

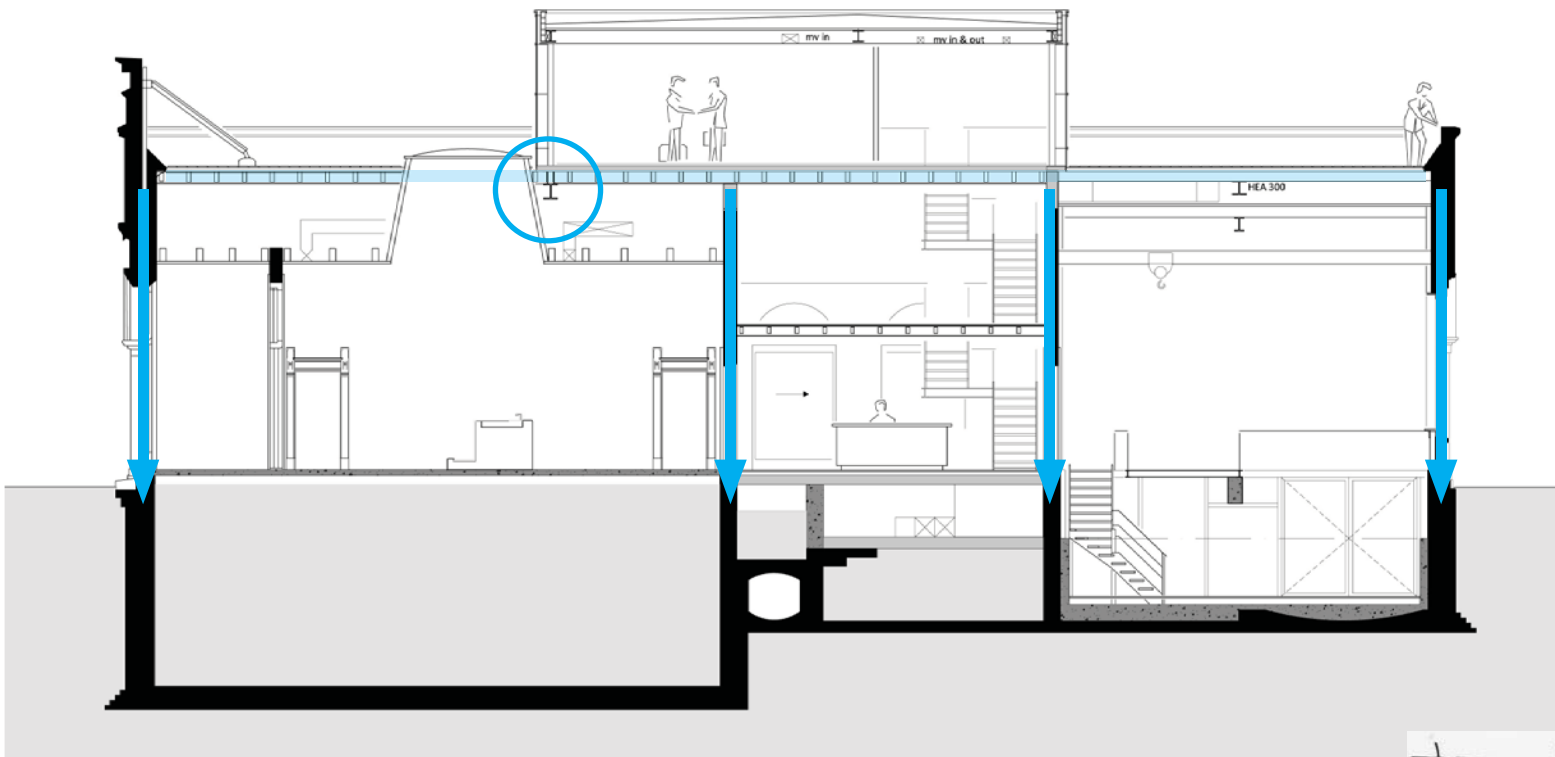




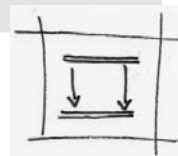
In the new building use ventilator convector in the ceiling.

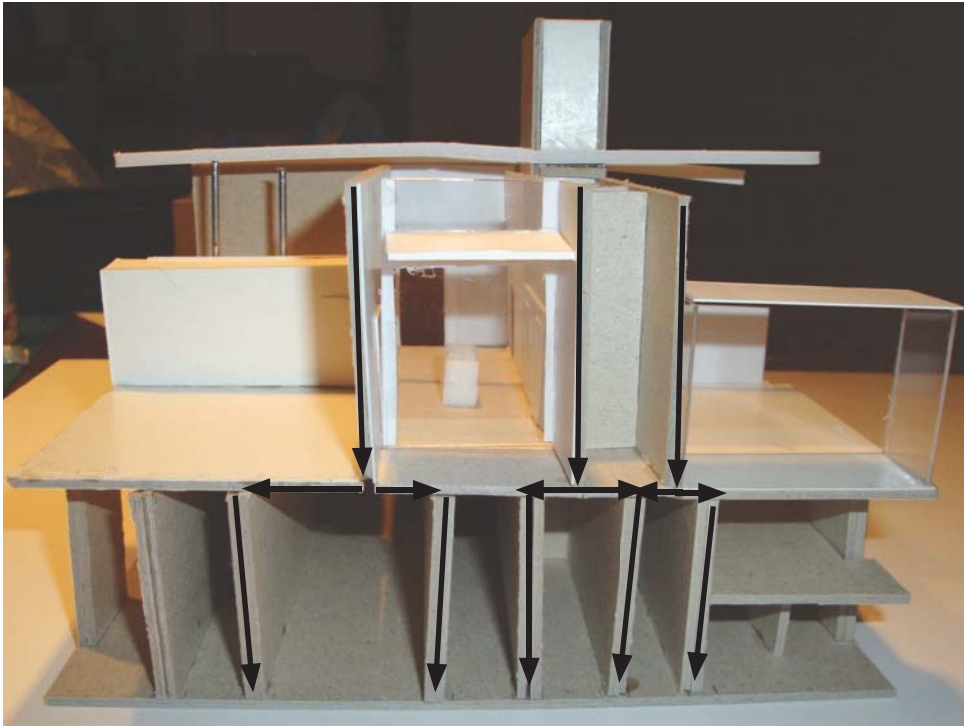
-  mv in
-  mv out
-  thermal line
-  floor heating



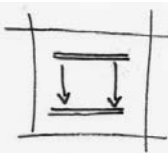


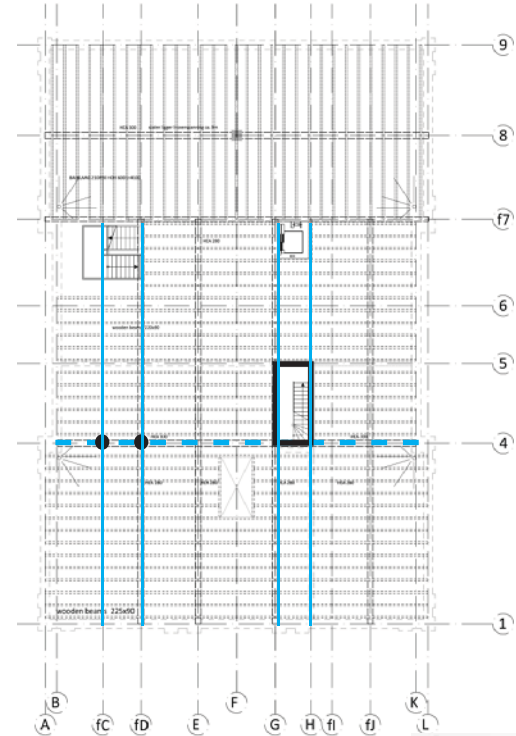
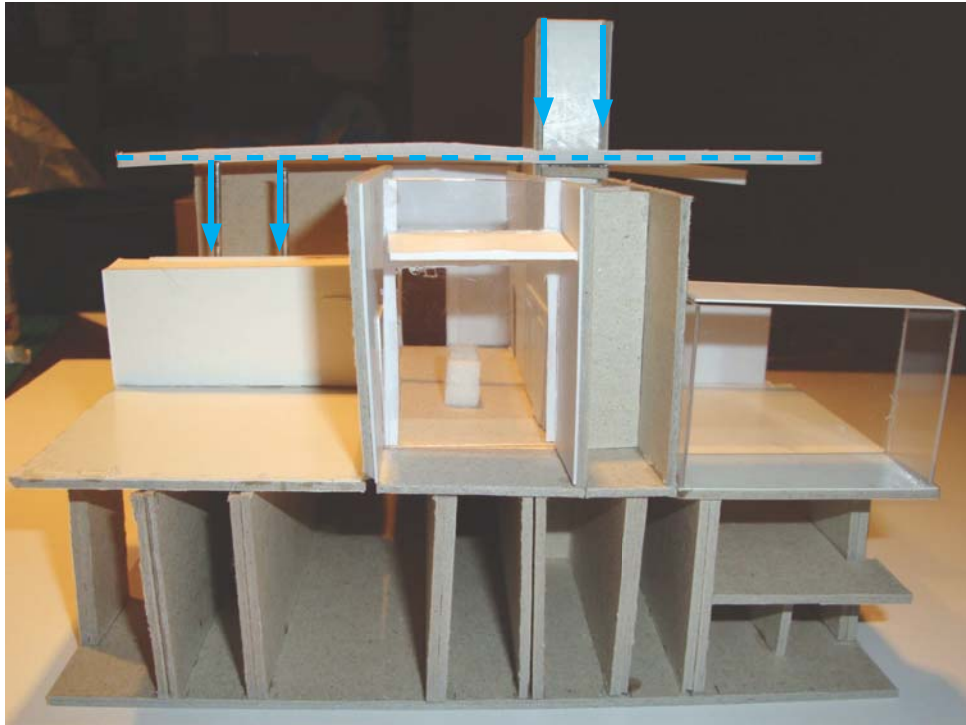
A new roof to connect view the terrain.



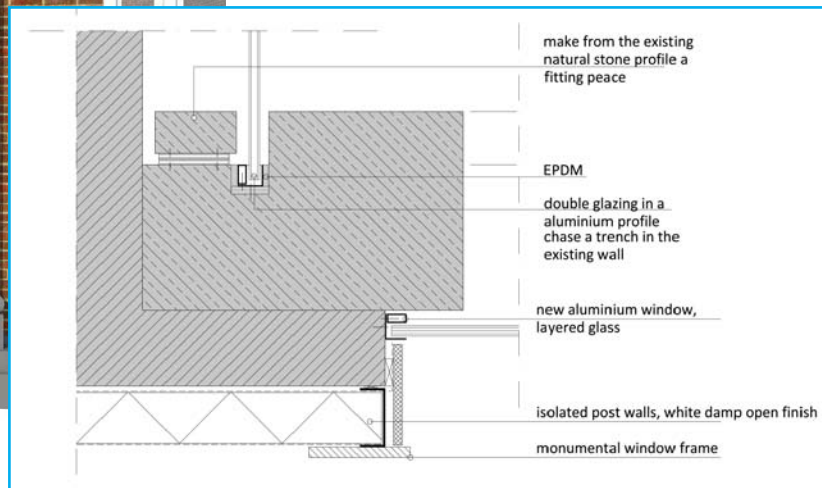
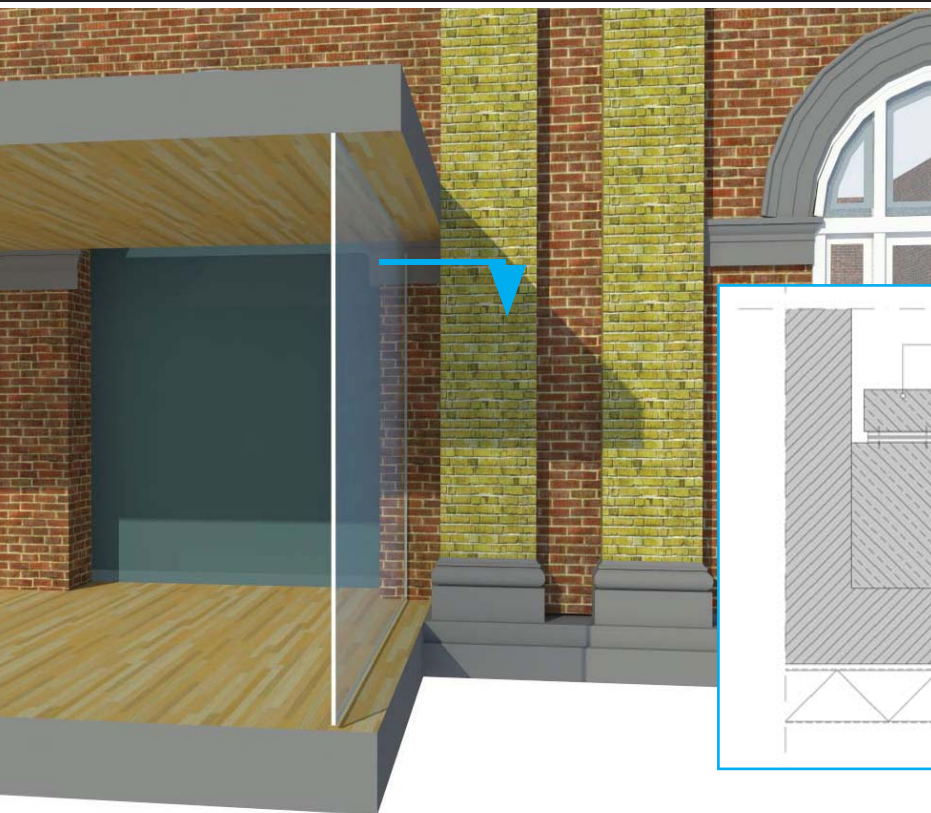


The monumental structure is not strong enough to support a new roof.

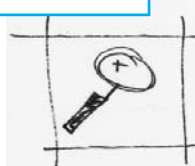


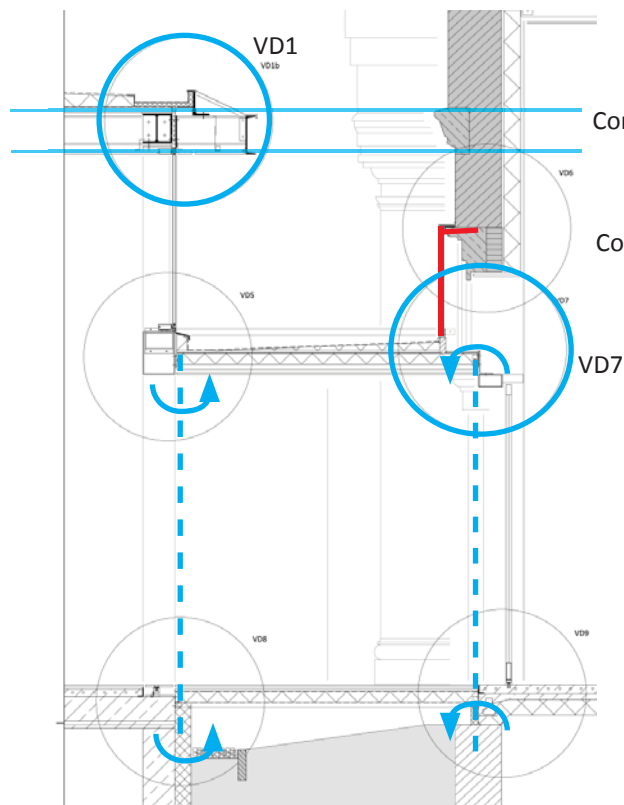


The new construction use the old structure, showing the former location of one of the pumps.



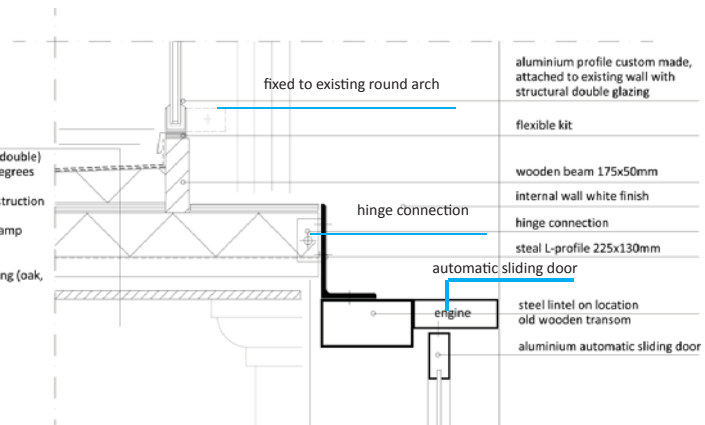
Horizontal detail connexion old and new.



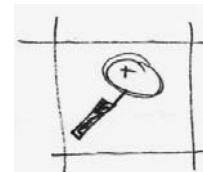


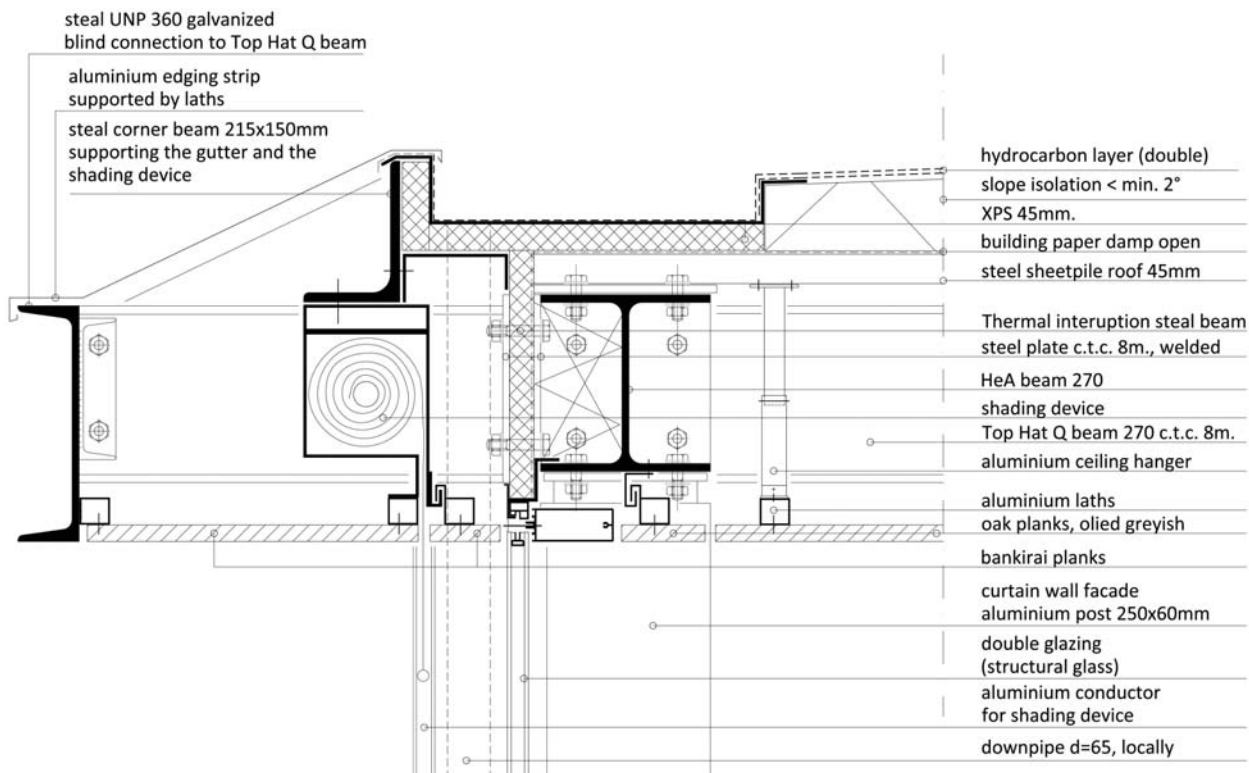
Continue the horizontal lines

Connect top window to the old

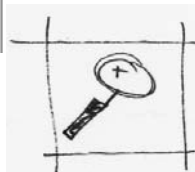


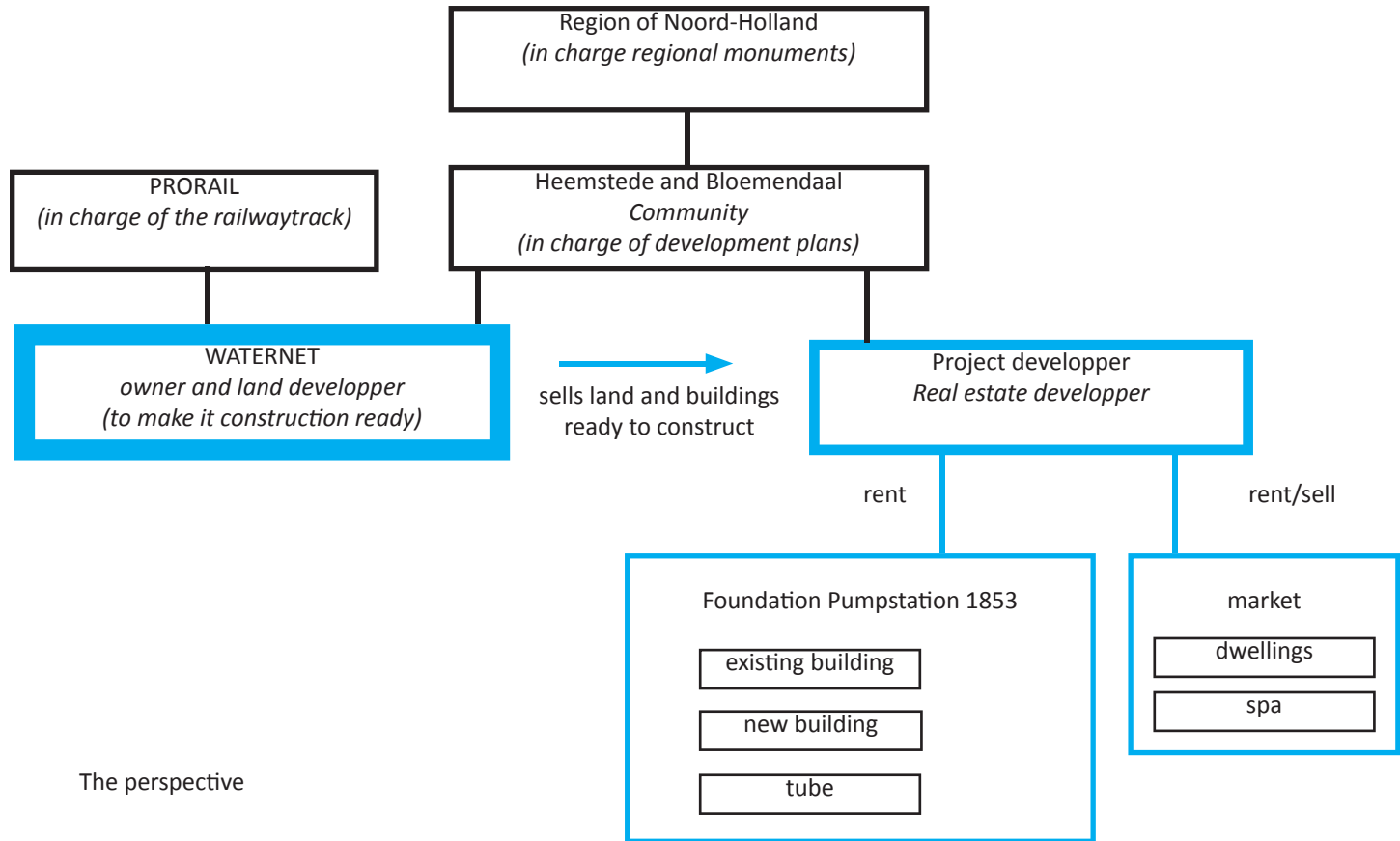
Use transition area between old and new.

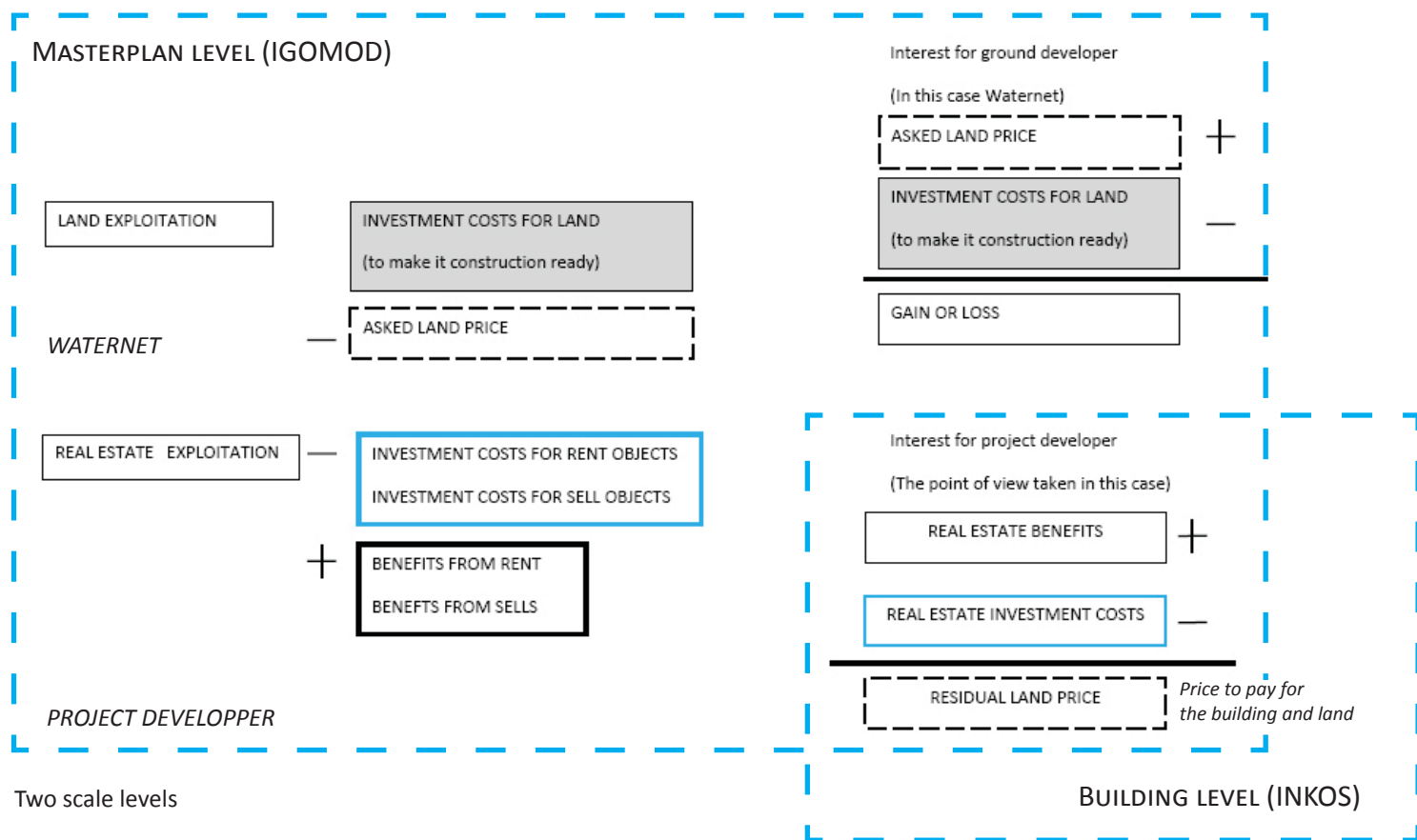




The roof, taken the horizontal lines of the existing facade.







Strategy A “small scale”:

1050m² GFA

- only a building level.
- small part of the building museum (200m²), mostly catering industry (850m²)
- such a bad condition, total strip and rebuild internally.

Strategy B “medium scale”:

1850m² GFA

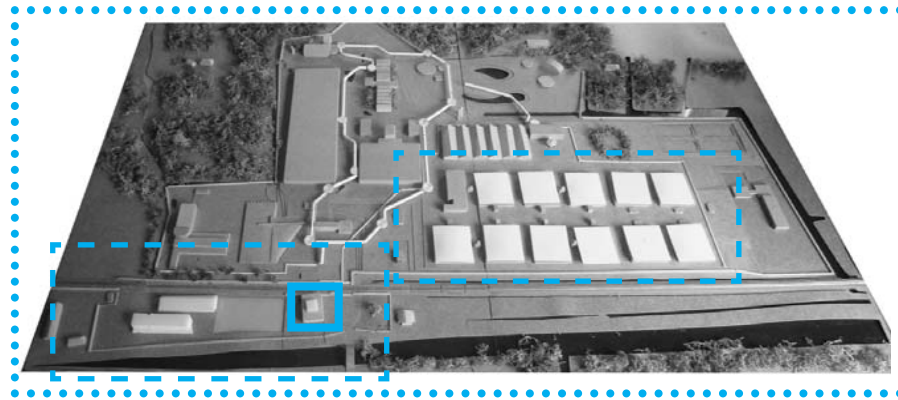
- develop the master plan without the tube route.
- part of the building will be museum (1150m²) and a part catering industry (700m²)
- expected amount of visitors a year: 20.000.

Strategy C “large scale”:

4850m² GFA

- develop the whole master plan
- the whole building will be museum (1850m²) and the tube route (3000m²)
- expected amount of visitors a year: 40.000.

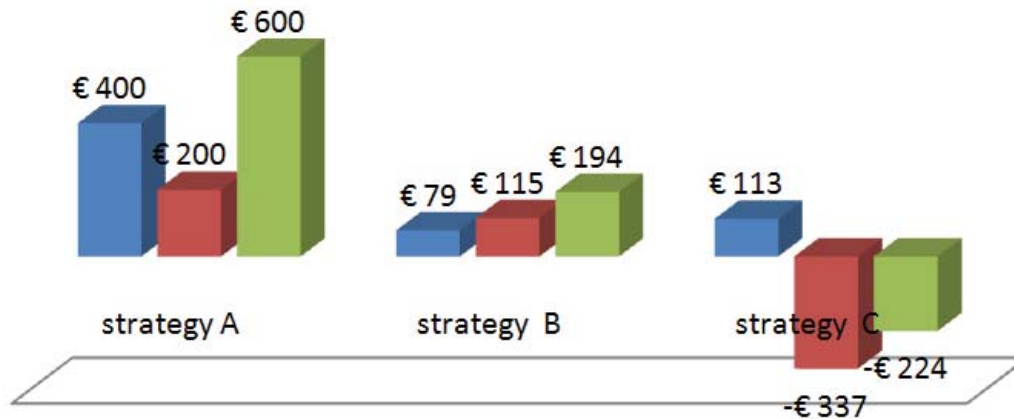
Three strategies



interest project developer

prices are x €1.000

- residual value existing building
- residual value new building
- price to buy land and building



BUILDING LEVEL



interest for land developer: Waternet

prices are x €1.000.000

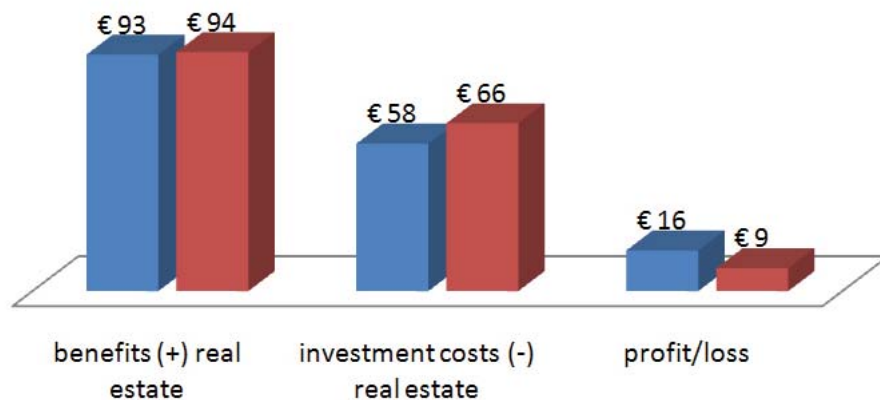
■ strategy B+C



interest for project developer

pices are x €1.000.000

■ strategy B ■ strategy C



MASTERPLAN LEVEL



Risks

Strategy A:

- Community: not accept the change in program.
- Waternet: not except small museum.

Strategy B+C:

- Waterfilters: not redevelopped.
- Community: not change the program to dwellings.
- Prorail: not reopen the track.
- Tube route: foundation problem with active pipelines.
- Region: no expansion, monumental status

Quality versus Costs

Strategy A:

- Small risks.
- Building is stripped: great loss of history and monumentality!
- Exhibition area too small: great loss of history!

Strategy B:

- Medium risks.
- The connection with the terrain remains lost.
- Exhibition area too small: great loss of history!

Strategy C:

- Large risks.
- History and monumentality is preseved.
- **PUMPSTATION IS FULLY RECONNECTED TO ITS SOURCE**





- RELATION WITH THE SOURCE RECONNECTED
- WATER IS USED AS REVIVING ELEMENT THROUGHOUT ALL SCALE LEVELS
- HISTORY AND MONUMENTALITY IS PRESERVED
- IT IS A FEASIBLE PROJECT