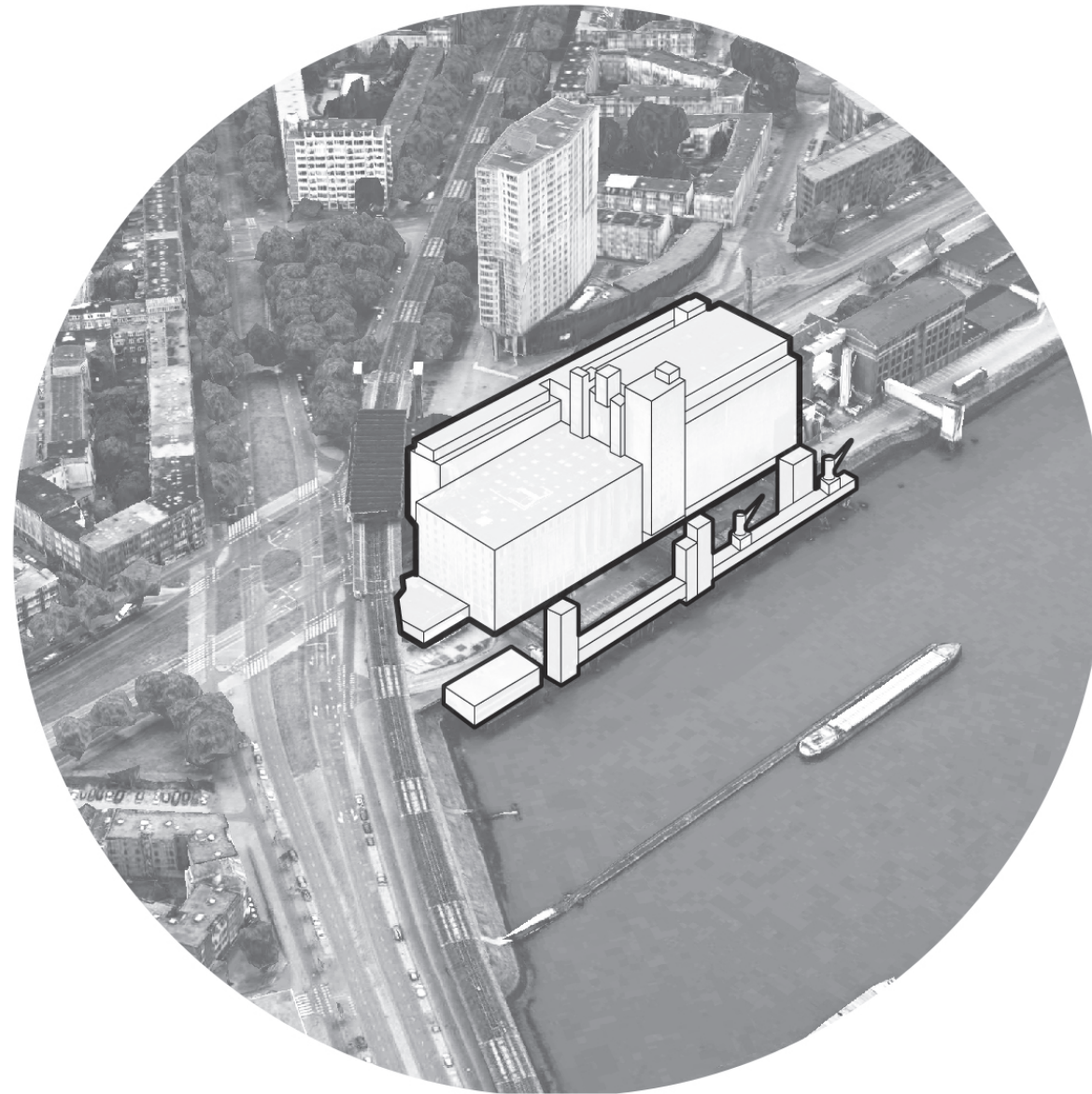




MAASSILO

P5 - PRESENTATION 28.06.2017
 AR3AR111 Heritage and Architecture Graduation Studio
 : Conservation-Modification-Intervention-Transformation

Sicha Chittavanich 4502922

CONTENT

Research Question

Research and Analysis

Framework of Transformation

Design Starting Point

Concept

Design

MAASSILO

P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

RESEARCH QUESTION

'What is the essential context that conduce to the character of the mass and volume of Maassilo ?'

Sub question

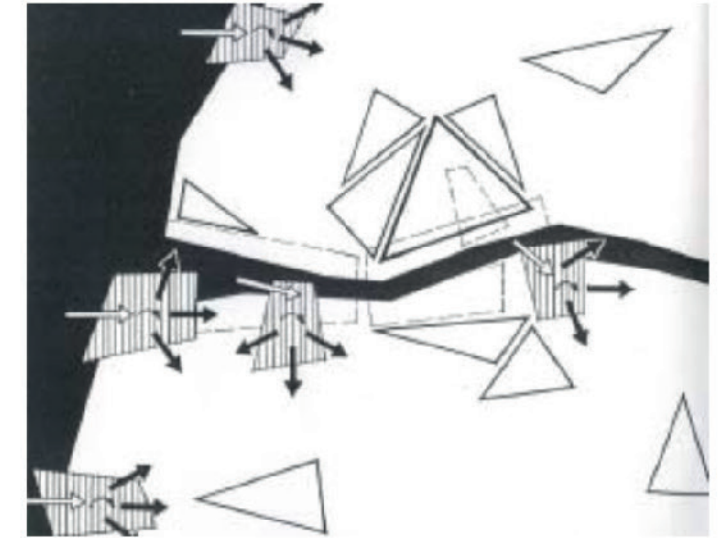
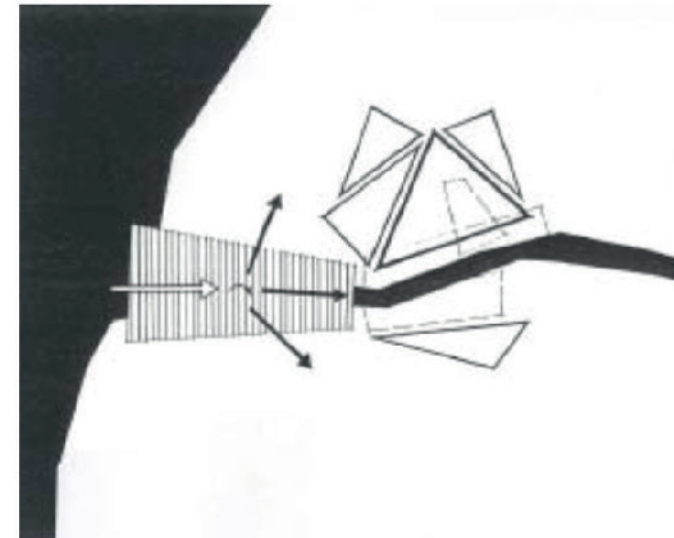
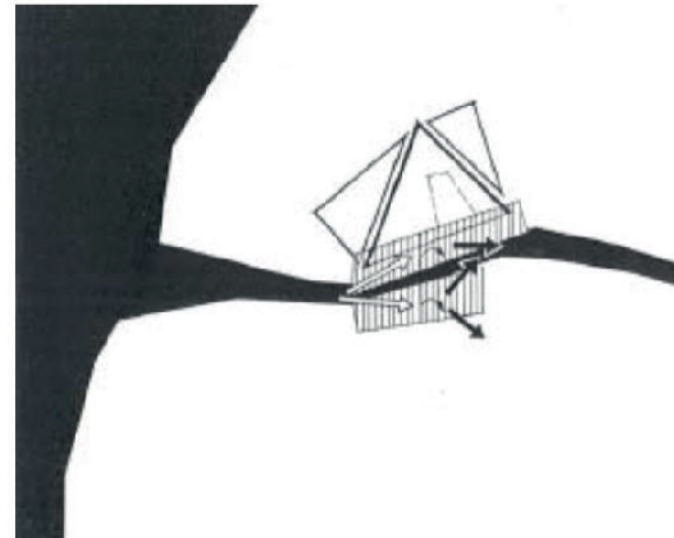
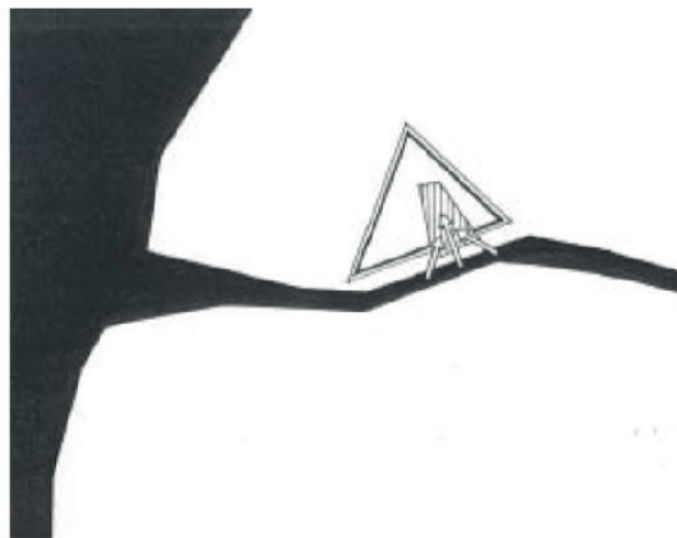
- What is the character of the mass and volume of Maassilo?
- .
- What are the effect of the changing and developing of the context of port area and the industrial to Maashven and Maassilo?
- .
- What is the present relationship of the building with community and the position of industrial with living district?
- .
- How the mass of Maassilo related to the volume and ephemeral substance?
- .
- What is the position of the building in present and future situation and how it develop through time?
- .
- Should the building have more connection to the surrounding or should it retain the enclose and introvert character?
- .
- How much inside-outside connection the building need without destroy the presence of the building?
- .
- .
- .



LOCATION

MAASSILO

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1340 Merchant Port

1850 Transit Port

1950 Industrial Port

2000 Distribution Port

- 1895-1905 Construction of Maas-haven
- 1910 1st part of Maassilo (J.P.Stok)
- 1919 Developed of the neighborhood
- 1930 2nd part of Maassilo Brinkman & vd Vugt
- 1951 3rd part of Maassilo A.G. Postma
- 1963 Office Building H. Haan

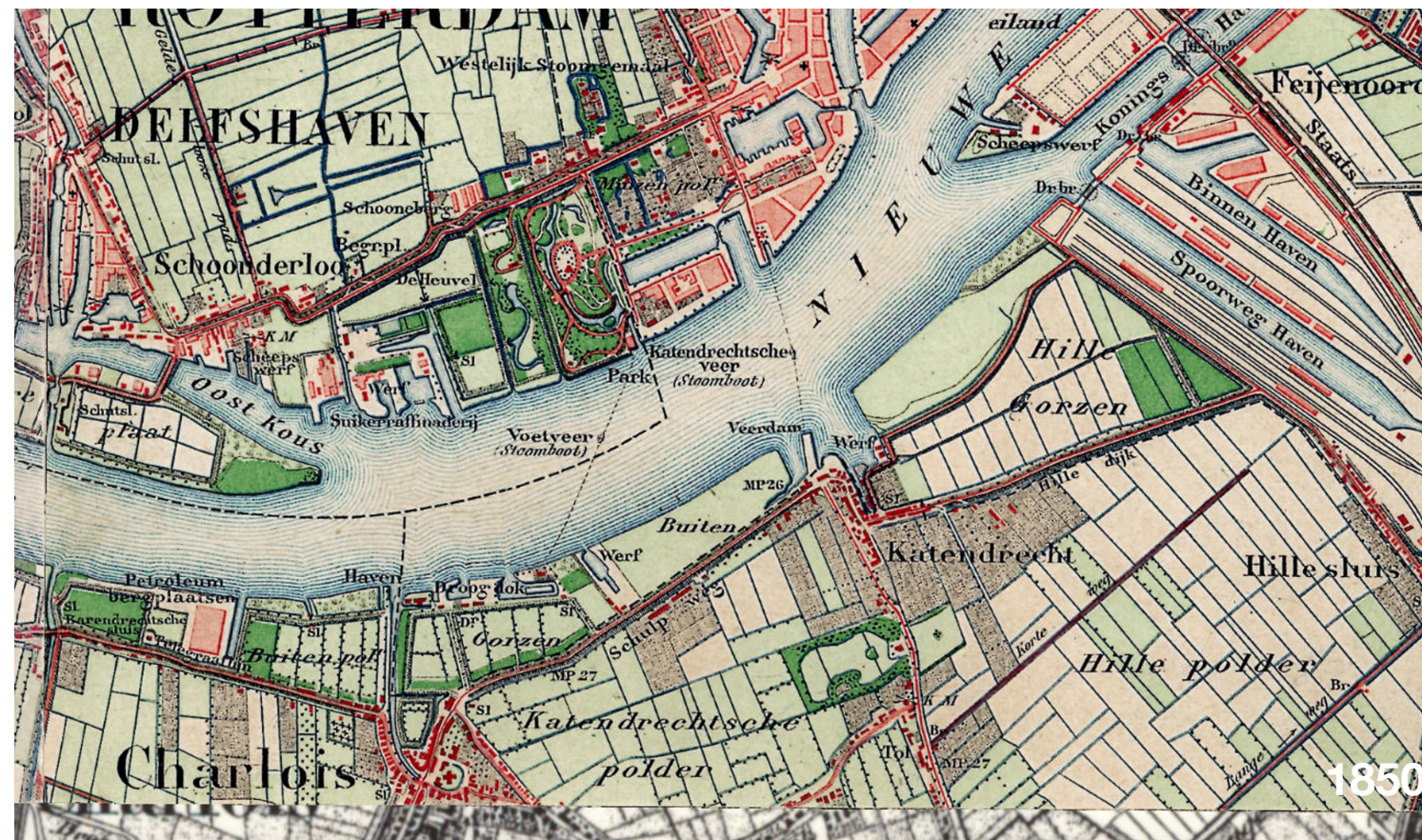
- 2003 Maassilo stopped function as silo
- 2004 Maassilo turned to Night club and Creative Factory

illustration : H.Meyer ; City and Port, 1996

PERIOD OF PORT CITY OF ROTTERDAM

MAASSILO

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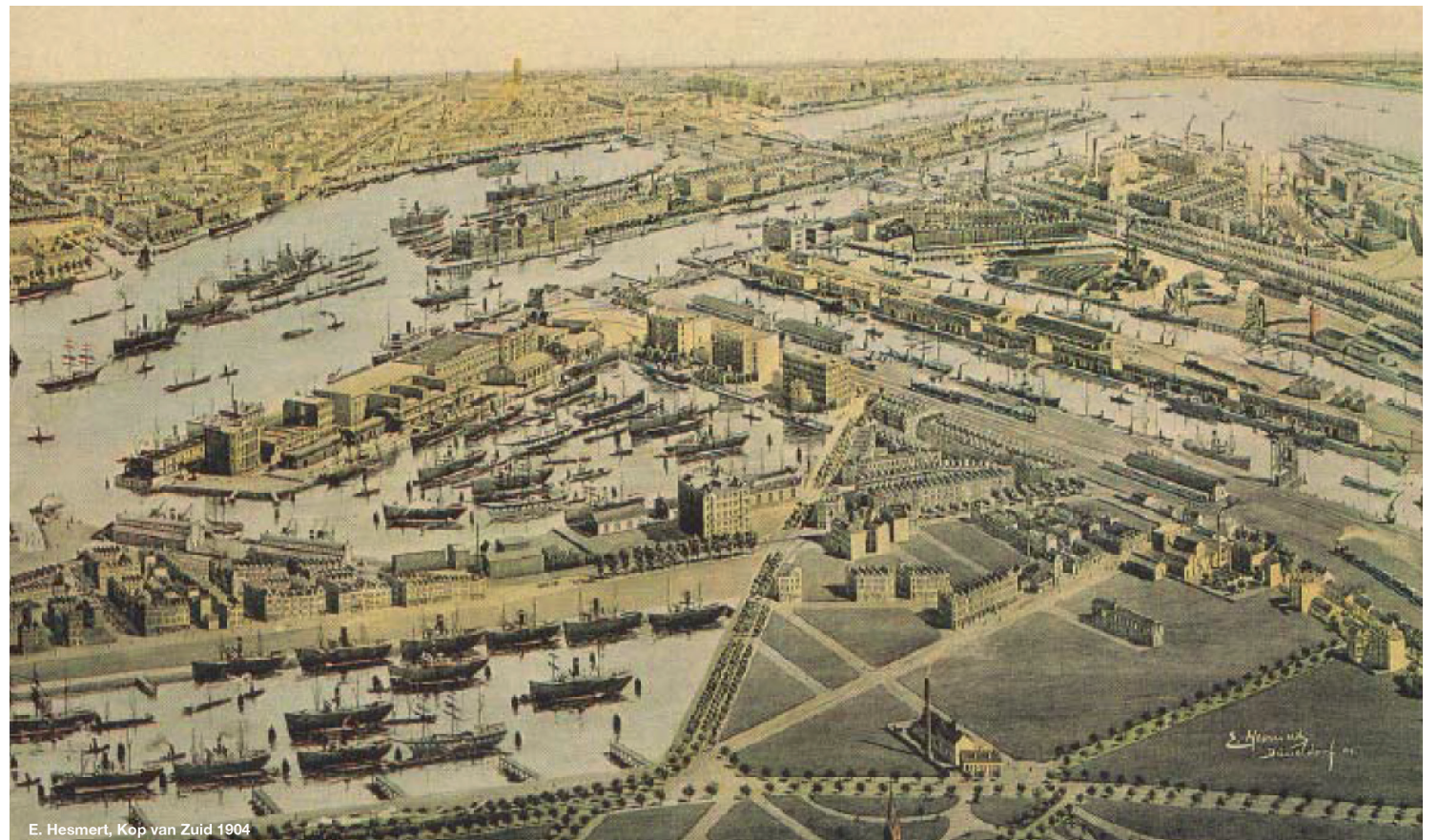
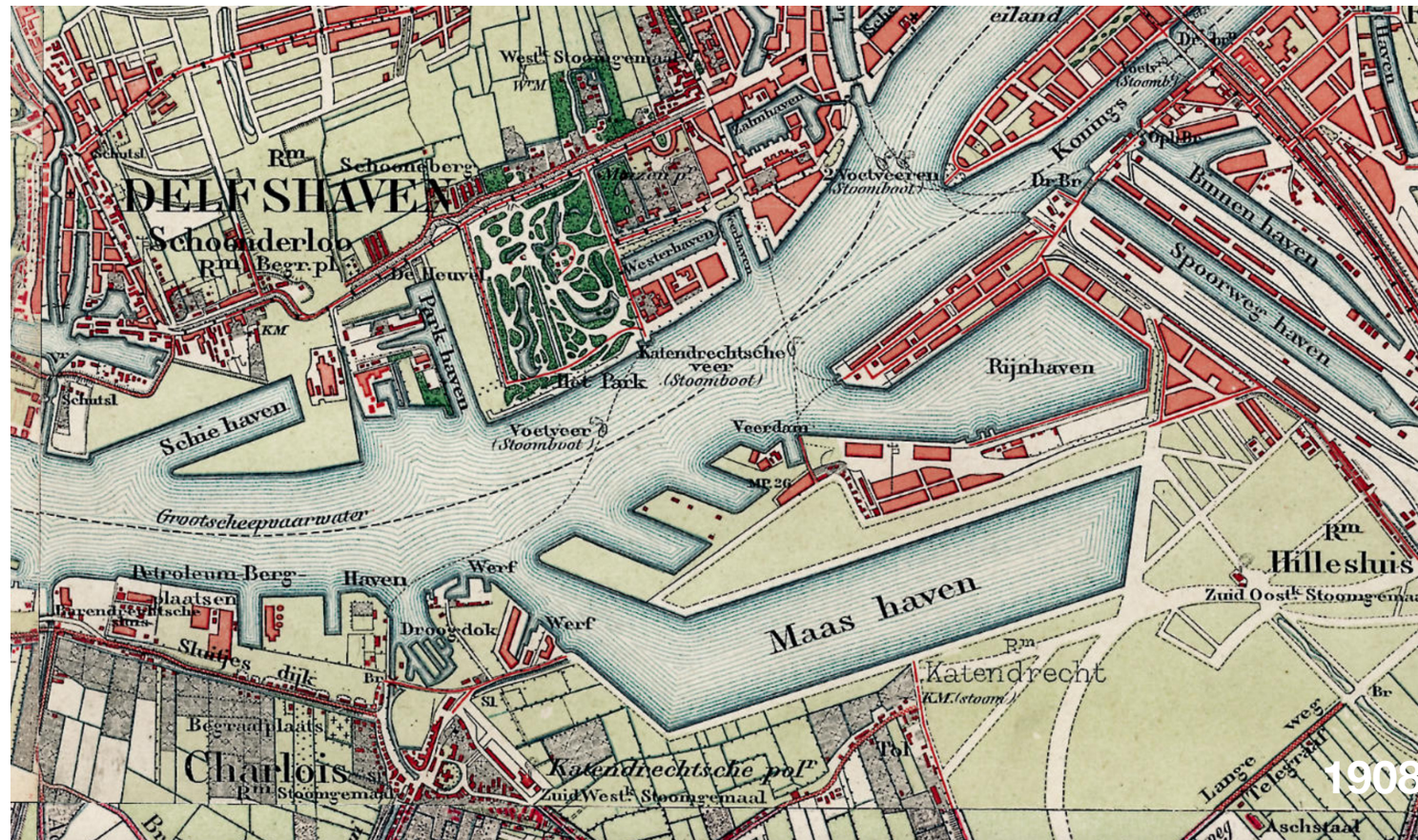


MAP OF KATENDRECHT AROUND 1850

MAASSILO

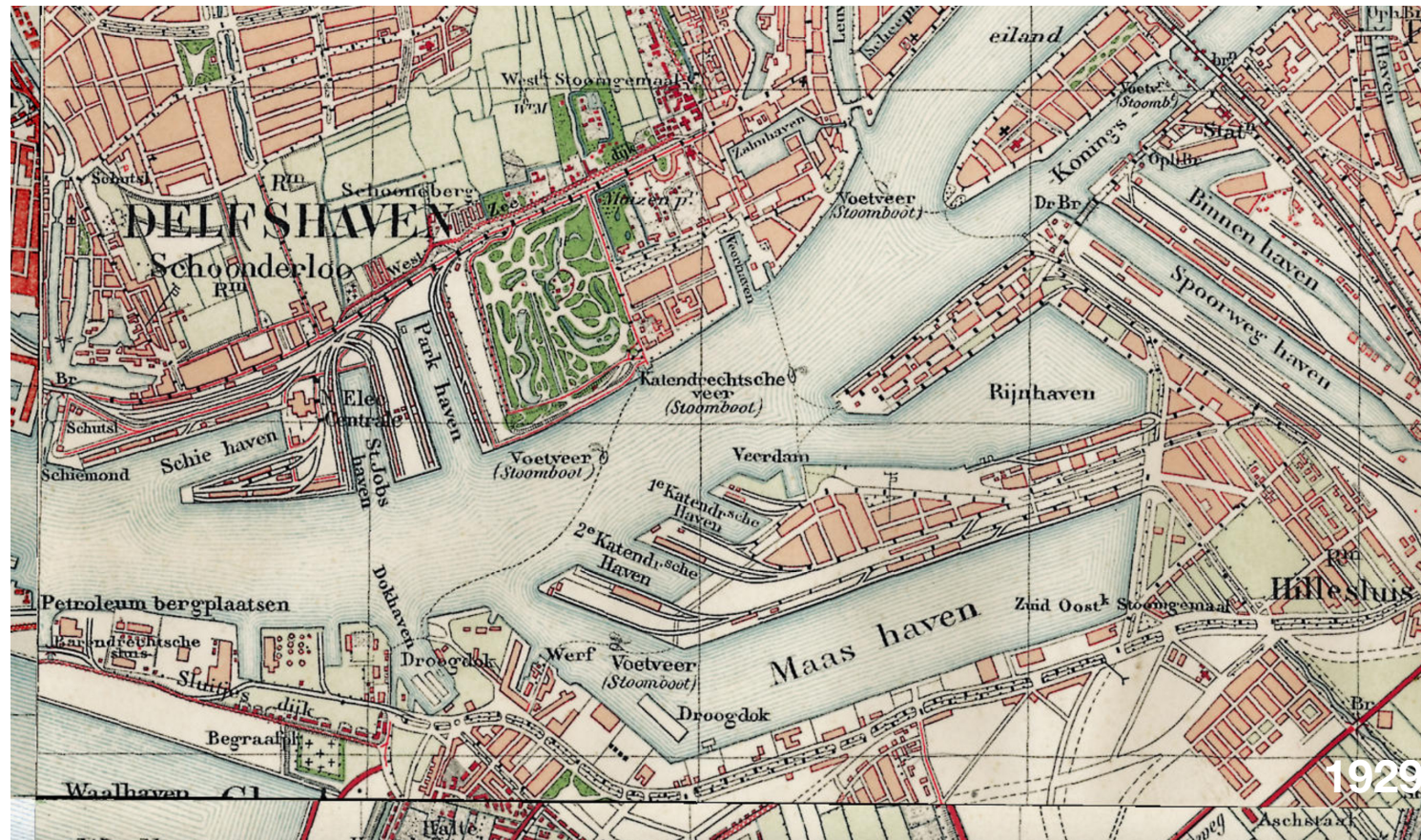
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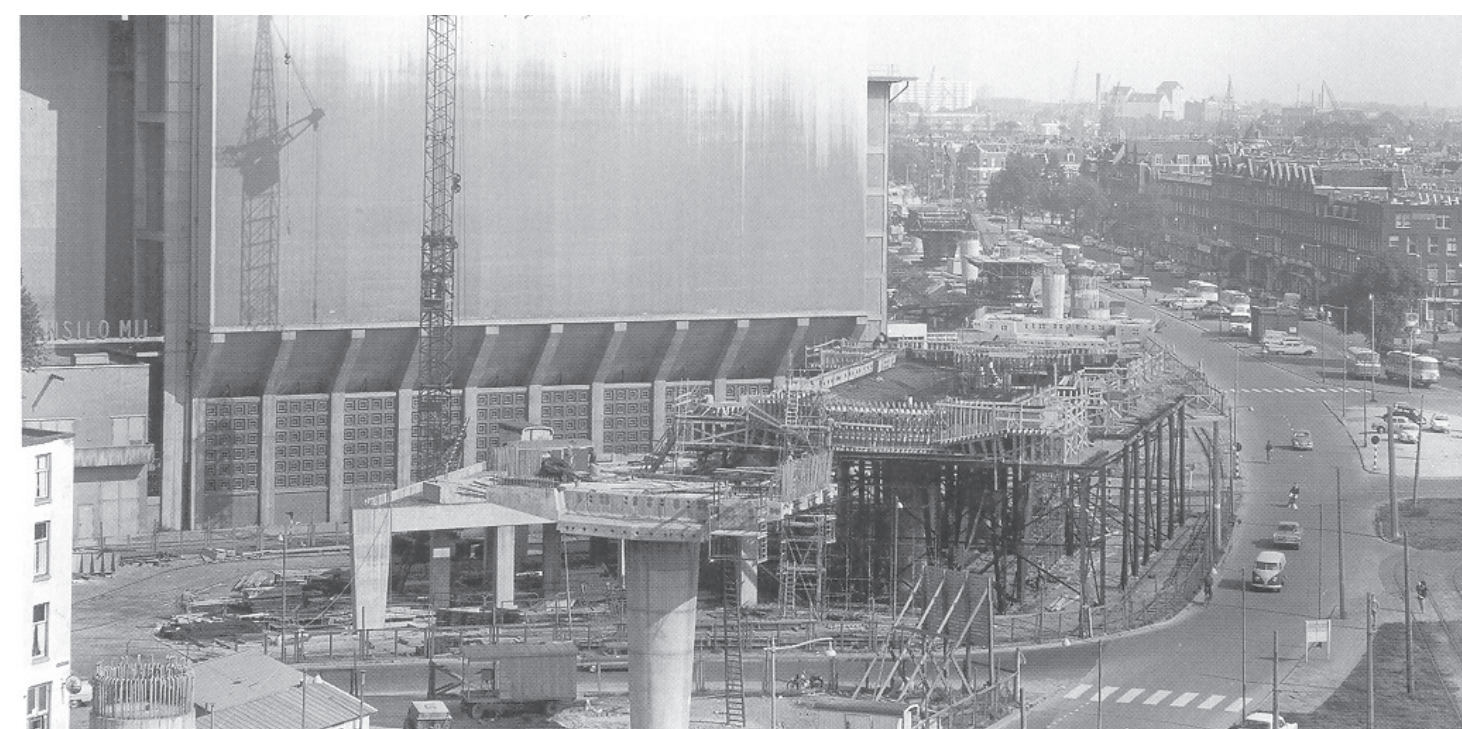
MAASHAVEN AROUND 1908

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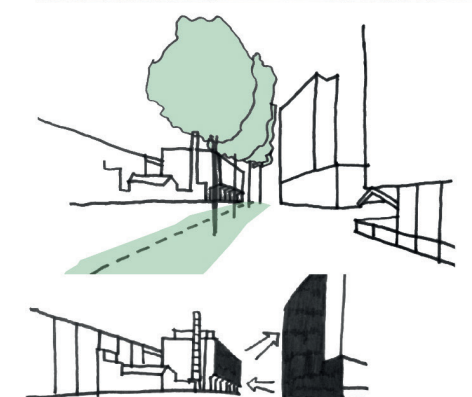
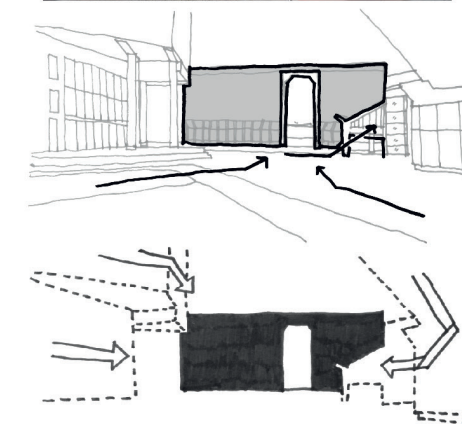
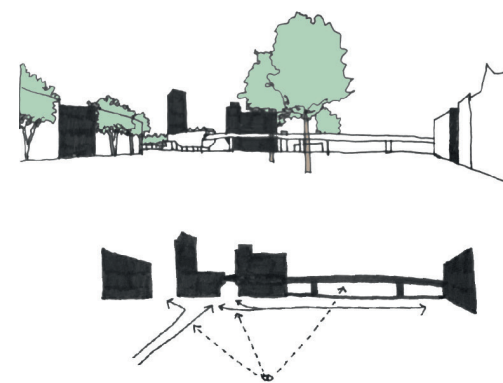
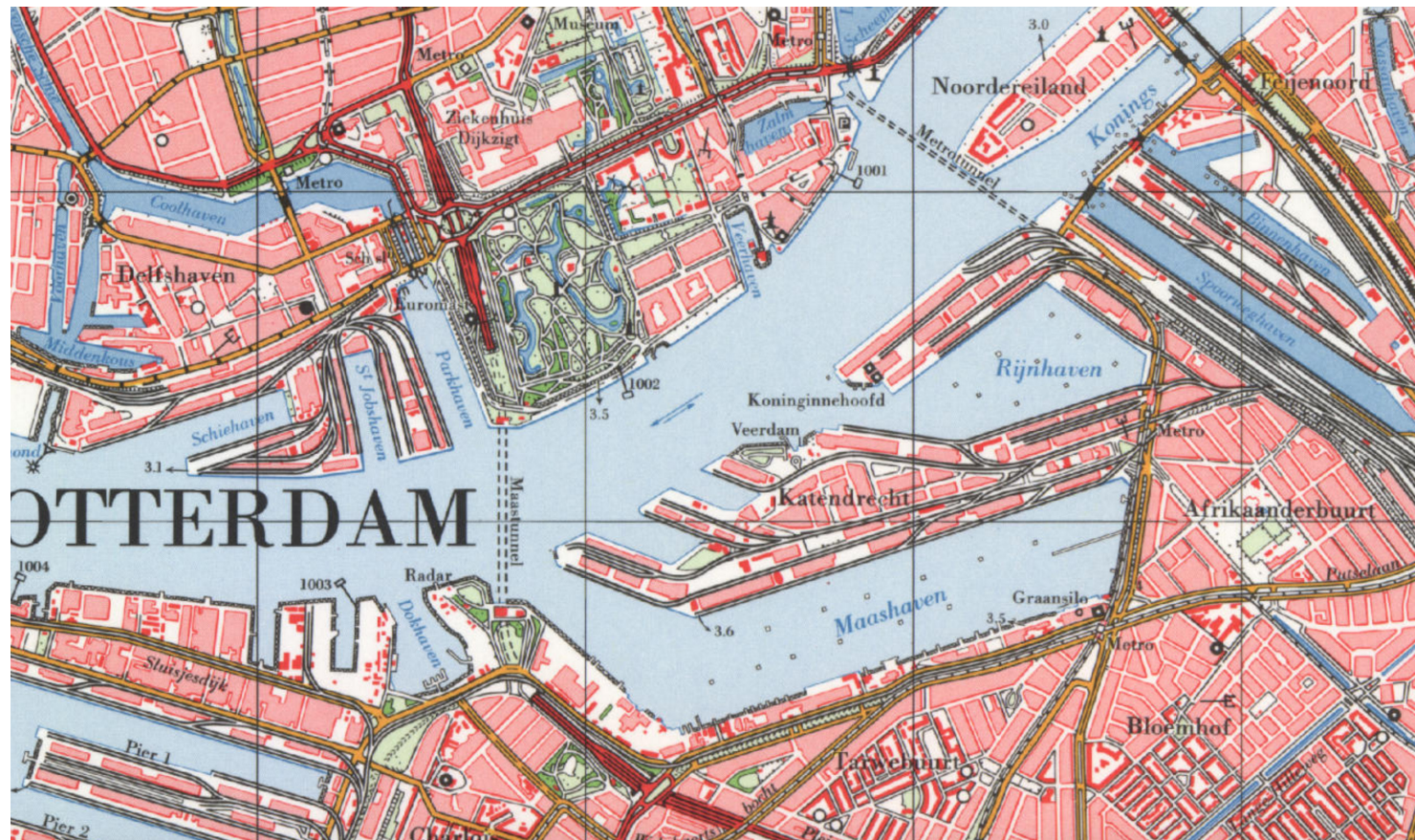
MAASHAVEN AROUND 1929

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



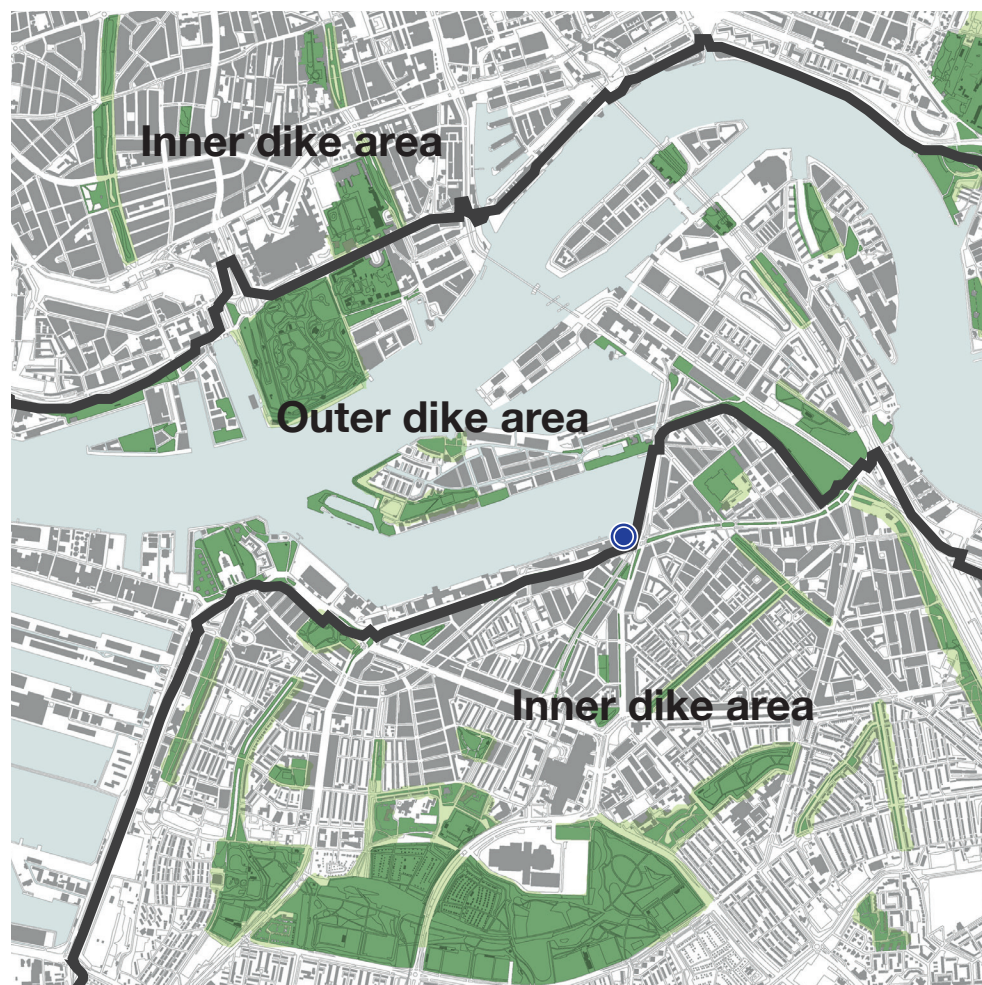
MAASHAVEN AROUND 1958

MAASSILO
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PRESENT MAASHAVEN

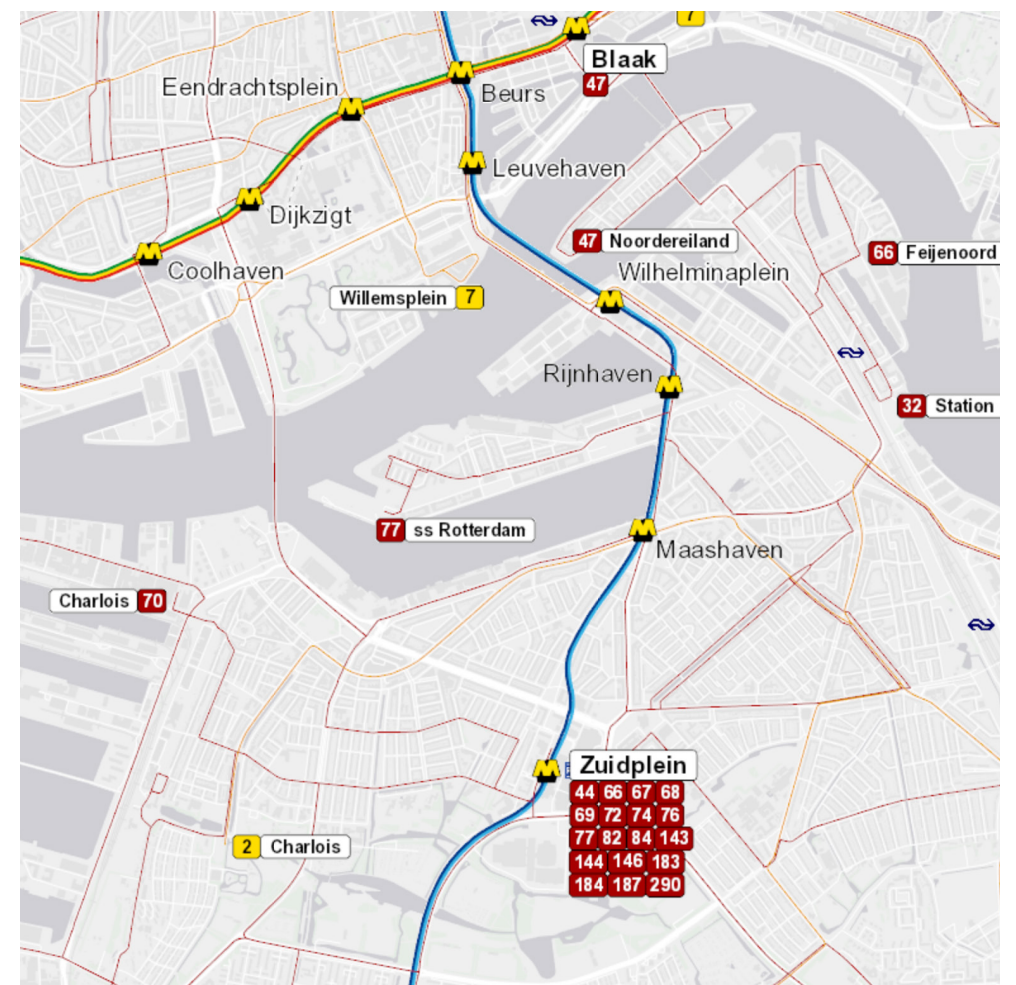
MAASSILO
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Green structure and dike line



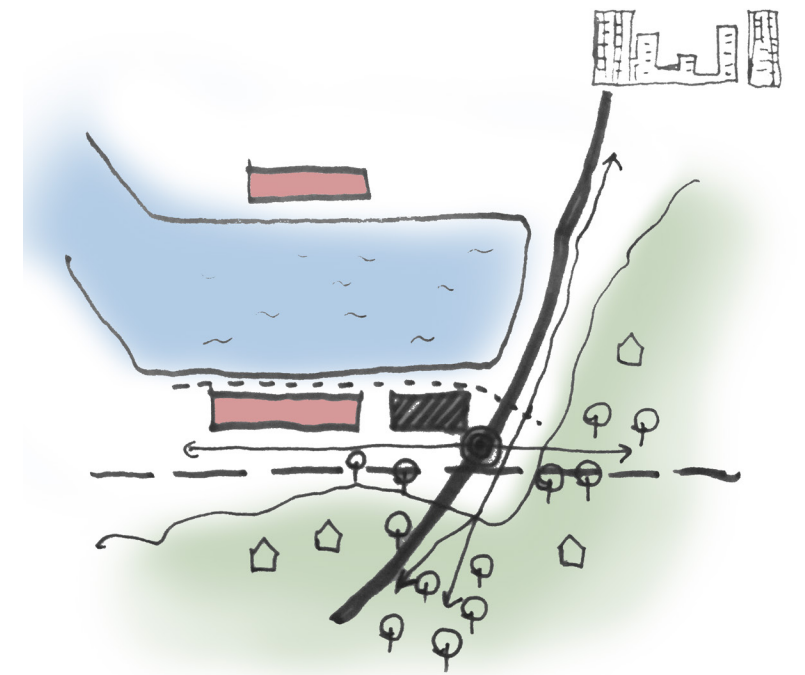
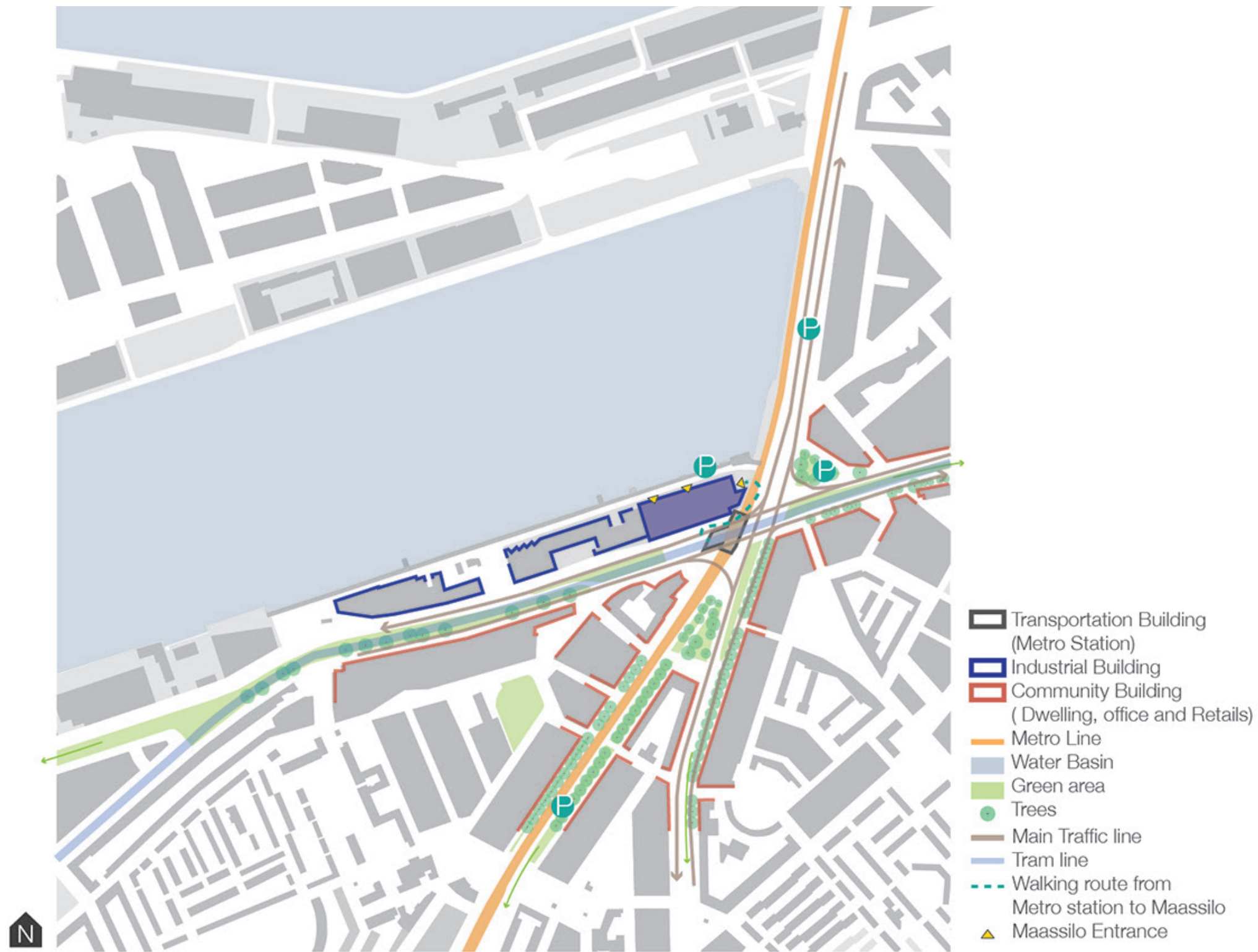
Main road and bridge connection



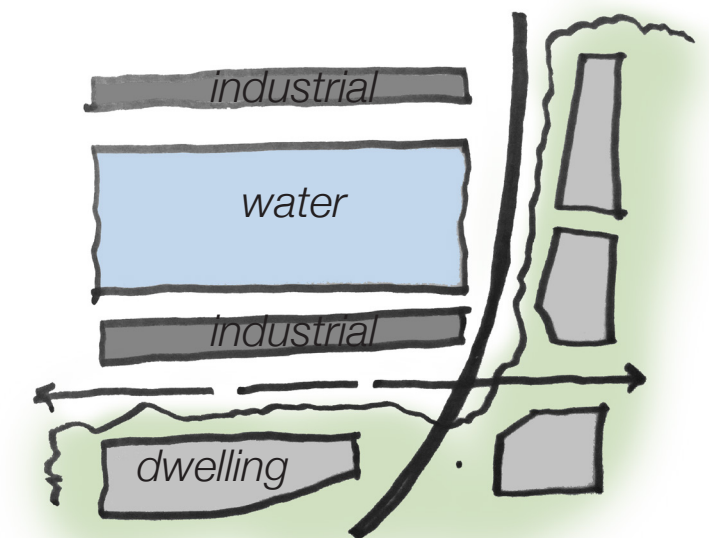
Public transport

RELATIONSHIP WITH THE CITY PRESENT SITUATION

MAASSILO
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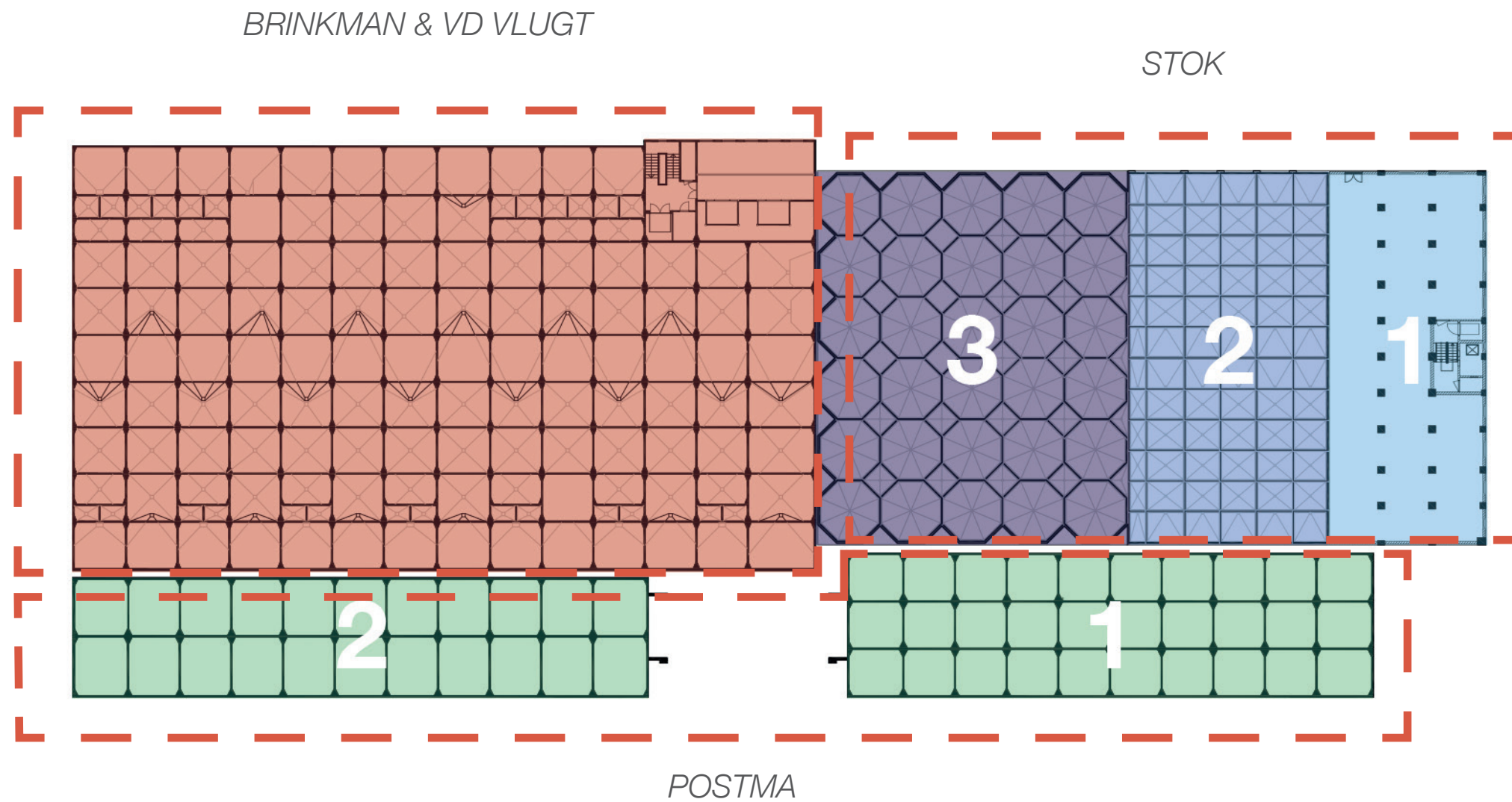
Relation ship between Maassilo and surrounding



NEIGHBORHOOD INFRASTRUCTURE AND PATTERN

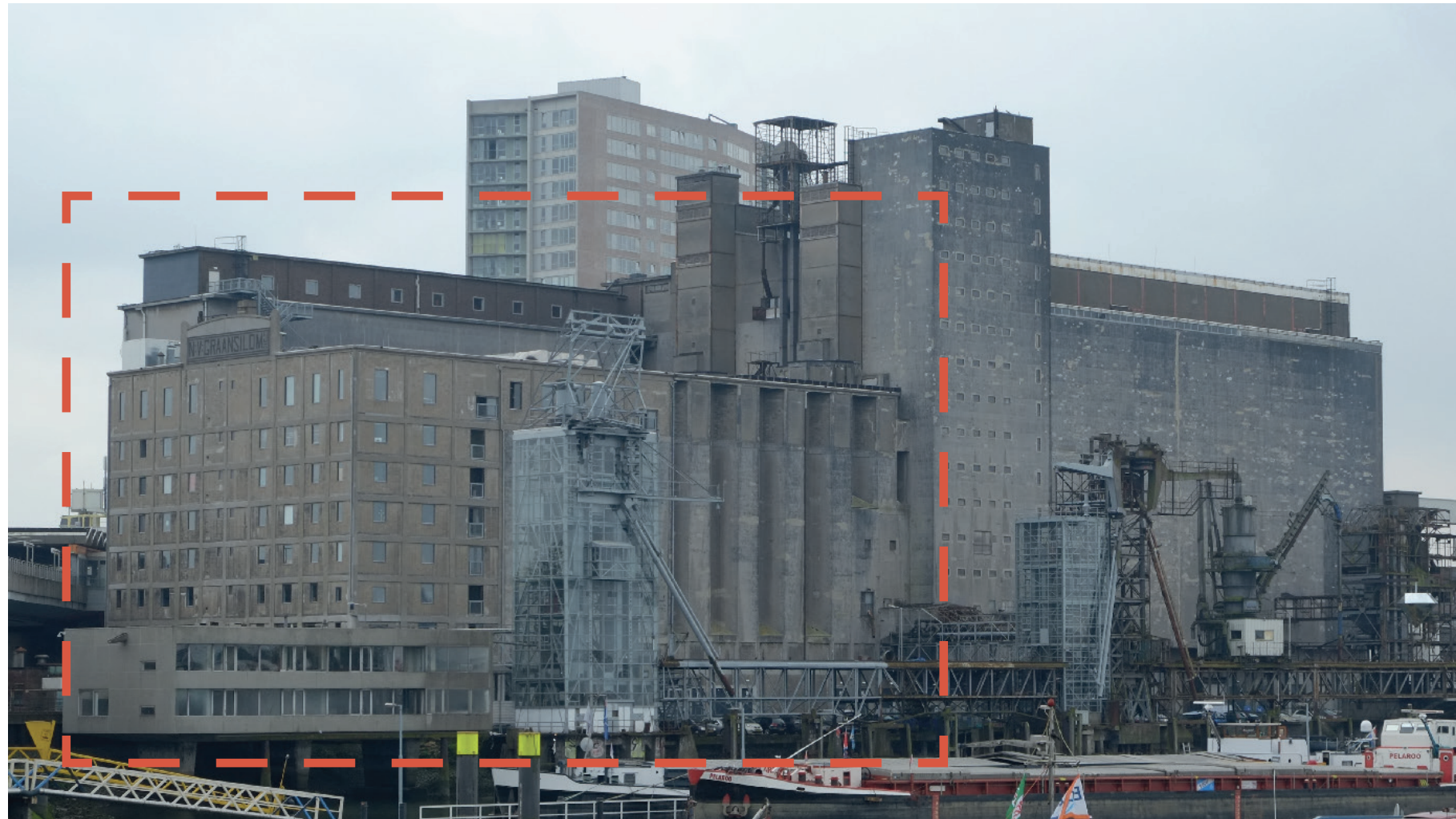
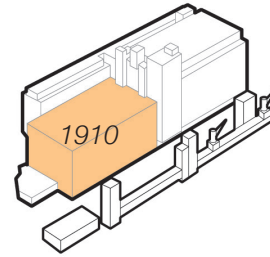
MAASSILO

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DIFFERENT PARTS OF MAASSILO

MAASSILO
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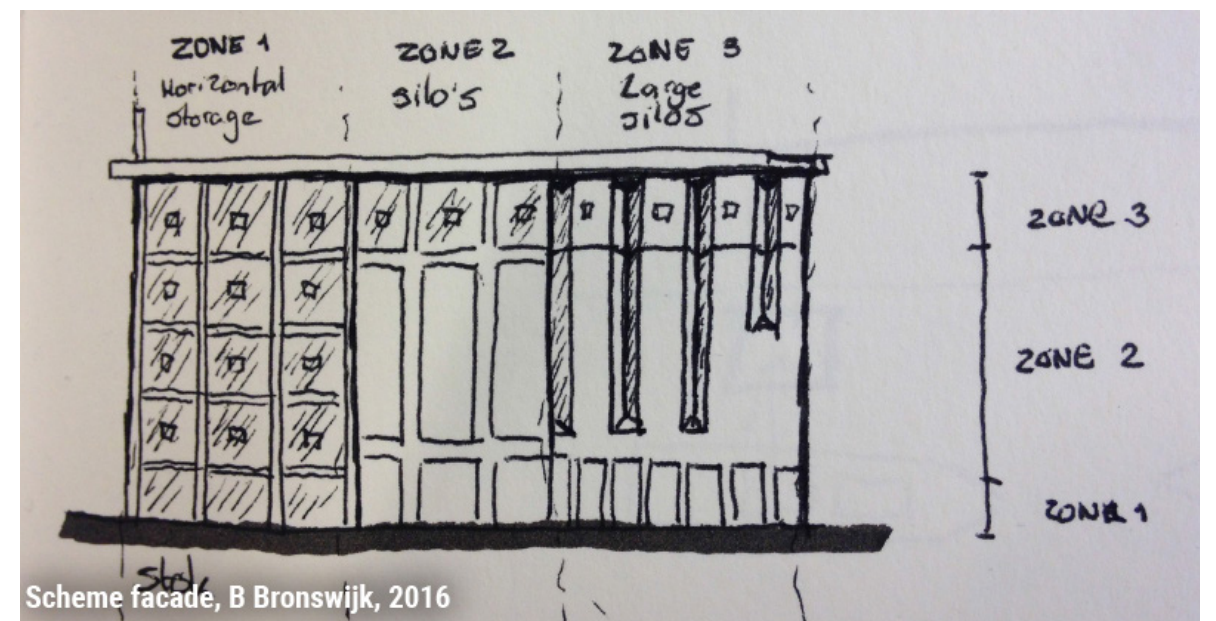
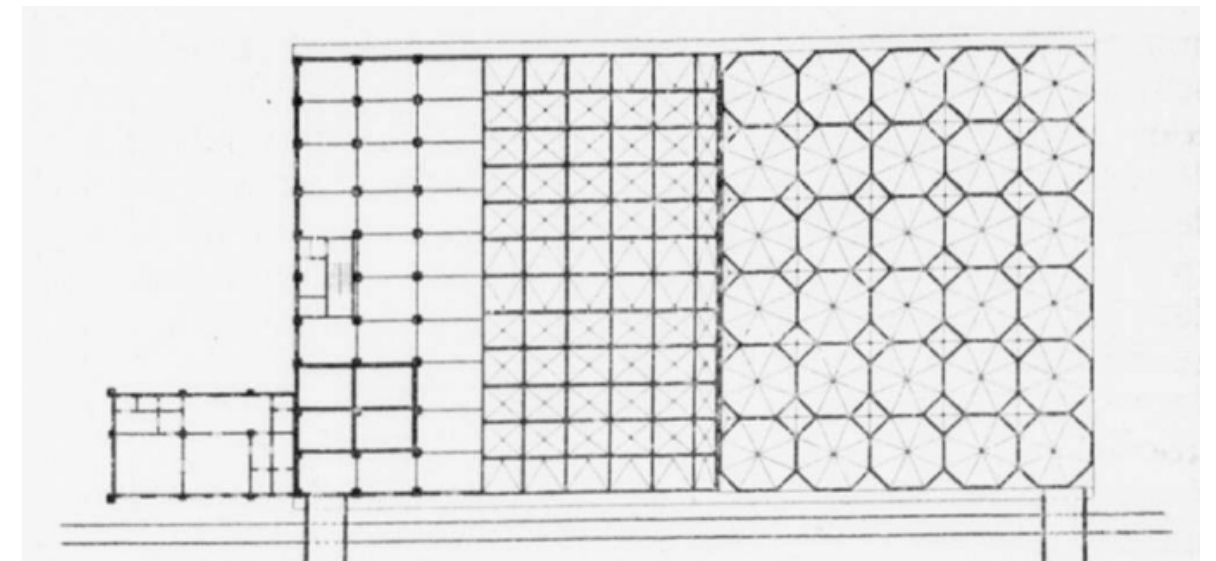
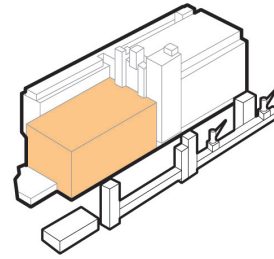


FIRST PART BY J.P.STOK

MAASSILO

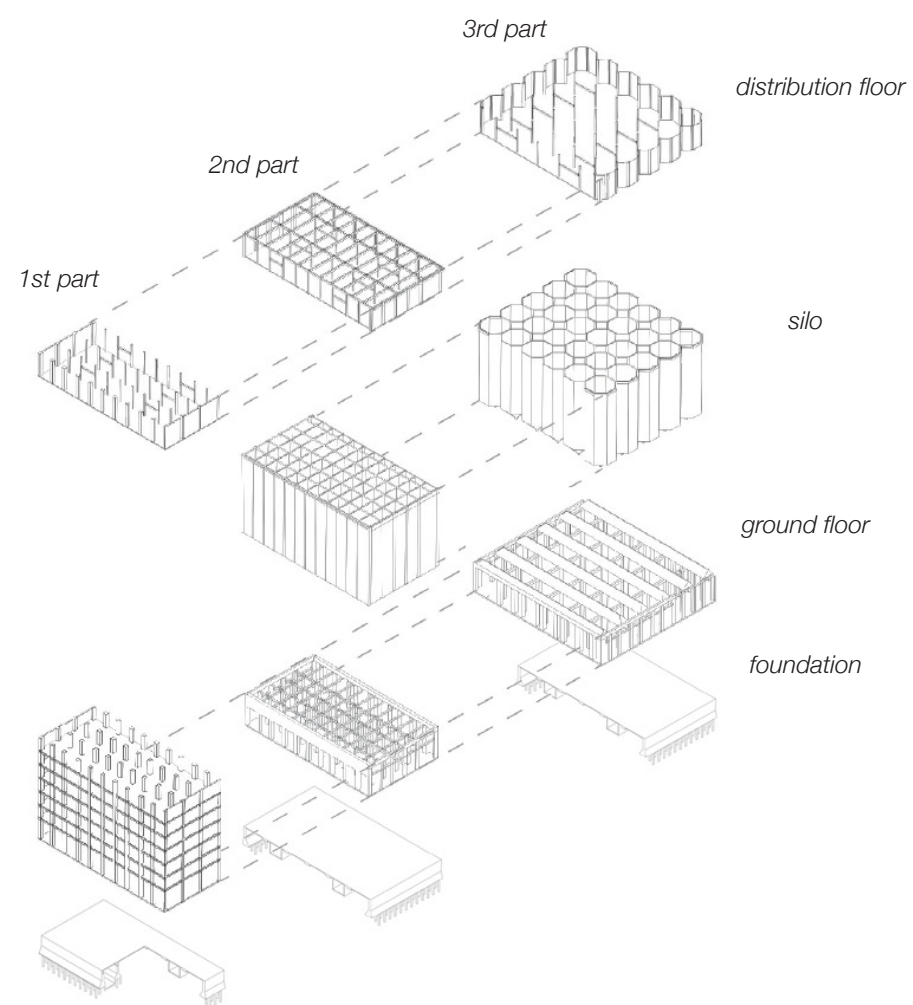
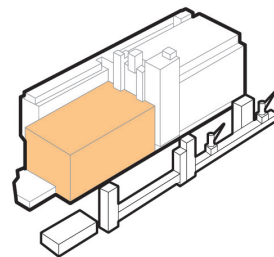
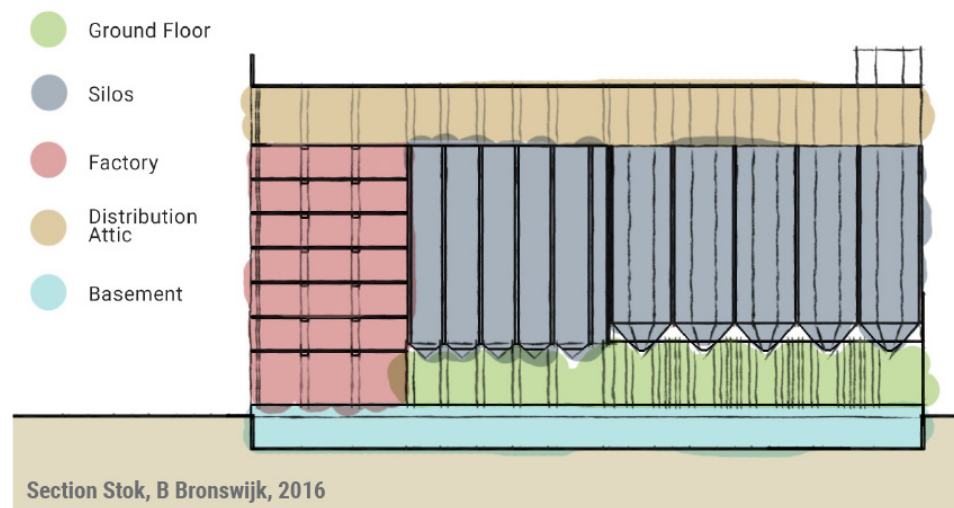
P5 PRESENTATION : 28.06.17

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THREE PARTS OF MASS
FIRST PART BY J.P.STOK

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

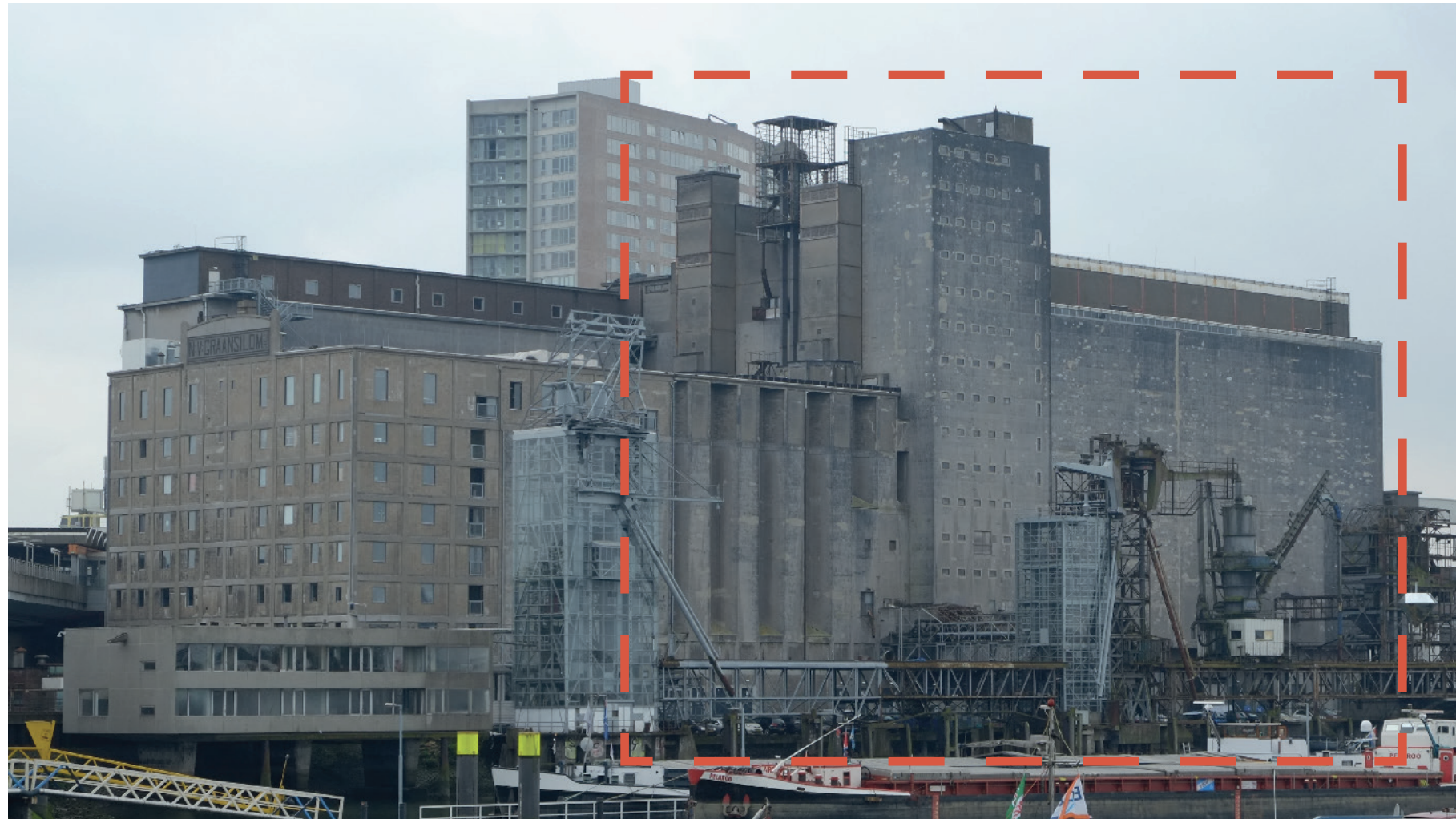
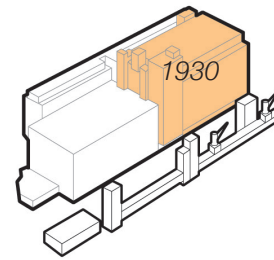


STRUCTURE



VOLUMN CHARACTER IN THE BUILDING FIRST PART BY J.P.STOK

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

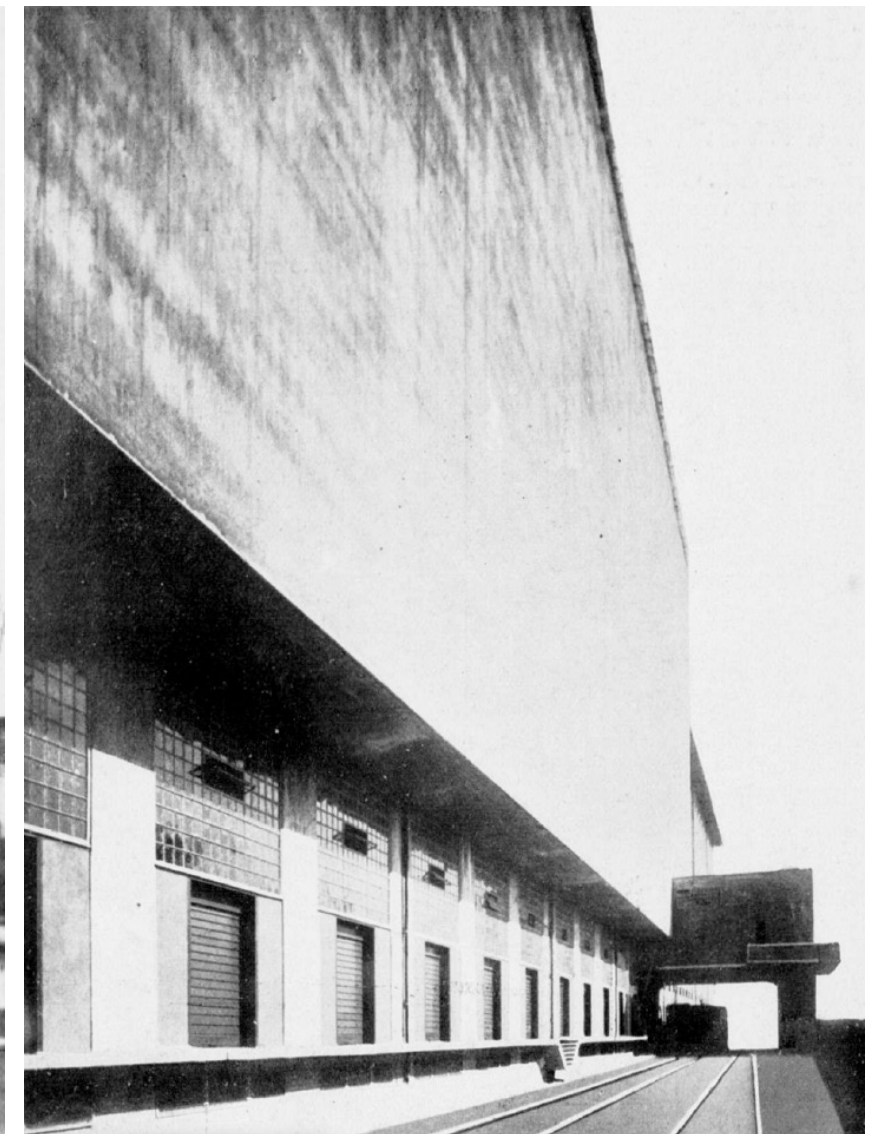
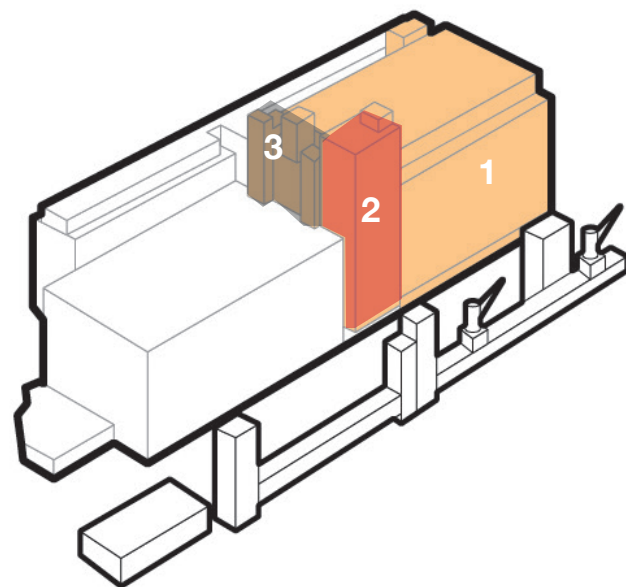
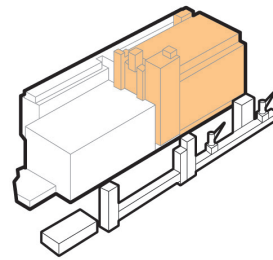


SECOND PART BY BRINKMAN AND V.D.VLUGT

MAASSILO

P5 PRESENTATION : 28.06.17

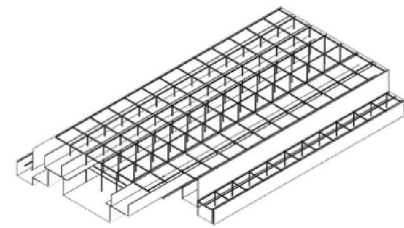
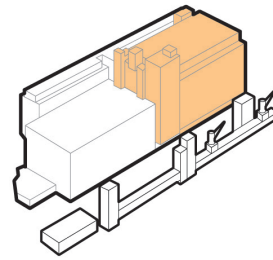
Sicha Chittavanich 4502922



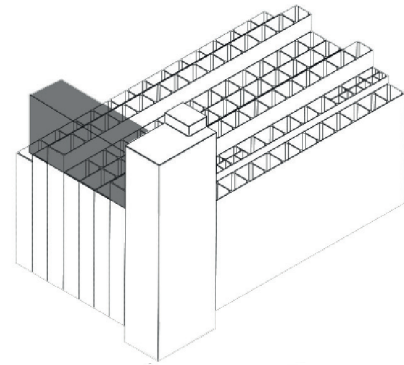
THREE PARTS OF MASS

MASSSES AND SILO
SECOND PART BY BRINKMAN AND V.D.VLUGT

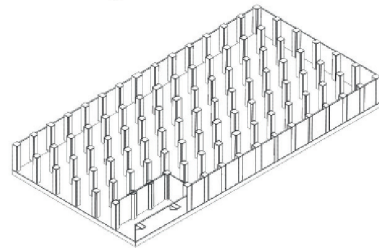
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



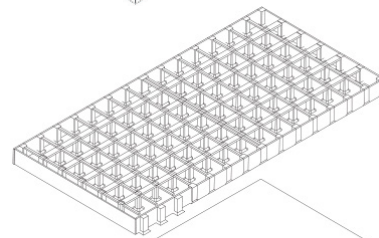
distribution floor



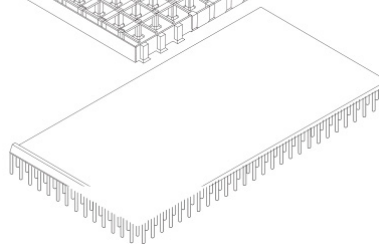
silo



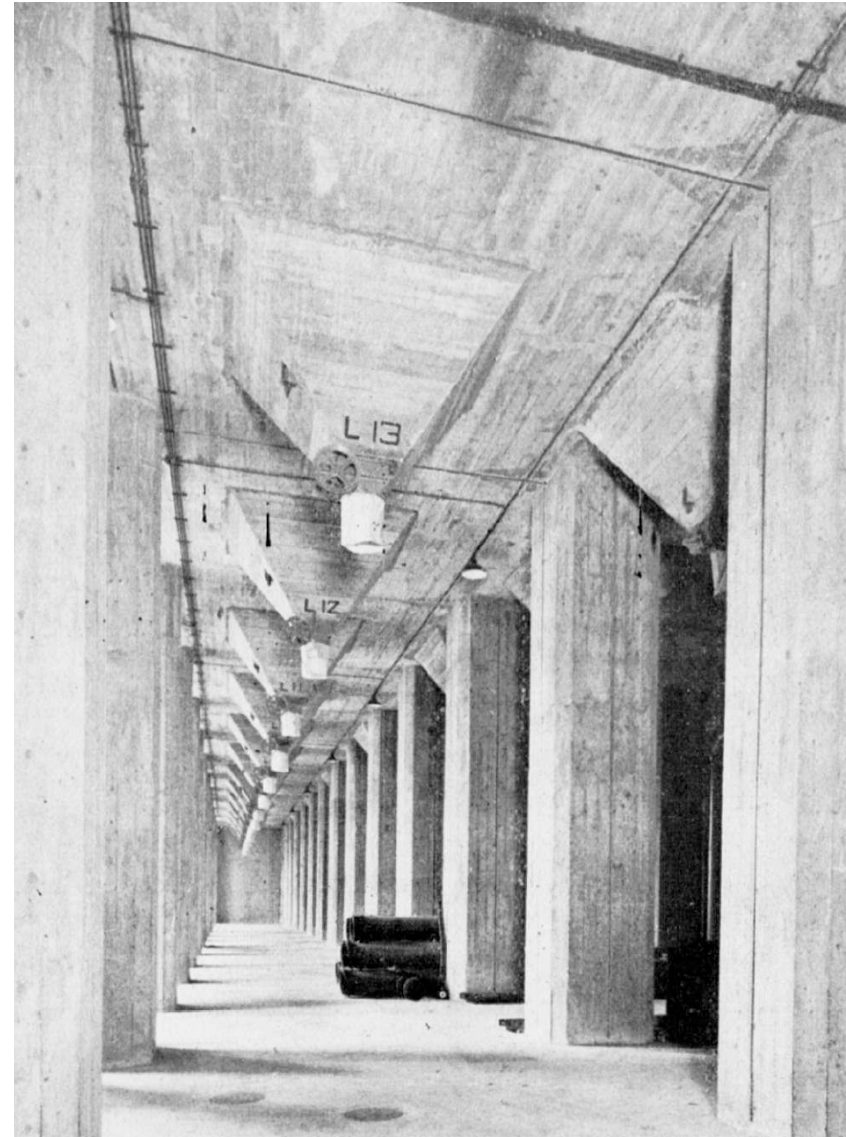
ground floor



foundation

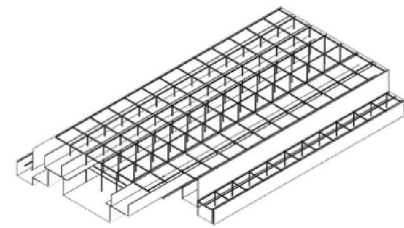
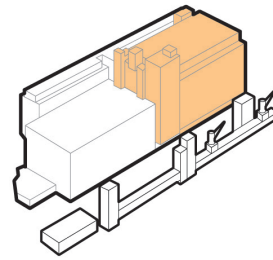


STRUCTURE

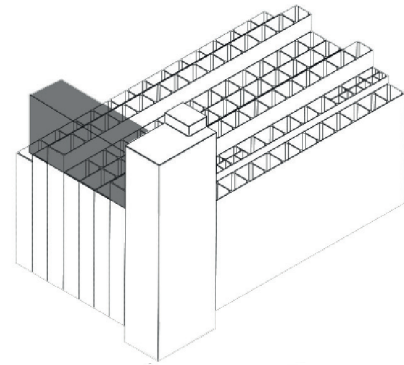


GROUND FLOOR VOLUME SECOND PART BY BRINKMAN AND V.D.VLUGT

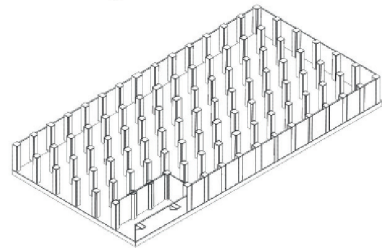
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



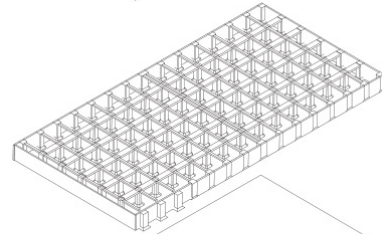
distribution floor



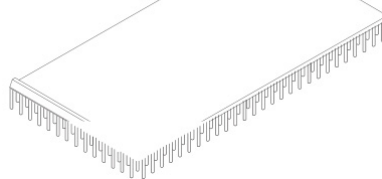
silo



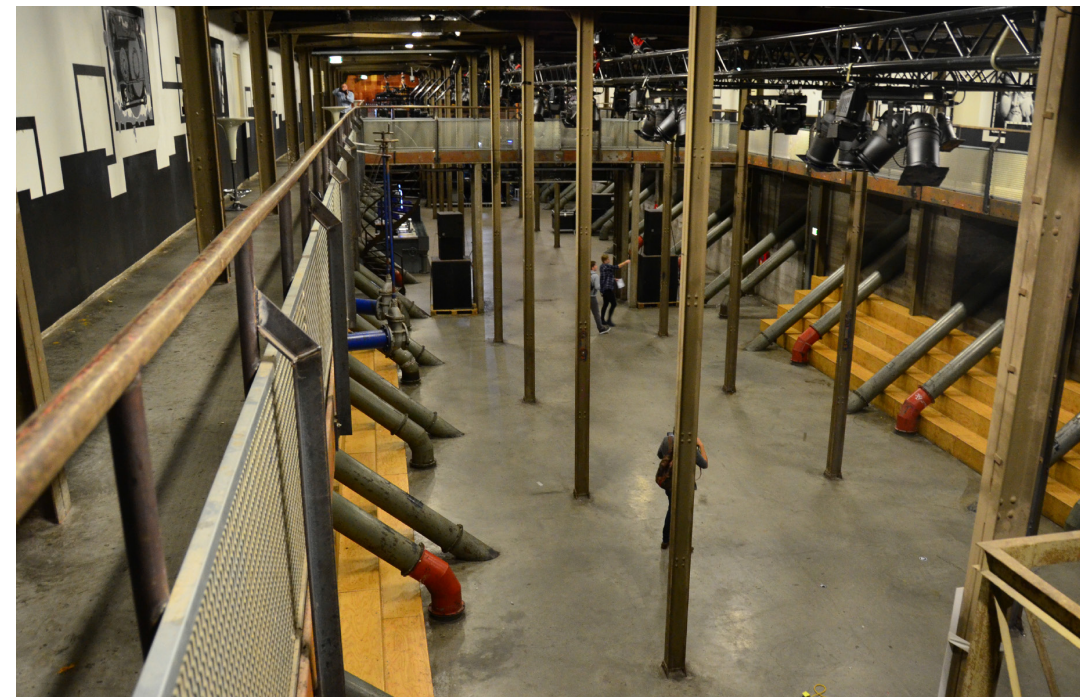
ground floor



foundation

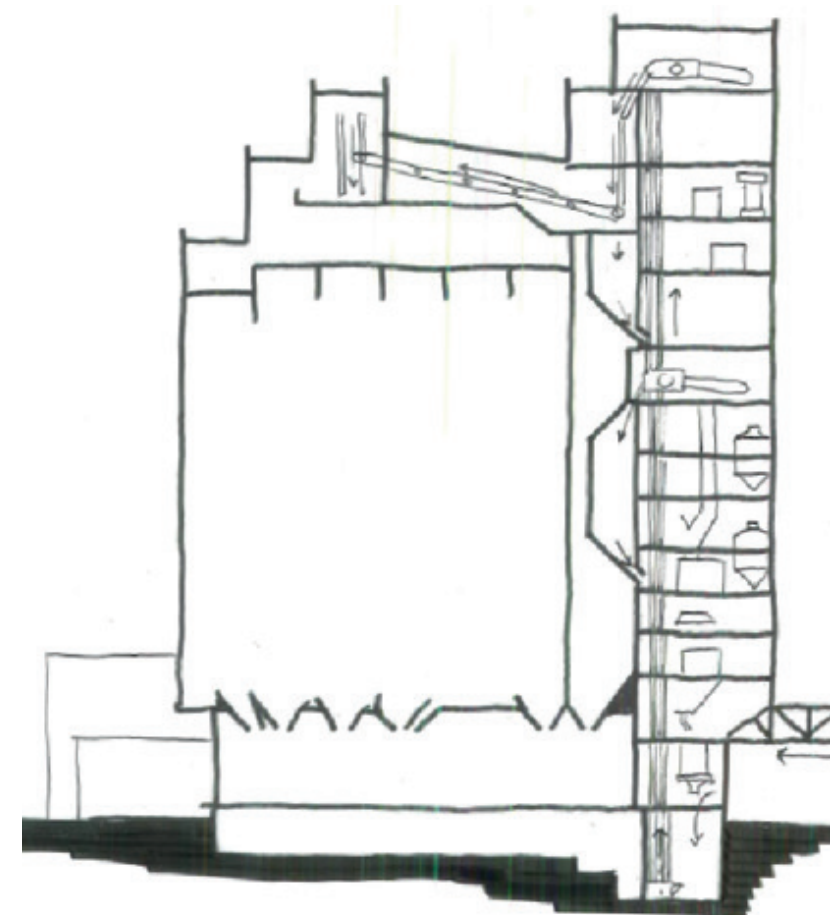
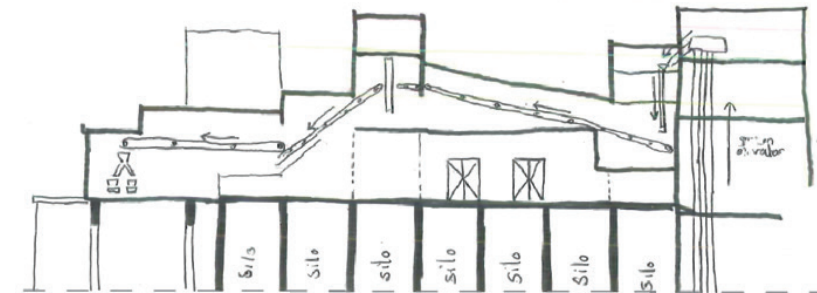
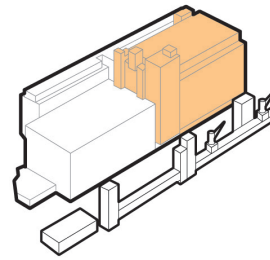


STRUCTURE



ATTIC FLOOR VOLUME SECOND PART BY BRINKMAN AND V.D.VLUGT

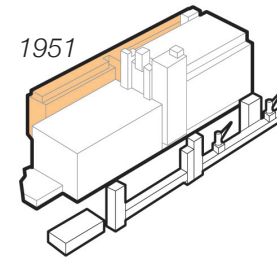
MAASSILO
P5 PRESENTATION : 28.06.17
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CONNECTION ATTIC

CONNECTION ATTIC
SECOND PART BY BRINKMAN AND V.D.VLUGT

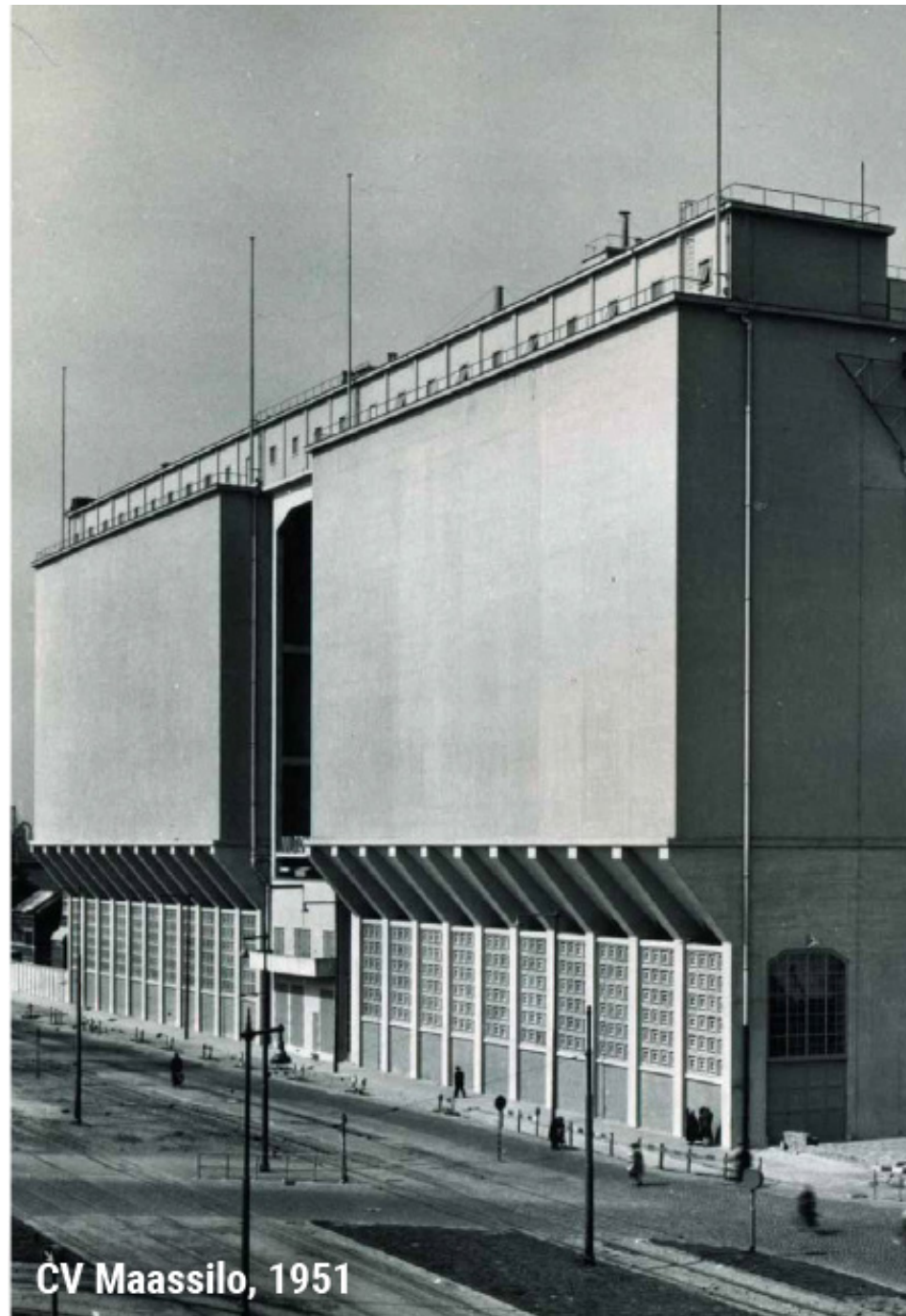
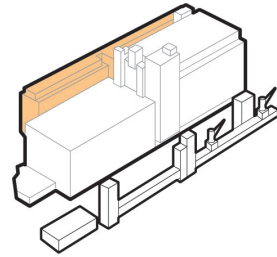
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



THIRD PART BY A.G.and J.D.POSTMA

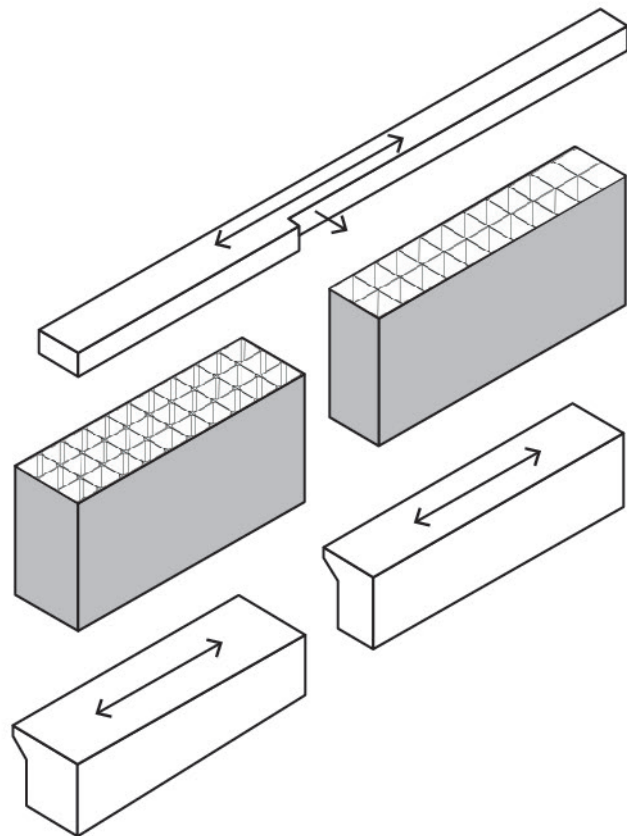
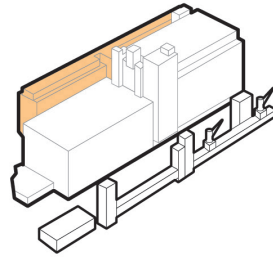
MAASSILO

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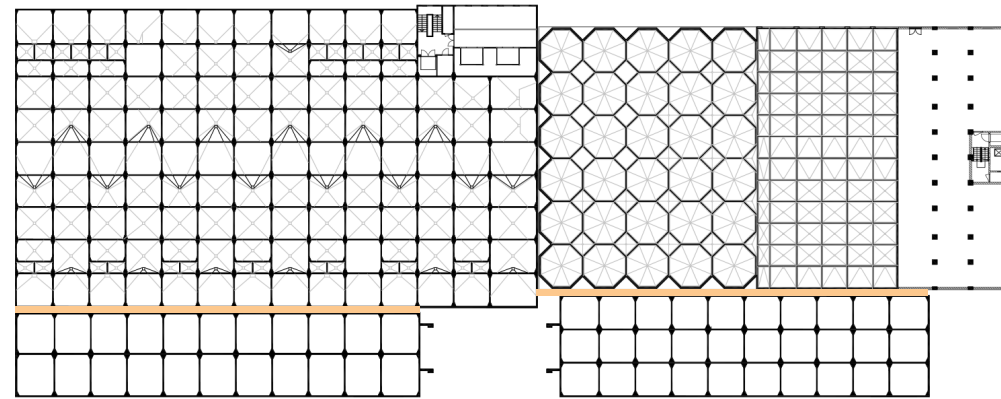


MASS
 THIRD PART BY A.G.and J.D.POSTMA

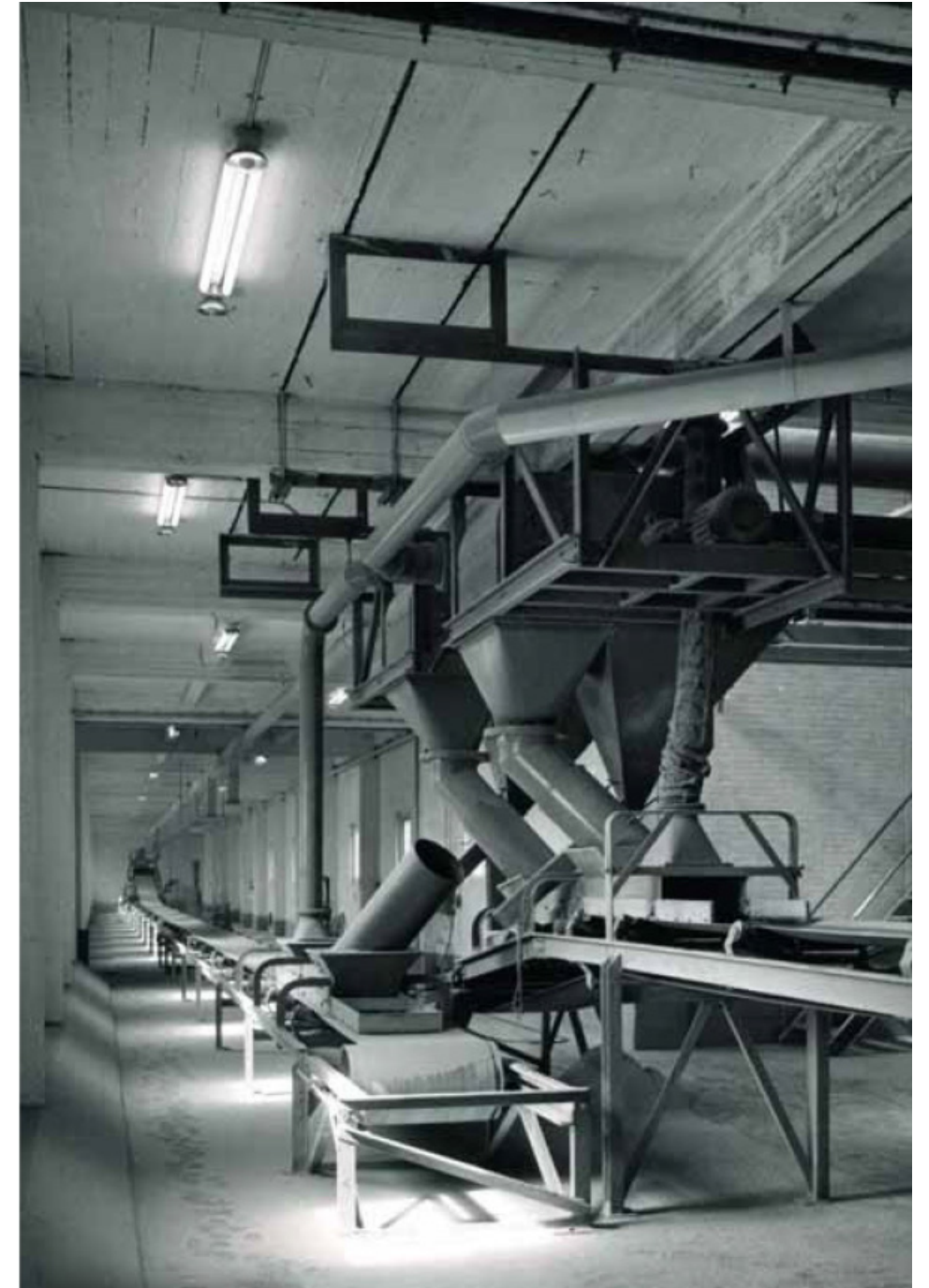
MAASSILO
 P5 PRESENTATION : 28.06.17
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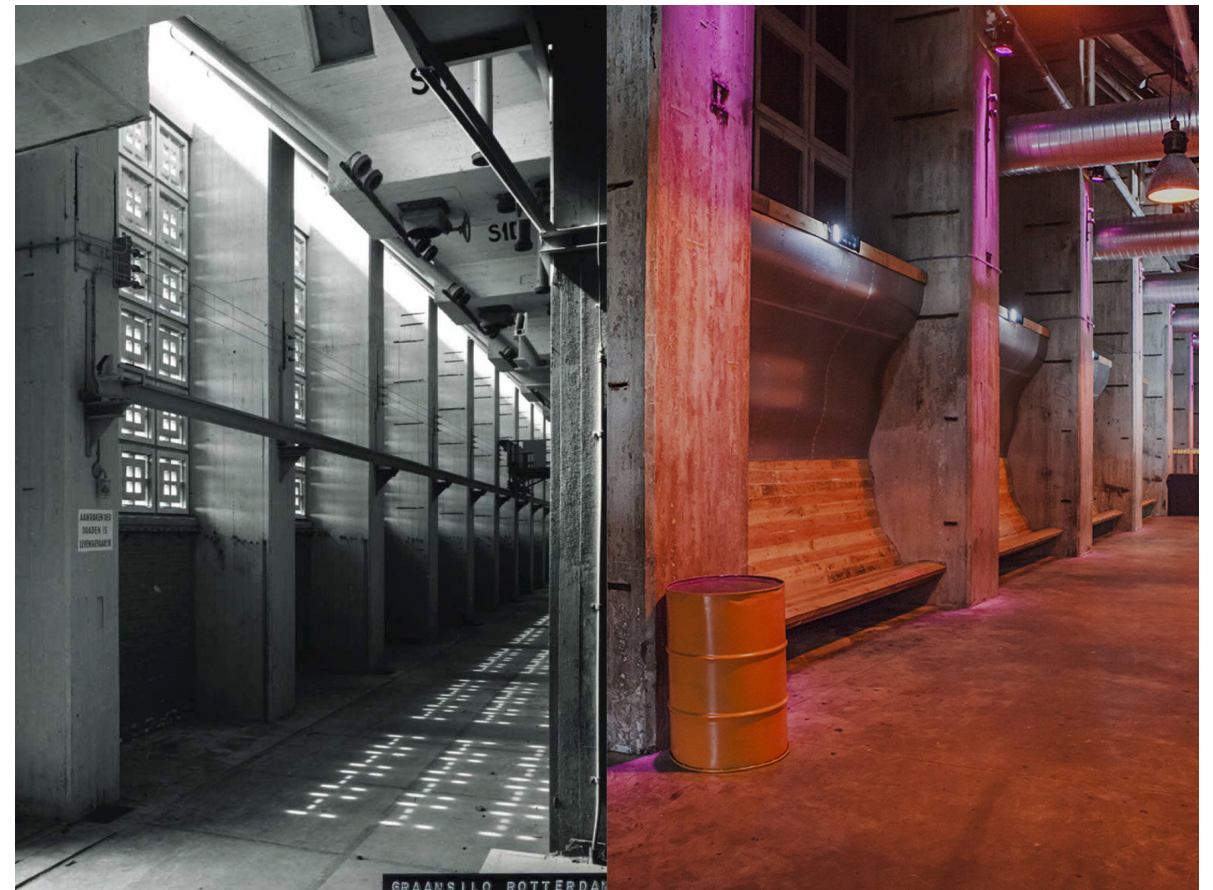
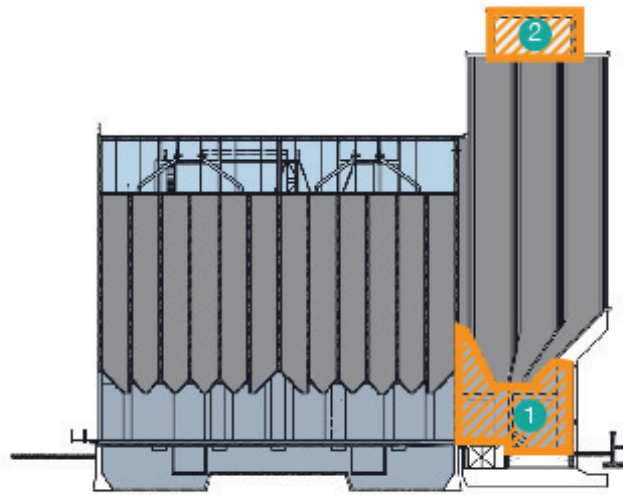
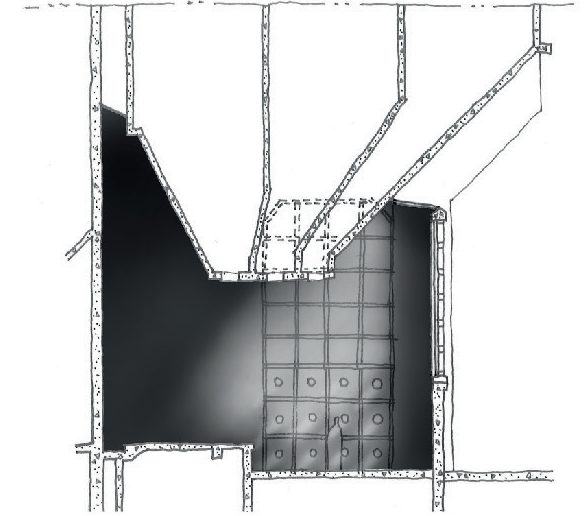
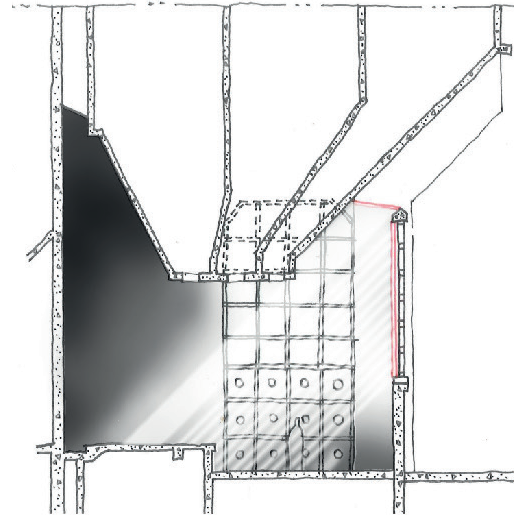
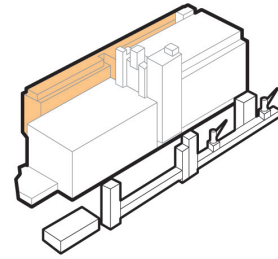
MOVEMENT IN THE BUILDING



BUILDING EXTENSION GAP



MOVEMENT, BUILDING GAP AND MACHINERY
THIRD PART BY A.G.and J.D.POSTMA



GROUND FLOOR VOLUME
THIRD PART BY A.G.and J.D.POSTMA

MAASSILO
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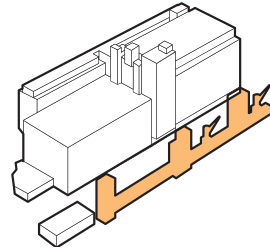
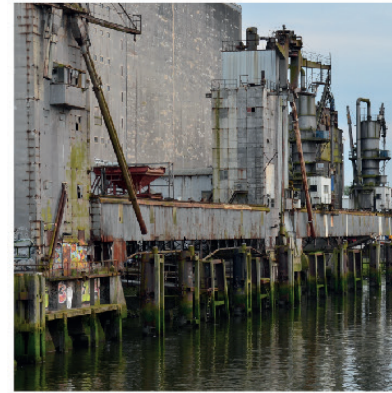


Photo: Gemeentearchief Rotterdam, 1913



Stichting Renovatie, Cultureel Industrieel Erfgoed Elevatoren Maashaven Rotterdam, mei 2015



Stichting Renovatie, Cultureel Industrieel Erfgoed Elevatoren Maashaven Rotterdam, mei 2015



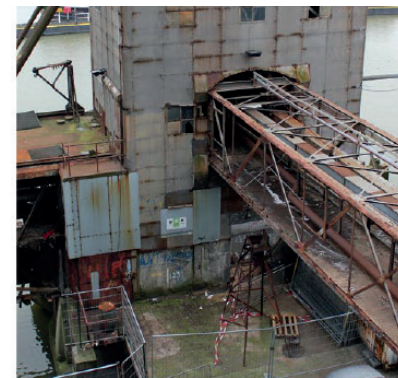
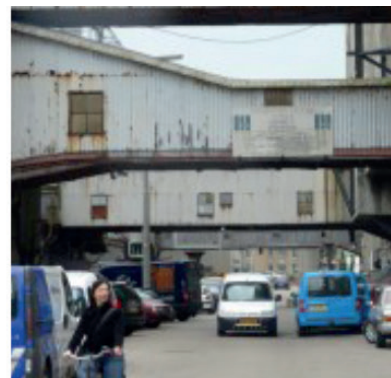
(photo : S.Chittavanich Oct 2016)

1. Original state of steel grain elevators in 1913, only two of three elevators were built. The third one was built later around 1925, all with steel structure cover with steel plate.

2. The situation in 2015 after Maas-silo stopped as grain storage.

3. The situation in 2015 after taking out the steel cover.

4. Present situation in 2016, the steel structure were repainted and the first and second elevators were covered in glass.



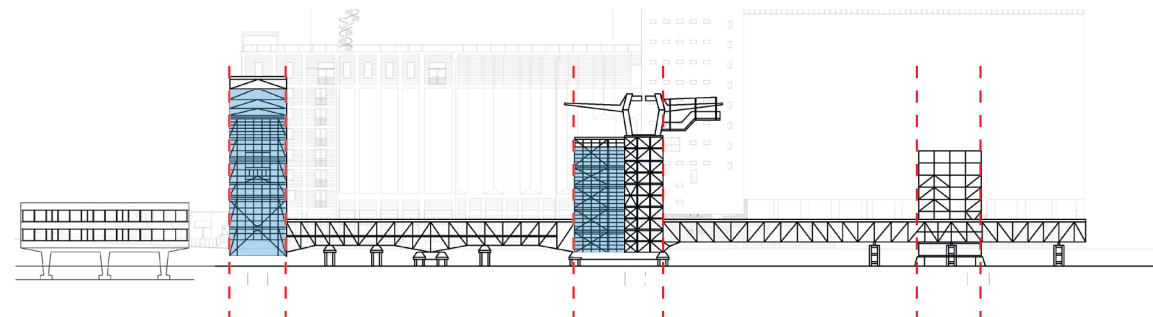
Stichting Renovatie, Cultureel Industrieel Erfgoed Elevatoren Maashaven Rotterdam, mei 2015

(photo : S.Chittavanich Oct 2016)

1. Original state of the link bridge covered with metal sheet provided the solid character divided public space more than present look.

2. The situation in 2015 after Maassilo stopped as grain storage, the metal sheet were removed, the pipe and steel structure remain. The opening on the Maassilo were closed.

3. Present situation in 2016, the steel structure were repainted.

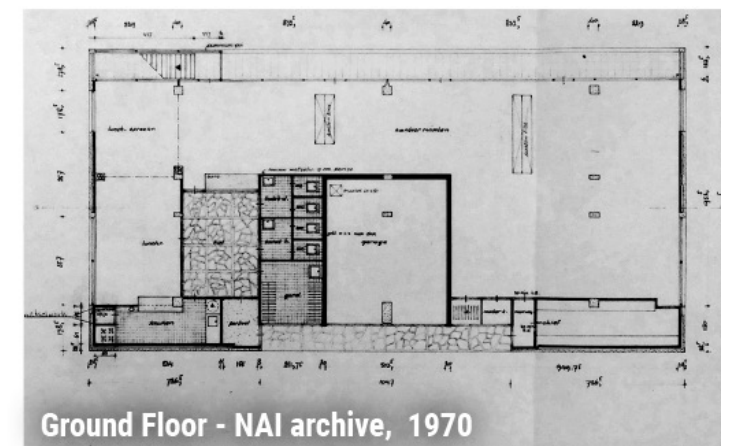
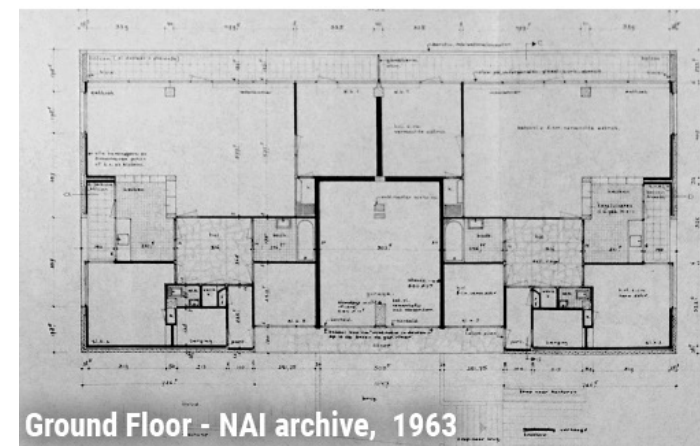
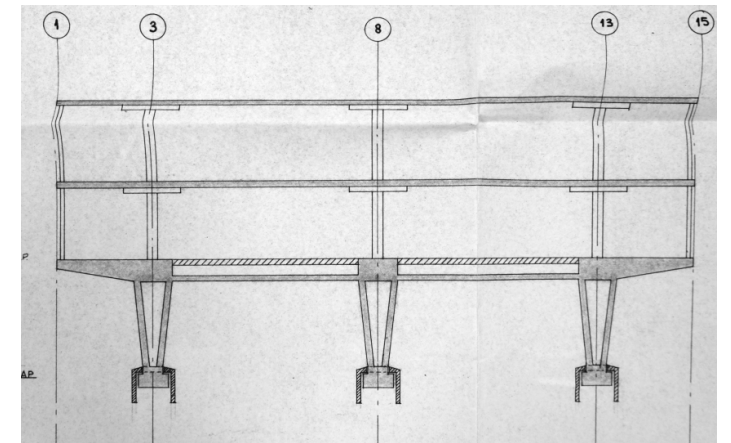
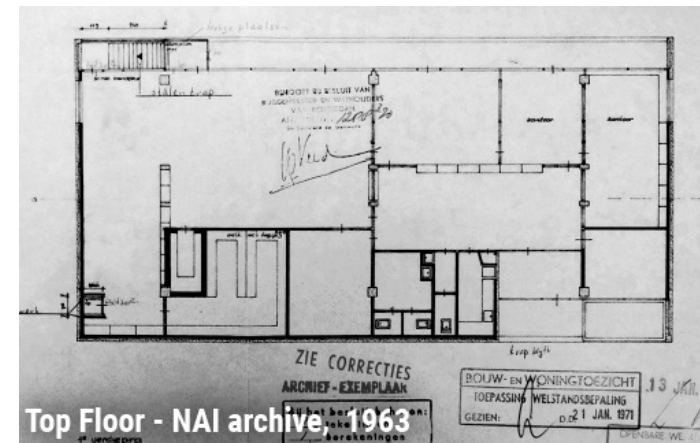
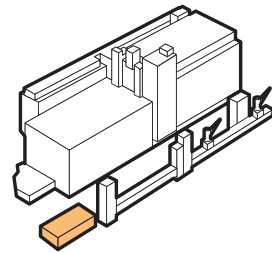


WATER GRAIN ELEVATORS

MAASSILO

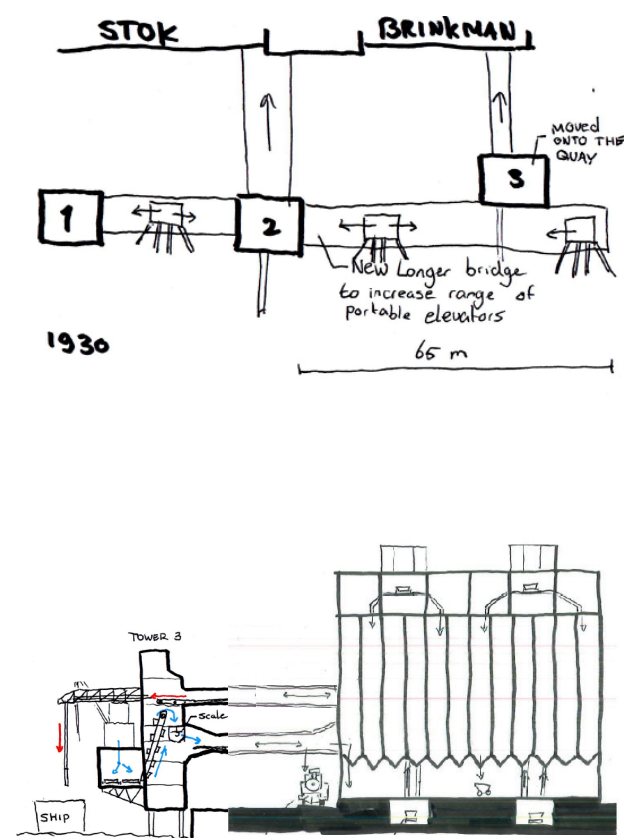
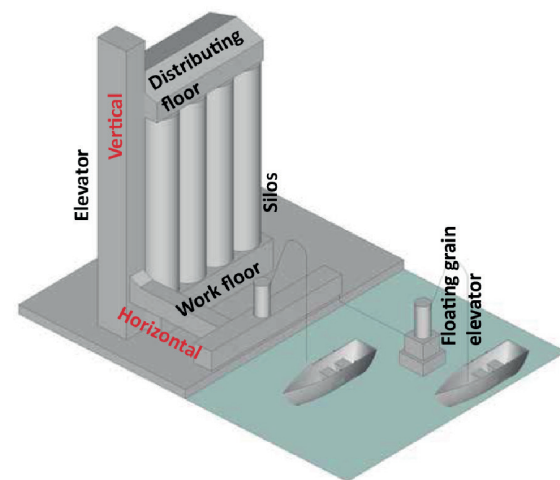
P5 PRESENTATION : 28.06.17

Sicha Chittavanich 4502922

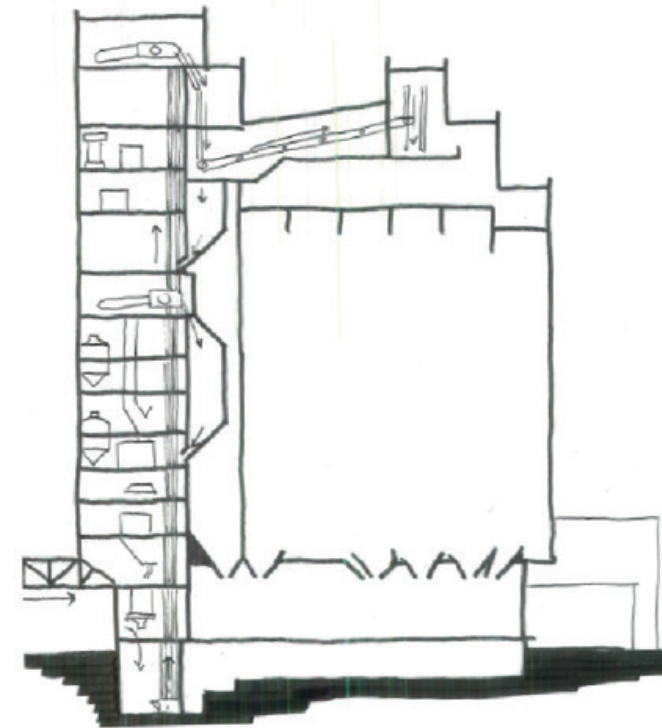


OFFICE BUILDING BY H.HAAN

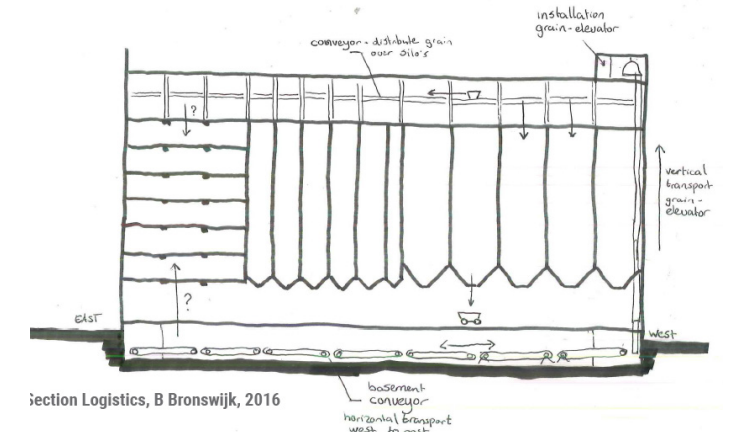
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



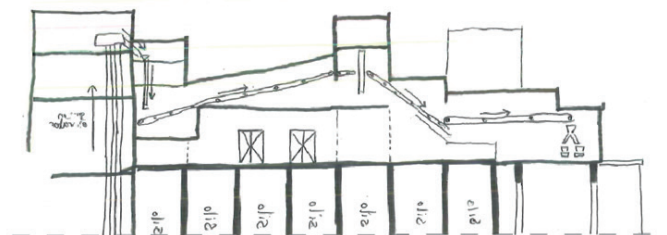
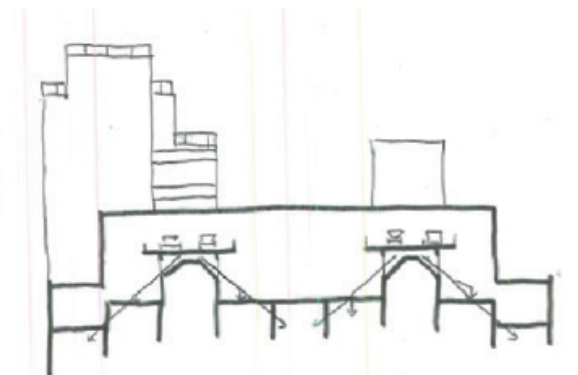
1



2



section Logistics, B Bronswijk, 2016



3

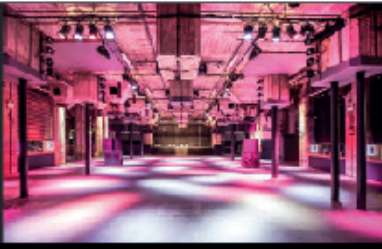
SILO ORGANIZATION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

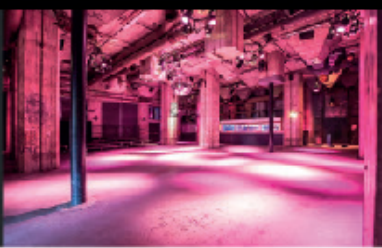


1. Upper floor event space

MAAS SILO
BIG ROOM
1100 m²
2000 RATING



MAAS SILO
CENTRAL HALL
650 m²
1000 RATING



MAAS SILO
SMALL ROOM
325 m²
900 GUESTS



2. Lower floor event space and nightclub (3 rooms and cellar)

MAAS SILO
CELLAR
990 m²
1250 RATING



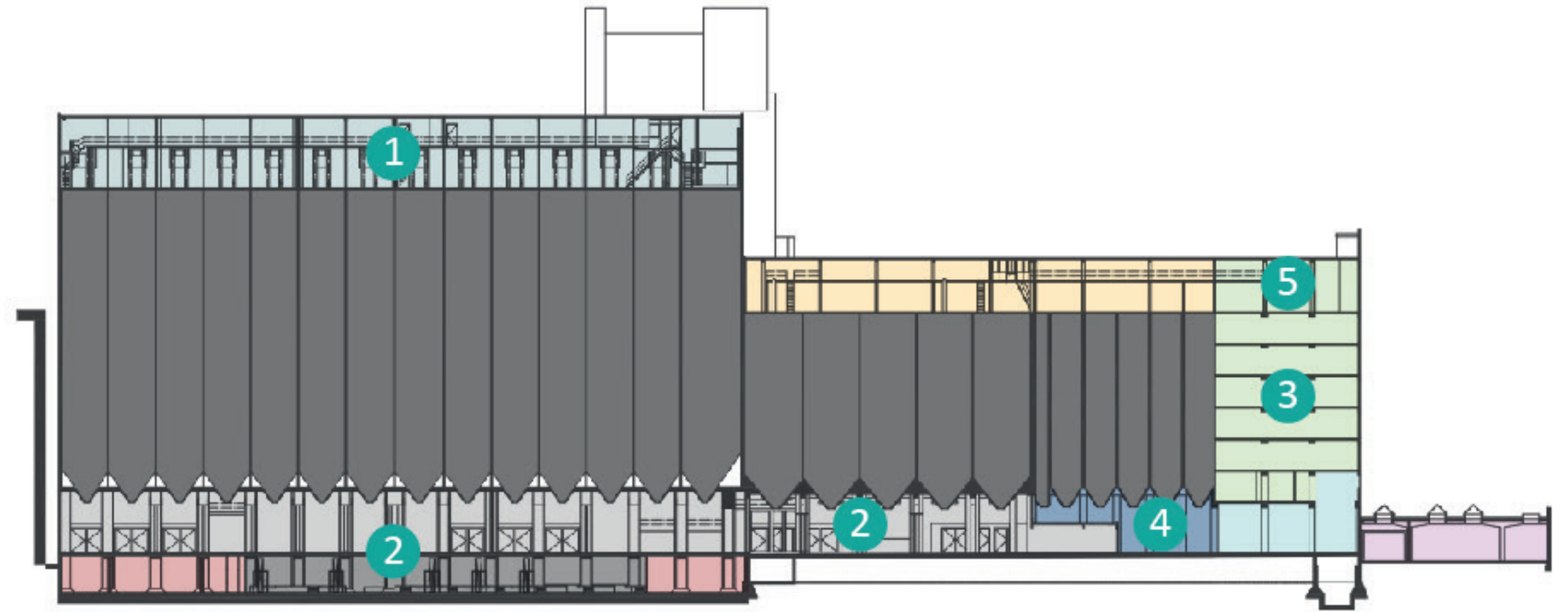
3. Office (rental space)



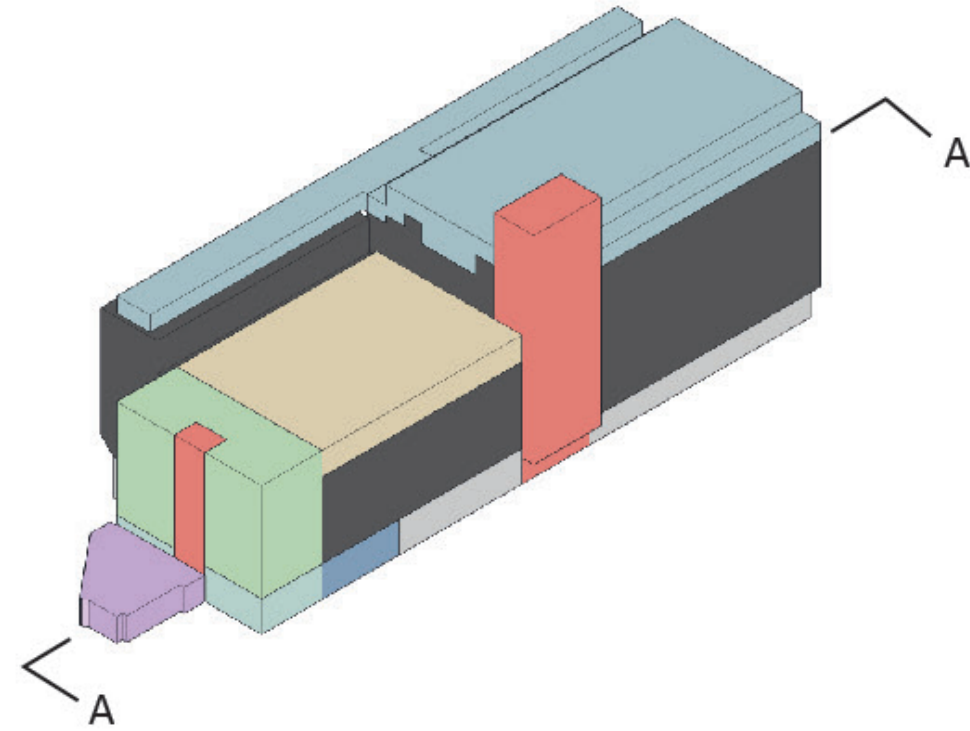
4. Weekend cafe



5. Office (on 7th floor)



Section A shows the different function of the building



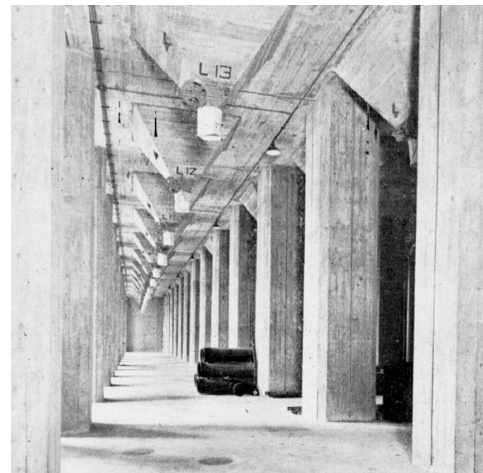
Functional mass

- Silo
- Ticket Booth
- Event Space /Night Club
- Foyer
- Office (Creative Factory)
- Workplace
- Cafe
- Event Space
- Non using Space
- Service

PRESENT SITUATION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

RETAINING &
PRESERVING



STRUCTURE



FUNNELS



MACHINE

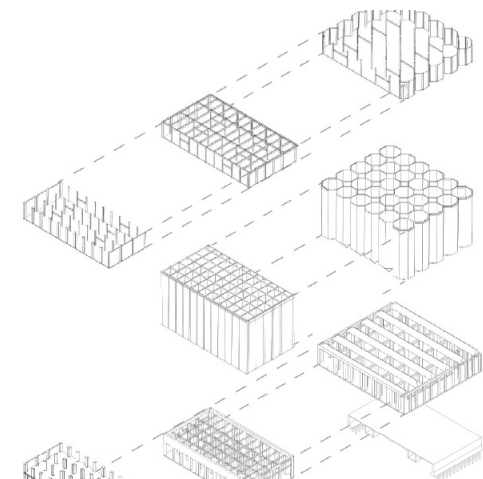


DISTRIBUTION SPACE



ORNAMENT

KEEP WITH
INTERVENTION



SILO CELL



CONNECTION ATTIC



OPENING

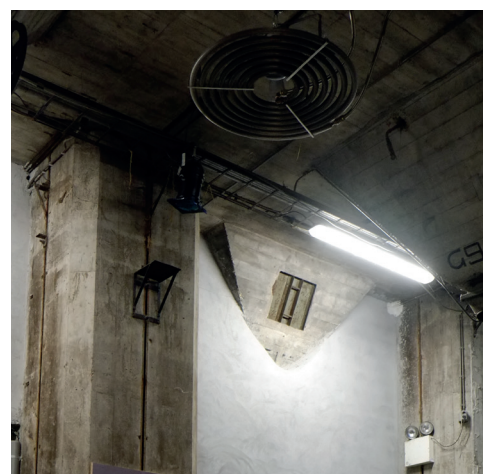


WATER ELEVATORS



OFFICE BUILDING

INTERVENTION
AND CHANGE IS
NECESSARY



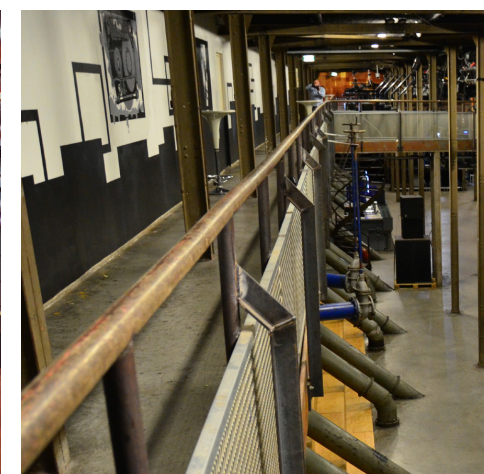
LATER WALLS



CHANGES OF COLUMN



CLOSING OF PANELS



ATTIC LATER WALLS



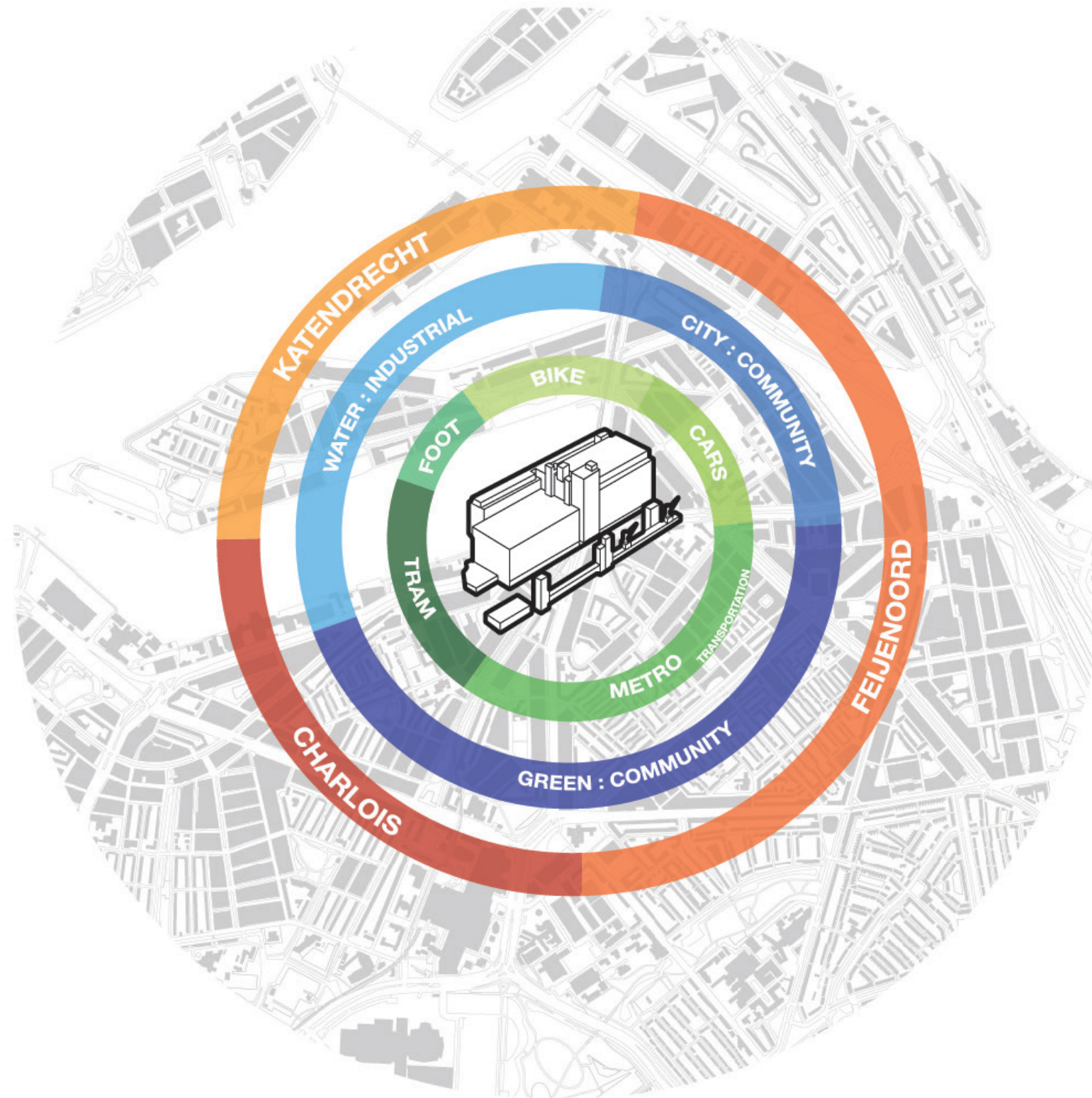
WINDOW FRAMES

PRESERVING AND CHANING ASSESSMENT

MAASSILO

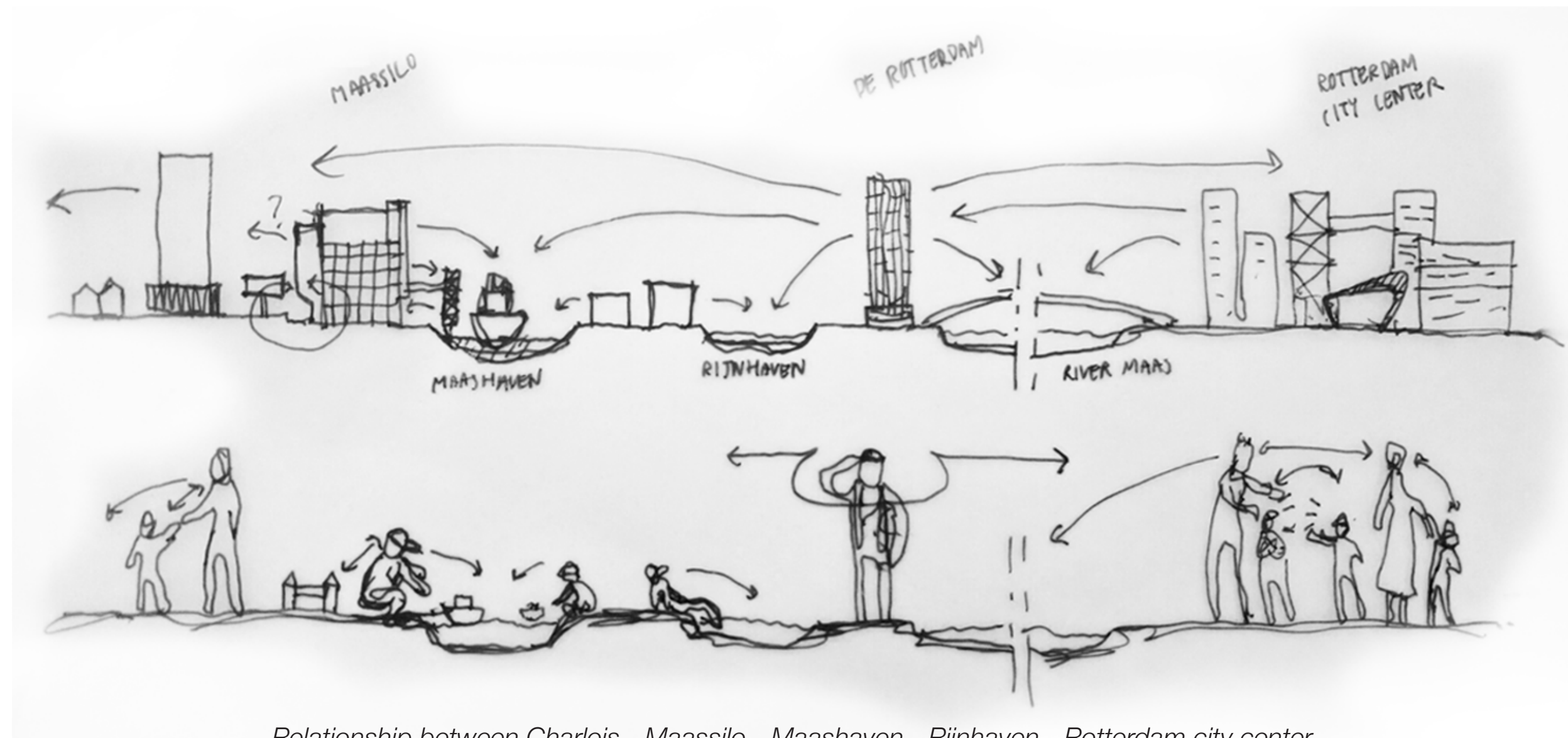
P5 PRESENTATION : 28.06.17

Sicha Chittavanich 4502922



NEW POSITION: CENTER AND JUNCTION
DESIGN STARTING POINT

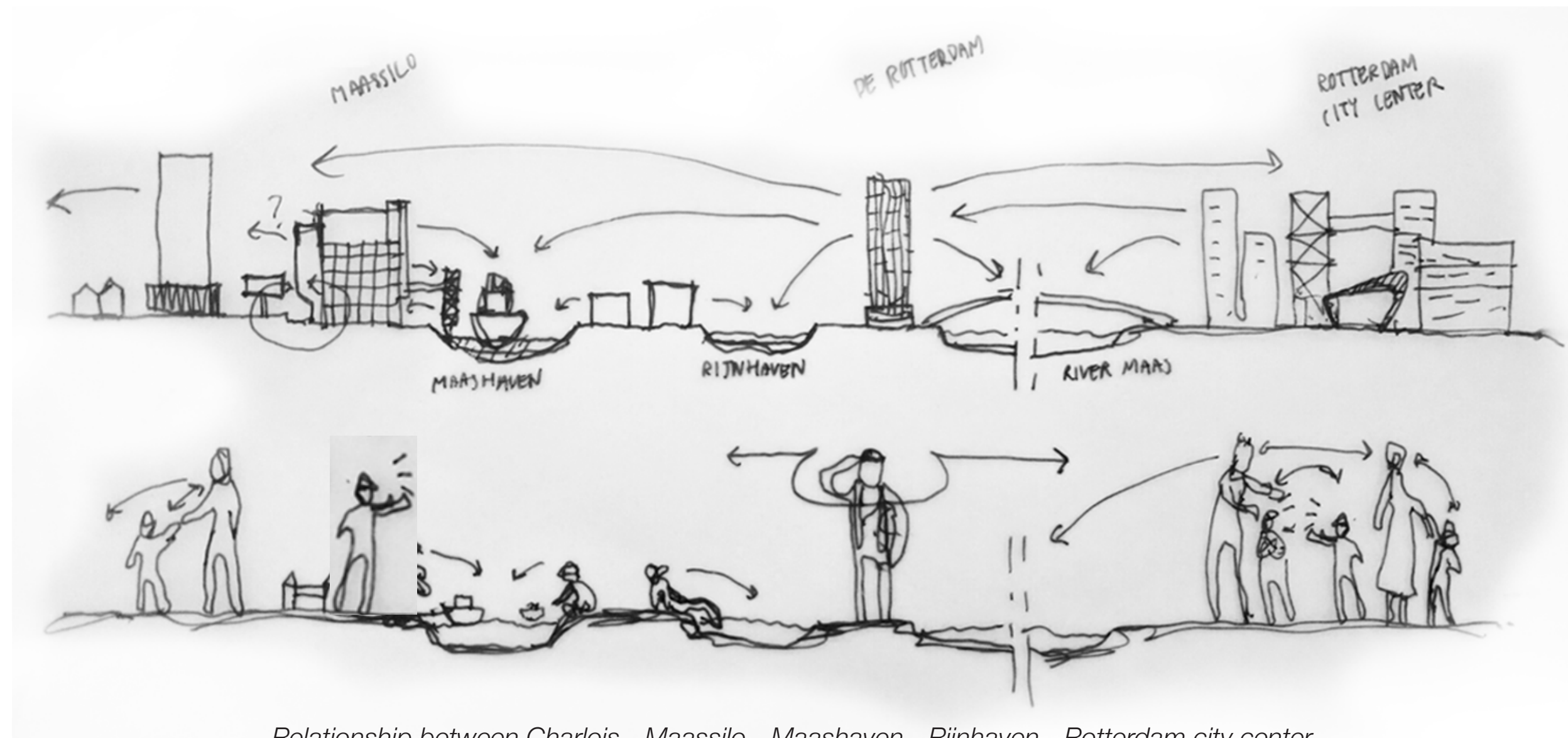
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



Relationship between Charlois - Maassilo - Maashaven - Rijnhaven - Rotterdam city center

RELATIONSHIP OF MAASSILO AND SURROUNDING

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



Relationship between Charlois - Maassilo - Maashaven - Rijnhaven - Rotterdam city center

RELATIONSHIP OF MAASSILO AND SURROUNDING

MAASSILO
P5 PRESENTATION : 28.06.17
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NATIONALITY / ETHNIC GROUPS

	NETHERLANDS	ROTTERDAM	CHARLOIS	FEIJENOORD	KATENDRECHT
DUTCH	80	52	46	34	34
NON-DUTCH					
SURINAMESE	2	9	11	11	11
TURKISH	2	8	11	19	19
MOROCCAN	2	7	7	10	10
ANTILLEAN/ ARUBAN	1	4	5	5	5
CAPE VERDEAN	0	3	1	2	2
OTHER WESTERN	9	11	9	9	9
OTHER NON-WESTERN	4	7	10	10	10

AGE GROUPS

Rotterdam 0-15



■ Netherlands 17% ■ Rotterdam 16%
■ Feijenoord 18%

Rotterdam 15-25



■ Netherlands 12% ■ Rotterdam 14%
■ Feijenoord 15%

Rotterdam 25-45



■ Netherlands 26% ■ Rotterdam 31%
■ Feijenoord 31%

Rotterdam 45-65



■ Netherlands 28% ■ Rotterdam 25%
■ Feijenoord 25%

Rotterdam 65+



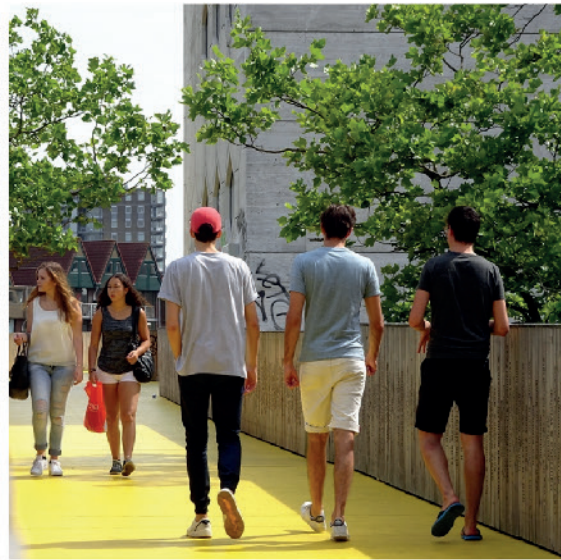
■ Netherlands 16% ■ Rotterdam 14%
■ Feijenoord 11%

<https://www.urbandivercities.eu/rotterdam/>

The Ethnically Diverse City edited by Frank Eckardt, John Eade

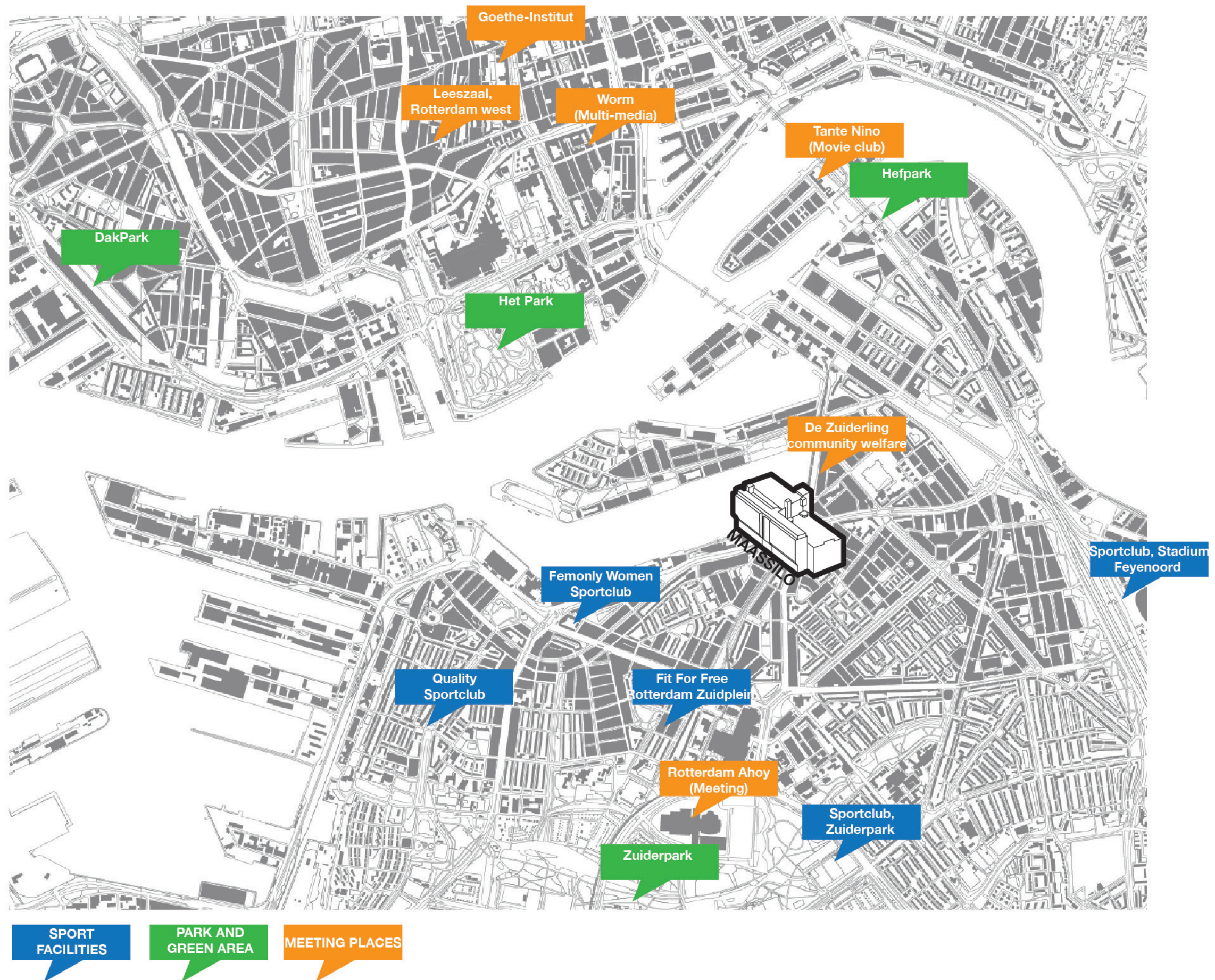
DEMOGRAPHY AND AGE

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



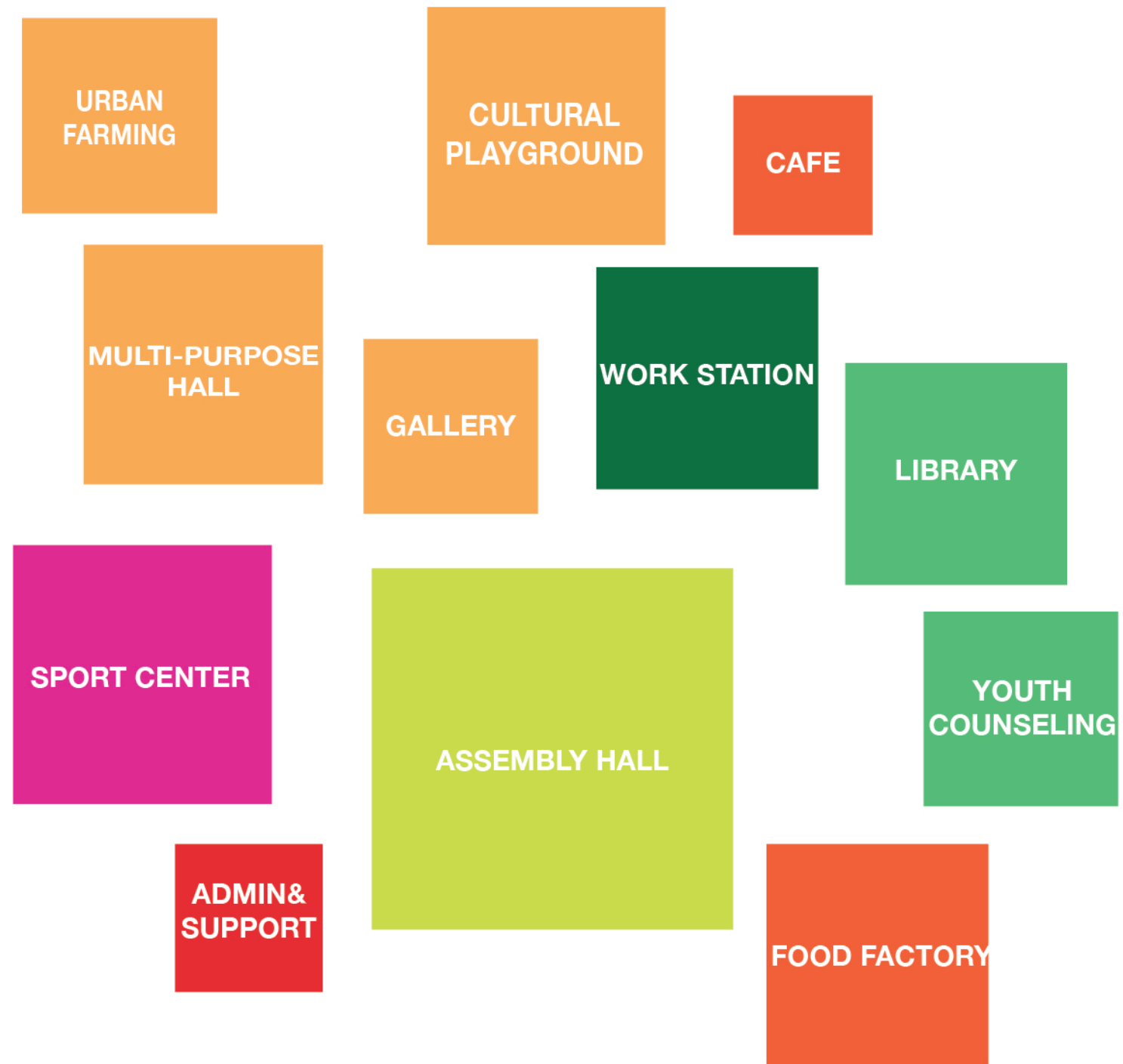
COMMUNITY ACTIVITIES

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



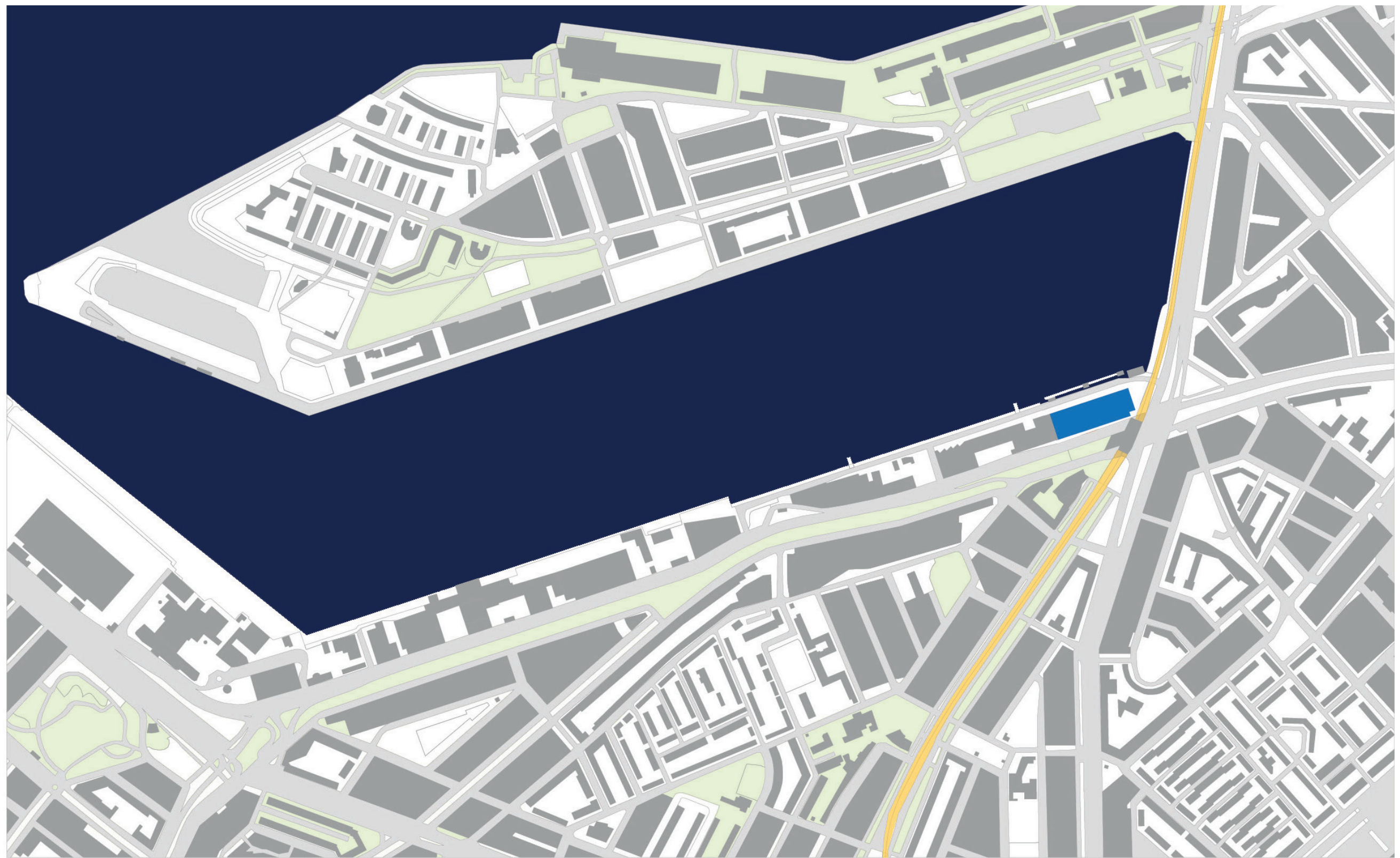
COMMUNITY MAP

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



PROGRAM

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



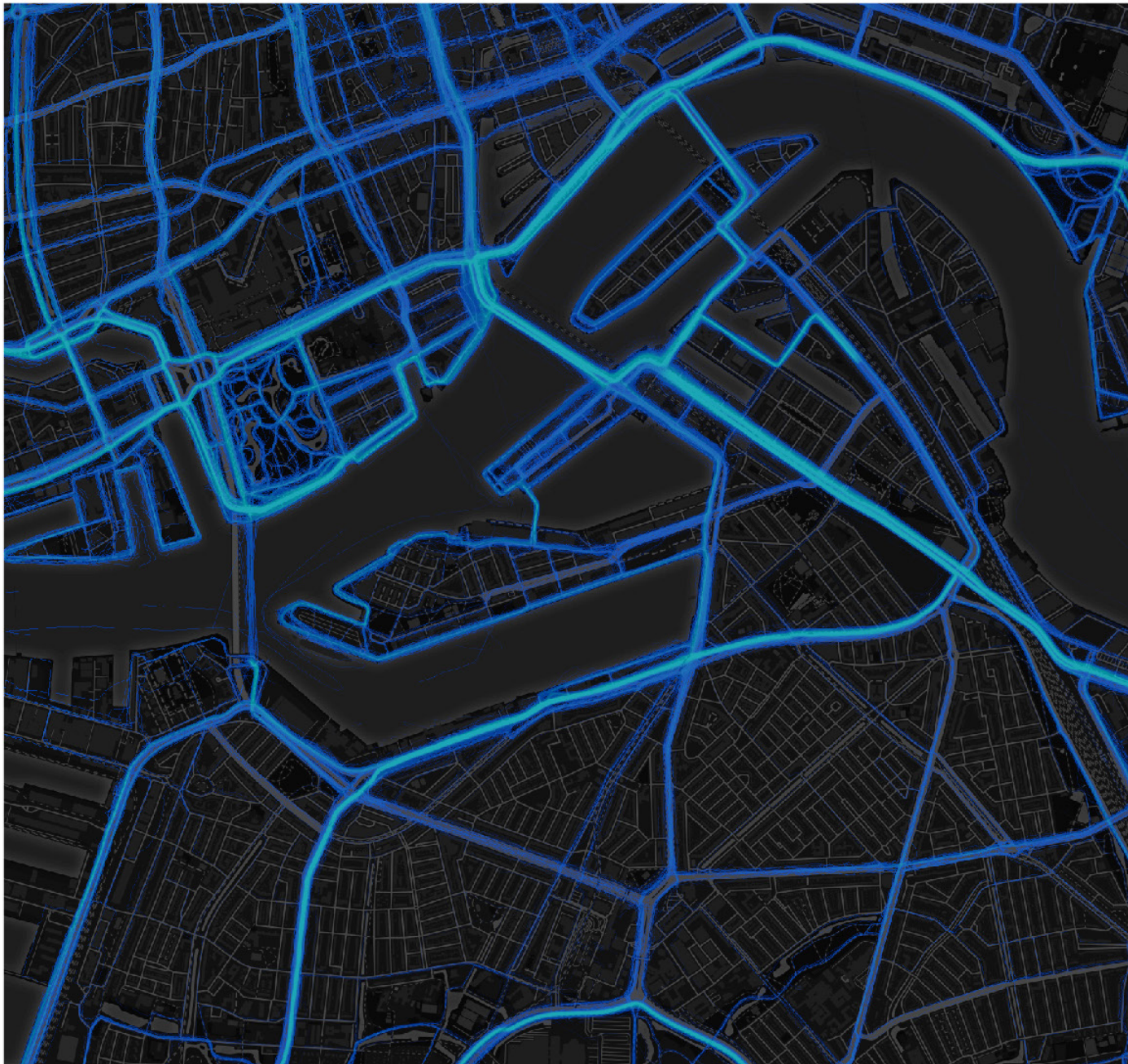
- 1 Maassilo
- 2 public square
- 3 parking area
- 4 floating multi-purpose area
- 5 floating residential
- 6 tidal park

- water
- current public space
- future public space
- metro line
- tram line

- pedestrain access
- car access
- future access
- water taxi: future route
- water taxi: future dock

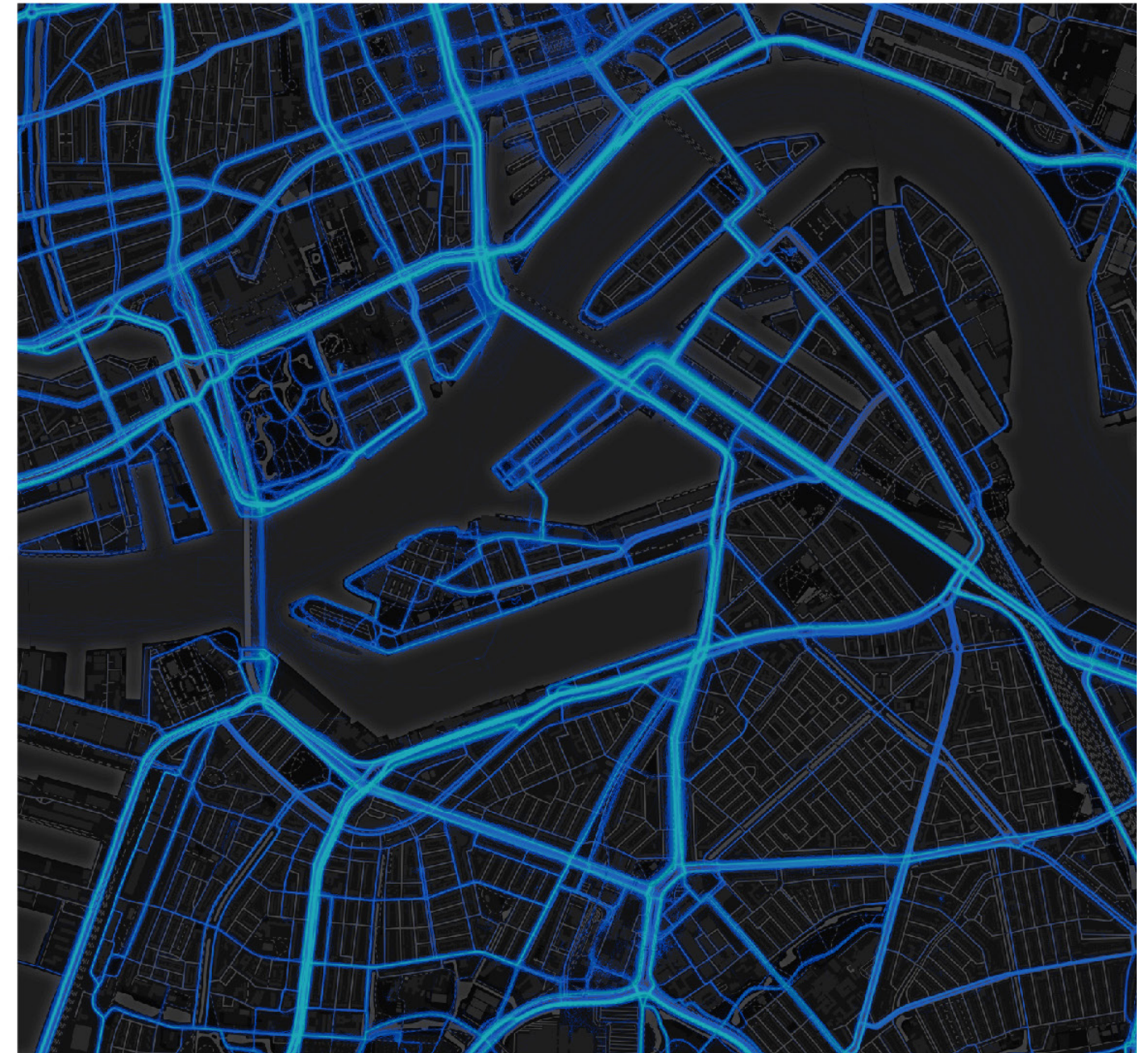
PRESENT SITUATION MAP

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



SOURCE: LAB.STRAVA.COM

HEAT MAP : RUNNING ROUTE



SOURCE: LAB.STRAVA.COM

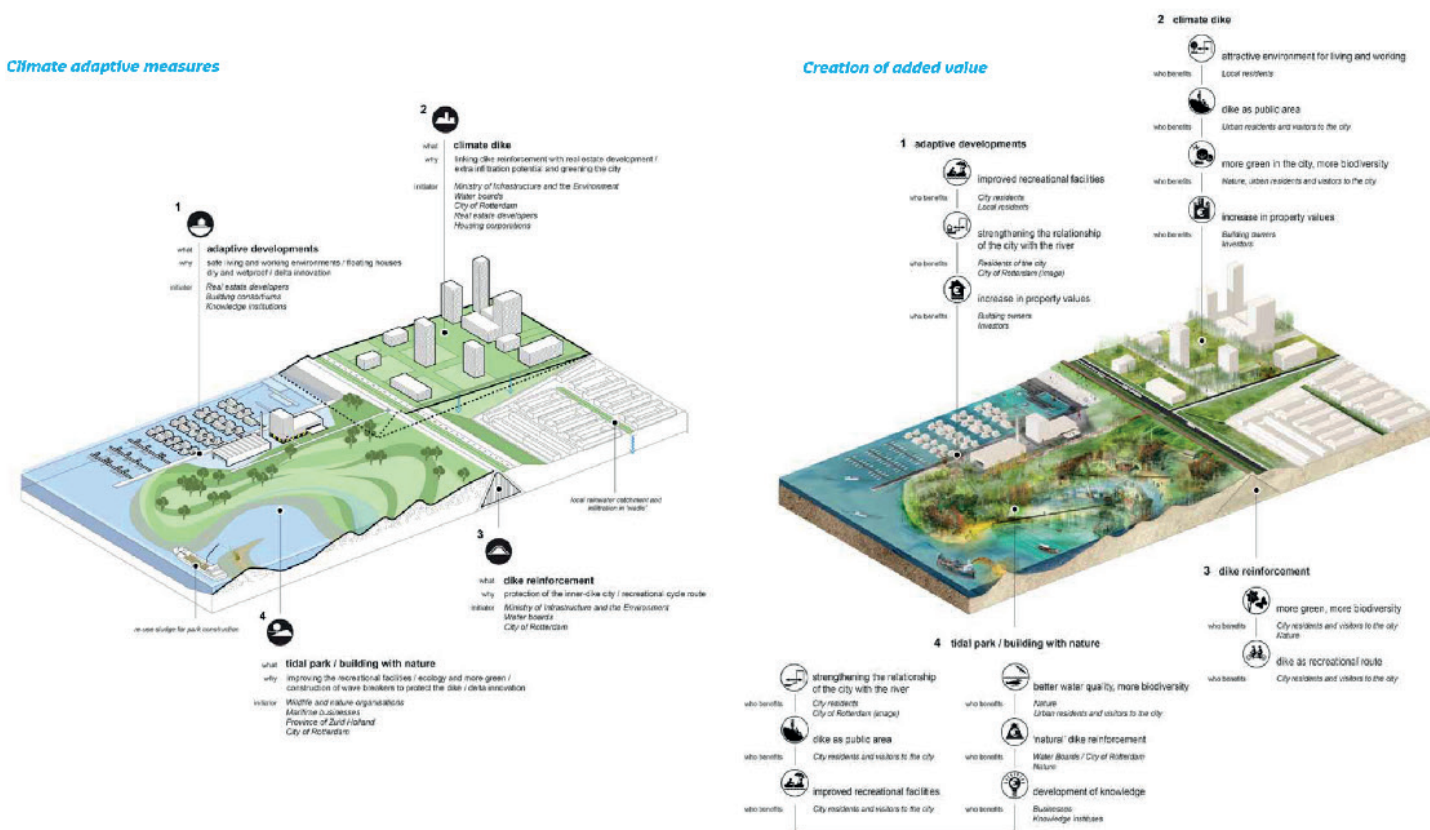
HEAT MAP : BIKEING ROUTE

HEAT MAP

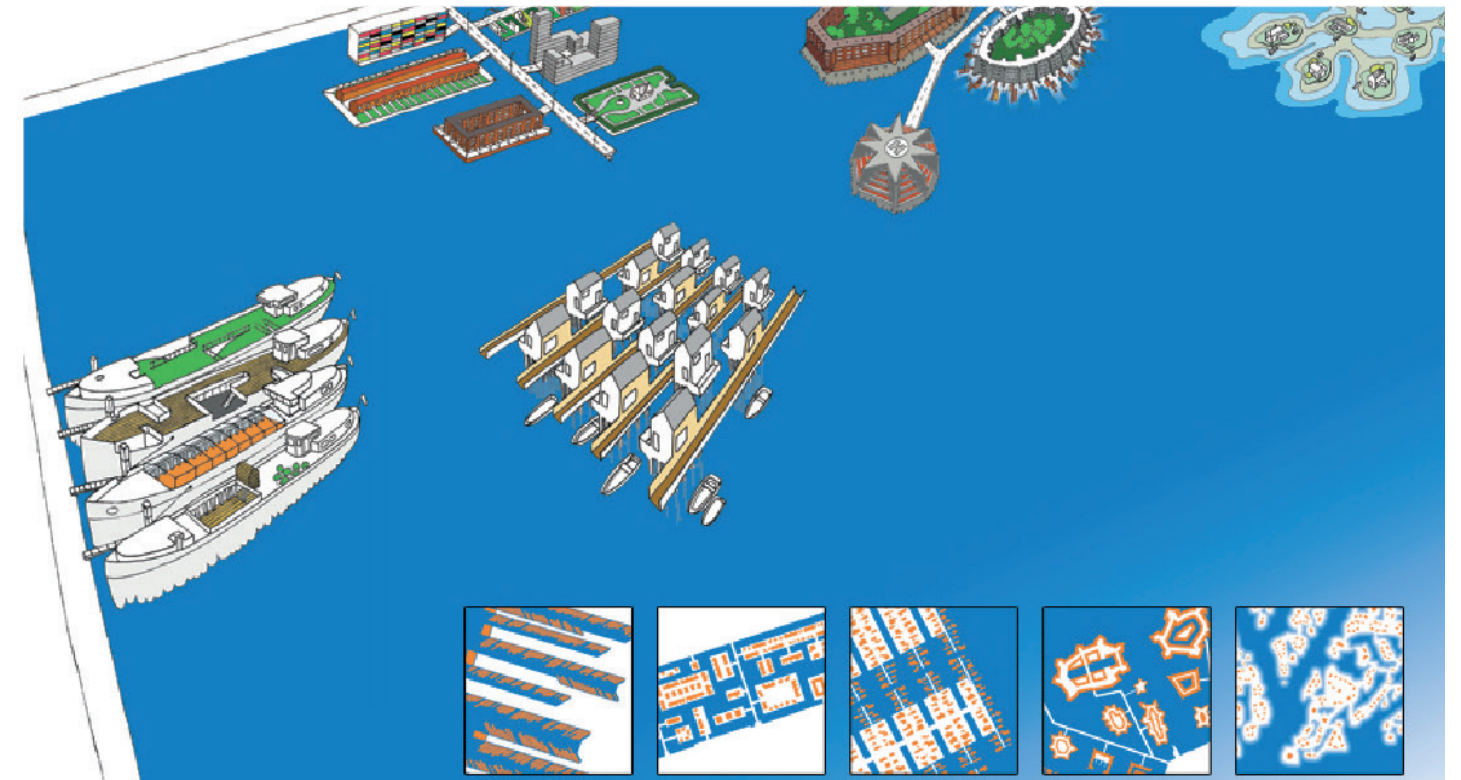
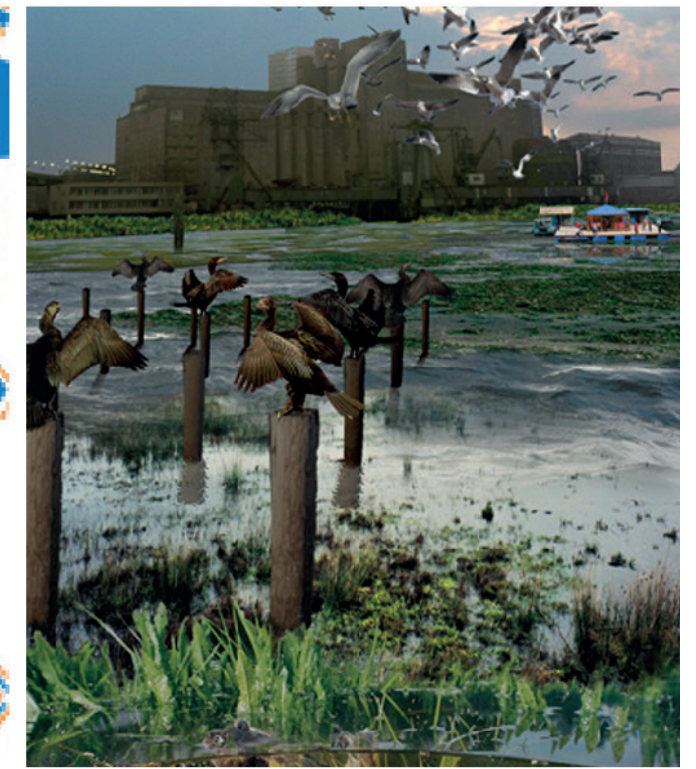
MAASSILO

P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

Climate adaptive measures



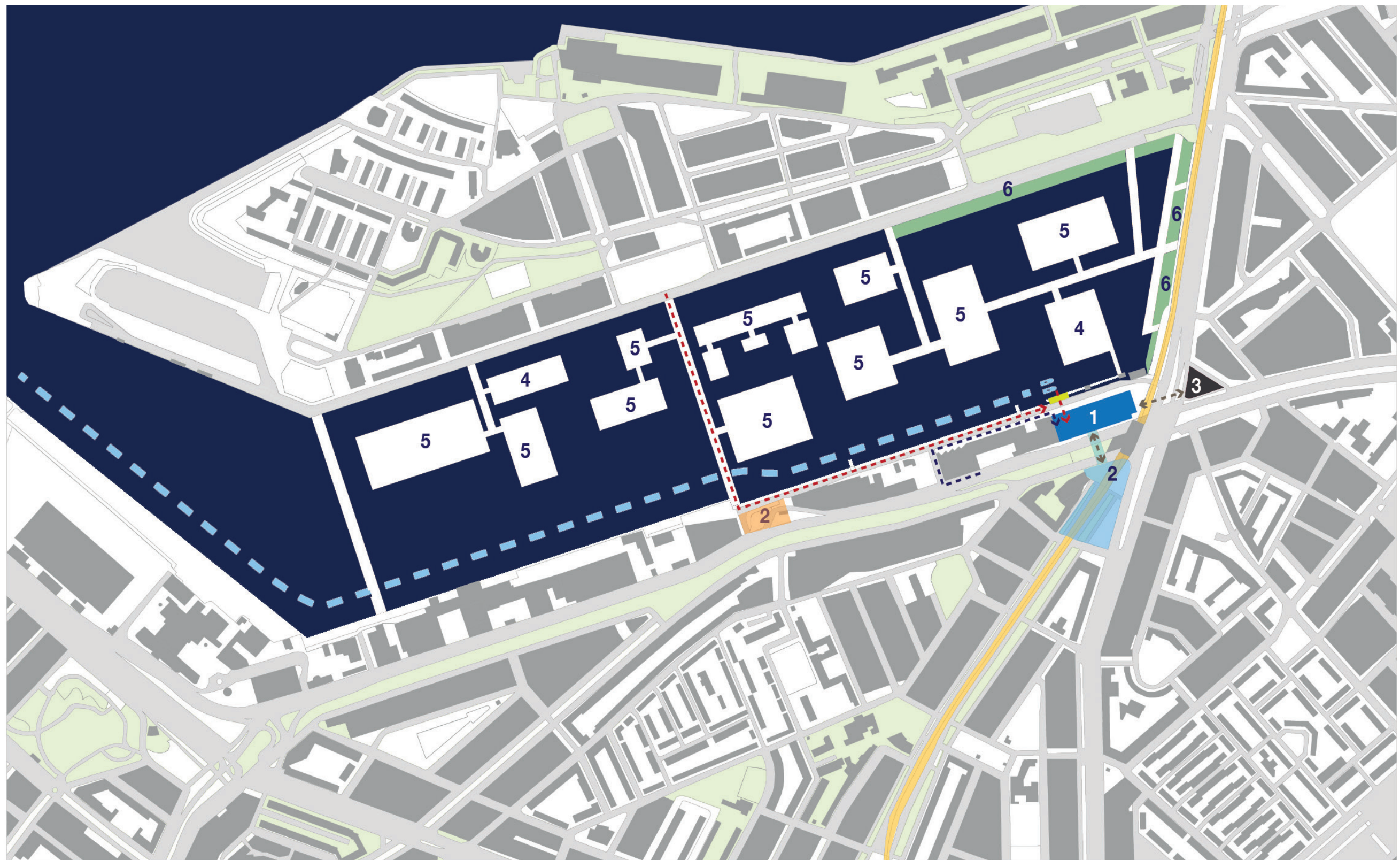
'The river as a tidal park', Rotterdam Climate Initiative



Rotterdam Water City 2035, Studio MarcOvermeulen with City of Rotterdam

FUTURE PLAN OF MAASHAVEN

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



- 1 Maassilo
- 2 public square
- 3 parking area
- 4 floating multi-purpose area
- 5 floating residential
- 6 tidal park

- water
- current public space
- future public space
- metro line
- tram line

- pedestrian access
- car access
- future access
- water taxi: future route
- water taxi: future dock

URBAN PLAN

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



PRESENT SITUATION OF PUBLIC GARDEN

MAASSILO

P5 PRESENTATION : 28.06.17

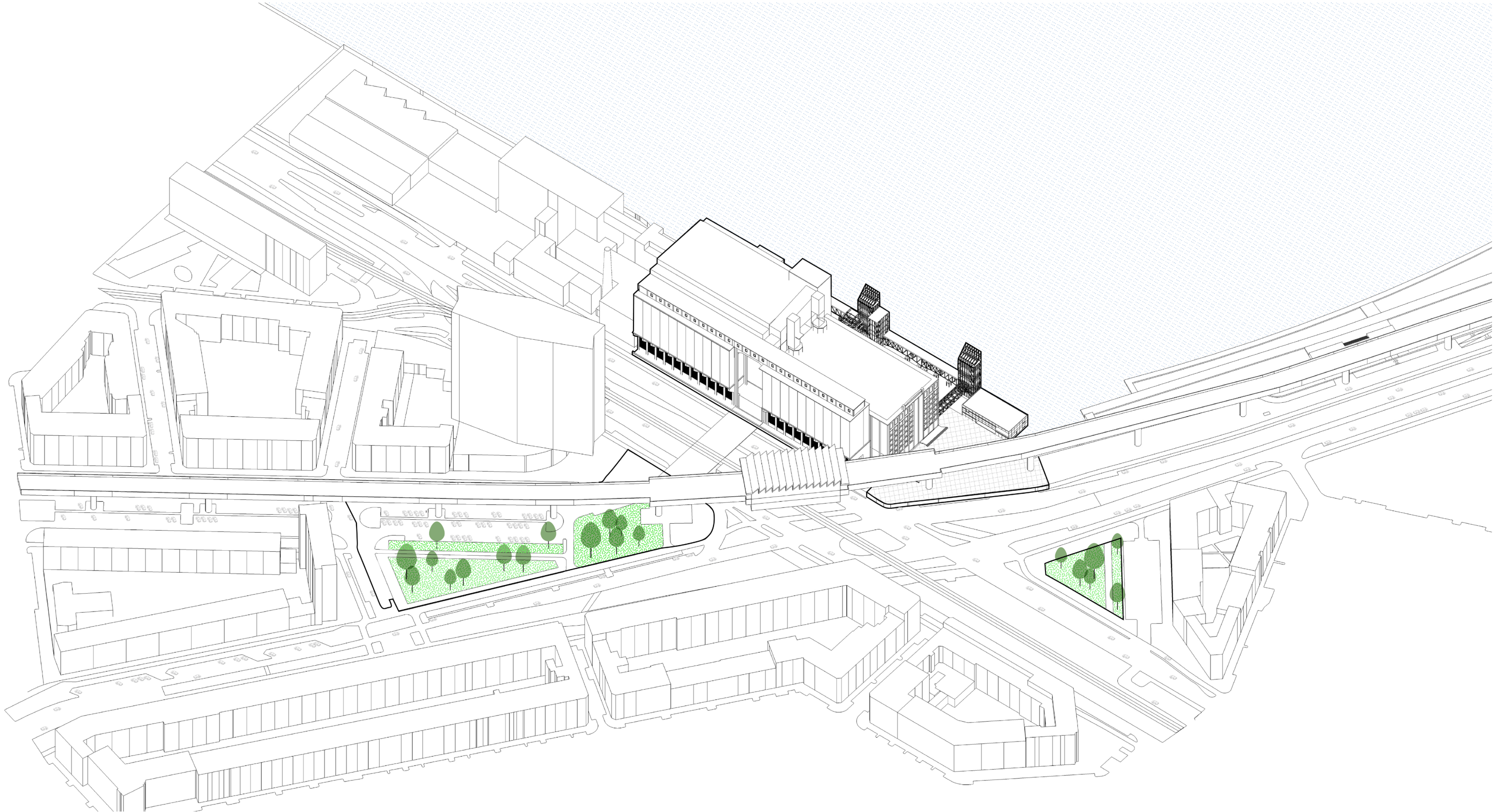
Sicha Chittavanich 4502922

FLOATING SQUARE

ART
SQUARE

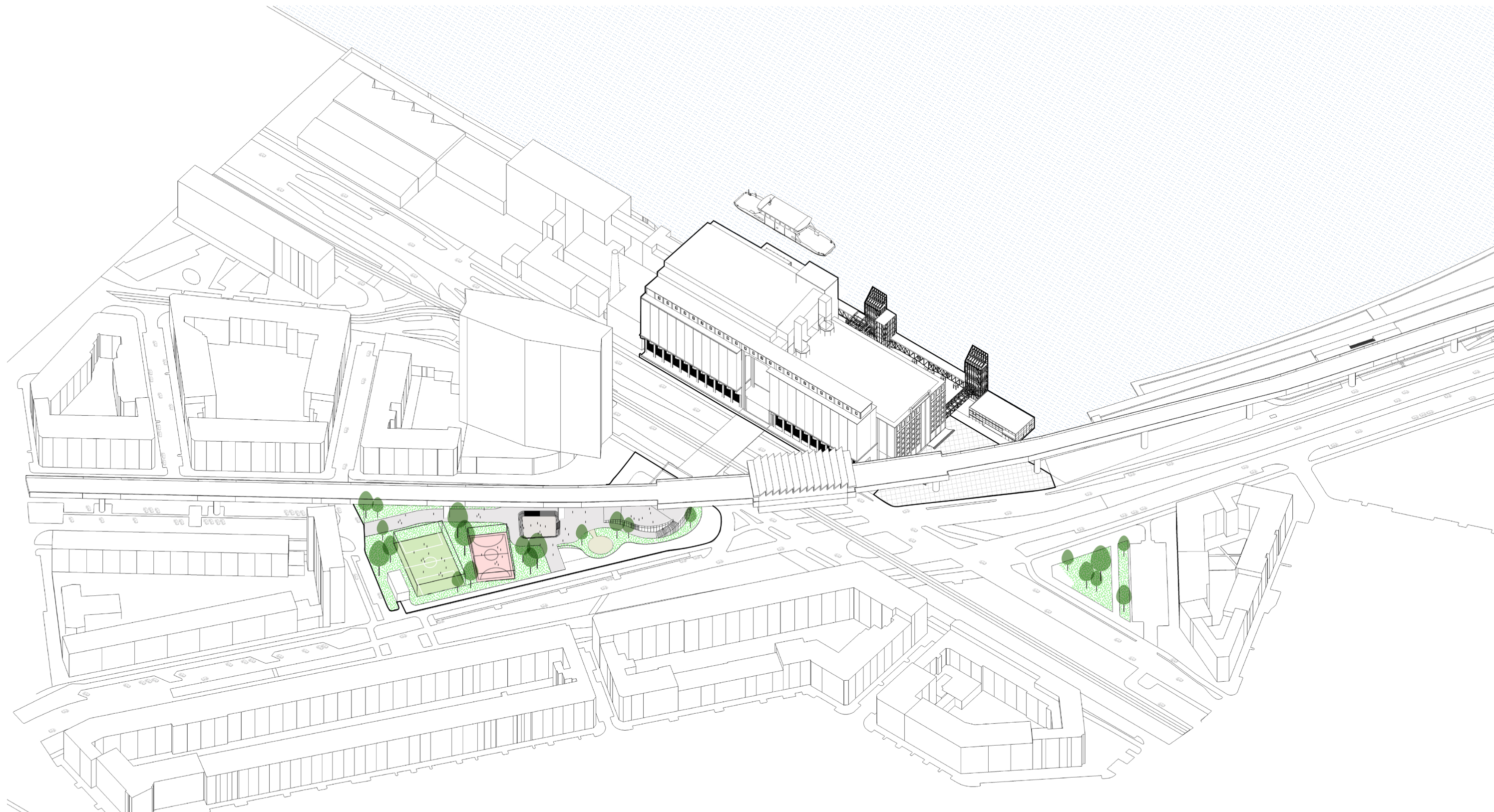
SPORT
SQUARE





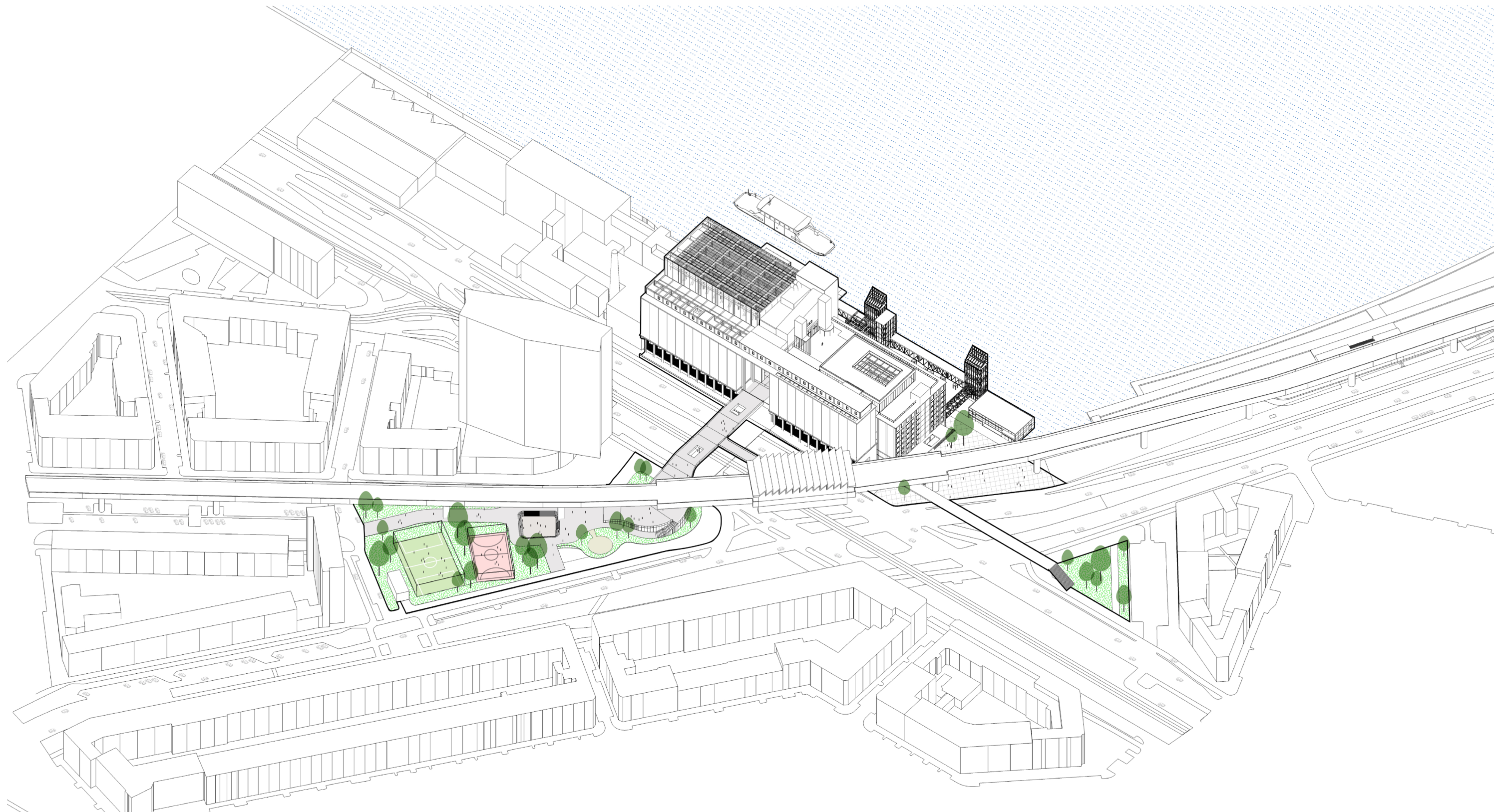
PHASING - EXISTING

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



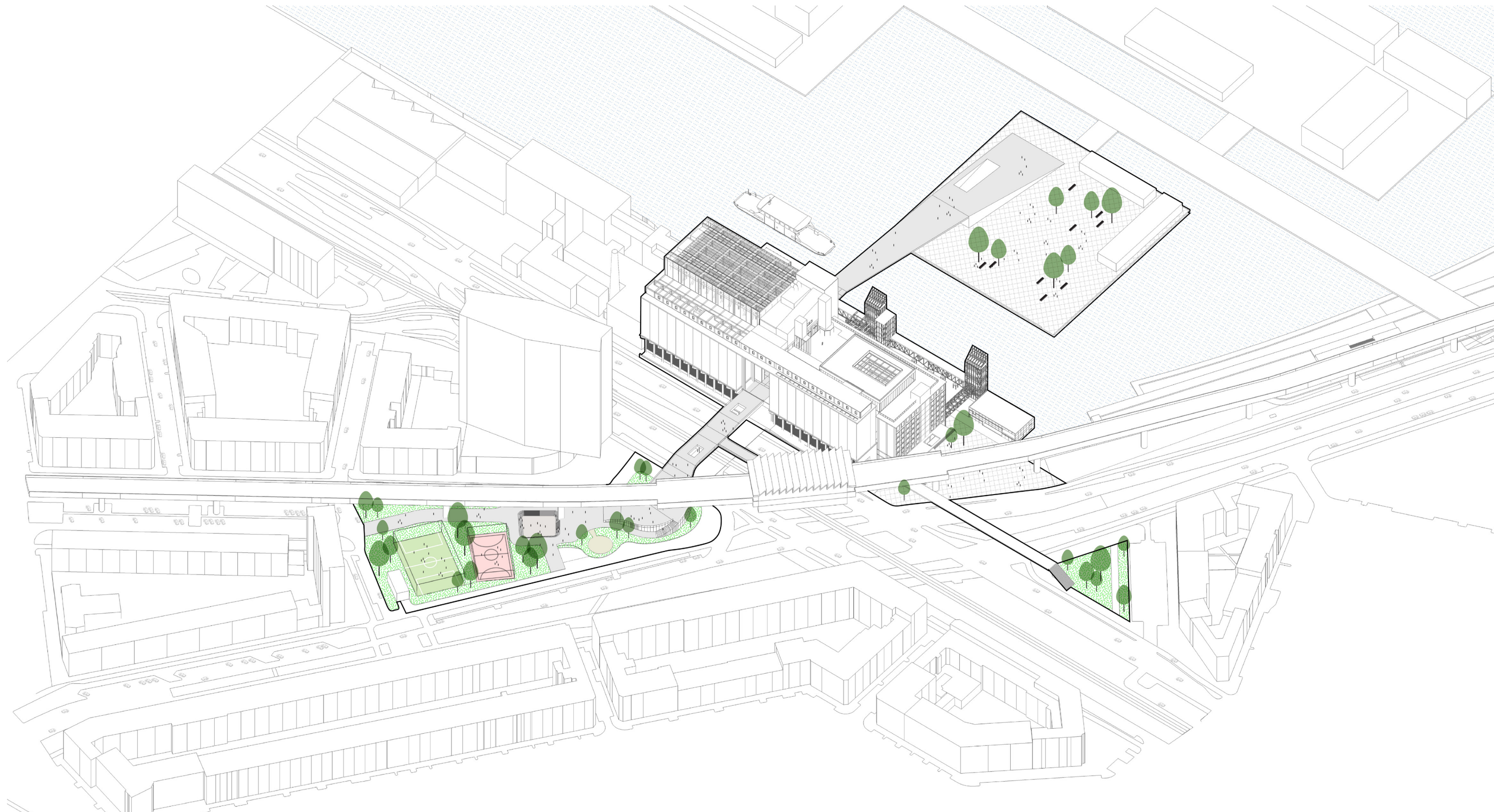
PHASING - 01 COMMUNITY SQUARE

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



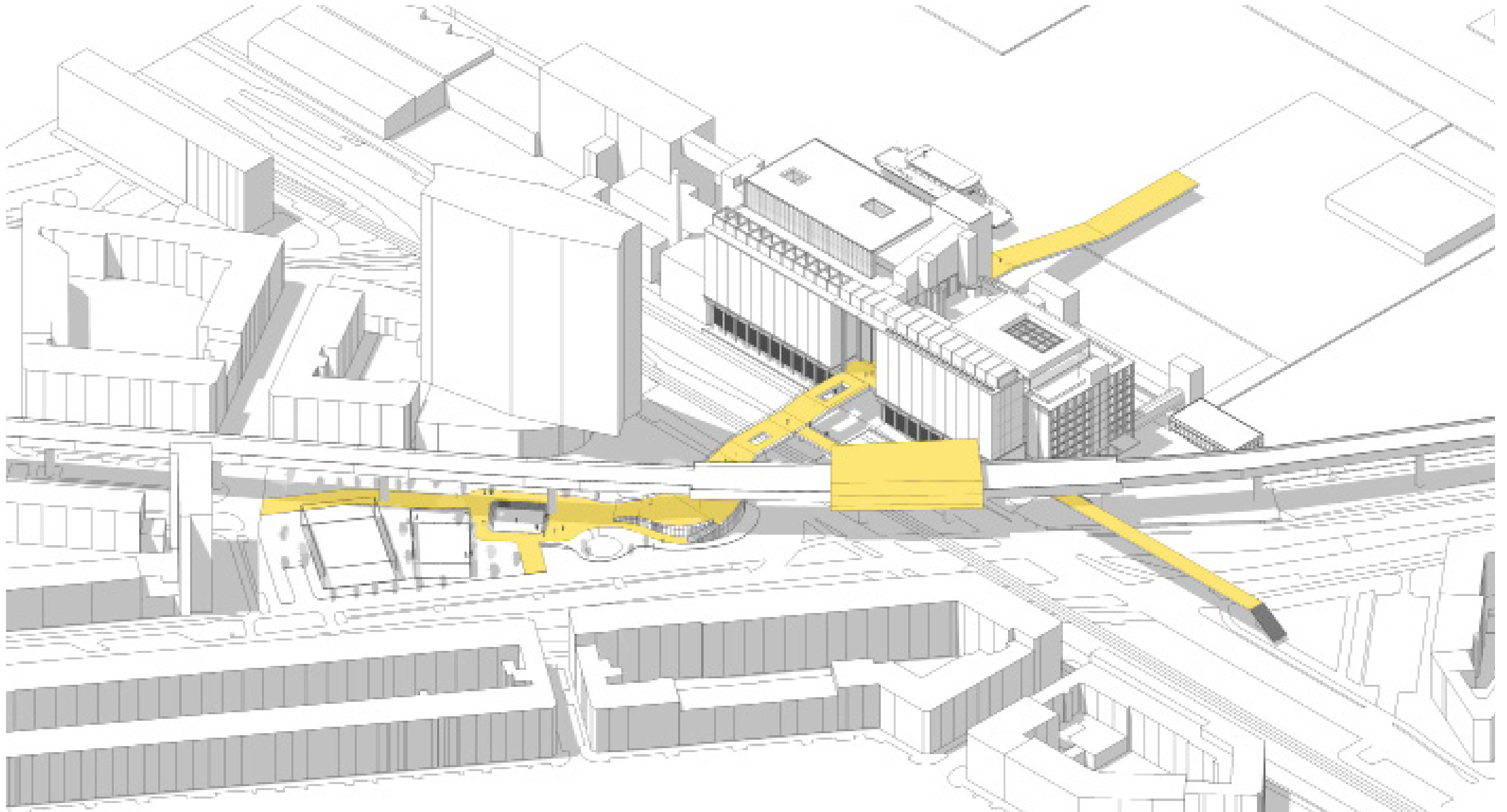
PHASING - 02 BUILDING-LINKED BRIDGE

MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922



PHASING - 03 FLOATING COOMUNITY-LINKED BRIDGE

MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922



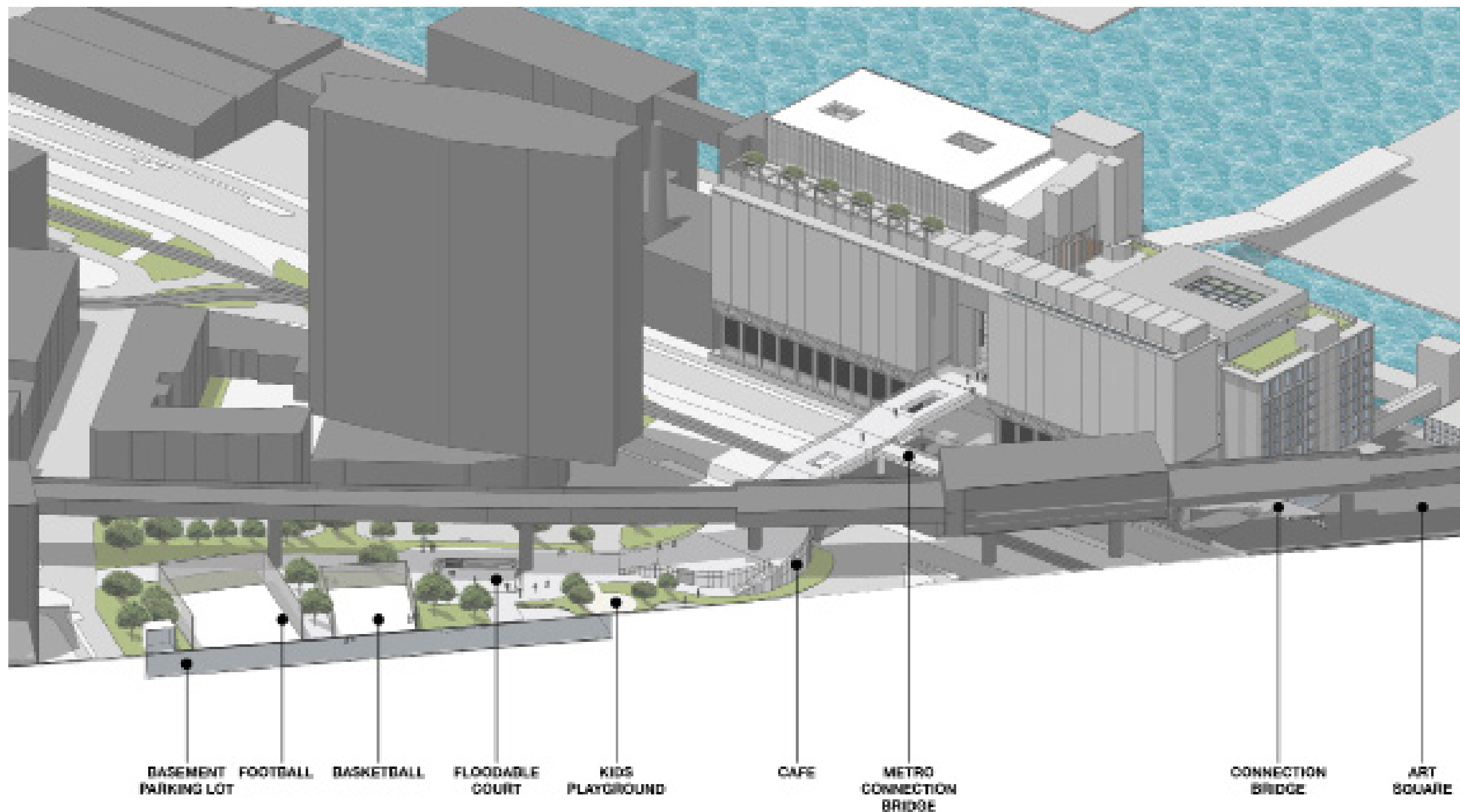
AERIAL VIEW WITH NEW CONNECTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



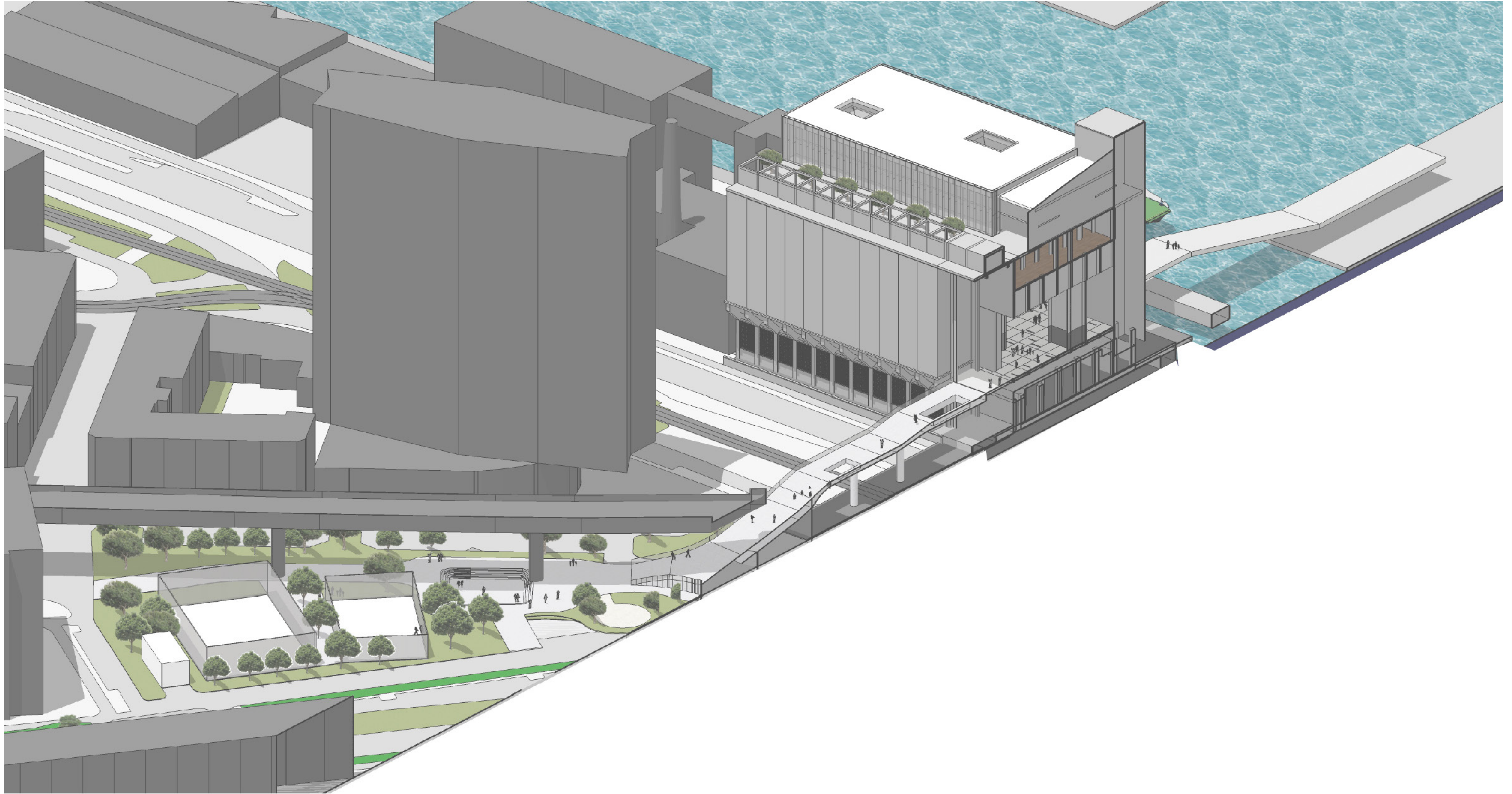
AERIAL VIEW WITH NEW CONNECTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



SPORT SQUARE SECTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



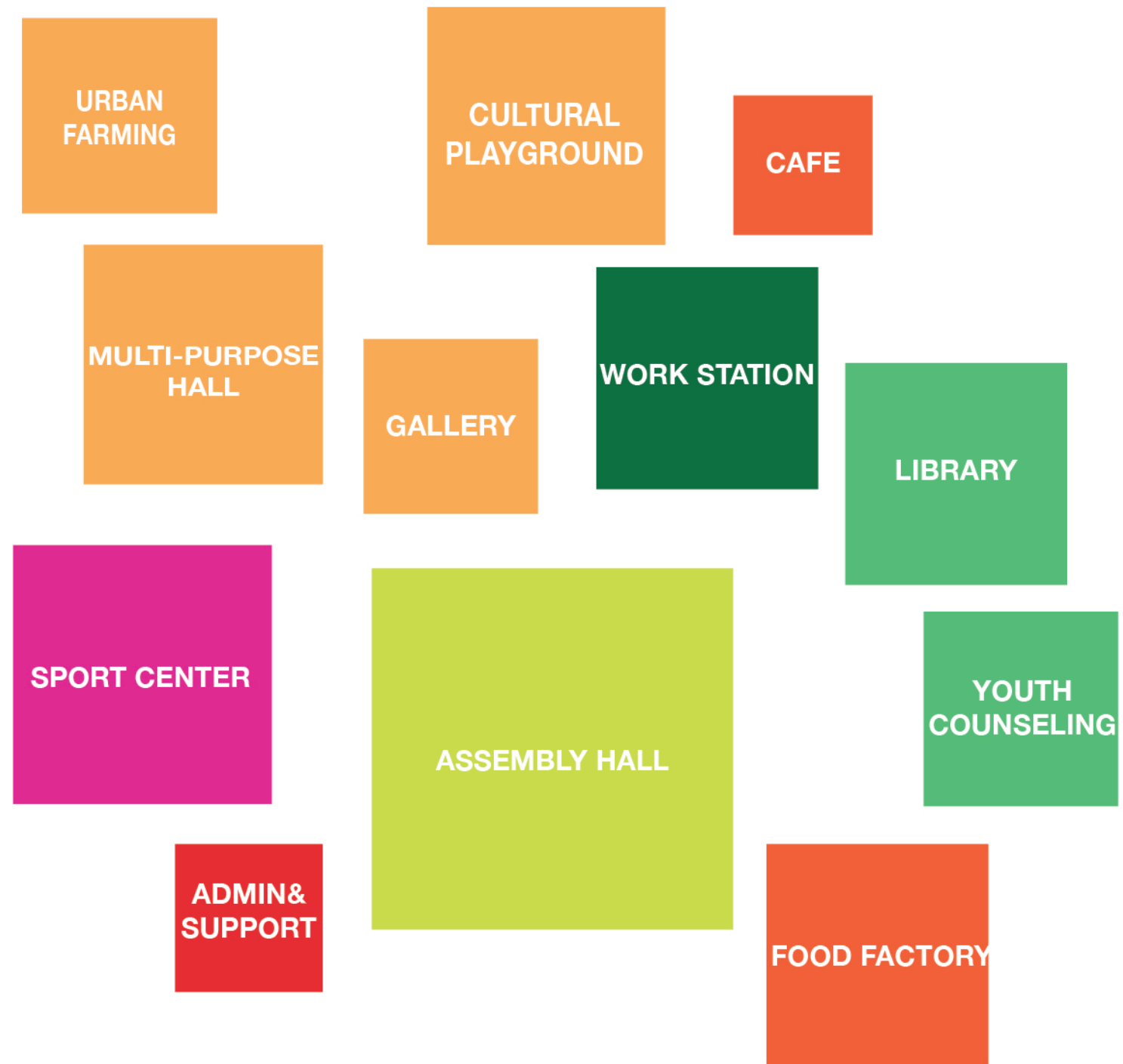
CONNECTION BRIDGE SECTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



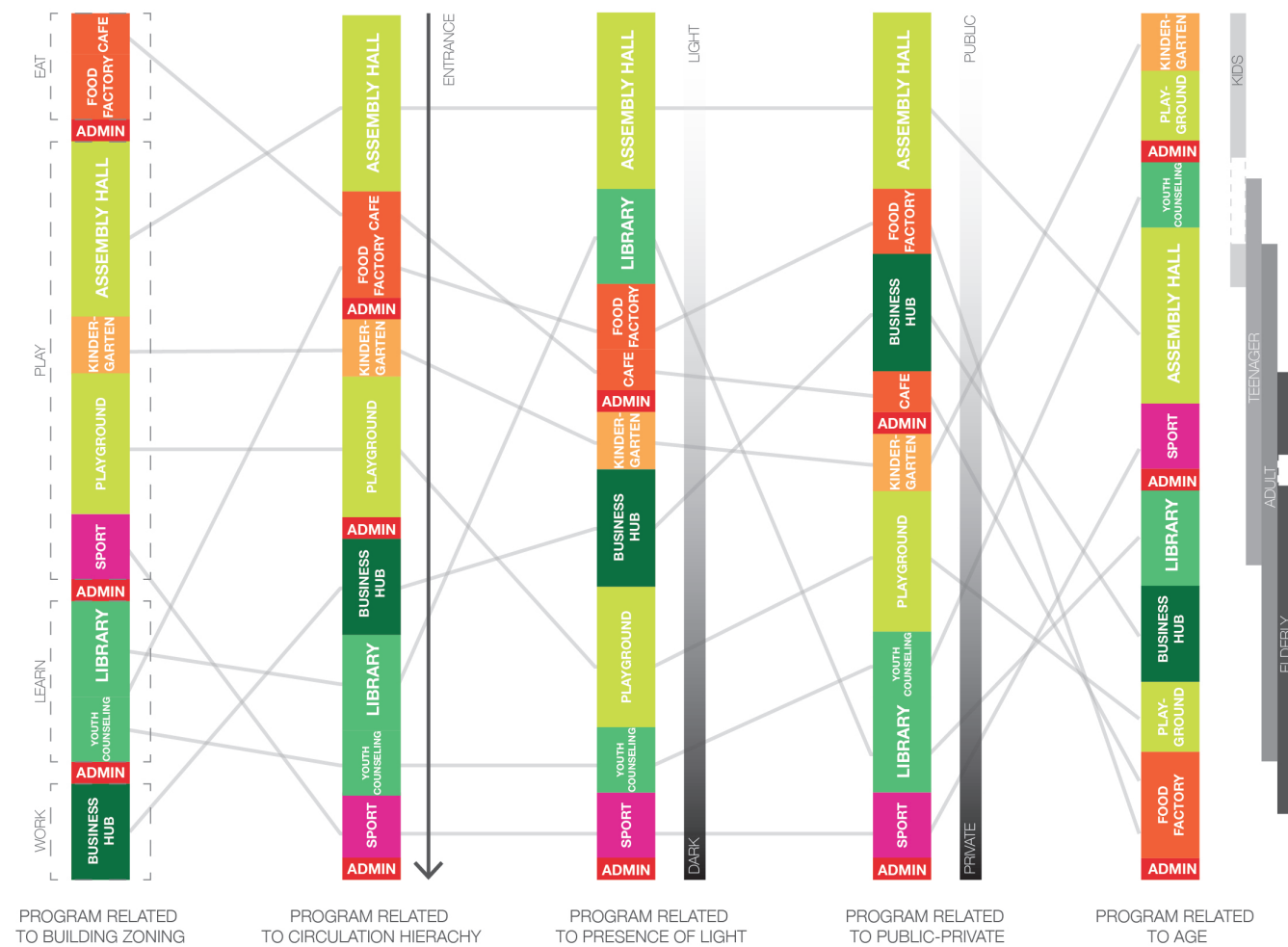
PERSPECTIVE: BRIDGE TO THE BUILDING

MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922

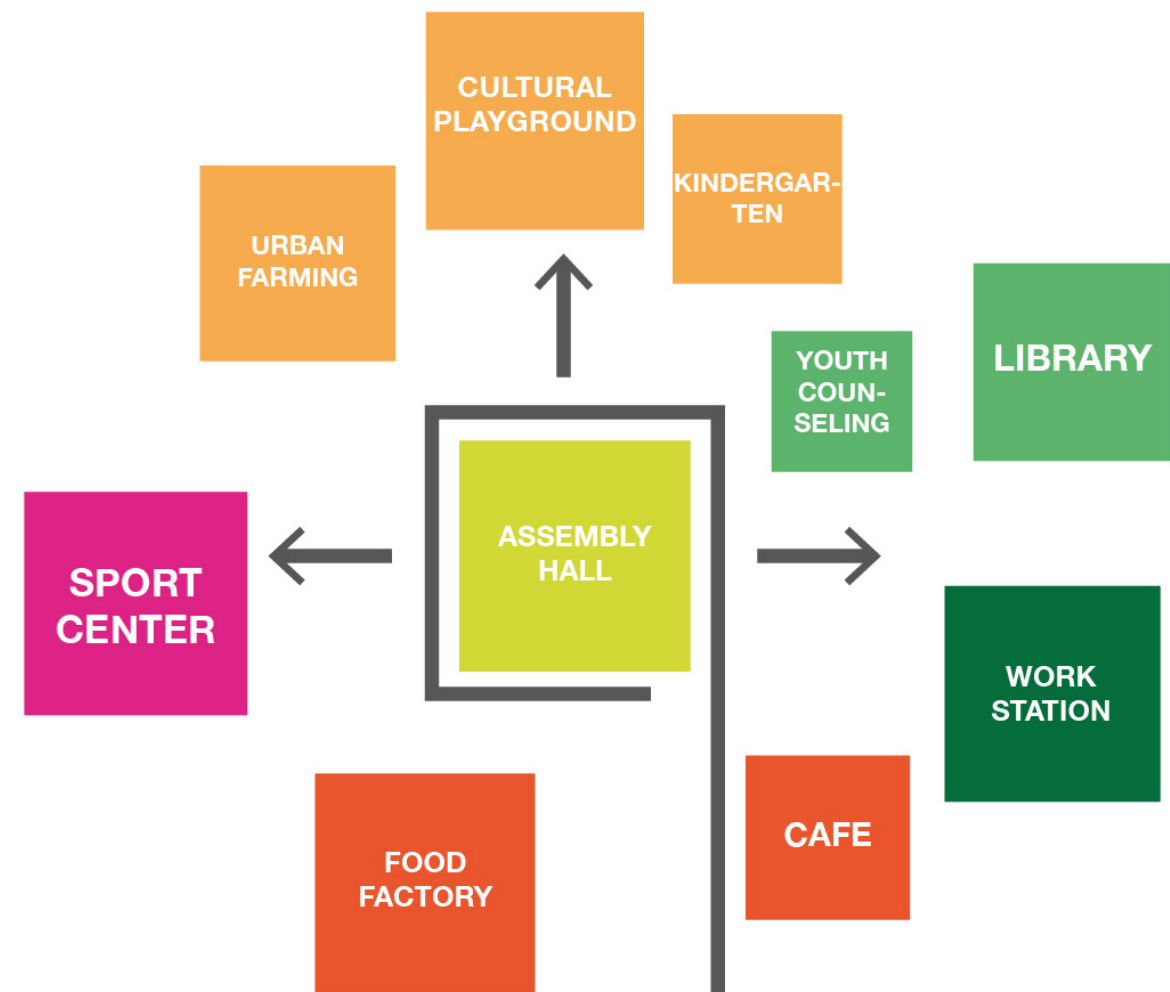


PROGRAM

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



PROGRAMME RELATED TO VARIOUS ASPECTS

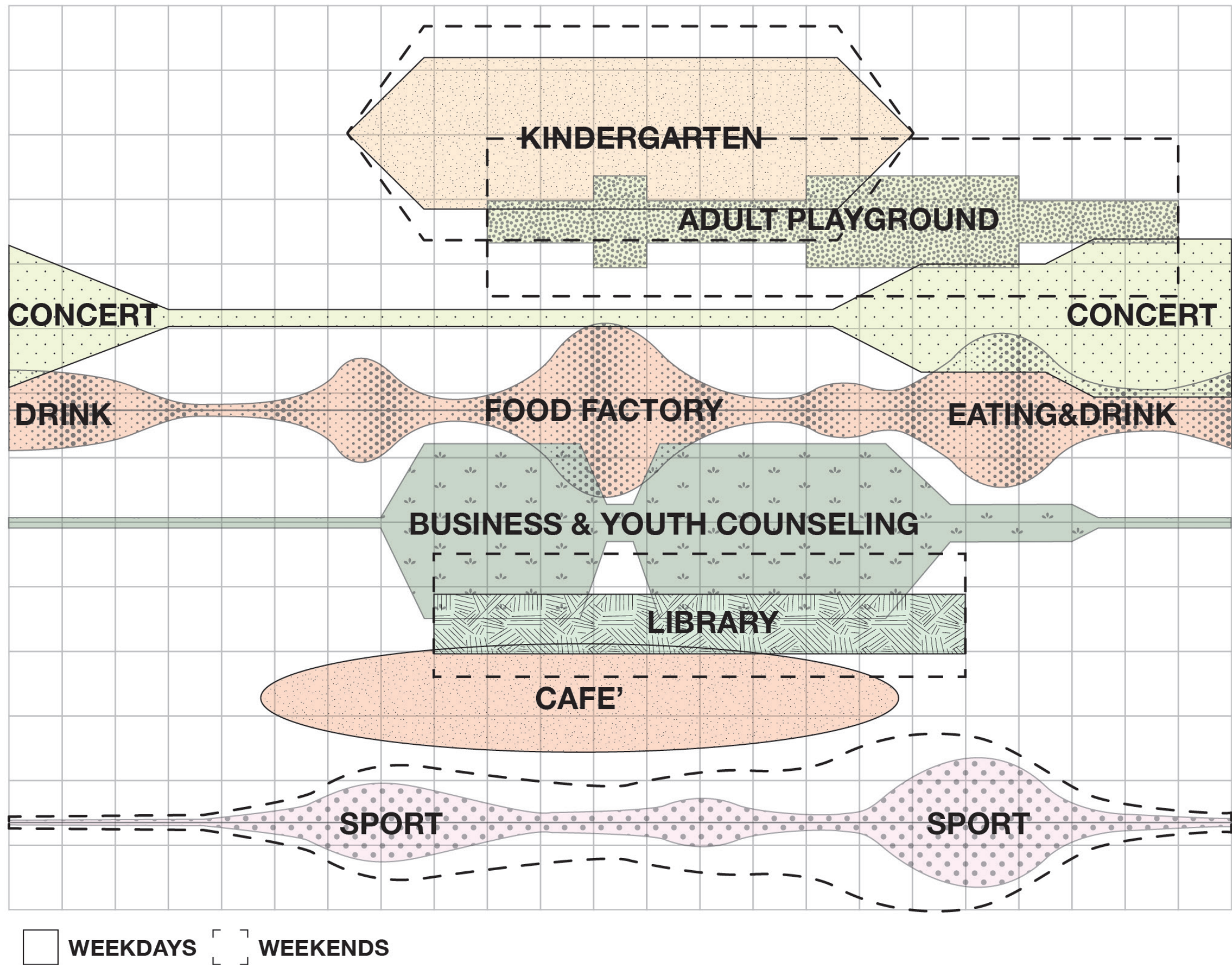


CENTRALIZE CIRCULATION

RELATIONSHIP OF PROGRAM

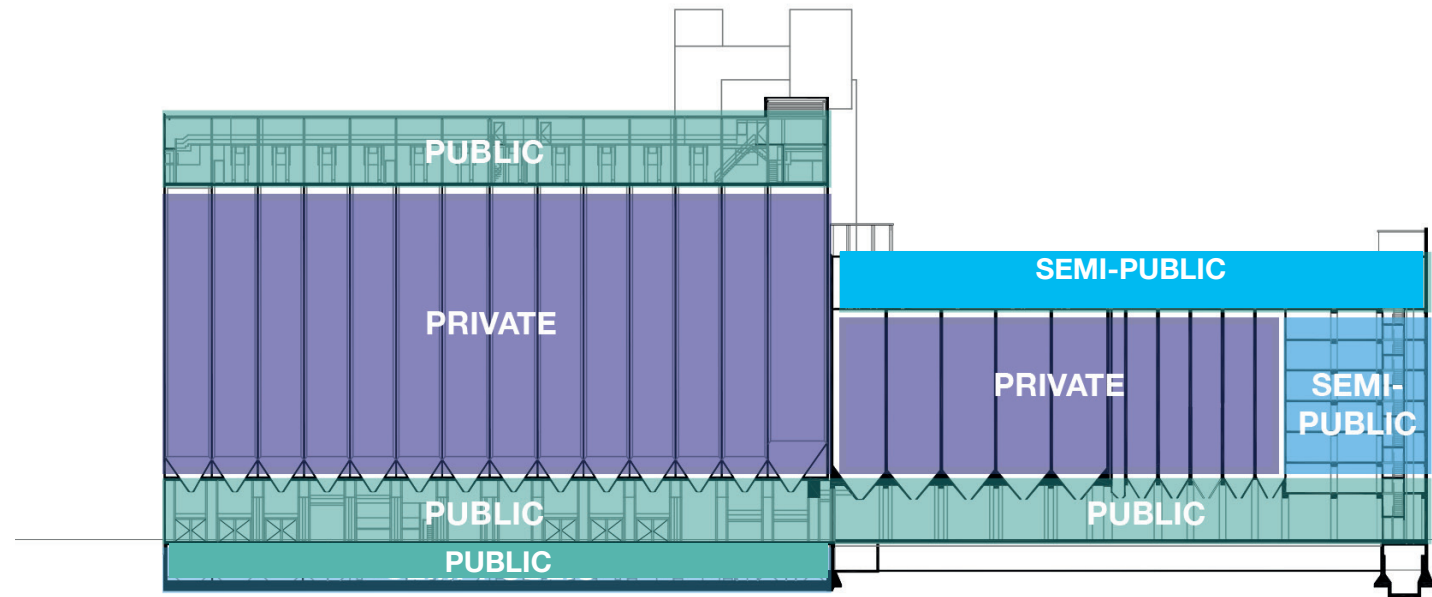
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

TIME 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

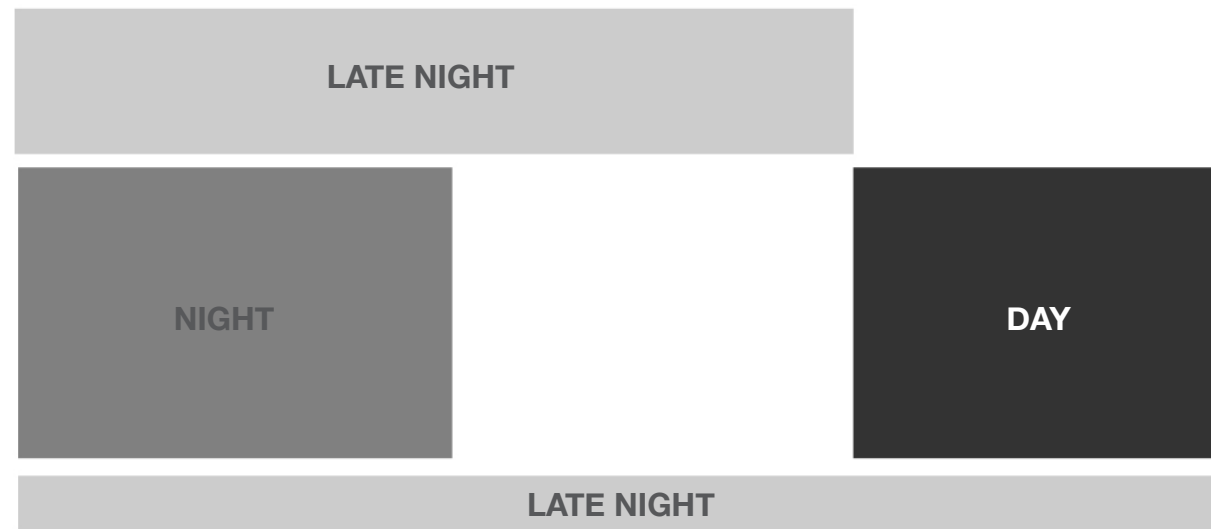


PROGRAM AND DAILY USAGE

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

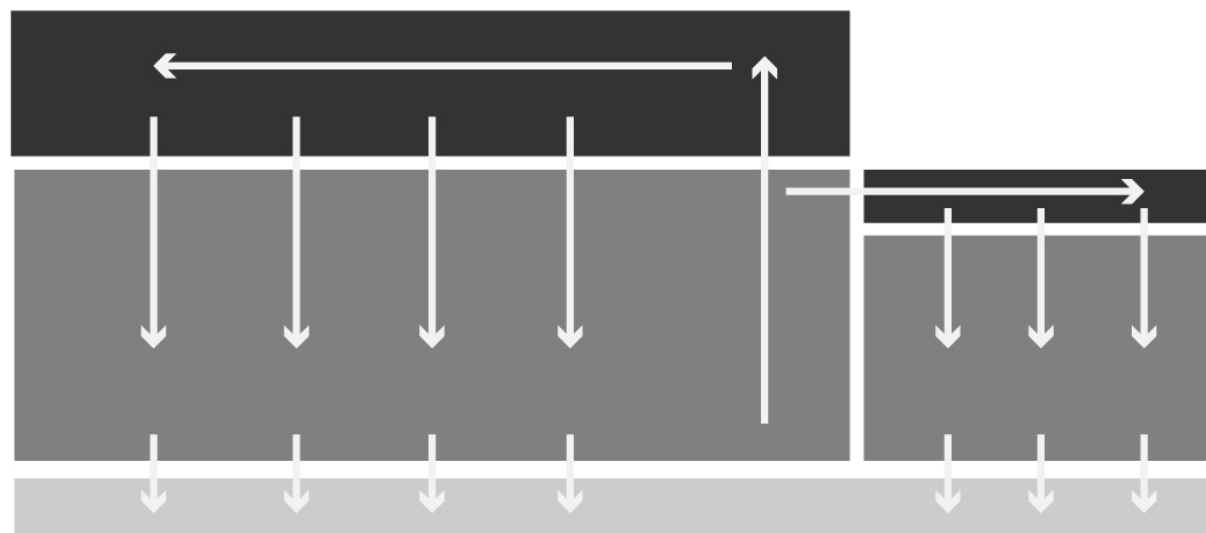


PRESENT PUBLIC AND PRIVATE

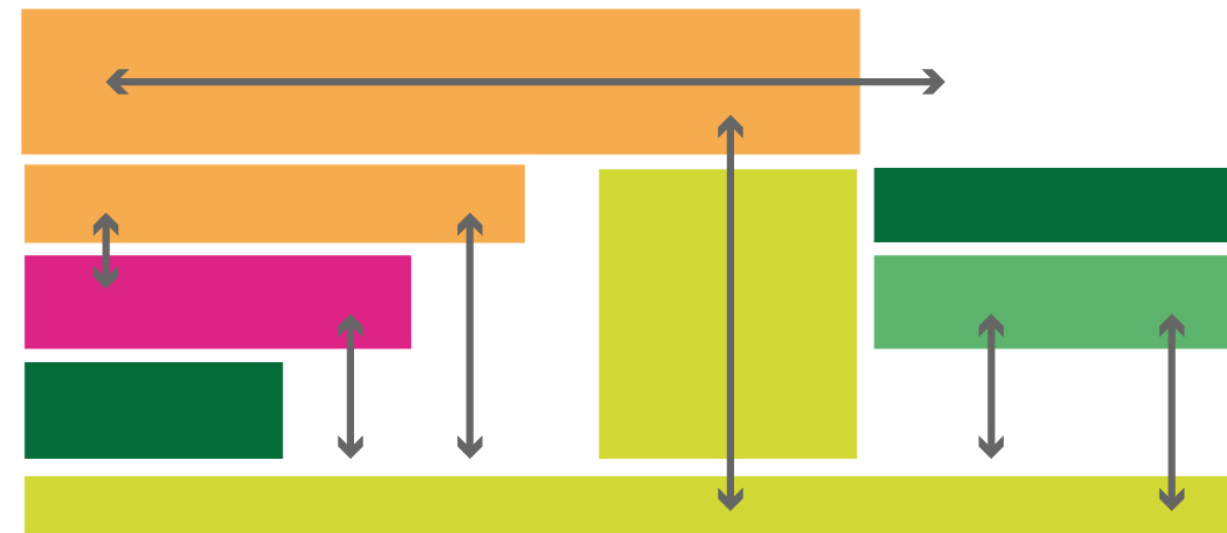


FUNCTION ZONING

BUILDING ZONING



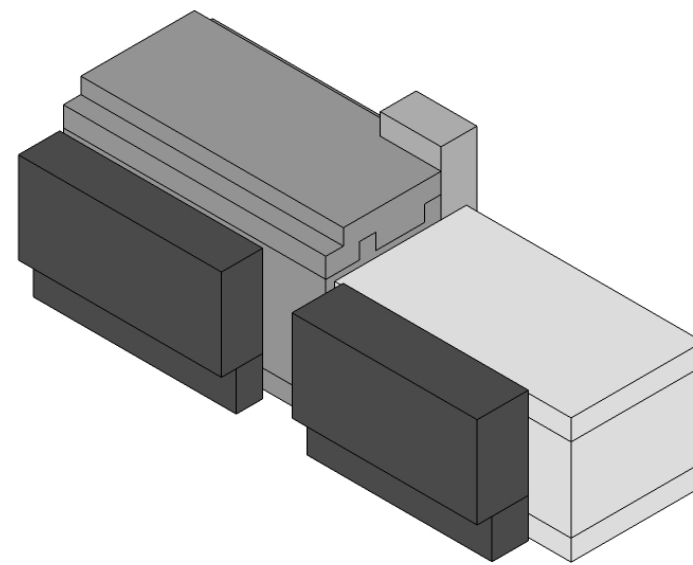
PREVIOUS ORGANIZATION



PURPOSE ORGANIZATION

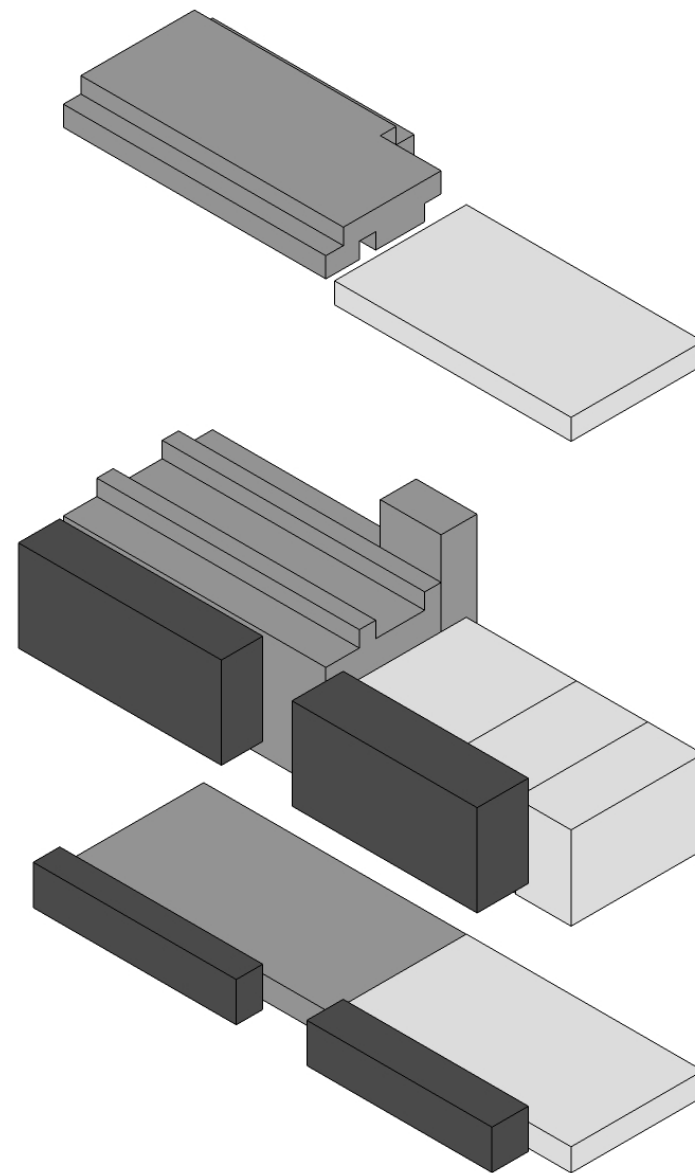
BUILDING ORGANIZATION

MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922



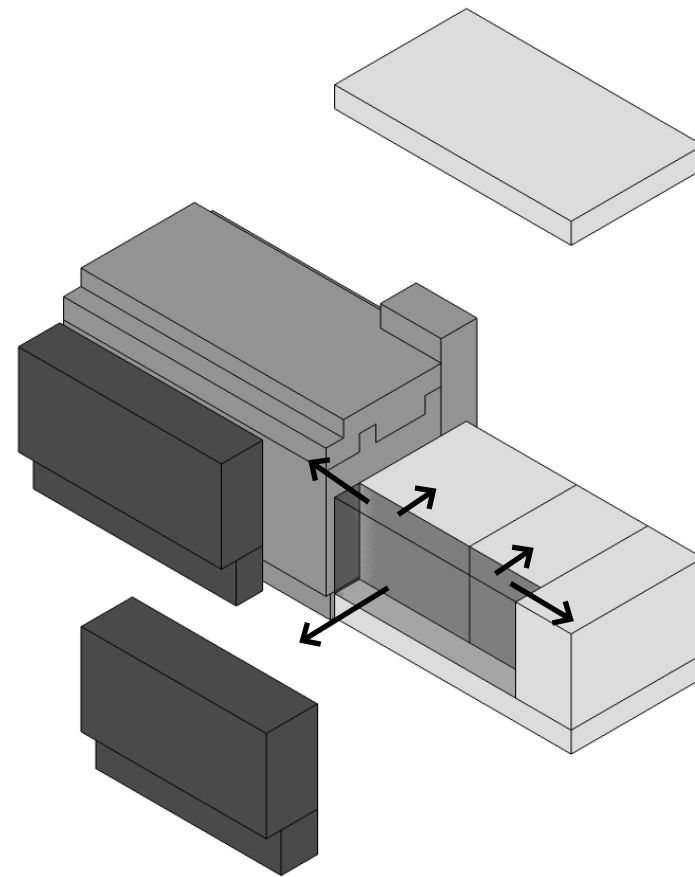
BUILDING DIAGRAM: EXISTING

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



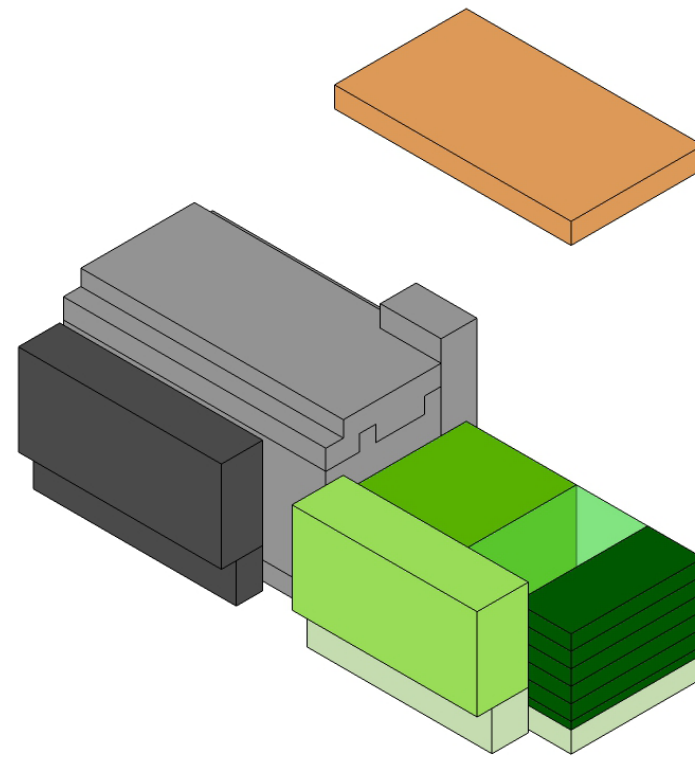
BUILDING DIAGRAM: 3 PARTS OF THE BUILDING

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



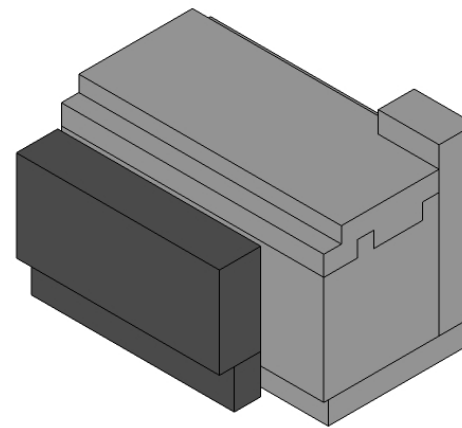
BUILDING DIAGRAM: STOK PART CIRCULATION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



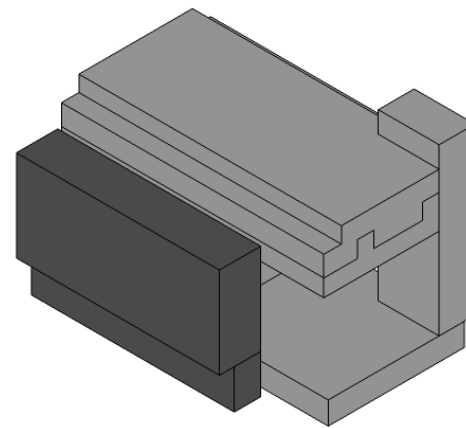
BUILDING DIAGRAM: STOK PART FUNCTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



BUILDING DIAGRAM: BRINKMAN PART EXISTING

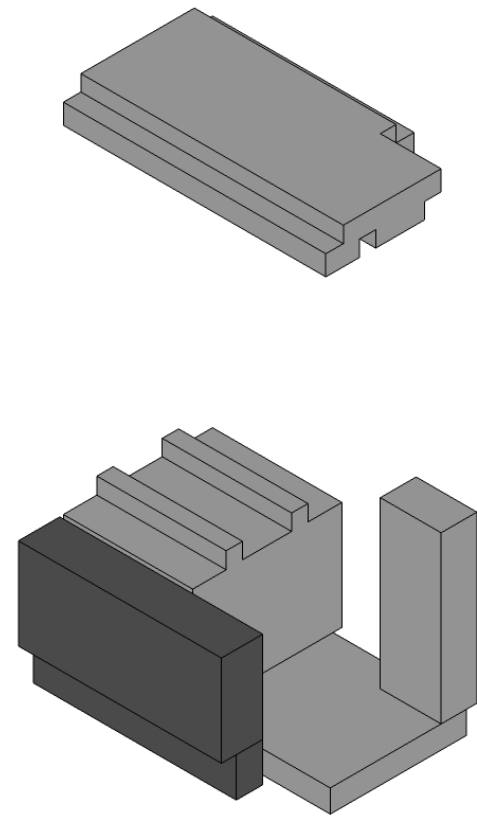
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



BUILDING DIAGRAM: BRINKMAN PART CONNECTION SQUARE

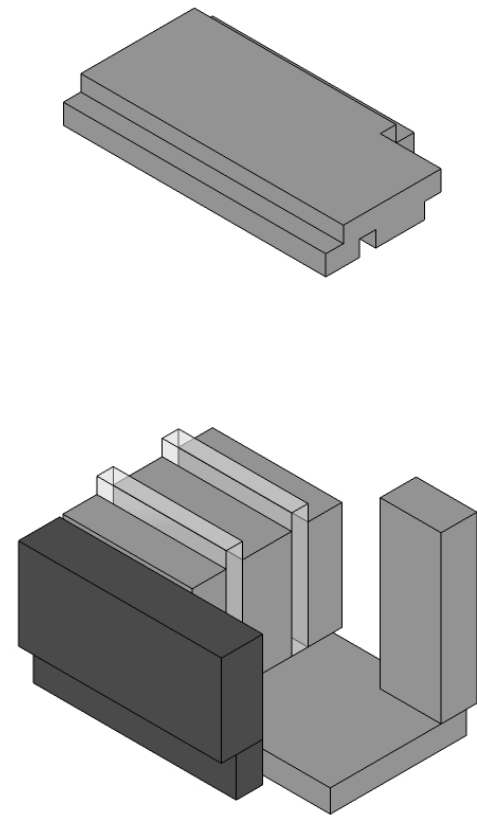
MAASSILO

P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



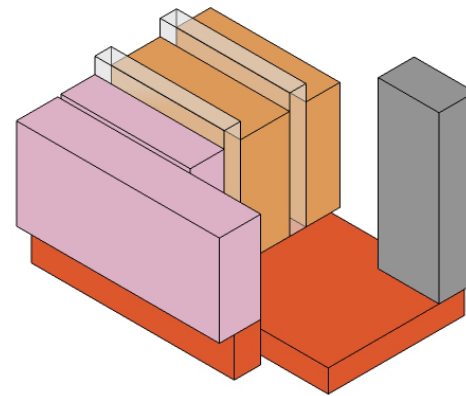
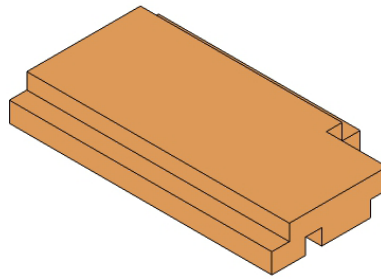
BUILDING DIAGRAM: BRINKMAN PART CONNECTION SQUARE

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



BUILDING DIAGRAM: BRINKMAN PART CIRCULATION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



BUILDING DIAGRAM: BRINKMAN PART FUNCTION

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

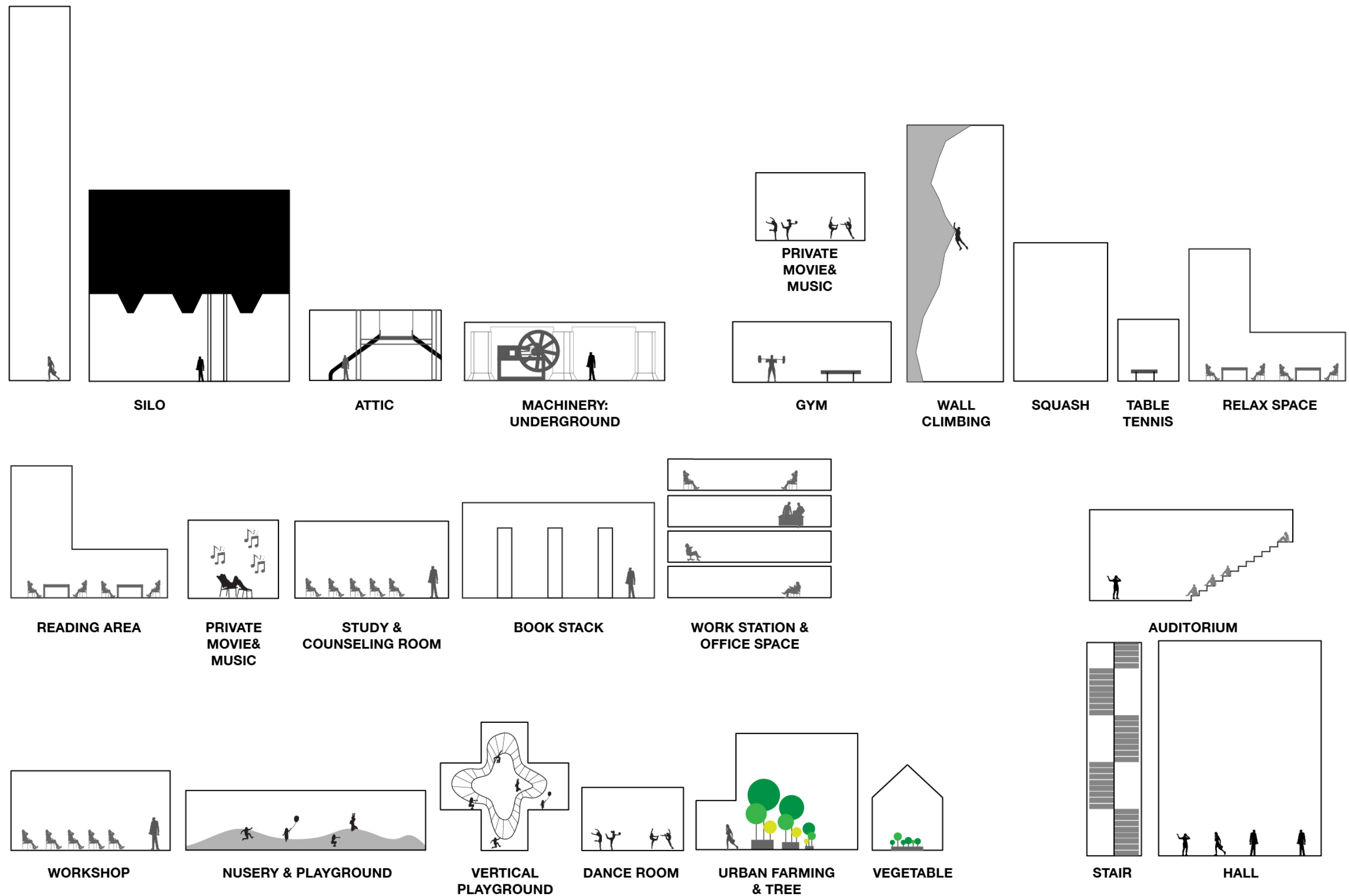


VERTICAL PLAYGROUND

MAASSILO

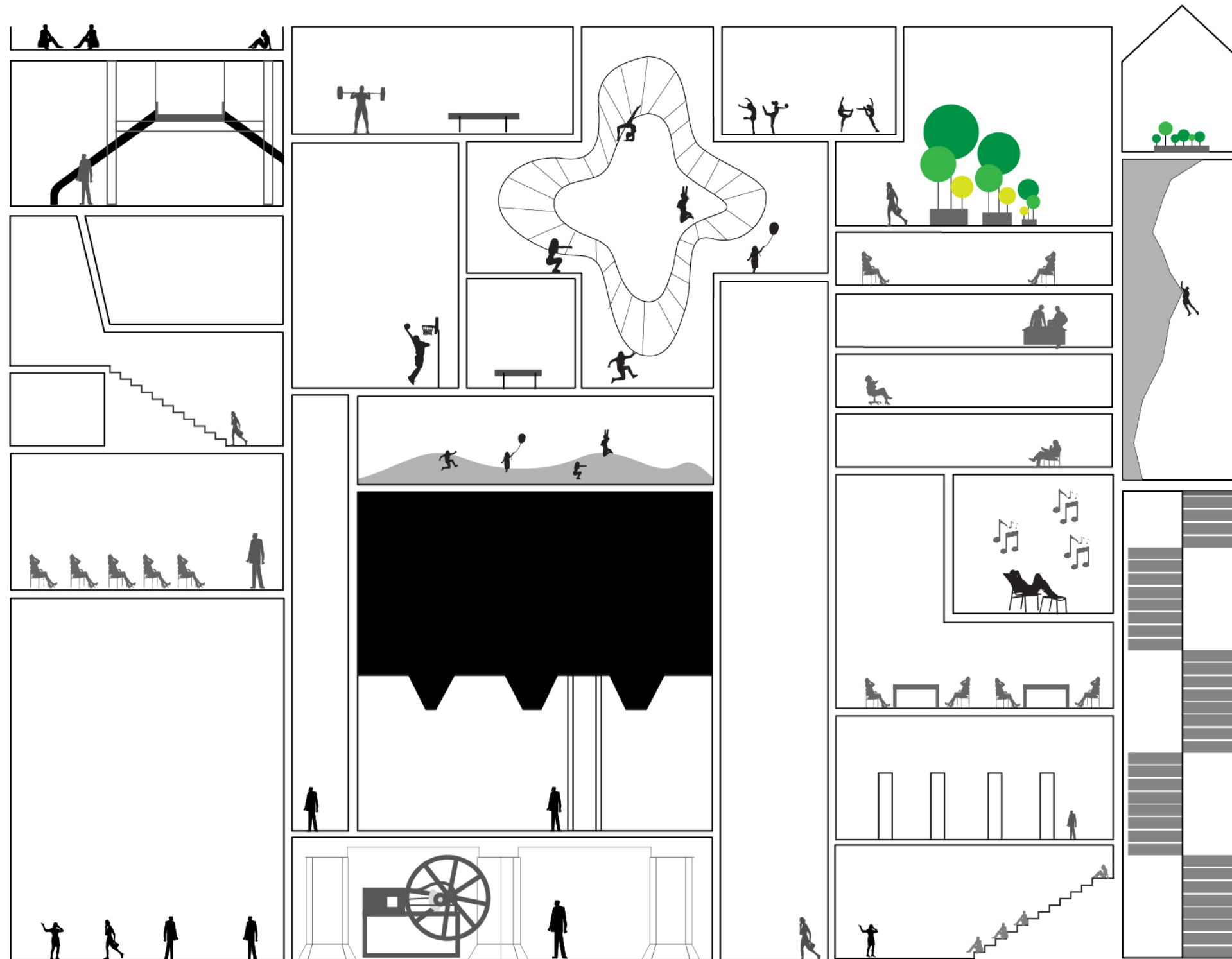
P5 PRESENTATION : 28.06.17

Sicha Chittavanich 4502922



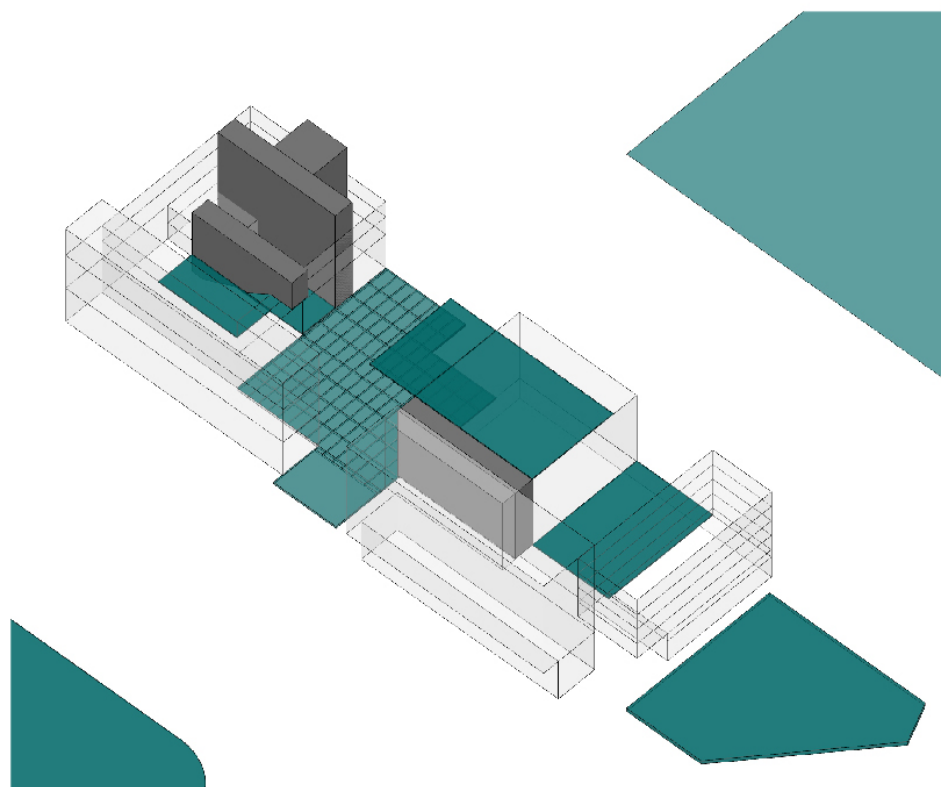
FUNCTION TYPOLOGY

MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922

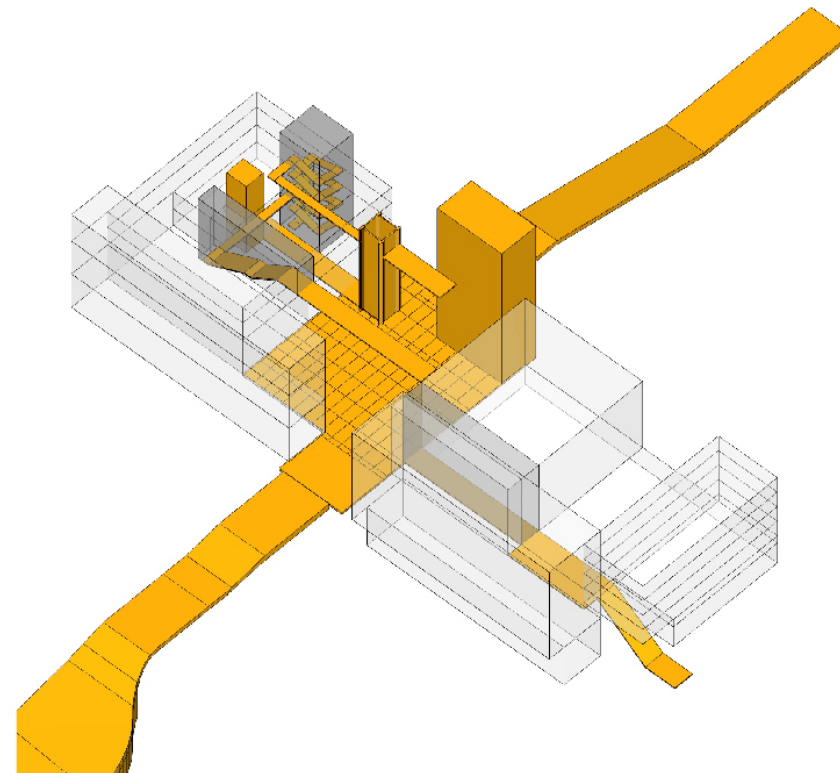


FUNCTIONAL TYPOLOGY DIAGRAM

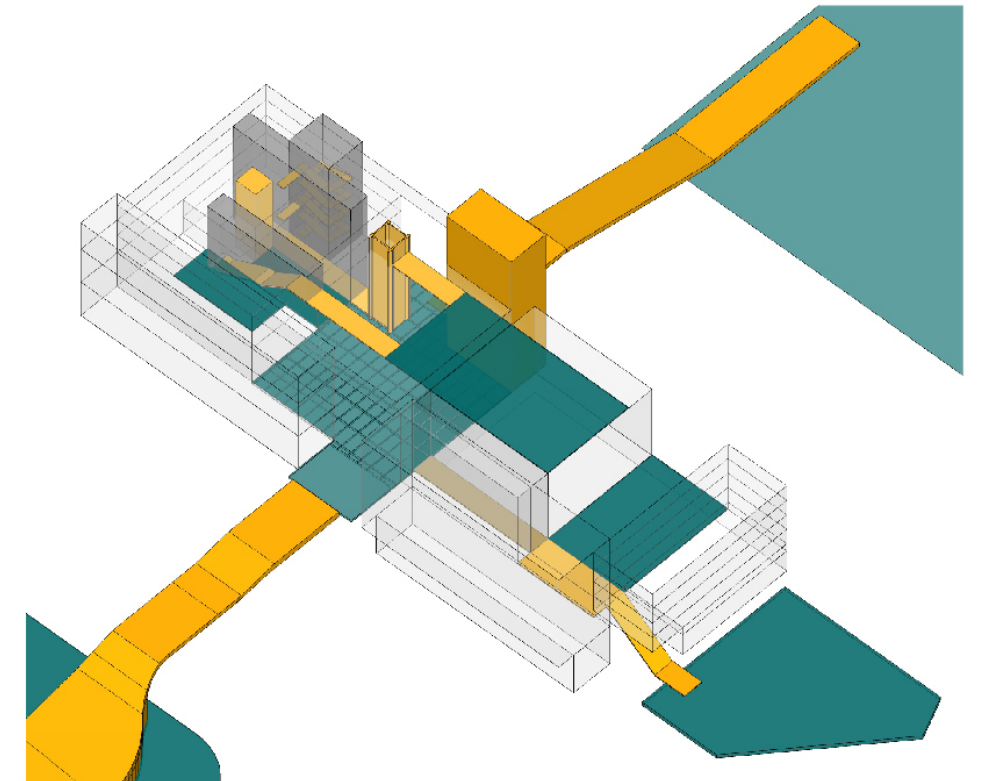
MAASSILO
P5 PRESENTATION : 28.06.17
Sicha Chittavanich 4502922



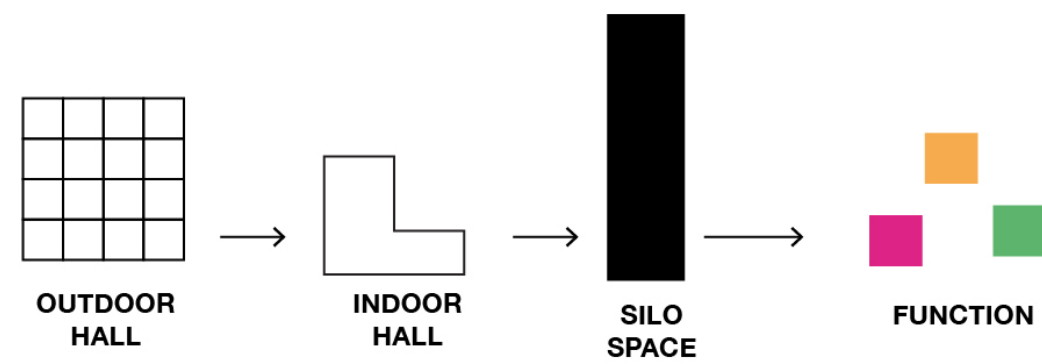
ASSEMBLE AREA



CIRCULATION



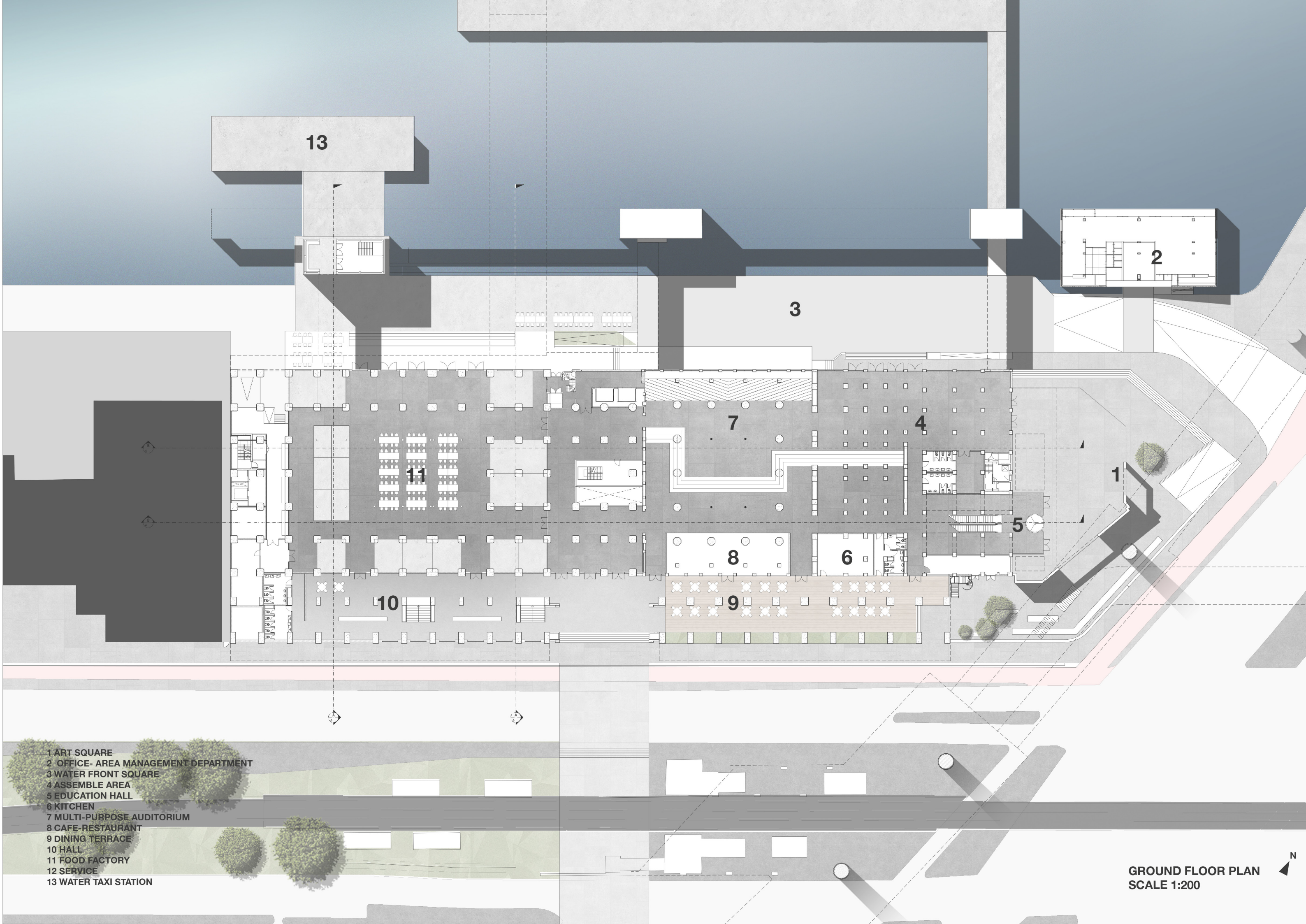
CONNECTION



BUILDING HEIRACHY

CIRCULATION AND BUILDING HEIRACHY

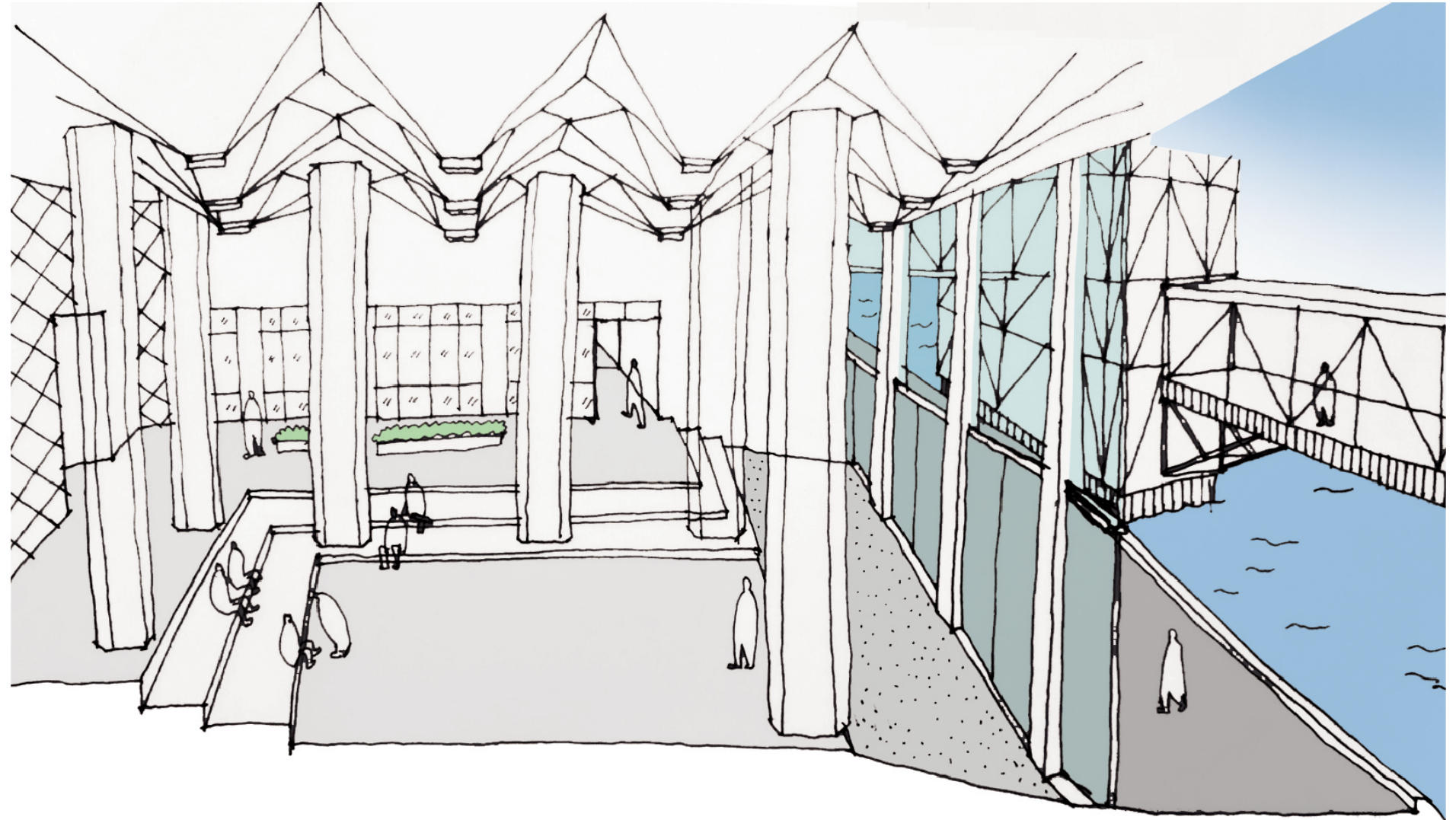
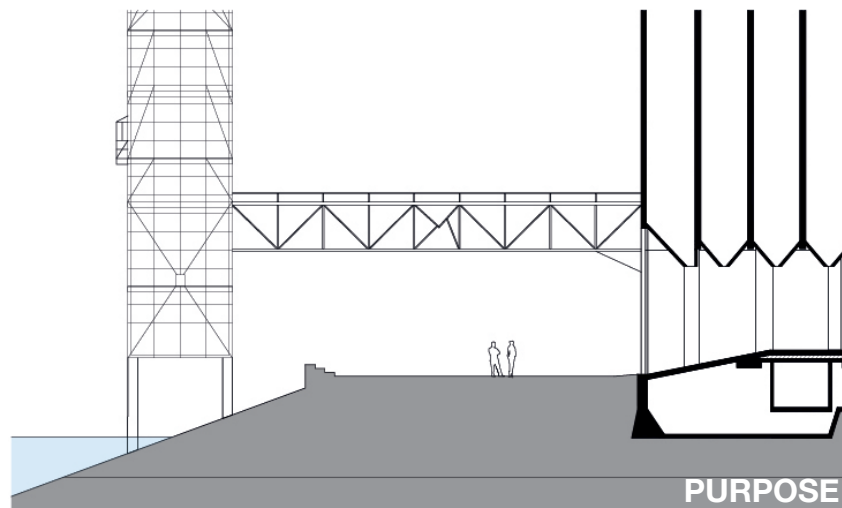
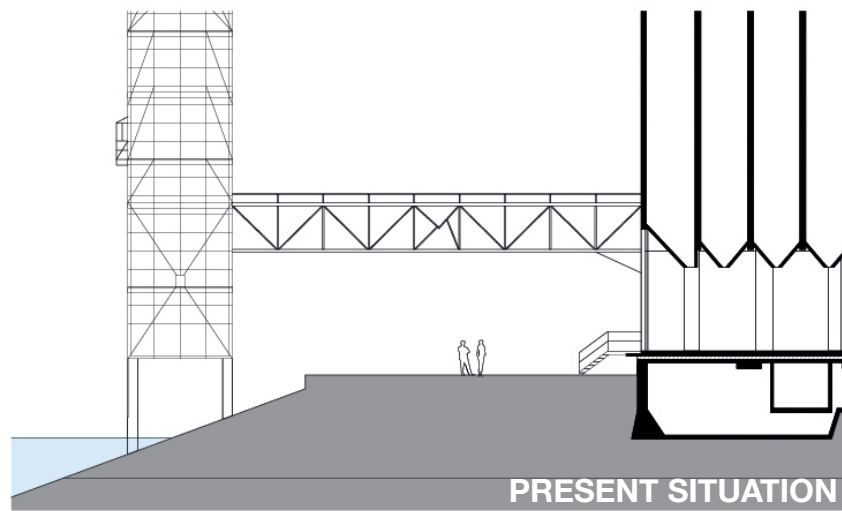
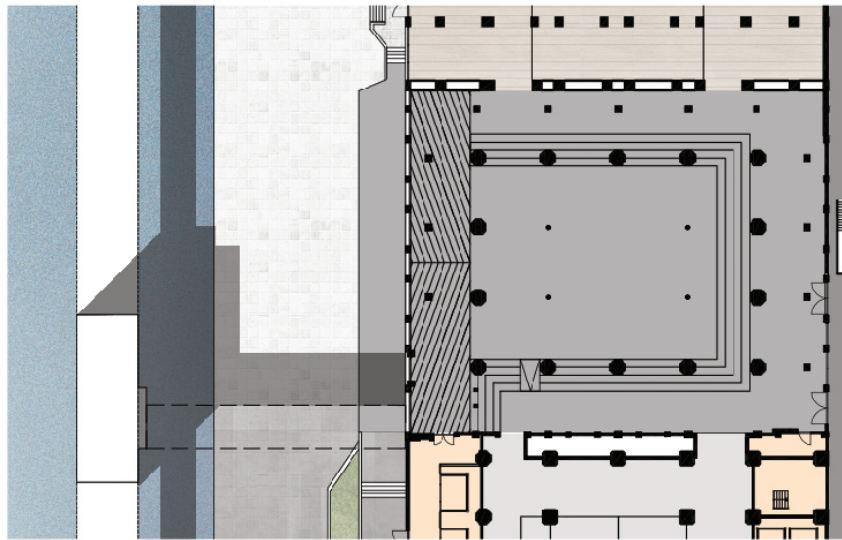
MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922



- 1 ART SQUARE
- 2 OFFICE- AREA MANAGEMENT DEPARTMENT
- 3 WATER FRONT SQUARE
- 4 ASSEMBLE AREA
- 5 EDUCATION HALL
- 6 KITCHEN
- 7 MULTI-PURPOSE AUDITORIUM
- 8 CAFE-RESTAURANT
- 9 DINING TERRACE
- 10 HALL
- 11 FOOD FACTORY
- 12 SERVICE
- 13 WATER TAXI STATION

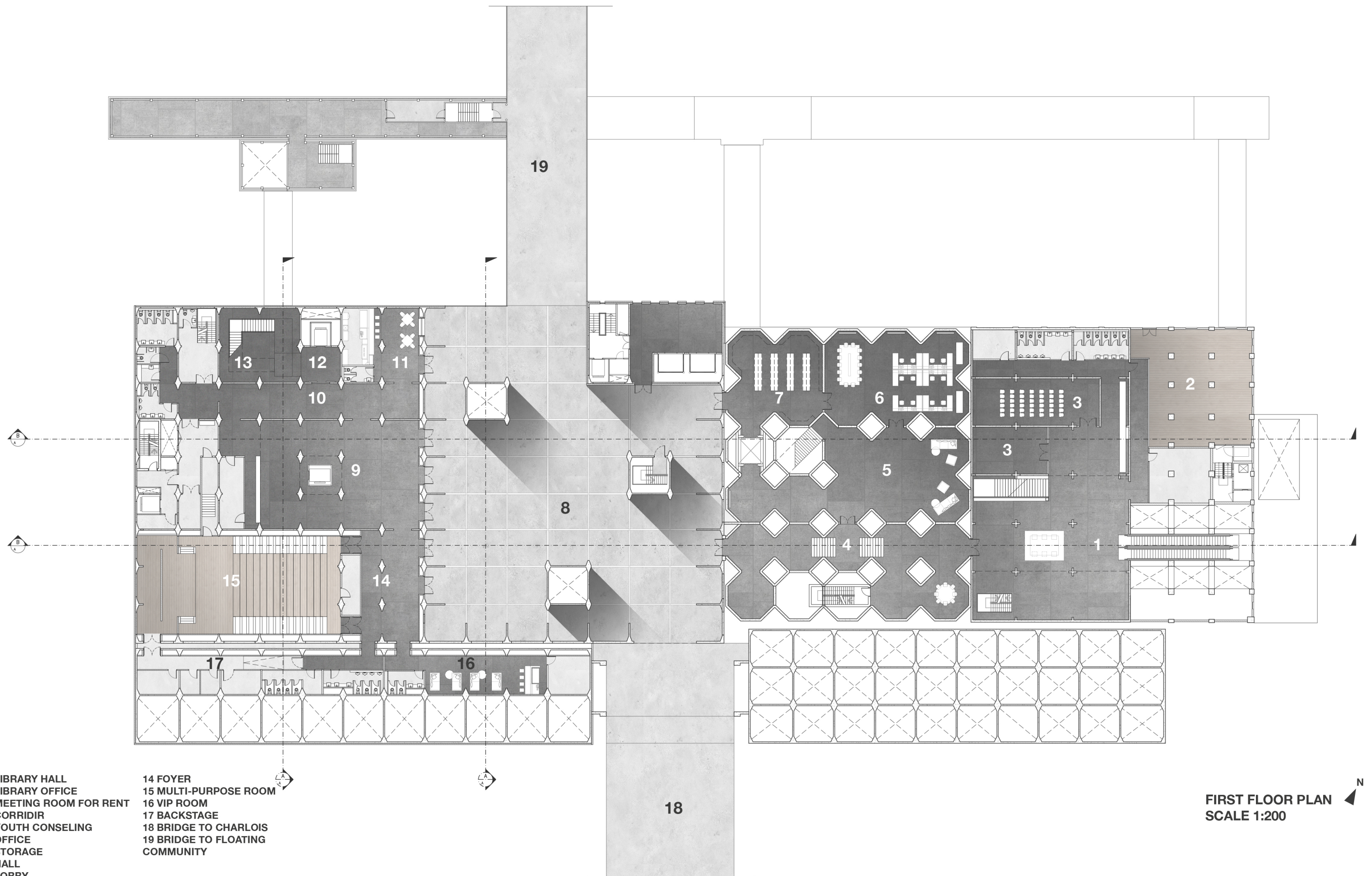
GROUND FLOOR PLAN
SCALE 1:200



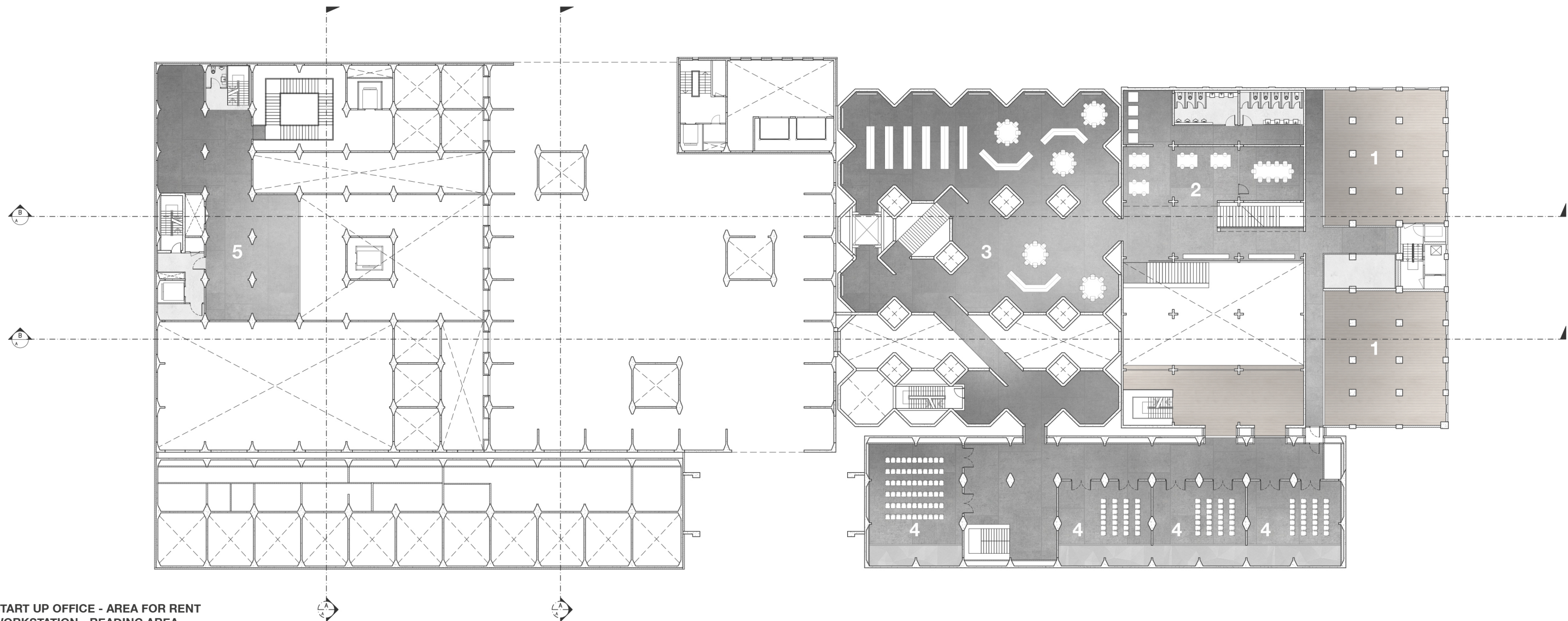


WATER FRONT PUBLIC SPACE

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 Sicha Chittavanich 4502922



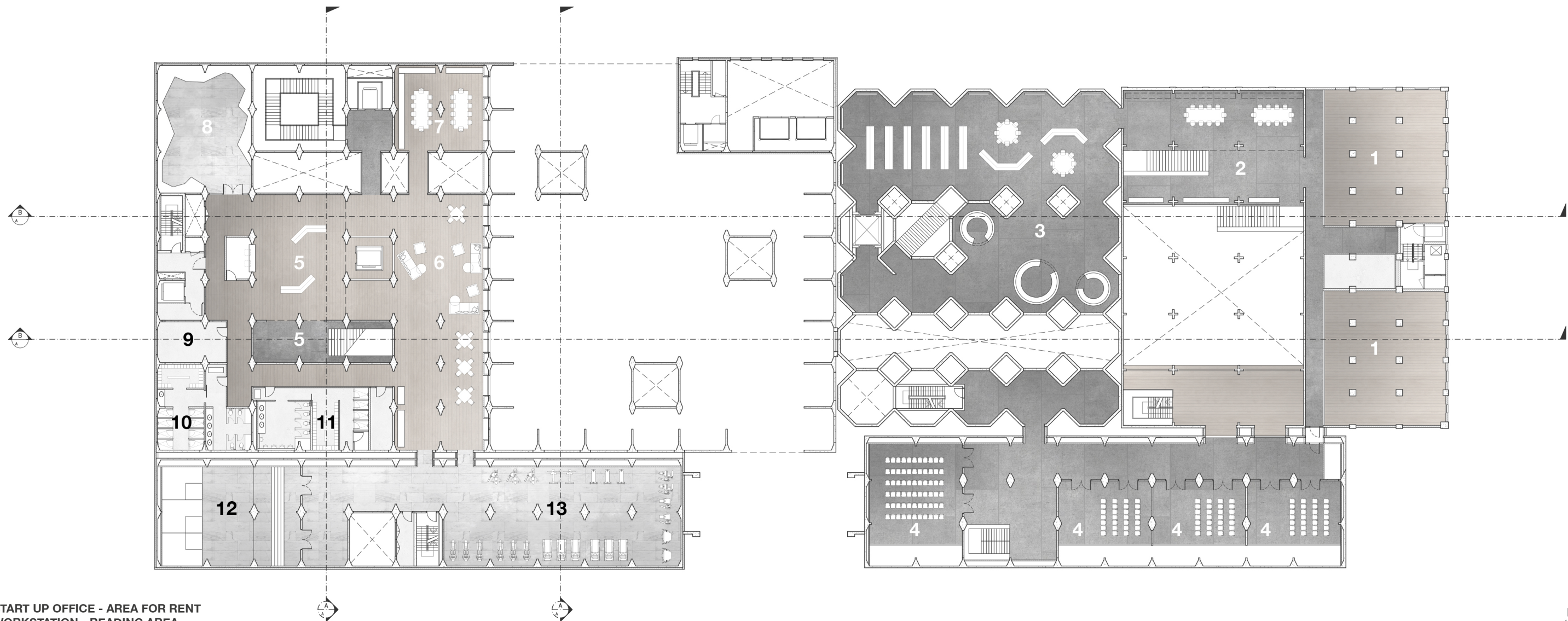
MAASSILO
 P5 PRESENTATION : 28.06.17
 Sicha Chittavanich 4502922



1 START UP OFFICE - AREA FOR RENT
 2 WORKSTATION - READING AREA
 3 LIBRARY
 4 LECTURE ROOM
 5 OFFICE/ ADMINISTRATION

SECOND FLOOR PLAN
 SCALE 1:200

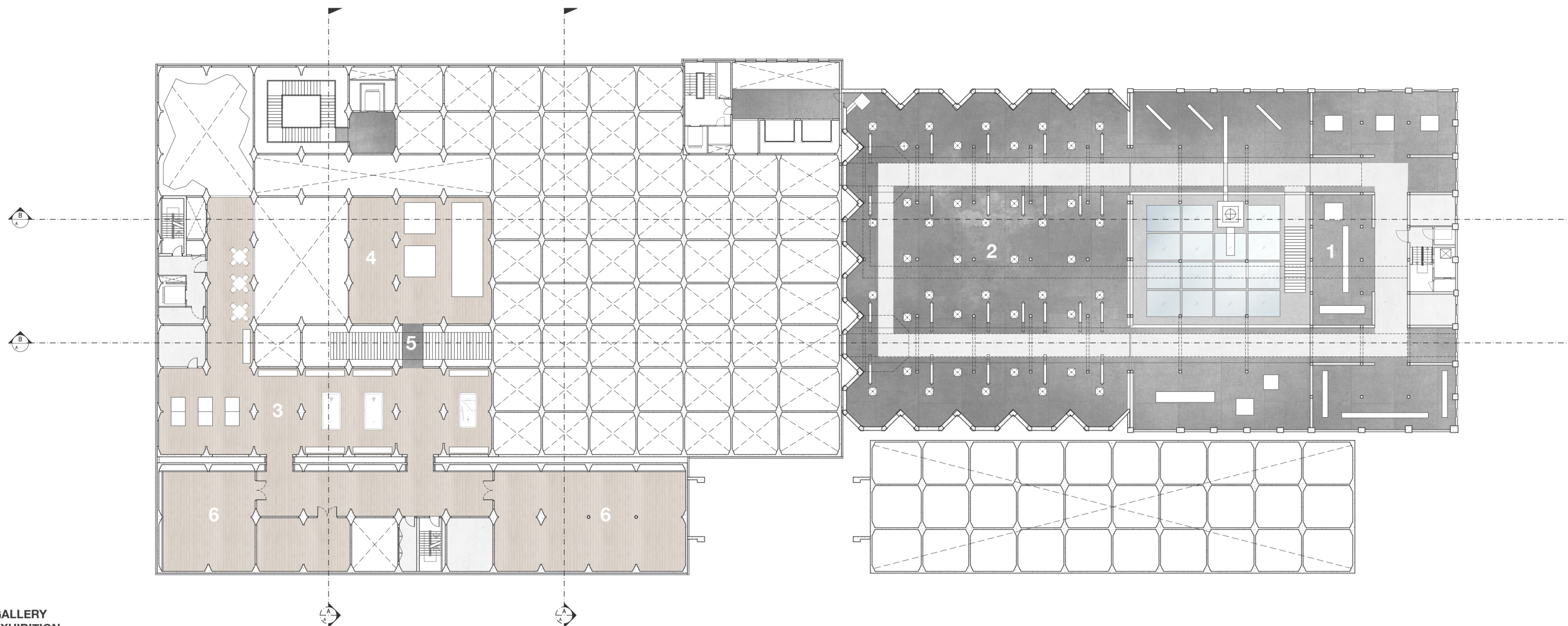




- 1 START UP OFFICE - AREA FOR RENT
- 2 WORKSTATION - READING AREA
- 3 LIBRARY
- 4 LECTURE ROOM
- 5 SPORT LOBBY
- 6 RELAX AREA
- 7 PANTRY & EATING
- 8 WALL CLIMBING
- 9 SPORT OFFICE
- 10 WOMEN WC&LOCKER
- 11 MEN WC&LOCKER
- 12 SQUASH
- 13 GYM

THIRD FLOOR PLAN 
SCALE 1:200

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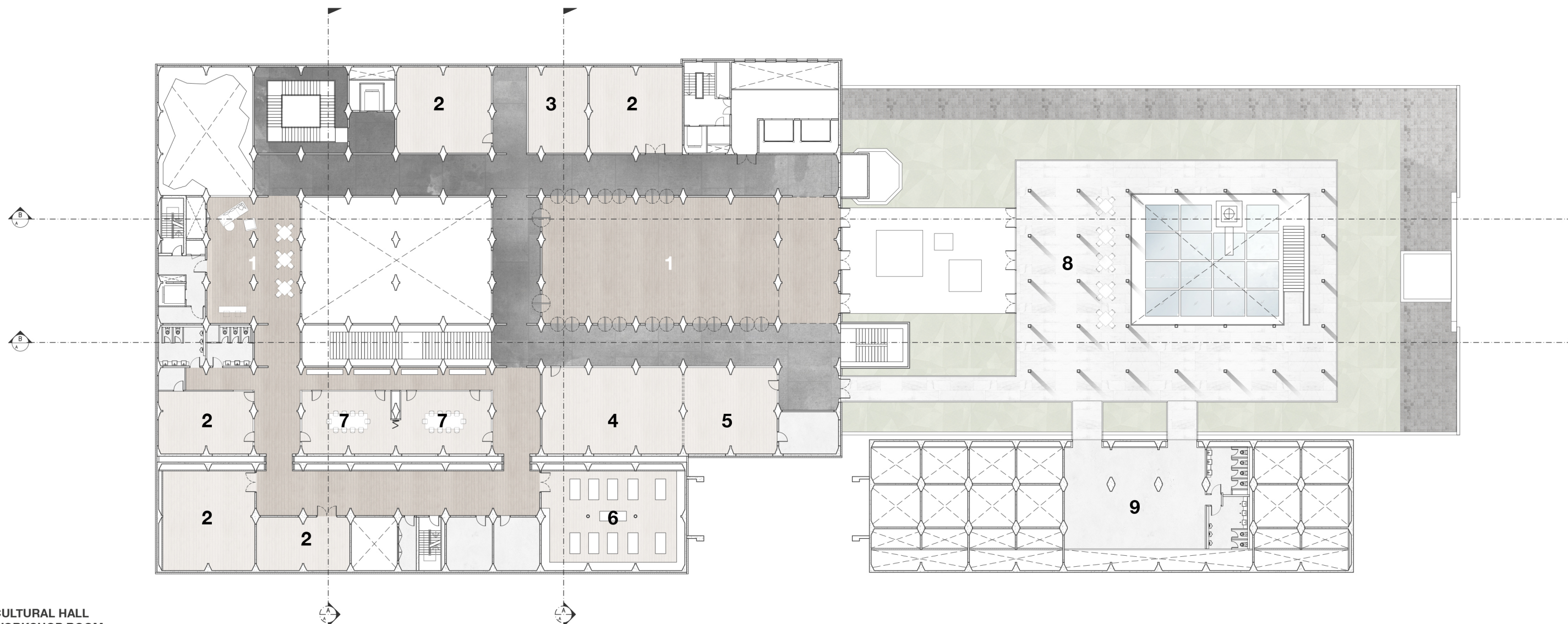


- 1 GALLERY
- 2 EXHIBITION
- 3 GAME ROOM
- 4 PLAYGROUND
- 5 SILO STAIR
- 6 DANCE/ YOGA ROOM

18

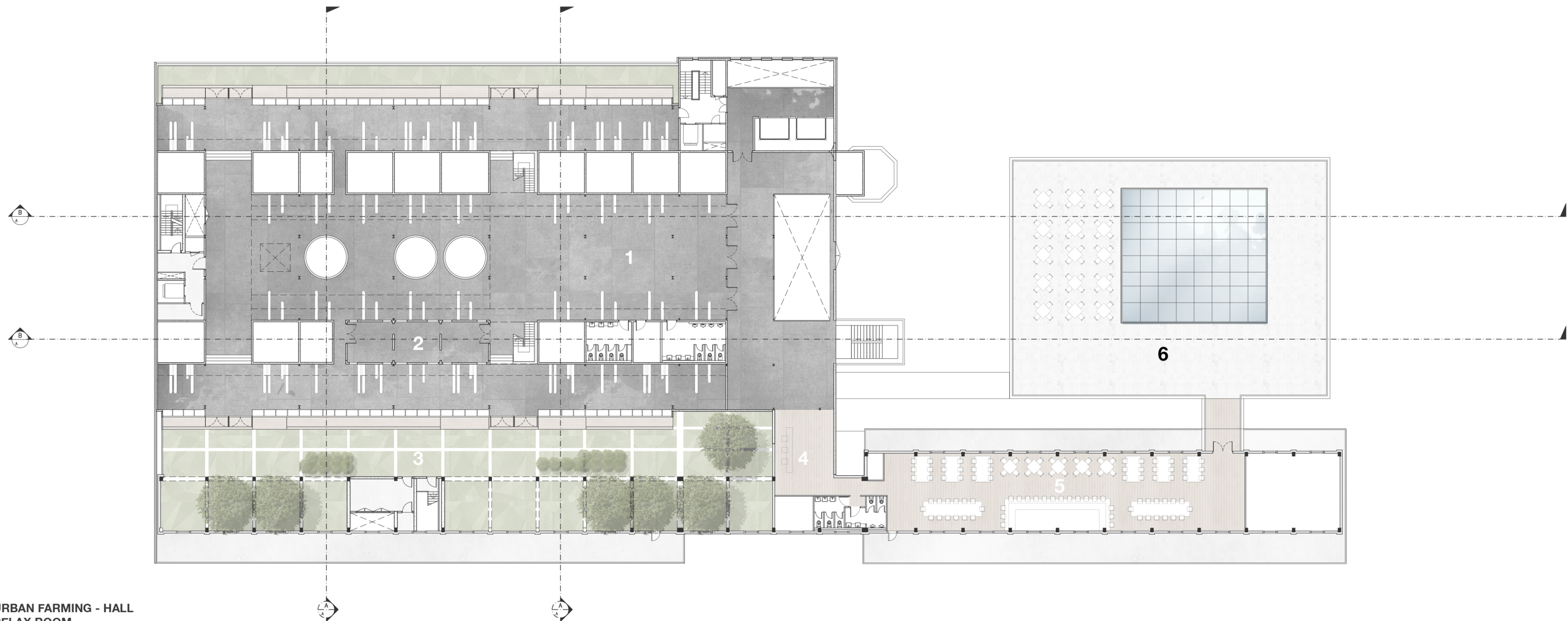
FORTH FLOOR PLAN 
SCALE 1:200

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- 1 CULTURAL HALL
- 2 WORKSHOP ROOM
- 3 STORAGE
- 4 KINDERGARTEN
- 5 KIDS PLAY AREA
- 6 COOKING CLASSROOM
- 7 MEETING ROOM
- 8 CAFE
- 9 GALLERY LOBBY

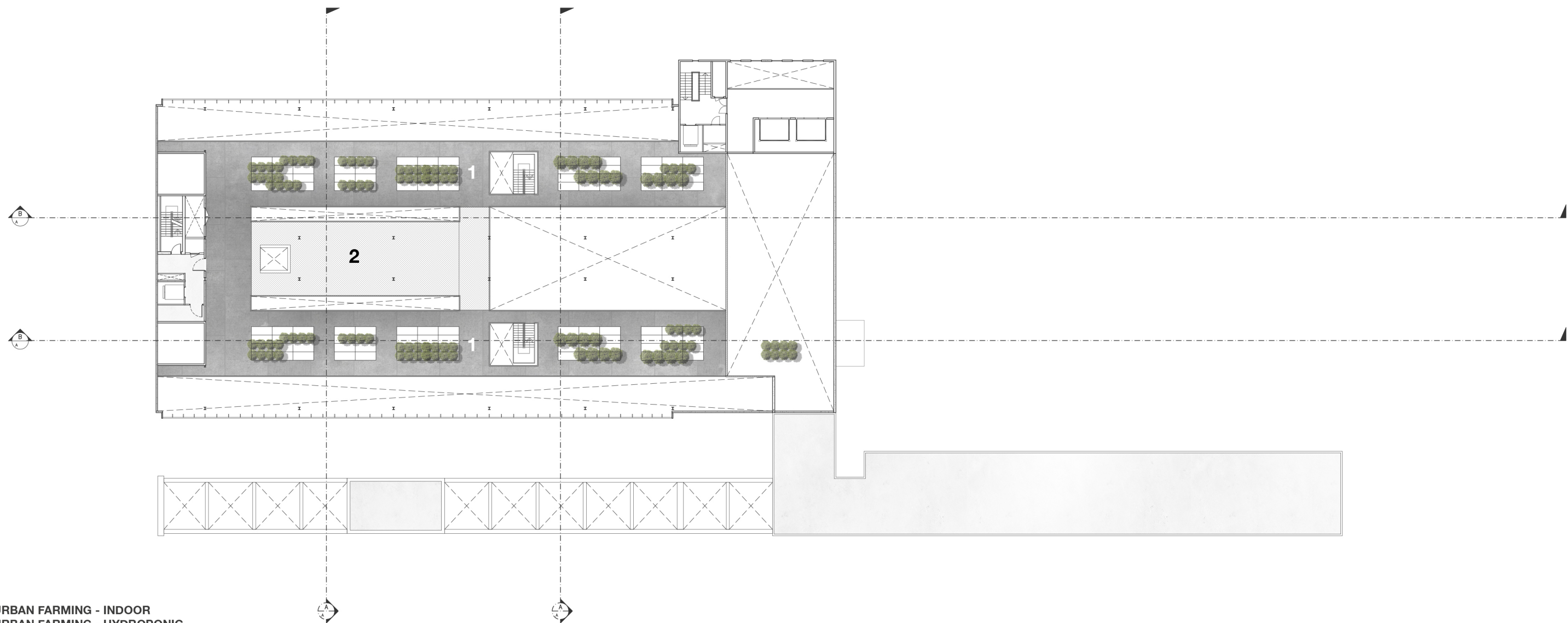
FIFTH FLOOR PLAN
SCALE 1:200



- 1 URBAN FARMING - HALL
- 2 RELAX ROOM
- 3 URBAN FARMING - OUTSIDE
- 4 RESTAURANT LOBBY
- 5 RESTAURANT
- 6 OUTDOOR TERRACE

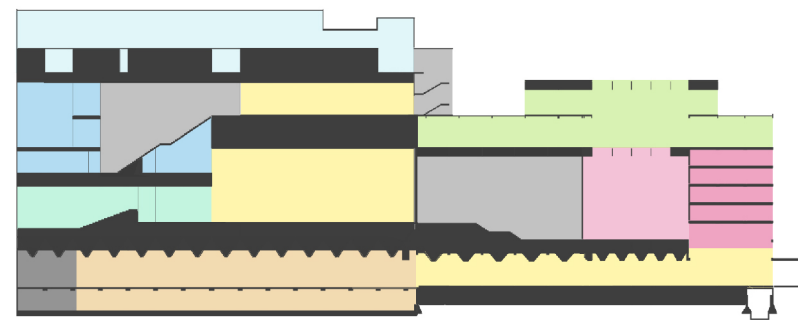
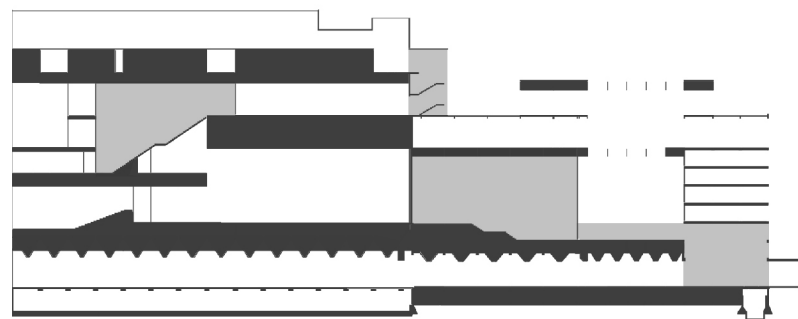
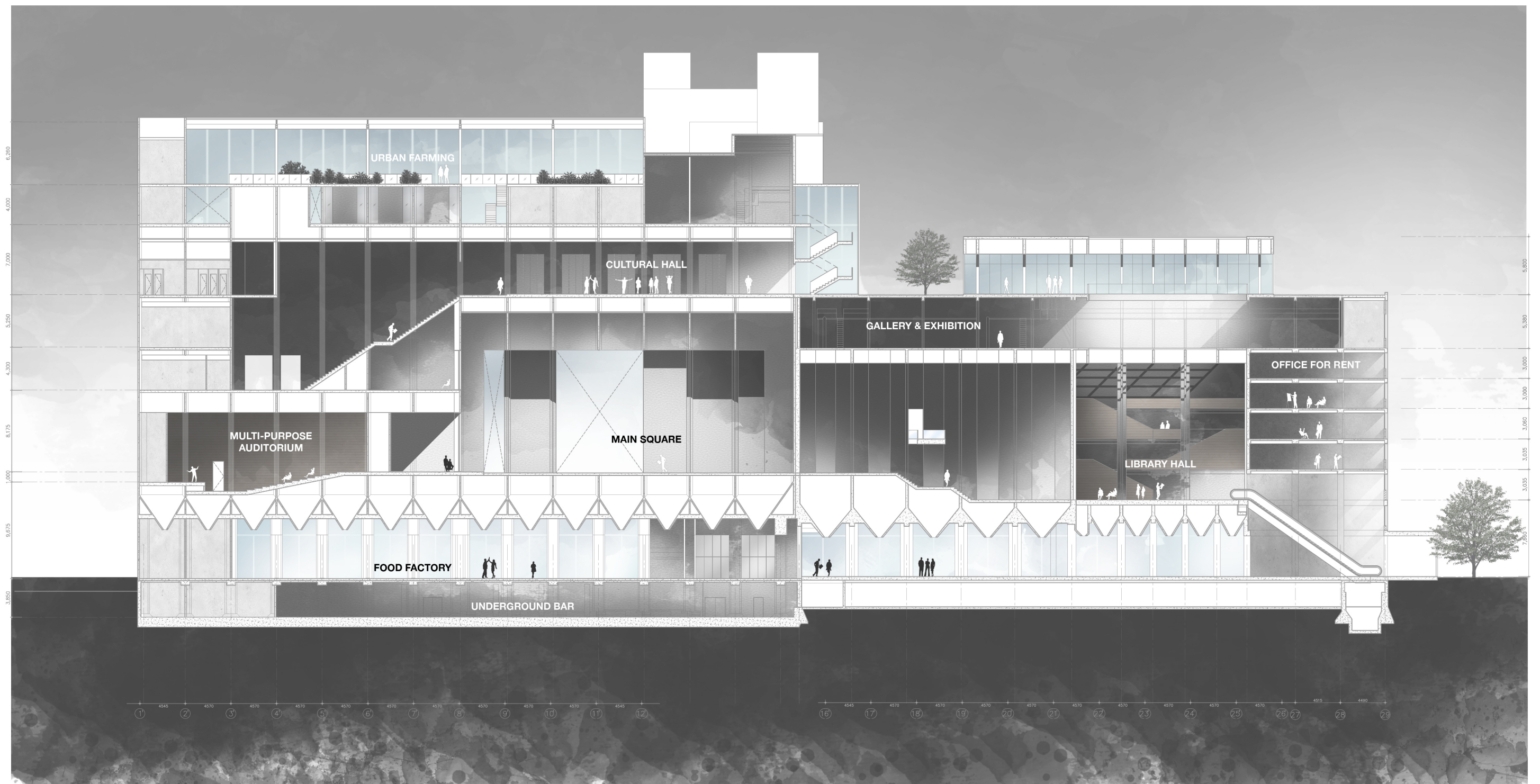
SIXTH FLOOR PLAN
SCALE 1:200





1 URBAN FARMING - INDOOR
2 URBAN FARMING - HYDROPONIC

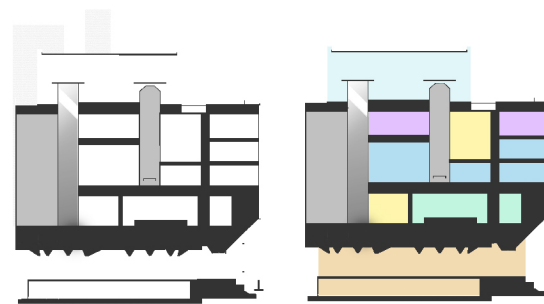
SEVENTH FLOOR PLAN
SCALE 1:200



**LONG SECTION
SCALE 1:200**

SECTION

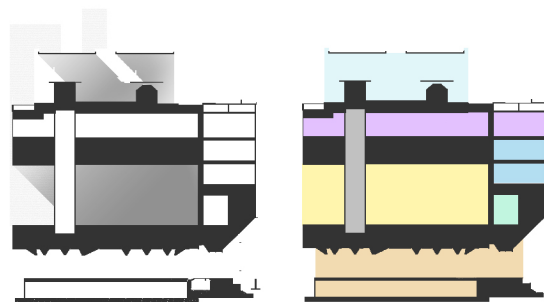
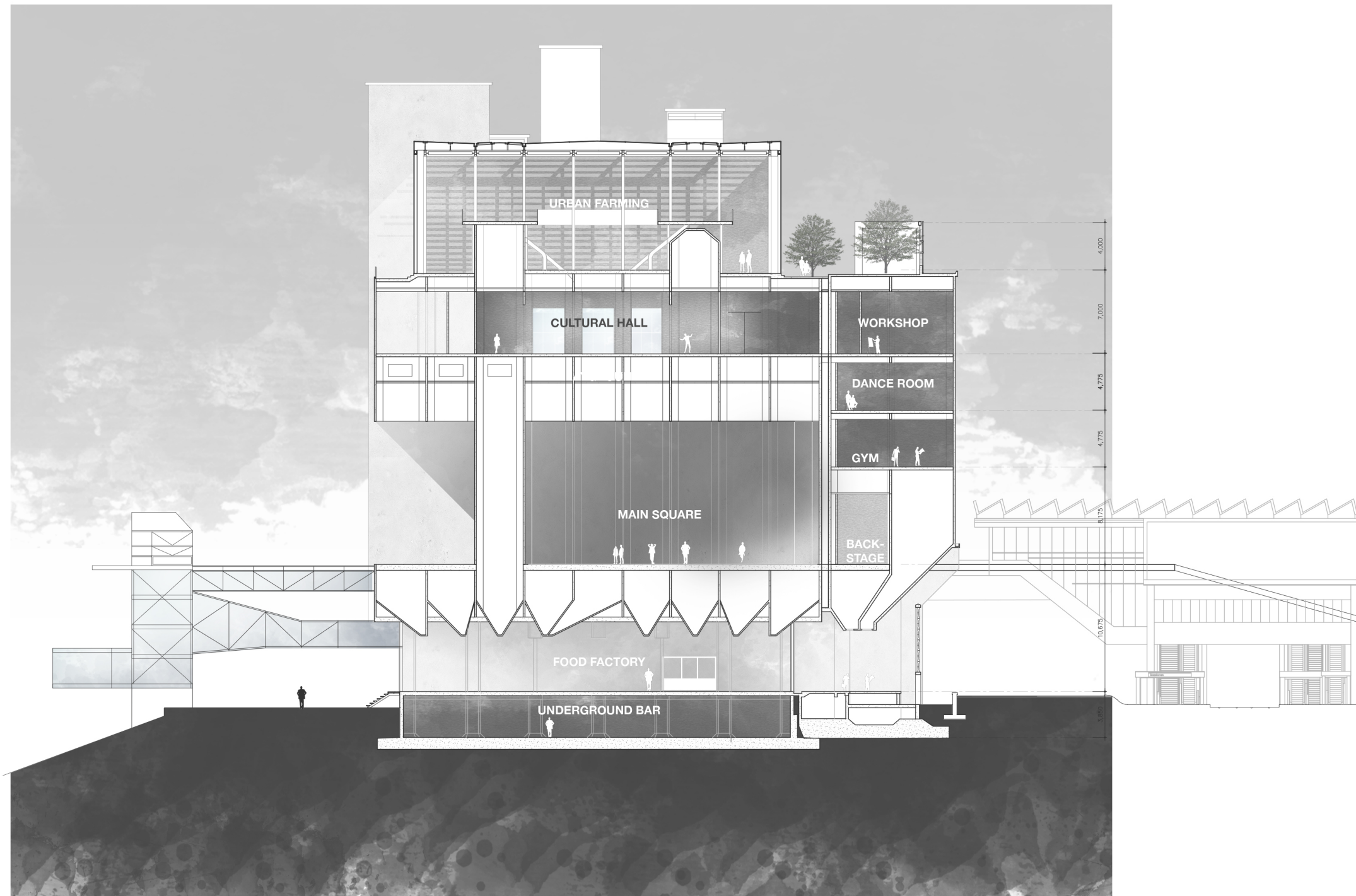
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LONG SECTION
SCALE 1:200

SECTION

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LONG SECTION
SCALE 1:200

SECTION

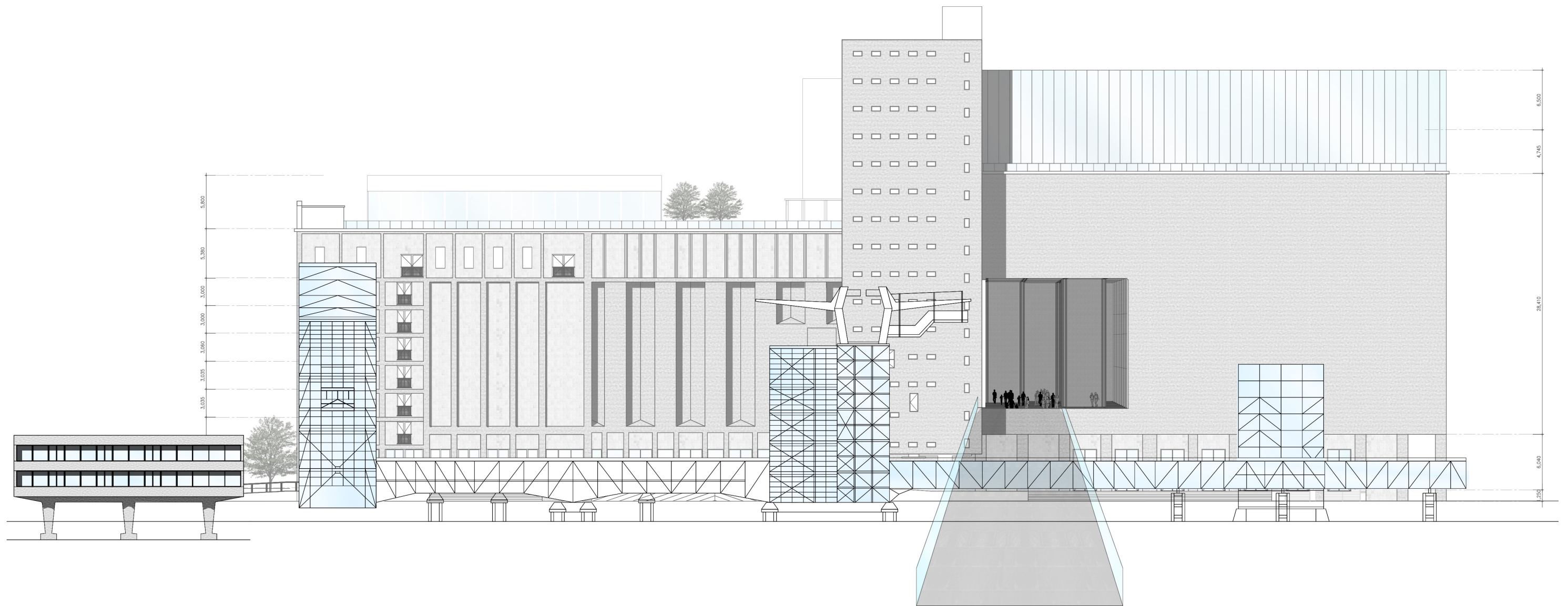
MAASSILO
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SOUTH ELEVATION
SCALE 1:200

SOUTH ELEVATION

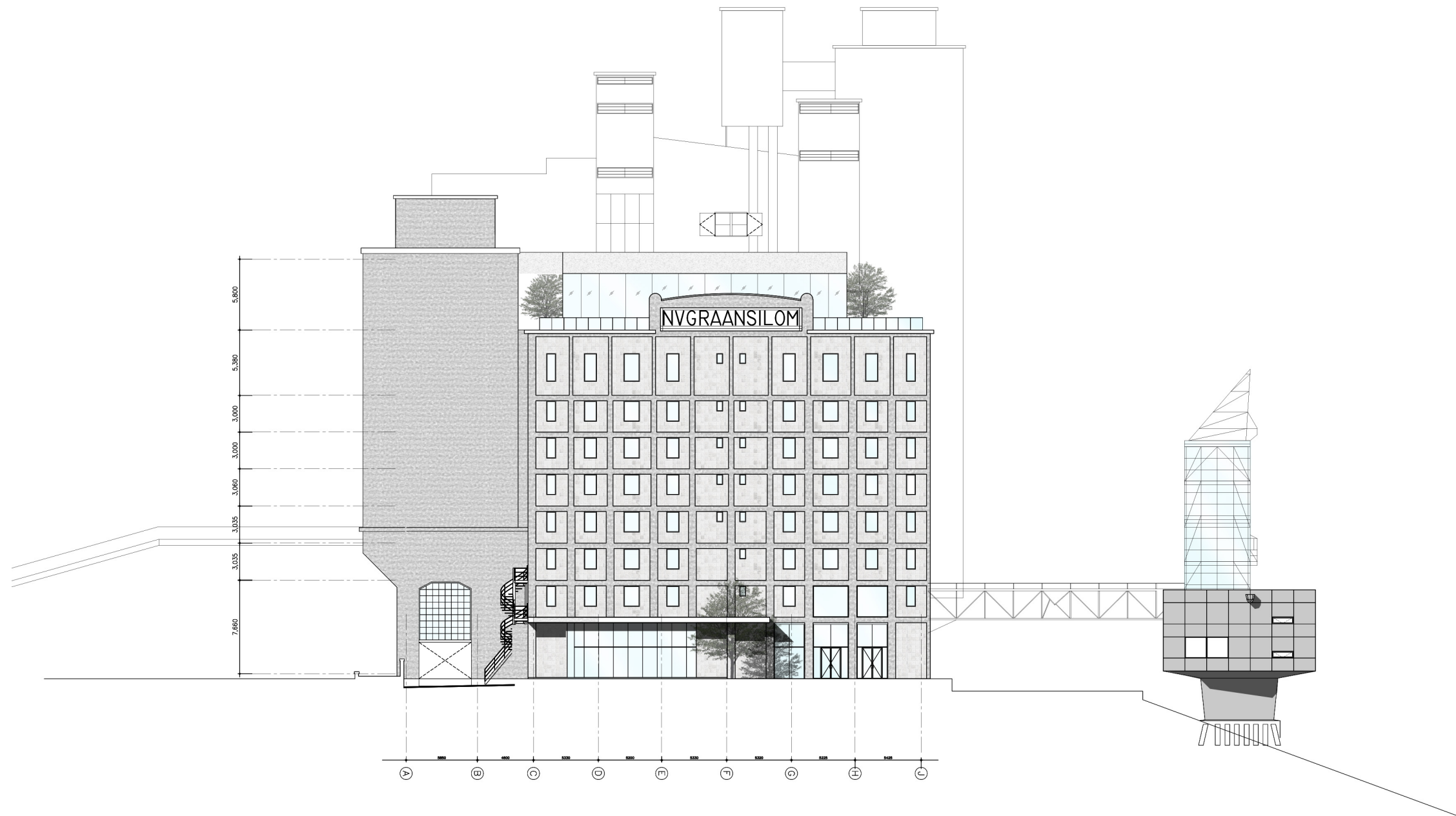
MAASSILO
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**NORTH ELEVATION
SCALE 1:200**

NORTH ELEVATION

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**EAST ELEVATION
SCALE 1:200**

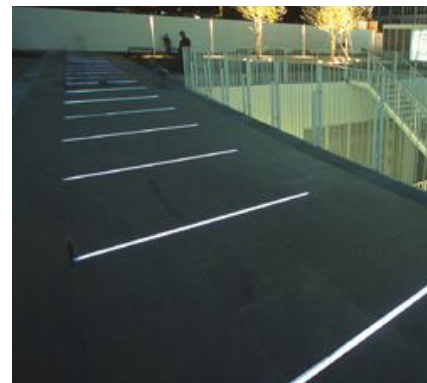
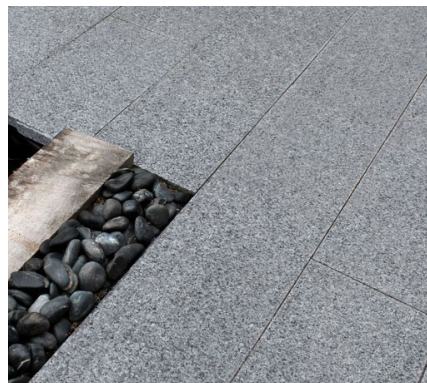
EAST ELEVATION

MAASSILO
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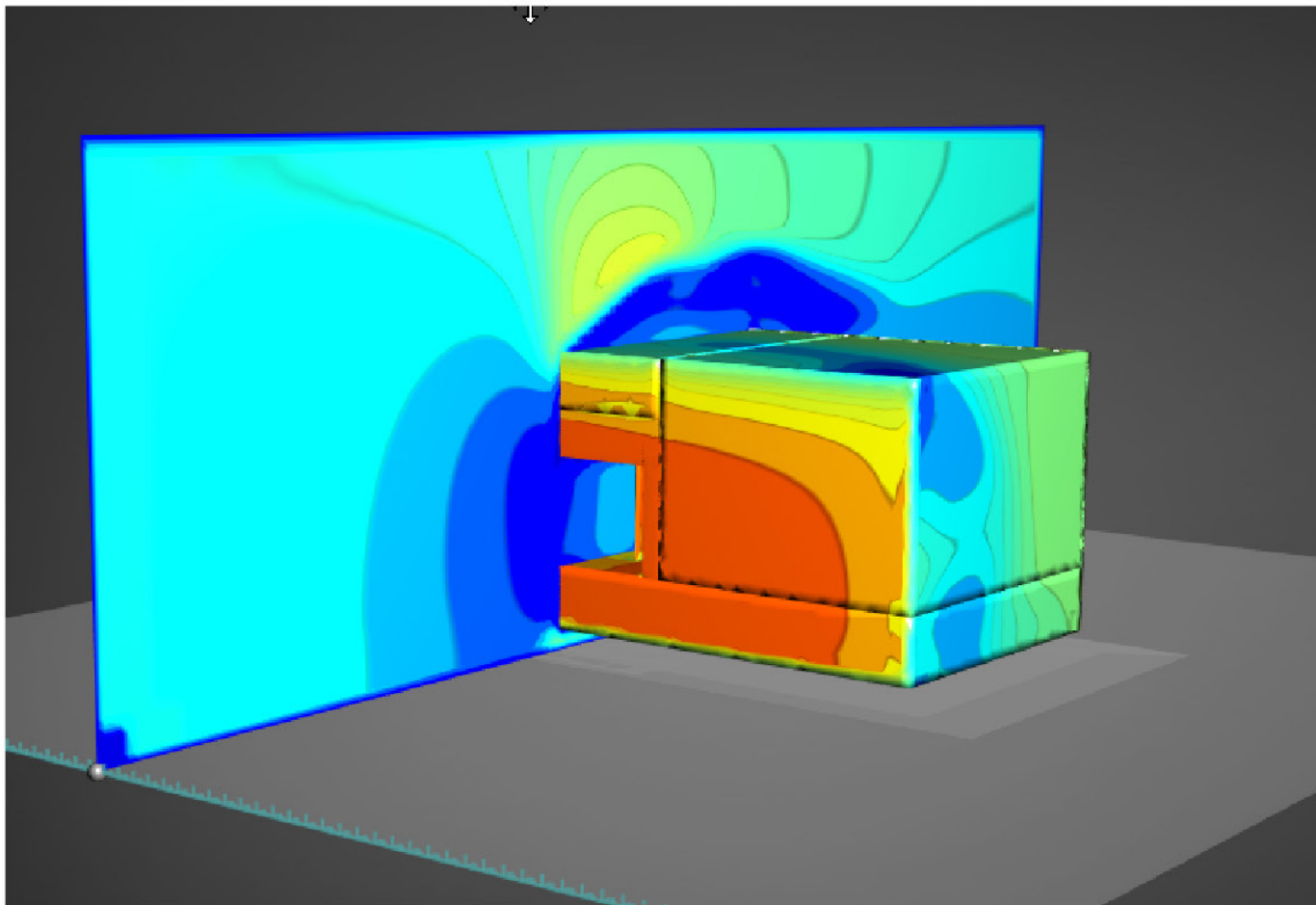
PERSPECTIVE: EXTERIOR WITH BRIDGE

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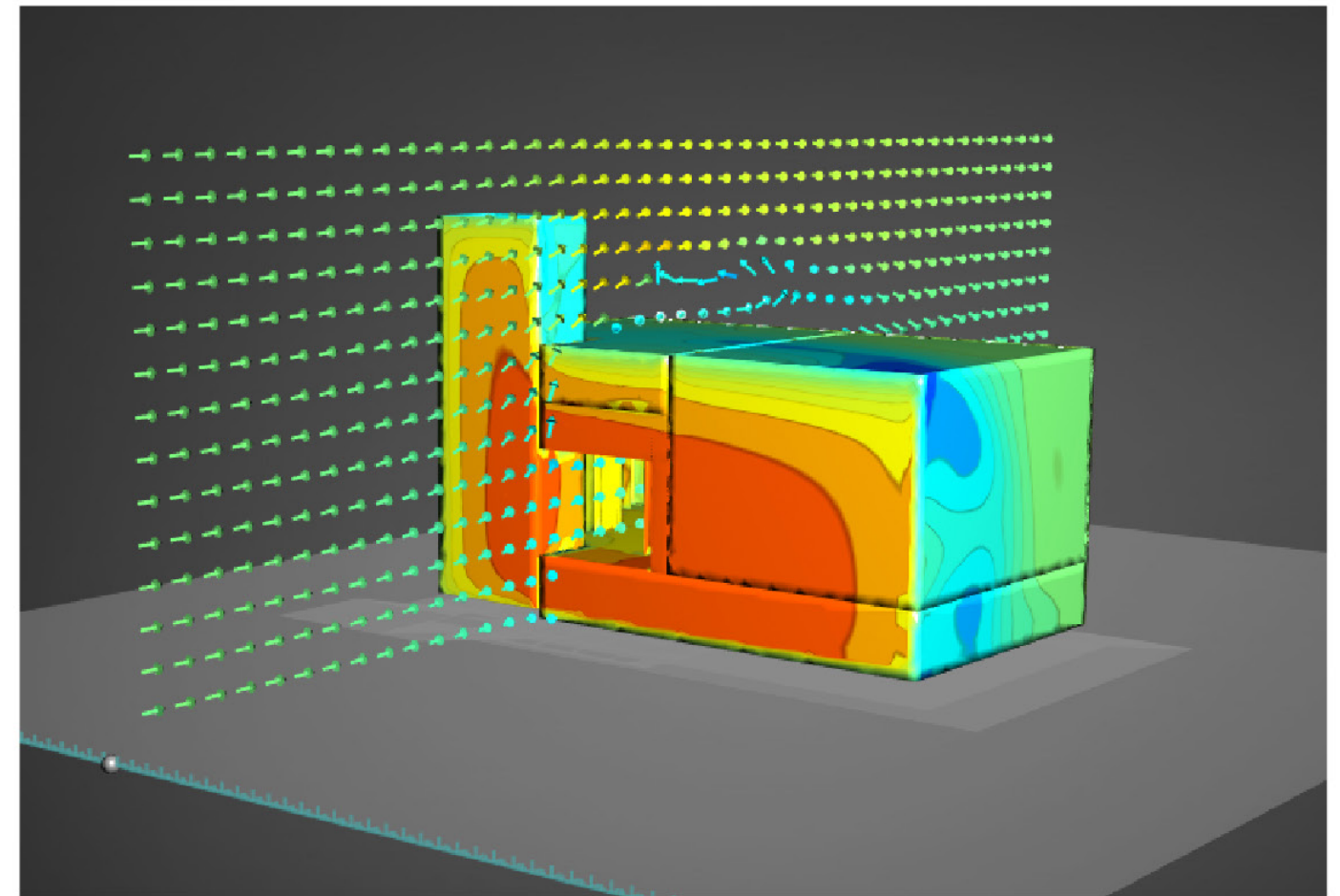


PERSPECTIVE: CONNECTION SQUARE

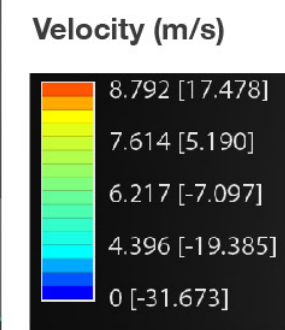
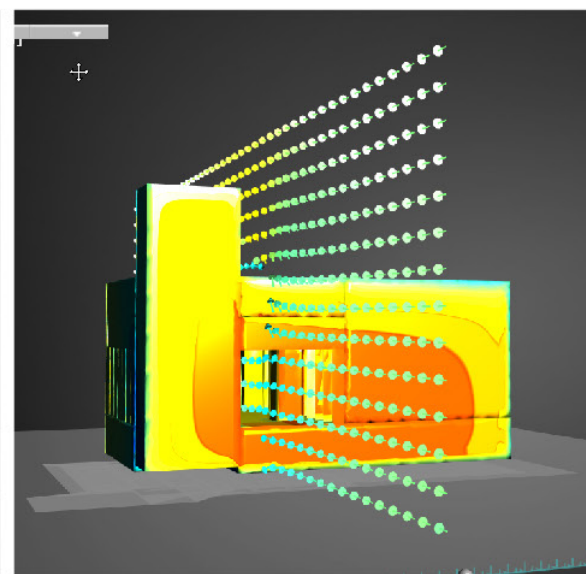
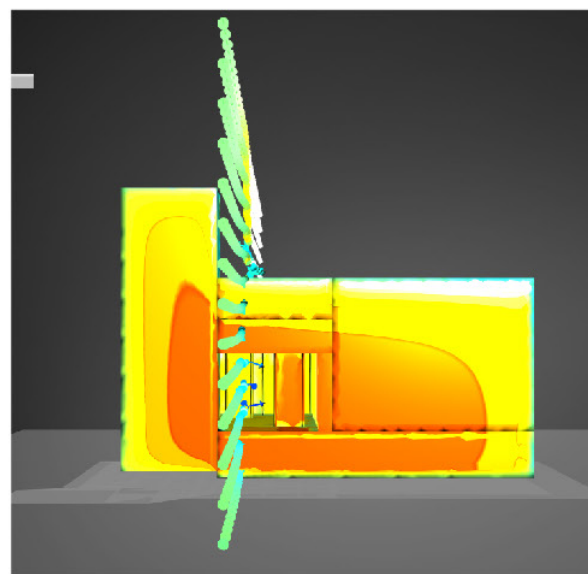
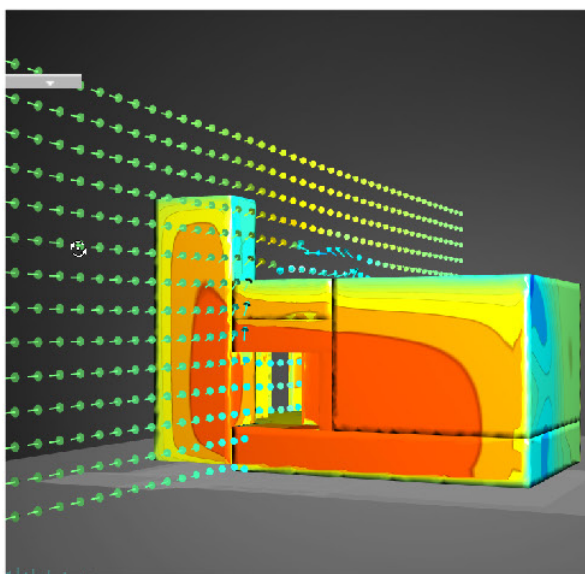
MAASSILO
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Wind flow



Wind direction



Beaufort Scale

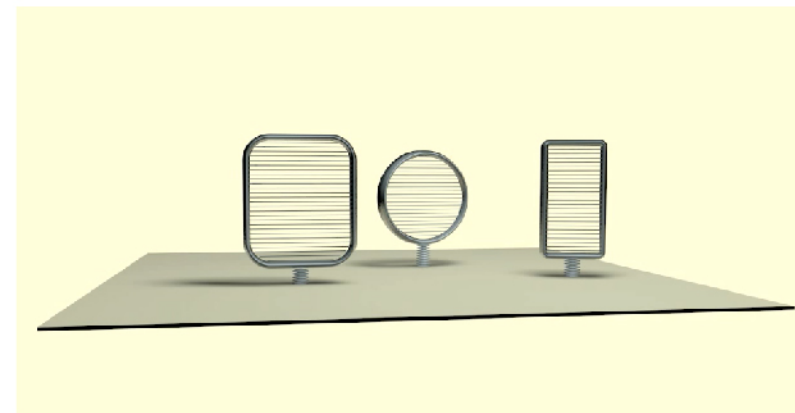
Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

WIND FLOW DIAGRAM

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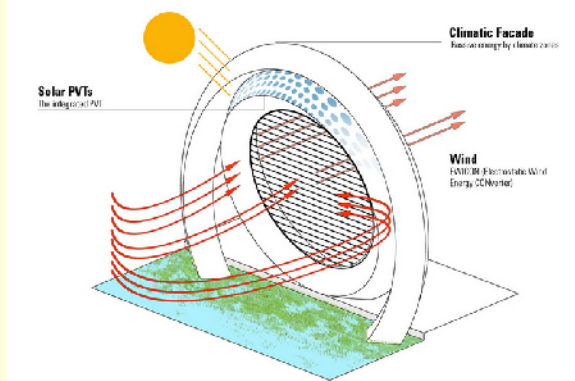
Lower the height: adding layer of glass or louvers.



Electric field turbine

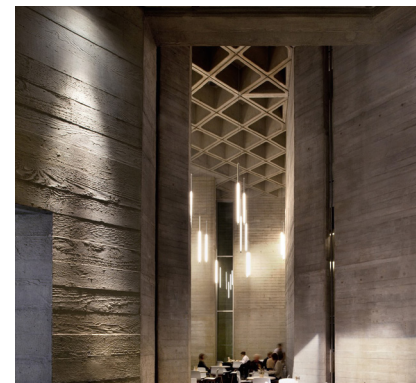
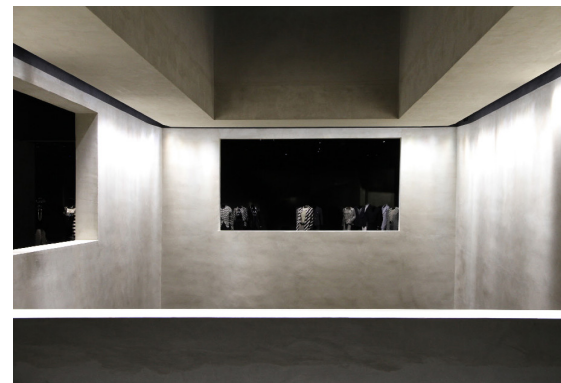
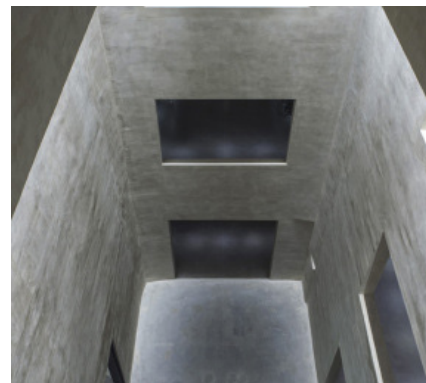
It generates power using an electric field made up of thin metal tubes and nozzles that spray out water droplets.

The wind causes the droplets to move towards the positive electrodes, increasing their potential energy – the energy that an object has due to its position – and allowing it be harnessed.



WIND FORCE DEALING OPTION

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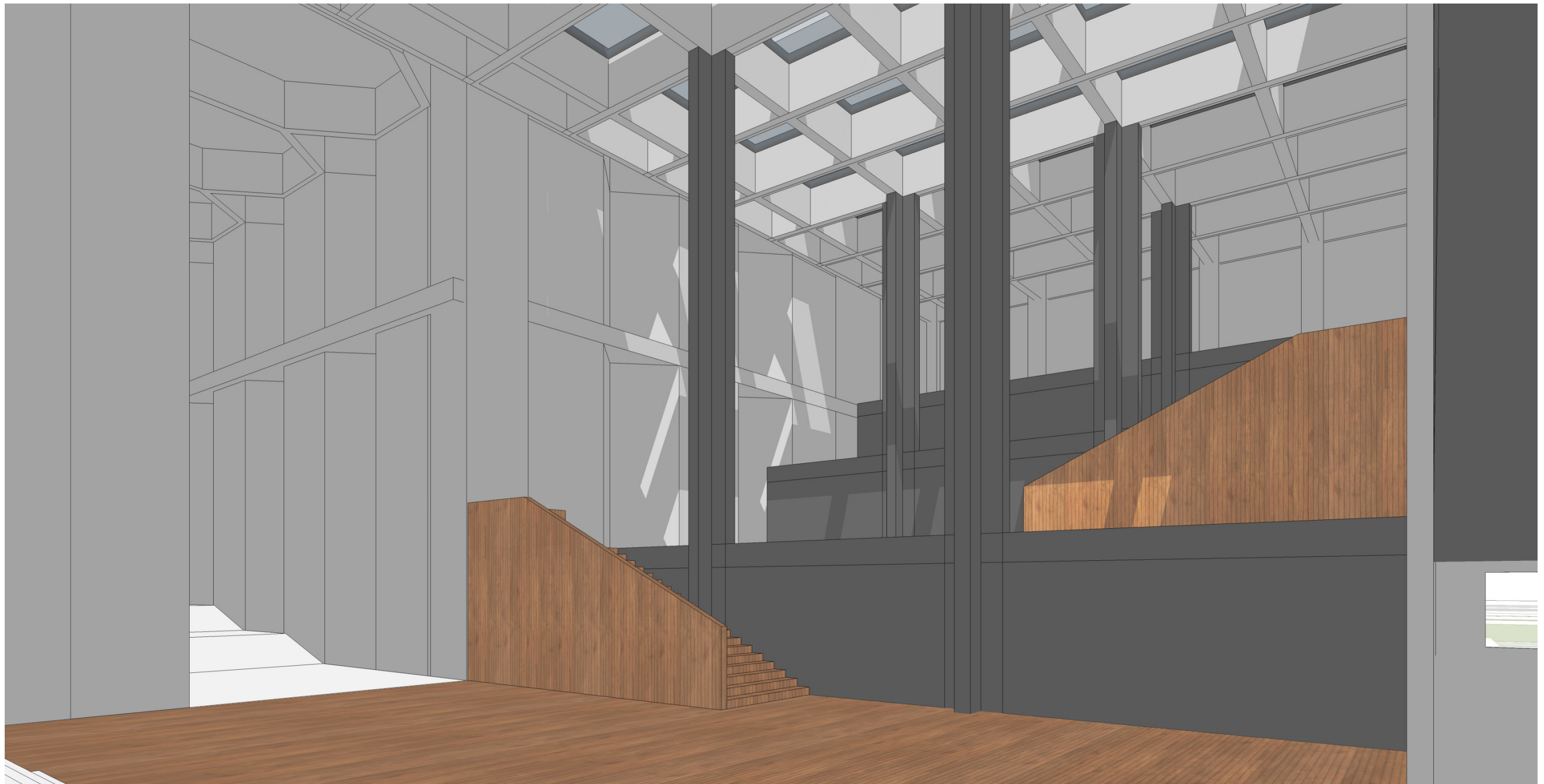


PERSPECTIVE: SILO CORRIDOR

MAASSILO

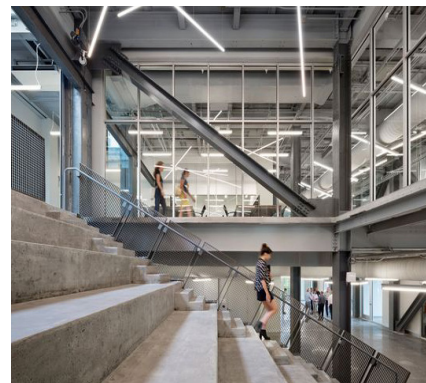
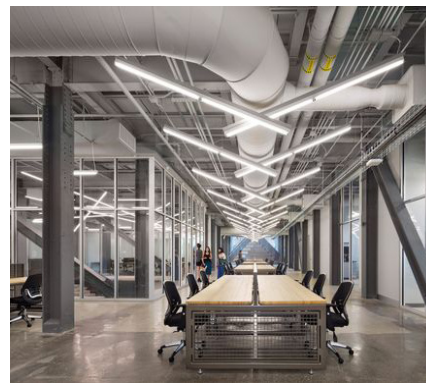
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PERSPECTIVE: EDUCATION HALL

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PERSPECTIVE: CULTURAL CENTER HALL

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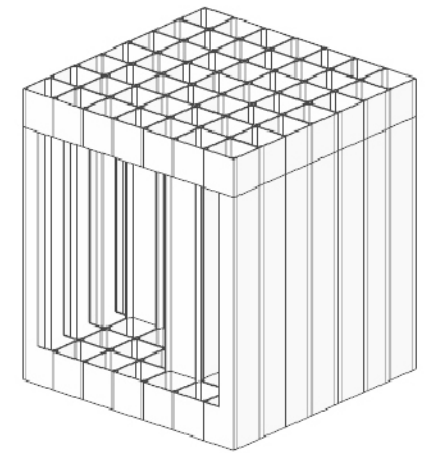
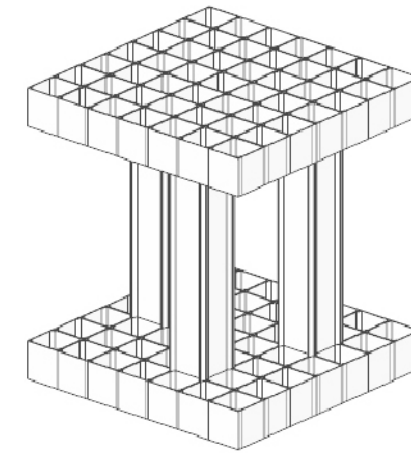
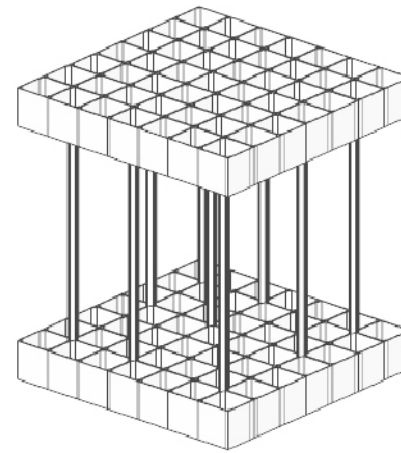
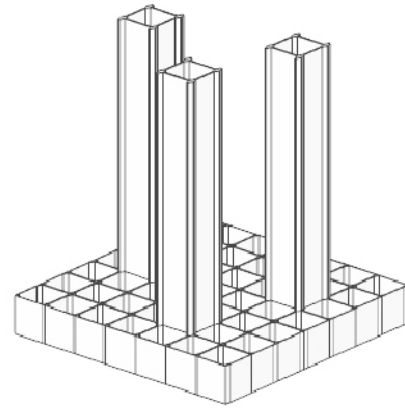
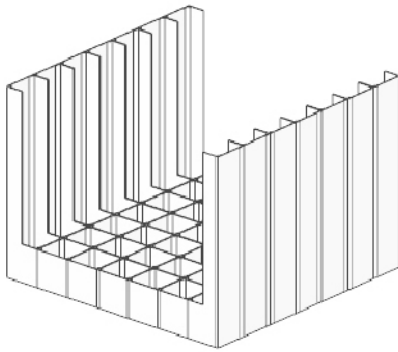
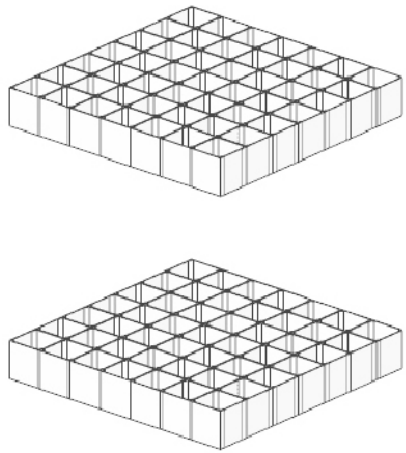
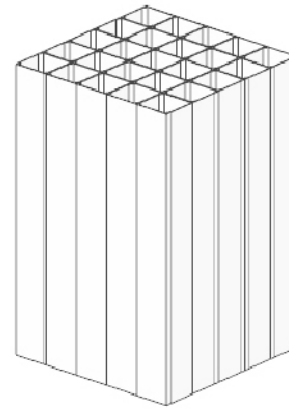
PERSPECTIVE: ATTIC AND MEZANINE

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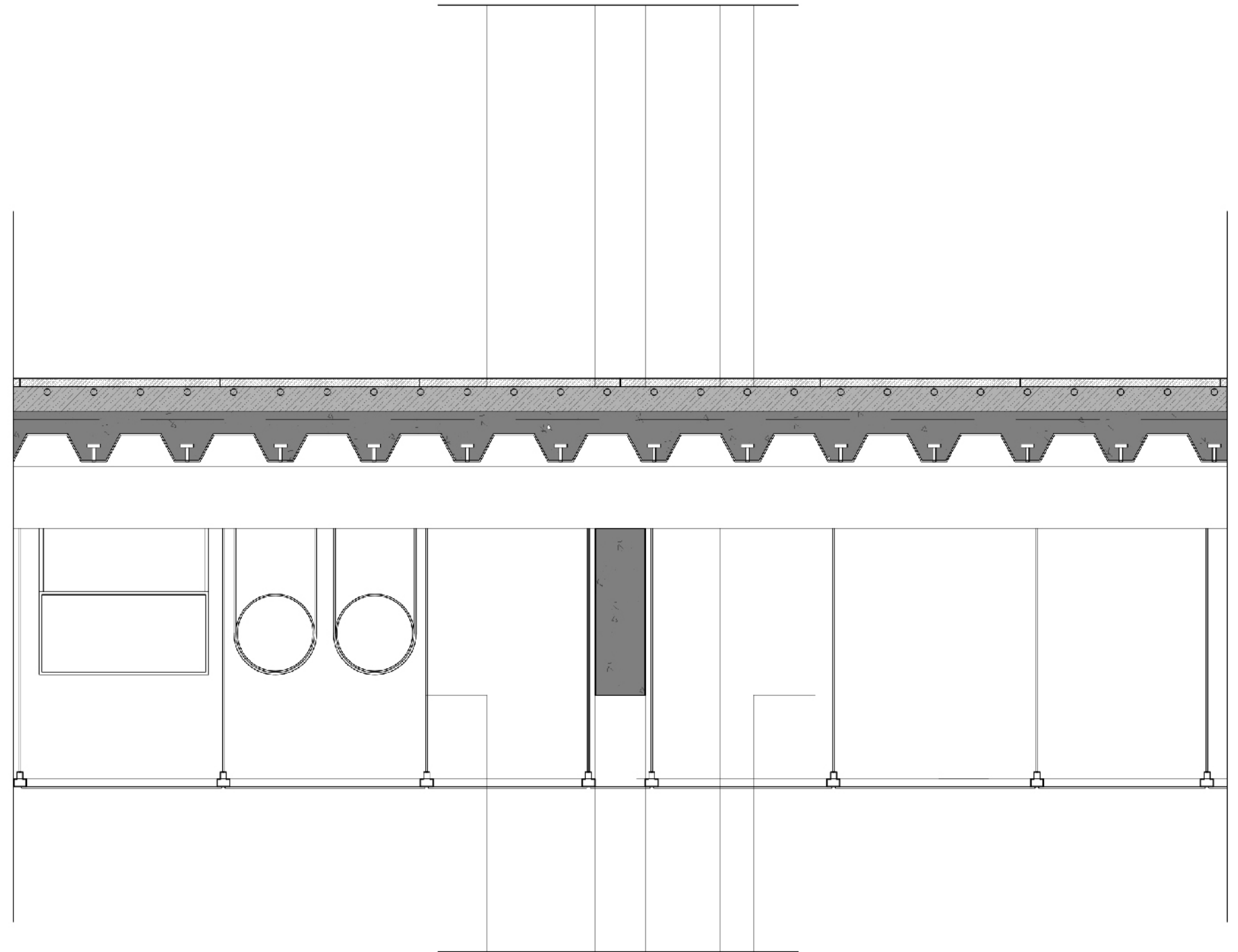
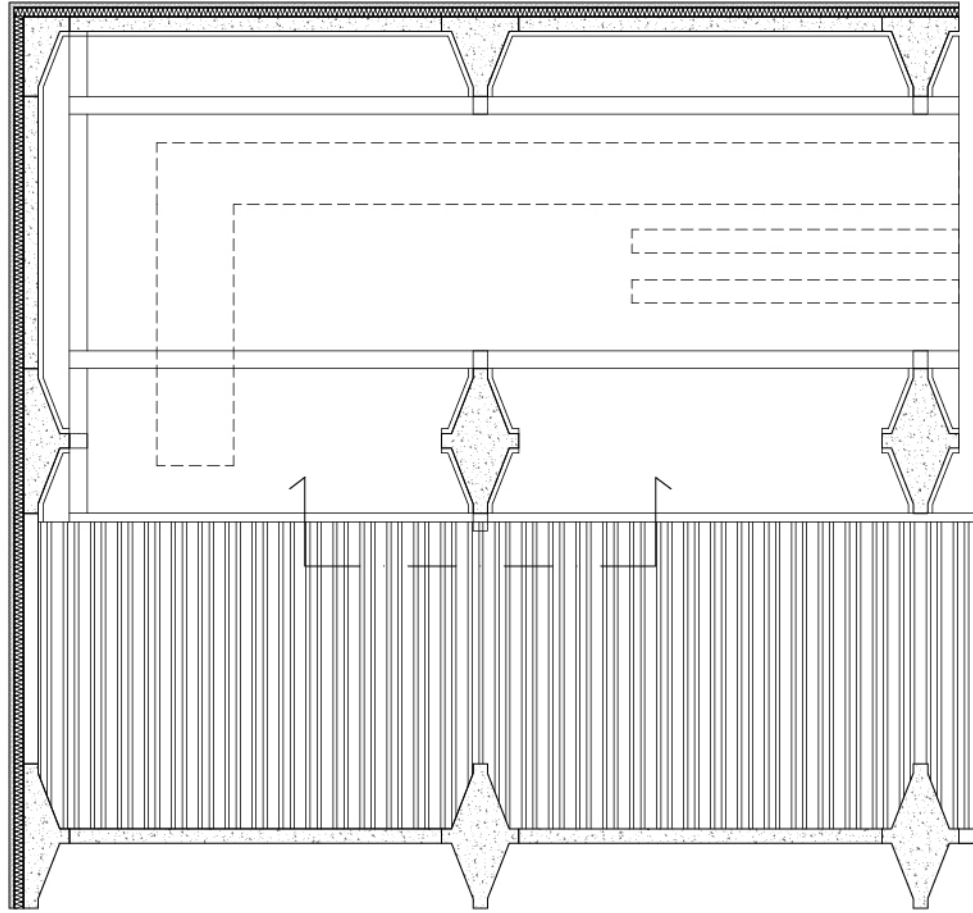
PERSPECTIVE: URBAN FARMING-OUTSIDE

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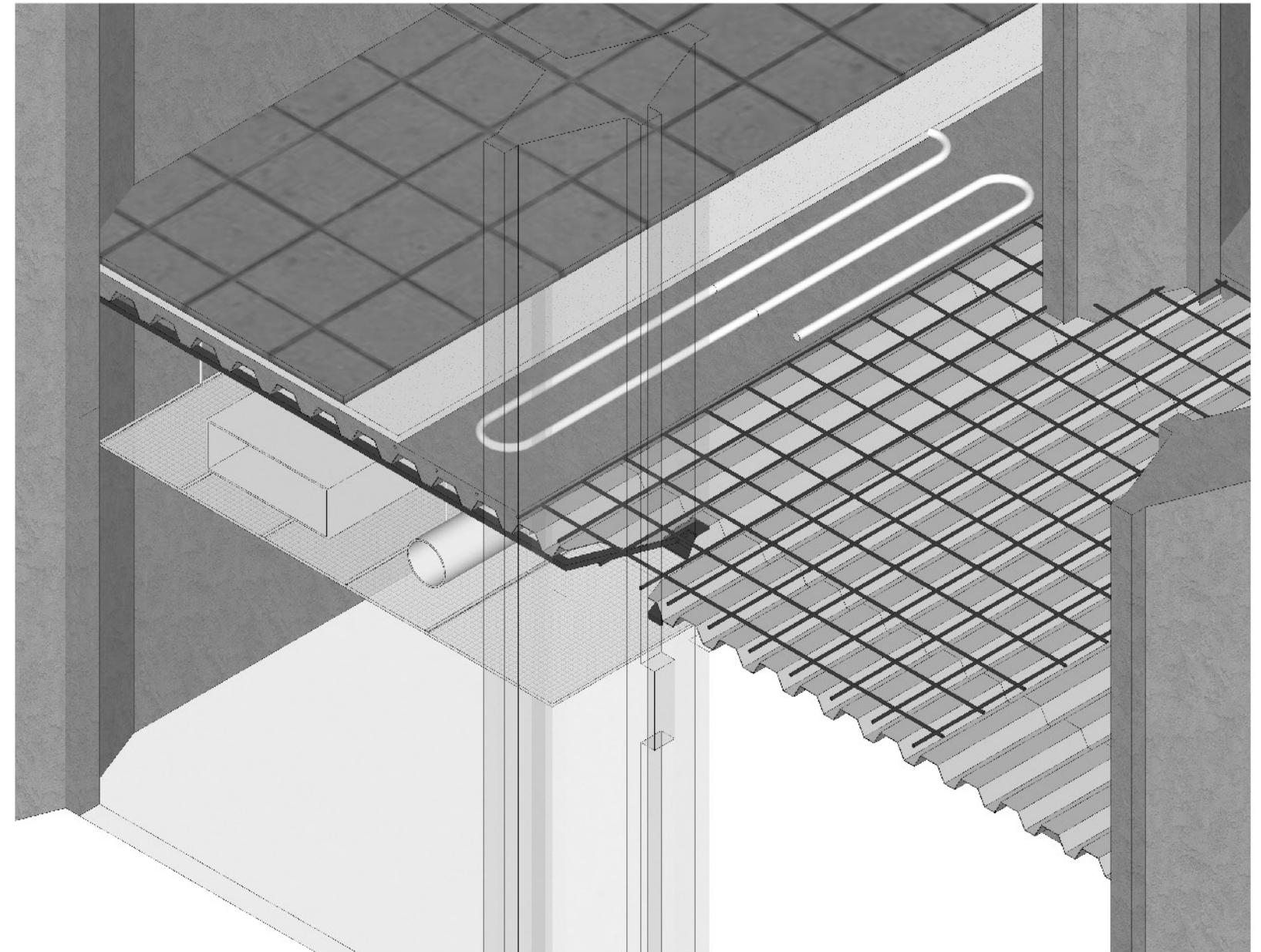
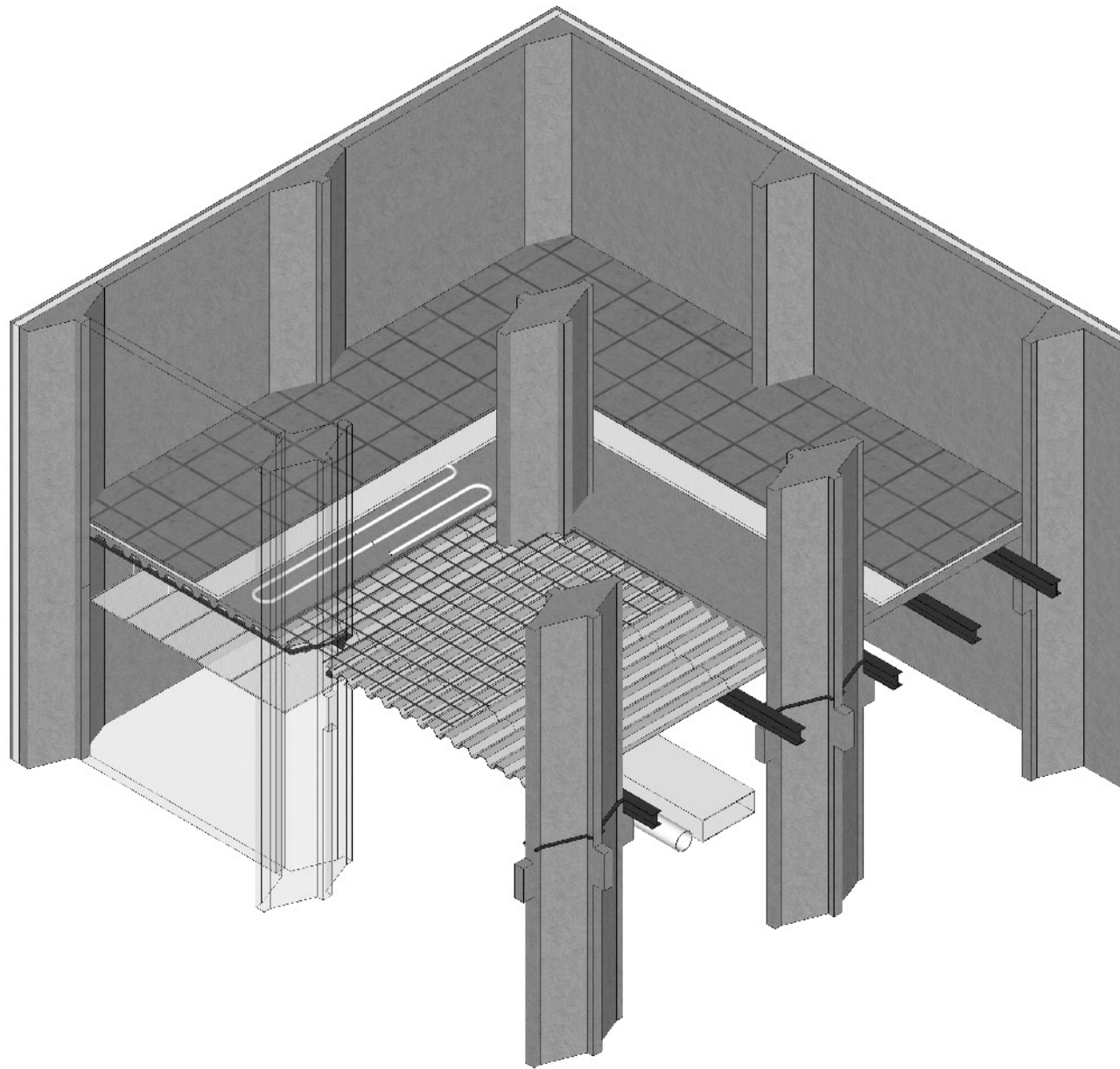
STRUCTURE CONCEPT

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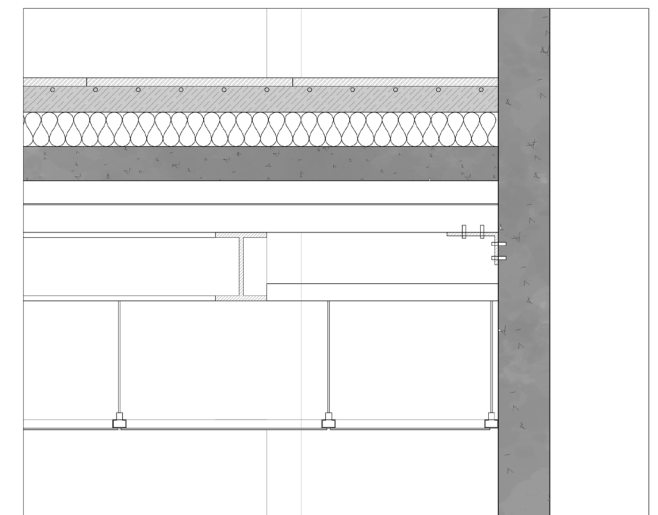
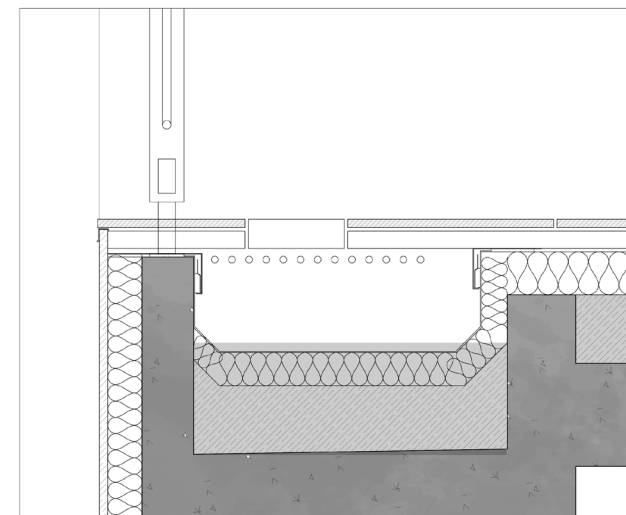
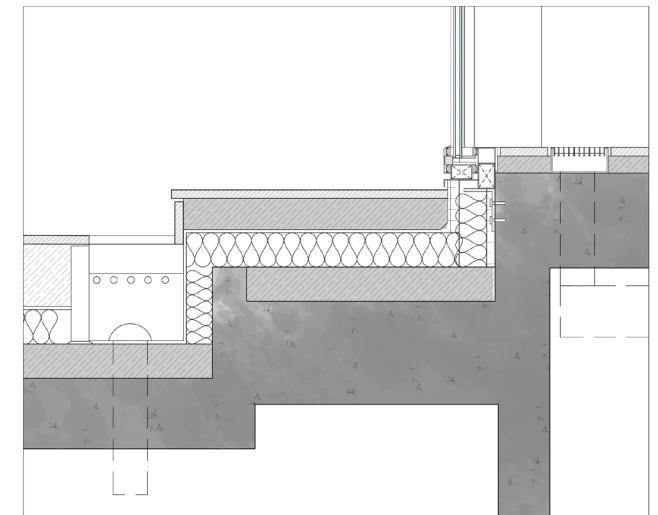
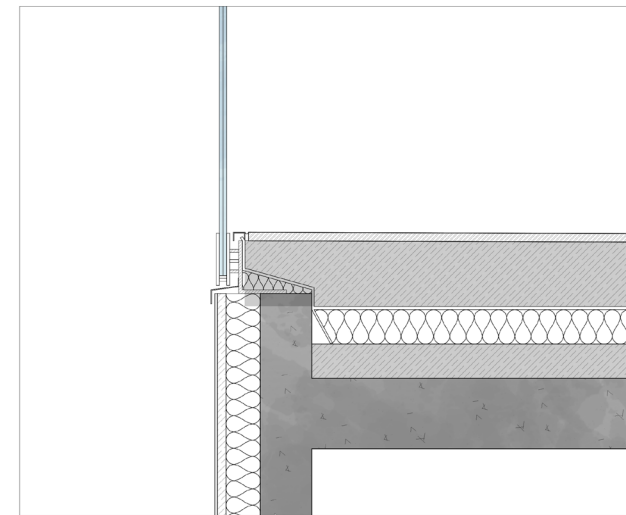
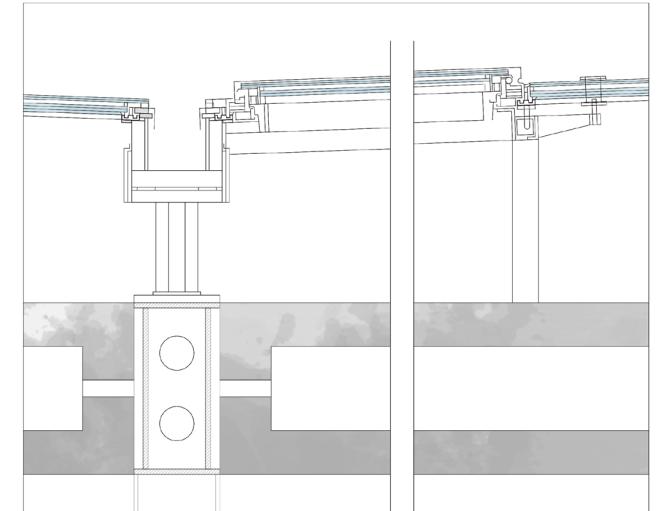
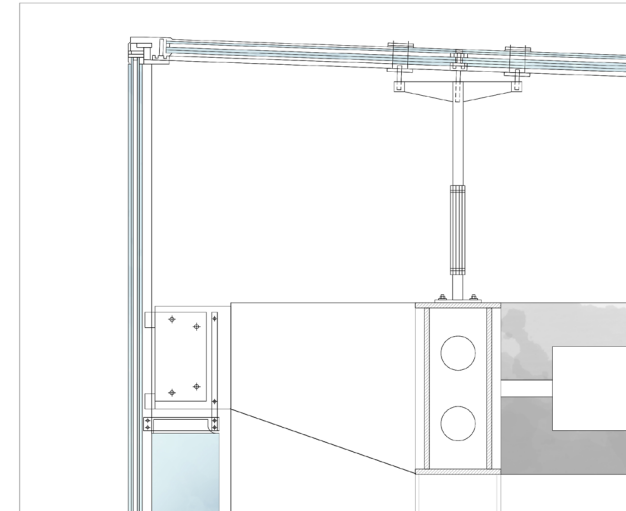
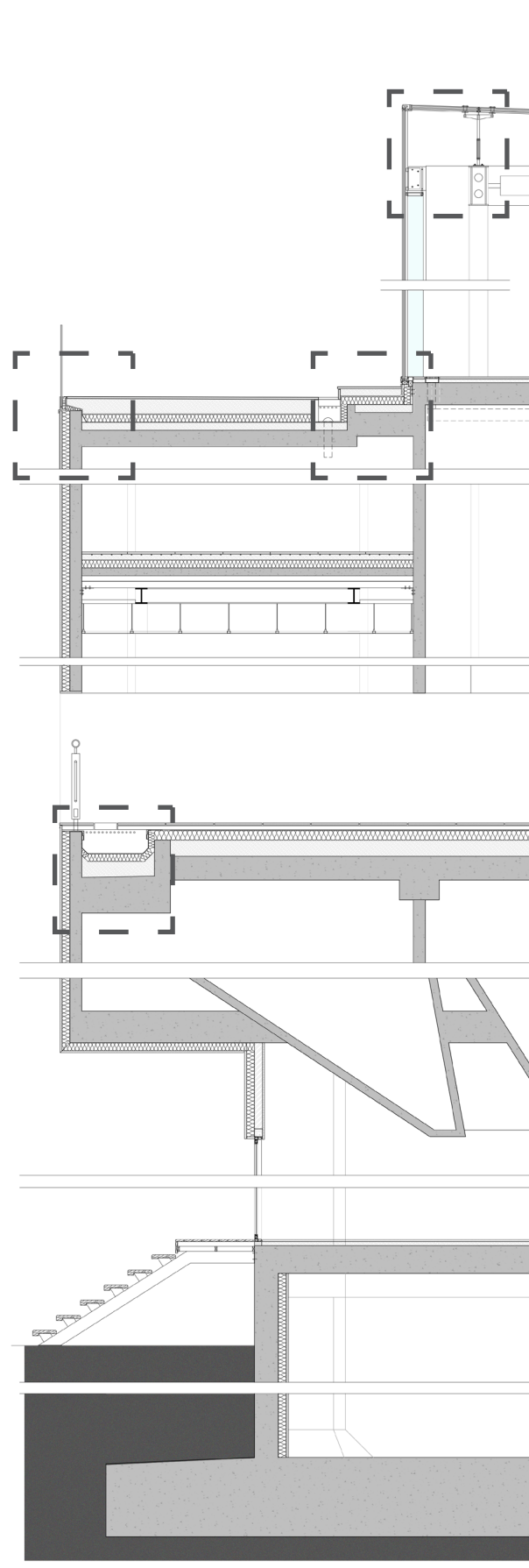
FLOOR DETAIL

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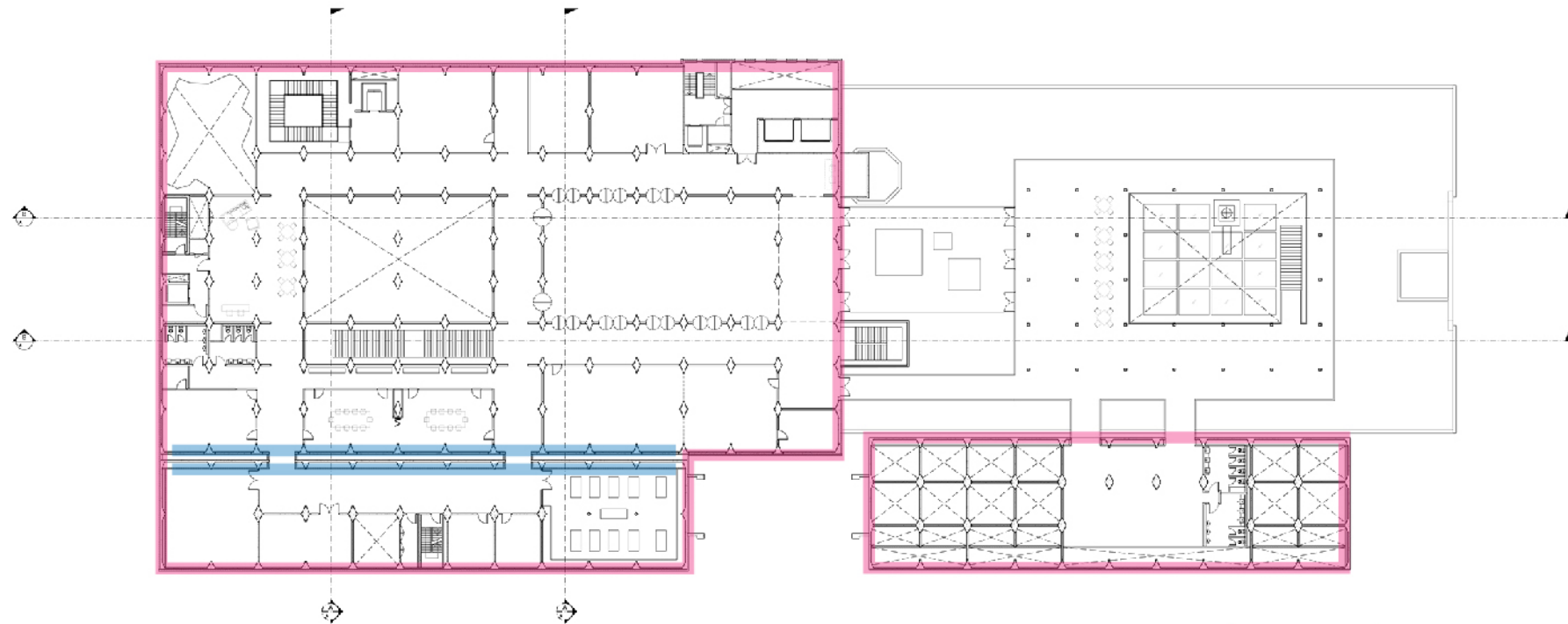
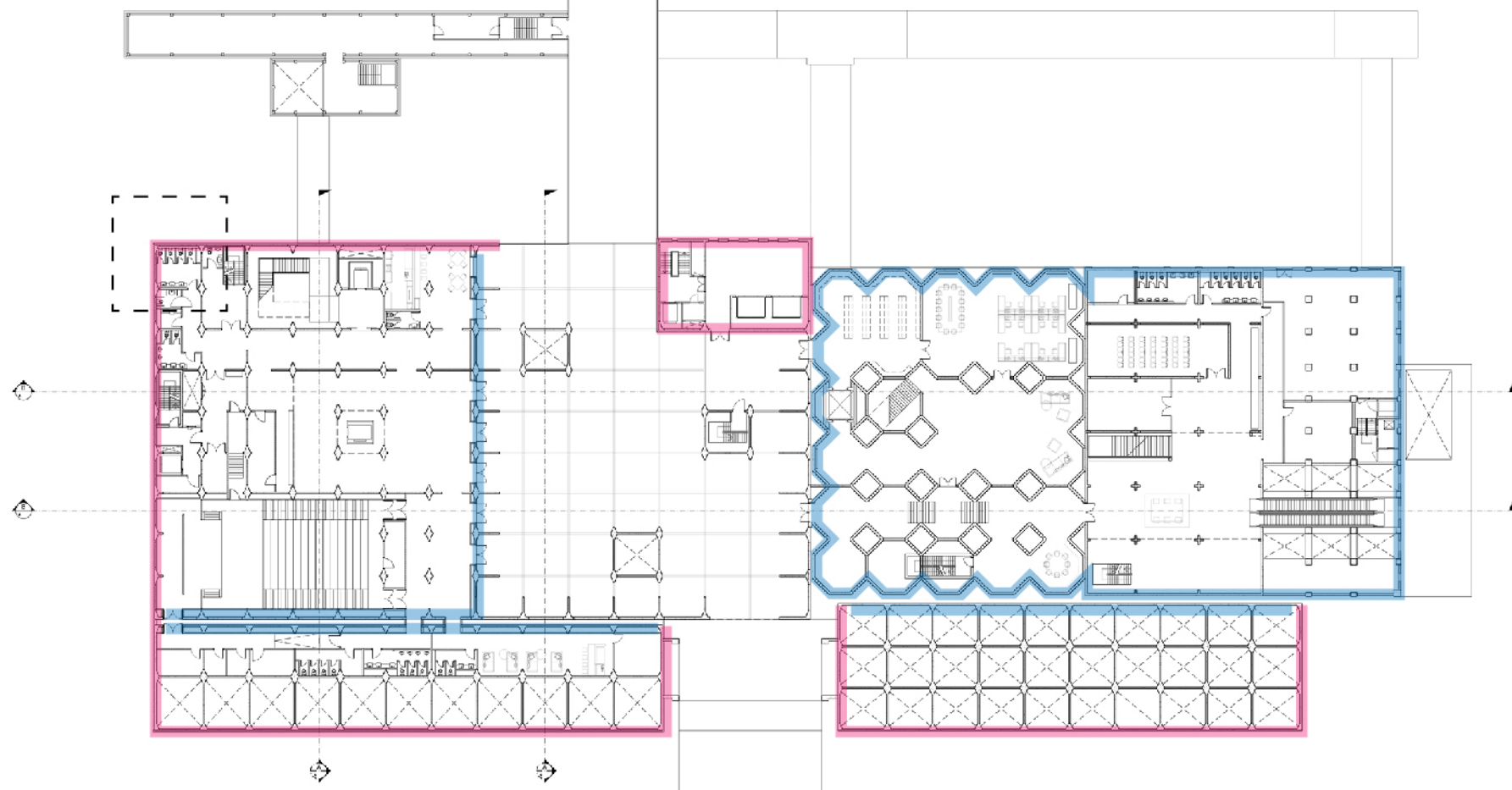
FLOOR DETAIL

MAASSILO
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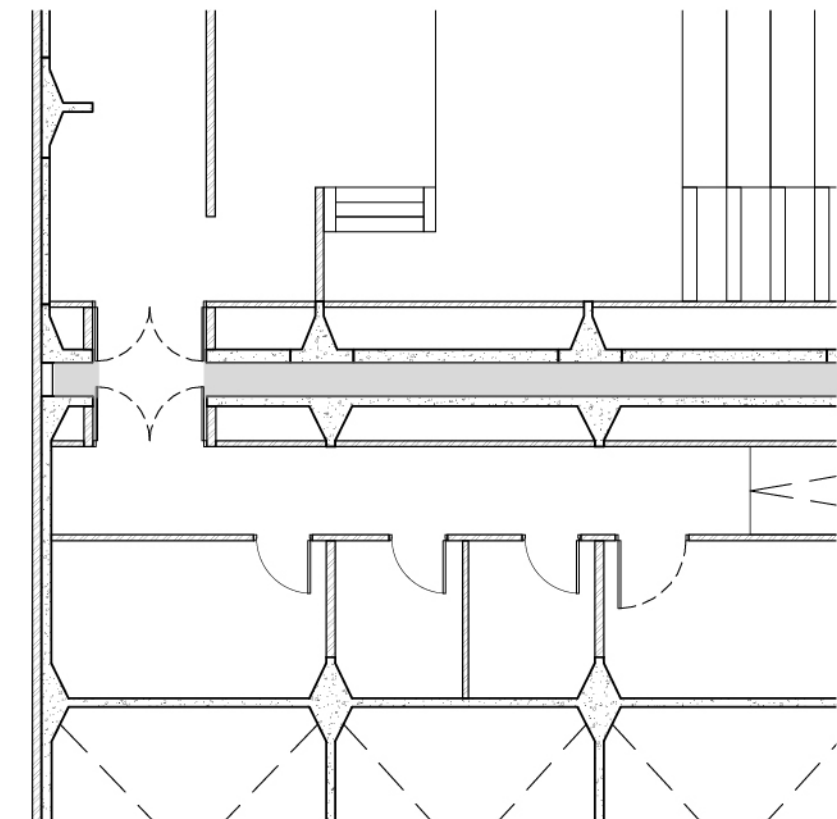
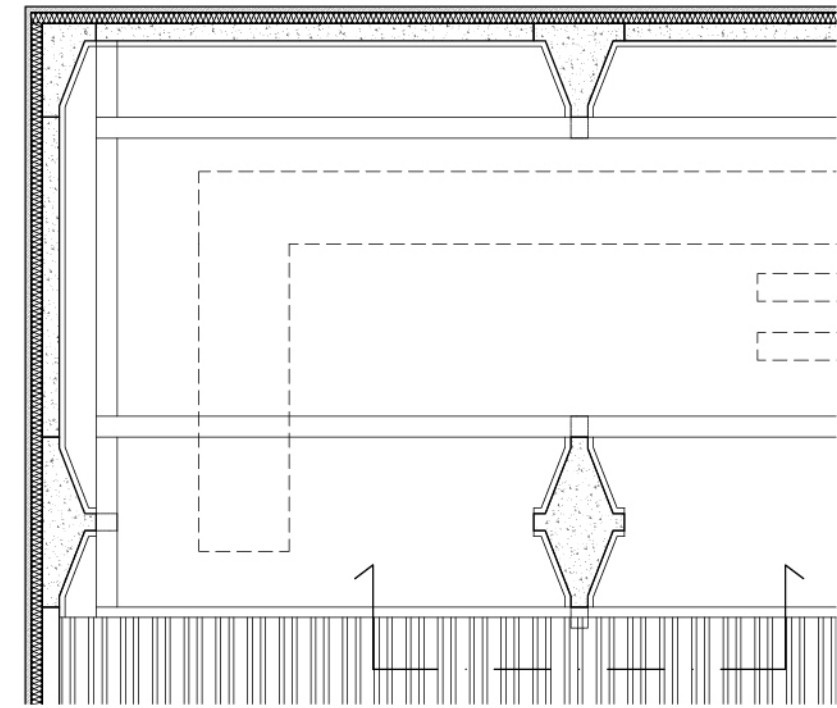
WALL SECTION AND DETAIL

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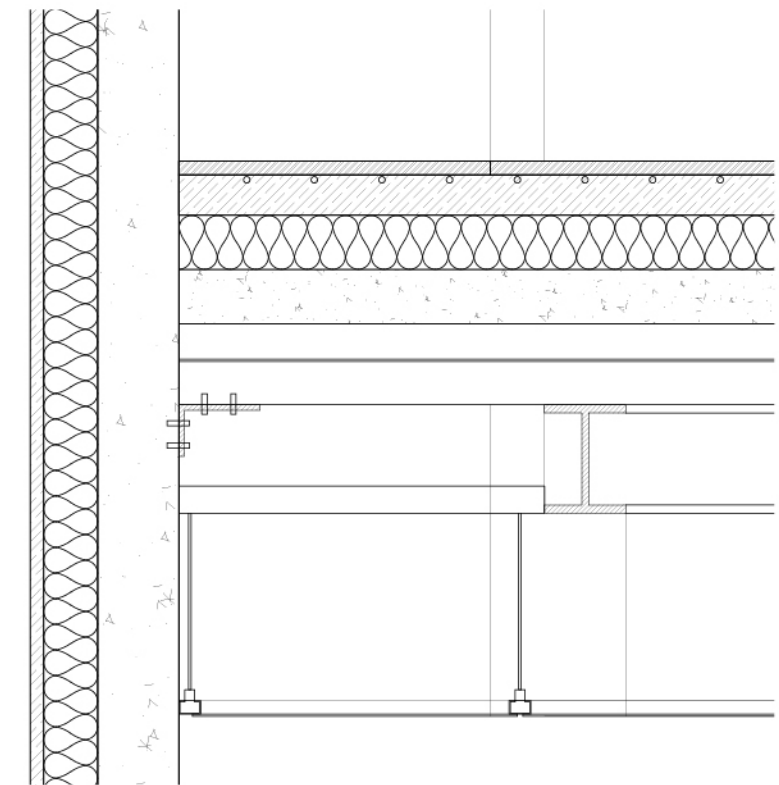
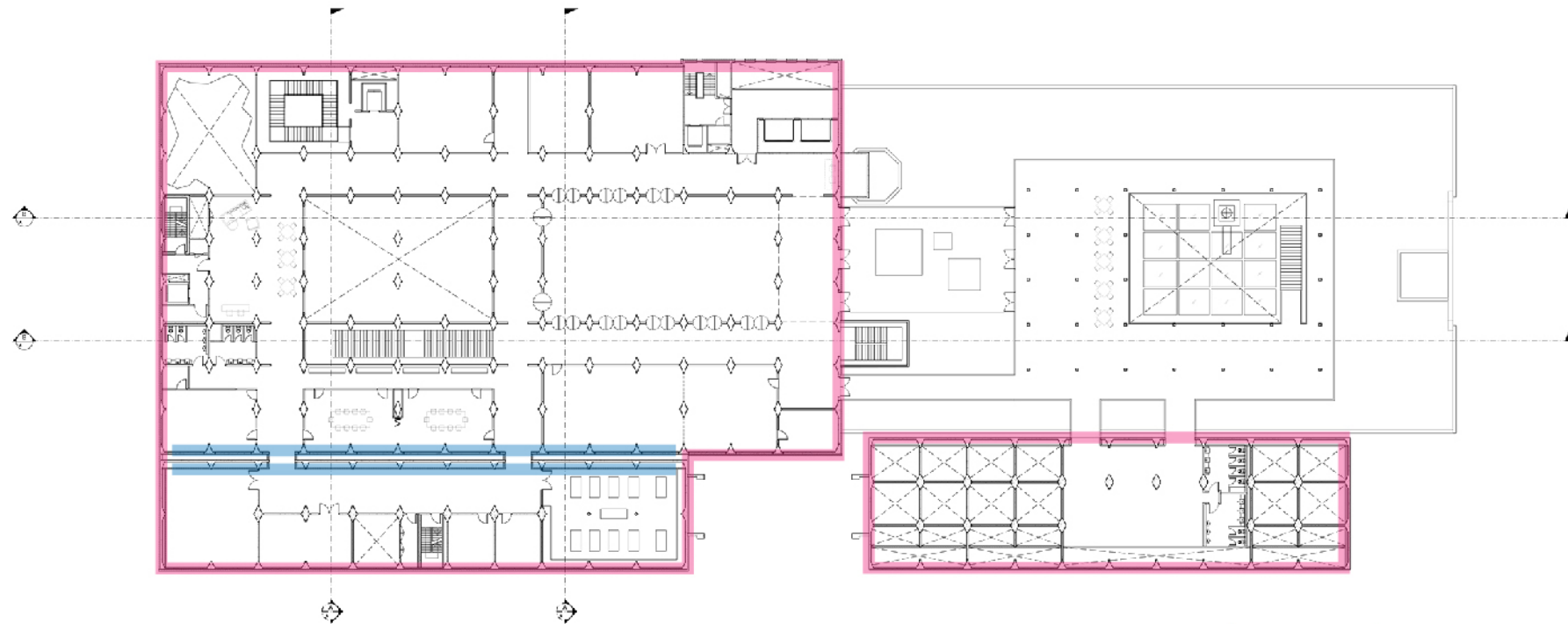
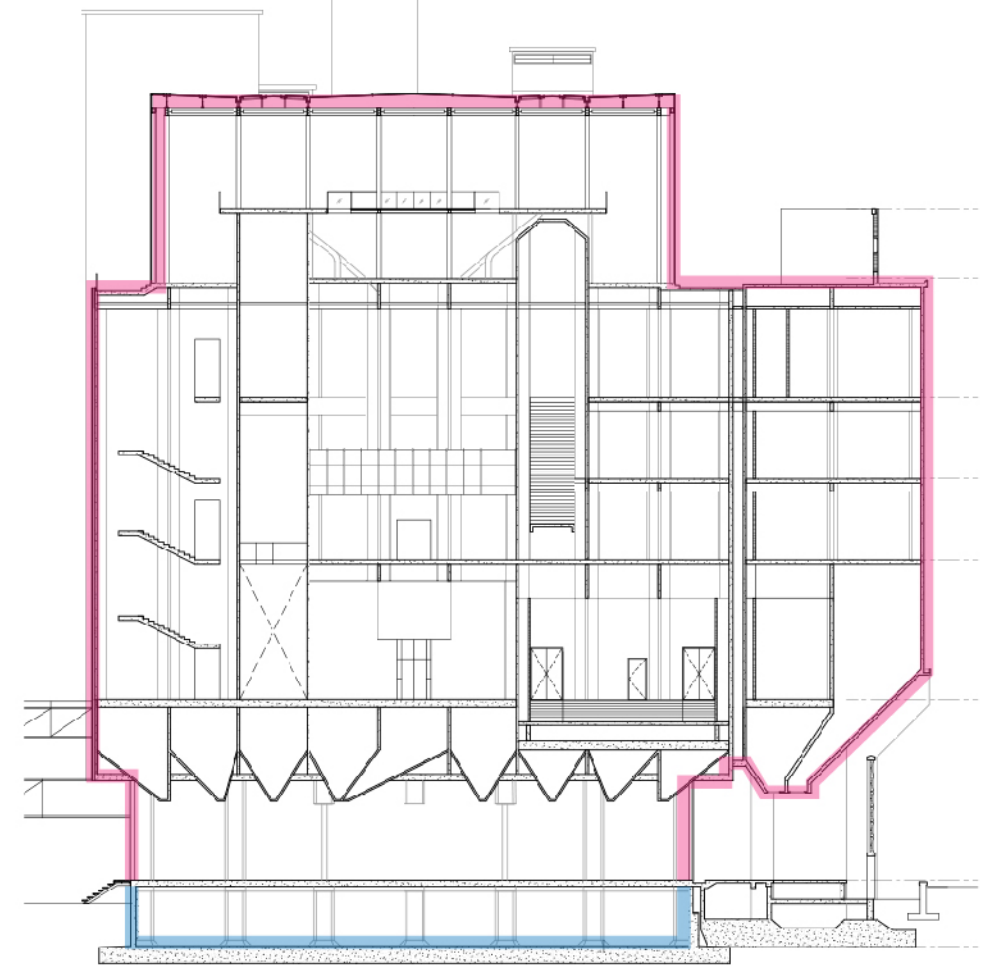
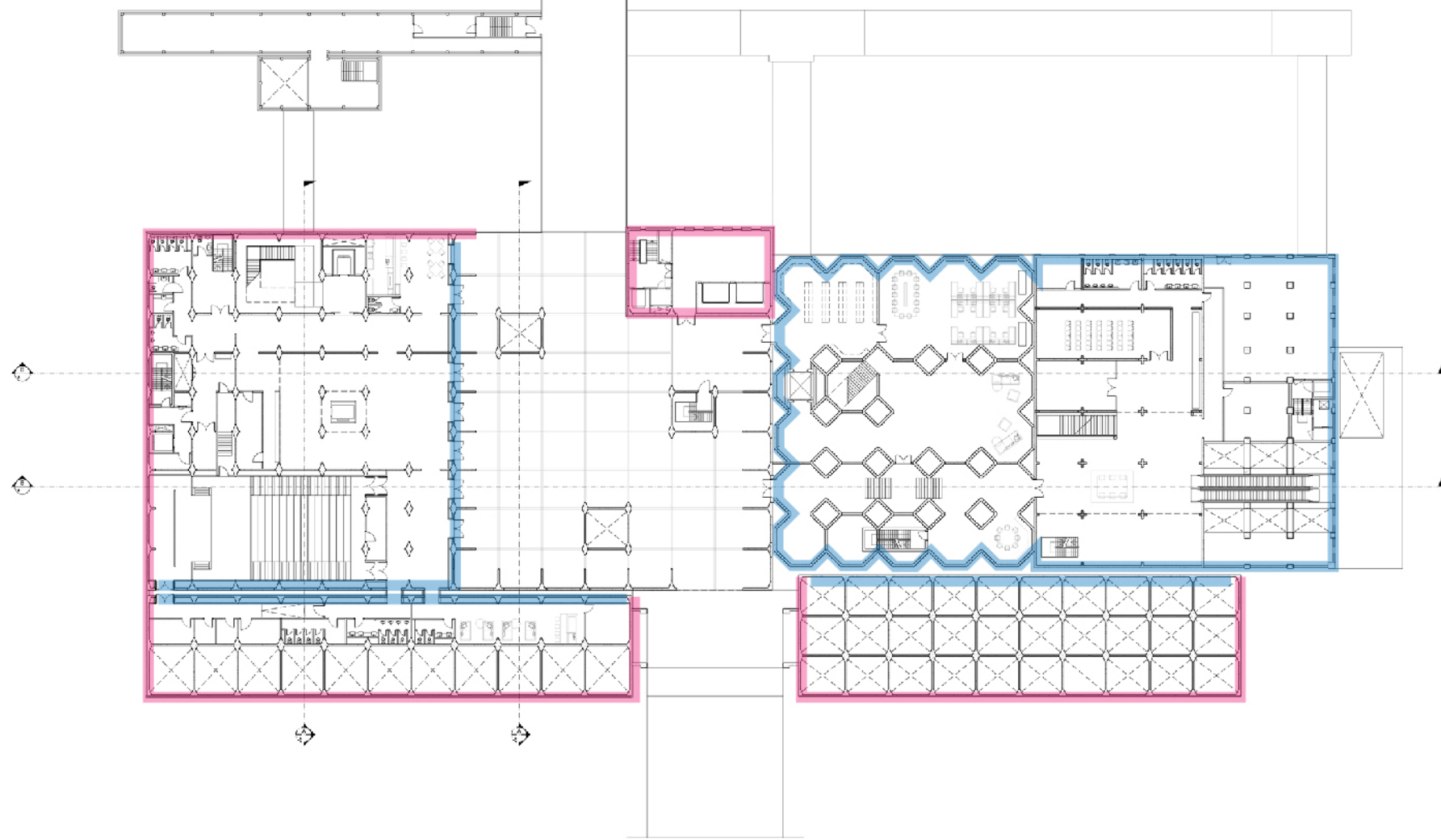


inside insulation
 outside insulation

INSULATION, VENTILATION



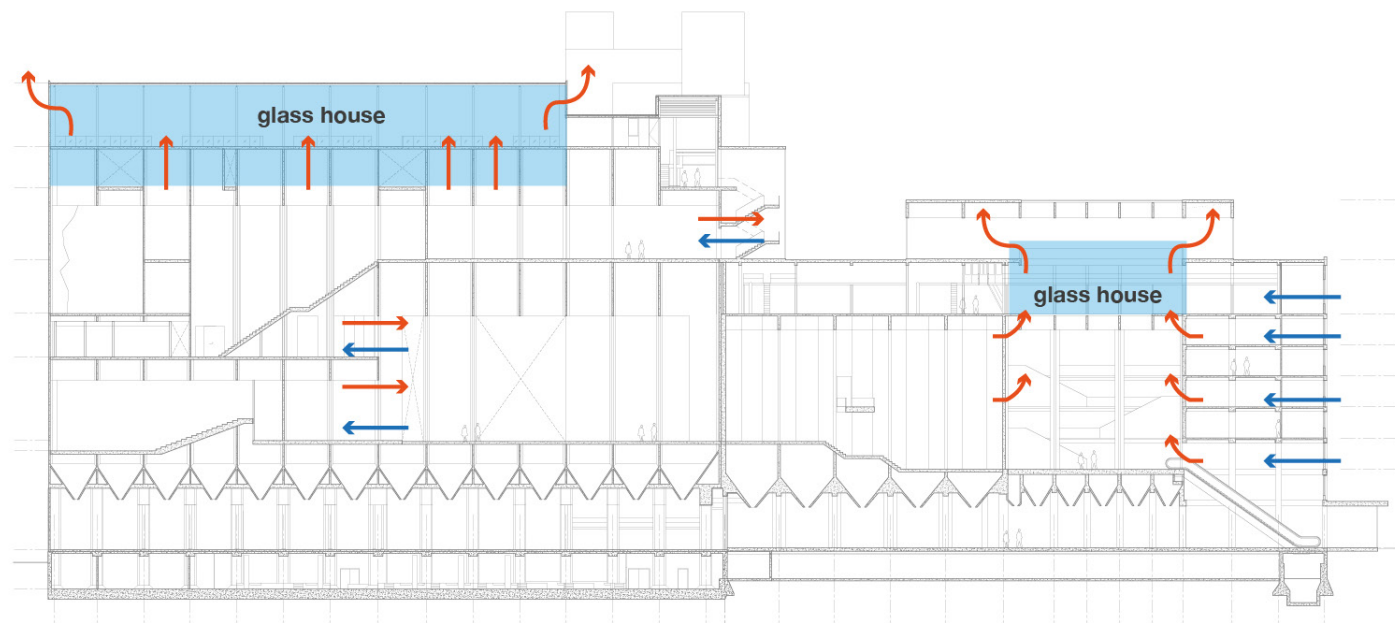
inside insulation - wall cavity



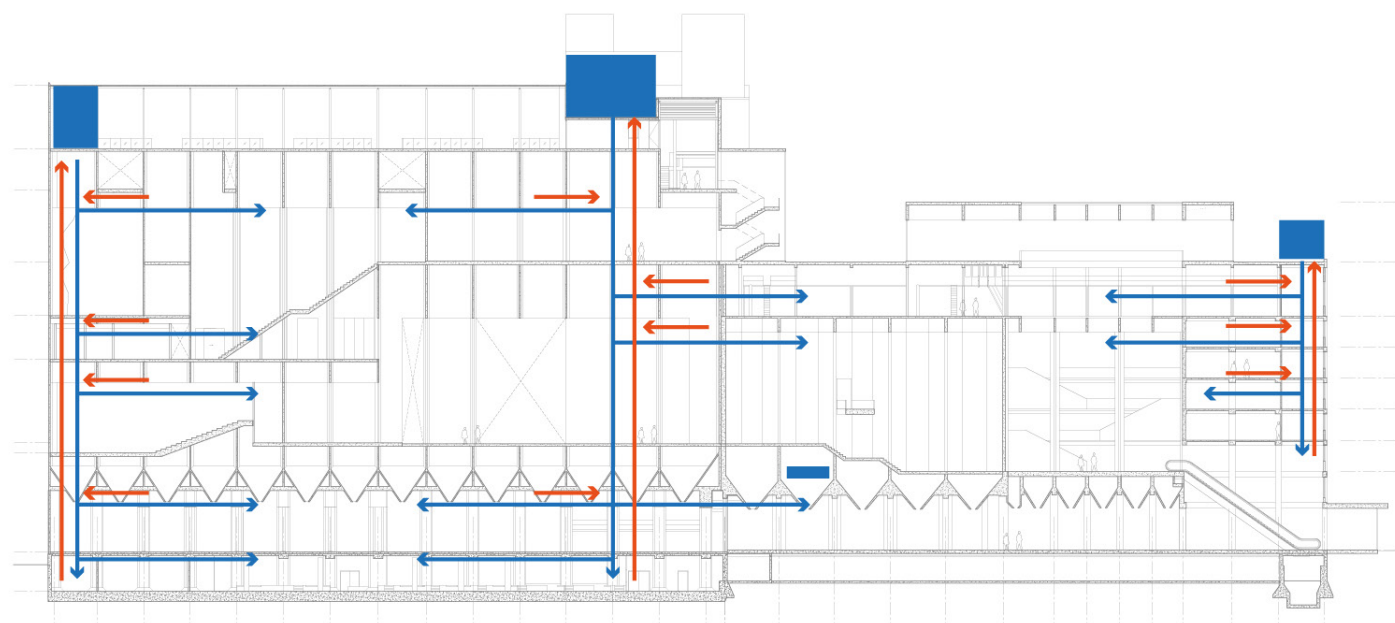
inside insulation
 outside insulation

INSULATION, VENTILATION

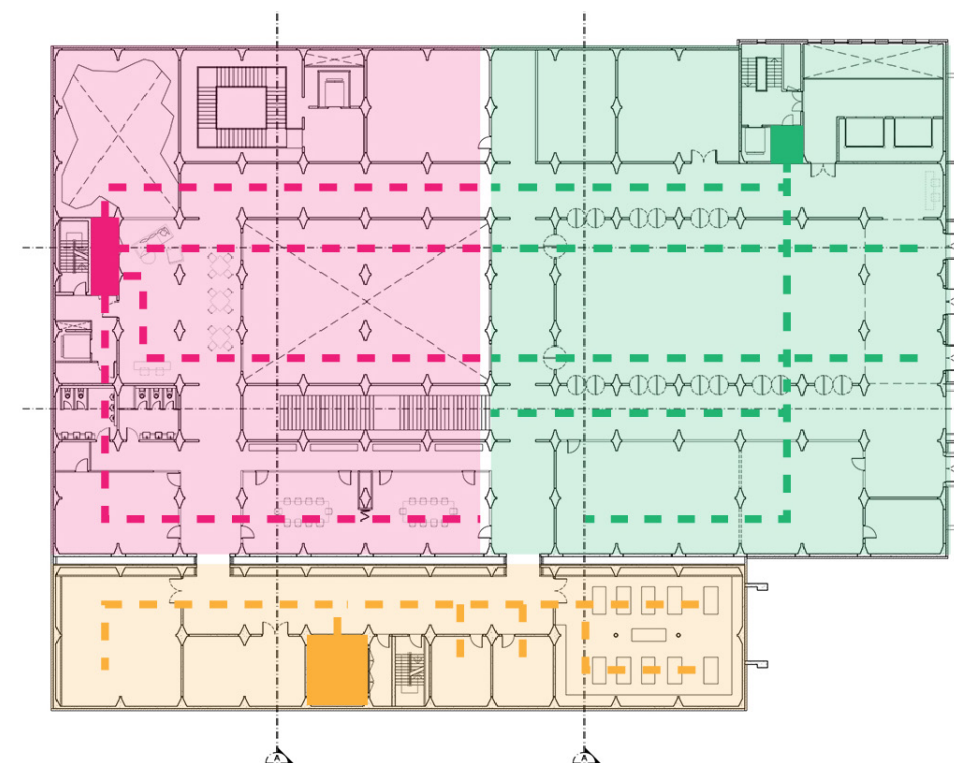
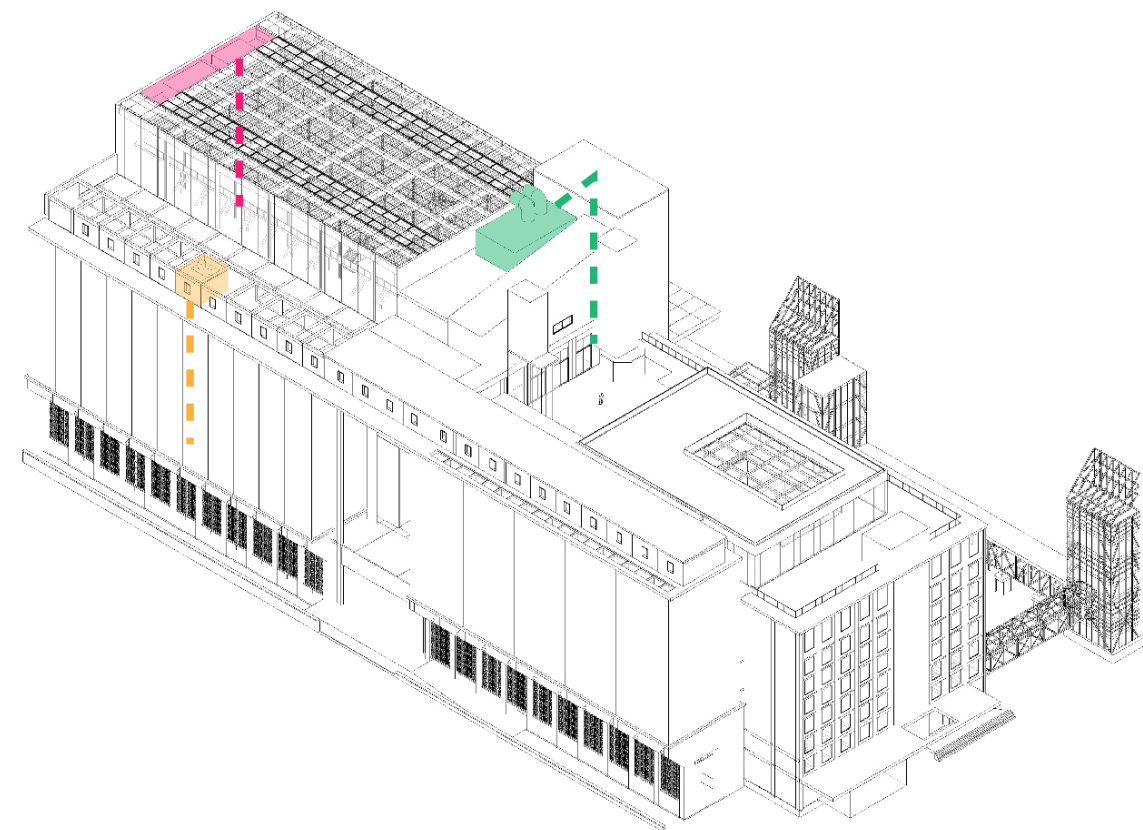
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Natural ventilation



Mechanical ventilation



VENTILATION DIAGRAM

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