

VENICE

BEYOND THE DREAM

P5 - MSc Architecture - City Of The Future

Redefining belonging:
a comprehensive mapping of
external agents' influence and
architectural interventions
to challenge
Venice's unlivability

Flavia Scafella - 5863481 - TU Delft



“Memory’s images, once they are fixed in words, are erased,” Polo said.

“Perhaps I am afraid of losing Venice all at once, if I speak of it,

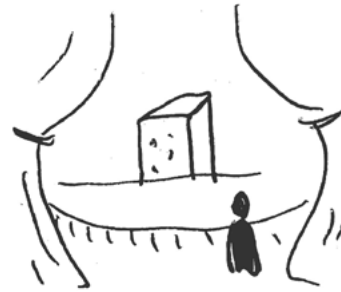
or perhaps, speaking of other cities, I have already lost it,

little by little.”

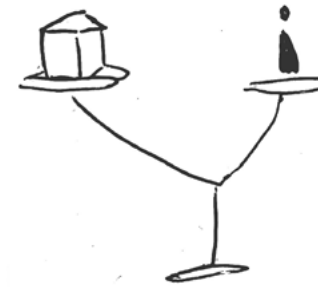
Fascination



THE ISLAND



THE THEATRE



THE SCALE

The role of city and the role of resident are reciprocal

Introduction



A city does not change itself

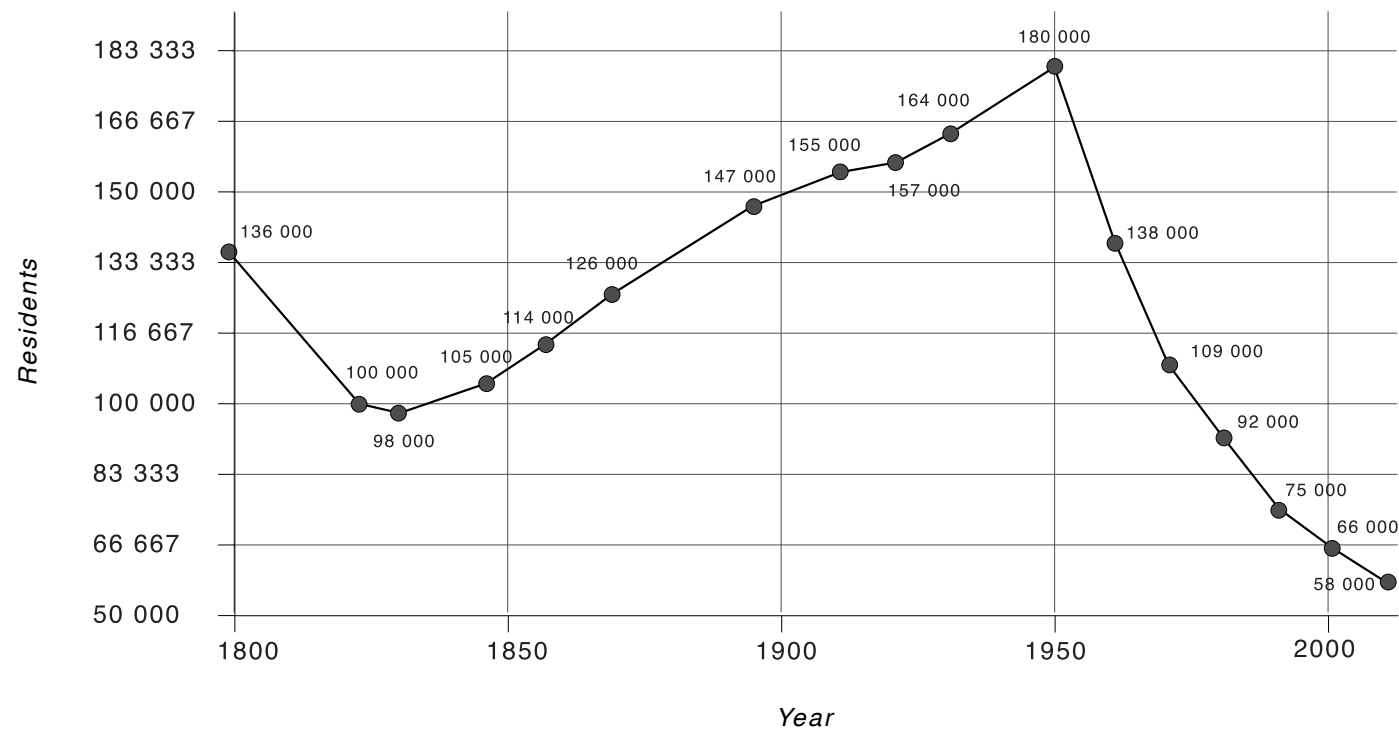


External agents: the stakeholders that mutate the city operating at different scales

Venice, Italy



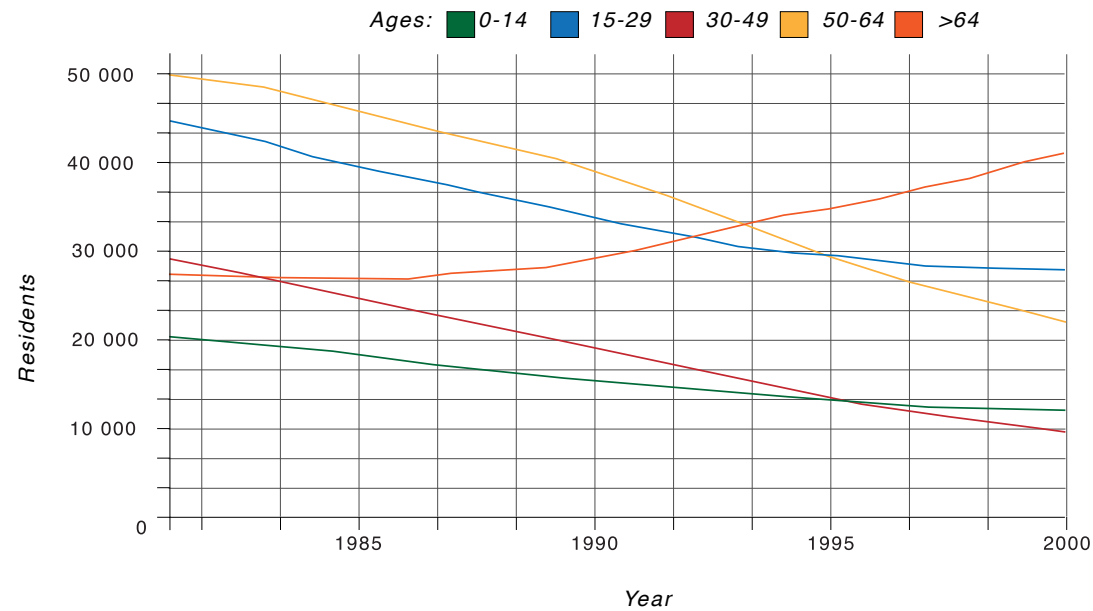
Declining population



Residents in Venice's city centre throughout the years

Venice reached peak population (180000 inhabitants) around 1950, after WW2. Afterwards, one can see a steep decline, which makes today's population under 50000 residents.

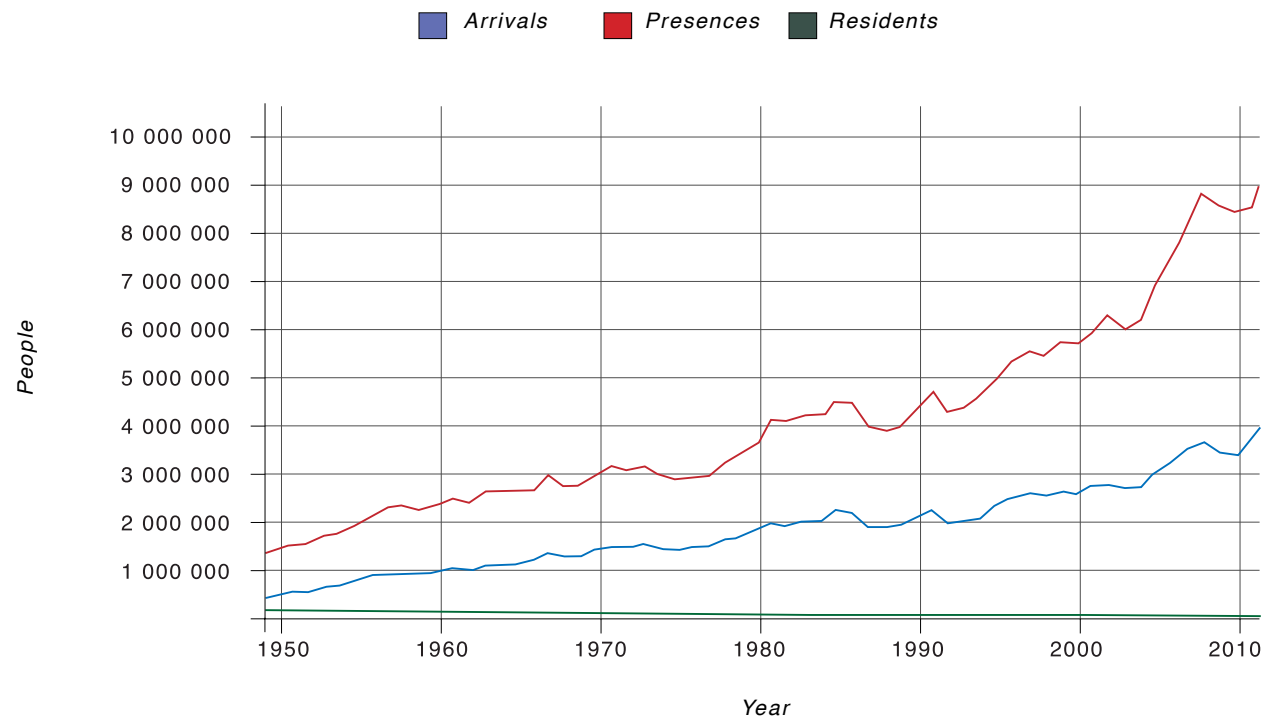
Ageing population



Demographic age shift in Venice's city centre, 1981 - 2000

All age groups under 64 experienced a significant decline towards the end of the 20th century, especially between 15 and 49 years old. On the other hand, the age group of over 64 increased, marking Venice's ageing population

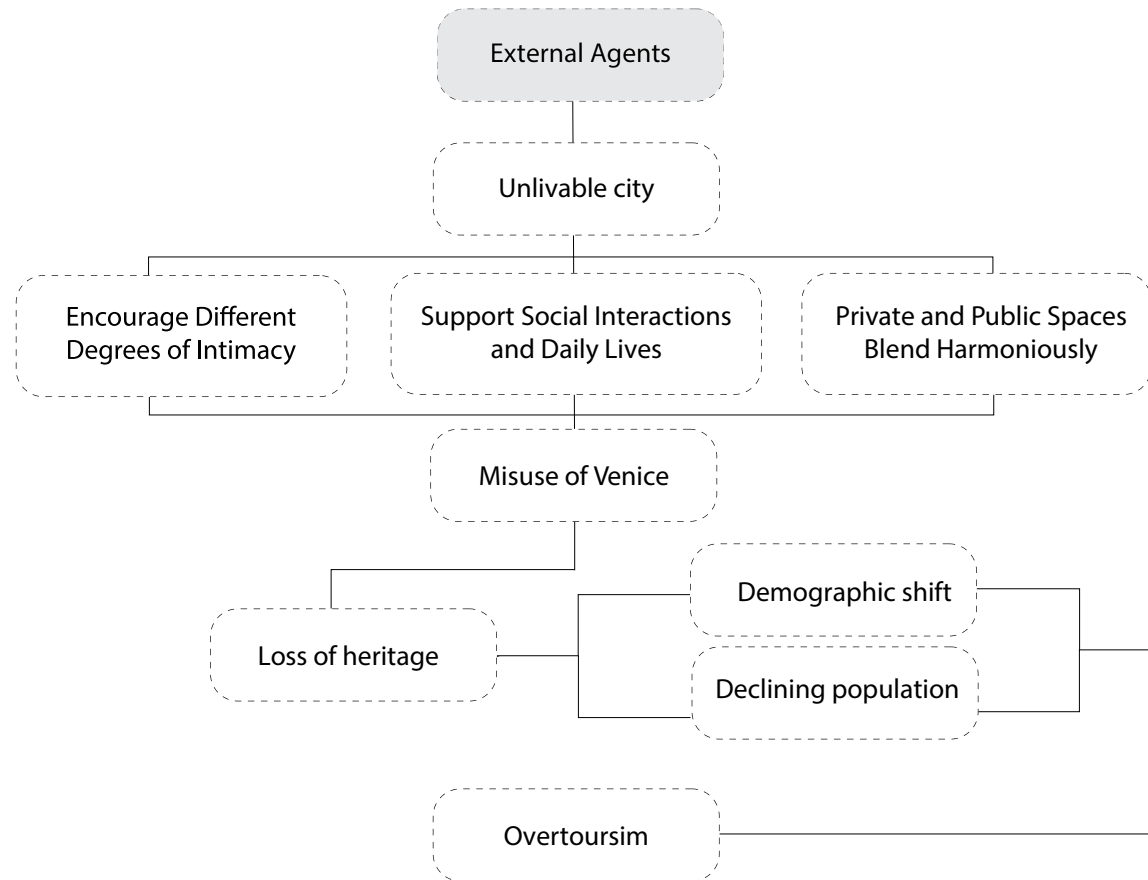
Overtourism



Tourists' arrivals and presences, and residents in Venice from 1950 - 2011

Tourists arrivals and presences distinguish the overnight stays and the day trippers in Venice. The local residents, marked in yellow, are virtually non-existent amongst the visitors.

Hierarchy of problems



External agents as catalyst

Relevance



Overtourism and museum-city paradigm

Relevance

Unesco recommends Venice for its World Heritage in Danger list



Julia Buckley
Reporter, The New York Times



Unesco has voted to add Venice to its list of 'World Heritage in Danger.' © Stefano Rinaldi/Getty Images

Venice Keeps Off List of Endangered World Sites

The fragile Italian city has taken steps to reduce the impacts of climate change and excessive tourism, but some experts said the moves were not enough.

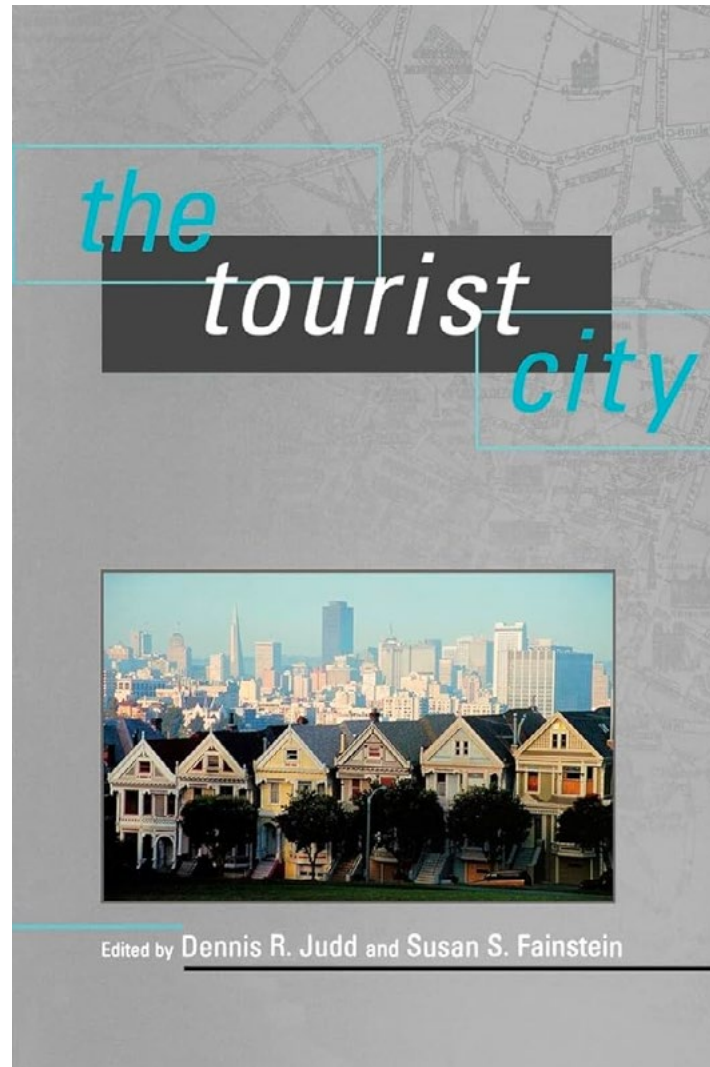
By The New York Times



Venice is a city of canals and gondolas, and it's a place that's been visited every year. It's a place that's been visited every year. It's a place that's been visited every year.

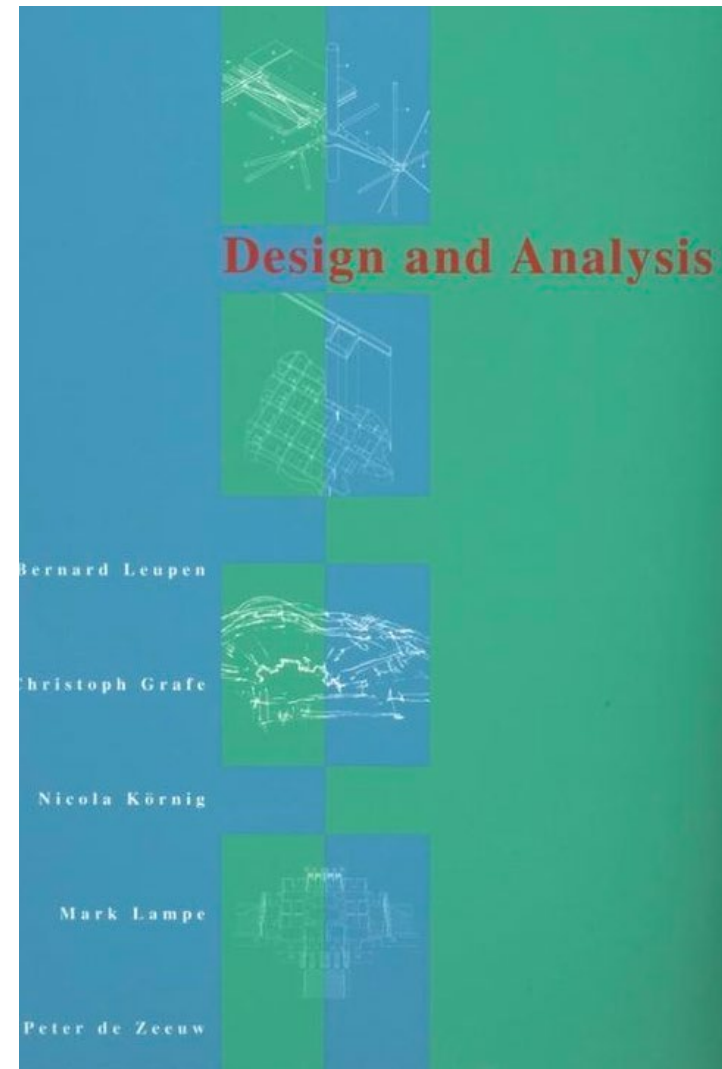
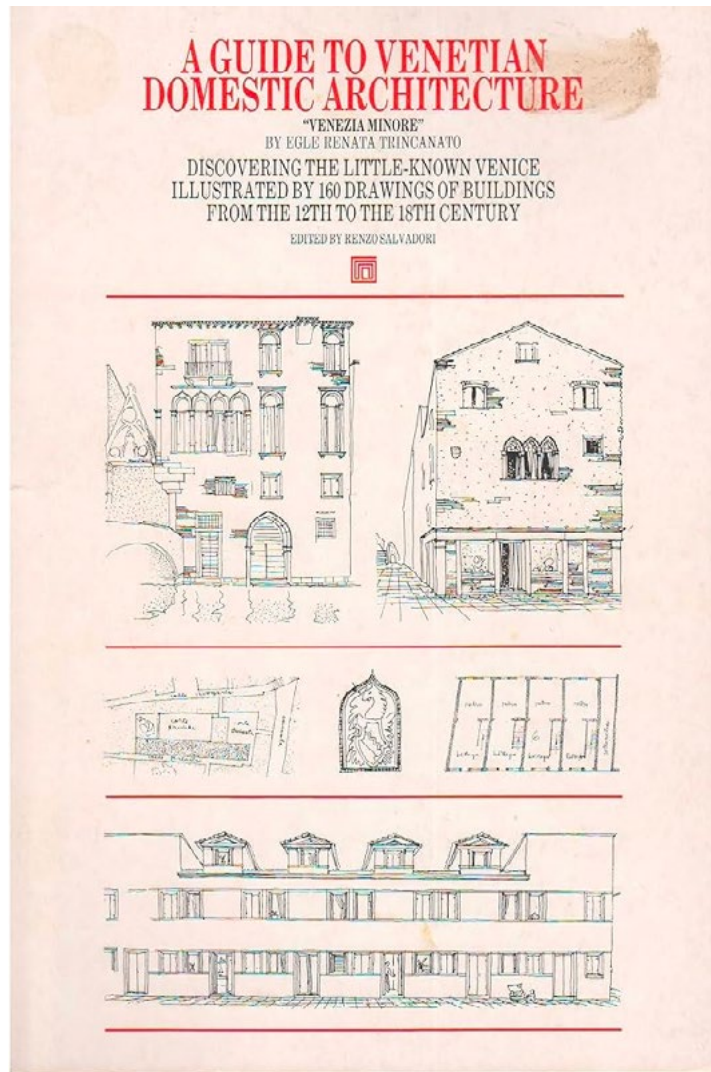
By Elizabeth Rosenthal
Reporter, The New York Times
Sept. 14, 2022

Theoretical framework



Residents as heritage

Theoretical framework



Venezia Minore and Delft method of typo-morphological project analysis

Theoretical framework

TDSR VOLUME XVII NUMBER 1 2005 ••

Field Report

Tourist Commodification of Residential Vernacular Architecture in Venice: Livability and Conservation in an Historic District

ROBERT GOOD

Gentrification occurs when affluent residents displace existing lower-income groups, bringing a significant reinvestment in the built environment. This tie between architectural change and social continuity is managed in most historic cities through regulations that limit the scope of allowed building conservation to issues of material stability. However, this approach has had limited success in Venice, where housing quality is only one factor influencing access to housing by long-term residents. Another, more widespread phenomenon is investment in the housing market by vacationers. The resulting commodification of residential space in vernacular buildings has introduced architectural and contractual changes that threaten the historic qualities that support long-term resident livability.

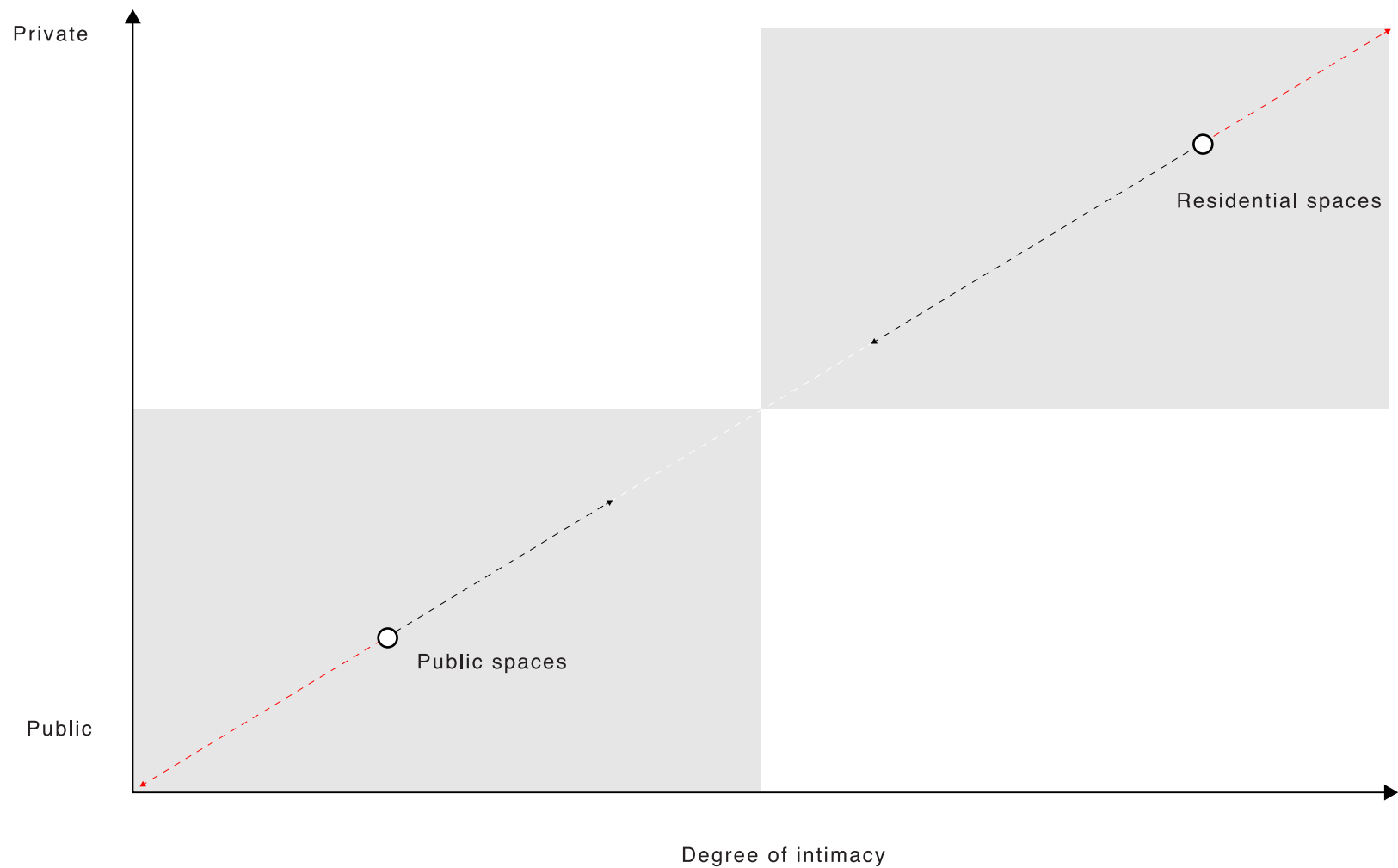
Current practice in urban conservation is to tie the material preservation of historic cities to broader social and economic stability.¹ Such a link is of particular importance in districts comprised of vernacular dwellings that house long-term residents. In such contexts, conservation of residential structures should occur in conjunction with efforts to stabilize the local population.

A common problem in conservation districts is gentrification, because poorly managed preservation efforts may lead to the displacement of vulnerable segments of the population by more affluent residents. But conservation need not be synonymous with displacement if

Robert Good is a licensed architect practicing in Minneapolis and an adjunct instructor at the College of Architecture and Landscape Architecture at the University of Minnesota.

A city's livability cannot be measured solely by economic factors

Hypothesis



A livable Venice, through residential and public spaces that work together

Research aim

The central scope revolves around understanding policies' intentions in built projects, and proposing architectural interventions to mitigate the impact of external agents on Venice's urban fabric, with a specific focus on fostering a livable environment for residents.

Research question

“What architectural interventions can be proposed to effectively challenge the impact of external agents on Venice’s architecture, with a focus on achieving a livable city for the residents?”

Timeline



Capital of the Republic of Venice



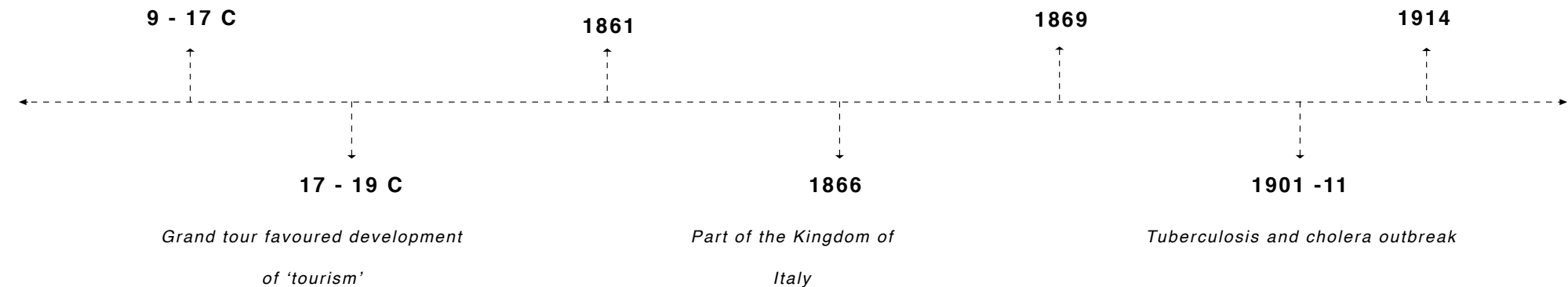
Santa Lucia station was built



Suez canal opening



WW1 and Austrian bombings



Timeline



Ponte della Libertà and Piazzale Roma



Start of people's exodus

1933

1953

1917

1943 - 5

1966

*'Great Venice' Plan - Porto Marghera
and the relocation of Venice's industries*

Refuge spot from WW2 bombings

'Acqua alta' flood



Territorial framework

*Venice's municipality
and lagoon*

- 1. Venice*
- 2. Mestre*
- 3. Lido*
- 4- Murano*
- 5. Burano*
- 7. Ponte della Libertà*
- 8. Venetian lagoon*



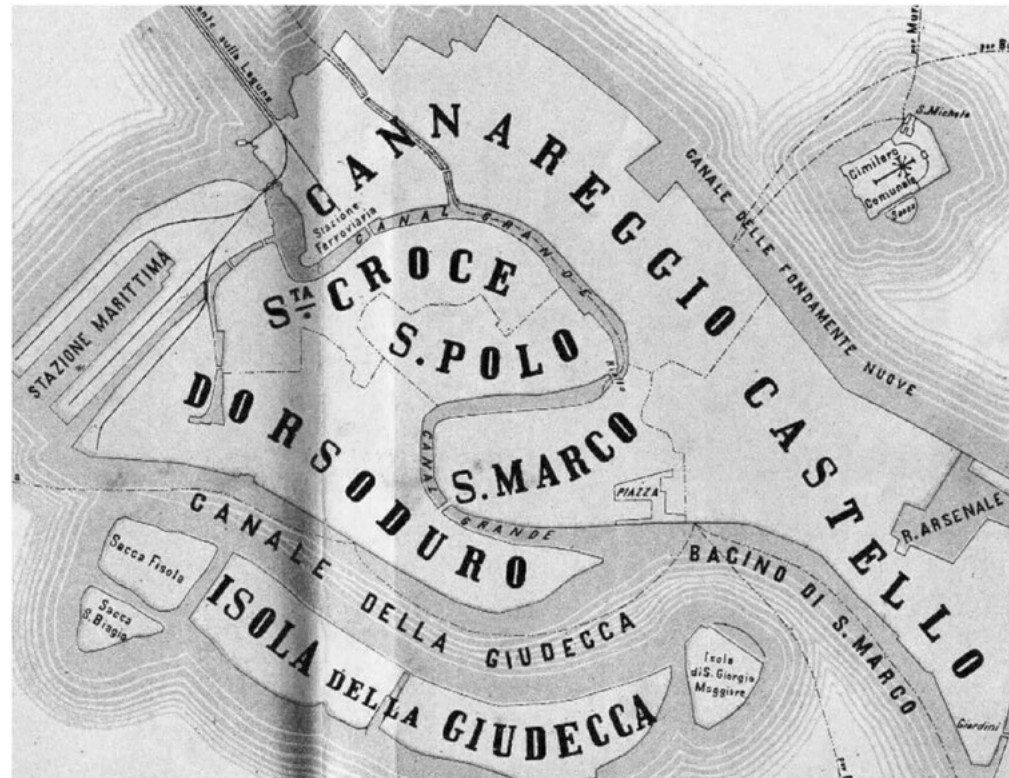
Urban framework



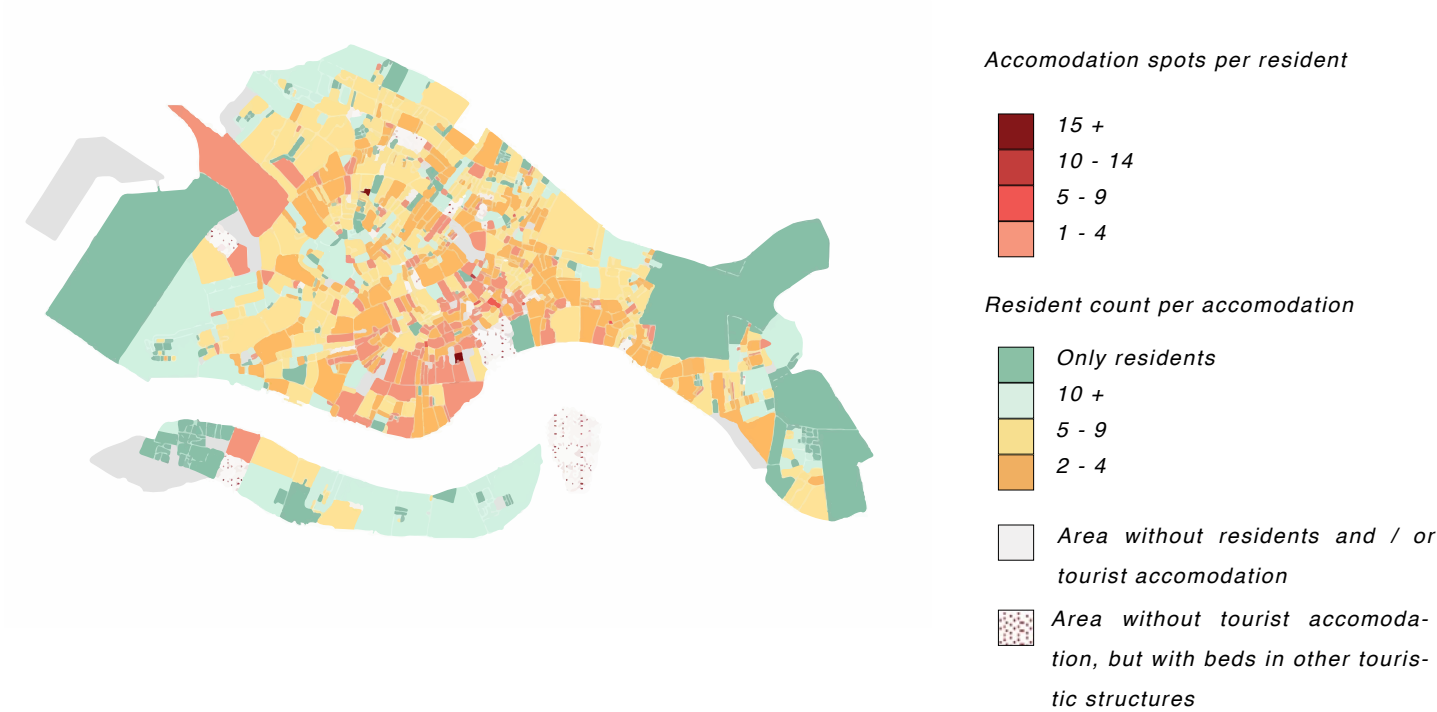
Urban evolution



Venice's sestieri

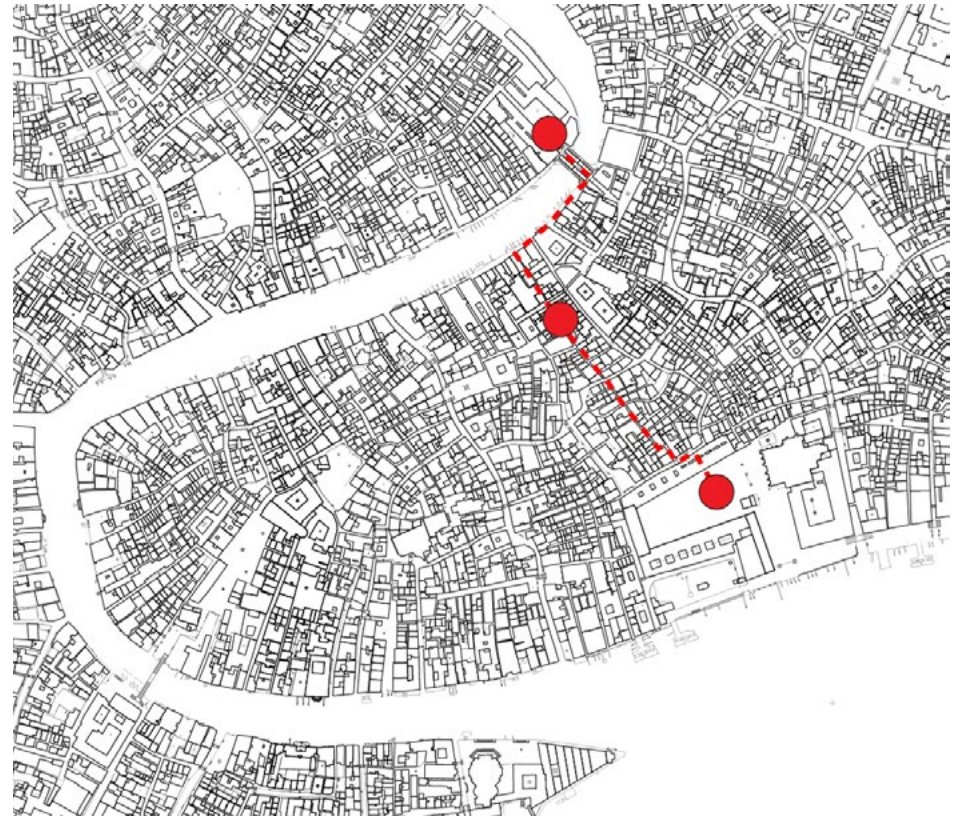


Interventions - housing shortage



Venice's dwelling distribution between residents and tourists

Non-involvement - misuse of dwellings





Interventions



Non-involvement - Biennale and Sant'Elena



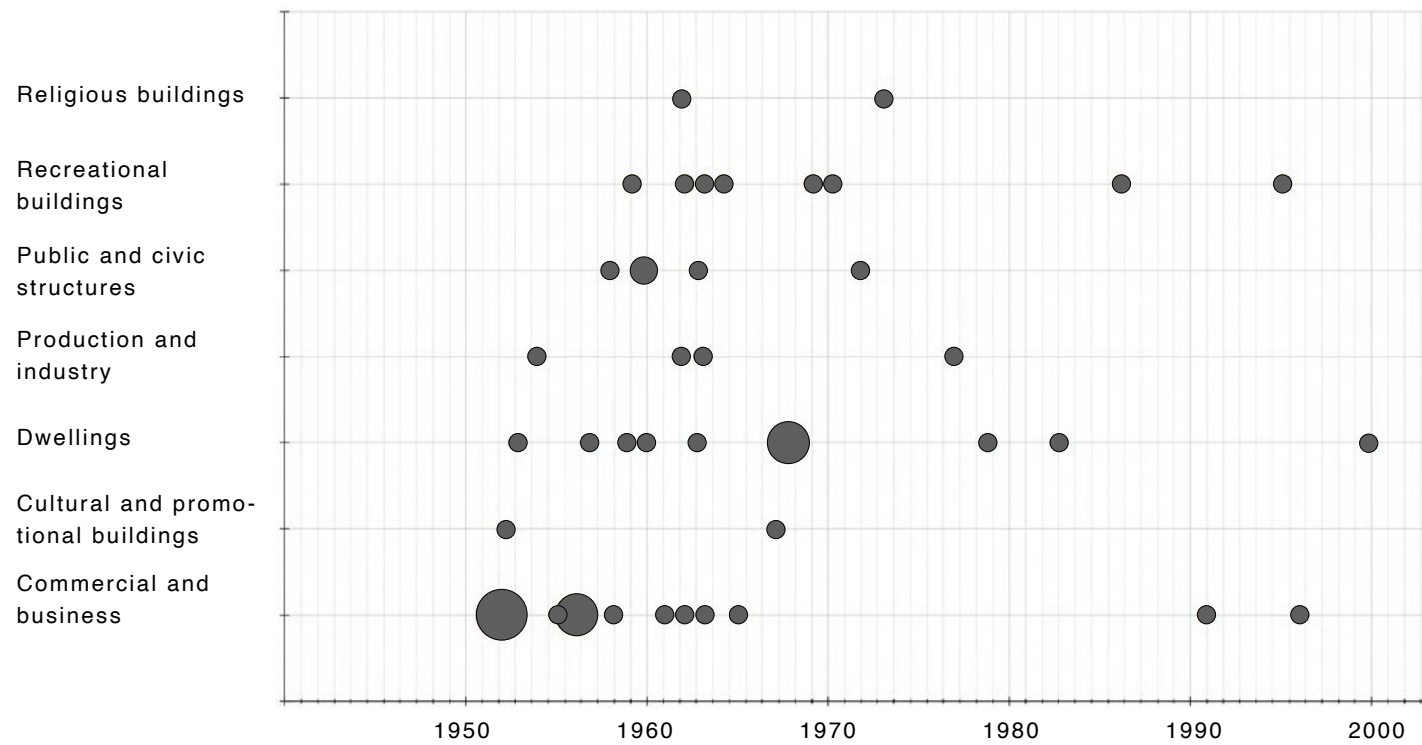
Map of the Giardini and Sant'Elena, showing the location of the Austrian pavillion on the residential island of S. Elena, in the area which is overlapped by the Biennale's gardens



Proposed plan for the multifunctional Austrian pavilion, to be used by residents as collective space

during closing times of the Biennale ⁴²

Timeline of Venice's city center 1945 - 2000

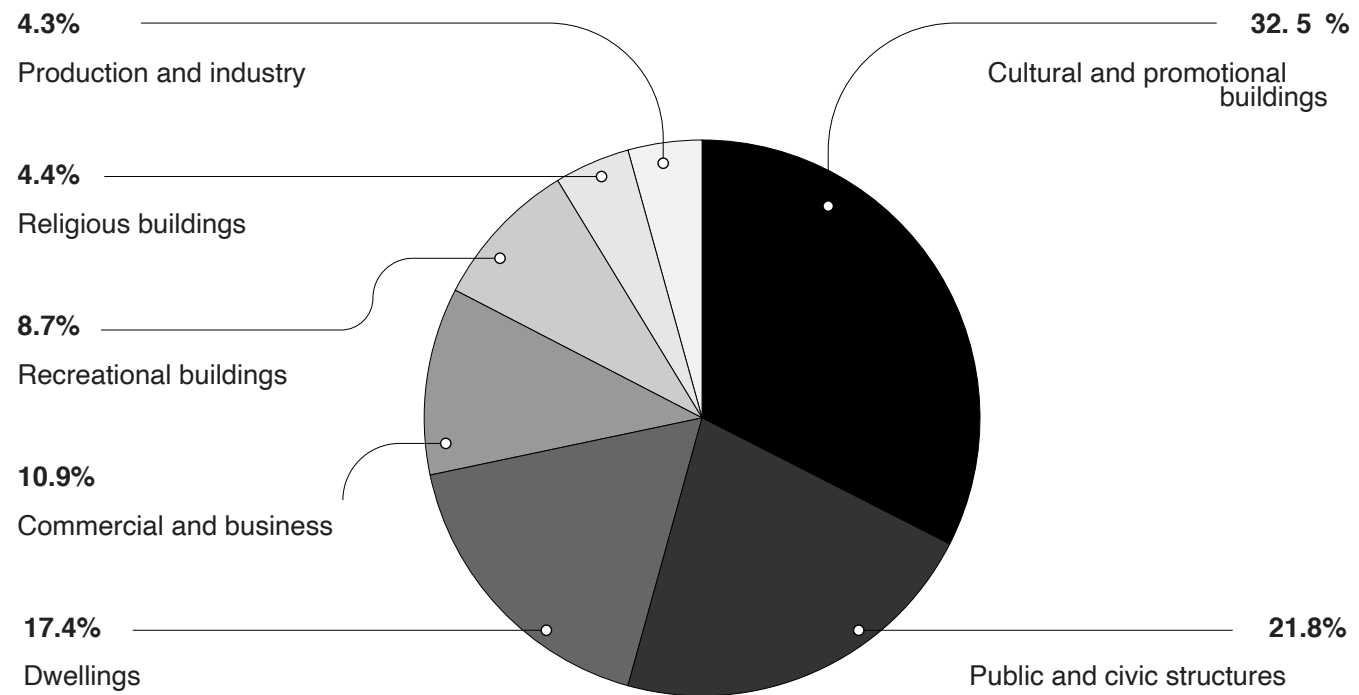




Distribution of built projects between 1945 - 2000 in Venice's province



Building types in Venice's built projects in 1945-2000



Castello



Biennale pavillions

S. Marco & Dorsoduro



Olivetti store - 1957 1958

Commercial building - Carlo Scarpa



Balboni house - 1964-1969

Single-family home - Carlo Scarpa



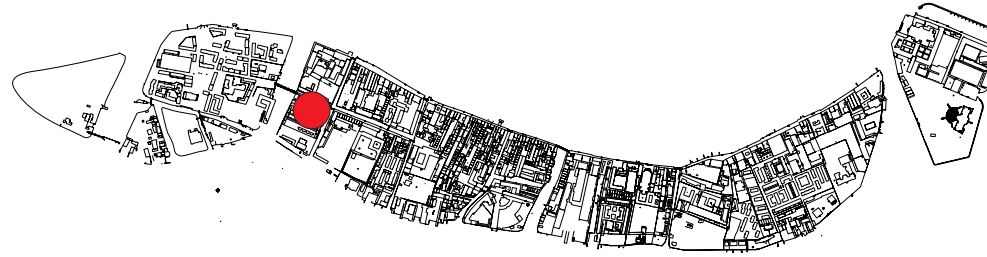
Casa alle Zattere - 1953-1962

Multi-family dwellings

Ignazio Gardella



Giudecca



Social housing in Giudecca- 1980 -1986 - Public residential buildings - Gino Valle

Giudecca's history



High society and religious prosperity

15 - 18th century



Industrial evolution

1800s



Residential rebirth

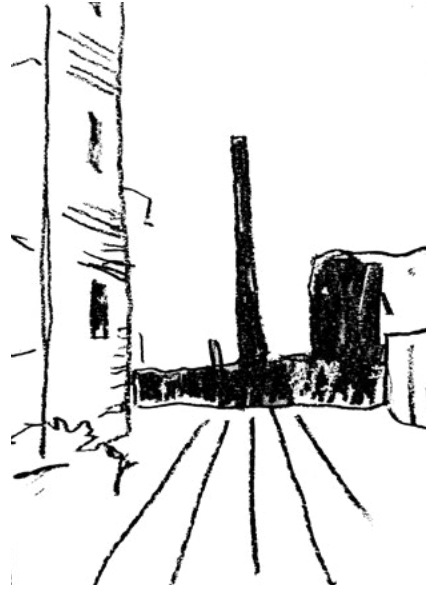
Mid 20th century

Giudecca overview

1. *Giudecca canal*
2. *Venetian lagoon*
3. *Giudecca*
4. *Sacca Fisola*
5. *San Giorgio
Maggiore*
6. *Historic city
center*
7. *Vaporetto lines*



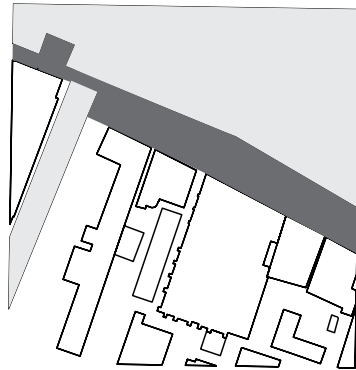




A sense of order



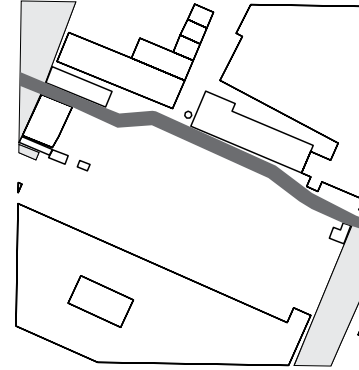
Toponyms of Venetian streets and squares



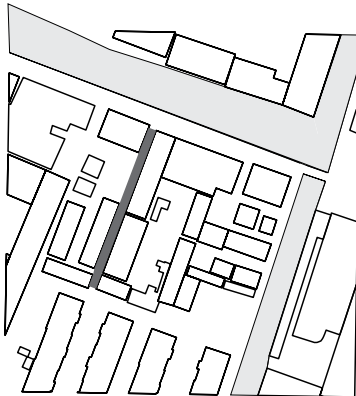
Fondamenta



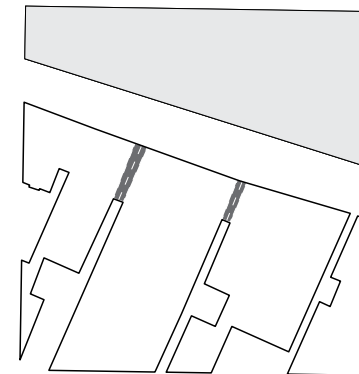
Salizada



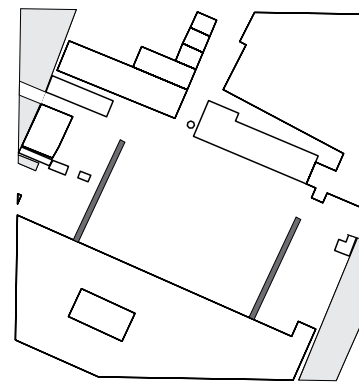
Calle larga



Calle



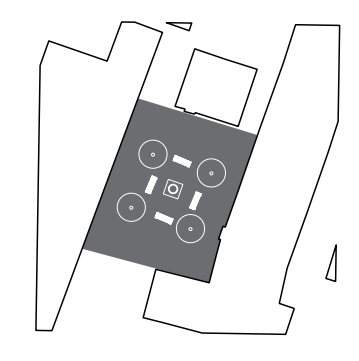
Sotoportègo



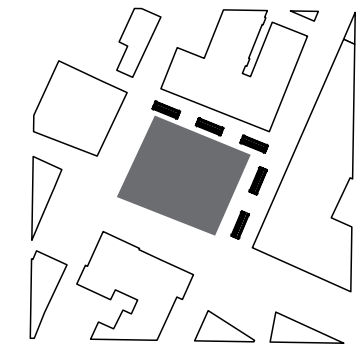
Ramo



Campo

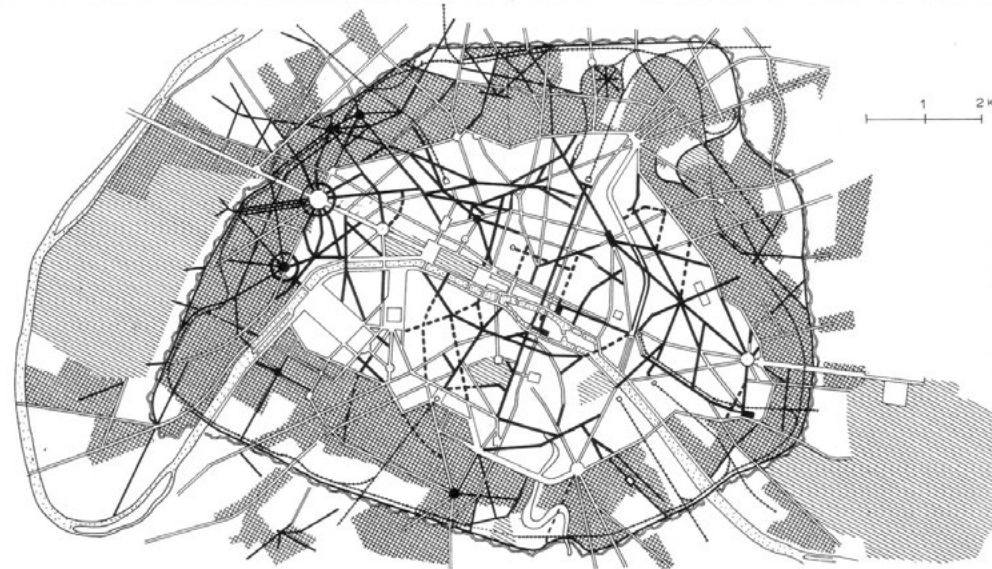
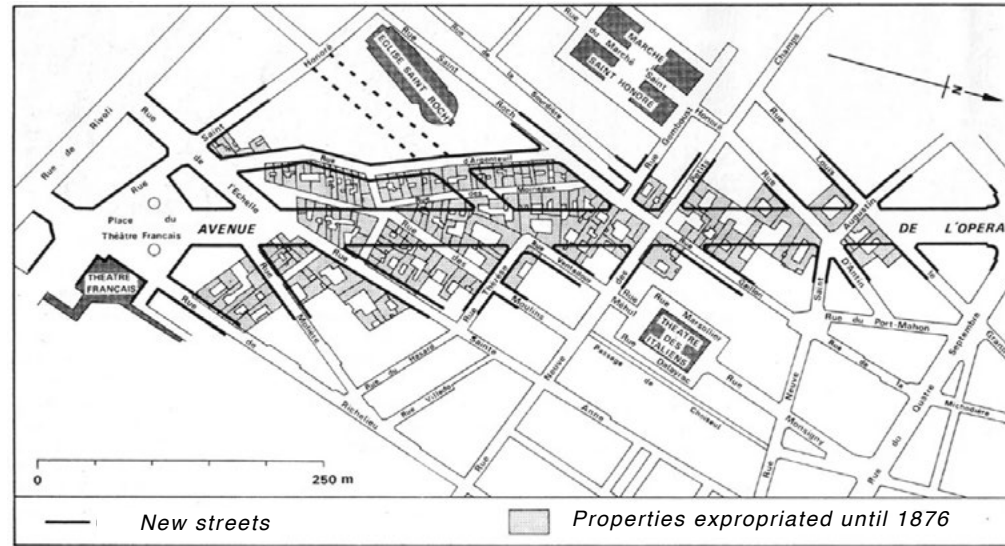


Campiello



Corte

Paris comparison

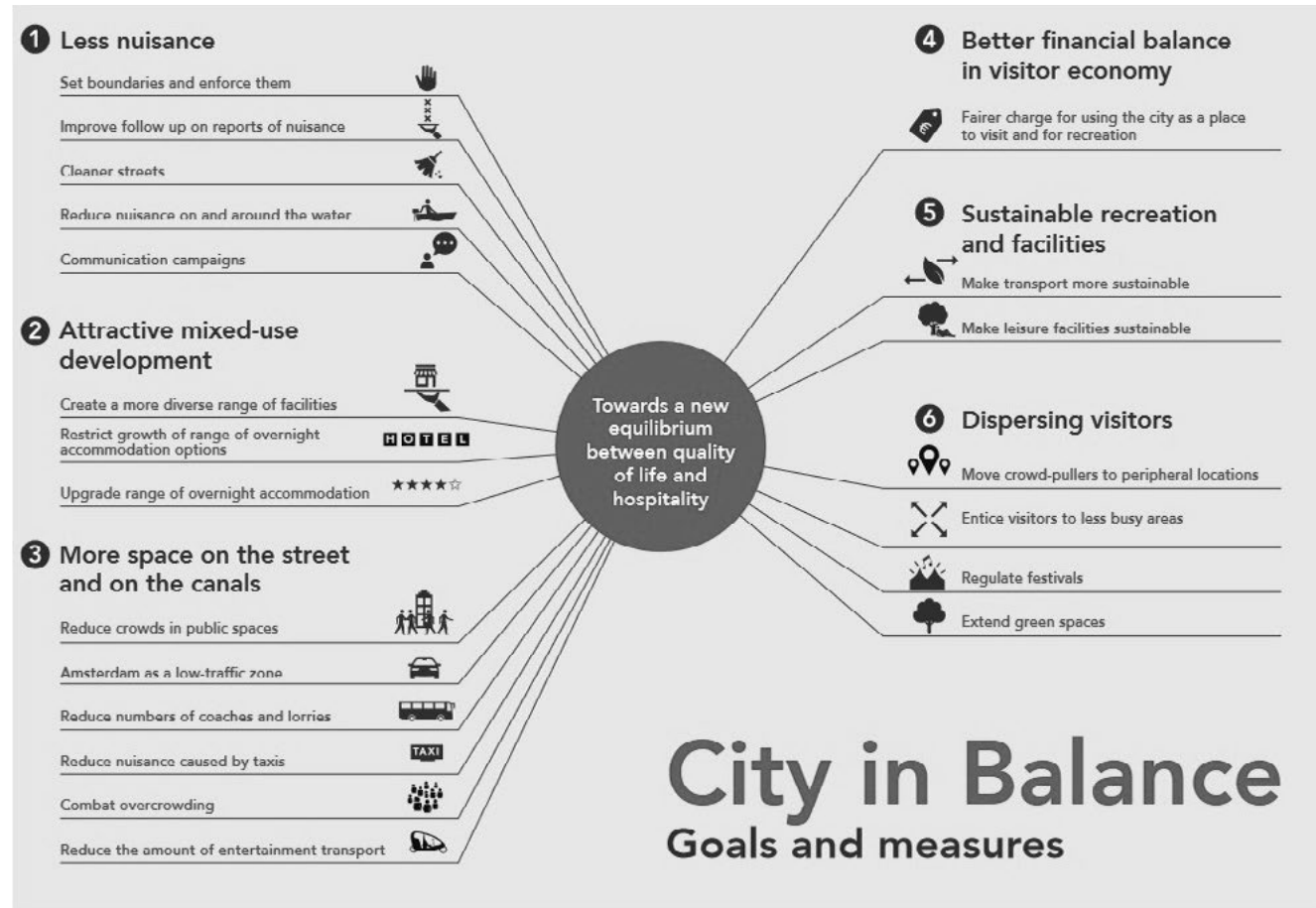


Haussmann's plans for Paris.

Above is an example of demolition of the original street to favour large boulevards.

Below is a map of the city with the new road axes in black, the new neighborhoods checked and the planned urban greenery in lines.

















Amsterdam comparison



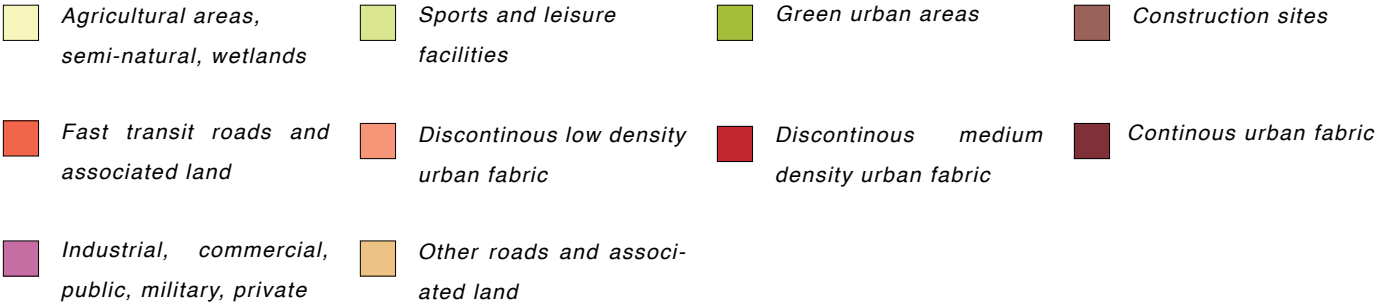
Poster for the 'City in Balance' goals and aims for the city of Amsterdam

Giudecca's buildings



 Houses	 Church	 Water taxi	 Restaurant	 Store	 Office
 Shipyard	 Police	 Sports facility	 Prison	 Hotel / Airbnb	 School / University
 Pharmacy / ER	 Archive / Library	 Supermarket / Food store	 Art gallery / cultural center		

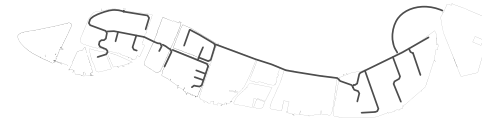
Giudecca's land use



Building use

Movement map

Families



Starters



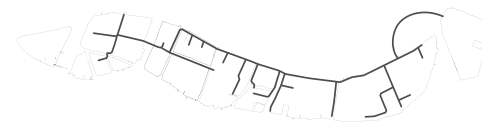
Children



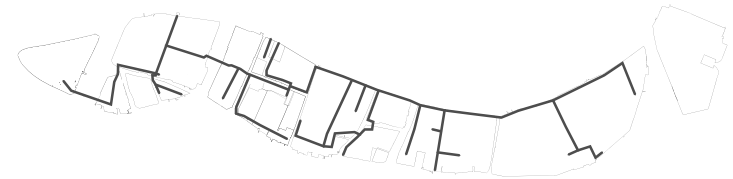
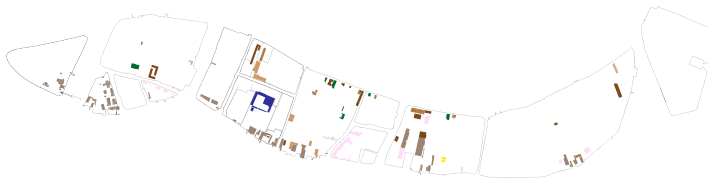
Elderly



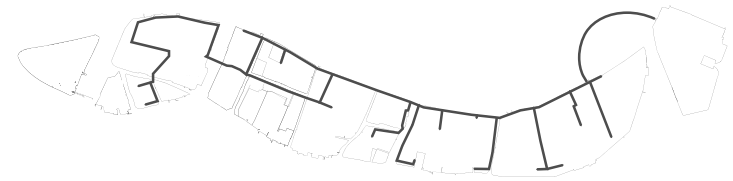
Tourists



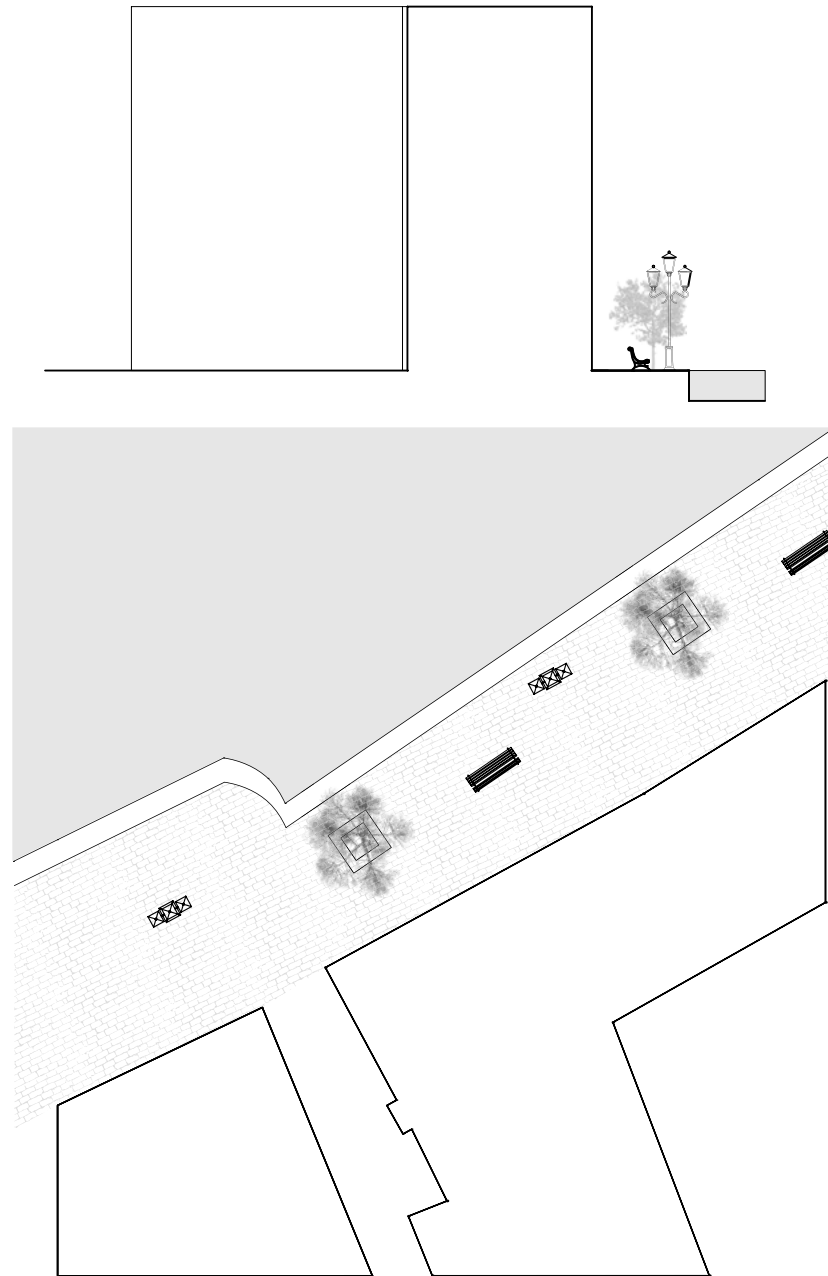
*Non- leisure
activties*



*Leisure
activties*



Public sphere



Benches distribution along Giudecca's fondamenta section and plan

‘All the power of genius and all the art and skill of building things are consumed together in partition. For the parts of the whole building and the whole of the individual parts, so to speak, and finally the relations of all the lines and angles into a single work of agreement and cohesion, this division of utility, dignity, and attractiveness is undertaken with consideration.

But if, according to the opinion of the philosophers, the city is a kind of the greatest house, and the opposite of the house itself is a kind of smallest city, why should not the members of these very things be said to be the smallest kind of houses?’

Leon Battista Alberti in De Re Aedificatoria, Book One, Chapter IX.

(Alberti 1452, as transcribed by Jacobi 1521: xiv)

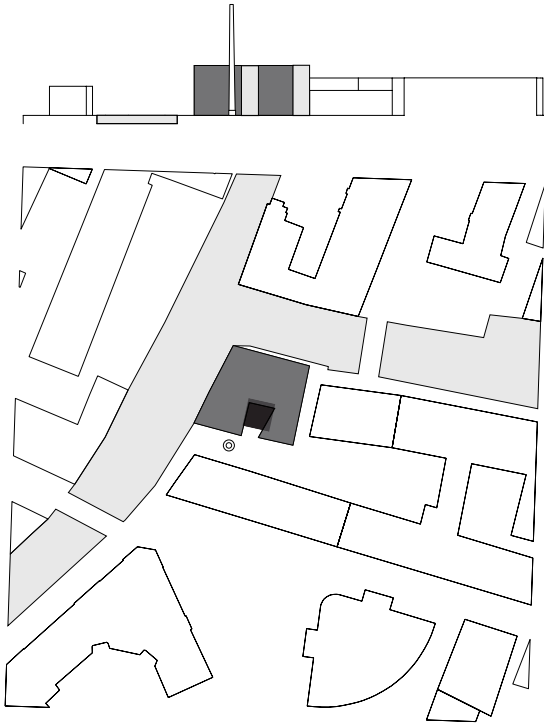
Collective sphere



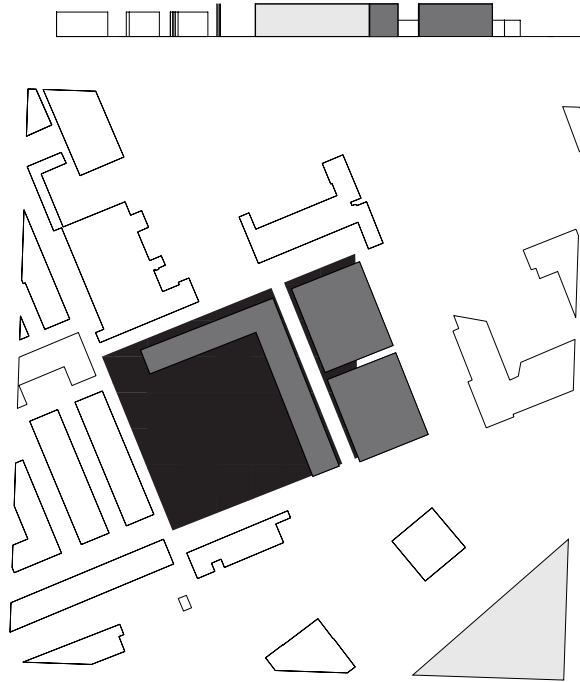
The vegetable garden within the women's prison in Giudecca, section and plan



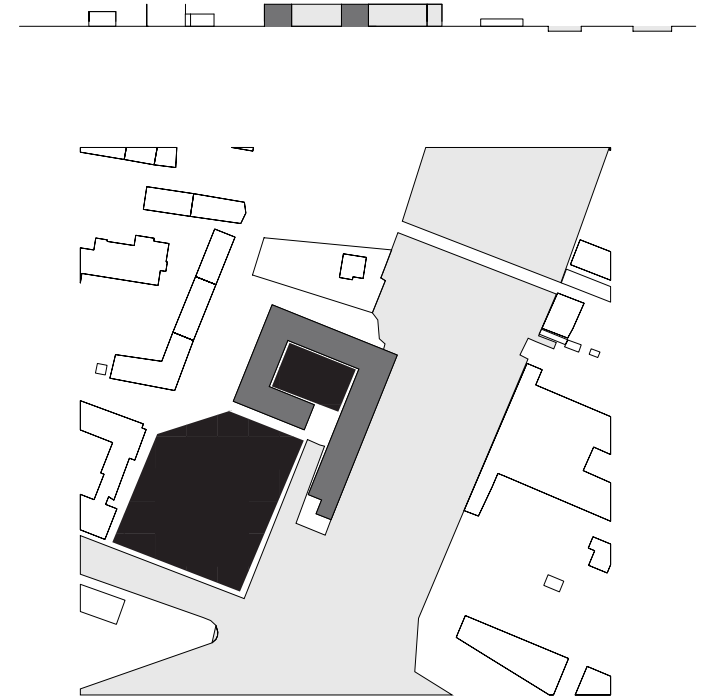
Private sphere



*Junghans industrial complex section and plan. 1997
- 2003, 16 dwellings in a public residential complex
commissioned by Municipality of Venice*



*Campo di Marte redevelopment. 1983 - on-
going, 82 dwellings in a social housing com-
plex commissioned by IACP and Municipal-
ity of Venice*



*Sacca Fisola - Ex Fregnan redevelopment. 1984 - 98.
Public residential complex. 82 dwellings commis-
sioned by IACP*

Gino Valle's IACP housing





Architect:

- **Gino Valle**

Design year:

- **1980**

Construction year:

- **1986**

Type of building:

- **Public residential complex**

Total amount of dwellings:

- **94**

Commissioned by:

- **IACP (Autonomous Institute for Popular**

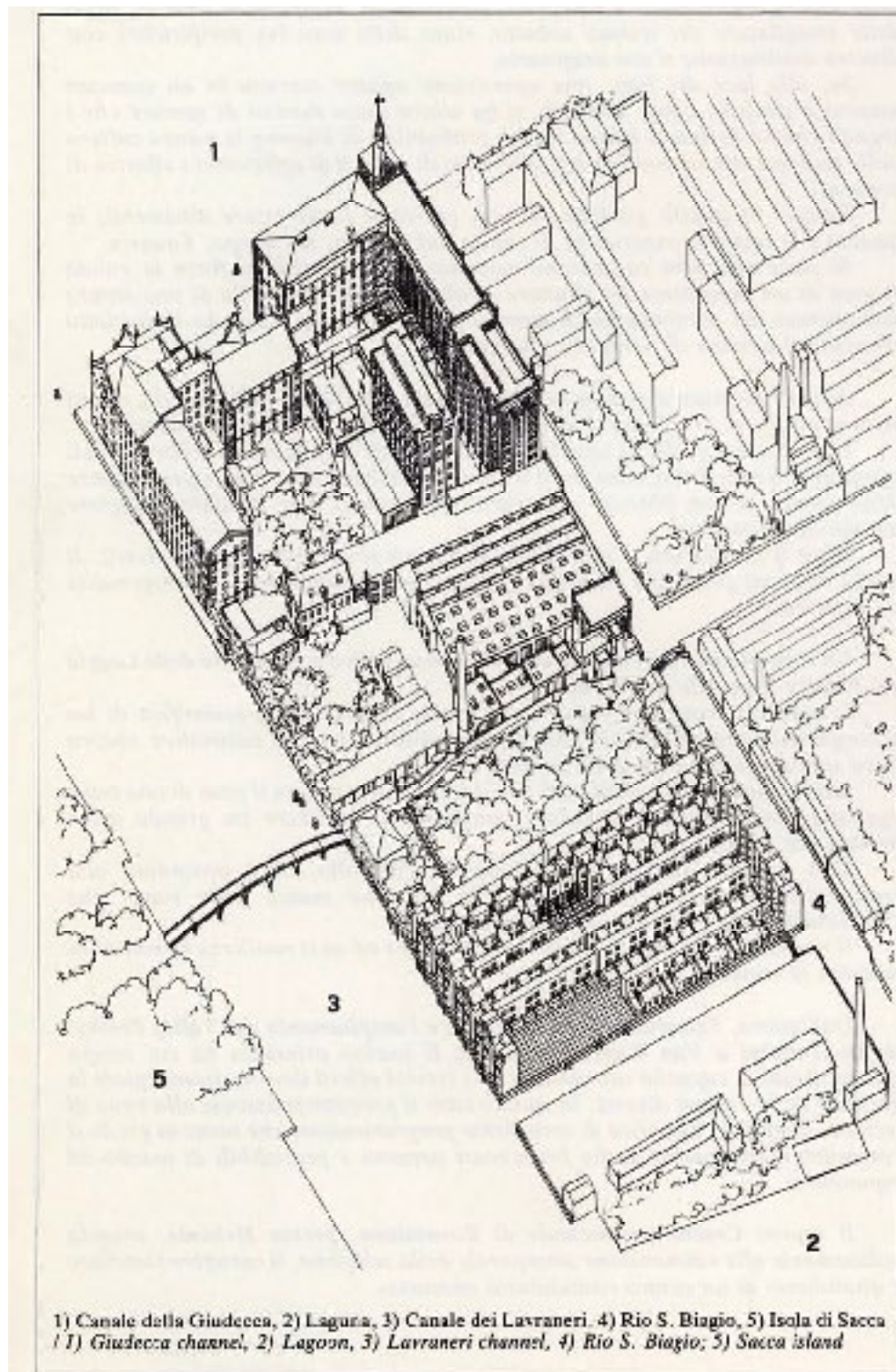
Housing)

- **Municipality of Venice**



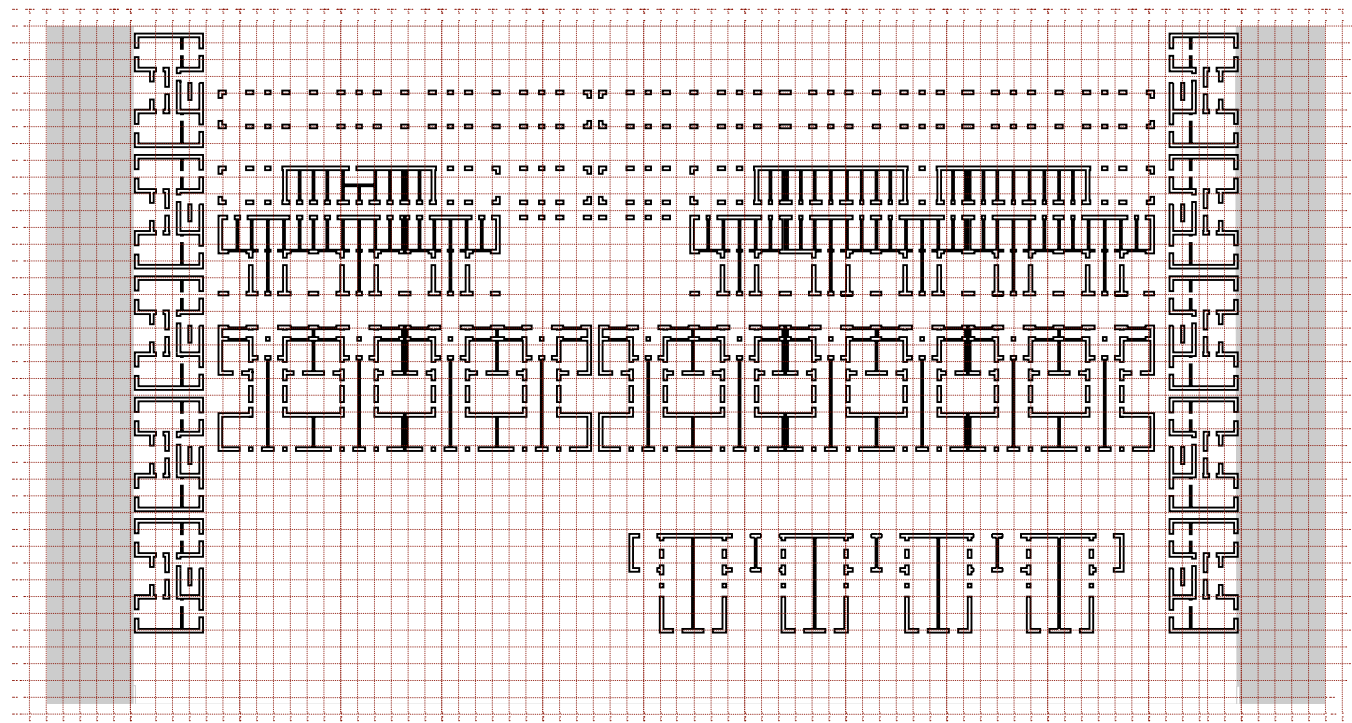
Stucky mill - industrial references



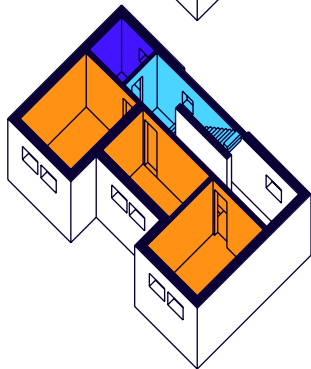
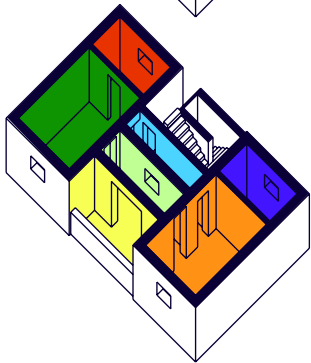
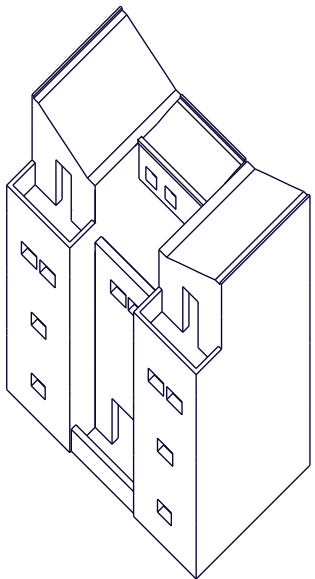
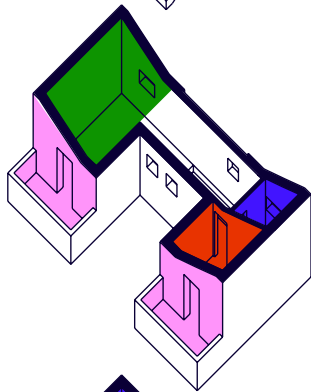
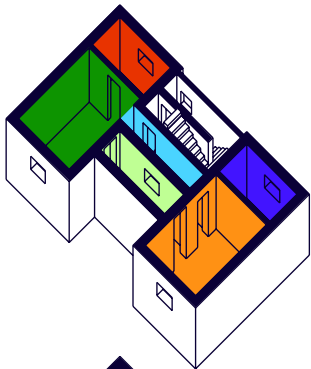
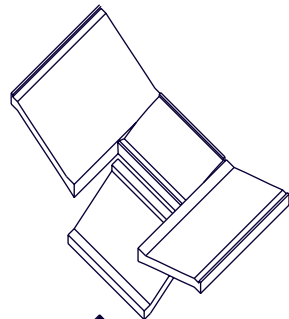
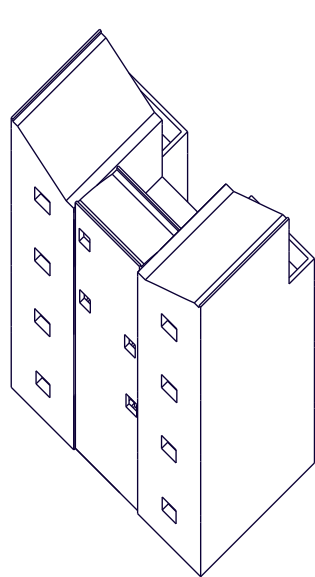
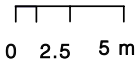


Original drawing by Valle

1.65 x 1.65 m grid



Type A - “Tower buildings” - 60 - 55 - 108 sqm



- Garden
- Loggia
- Kitchen
- Dining / living room
- Bathroom
- Entrance
- Terrace

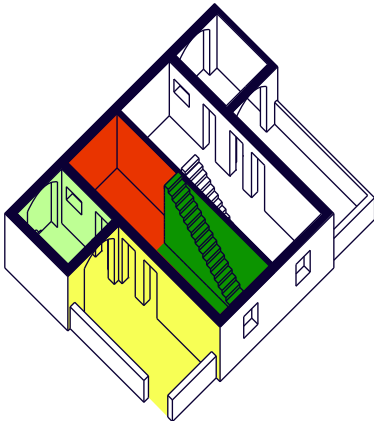
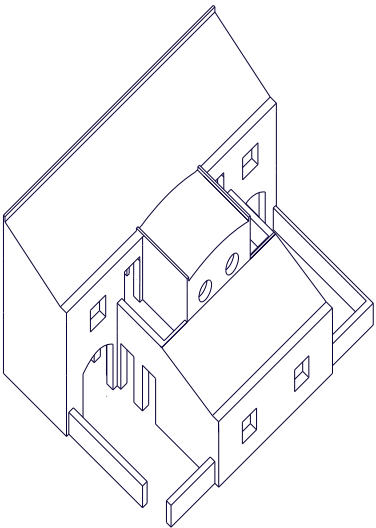
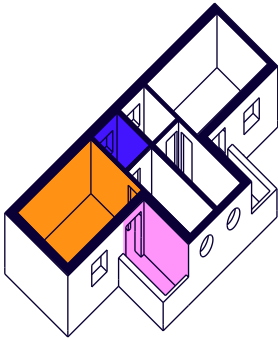
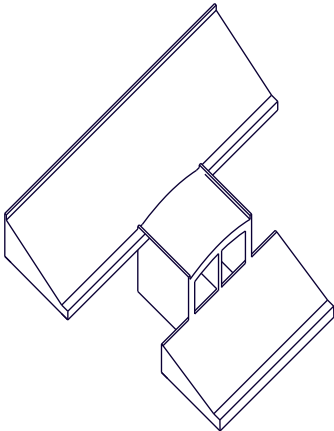
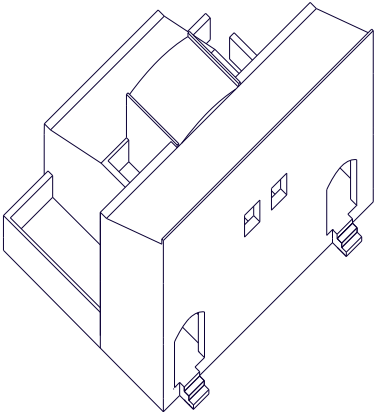
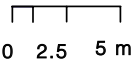
Bottom: Ground floor 60 sqm

Top: First floor 55 sqm

Bottom: Second floor

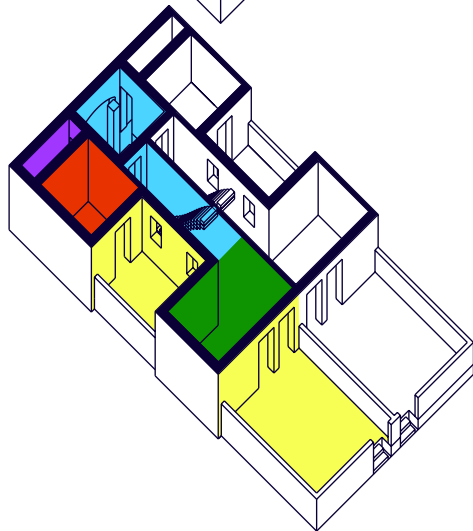
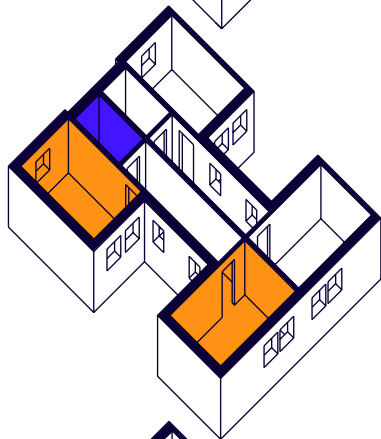
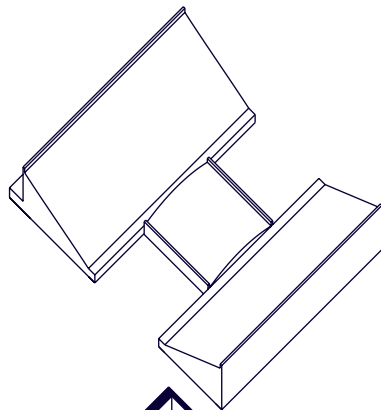
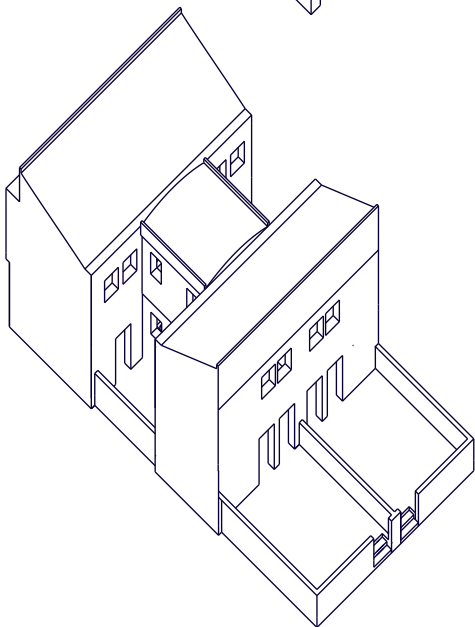
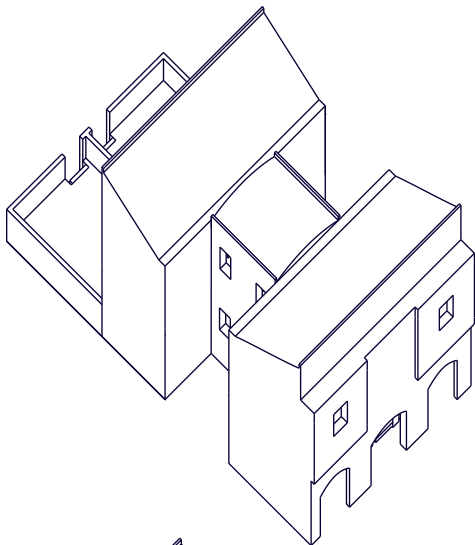
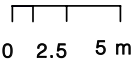
Top: Third floor - 108 sqm (cumulative)

Type B - “Row houses” - 90 sqm



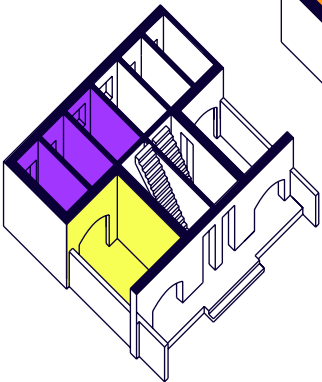
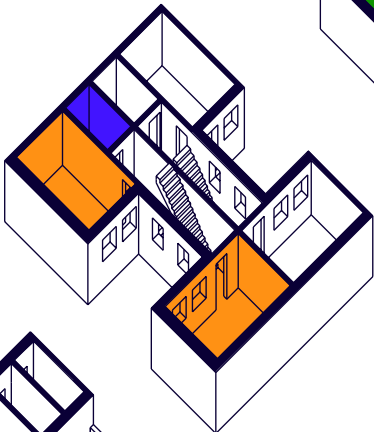
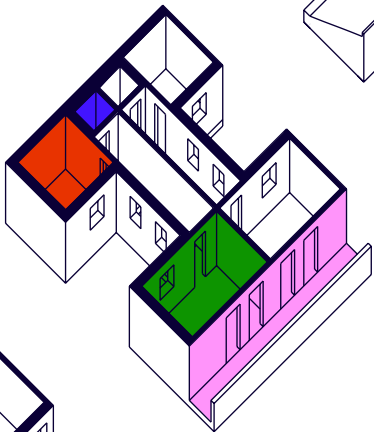
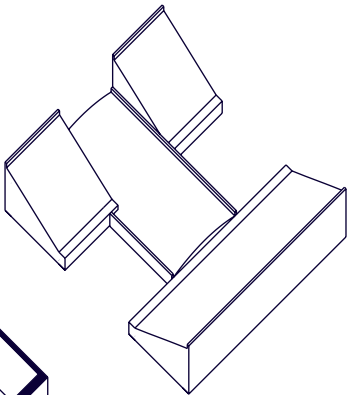
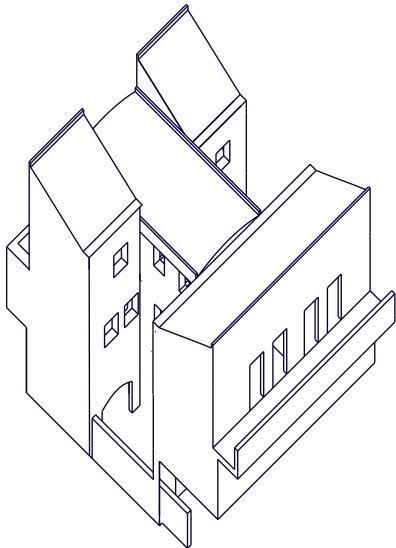
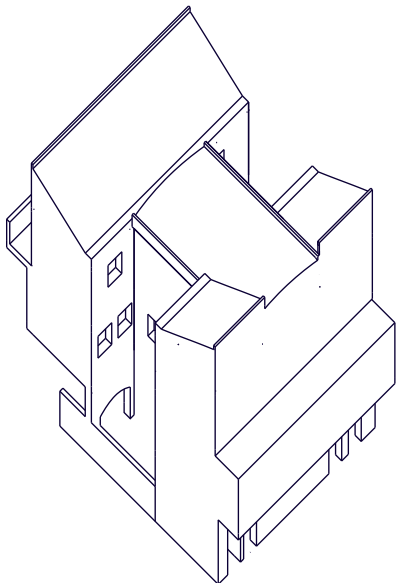
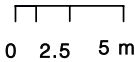
- Garden
- Loggia
- Kitchen
- Dining / living room
- Bathroom
- Terrace







Type C1 - “Row houses” - 118 sqm



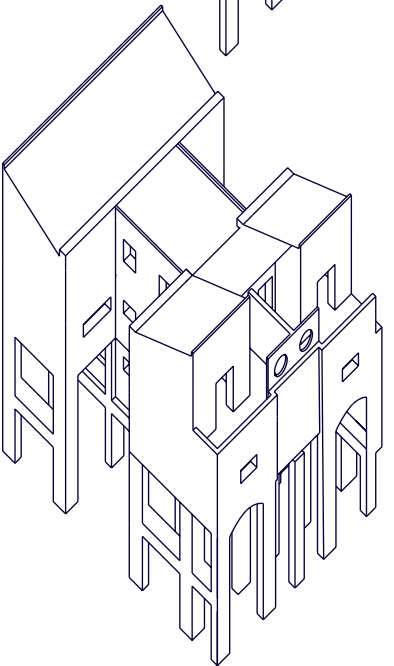
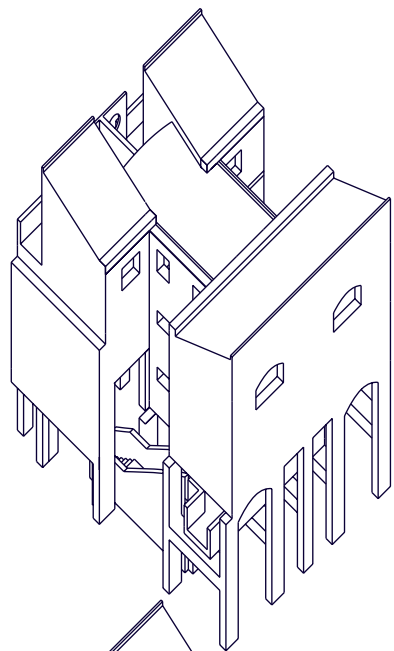
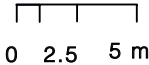
- Garden
- Kitchen
- Dining / living room
- Bathroom
- Entrance
- Terrace
- Cellar

Type C2 - “Row houses” - 117 sqm



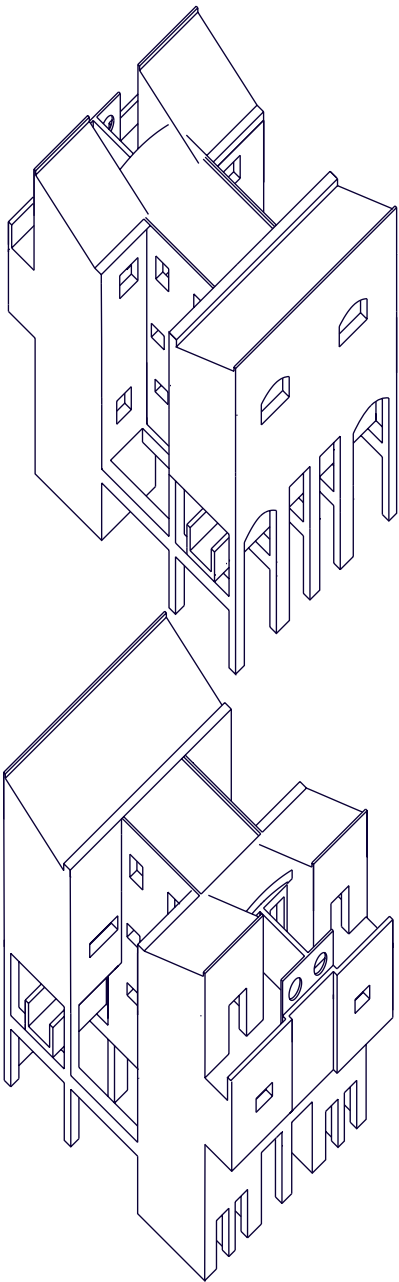
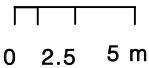
- Garden 
- Kitchen 
- Dining / living room 
- Bathroom 
- Terrace 
- Cellar 

Type C3 - “Row houses” - 97 sqm

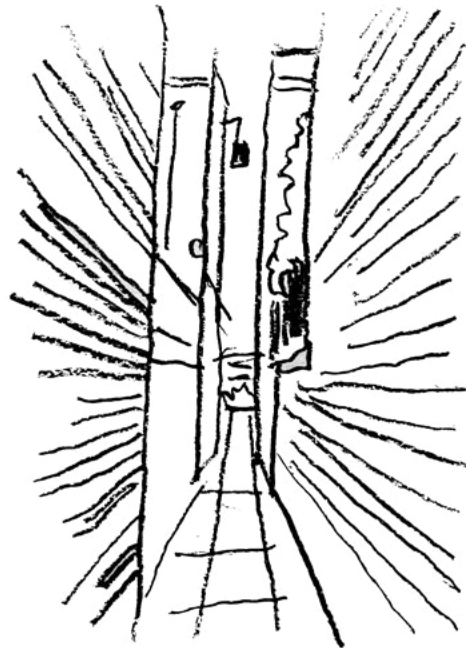
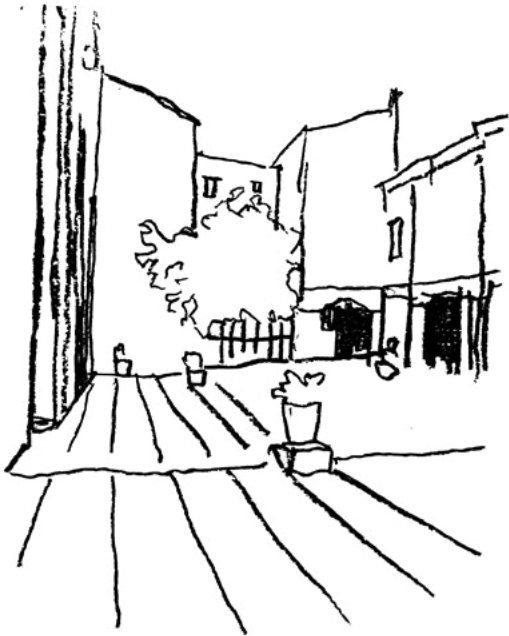
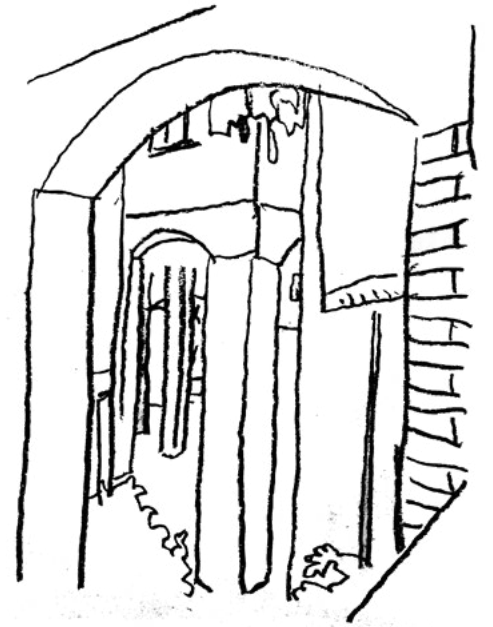
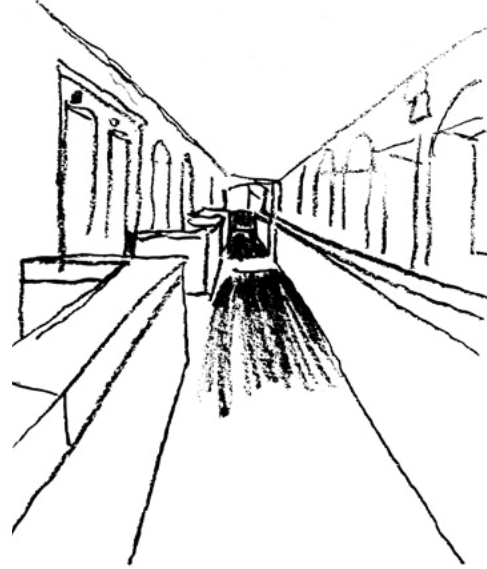
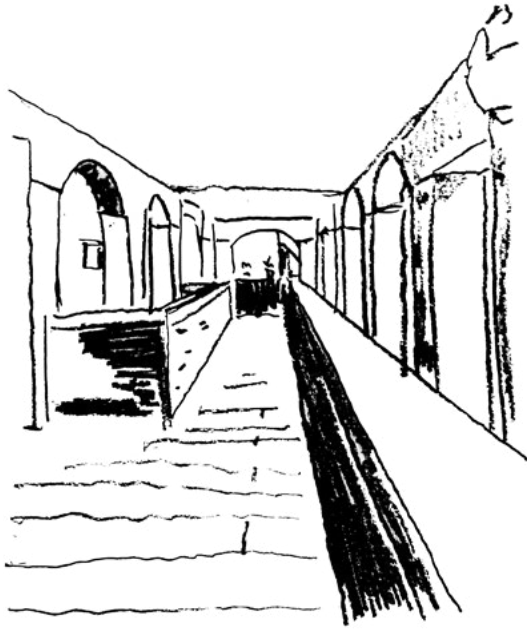


- Kitchen
- Dining / living room
- Bathroom
- Entrance
- Terrace

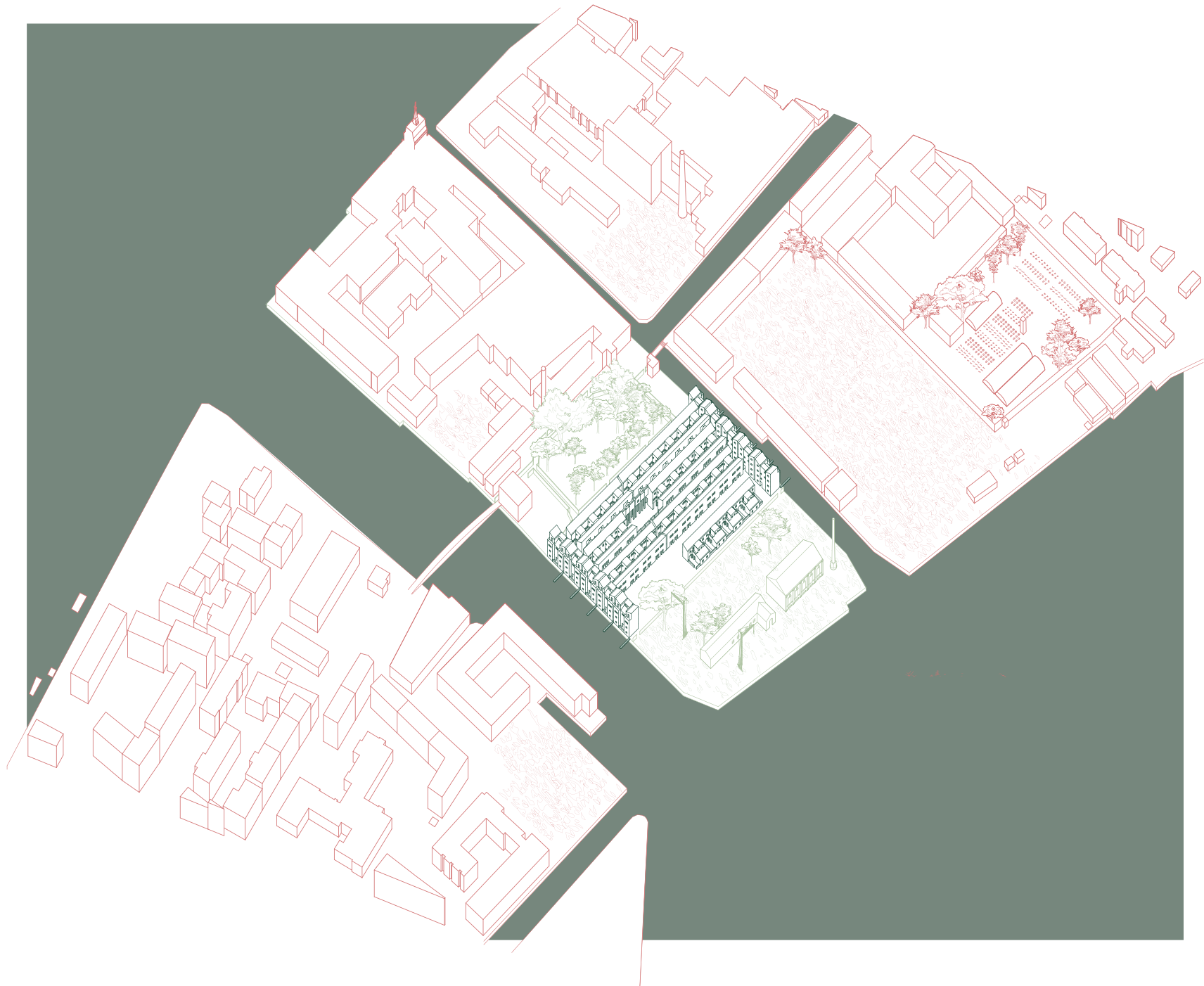
Type C4 - "Row houses" - 115 sqm

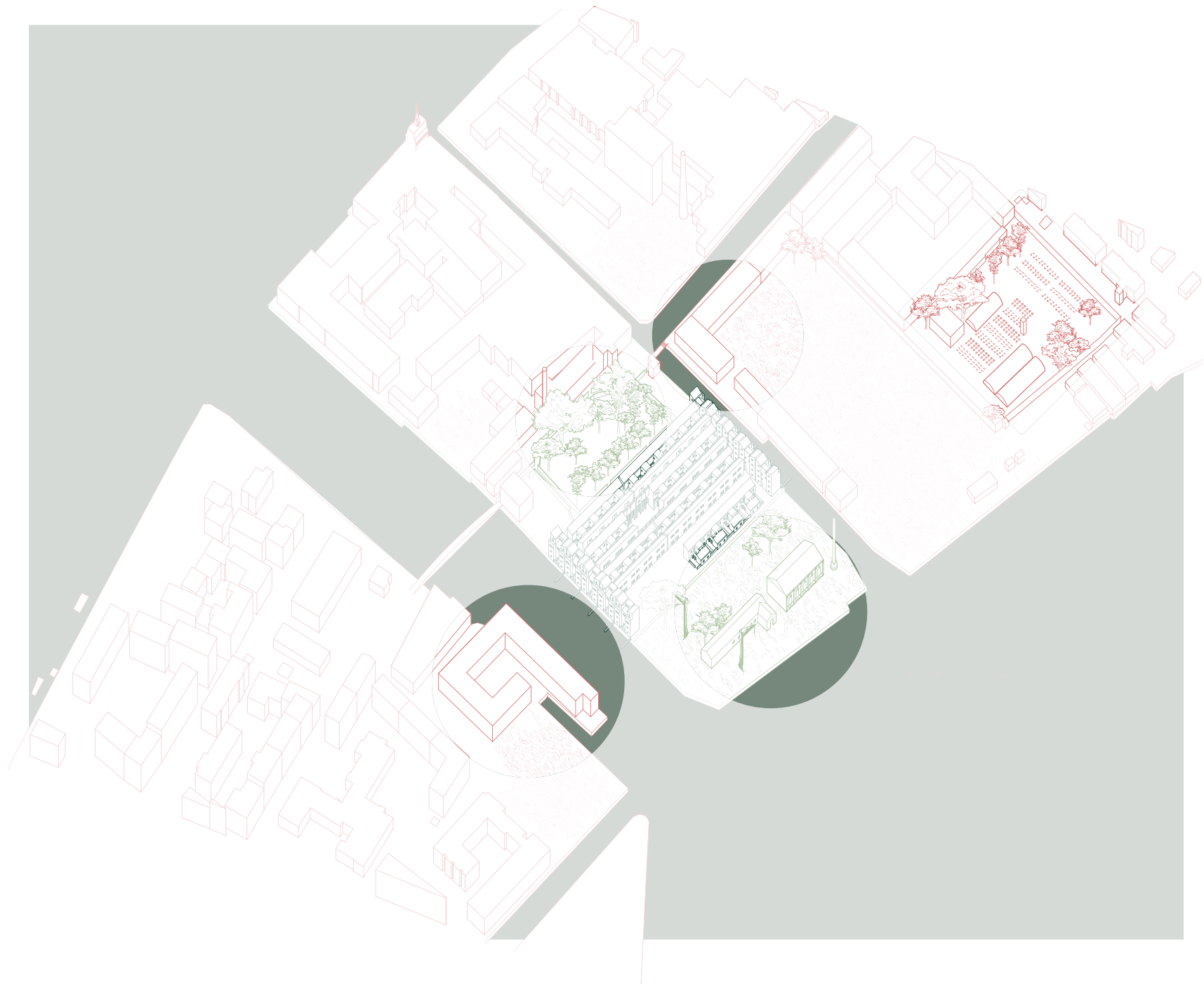


- Kitchen
- Dining / living room
- Bathroom
- Entrance
- Terrace
- Cellar



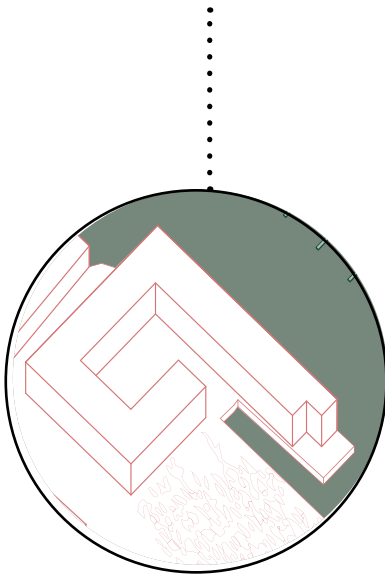
First impressions



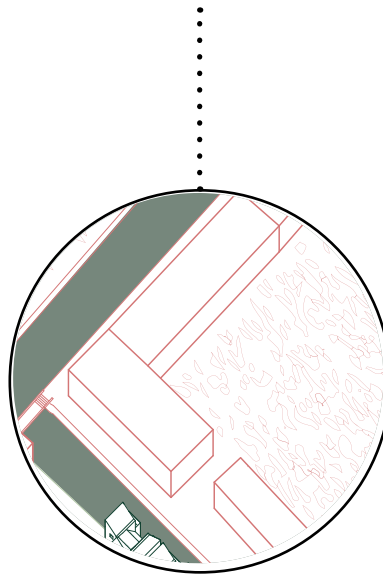


Key site features

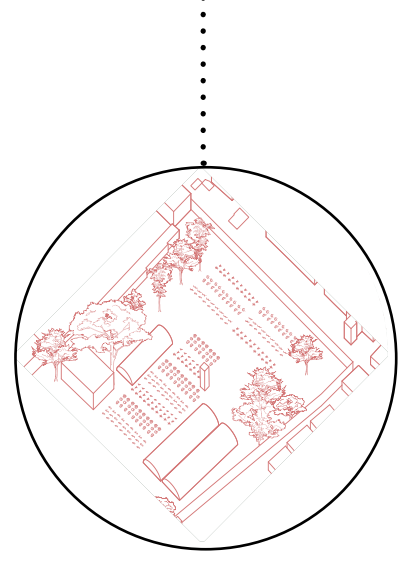
*Sacca Fisola residential complex -
Ex-Fregnan due West, curving into itself
creating an enclosure with the water*



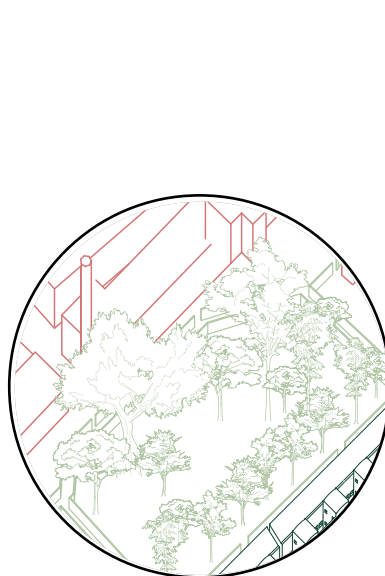
*Large unused green field next to a
redevelopment site, connected by a
bridge to the North*



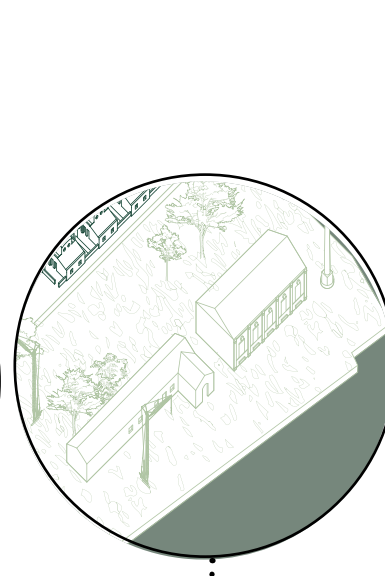
*The Giudecca women prison's site, along
with its vegetable garden, due East*



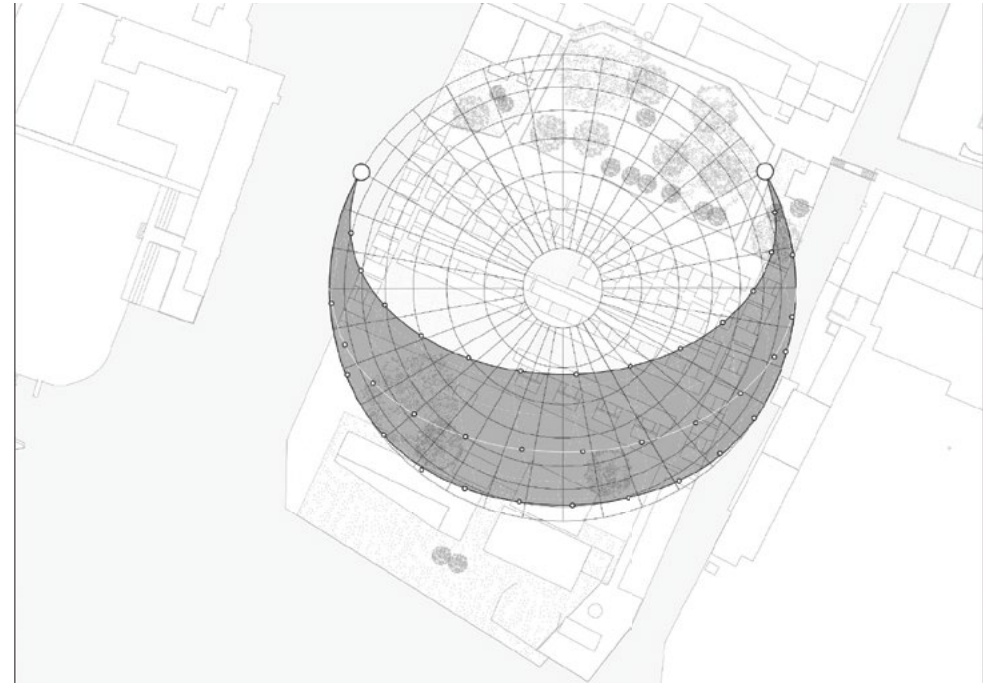
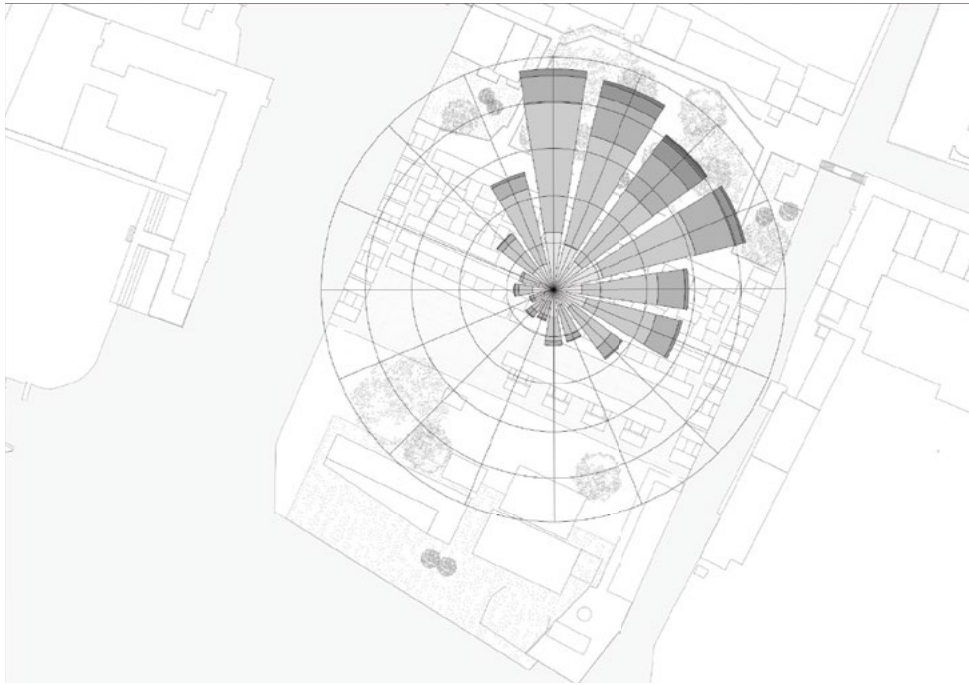
Unaccessible park due North



*Abandoned shipyards due South, in a
green field detached from the site with a
gate*



Climatic conditions



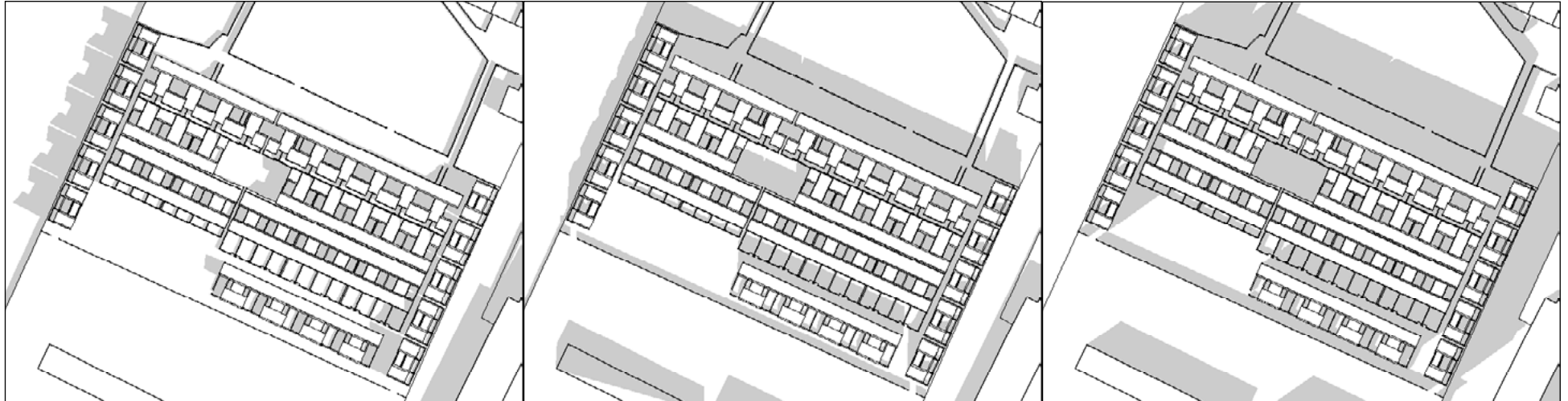
Solar orientation / shading

10:00

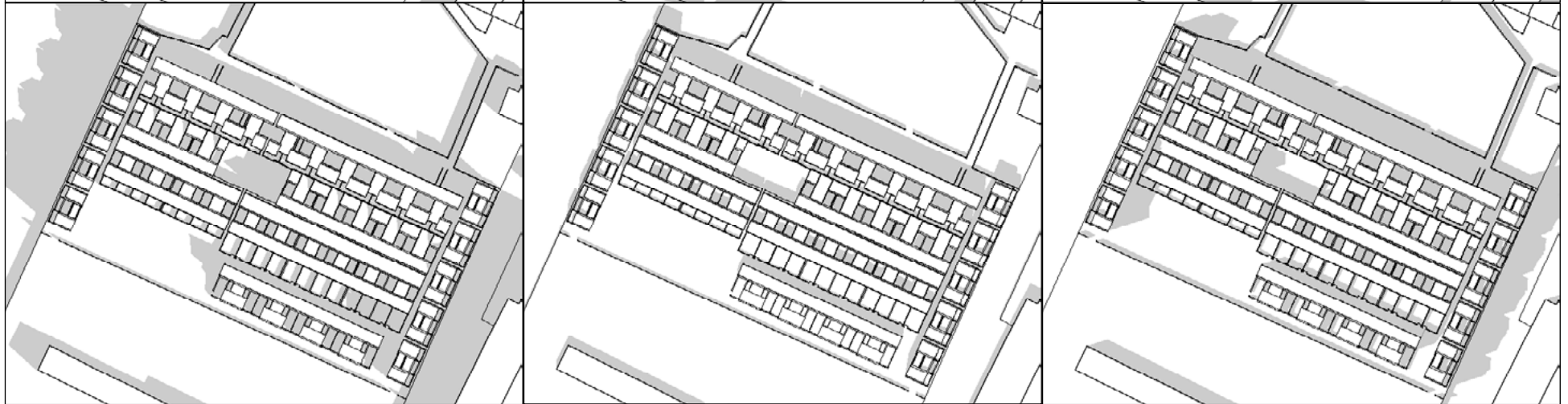
13:00

16:00

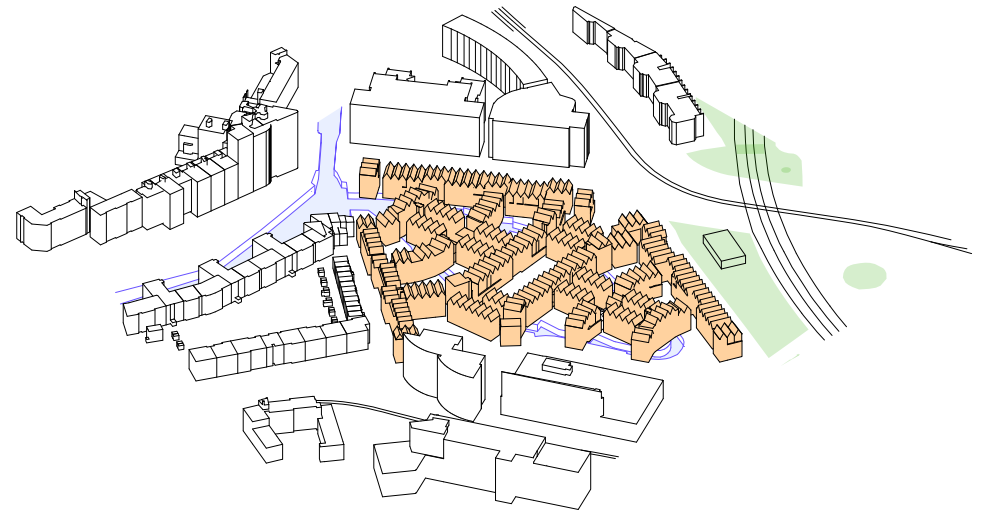
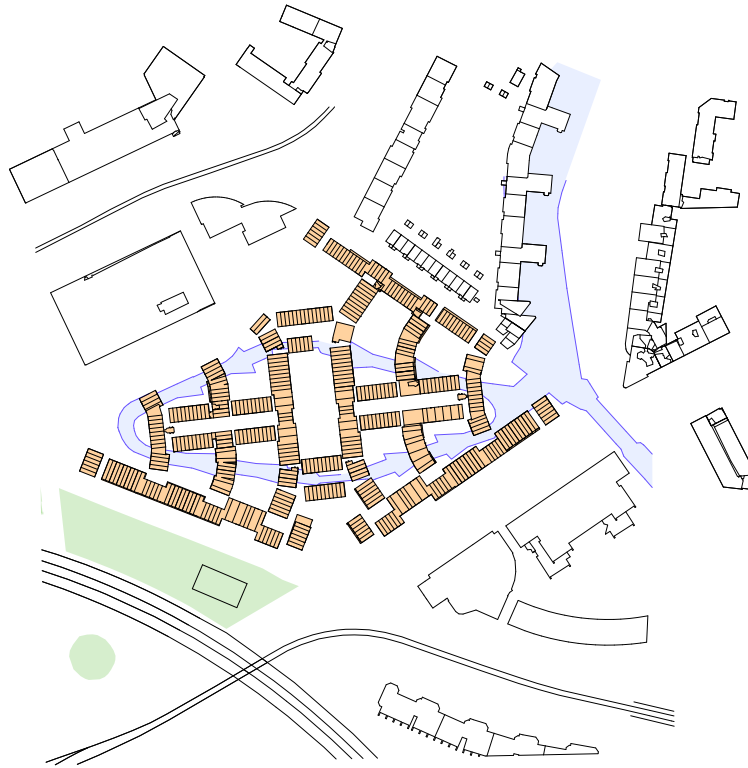
Spring equinox
21 March 2022



Summer solstice
21 June 2024

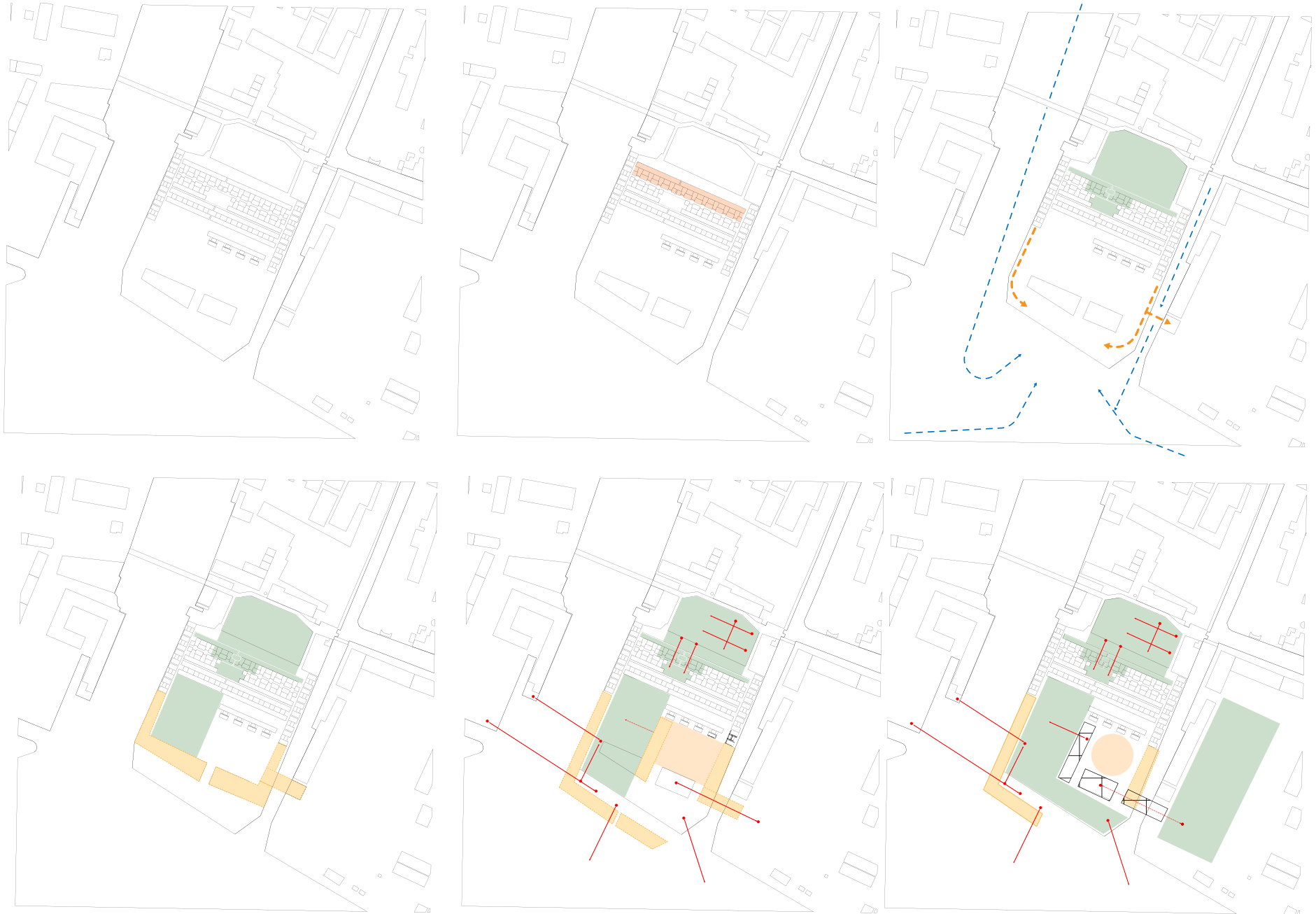


Thresholds

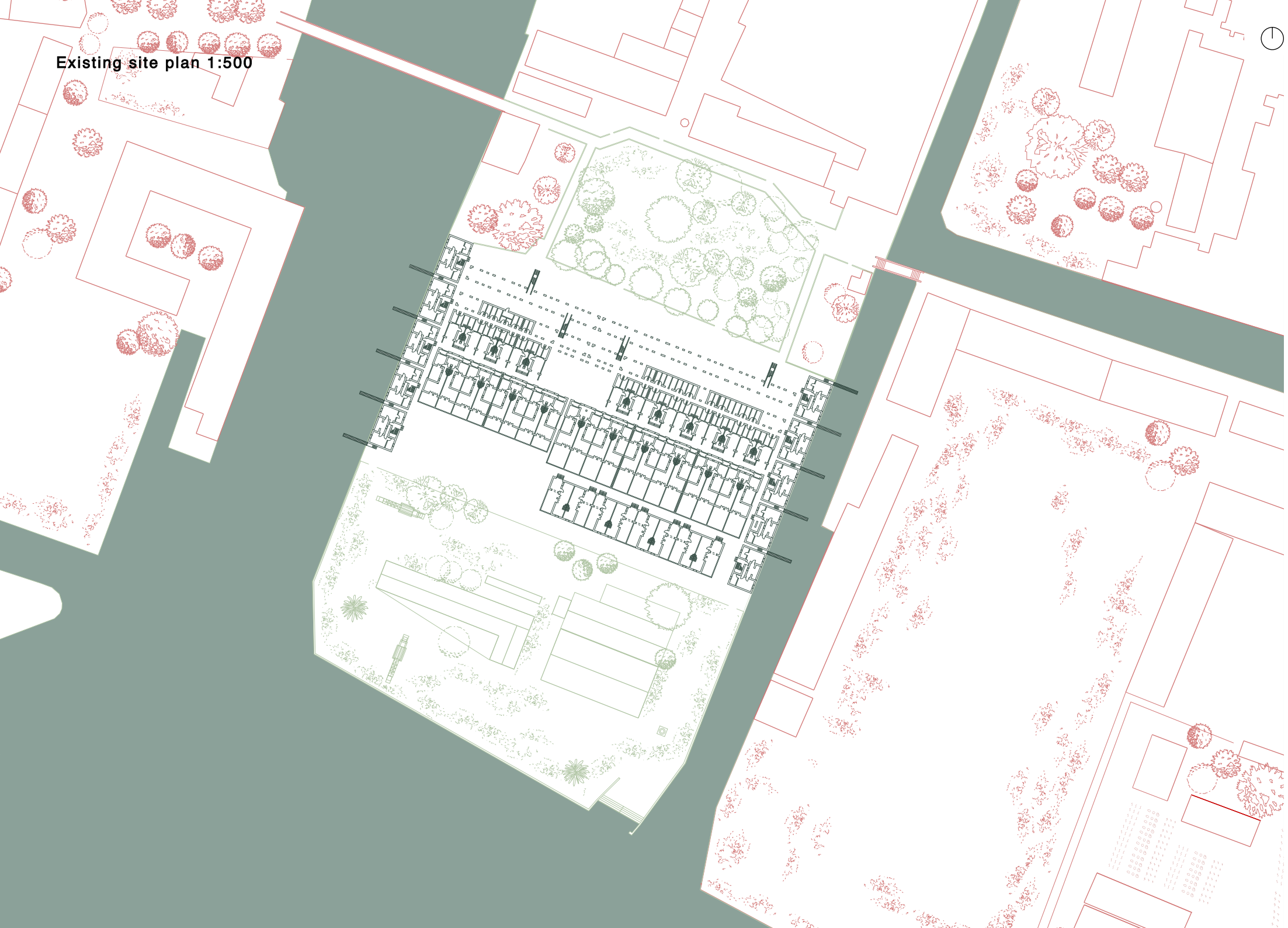


Gravin Adelastraat Rotterdam

Site approach



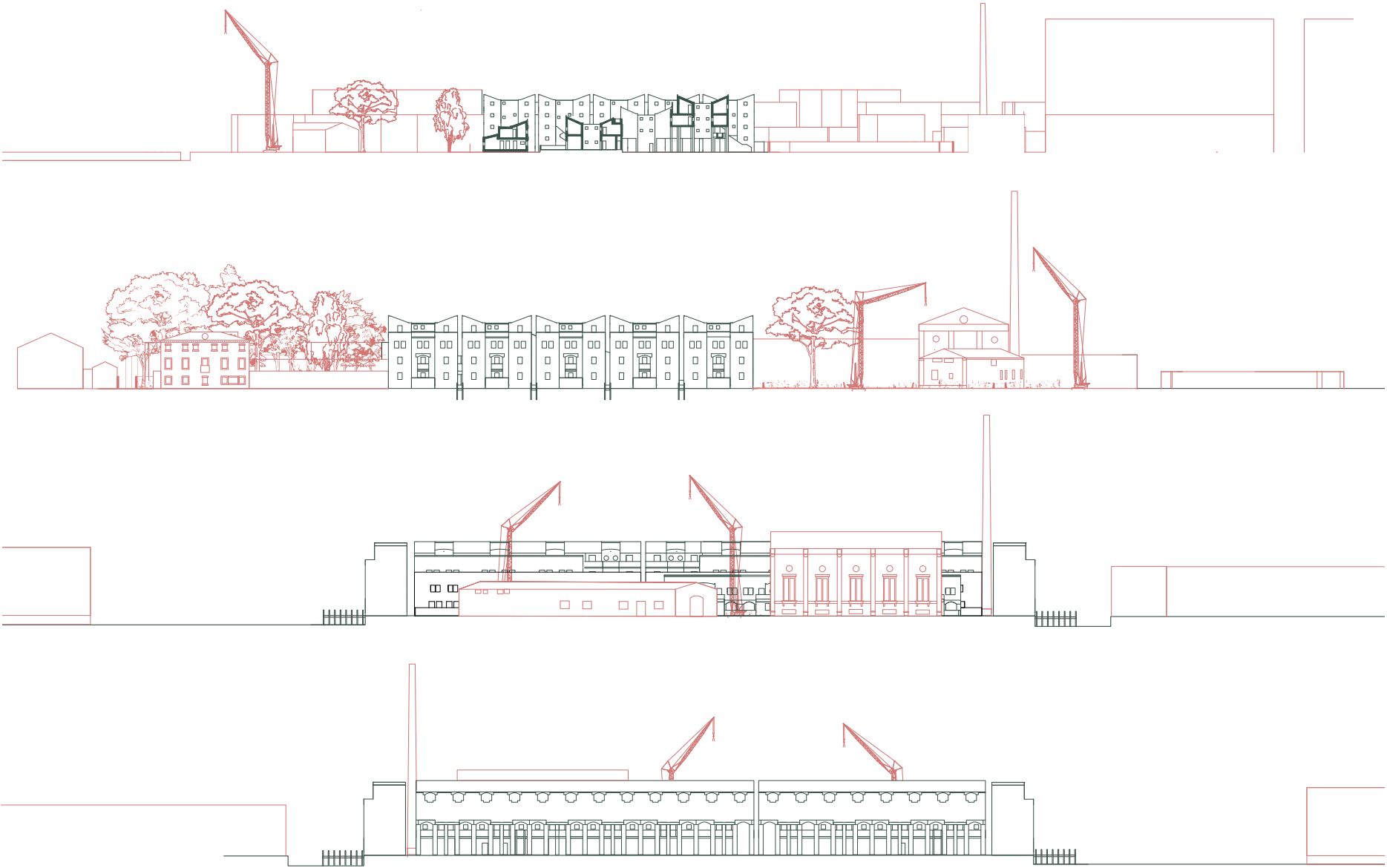
Existing site plan 1:500



Proposed site plan 1:500



Existing elevations and sections 1:500

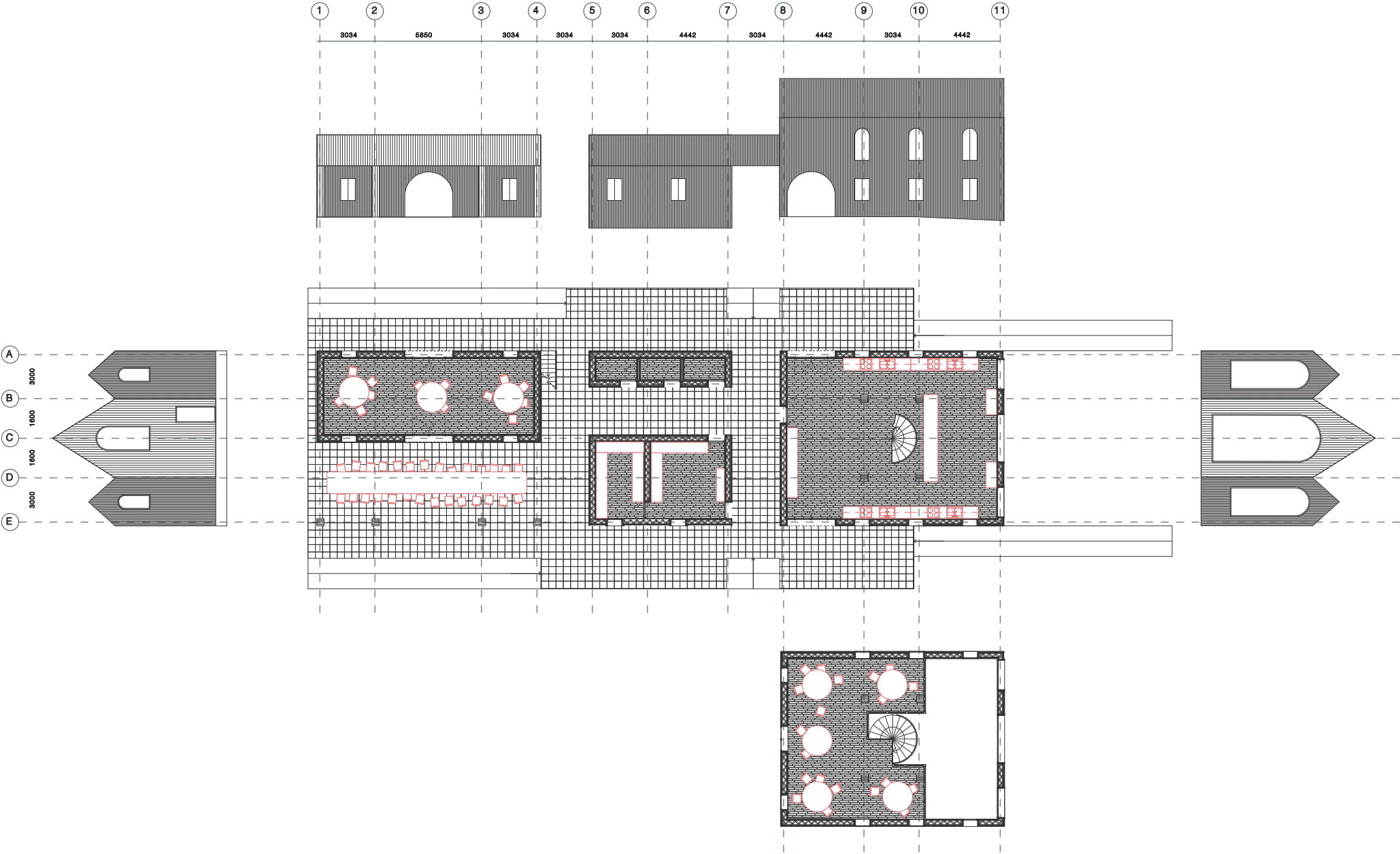


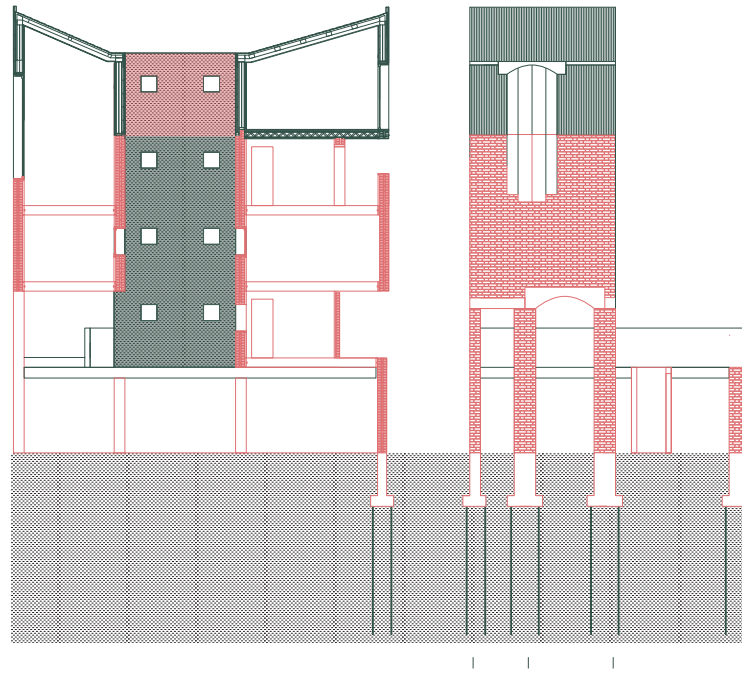
Proposed elevations and sections 1:500



Community kitchen

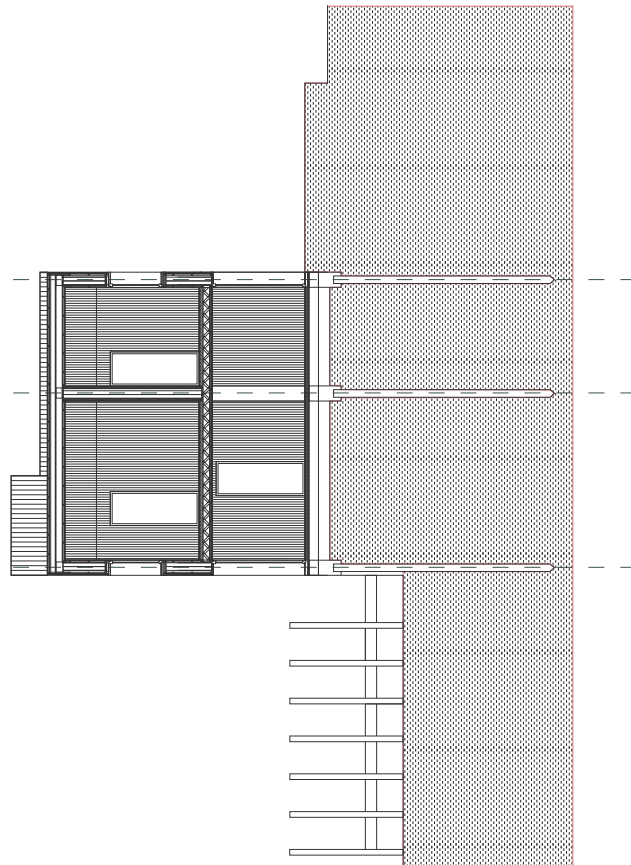
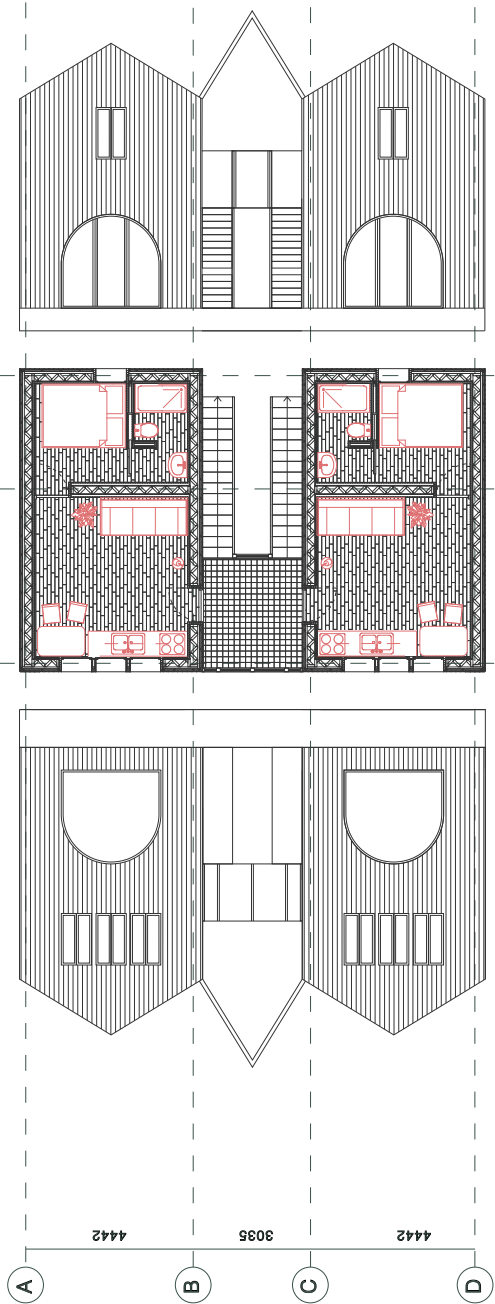
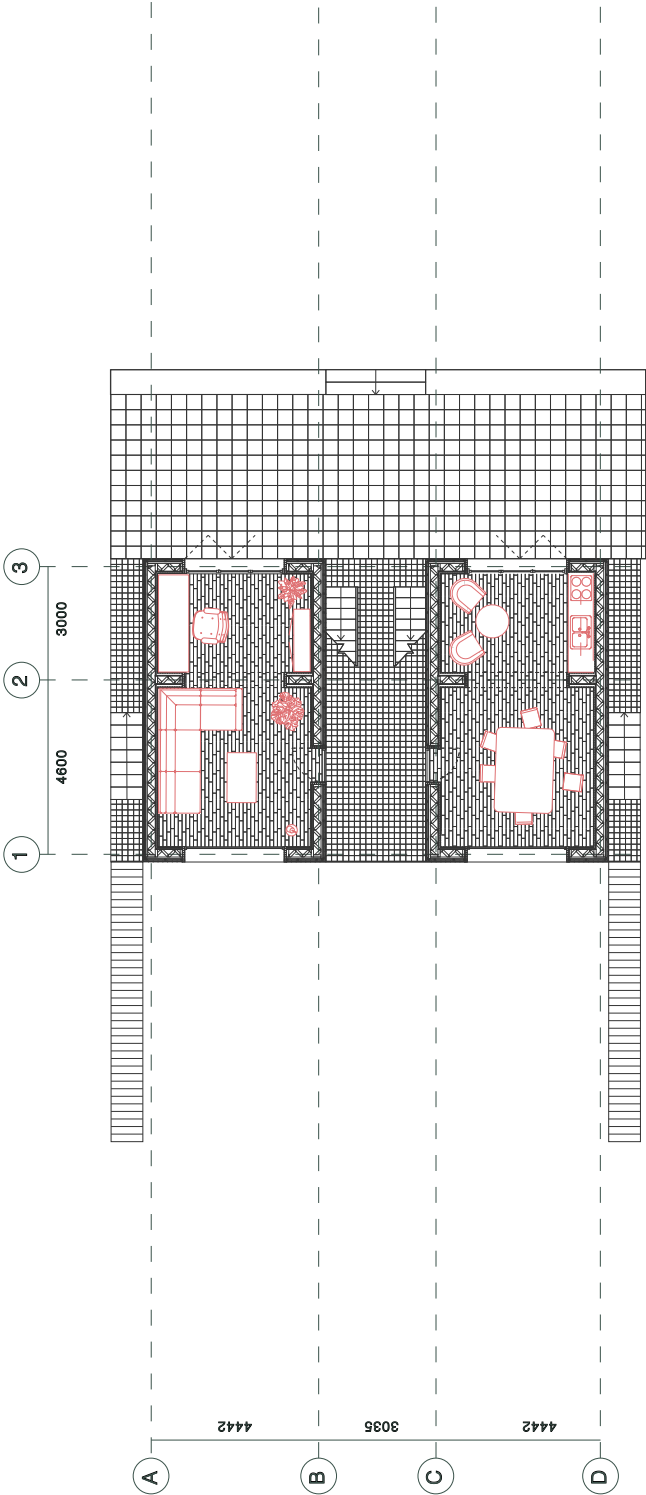
1:100





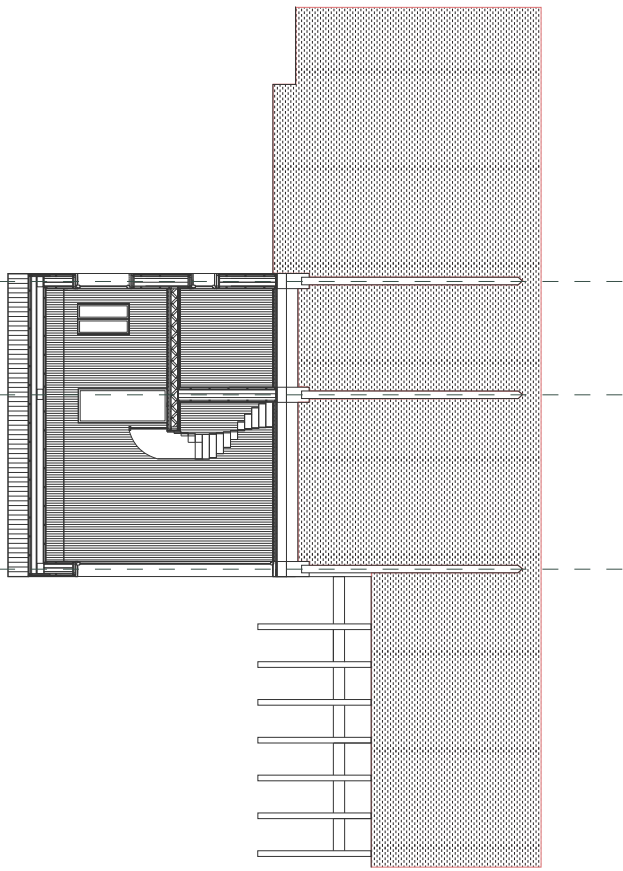
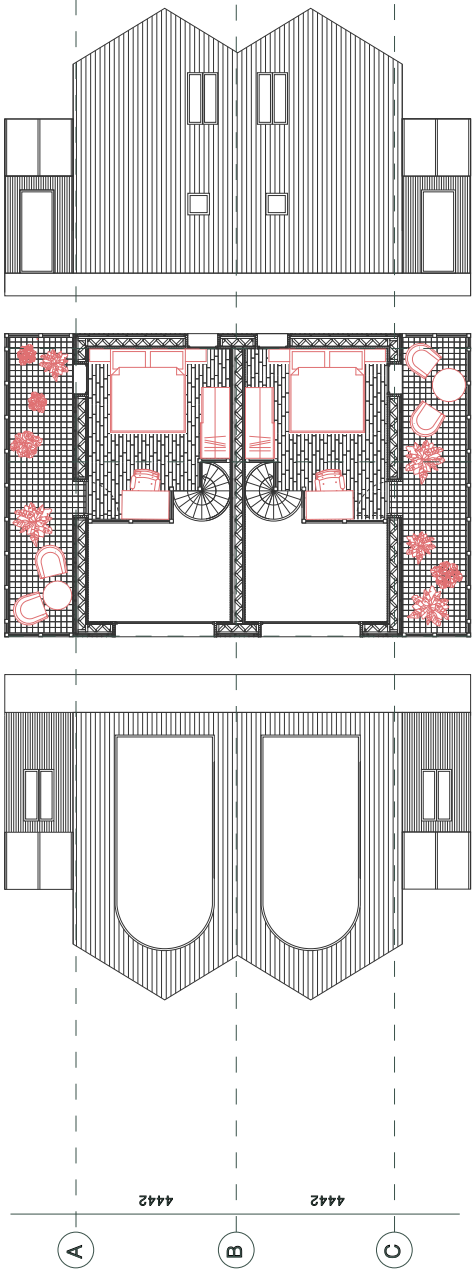
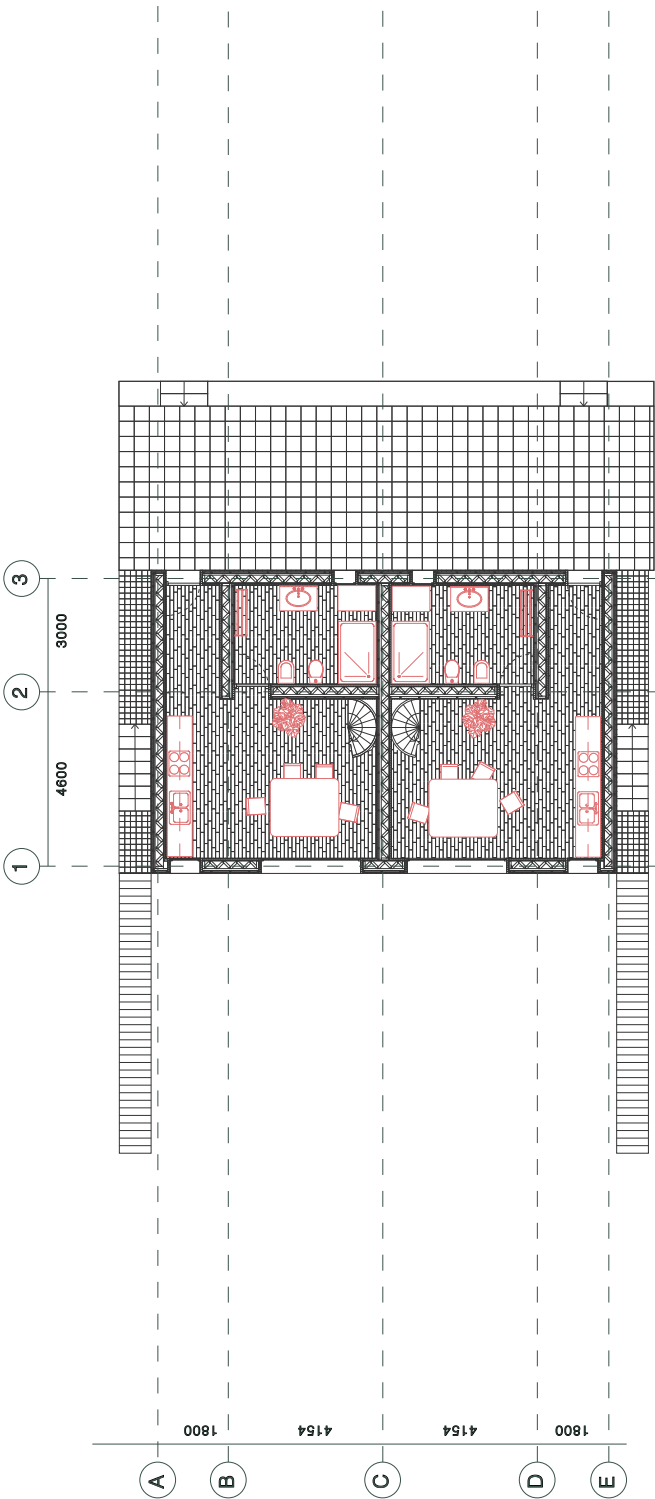


1:100

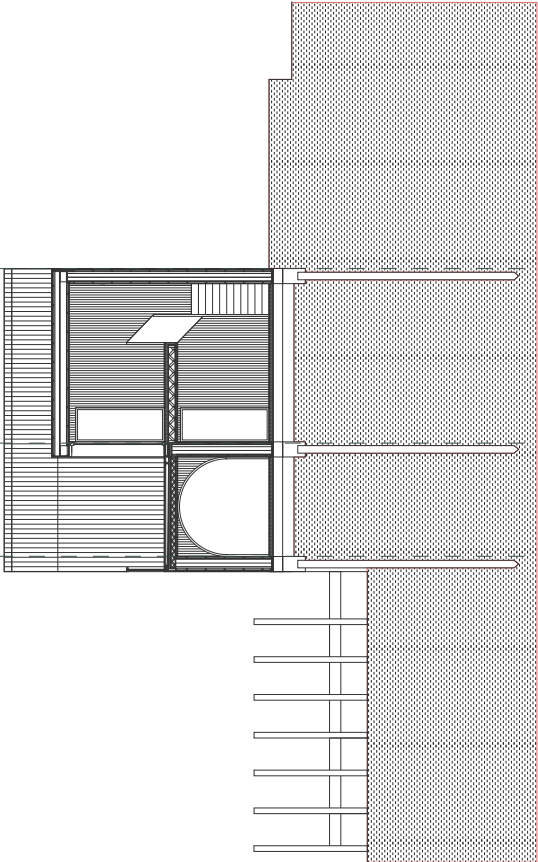
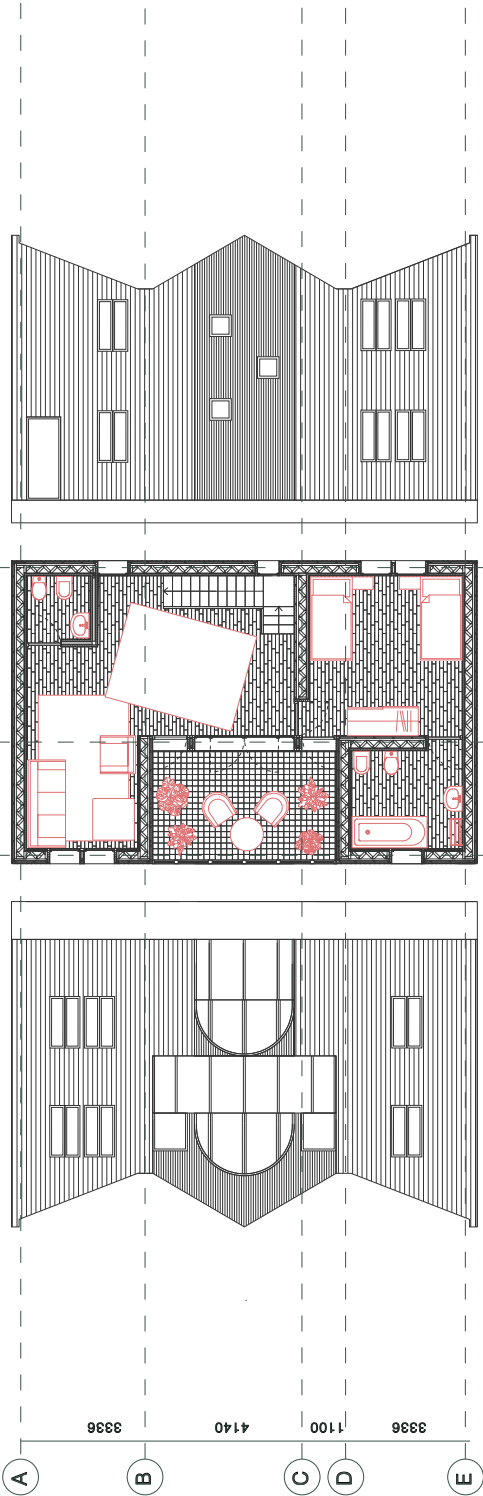
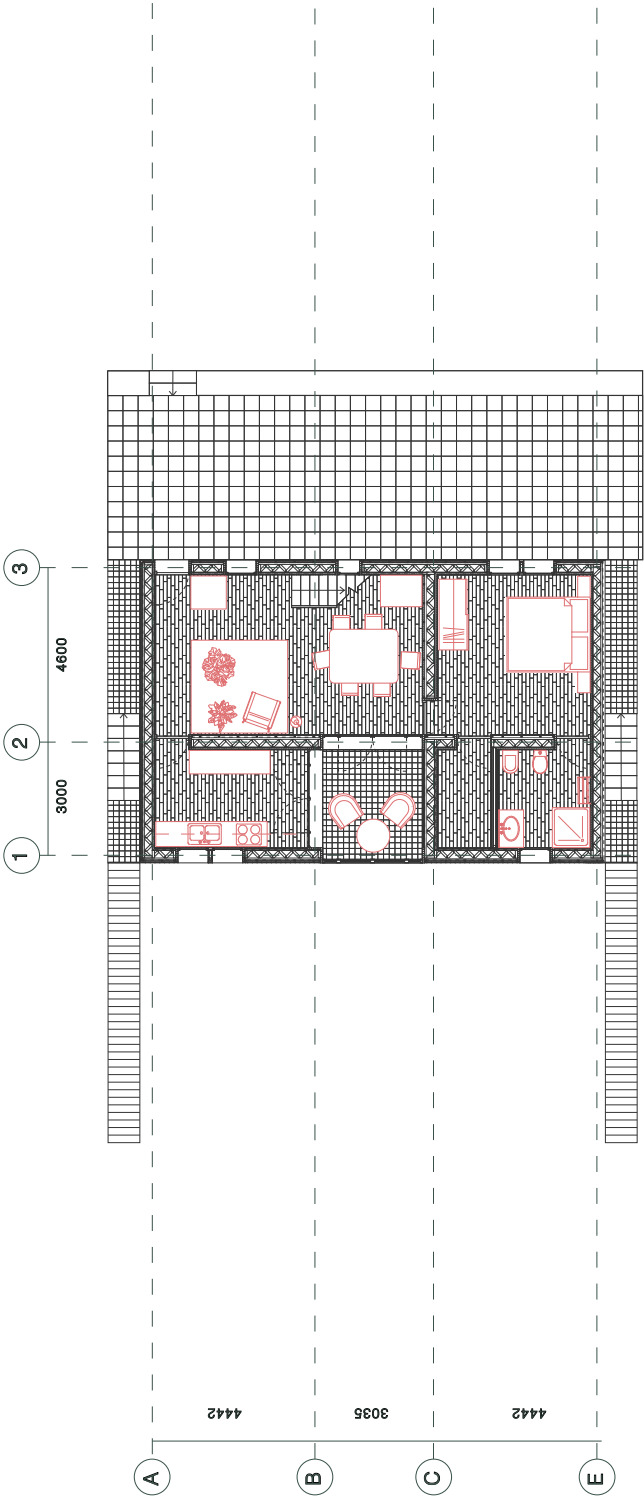


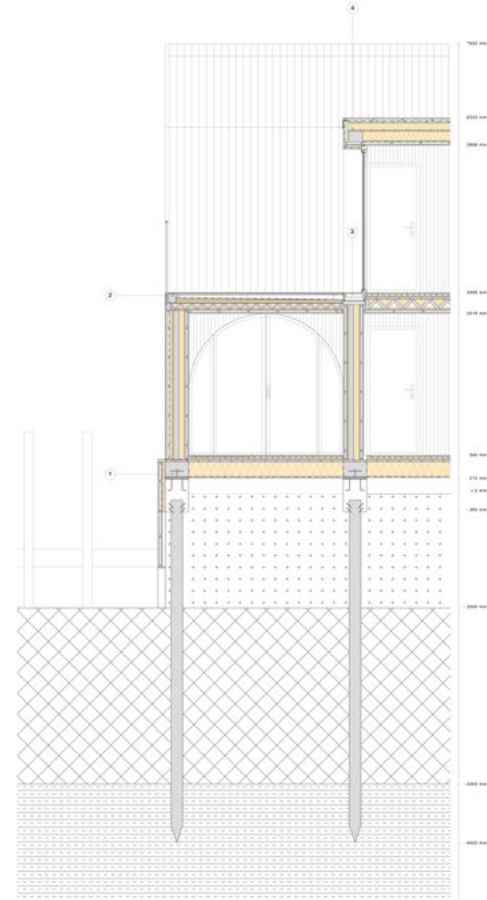
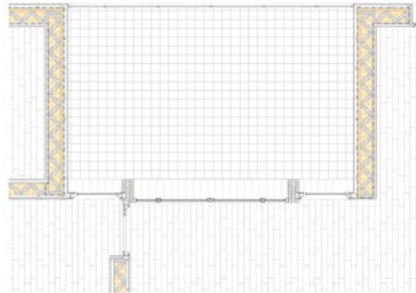
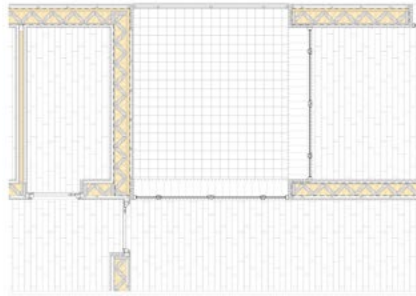
Maisonnette

1:100



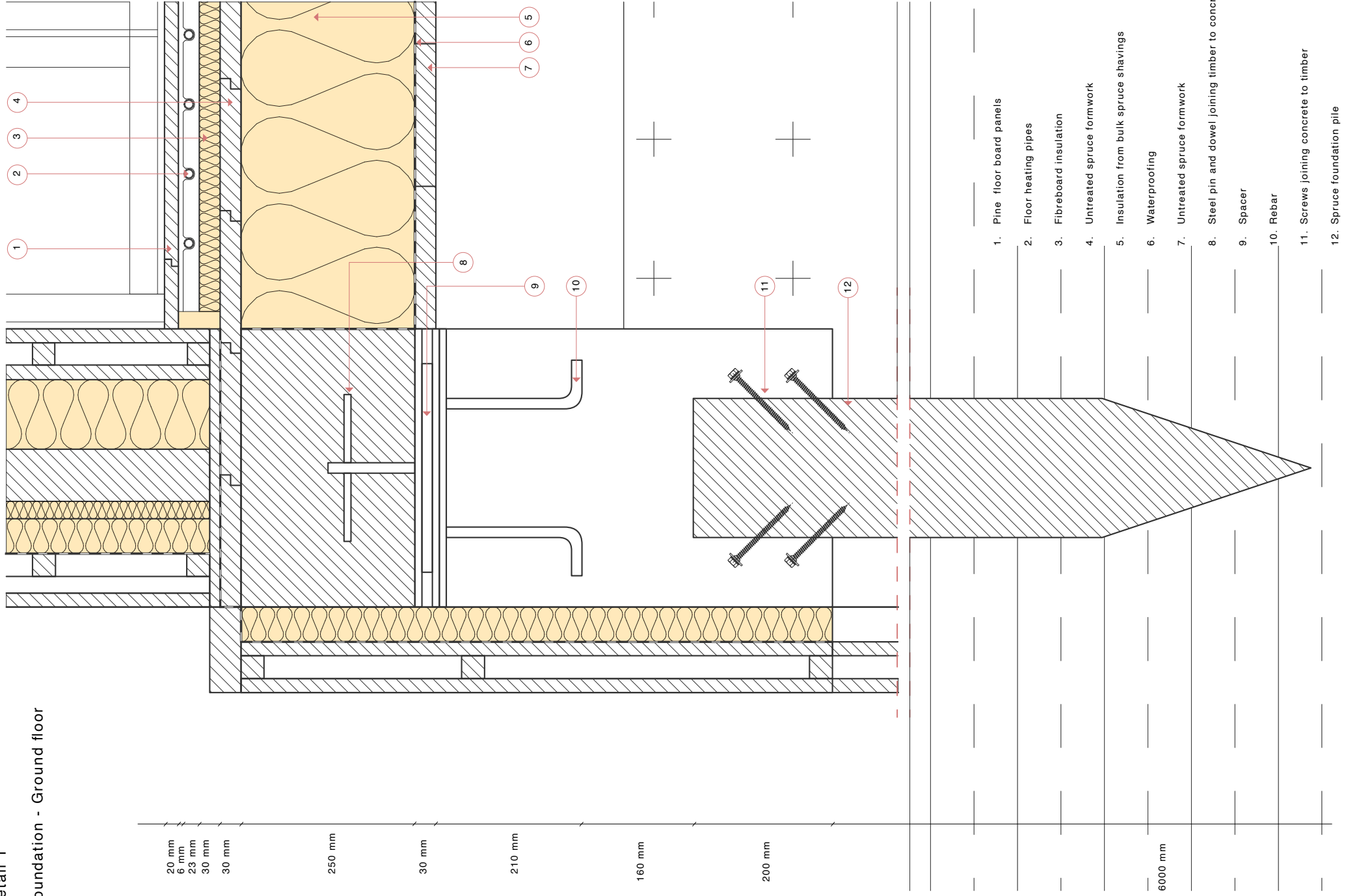
1:100





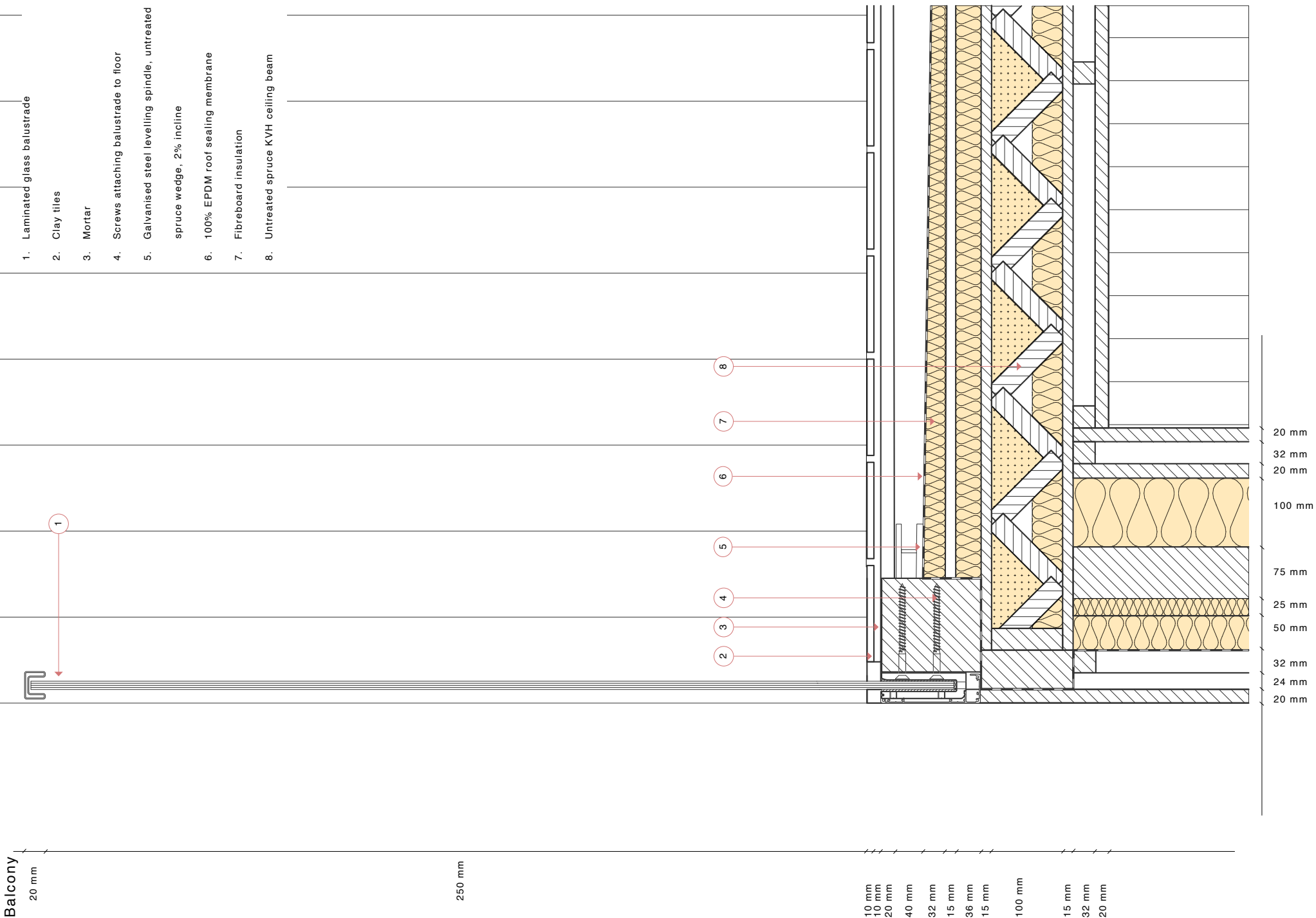
- Top
- Fragment section
- 1:20
- Left
- Fragment elevation, ground floor plan, and first floor plan
- 1:20
- 1 - Foundation - Ground floor
- First floor board panels
 - Floor heating pipes
 - Fibreboard insulation
 - Unreated spruce formwork
 - Insulation from bulk spruce shavings
 - Waterproofing
 - Unreated spruce formwork
 - Steel arm and steel joining bolt to concrete
 - Screed
 - Rebar
 - Screed joining concrete to timber
 - Spruce foundation plate
- 2 - Balcony
- Laminated glass balustrade
 - Clay tiles
 - Screed
 - Screed attaching balustrade to floor
 - Unreated clear leveling spruce, untreated spruce edge, 10% moisture
 - 10mm L-shaped self-healing membrane
 - Fibreboard insulation
 - Unreated spruce 100mm ceiling beam
- 3 - Balcony - First floor
- Triple glazed laminated window glass
 - Unreated glued timbered timber with aluminum cladding strip window
 - Building protection matting, polyurethane bonded
 - Insulated rubber grommets, stainless steel facade drain, aluminum cover
 - Waterproof membrane
 - Fibreboard impact sound insulation
 - 200mm system composed of diagonally placed 100mm spruce battens
 - Fibreboard insulation
4. Roof
- Strip edge
 - Larch board formwork
 - Waterproof membrane
 - Unreated spruce battens
 - Fibreboard insulation
 - Unreated spruce battens
 - Insulation from bulk spruce shavings
 - Unreated spruce battens
 - Larch ceiling panels

Foundation - Ground floor



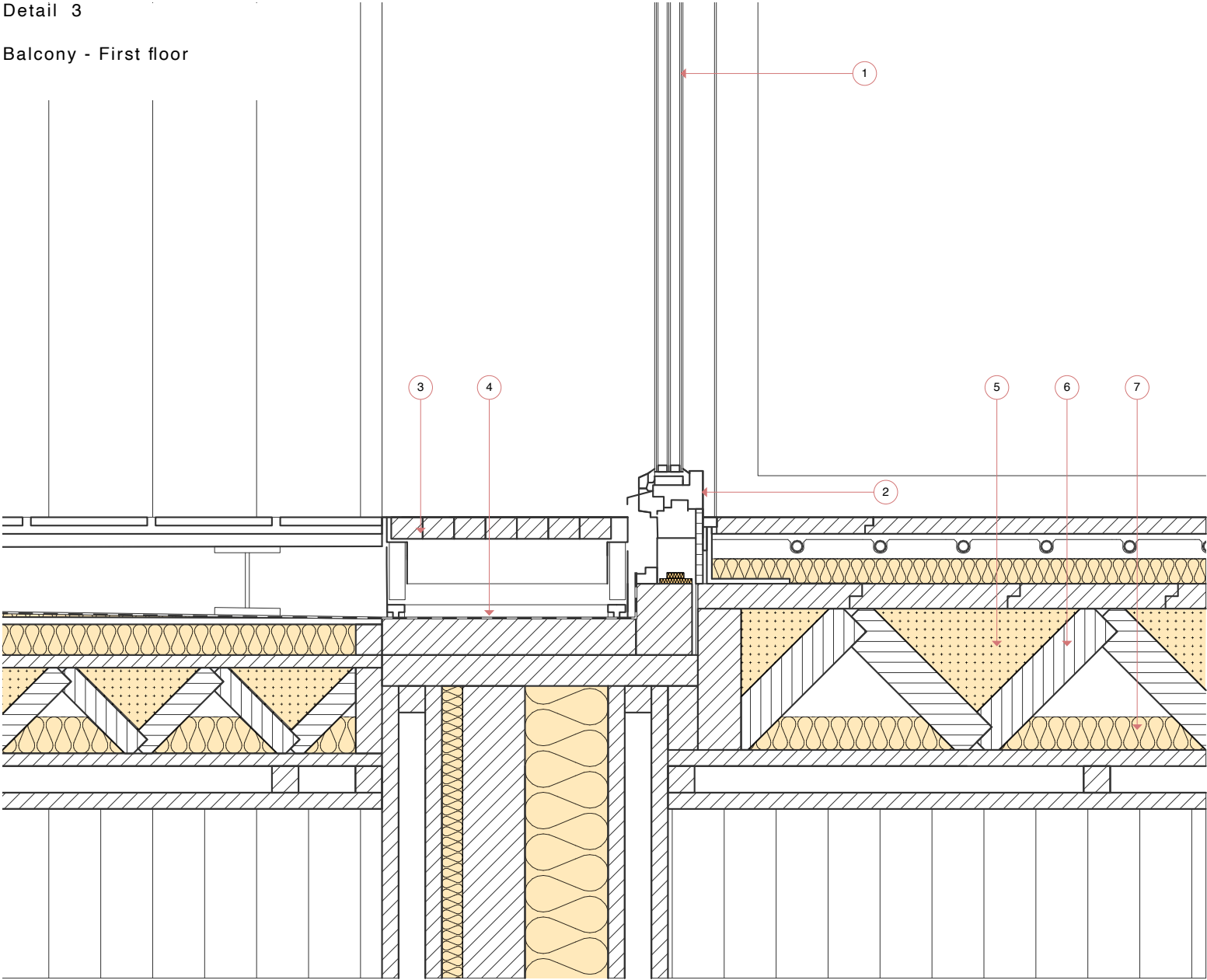
Detail 2

Balcony



Detail 3

Balcony - First floor



- 1. Triple glazed laminated window glass
- 2. Untreated glued laminated timber with aluminium capping strip window
- 3. Building protection matting, polyurethane-bonded recycled rubber granulate, stainless steel facade drain, aluminium cover
- 4. Waterproof membrane
- 5. Fibreboard impact sound insulation
- 6. 200-mm system composed of diagonally placed KVH spruce timbers
- 7. Fibreboard insulation

20 mm
6 mm
23 mm
30 mm
30 mm

130 mm

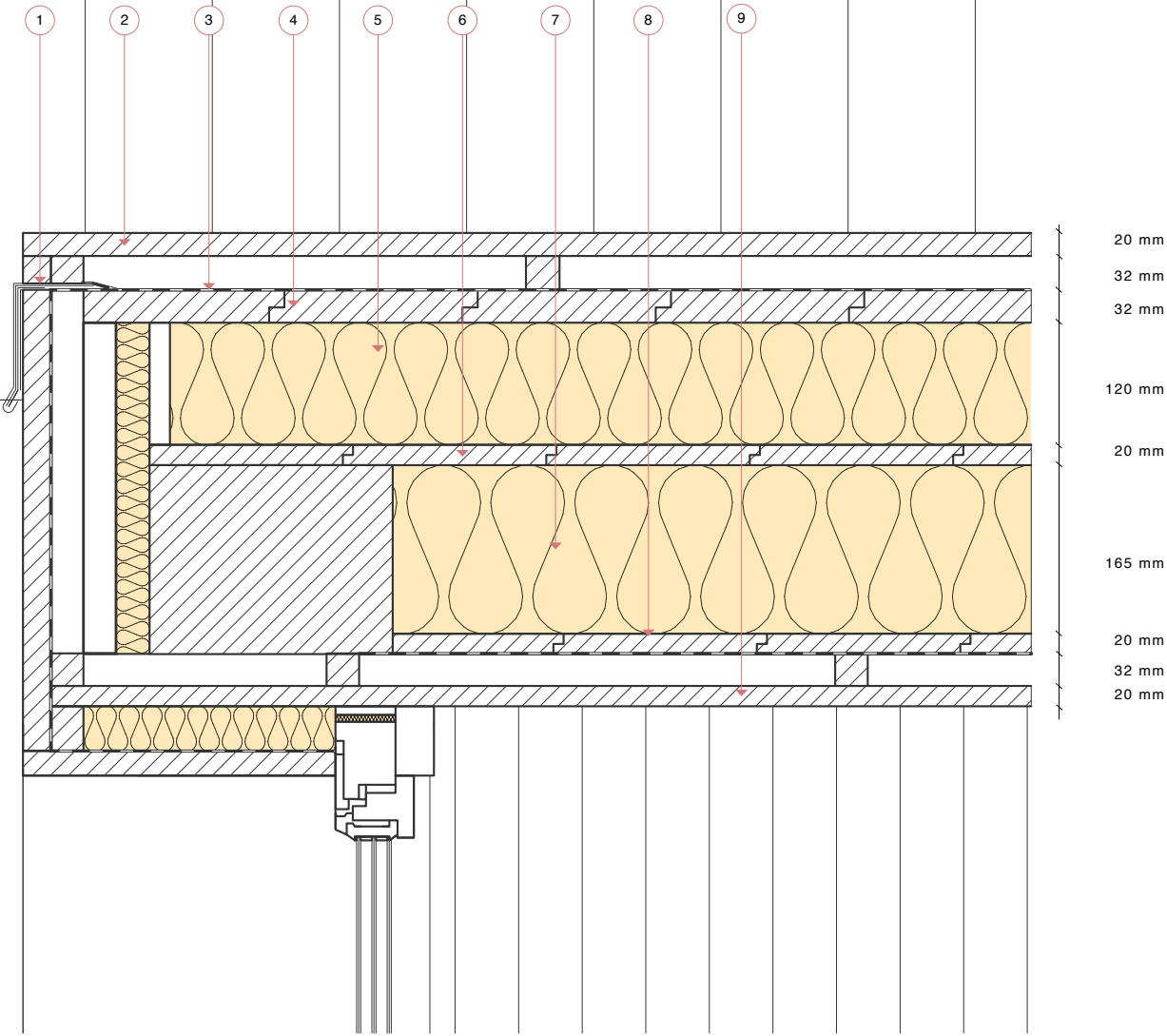
40 mm
20 mm
32 mm
20 mm

20 mm
32 mm
20 mm
100 mm
75 mm
25 mm
20 mm
32 mm
20 mm

Detail 4

Roof

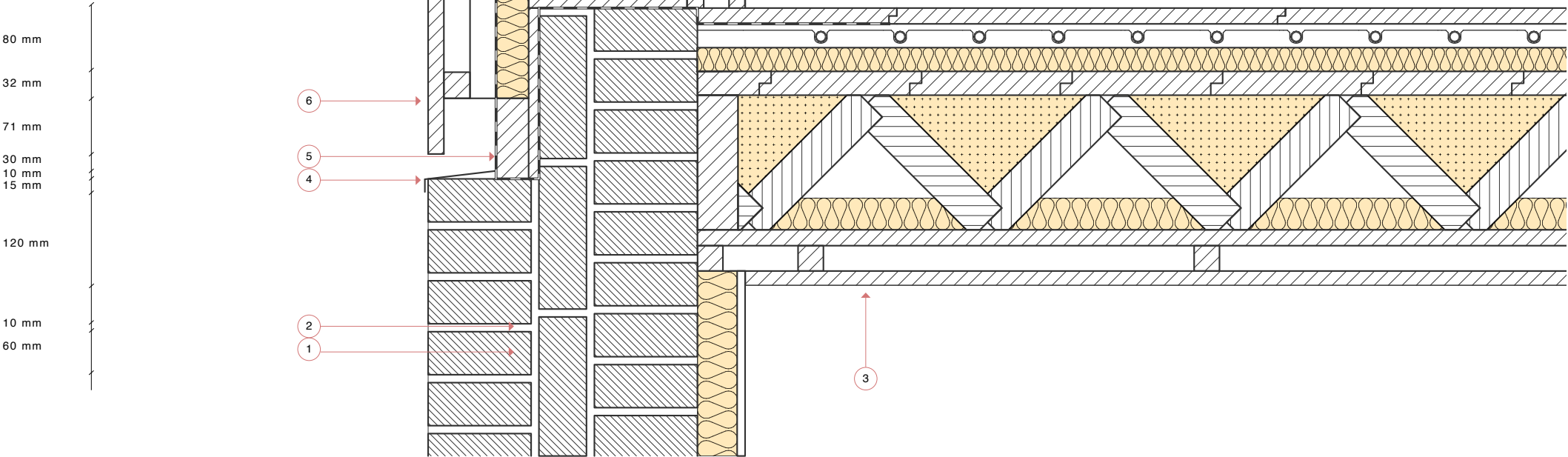
- 1. Drip Edge
- 2. Larch board formwork
- 3. Waterproof membrane
- 4. Untreated spruce battens
- 5. Fibreboard inuslation
- 6. Untreated spruce battens
- 7. Insulation from bulk spruce shavings
- 8. Untreated spruce battens
- 9. Larch ceiling panels



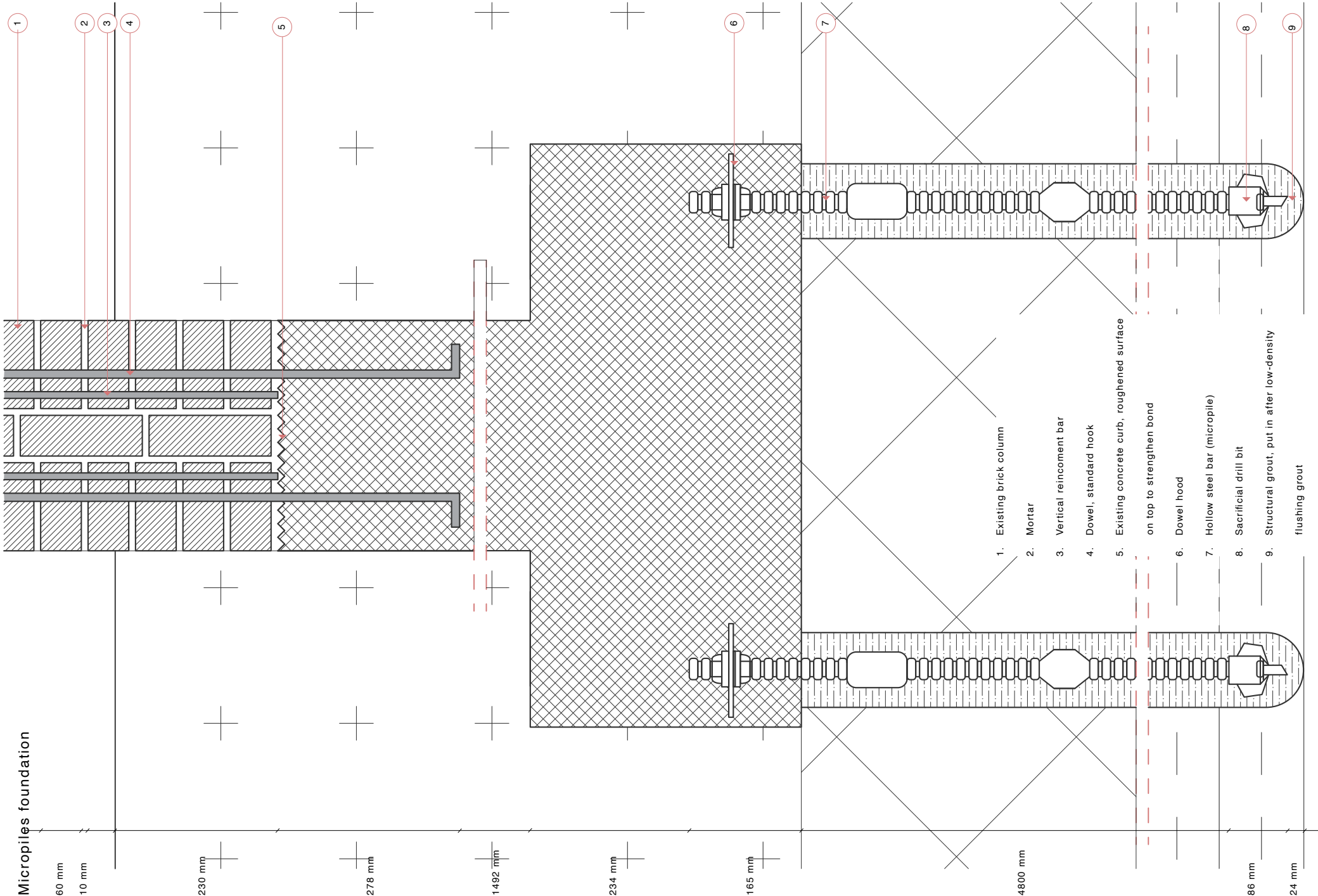
Detail 5

Brick to timber facade

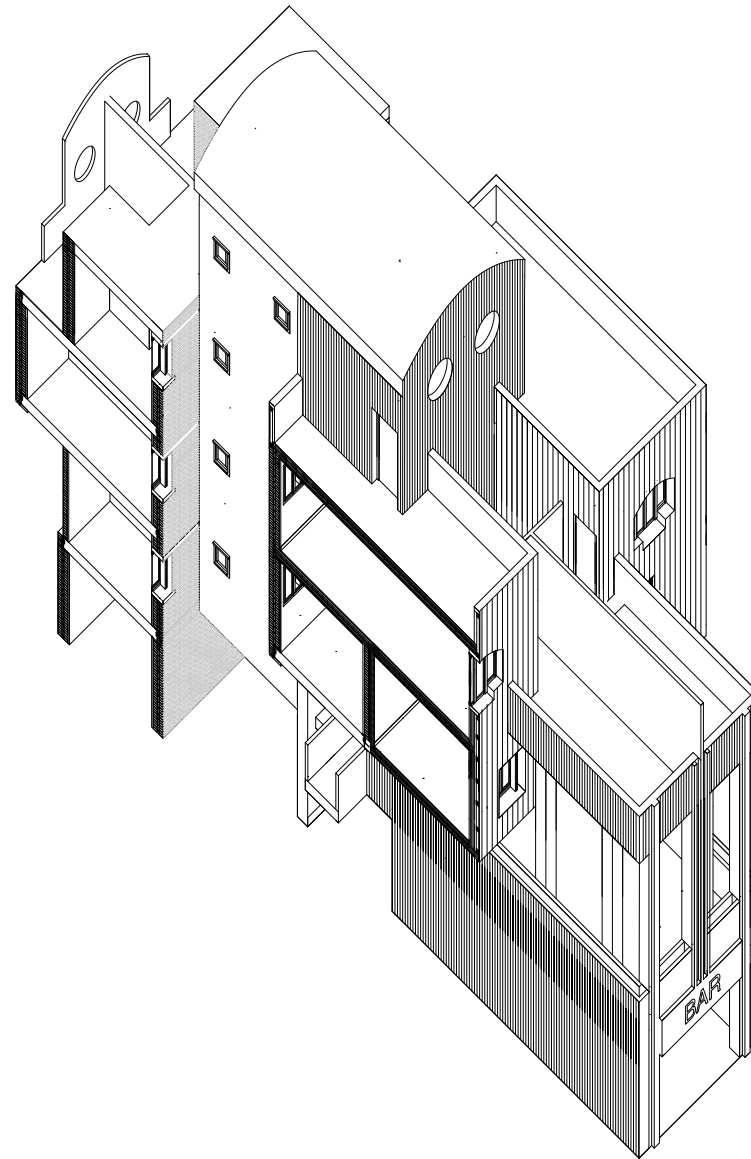
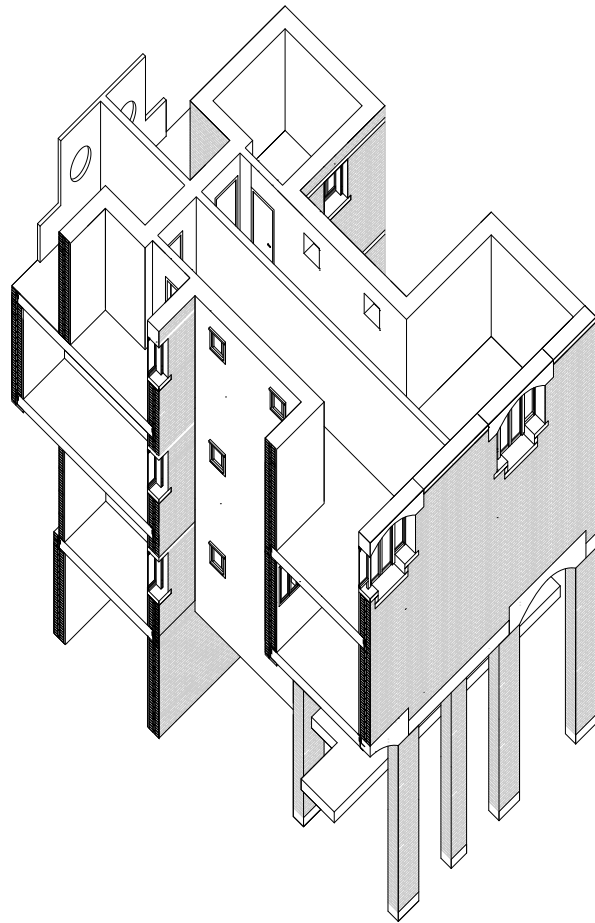
- 1. Existing brick facade structure
- 2. Mortar
- 3. Prefabricated timber floor structure
- 4. Aluminum flashing with drip detail
- 5. Breather membrane
- 6. Spruce facade detail (brick to timber)



Detail 6



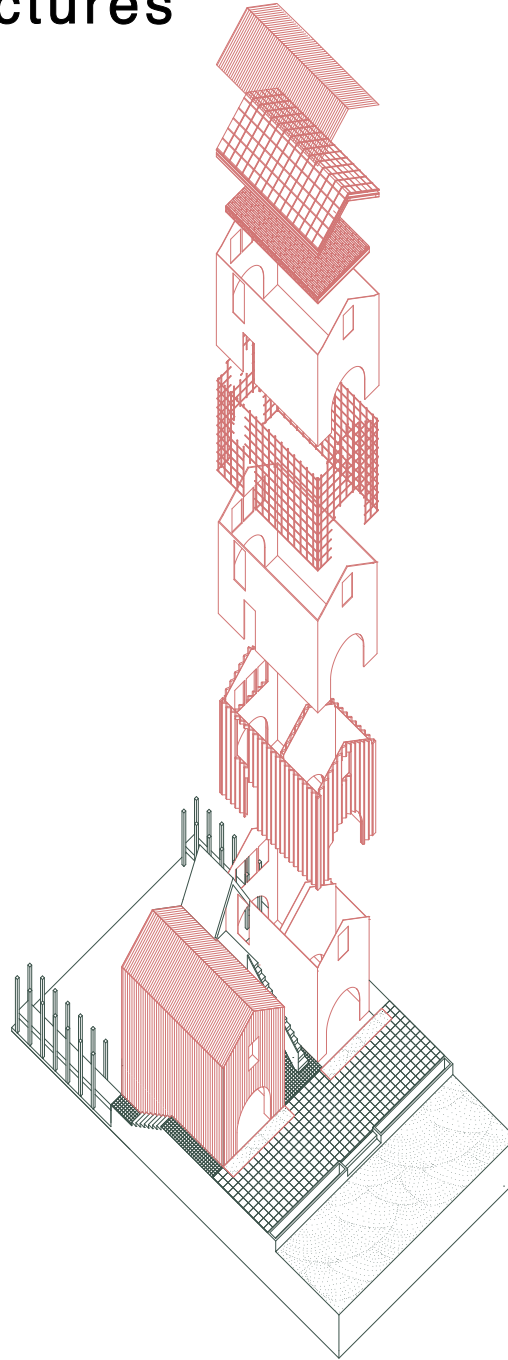
Previous iterations



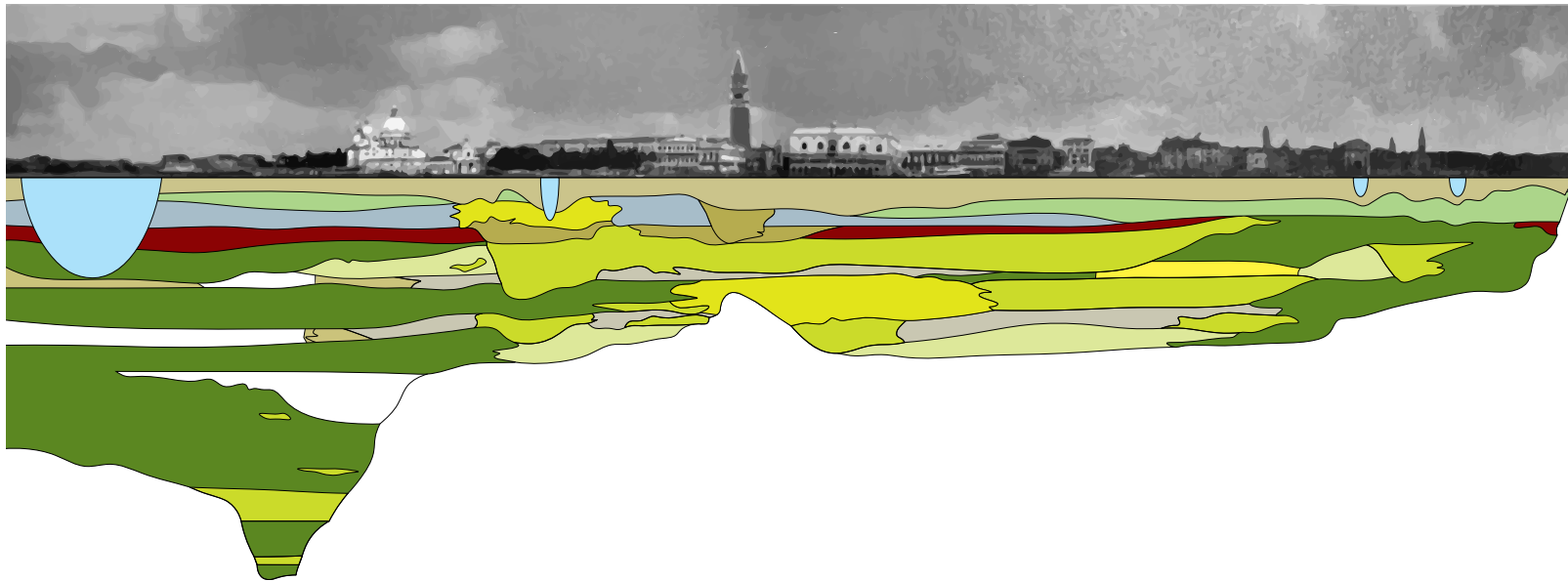
Previous iterations



Prefabricated timber structures



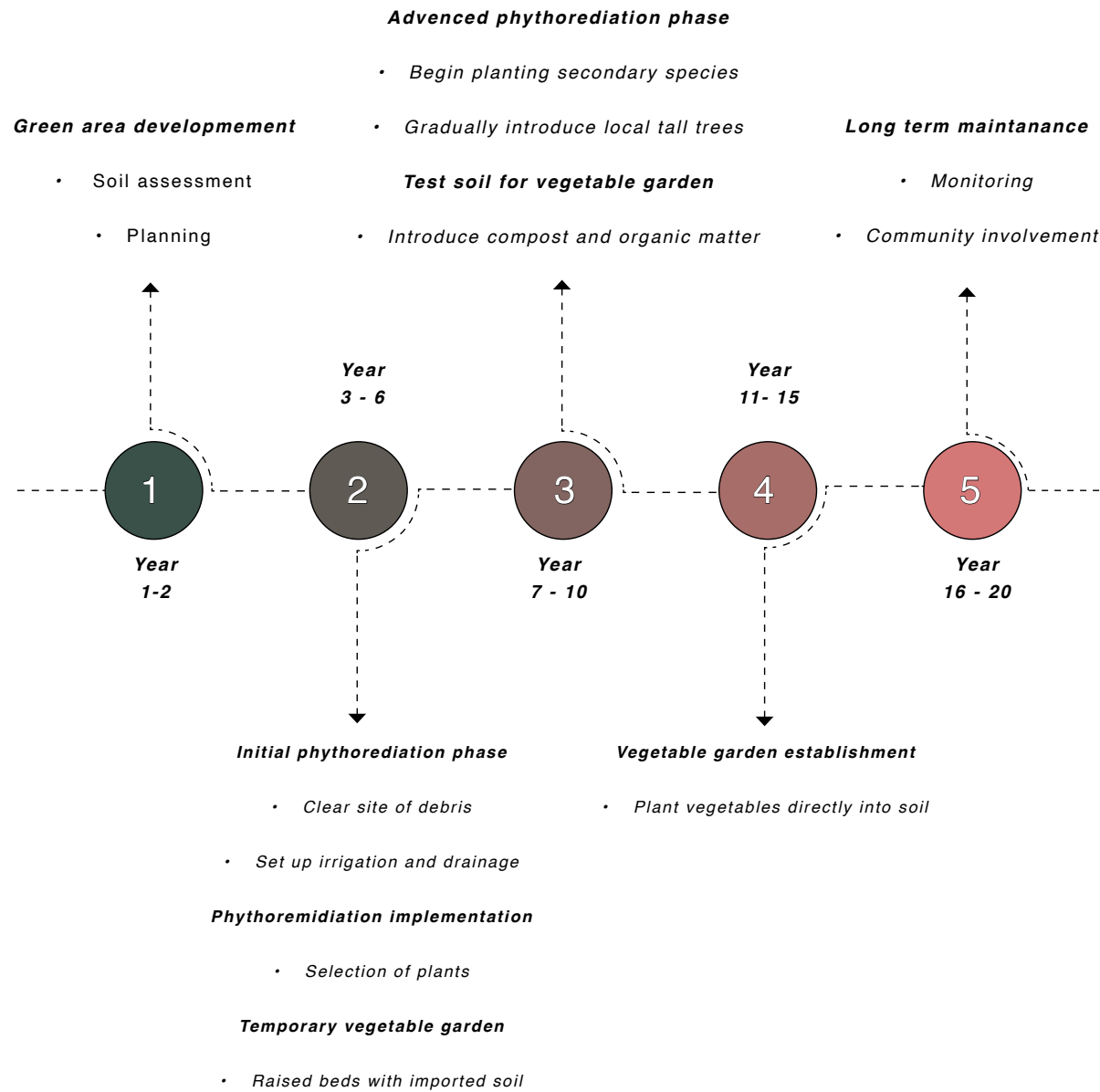
Soil conditions



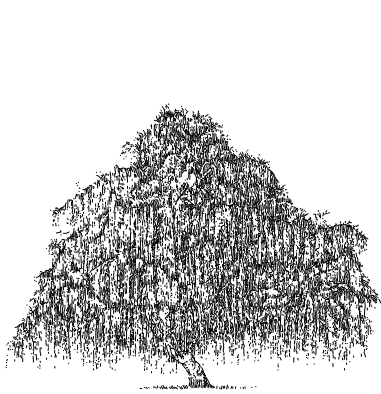
- Anthropocene deposit
- Clay and lime-clay with substantial organic matter
- Clay with remainders of molluscs
- Limey sand
- Fine tidal, canal sand
- Limey, sandy clay, partially consolidated
- Clay and limey clay with torba

- Altered limey sand and limey clay
- Lime and sand with clay strata
- Clay with strata of limey sand
- Sand and fine canal aluvium
- Limey sand
- Limey sand and clay
- Erosion contacts

Soil reclamation phasing



Local plants and spacing considerations



Willow tree (*Salix*)

- Spacing: 3-4 meters apart



Poplar (*Populus*)

- Spacing: 3-4 meters apart

Effective for heavy metal uptake.

Fast-growing and provide shade quickly.



Italian cypress (*Cupressus sempervirens*)

- Spacing: 5-7 meters apart

Tall, evergreen trees that provide year-round greenery.

Adapted to the local climate and soil conditions.



Stone pine (*Pinus pinea*)

- Spacing: 5-7 meters apart

Provides shade, native to the Mediterranean region and well-suited for Venice's climate.



Sunflower (*Helianthus annuus*)

- Spacing: 0.5-1 meter apart



Indian mustard (*Brassica juncea*)

- Spacing: 0.5-1 meter apart

Hyperaccumulators for organic pollutants and heavy metals.

Easy to grow and manage.



Radicchio

- Raised beds or rows, spacing 60 - 120

cm

cm

Suitable for the local climate.

Provide fresh produce for the community garden.



Tomatoes

- Raised beds or rows, spacing 60 - 120

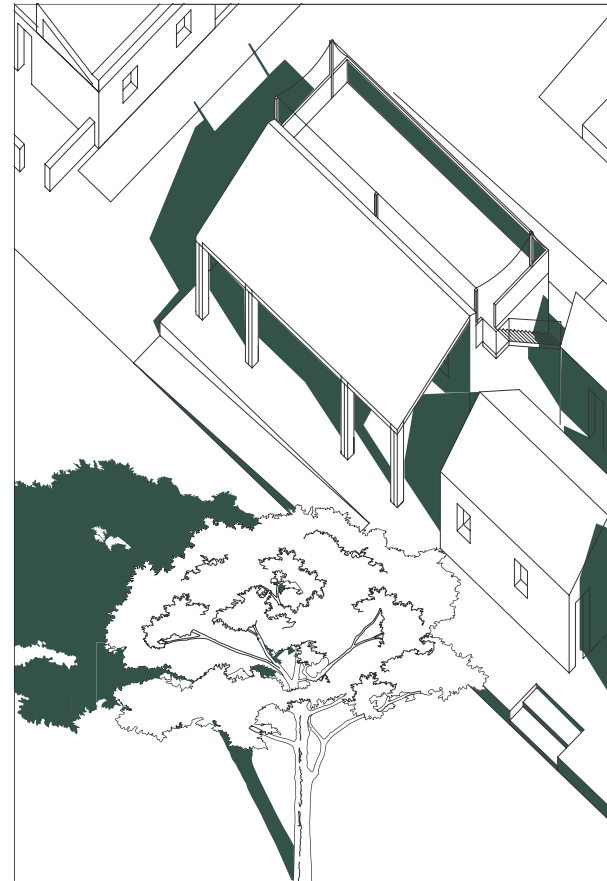
cm

Environmental implications of climatic concepts



Relation with water:

Climate Regulation: Building near water bodies can moderate local temperatures, providing a cooling effect during hot periods and a warming effect during cold periods, thus contributing to climate regulation.



Air:

Ventilation: Designing for natural cross-ventilation improves indoor air quality and reduces the need for mechanical ventilation systems.

Airflow Management: Strategic placement of openings and barriers can optimize airflow, enhancing thermal comfort and reducing energy use.

Natural Shading:

Thermal regulation: Reduces heat gain, decreasing reliance on mechanical cooling systems and lowering energy consumption.

Biodiversity support: Improving soil conditions supports urban biodiversity and improves air quality.

Urban heat island effect mitigation



