Manutencao Militar Complex, Lisbon
Discolosing the military city

BRIDGING THE BORDER
connecting MMC to its context across the border

P5 presentation, Jessie Dong
Tutors: Job Roos, Marieke Kuipers, Wido Quist
Heritage & Architecture
1 CONCLUSION OF RESEARCH
PROBLEM STATEMENT

BORDER FRICTION
How to open up an enclosed industrial heritage to its context while respecting its introverted character?
Requirement of economic alternative
Poverty, farming

Lack of social interaction
Limited space for social activity

Deficiency of public space
no park or central square for events
MMC
Economic center of Beato

MMC is an industrial world hidden behind the border, which totally differs from the narrative of neighborhood.

Buildings for industrial production are surrounded by the border.
MMC
Bond of social cohesion

MMC is the everyday working place of its inhabitants, which offered jobs and welfare to the neighbors. It has friendly architectural expression on its border.
The continuous border of MMC marked its military industrial function in its history, which relates to the Portugal recent history. The main component of border on the neighbors’ street side is monumental architectural facade.
Introverted enclosure  
Economic center of Beato  
Bond of social cohesion
Conflict between the requirement of opening up and the introverted site spirit
Connecting MMC to its context across its border from social, economic, spatial aspects while developing the introverted site spirit within its border.
### Principle

<table>
<thead>
<tr>
<th>Principle</th>
<th>Justification</th>
<th>Inspiration</th>
<th>Masterplan scale strategy</th>
</tr>
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<tbody>
<tr>
<td>Connecting MMC to its context from social, economic, spatial aspects</td>
<td>MMC was the social economic center of territory in its history. The current dilemmas of Beato are the result of its disconnection.</td>
<td>The previous producing part of MMC is of industrial scale. It locates next to the high speed road of the city on the Tagus river side. Monumental MMC is of intimate scale both interior and exterior, which faces with the neighborhood.</td>
<td>Economic alternative in industrial MMC (connection to city and territory); Social function in monumental MMC (connection to local community)</td>
</tr>
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<td>Developing its introverted site spirit within its border</td>
<td>The introverted enclosure of MMC represents the military industry function which relates to the recent Portuguese history.</td>
<td>The border divided two distinct space narrative: the common space of community everyday life, the dysfunctional industrial production. The industrial MMC is hidden behind the border</td>
<td>Clarify the physical border of MMC; Enhance the distinction between outside and inside of MMC.</td>
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</table>
Task: Transforming entrance ensemble into a social intermediate zone that connecting local community and MMC from social and space scale while preserving the introverted character of site.
QUALITY OF ENTRANCE ENSEMBLE

Urban interior

As intimate scale urban fabric

Workers' entrance since 1930

Collective place of the inhabitants

Collective development traces
Role in social life

Embracing an inner square

Industrial history

Transitional layers marked its previous function
Function in MMC

Industrial architectura language
General industrial history
PLACE OF ENTRANCE ENSEMBLE

Urban interior
PLACE OF ENTRANCE ENSEMBLE
Collective place of local community
PLACE OF ENTRANCE ENSEMBLE

mobility function in its industrial history
PLACE OF ENTRANCE ENSEMBLE

Watertower-watchtower-backyard
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<td>Connecting MMC to its context from social, economic, spatial aspects</td>
<td>MMC was the social economic center of territory in its history. The current dilemmas of Beato are the result of its disconnection.</td>
<td>Place economic alternative in industrial MMC (connection to city and territory); Position social function in monumental MMC (connection to local community).</td>
<td>The square of MMC is of potential to become the community living center; The square in front of entrance ensemble formed as result of collective development. As the main part of the ensemble, the car workshop has a quality of mobility.</td>
<td>Compose social activities’ narrative from neighbor to MMC; Transform the entrance ensemble into a leisure center of local community. Disassemble the border to construct a spatial link between neighbor and MMC.</td>
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<td>Conserving its introverted site spirit within its border</td>
<td>The introverted enclosure of MMC represents the military industry function which relates to the recent Portuguese history.</td>
<td>Clarify the physical border of MMC; Leave narrow openings to connect MMC and its neighbors.</td>
<td>The ensemble is the meeting point of the industrial and monumental MMC. It faces two distinct worlds on two sides. The border on the entrance side is unclear, which blocks the neighbors’ street, composes a shifting route.</td>
<td>Enhance the distinction between outside and inside of MMC; Double the volume of MMC to strengthen its border.</td>
</tr>
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</table>
2 CONCEPT
CONCEPT
OF ENSEMBLE TRANSFORMATION
CONCEPT
OF ENSEMBLE TRANSFORMATION

Step 1: The original space composition

Step 2: Open up ground floor
The function of it is lost as result of opening

Step 3: Lift to first floor
Lacking of transitional layers on ground floor

Step 4: Add shelter on square side

Step 5: Double the volume on first floor
Internal space lost continuity and the quality of space on ground floor disappears.

Step 6: Transition to square side
CONCEPT OF ENSEMBLE TRANSFORMATION

social activity connection
program selection

Activity dimension correlates to spatial dimension,
CONCEPT OF ENSEMBLE TRANSFORMATION

function
**DESIGN APPROACH**

**Principle:** Bridging the border on social and spatial scale by enhancing the identity of a place.

**Connection:** Bridging social activities from neighbor to MMC by organizing space sequence and physical elements.

**Identity:** Enhancing the distinction between existing components and intervention to strengthen the sense of border, while developing the character of individual buildings.

**Tools**

- **Activity flow,**
- **Space layers,**
- **Vertical architectural elements,**
- **Horizontal architectural elements,**
- **Texture**

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*Sets of parallel vertical planes can be transformed to a wide variety of configurations, through which the spatial fields can be related to one another,*  

*Activity dimension correlates to spatial dimension,*  
3 ELABORATED DESIGN
SQUARE
activities flow from street to square on ground floor
CROSS SECTION
Major opening of this ensemble which leading to the square, distributing users’ flow to the market and square.
<table>
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<th>Passage/Classroom</th>
<th>Description</th>
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<tr>
<td><strong>Major Passage</strong></td>
<td>Having a complete facade view of existing building, with a narrow balcony.</td>
</tr>
<tr>
<td><strong>Cooking Classroom 1</strong></td>
<td>Quiet atmosphere sitting position, salad or dessert with full square view.</td>
</tr>
<tr>
<td><strong>Passage 2</strong></td>
<td>Having a complete view of ground floor facade, with a broad platform on top which originates two scales of space under one roof.</td>
</tr>
<tr>
<td><strong>Cooking Classroom 2</strong></td>
<td>Tall space standing position, vegetable or seafood cuisine, with passage view on the side.</td>
</tr>
<tr>
<td><strong>Passage 3</strong></td>
<td>Locates in between the end of market and equipment part, with a broad balcony on top which originates two scales of space under one roof.</td>
</tr>
<tr>
<td><strong>Cooking Classroom 3</strong></td>
<td>Tall space next to street, standing position, meat cuisine, with street view on the side.</td>
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</table>
EXISTING HALL-NEW SHELTER

layers of space on ground floor

Translucent facade   New timber structure   New timber structure   Existing wall   Market box   Existing wall

Walking, talking and short stay   Temporal market place, rest zone   Walking, talking and short stay   Walking, talking and short stay   Saling and shopping   Walking, talking
EXISTING HALL-NEW SHELTER
from new market place to square
FIRST FLOOR
Building 08, car workshop, industrial hall
FIRST FLOOR
Building 08, platform
FIRST FLOOR
Building 08, cooking classroom
Cross section through new shelter 1:20
CONSTRUCTION DETAILS

Construction detail of gutter between new and old, 1:5

- Double glazing skylight
- ROOF: profiled aluminium sheet, thermal insulation, waterproof membrane, structural plywood
- GUTTER: EPDM, rigid insulation 30mm, waterproof membrane, structural plywood 15mm
- EXTERIOR WALL: aluminium sheet, wooden batten 20mm, structural plywood 12mm, thermal insulation 100mm, waterproof membrane 2mm, plaster board 15mm
CONSTRUCTION DETAILS

Construction detail of gutter on new facade, 1:5

ROOF
- Profiled aluminium outer sheet
- Acoustic insulation 30mm
- Vapor barrier 3mm
- Profiled aluminium inner lining sheet

FACADE
- Perforated aluminium sheet
- Supporting frame

Outer sheet fixing bracket
CONSTRUCTION DETAILS
Construction detail of gutter on new facade, 1:5

- Existing steel trusses
- Profiled aluminium sheet
- I-shaped steel column
- Timber framed window
- Existing concrete wall
- Timber joist floor
CONSTRUCTION DETAILS

Construction detail of gutter on new facade, 1:5

- Existing steel trusses
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MATERIALISATION
new translucent facade on square side

Perforated aluminium sheet
translucent facade on square side

Cedar box
cooking classroom

Laminated timber frame
twin column

Concrete
existing inbetween facade of car workshop

Weathering steel box
container of market stores

Lime paint
existing wall on street side
cross section of watertower, 1:100

1:5 Detail - new steel structure connecting to existing concrete structure
CHARACTER OF EXISTING

Building 07, water tower from inner public street to water tower
CHARACTER OF EXISTING

Building 07, watertower from watertower to the street in front.
STRUCTURAL SCHEME

Structural scheme

existing

new structure
AXON

Skylight

Profiled aluminium roof

Laminated timber beam

Timber stud shear wall

Concrete slab foundation

Aluminium facade frame

Perforated aluminium facade
CLIMATE SCHEME

Street side climate scheme

Square side climate scheme
4 REFLECTION
INDUSTRIAL EXTERIOR

square side - translucent layering open to square

street side - doubled enclosed border
CHARACTER OF NEW

collective gallery of market place, rest zone, cooking classrooms and viewing platforms
LIVING CENTER BONDING MMC AND NEIGHBOR