THE URBAN SCULPTURE
the densification of the Binnenrotte combining a unifying skin and hybrid program with a cultural routing, an intervention on the Sint-Jacobsplaats Rotterdam

Teachers
Dr. ir. Nicola Marzot
Dr. ir. Susanne Komossa
ir. Jelke Fokkinga

Student
William de Ronde, 1520415
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Sint-Jacobplein Rotterdam

birds eye view of Rotterdam, Sint-Jacobplein
Site
Sint-Jacobplein Rotterdam

birds eye view of Rotterdam, Sint-Jacobplein, zoomed in
street view perspective

Site

the casbah, Sint Jacobsplaats

sunken railroad infrastructure, Sint Jacobsplaats
street view perspective

Site

the delfse vaart housing, Sint Jacobsplaat

the binnenrotte area, blauw area
street view perspective

Site

the casbah tower & the shell tower, Sint Jacobsplaats

adjacent road, pompenburg
Research

Based on the first perception of the Sint-Jacobslplaats,

reconstructed area in the 70’s/80’s,

complex formalities,

different densities
densification

Research

FSI (Floor Space Index) building intensity
- total floor surface / area
- increase of floor surface on a constant area results in a higher FSI=4

GSI (Ground Space Index) ground space
- footprint / area
- a decrease of the area and building with the same footprint results in a high value of the ground space index GSI>0.8

OSR (Open Space Ratio) open space in relation of the floors
- area / total floor area
- A decrease of the total square floors with a constant area results in a high value of the OSR.
axonometric drawing of the case studies

graph; Floor Space Index / Ground Space Index / Open Space Ratio

Hoogstraat
Statendam
Casbah Tower
Markthal
Hofdame
Water Bounded Dwellings
Heliport
de Meent
Kubus Dwellings

Research
densification
masterplan proposal

bird eye view of masterplan, East
translated into masterplan

Research

stacked densification of former masterplan, axonometric drawing

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Neighbourhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>hp. parking space</td>
<td>cc. community center</td>
</tr>
<tr>
<td>hr. residences</td>
<td>cp. parking space</td>
</tr>
<tr>
<td>towers</td>
<td>creative industries</td>
</tr>
<tr>
<td>tr. residences</td>
<td>cs. studios</td>
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<tr>
<td>rp. residences parking space</td>
<td>cp. parking space</td>
</tr>
<tr>
<td>pf. public serving functions</td>
<td></td>
</tr>
</tbody>
</table>
translated into masterplan section

Research

sections, former masterplan
Masterplan results plotted into graph

Research

FSI, GSI graph
Positive findings

- stacking floors in towers to create density

- Accessible public ground floor lifted landscape

- One building volume acts as a connecting element

Rethinking masterplan

- environmental quality of public space?

- perception of the local inhabitant?

- dialect with context?
Parameters of design

New framework

findings

circulation

Implementation

closing the formal system

existing formal systems

integrate existing green

creating point of attraction with intersection and activity
Spatial layers

masterplan

public route paved - nature / playground
Spatial layers

masterplan

public route paved - nature / playground
Spatial layers

masterplan

relation urban context / volume
Spatial layers

masterplan

Internal circulation
Design

Relation between volume and context

Enhancing sculptural quality with unifying building skin

Continuing public and business routing within the building volume
Eye perspective
design proposal
Eye perspective
design proposal
Volume diagram - functions

Design proposal

- 2300m² hotel lobby / hotel rooms
- 2300m² business lobby / offices
- 300m² bar/cafe
- 650m² meeting rooms
- 550m² auditorium
- 150m² sanitary space
- 580m² spa including pool / sauna
- 257m² restaurant
- 550m² formal lobby / exposition space
- 340m² staff offices / storage
- 1250m² local retail
- 600m² Health club / gym
- 5760m² housing / 3 roomS appartments with optional studio
- 2300m² business lobby / offices
- 300m² bar/cafe
- 650m² meeting rooms
- 550m² auditorium
- 150m² sanitary space
- 580m² spa including pool / sauna
- 257m² restaurant
- 550m² formal lobby / exposition space
- 340m² staff offices / storage
- 1250m² local retail
- 600m² Health club / gym
- 5760m² housing / 3 roomS appartments with optional studio
volume and spaces will form the backbone of the routing.

Interaction between business and public
Design
axonometric view
Cross section
Design proposal
Ground floor - +5500
axonometric view

FUNCTION
1. PUBLIC ENTRANCE accessible at day time
2. BUSINESS ENTRANCE accessible 24h
3. GYM
4. BUILDING SERVICE

PEOPLE CIRCULATION
- PUBLIC VISITORS
- HOTEL GUESTS
- OFFICES
- CONVENTION VISITORS
- BUILDING LOGISTICS / SERVICES
- URBAN ROUTING
Ground floor - +5500

Design proposal

Business entrance
Third floor - perspective

meeting garden, exposition space
Fourth floor
Design proposal

FUNCTION
9 OFFICE LOBBY
10 AUDITORIUM
11 MEETING ROOMS / WORKPLACES
Fourth floor
Design proposal
Fifth floor +20.800
Design proposal
Sixth floor/roof +20.800
Design proposal

FUNCTION

12 EXTERNAL POP STAGE
13 BAR/LEISURE AREA
14 HOTEL LOBBY
Sixth floor/roof +20.800
Design proposal

FUNCTION
12 EXTERNAL POP STAGE
13 BAR/LEISURE AREA
14 HOTEL LOBBY
Facade - building technology

Facade type / system

a wrapping building skin with variable openings

support structure

integrated sustainability
Elevation - facade

Design proposal
Elevation - principal facade fragment

Design proposal

equilateral triangle 60 degree angle

type 1 facade fragment public program 1:100

Elevation fragment 1:100

type 2 office program

type 3 housing program
Elevation - principal facade fragment

Design proposal

semi glass facade ‘3000’ applied in public / business spaces

full glass facade applied in urban voids

semi glass facade - housing - offices - hotel
Elevation - principal facade fragment

Design proposal
Elevation - principal facade fragment
detailed section
Primary support structure
Structure + stability cores
Primary support structure
structure+ floors
Structure fragments

Sample A-A

Sample B-B

Sample C-C
Climate section
overview

SOUTH-WEST

HWA

GREY WATER
Climate
cooling heating / generate energy

floor heating / cooling
integrated system within slimline floor

PV cells
Integrate replaceable PV par
generate electricity
Climate ventilation / water storage

Mechanical ventilation
*Floor intake - ceiling outtake*

*using decentral heat-exchangers*

Collecting rainwater green roof
*underground storage of gray water*
1. decentral heat exchanger
2. ventilation ducts, intake
   integration in beam shell
3. induction heater