MAASSILO ROTTERDAM

"A STURDY PLACE FOR EXPERIMENTATION"

P4 PRESENTATION

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8. REFLECTION
1. HISTORICAL INTRODUCTION
PHASE 1:
J.P. STOK - 1910
TOTAL CAPACITY: 20,000 TONS OF GRAIN

PHASE 1:

J.P. STOK - 1910
PHASE 2:
J.A. BRINKMAN & L.C. VAN DER VLUGT - 1931
TOTAL CAPACITY: 64,000 TONS OF GRAIN

J.A. BRINKMAN & L.C. VAN DER VLUGT - 1931

PHASE 2:

20,000
+44,000
TOTAL CAPACITY: 64,000 TONS OF GRAIN
PHASE 3:
A.G. & J.D. POSTMA - 1951
PHASE 3:
A.G. & J.D. POSTMA - 1951

TOTAL CAPACITY: 86,000 TONS OF GRAIN
PHASE 4:
H. HAAN - 1963

ADDITION OFFICE BUILDING
STATIC MASS IN A DYNAMIC ENVIRONMENT

Maassilo in Maashaven dynamic, 1956

harbour area Rotterdam, movement industrial activity

The industrial areas have shifted over time from being near the center of Rotterdam to the west side. That is caused by the expansion of the residential areas in toward the industrial areas. Thus, there is more space for Rotterdam to expand.

SCHAAL

1:4.000

Selected locations

Main transportation routes on land

industrial activity
residential, commerce
2004: NOW & WOW

Party at the Now&Wow, now Maassilo

source: maassilo.com
SILO TYPOLOGY

• Now&Wow only inhabited the space that was directly usable

silo typology
current situation
MISSED OPPORTUNITY PUBLIC SPACE

historical situation

current situation
2. VALUE ASSESSMENT
• building stands as a **physical testament** of the spirit of the New Objectivity in the Netherlands
DIRECT, HISTORICALLY BOUND AESTHETICS

- no ‘designed aesthetics’ (New Objectivity), but direct, bold aesthetics, reminding of the former function & construction process
- historical values present in aesthetical values
3. INTERVENTION STATEMENT
In order to give the Maassilo a future perspective, it must be given a new function in which its historical and aesthetical values are made part of a direct experience.
In order to give the Maassilo a future perspective, it must be given a new function in which its historical and aesthetical values are made part of a direct experience.

new function: **night club**
- takes building as found as an absolute starting point in experience, thus careful appreciation of the existing
- no focus on ‘detailed aesthetics’, but an active use of tangible qualities building
4. PROGRAM & STRATEGY
definition program:

- NIGHT CLUB, AS AN EXPERIMENTAL PLATFORM FOR CONTEMPORARY ELECTRONIC MUSIC, ART & TECHNOLOGY
- organised by event organisation (Mojo, Subbacultcha)
MUSIC SUBCULTURES SINCE WWII

Rise of the middle class consumer society triggered an emergence of youth subcultures which defined the collective identities of entire generations. 80s economic neo-liberalisation and the shift towards individualist society, fragmented and sped up the process of their accumulation, ultimately merging individual subcultures into a flickering blur of continuously emerging and evolving identities.

27 October 1986
“Big Bang”, deregulation of financial markets

MoS opens
CONCLUSION TEMPORARY/PERMANENT INVENTARISATION

TEMPORARY:

- space ‘as found’ meets functional demands nightclub
- informal space: aesthetical use of space can be left to user

PERMANENT:

- functional demands nightclub consumes space ‘as found’
- aesthetically defined space: little spatial interpretation possible

“kunstlokaal”, De School, Amsterdam (since 2016)
source: Instagram

Toffler, Rotterdam (since 2011)
source: partyflock.nl
How can the multi-layered quality of the sturdy Maassilo be structurally reinvented, so that it facilitates and allows space to the volatile nature of a night club?
**STRATEGY**

**design aim: design a sturdy basis for flexible future use**

- clear **distinction temporary/permanent** (structure/stuff) design decisions
- make effective use of the physical, **protective** qualities of the building (f.e. silos as buffers)

• **facilitate use**: infrastructure, logistics (as seen in permanent venues)

• **trigger use**: in spatial experience of silo cuts, it must be left to users to ‘disrupt the order’

“Shearing layers” (Stewart Brand - How buildings learn 1994)
5. RELATION PUBLIC SPACE
RESTRICTIONS & OPPORTUNITIES

silo clusters: high historical value + potential aesthetical value, low use value
plofroosters: high aesthetical value
funnels: high historical + aesthetical value

roof & facades attic: indifferent value
facade ground floor: low historical + aesthetical value

section Brinkman & Van der Vlugt - existing

high value
t medium value
t low value

[Diagram with color-coded sections and labels indicating value assessments]
GLOBAL OVERVIEW INTERVENTIONS

- large spaces are cut out of the silos
- ground floor is opened up to the quay
- small scale bars in elevator towers
- entrances penetrate ceiling ground floor
- roof is partly demolished

section Brinkman & Van der Vlugt - new
GLOBAL OVERVIEW INTERVENTIONS

facade opening marks entrance

section Brinkman & Van der Vlugt - new (night)
GROUND FLOOR - DAY

- building functions as gate between north and south
- small scale functions in elevator towers (coffee etc.)
- entrance zones are closed to the public at daytime, but can be used incidentally by club (silent disco, dance lessons, record label market, art installations etc.)
- public shifts from quay to sheltered plateau
- during club hours, ground floor functions as entrance zone
- club is accessible from all directions
• funnels play key role in moment of anticipation
- Steel fence encloses entrance zone
- Height of plateau 1.3 m
GROUND FLOOR - NIGHT

HYPOTHETICAL EVENTS

• GROUND FLOOR AS BUFFER SPACE (4600 m²)

LARGE SCALE CULTURAL EVENT (ABOVE AND BELOW GROUND FLOOR):
4100 PEOPLE

4 CONCERTS (ABOVE AND BELOW GROUND FLOOR):
2200 PEOPLE

3 CONCERTS (ABOVE GROUND FLOOR):
1200 PEOPLE
• accent on gate function by large exterior cutout in the heart of the building, supported by a new steel structure that rests on the original columns

• two slits in the facade mark the entrance zones under the funnels
6. FLOW
FACILITATING USE

strategy:
• **facilitate use**: infrastructure, logistics
  (as seen in permanent venues)
FRONTSTAGE/BACKSTAGE LOGISTICS

ground floor

heavy duty elevator
staff elevator
loading dock
artist entrance
truck entrance

ground floor
FRONTSTAGE/BACKSTAGE LOGISTICS

- beer tank
- storage stage supplies
- elevator connects both sides
- first aid team

floor plan silo cutouts
• moves from space to space: entrance zones, exhibition spaces and lounge are part of route
• quick route from dance hall to dance hall
• quick route made recognisable by individual lighting
COINCIDING OF FLOWS
ESCAPE ROUTES

• all dance halls are separate smoke compartments
• max crowd in dance halls: 1200 (2/sqm)
• staircases (without entrances) dimensioned for 2400 people

Hall A: 600 people
Hall B: 200 people
Hall C: 400 people
7. LAYERS IN TIME
strategy:
• clear distinction temporary/permanent design decisions
CUTS

30+ years
SUPPORT STRUCTURES AND FLOORS

5-10 years
FUNCTIONAL INFILL

seconds
AESTHETICAL USE
strategy

• **trigger use**: in spatial experience of silo cuts, it must be left to users to disrupt the order
POSITION CUTTING LANGUAGE

CONICAL INTERSECT, PARIS, GORDON MATTA-CLARK
apollo-magazine.com

BUNKER 599, A2, RAAAF + ATELIER DE LYON
archdaily.com

ZEITZ MOCAA, CAPE TOWN, HEATHERWICK
dezeen.com

ROUGH

PRECISE

REFINED

- STRONG ORDER IN CUT
- ORDER TRIGGERS DISRUPTION
- ACT IS DRAMATISED
UNITY OF SKIN AND STRUCTURE

The Maassilo is built as a highly functional building. Not only in its layout, but also in its appearance. Many buildings have a skin that can be regarded separately from the structure. This has to do with the fact these buildings should represent something more than merely the technical logic of the building itself. These buildings have a face.

The Maassilo does not have such a face. The facade is no more than the functional limit of silo groups. In the most parts, it has exactly the same thickness and structure as the inner silo walls. As can be seen in the drawing to the right, the beams extend in the facade. Thus, the facade presents us with a functional and structural logic rather than an aesthetic principle. It should be noted however, that although the facade hints at the internal logic of the building, it does not in any way tell the observer anything about the spatial composition of the silos and the rest of the interior.
Brinkman & Van der Vlugt (1931)  
Stok (1910)

horizontal section silo cells
OPPORTUNITY: SPATIAL MULTIPLICITY SILO TYPOLOGIES

Brinkman & Van der Vlugt (1931)
- orthogonal grid, identical cells, slender
- silo height: 27 m
- silo wall thickness: 16 cm

Stok (1910)
- octagonal pattern, diverse cells, robust
- silo height: 16 m
- silo wall thickness: 22 cm

*horizontal section silo cells*
CELEBRATING MULTIPLE SILO TYPOLOGIES

Brinkman & Van der Vlugt (1931)
*orthogonal grid, identical cells, slender*

- silo height: 27 m
- silo wall thickness: 16 cm

**Brinkman & Van der Vlugt:**
- two extruded cuts
- clear linear direction suggests cutting action
- opposed relation to silo height:
  - Hall C: cut transcends silo height
  - Hall B: cut withstands silo pressure
CELEBRATING MULTIPLE SILO TYPOLOGIES

horizontal section silo cells
CELEBRATING MULTIPLE SILO TYPOLOGIES

Hall C: structure (white) aids in transcending silo height

Hall B: make scale silos felt by showing their pressure on structure (black)
CELEBRATING MULTIPLE SILO TYPOLOGIES

- treat silos as separate entities that shelter dynamic use
- cut consists of two squares, turned 45 degrees
- cuts are made so that rooms are formed that shelter space in center

Stok (1910)

*octagonal pattern, diverse cells, robust*

- silo height: 16 m
- silo wall thickness: 22 cm
CELEBRATING MULTIPLE SILO TYPOLOGIES

*horizontal section silo cells*

*Hall A*
CELEBRATING MULTIPLE SILO TYPOLOGIES

Hall C: multiple (acoustic) rooms around centre stage
CUTTING TECHNIQUE

- straightest cuts are achieved with blade saw

- demolition costs around 50,000 per dance hall (costs for sawing, demolition, and waste dump)
- demolition time around 1 month per dance hall with one demolition robot

- further demolition with demolition robots: big reach, go through small openings
DEMOLITION DIRECTION

- focus area: hall B
DEMOLITION DIRECTION

- with of windows (1 meter) follows dimensions robot (0,8 meter)
- waste dump route later used for quick route
maximum reach demolition robot (HUSQVARNA DXR310): 5.5 meter
space 8 meters high, made in two phases, visible in window pattern
• blade saw leaves traces that indicate demolition direction
• traces remain visible in placement of window
CUTS

SUPPORT STRUCTURES AND FLOORS

FUNCTIONAL INFILL

AESTHETICAL USE
1. cuts

- 30+ years: SUPPORT STRUCTURES AND FLOORS
- 5-10 years: FUNCTIONAL INFILL
- seconds: AESTHETICAL USE
2. support structure

- steel comes in place of concrete
2. support structure

- connection concrete and steel structures by claws
1. cut through structural know
2. placement first part claw, chemical anchoring to concrete
3. placement second part claw
4. bolted connection two parts
5. square plate, bolted connection
6. beam/column connected to claw
• claw connected independently of cutting surface:
  - demolition traces cannot form problem
  - act of cutting is legible
  - also suitable for angled cut
2. support structure

| 30+ years | SUPPORT STRUCTURES AND FLOORS |
| 5-10 years | FUNCTIONAL INFILL |
| seconds | AESTHETICAL USE |
3. secondary beams
• floors in spaces to stay are cast in situ (not reversible)
• floors in spaces to move (corridors and bridges): steel construction covered with steel tread plate
• concrete floors are polished for easy maintainance, finished with transparant anti-slip polyurethane coating
<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>30+ years</td>
<td>Support Structures and Floors</td>
</tr>
<tr>
<td>5-10 years</td>
<td>Functional Infill</td>
</tr>
<tr>
<td>seconds</td>
<td>Aesthetical Use</td>
</tr>
</tbody>
</table>

**CUTS**

**HISTORICAL INTRODUCTION**

**VALUE ASSESSMENT**

**INTERVENTION STATEMENT**

**PROGRAM & STRATEGY**

**RELATION PUBLIC SPACE**

**FLOW**

**LAYERS IN TIME**

**REFLECTION**
**Noise Plan - External**

- Use row of silos facade as noise buffer
- With one silo as noise buffer, noise peaks are 40 dB at 16 meters from facade
- 40 dB is acceptable as noise average over the day

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**Historical Introduction**

**Value Assessment**

**Intervention Statement**

**Program & Strategy**

**Relation Public Space**

**Flow**

**Layers in Time**

**Reflection**
NOISE PLAN - INTERNAL

- problems occur in the interior, from one hall to another
- for maximum flexibility, noise levels from other halls must be reduced to a minimum
- flanking sound bass frequencies difficult to predict
- to be sure, middle hall (hall B) made as box-in-box
4. floors

3D+ years
Support Structures and Floors
5-10 years
Functional Infill
seconds
Aesthetic Use
5. secondary structures

- secondary walls and structures are placed on permanent layer to fulfill a particular function
5. secondary structures

- box in box function hall B
HALL B - BOX IN SILO VOID

- 2x laminated double glazing, 12.8 - 20A - 16.8
  \[ R_{125\text{Hz}} = 35 \text{ dB (each)} \]

- hatted up floor system, rubber mounting, air gap (8 cm) based on low frequency reduction
  \[ R_{100\text{Hz}} = 59 \text{ dB} \]

- hall C

- hall B

- hall B - box in silo void
### 5. secondary structures

<table>
<thead>
<tr>
<th>Cuts</th>
<th>Support Structures and Floors</th>
<th>Functional Infill</th>
<th>Aesthetic Use</th>
</tr>
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<tbody>
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- sound insulation measures makes open connection to void possible
6. machines, services, insulation

- silo assumes bar function, connected to the infrastructure, already made in layer 1: cuts
6. machines, services, insulation

**hall B:**
- mechanical air conditioning (cooling, dehumidifying, 40-60% RH, 18 °C, air inlet 10 °C at 3 m/s)
- floor heating during 2 hours prior to club hours/concert

**expo/bar area:**
- mechanical ventilation (only fresh air supply)
- continuous low temperature floor heating
• goal is informal spatial experience
• therefore, infill serves specific function, ‘industrial’ aesthetics follow

6. machines, services, insulation
**FUNCTIONAL AESTHETICS**

- perforated sheet follows functional demands

- **demands:**
  - thermal insulation
  - acoustic absorption

- **infill:**
  - thermal insulation blanket, sealed in special acoustically open PU foil (as used in gymnasium)

- **covering:**
  - perforated galvanized steel sheet
FUNCTIONAL AESTHETICS

- black L- and T- profiles make ‘cold’ placement on concrete legible, resulting in thermal bridge
- serve the story of intruding rather than function

- demands:
  - thermal insulation
  - acoustic absorption

- infill:
  - thermal insulation blanket, sealed in special acoustically open PU foil (as used in gymnasia)

- covering:
  - perforated galvanized steel sheet

VALUE ASSESSMENT

INTERVENTION STATEMENT

PROGRAM & STRATEGY

RELATION PUBLIC SPACE

FLOW

LAYERS IN TIME

REFLECTION
NON-INSULATED ZONE
NON-INSULATED FACADE OPENING

- coming as close to cuts as possible
- detailing as ‘cold’ as possible, steel against concrete
- profiles behind ridges, act of cutting visible
POSITION FACADE REPAIR

• functional approach: make necessary repairs (replacing rebars + repair mortar / cathodic protection)

• again, also aesthetic decision that serves story of intruding

• north facade Brinkman & Van der Vlugt
6. machines, services, insulation
7. floor paint

- hard-wearing PU coating, wine red
- aesthetical choice, but also functional in anticipation on next layer
CUTS

30+ years
SUPPORT STRUCTURES AND FLOORS

5-10 years
FUNCTIONAL INFILL

seconds
AESTHETICAL USE
### 7. floor paint

<table>
<thead>
<tr>
<th>Time</th>
<th>Cuts</th>
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</table>
8. light and sound

- no paint adjacent to hall B, focus on light and colour hall B
8. light and sound

- no paint adjacent to hall B, focus on light and colour hall B
8. light and sound

- coloured floor expo/bar area separates spaces (also reason for small height difference)
8. light and sound

- red weakest colour, functions as in cinemas/theatres
<table>
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<th>Duration</th>
<th>Description</th>
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</table>

9. people

- people come and go
REFLECTION
research question:

*How can the multi-layered quality of the sturdy Maassilo be structurally reinvented, so that it facilitates and allows space to the volatile nature of a night club?*

- facilitate use: logistics, routing, basic infrastructure
- making use of physical qualities silos: silos as buffer for external noise
  - use of box-in-box questionable, but it also brought quality to the experience of that space and the cuts
- triggering use: follow order of silos in cuts, so people are triggered to disrupt that order
  - shortcut route important for flow, useful but not necessary in demolition process, but also aesthetical choice that is not easy to change (therefore questionable)
- position: important to regard heritage projects per case. In this case, a highly expressive and intensive function comes to a building with very imposing aesthetics. Therefore, “functional infill” level is kept to minimum.
extra slides
“Thus, space relates to music in the most general sense: music is spatial because a certain sound quality (influenced by the size of performance space) is associated with different genres and types of instrumentation.”

M.A. Harley - Space and Spatialization in Contemporary Music (1994)
VENTILATION HALL B

- box is ‘plugged in’
- use of row higher silos attic for machinery (roof opened)
removal roof, roof garden
Mash-up of tastes and identities dissolves into the white noise of total neutrality...

1985
Area
Fellini party

2015
London, UK