THE INTEGRATED HYBRID

MSC4 AT HOME IN THE CITY | AMSTERDAM

Taylor Wiesner, 4257995
26 June, 2014

Tutors: Birgit Jürgenhake
        Paul Kuitenbrouwer
        Ype Cuperus
Building Impression from South-East
Building Impression from South-West
Building Impression from North-West
Site: Oostelijke Handelskade - The Last Gap
Site Analysis - Key Points

Existing Adjacent Public Gathering Space

<table>
<thead>
<tr>
<th>Location</th>
<th>Length of Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oostelijke Handelskade</td>
<td>5.5 years</td>
</tr>
<tr>
<td>Amsterdam East</td>
<td>7.4 years</td>
</tr>
<tr>
<td>Amsterdam</td>
<td>8.3 years</td>
</tr>
</tbody>
</table>

Average Length of Residence
Problem Statement & Research Questions

Problem Statement:

The Oostelijke Handelskade area lacks a true integrated gathering point for the public. In regard to the existing housing stock in the area, it is unadaptable. In short, the Oostelijke Handelskade area lacks flexible dwellings that can accommodate the current and future needs of dwellers.

Research Questions:

How can a hybrid building combine dwellings with public functions?
How can a flexible dwelling design meet the dwellers’ current as well as future needs?
Existing Situation

Site Situation

Situation at West

Situation at East

SOURCE: HTTP://CYCLEROUTES.WORDPRESS.COM/

SOURCE: HTTPS://MAPS.GOOGLE.COM
Massing - Opportunity

Opportunity to Link East and West
Massing - Progression
Massing - Progression

Continuity with Massing to East
Massing - Progression

Continuity with Massing to West
Massing - Progression

Resulting Maximum Volume as Link to East and West
Massing - Progression

Pedestrian ‘Street’ Through Existing Buildings is Not Functioning
Massing - Progression

Human Scale Plinth Formed from Continuation of Pedestrian ‘Street’
Massing - Progression

Second Plinth to Form Connection with Warehouses
Massing - Progression

Deletion of Mass to Allow Sun to Penetrate to Core
Sun Analysis

June 21
4:21 AM

9:02 PM

12:00 PM

E

N

S

W

Summer Solstice
Sun Analysis

Winter Solstice

December 21

8:51 AM

12:00 PM

4:24 PM
Theme Research - The True Hybrid Building

Mental Model for the True Hybrid Building

1: Project Scale: “Building-As-A-City”

2: Urban Density: Reacts to Urban Context

3: Function Diversity: Combines Unexpected Functions

4: Function Scale: Smaller Functional Blocks

5: Function Integration: Integration Visually and/or Physically

6: Flexibility: Accommodates Future Needs

7: Vertical Connections: Promote Integration

8: Integrated Public Gathering Space: Public Domain Extended Horizontally and Vertically
“The hybrid design task is not geared to an endpoint but to a strategy: the goal is to find an unambiguous motive for every situation.”

---

1 Clemens Steenbergen, Henk Mihl, Wouter Reh, and Ferry Aerts, Architectural Design and Composition (Bussum: THOTH Publishers, 2002), 208
Program Research
Program

LEGEND

- Dwelling
- Study Library
- Short-Stay Housing/Hotel
- Parking
- Circulation/Storage

Program Axonometric

Ground
Library Interior Impression
Plan - Second Floor

LEGEND
- Dwelling
- Study Library
- Short-Stay Housing/Hotel
- Parking
- Circulation/Storage
Communal Space Impression
Short-Stay Housing/Hotel Rooms and Shared Kitchen
Plan - Sixth Floor

LEGEND
- Dwelling
- Study Library
- Short-Stay Housing/Hotel
- Parking
- Circulation/Storage

Scale

MSC4 AT HOME IN THE CITY | AMSTERDAM

P5 Presentation | Taylor Wiesner
Section - Eastern Portion of Building

LEGEND

Dwelling

Study Library

Short-Stay Housing/Hotel

Parking

Circulation/Storage

Level 9
33.7

Level 8
30.4

Level 7
26.6

Level 6
22.8

Level 5
19.0

Level 4
15.2

Level 3
11.4

Level 2
7.6

Level 1
3.8

Ground
0.0

Level -1
-3.5

Scale

0
2

MSC4 AT HOME IN THE CITY | AMSTERDAM

P5 Presentation | Taylor Wiesner
Section - Western Portion of Building

LEGEND
- Dwelling
- Study Library
- Short-Stay Housing/Hotel
- Parking
- Circulation/Storage
Section Western Portion of Building - Private Path To Dwelling
Please join me at the model...
Dwelling Typologies

Dwelling Type ‘A’ - 123 M2

Dwelling Type ‘B’ - 89/113 M2

Dwelling Type ‘C’ - 135 M2

Situation - Lower Level

Situation - Upper Level

SOHO (Second Storey)

Gallery
Dwelling Typology Situation

Situation - Dwellings with Shared Kitchen

Dwelling Type ‘D’ - 97/121 M2

Gallery/Communal Space
Shared Kitchen

Dwelling Typology Situation
Dwelling Type ‘A’ Flexibility

Public SOHO

Increased Living Space & Private SOHO

Increased Living Space & Private SOHO
Dwelling Type ‘B’ Flexibility

- **Public SOHO**
- **Private SOHO**
- **SOHO as Small Apartment**
Dwelling Type ‘C’ Flexibility

SOHO from Lower Unit

Secondary Bedrooms on Main Level

Master Bedroom on Main Level

Lower Level Master Suite

Lower Level Atelier

Gallery

Scale 0 1

Scale 0 1
Dwelling Type ‘D’ Flexibility

- Shared Kitchen for Two Dwellings
- Gallery/Communal Space
- Shared Kitchen Divided
- Gallery/Communal Space

Scale 0 1

PRODUCED BY AN AUTODESK STUDENT PRODUCT
Shared Kitchen Interior Impression
Dwelling Section

Gallery (In Atrium)

Balcony

Scale
Dwelling Plan Type ‘A’

Wall Assembly Types

- **Copper Facade**
  - Exterior: Copper Facade Panel
  - Interior: 13mm Fire-Stop Plasterboard
  - Insulation
  - Vapor Barrier
  - 2 Sheets Shear Plane

- **Wood Facade (In Atrium)**
  - Exterior: Wood Facade Panel
  - Interior: 13mm Fire-Stop Plasterboard
  - Insulation
  - Vapor Barrier
  - 2 Sheets Shear Plane

- **Plaster Facade (In Atrium)**
  - Exterior: Plaster Facade Panel
  - Interior: 13mm Fire-Stop Plasterboard
  - Insulation
  - Vapor Barrier
  - 2 Sheets Shear Plane

- **Dwelling Separation Wall**
  - Exterior: 13mm Fire-Stop Plasterboard
  - Interior: 13mm Fire-Stop Plasterboard
  - Insulation
  - Vapor Barrier

- **Partition Wall**
  - Exterior: 13mm Fire-Stop Plasterboard
  - Interior: 13mm Fire-Stop Plasterboard
  - Insulation
  - Vapor Barrier

**Wall Fill Color**

- **Exterior**
  - Black

- **Interior**
  - Gray

**Gallery**

**SOHO**
Structural Requirements

1. Open plans in commercial areas

2. Ability to combine dwellings

3. Provide structure without beams

4. Achieve cantilevers

5. Incorporate pipes and ducts into slab


Holedeck Cast In Place Bidirectional Voided Concrete Slab

**Slab System Starting Point**
Structural Requirements

1. Open plans in commercial areas

2. Ability to combine dwellings

3. Provide structure without beams

4. Achieve cantilevers

5. Incorporate pipes and ducts into slab
Cast In Place Bidirectional Voided Concrete Slab Assembly
Cast In Place Bidirectional Voided Concrete Slab & Floor Assembly

- Finished Floor Over Wood Sub-Floor
- Rigid Stone Wool Insulation Module
- Pipe
- Concrete
- #19 Reinforcement
- #13 Reinforcement
- Rigid Stone Wool Insulation Module
- (2) Sheets Fire-Stop Plasterboard
Concrete Column at Voided Concrete Slab (Typical)

- **4Mx1.2M Concrete Column**
- **Filled Concrete Void**
- **Rigid Stone Wool Insulation Module**
- **(2) Sheets Fire-Stop Plasterboard**
- **#32 Reinforcement**
- **#13 Reinforcement**
- **500mm**
Structural Diagram

Concrete Column
Concrete Core

11.7M
Section - Double-Height SOHO

Future Lightweight Floor System for Second Storey in SOHO
Main Atrium Climate Diagram

Cool Air Enters North Facade

Hot Air Exits Roof

Sound Blocked Through Closed South Facade
Detail - Curtain Wall Type 1 (N. & E. Facades)

Exterior

Interior
(Atrium)

Steel Support Frame
Aluminum Mullion
6mm Glazing
5mm Glazing

Detail - Curtain Wall Type 2 (S. Facade)

Exterior

Interior
(Atrium)

Aluminum Mullion
5mm Glazing
6mm Glazing
Atrium Extension Climate Diagram

- Hot Air Exits Roof
- Semi-Transparent Photovoltaic Glazing (PV at East Atrium Roof)
- Hot Air Exiting Roof Vent
- Cool Air Enters North Facade
- Hot Air Exits East Facade
Balanced Ventilation Dwelling Diagram

- Cool Air Enters Facade Vent
- Warm, Fresh Air Enters Dwelling
- Exhaust Air Enters Heat Recovery Unit to Warm Fresh Air
- Exhaust Air Exits Through Duct Horizontal Heat Recovery Unit
- Horizontal Heat Recovery Unit
- Exhaust Air Exits Through Duct
- Heat Exchanger Vent at Facade
Exterior Facade Design & Materialization Requirements

1. Ability to be Dynamic for Aesthetic & Solar Purposes

2. Ability to Contribute to Clean Form

3. Contrast with Surroundings and Stand Out
North Elevation

South Elevation

Glazing with Operable Copper Facade Shutter in Front
Section - Exterior Facade

Elevation - Exterior Brushed Copper Facade
Operable Perforated Brushed Copper Facade Shutter
Detail - Roof

- Copper Fascia Cap
- Base Flashing
- Wood Cant
- Water-Proofing Layer
- Multiple-Ply Roof Membrane
- Wood Nailer
- Rigid Stone Wool Insulation
- Brushed Copper Facade Panel with Anti-Tarnish Coating
- Insulated Sheathing
- Voided Concrete Slab

Detail - Sliding Door 1 Head & Base

- Motor for Facade Shutter
- Aluminum Sliding Door Frame
- Operable Perforated Brushed Copper Facade Shutter with Anti-Tarnish Coating
- 25mm Open-Cell Acoustical Foam (On Shutters at South-East Facade Only)
- 6mm Tempered Glass Balustrade
- Finished Floor
- Wood Sub-Floor
- Copper Flashing
- Wood Cant
- Aluminum Track
- Rigid Stone Wool Insulation Module

- (2) Sheets 13mm Fire-Stop Plasterboard
- 152mm Metal Stud
- 6mm Glazing
- 5mm Glazing
- 25mm Open-Cell Acoustical Foam (On Shutters at South-East Facade Only)
Detail - Building at Ground

- Flashing
- Slate Tile
- Concrete Slab
- Rigid Insulation
- Soil
- Waterproofing
- Voided Concrete Slab
- Vapor Retarder Layer
- Gravel Drainage Layer
- Concrete Pile Beam
- Concrete Pile

Diagram showing interior and exterior elements of a building at ground level, including materials and layers.
Building Impression from North-West
Building Impression from South-East
Building Impression from South-West
Detail - Sliding Door 2 Head & Base

- Exterior (Atrium)
  - Rigid Stone Wool Insulation Module
  - Metal Stud
  - Motor for Facade Shutter
  - Aluminum Sliding Door Frame

- Interior
  - 6mm Glazing
  - 5mm Glazing
  - 6mm Tempered Glass Balustrade
  - Operable Wood Louver
  - Wood Deck
  - 19mmx100mm Wood Sleeper
  - Waterproofing Layer
  - Rigid Stone Wool Insulation Module
  - 150mm Rigid Fire Barrier
Reflection: The Inegrated Hybrid is a True Hybrid Building

Mental Model for the True Hybrid Building

1: Project Scale:  
“Building-As-A-City”

2: Urban Density:  
Reacts to Urban Context

3: Function Diversity:  
Combines Unexpected Functions

4: Function Scale:  
Smaller Functional Blocks

5: Function Integration:  
Integration Visually and/or Physically

6: Flexibility:  
Accommodates Future Needs

7: Vertical Connections:  
Promote Integration

8: Integrated Public Gathering Space:  
Public Domain Extended Horizontally and Vertically
1: Project Scale: “Building-As-A-City”
2: Urban Density: Reacts to Urban Context

Link in Urban Context
3: Function Diversity: Combines Unexpected Functions

- Study Library
- Short-Stay Housing/Hotel
- ?

Program Axonometric
4: Function Scale: Smaller Functional Blocks

Single Study Library Program Block

Smaller Program Blocks
5: Function Integration:
Integration Visually and/or Physically

Physical Integration

Visual Integration
6: Flexibility: Accommodates Future Needs

Bidirectional Voided Concrete Slab

Column Structure

Horizontal Flexibility

Vertical Flexibility

Flexibility:
Accommodates Future Needs

Concrete Core
Concrete Column

MSC4 AT HOME IN THE CITY | AMSTERDAM

P5 Presentation | Taylor Wiesner
7: Vertical Connections: 
Promote Integration

Atrium Impression

Shared Vertical Connections
Integrated Public Gathering Space: Public Domain Extended Horizontally and Vertically

Public Domain Extended Horizontally and Vertically
Reflection: The Integrated Hybrid is a True Hybrid Building

Mental Model for the True Hybrid Building

1: Project Scale: “Building-As-A-City”

2: Urban Density: Reacts to Urban Context

3: Function Diversity: Combines Unexpected Functions

4: Function Scale: Smaller Functional Blocks

5: Function Integration: Integration Visually and/or Physically

6: Flexibility: Accommodates Future Needs

7: Vertical Connections: Promote Integration

8: Integrated Public Gathering Space: Public Domain Extended Horizontally and Vertically
Thank you!