THE GREAT MINIMUM
Fixed and flexible strategy for housing migrant workers in portiek dwellings
Housing of Migrant Workers

Poorly Maintained Dwellings

Jo van den Broek (1898-1978)
Problem statement

The dwellings in the Carnisse Eilandenuurt are outdated on technical and functional level. Besides the way migrant workers are housed (in the Eilandenuurt) is substandard.
Research Question

How can we ensure a longer lifespan for the portiek flats in the Carnisse Eilandenbuurt and how can we solve the problem with the housing of migrant workers?
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I. Context:

Carnisse & Het Nieuwe Bouwen
I. Carnisse - Eilandenbuurt
I. Facilities

Source: Bing maps
I. Closed building block

‘Opbouw’ & ‘Algemeen Belang’ critical to closed building block
I. Open building block

1929 - Van den Broek starts study to portiek dwellings
1938 - Algemeen Belang accepted the portiek typology
I. End facade addition

Addition of shops for urban integration
Amelandsestraat ca. 1946

Source: Gemeente Archief Rotterdam
Flakkeesestraat 1942

Source: Gemeente Archief Rotterdam
I. Value assessment

- User & social value
- Historical & design value
- Context & urban value
- Management value
- Contemporary & object value
- Sustainable value
I. Value assessment

- User & Social value
- Historical & Design value
- Context & Urban value

-Cheap housing
-Switch bay
-Dwelling differentiation

Generic layout
II. theme research:

The Minimum Dwelling
II. Historical Minimum Dwellings

Rotterdam
Wielewaal

Rotterdam
Kiefhoek
II. Storage
II. Characteristic Room
II. Contemporary Minimum Dwellings

New York City
6 in 1 Apartment

Barcelona
Tiny Home Cube
II. Storage
II. Characteristic Room
III. TARGET GROUP RESEARCH:

MIGRANT WORKERS
III. Present situation

Dwellings

People
III. Present situation

Dwellings

Average value in Carnisse
€ 96,000

Average value in Rottedam
€ 148,000

High rate of private ownership

Lack of maintenance by Home Owner Associations (VVE’s)
III. Present situation

Arrival Neighbourhood
(Doug Saunders)

10-15% Eastern European migrants

Strong signs of unregistered migrants

Source: Doug Saunders (2012) Arrival City
### III. Carnisse: Migration Neighbourhood

- **1950’s**
  - Zeeland
  - Groningen

- **1960’s**
  - Turkey
  - Morocco

- **1970’s**
  - Antillis
  - Suriname

- **2000’s**
  - Poland
  - Bulgaria

- **Future..**

*Source: Steenbergen, F. van & Wittmayer, J. (2012) Carnisse in transitie?*
III. Present situation

Poorly maintained dwellings

High number of temporary migrants
III. Skin vs. stuff

III. VALUE ASSESSMENT

- User & social value
- Historical & design value
- Sustainable value
- Contemporary & object value
- Management value
III. **Value assessment**

**User & social value**
- Problems with housing of migrants
- Cheapest dwellings in Rotterdam
- High removal rate

**Contemporary & object value**
- Poorly maintained dwellings
- Unsustainable dwellings

**Context & urban value**
- Stony street image
- Facilities nearby
IV. design:

Fixed & Flexible
IV. Concept

**Fixed**

**Flexible**
IV. CLIMATE INSTALLATIONS
IV. Hot & Cold Water
IV. Heating
IV. Electricity
IV. Electricity
IV. Present situation

**FACADE**

\[
R_{\text{FACADE}} = R_{\text{BRICKWORK}} + R_{\text{WALL FINISHING}}
\]

\[
R_{\text{FACADE}} = 0.3 + 0.1 = 0.4 \text{ m}^2\text{K/W}
\]

\[
R_{\text{BRICKWORK}} = \frac{d}{\lambda}
\]

\[
R_{\text{BRICKWORK}} = 0.22 \text{ m} / 0.80 \text{ W/mK} = 0.3 \text{ m}^2\text{K/W}
\]

**ROOF**

\[
R_{\text{ROOF}} = R_{\text{BITUMEN}} + R_{\text{TIMBER}}
\]

\[
R_{\text{ROOF}} = 0.1 + 0.3 = 0.4 \text{ m}^2\text{K/W}
\]

\[
R_{\text{BITUMEN}} = \frac{d}{\lambda}
\]

\[
R_{\text{BITUMEN}} = 0.01 \text{ m} / 0.20 \text{ W/mK} = 0.05 \text{ m}^2\text{K/W}
\]
IV. After intervention

**FACADE**

\[ R_{\text{FACADE}} = R_{\text{BRICKWORK}} + R_{\text{INSULATION}} + R_{\text{WALL FINISHING}} \]

\[ R_{\text{INSULATION}} = \frac{d}{\lambda} \]

\[ R_{\text{BLAUWPLAAT}} = 0.08 \text{ m} / 0.020 \text{ W/mK} = 4.2 \text{ m}^2\text{K/W} \]

\[ R_{\text{FACADE}} = 0.3 + 4.2 + 0.1 = 4.6 \text{ m}^2\text{K/W} \]

**ROOF**

\[ R_{\text{ROOF}} = R_{\text{GREEN ROOF}} + R_{\text{INSULATION}} + R_{\text{TIMBER}} \]

\[ R_{\text{BITUMEN}} = \frac{d}{\lambda} \]

\[ R_{\text{BITUMEN}} = 0.01 \text{ m} / 0.20 \text{ W/mK} = 0.1 \text{ m}^2\text{K/W} \]

\[ R_{\text{ROOF}} = 0.3 + 5.5 + 0.3 = 6.1 \text{ m}^2\text{K/W} \]
IV. Regulations

100 M2 FLOOR SPACE

12 M2 PER PERSON

Source: Convenant Huisvesting Arbeidsmigranten
IV. Program

MAXIMUM OF 8 PEOPLE PER FLOOR
IV. Regulations

One shower & one toilet per eight people

Source: Convenant Huisvesting Arbeidsmigranten
IV. Regulations

**Shared room:**
4 m² per person

**Private room:**
5 m² per person

Source: Convenant Huisvesting Arbeidsmigranten & Bouwbesluit 2012
IV. Room types
IV. Single Room
IV. Single room

5.5 m²
IV. Double room
IV. Double room

8,2 m²
IV. Dorm room
IV. Dorm room

16 M²
IV. Urban situation
IV. Strip block
IV. Portiek
IV. Dwelling
IV. VARIANTS
IV. Urban situation
IV. Urban situation
IV. Urban situation

Present situation
IV. Urban situation

New situation
IV. Original Plan
IV. Plan
IV. Bedrooms
IV. Closets
IV. Hallway
IV. SANITARY
IV. SHARED SPACE
IV. **Window Frame**

![Ecor cardboard panel](image)

![Timber veneer](image)
IV. Longitudinal Section
IV. Cross section
IV. Roof - Facade

Green roof “Completa”

Insulation “Blauwplaat”
IV. Floor - facade

Linoleum flooring

Underlayment
IV. Stairs - Door

Stair nose

Aluminium plinth
IV. Floor - element

Vinyl wall tiles

LED lighting strip
V. reflection:

Research & Design
V. IMPACT

864 DWELLINGS

86 DWELLINGS
14 PORTIEKEN

24 PEOPLE PER PORTIEK
336 MIGRANT WORKERS
V. Principles

**Characteristic Room**

**Storage Space**

**Flexibility**
CHARACTERISTIC ROOM
STORAGE
FLEXIBILITY
V. IMPROVEMENT?

- COMPARSED TO ORIGINAL SITUATION: SAME NUMBER OF PEOPLE PER DWELLING.

+ QUALITATIVE IMPROVEMENT, ESPECIALLY ON TECHNICAL PERFORMANCES

MORE LIVING SPACE WHEN DWELLINGS ARE COMBINED
V. Minimum dwelling?

The private space is minimal... 

...shared space isn’t minimal
THE GREAT MINIMUM