"The Beads make the string"

How the input of individual stakeholders can improve the quality of public space in a neighbourhood
Contents

• Introduction
• Research
• Direction for design
• Strategy
• Design
• Design in greater context
Introduction
Introduction

- RMIT Transforming Housing Heritage: Vogelbuurt in Carnisse, Rotterdam Zuid
- Carnisse is one of seven “Focuswijken” Nationaal Programma Rotterdam Zuid
- “Focuswijken:” Areas that lack behind in education, employment and housing
- Brief: “Design interventions that can offer the existing stock in the Vogelbuurt a sustainable future”
Introduction – Vogelbuurt

• Competition “Woningen 1940”

• Realised 1946-1948

• Residential area: mostly 3 storey portiek dwellings, some small shops and a school

• High diversification of home owners: mostly private owners → challenge
Introduction – Vogelbuurt
Introduction – Vogelbuurt
Introduction – Vogelbuurt
Introduction – Area of focus

Residential streets vs Roodborststraat

Area of focus
Research
Research – Problem statement

Social issues

- **Vogelbuurt functions as a “hotel” or “arrival city”**
- High moving rate: on average a dwelling is sold every 5 years*
- People only care about their own dwellings, not their vicinity

*Steunpunt Wonen, 2002
Research – Problem statement

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- Due to this: public space is neglected
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Physical and Social influence each other!

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*Realm of the architect*

Research – Problem statement

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Participation issues

• Who is going to improve?
Research – Problem statement

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• Who is going to improve?
• **Inhabitants themselves!**
Research – Involvement

Why?

• Inhabitants are the **experts** in their neighbourhood, provide insight in problems

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- **Support** of inhabitants is needed if **social** aspects are to be improved

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• Ensure the design - once executed - is **used and maintained as meant**

• Many private owners → big at once alternation is not possible → **need for individual initiatives**

---

Participation issues

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• **Inhabitants themselves!**
“How can the **physical** quality of public space in the Vogelbuurt be improved and subsequently opportunities for improvement of **social** conditions be increased by using the **involvement** – both in design and execution – of inhabitants and owners as input?”
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Research – Quality of public space

Quality Test Residential street

Quality Test Roodborststraat

Prepared by using the Quality Test by Ewing et al. 2006
Research – Quality of public space

To improve the quality of public space:

• Increase number of people in the streets!
• Show the street is used!
• Provide diversity in appearance!


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[Graphs showing quality test results for different attributes such as imageability, enclosure, human scale, transparency, and complexity, with data prepared by using the Quality Test by Ewing et al. 2006.]
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![Image of Quality Test Residential street chart]

**Quality Test Roodborststraat**

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What to design?
Research – Transition zones / shared public space

Space between public and private

Public space used for private activities
**Research** – Transition zones / shared public space

No Space between public and private

No Public space used for private activities
**Research** – Transition zones / shared public space

No Space between public and private

No Public space used for private activities
Research – Transition zones / shared public space

No Space between public and private

No Public space used for private activities

Extend the private realm into the public realm!
Extend the private realm into the public realm!

Research – Transition zones / shared public space

Design Space between public and private

Design Public space used for private activities
Flexible public space to be filled with individual interventions
extensions of private space into the public realm
**Flexible public space to be filled with individual interventions**

extensions of private space into the public realm

Every inhabitant can contribute - can deliver his own bead - so together these private initiatives improve the quality of public space as a whole - form a string
**Research – Design direction**

What kind of *individual interventions*?

What kind of *extensions of private space into the public realm*?

Every inhabitant can contribute - can deliver his own bead - so together these private initiatives improve the quality of public space as a whole - form a string.
Research – Design direction

What kind of individual interventions?
What kind of extensions of private space into the public realm?

- Figurative extensions (gardens/planters/seating/etc)
What kind of individual interventions?

What kind of extensions of private space into the public realm?

- Figurative extensions (gardens/planters/seating/etc)
- Literal extensions: physical dwelling extensions
Research – Reasons to move

Reasons to move

![Bar chart showing reasons to move](image)

Bilderbeek et al. 2014

- Private reasons
- Neighbourhood
- Dwelling
- Job related reasons
- Amenities
- Wish for bigger/more luxurious
- Not to one’s liking
- Wish for bigger garden
- Not to one’s liking
Research – Reasons to move

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- Not to one's liking
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Bilderbeek et al. 2014
Research – Design direction

What kind of individual interventions?

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- Figurative extensions (planters/seating/etc)
- Literal extensions: physical dwelling extensions
Strategy
1. ADOPTION

Adoption of neighbourhood by dwelling corporation
2. BE VISIBLE

Build “neighbourhood post”
+ appoint “neighbourhood concierge”
1. ADOPTION
Adoption of neighbourhood by dwelling corporation

2. BE VISIBLE
Build "neighbourhood post" + appoint "neighbourhood concierge"

3. INVOLVE + ENTHUSE
Involve inhabitants in projects in public space
1. ADOPTION
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Build "neighbourhood post" and appoint "neighbourhood concierge".

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Involve inhabitants in projects in public space.

4. PROTOTYPE
Convert one dwelling into "extension shop" functioning as a "model home" with extension as well.
Strategy

1. ADOPTION
   Adoption of neighbourhood by dwelling corporation.

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   Build ‘neighbourhood post’ + appoint ‘neighbourhood concierge’.

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   Convert one dwelling into extension shop functioning as a ‘model home’ with extension as well.

5. ADJUST + EXTEND
   Prepare and execute conversion street profile to make extensions possible.
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Adoption of
neighbourhood by
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2. BE VISIBLE
Build "neighbourhood post"
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Convert one dwelling into
"extension shop" functioning as
a "model home" with extension
as well

5. ADJUST + EXTEND
Prepare and execute
conversion street profile to
make extensions possible

6. REPEAT + UPDATE
Repeat step 5 + keep
track of wishes in already
converted streets
Design
**Design – Residential street vs Roodborststraat**

Flexible public space to be filled with individual interventions
**Design – Residential street vs Roodborststraat**

Flexible public space to be filled with individual interventions
Roodborststraat
Roodborststraat – Adjustment of street profile

Flexible public space to be filled with individual interventions
Roodborststraat – Adjustment of street profile

Flexible public space to be filled with individual interventions

• Keep one way traffic as it is
**Roodborststraat** – Adjustment of street profile

**Flexible public space** to be filled with individual interventions

- Keep one way traffic as it is
- Distinguish route Roodborststraat in function and appearance
Roodborststraat – Adjustment of street profile

Flexible public space to be filled with individual interventions

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Roodborststraat – Interventions

Flexible public space to be filled with individual interventions

Quality Test Roodborststraat

[Graph showing data regarding various aspects of the street]
Roodborststraat – Interventions

Flexible public space to be filled with individual interventions

Quality Test Roodborststraat

Prepared by using the Quality Test by Ewing et al. 2006
Roodborststraat – Interventions

Flexible public space to be filled with individual interventions

Roodborststraat

• Series of parklets
• Same appearance

Parklet: small scale park-space as result of a private initiative

cinder blocks wooden seat tile as cover plate vegetation vegetables (existing) trees
Flexible public space to be filled with individual interventions

Garage replacement: dwelling extension on building block ends

- Create “eyes on the street”
- Create liveliness

Appearance:
- Subobidient to main building like garages
  - On footprint former garage
  - Maximum 2 storeys
Roodborststraat – Impression

Susanne de Zwart
Residential street
Residential street – Adjustment of street profile

Flexible public space to be filled with individual interventions
Residential street – Adjustment of street profile

Flexible public space to be filled with individual interventions

• Create transition space for extensions
Residential street – Adjustment of street profile

Flexible public space to be filled with individual interventions

- Create transition space for extensions
- Conserve trees
Residential street – Adjustment of street profile

Flexible public space to be filled with individual interventions
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Flexible public space to be filled with individual interventions
Residential street – Adjustment of street profile
to be filled with individual interventions
Dwelling extensions
“I would like to extend my dwelling, how does it work?”
Dwelling extension – Roadmap

Step 1:
Choose your extension

I. Where do you want to intervene?

Broad bay

Narrow bay

II. Would you like a balcony or a “box”?

B Box

B Balcony

N Box

N Balcony

III. Would you like to extend 1 or 2 meters?*

B2 Box

B1 Box

B2 Balcony

B1 Balcony

N2 Box

N1 Box

N2 Balcony

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*For upper floor 2 meter offset is only allowed when the dwelling below is extended with a 2 meter box already
Dwelling extension – Roadmap

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Dwelling extension – Roadmap

Step 2: Compose your facade

I. Find your mould

II. Choose your windows

- fixed
  - two frames
  - half opaque

- fixed
  - two frames
  - total glass

- fixed
  - rod on inside
  - total glass
  - *only for balcony

- tilt and turn
  - two frames
  - half opaque

- tilt and turn
  - two frames
  - total glass
  - *only for B balcony

- slide
  - total glass
  - *only for balcony
### Dwelling extension – Roadmap

#### Step 2: Compose your facade

<table>
<thead>
<tr>
<th>I. Find your mould</th>
</tr>
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<tbody>
<tr>
<td>mould</td>
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</table>

#### mould

<table>
<thead>
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<th>type</th>
<th>type</th>
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<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
</tbody>
</table>

#### II. Choose your windows

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- B1 Box

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Step 2: Compose your facade

1. Find your mould

1 | A | B | A
2 |   |   |   
3 |   |   |   

[Diagrams of facade types and numbers]
Dwelling extension – Roadmap

Step 2: Compose your facade

1. Find your mould

1 2 3

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Materialisation
Materialisation – Facade image

Facade image 1948:

Unity by materialisation

Same:
• Material use
• Position of openings

• Infill of openings
Materialisation – Facade image

Facade image 2014:

Variation within unity

Same:
- Material use
- Position of openings

Different:
- Infill of openings
Materialisation – Facade image

Facade image 2020:

Same:
• Material use
• Position of openings

Different:
• Infill of openings
• Size of openings
• Depth
• Underlining of extensions
Materialisation – Street image

Facade image 2020:

More Variation within unity

Same:
• Material use
• Position of openings

Different:
• Infill of openings
• Size of openings
• Depth
• Underlining of extensions
Construction
Construction – Concept

As little hindrance as possible:

- For executing inhabitants → quick installation, no mess
- For neighbours → construction work *only* in dwelling executers
Construction – Concept

As little hindrance as possible:

• For executing inhabitants $\rightarrow$ quick installation, no mess

• For neighbours $\rightarrow$ construction work *only* in dwelling executers

Consider:

• Self bearing brick facade (has to be supported)
**Construction – Concept**

As little hindrance as possible:

- For executing inhabitants → quick installation, no mess
- For neighbours → construction work *only* in dwelling executers

Consider:

- Self bearing brick facade (has to be supported)
- Wooden floors (not to be charged with horizontal forces)
Construction – Execution steps

1. Prepare structure to carry load of facade above (Pynford beam + U sections)
2. Break through wall
3. Place prefab extension by fork truck
Construction – Execution steps

holes
Construction – Execution steps

holes

stools
Construction – Execution steps

holes

stools

beam shape
Construction – Execution steps

holes

stools

beam shape

rebars + anchors
Construction – Execution steps

- Holes
- Stools
- Beam shape
- Rebars + anchors

Pour concrete
Construction – Execution steps

- Holes
- Stools
- Beam shape
- Rebars + anchors
- Pour concrete
- Breakthrough
Construction – Execution steps

- holes
- stools
- beam shape
- rebar + anchors
- pour concrete
- breakthrough
- U-sections
Construction – Execution steps

- Holes
- Stools
- Beam shape
- Rebars + anchors
- Pour concrete
- Breakthrough
- U-sections
- L-sections
Construction – Materialisation

Square of IPE 140

Concrete “Pynford” beam

UPE 220

Chemical anchors
Construction – Materialisation

- Endplate
- Drawbar
- Square of IPE 140
- Concrete "Pynford" beam
- UPE 220
- Chemical anchors
Construction – Materialisation

“balcony”

Concrete “Pynford” beam

chemical anchors

Square of IPE 140

“box”

Concrete “Pynford” beam

chemical anchors

Square of IPE 140
**Construction – Materialisation**

“Staalframebouw”
- Lightweight C sections as structure
- Filled with EPS insulation
- Cladded with brick strips
Dwelling changes
Dwelling changes – changes to original plan

Original floorplan
Dwelling changes – changes to original plan

Original floorplan

New floorplan
1 meter extension
Broad bay
Extra bedroom

“I want a bigger living room”
Dwelling changes – changes to original plan
Dwelling changes – changes to original plan
**Dwelling changes** – changes to common floorplan

**Original floorplan**

**Most common current floorplan**

"I want a bigger living room"
**Dwelling changes** – changes to common floorplan

New floorplan

1 meter extension
Narrow bay

*Big kitchen and bathroom*

Most common current floorplan

---

“I want to live more spacious”
Dwelling changes – changes to common floorplan
Dwelling changes – changes to common floorplan
Dwelling changes – changes to common floorplan

“I want a comfortable office at home”

“I want a big balcony”
Dwelling changes – plans

“I want …”

“I want …”

“I want …”

“I want …”

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“I want …”

“I want …”

“I want …”
Residential street – Impression
Costs
## Costs

<table>
<thead>
<tr>
<th></th>
<th>B2 Box</th>
<th>B1 Box</th>
<th>N2 Box</th>
<th>N1 Box</th>
<th>B2 Balcony</th>
<th>B1 Balcony</th>
<th>N2 Balcony</th>
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</thead>
<tbody>
<tr>
<td>Costs Extension</td>
<td>€ 10.700</td>
<td>€ 8.500</td>
<td>€ 7.000</td>
<td>€ 5.400</td>
<td>€ 9.100</td>
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<td>Pynford beam</td>
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<td>€ 2.500</td>
<td>€ 2.500</td>
<td>€ 2.500</td>
<td>€ 2.500</td>
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<tr>
<td>Breakthrough wall + U sections</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
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<td>Placement of extension</td>
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<td>Preparation and Placement</td>
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<td>breakthrough wall + U sections</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
<td>€ 2.000</td>
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<td>€ 2.000</td>
<td>€ 2.000</td>
</tr>
<tr>
<td>placement of extension</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
<td>€ 1.000</td>
</tr>
<tr>
<td><strong>PREPARATION AND PLACEMENT</strong></td>
<td>€ 5.500</td>
<td>€ 5.500</td>
<td>€ 5.500</td>
<td>€ 5.500</td>
<td>€ 5.500</td>
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<td>€ 5.500</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>B2 Box</th>
<th>B1 Box</th>
<th>N2 Box</th>
<th>N1 Box</th>
<th>B2 Balcony</th>
<th>B1 Balcony</th>
<th>N2 Balcony</th>
<th>N1 Balcony</th>
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</thead>
<tbody>
<tr>
<td><strong>TOTAL INCLUDING TAX</strong></td>
<td>€ 18.400</td>
<td>€ 15.900</td>
<td>€ 14.200</td>
<td>€ 12.400</td>
<td>€ 16.600</td>
<td>€ 15.400</td>
<td>€ 12.700</td>
<td>€ 11.900</td>
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Design in greater context
Design in greater context – Roodborststraat

“Roodborststraat design” in other neighbourhoods. Where and why to apply?
“Roodborststraat design” in other neighbourhoods. Where and why to apply?

In areas with

- Longitudinal residential streets
- “non-functional”* street perpendicular to and connecting residential streets

*“non-functional” meaning no active functions (doors leading to dwellings/shops) located or accessible from this street
**Design in greater context – Roodborststraat**

“Roodborststraat design” in other neighbourhoods. *Where and why to apply?*

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- “non-functional”* street perpendicular to and connecting residential streets

It can answer:
- Lack of shared public space in neighbourhood
- Lack of private outdoor space (multi storey housing)

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- Longitudinal residential streets
- “non-functional”* street perpendicular to and connecting residential streets

It can answer:

- Lack of shared public space in neighbourhood
- Lack of private outdoor space (multi storey housing)

And create:

- Increased quality of public space
- Increased social cohesion in the neighbourhood

*“non-functional” meaning no active functions (doors leading to dwellings/shops) located or accessible from this street*
Design in greater context – Roodborststraat

- **Residential street**
  - Rotterdam Carnisse
  - Rotterdam Overschie
  - Amsterdam Bos en Lommer

- **“non-functional street”**
Design in greater context – Roodborststraat

Residential street

“non-functional street”
Design in greater context – Roodborststraat

Residential street

Amsterdam Bos en Lommer

“non-functional street”

Rotterdam Overschie

Planned

Created
Design in greater context – Roodborststraat

Residential street

“non-functional street”

Oude Westen Rotterdam

De Zwarte Hond, R’70 (2010)
Design in greater context – Roodborststraat
“Dwelling extensions” in other neighbourhoods. *Where and why apply?*

*internal condensation of extension versus old facade*
“Dwelling extensions” in other neighbourhoods. Where and why apply?

In neighbourhoods consisting of traditionally built apartment buildings:
(523,000 portiek dwellings in the Netherlands built <1964 (AgentschapNL 2013))

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“Dwelling extensions” in other neighbourhoods. Where and why apply?

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Dwelling extensions:
• Increase dimensions of dwelling
• Extend and insulate at once*

*internal condensation of extension versus old facade
Design in greater context – Dwelling extensions

“Dwelling extensions” in other neighbourhoods. Where and why apply?

In neighbourhoods consisting of traditionally built apartment buildings: (523,000 portiek dwellings in the Netherlands built <1964 (AgentschapNL 2013))

Dwelling extensions:
• Increase dimensions of dwelling
• Extend and insulate at once*

And subsequently
• Increase quality of public space: variation in the streets
• Even more: combined with other fill of transition zones

*internal condensation of extension versus old facade
Design in greater context – Dwelling extensions

“Dwelling extensions”

Advantages compared to other dwelling extensions:

Disadvantages compared to other dwelling extensions:
“Dwelling extensions”

Advantages compared to other dwelling extensions:

• execution without disturbing neighbours: private initiatives are possible
• execution without “waiting” with hole in facade

Disadvantages compared to other dwelling extensions:
“Dwelling extensions”

Advantages compared to other dwelling extensions:

• execution without disturbing neighbours: private initiatives are possible
• execution without “waiting” with hole in facade

Disadvantages compared to other dwelling extensions:

• Very specific design and construction:
  - Based on construction self bearing brick facade and wooden floors
    → Pynford beam etc not efficient
  - Private initiative → “double construction”