COLOPHON

PERSONAL INFORMATION
Frederick Ulijn
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Warmoezierstraat 5
2613 VG
Delft
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STUDIO
Architectural Engineering
A. Snijders,
E vd Ham,
M. Meijs,
I. Nevzgodin

PROJECT TITLE
New typology of temporary recreational dune houses
PRESENTATION
PRESENTATION
PRESENTATION
PRESENTATION
INTRODUCTION

Problem statement
Narrow beaches
Sand drift interruption
New typology
INTRODUCTION
INTRODUCTION

PROBLEM STATEMENT
Plan of Action

Building-Up Sequence

1. **Choose usable dunes**
2. **Discuss location with dune management**
3. **Choose location in the dunes**
4. **Unroll dynamic/temporary path**
5. **Drive 'package' to the chosen location**
6. **Place base & 'core'**
7. **Place elements**
8. **Enjoy**
INTRODUCTION

RESEARCH

Research question
Focus points
Research outcomes

DESIGN

P5, WHAT'S NEXT

Q&A
“How can I design a compact, pop-up, transportable, self-supporting beach house with a zero carbon or positive footprint located in the dune area of the Netherlands?”
“How can I design a compact, pop-up, transportable, self-supporting beach house with a zero carbon or positive footprint located in the dune area of the Netherlands?”
Fascination

Compact Spaces

Triangles

Origami

Design Research Methods of Designing

Introduction

Research

Build-Up

Design

Q&A
FASCINATION

COMPACT SPACES

TRIANGLES

ORIGAMI

DESIGN RESEARCH

METHODS OF DESIGNING

INTRODUCTION

RESEARCH

BUILD-UP

DESIGN

Q&A
FASCINATION

COMPACT SPACES

TRIANGLES

ORIGAMI

INTRODUCTION

RESEARCH

BUILD-UP

DESIGN

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**Table 01 | Climate overview (source KNMI, image FMJ Ulijn)**
Kijkduin gets 1382 hours of sun

Outside the season
During the season

922 kWh/m²
1040 kWh per year

5 kWh/m²
0,5 kWh/m²

JUNE
DECEMBER

ENVIRONMENTAL RESEARCH
POTENTIALS AND INSTALLATIONS

ORIENTATION
SOLAR CELL PANELS
monocrystalline 72 cell
SOLARBOILER
STACK EFFECT
EVAPORATION

INTRODUCTION
DESIGN
Q&A
BUILD-UP
RESEARCH
**WATER**

- Drinking: 3L
- Shower: 51L
- Dishes: 2L

**Environment**

- 97.2% Ocean water
- 2.8% Clean water

**Rainwater Collection**

- March till October 439.2 mm/m²
  - Min. 10L
  - Max. 153L

**Filtration**

- RO
- UV

**Cooling & Heating**

- Cooling & Heating

**Saving**

- Saving
INTRODUCTION

WIND

VENTURI EFFECT

SOLARBOILER

UMBAN WINDMILLS
INTRODUCTION

RESEARCH

BUILD-UP

DESIGN

Q&A

ENVIRONMENTAL RESEARCH

POTENTIALS AND INSTALLATIONS

WASTE

Compost toilet

Biogas plant
**Pop-up**

- Lightweight
- Assembly
- Handling
- Integration

**Compact**

- Multi functionality
- Spaciousness
- Basis luxury
- Light and Air
RESEARCH OUTCOMES
Design Steps
BUILD-UP

Building steps
Foundation
Panels
Interior elements
BUILD-UP
BUILDING-UP SEQUENCE

PANELS
PANELS

BUILD-UP

INTRODUCTION

RESEARCH

BUILD-UP

DESIGN

Q&A
Hi-max panel  
Kooltherm insulation  
Aluminum frame  
Honeycomb cardboard  
Birch multiplex  
Seats & table
Hollow Aluminum extruded profile
[100x50mm] 5mm thick
thermally broken
Hollow Aluminum extruded profile
[100x50mm] 5mm thick
thermally broken

Fixation anker

Torx screw [cylinder 6mm]
PANELS & SEATS
PANELS & SEATS

BUILD-UP
ALUMINUM FRAME
PANELS & SEATS
PANELS & SEATS

BUILD-UP ALUMINUM FRAME

pan e l s & s e a t s
PANELS & SEATS
1 | Honeycomb cardboard [45mm]
2 | Hi-max [2mm]
3 | Aluminum profile, Thermally broken
4 | Kooltherm insulation [50mm, RC 2,5 m²*K/W]
5 | Rubber sealing
6 | Fixation anker
7 | Torx screw [cylinder 6mm]
8 | Rubber LED strip
9 | Birch multiplex [3,6mm]
1  | Honeycomb cardboard [45mm]
2  | Hi-max [2mm]
3  | Aluminum profile,
      Thermally broken
4  | Kooltherm insulation
      [50mm, RC 2.5 m²*K/W]
5  | Rubber sealing
6  | Fixation anker
7  | Torx screw [cylinder 6mm]
8  | Rubber LED strip
9  | Birch multiplex [3.6mm]
10 | Water-retaining rubber
11 | Aluminum profile
12 | Aluminum c-profile
13 | Hidden hinge, Tectus TE 240
14 | Rubber gasket
15 | Transparent plastic window
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</tr>
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<td>10</td>
<td>Water-retaining rubber</td>
</tr>
<tr>
<td>11</td>
<td>Aluminum profile</td>
</tr>
<tr>
<td>12</td>
<td>Aluminum c-profile</td>
</tr>
<tr>
<td>13</td>
<td>Hidden hinge, Tectus TE 240</td>
</tr>
<tr>
<td>14</td>
<td>Rubber gasket</td>
</tr>
<tr>
<td>15</td>
<td>Transparent plastic</td>
</tr>
</tbody>
</table>
**Water**

- Water collection
- Shower water reservoir
- Tap water
- Carbon filter
- Water tank
1 | TWO-BURNER BUTANE COOKER
2 | COUNTERTOP
3 | SINK
4 | STORAGE
5 | 12V FRIDGE
6 | FOOT WATER PUMP
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IMPRESSIONS
QUESTIONS
QUESTIONS