City as Material Bank – Constructing with Reuse in Musicon, Roskilde

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Musicon

250,000m²
Urban mix-use brown field development of former concrete element plant

Creativity, culture, business, housing, education,
Ambition for 1000 housing units and 1000 work places (people)

Central municipal office of development
Inspiration from Amsterdam, Vancouver, Ruhr Gebiet

A) Experimental co-created development without a master plan (2007 -) “Fluid planning”

B) Development with a master plan (Vandkunsten 2016)

Pløger, John (2008) Byens rum som udviklingsstrategi - by Juul | Frost
www.musicon.dk
PROJECTS IN MUSICON

Vandkunsten

HAL 7
Completed

INDFALDET

RECYCLING CENTERS

PROJECTS IN MUSICON

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INDFALDET

RECYCLING CENTERS

PROJECT

Masterplan
Recycling Centers
Recycling Centers
Hal7
Housing in Indfaldet
Eco-Village housing

TYPE

Municipal planning
Ressorce Mapping and pre-work
Current competition
Cultural purposes
Danish Social housing
Owner-occupied units and communal house
THE RELATIONSHIP IS NOT LINEAR. SOMETIMES RESEARCH LEADS TO AN ASSIGNMENT AND SOMETIMES AN ASSIGNMENT INSPIRES TO OR SHOWS THE NEED FOR RESEARCH.
Hal7

Former industrial hall
New home to three municipal groups
Orange Makers
Youth Maker Space
Makers’ Corner - gathering spot for vulnerable citizens

10 year lease

€ 800,000  Budget
Donation from AP Møllerske Fond

880 m²

Client: Roskilde Municipality
Architect: Vandkunsten
Contractor: Ejenvinding & Datter
EXISTING CONDITION

Hal 7
DIRECT RELATION  SHIPPING CONTAINERS REPURPOSED FOR MOVABLE, TEMPORARY MINIMAL HOUSING
Comission / Development

VANDKUNSTEN FOR COPENHAGEN VILLAGE

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Makerspace værksteder
Makerspace & Klub Ung
Bistedet & People Corner
Bistedet stillezone - orangeri

- Quiet
- Low noise zone
- Medium noisy zone
- Loud zone

Climate zone 1, open space
Climate zone 2, 17 degrees Celsius
Climate zone 3, insulated and heated to 21 degrees Celsius
Climate zone 4, orangery

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PLAN WITH CLIMATE ZONES

Hal 7

Zone 1

Zone 3

Zone 4

Orangery

Polycarbonate

Rocket

Oven

Zone 2

Zone 1

Insulated and heated containers

Zone 3

Existing concrete floor, not insulated

Insulated wood floor

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INTERIOR INSULATION WITH PAPER GRANULATE

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ORANGERY - PASSIVE SOLAR ZONE

Hal 7
INSULATED PLINTH AND CENTRAL HEATING IN CONTAINERS

90 % reuse

Roughly

Amount of reuse

EXISTING
Concrete foundations
Concrete floor
Roof
Facade
9 pre-used shipping containers

ADDED REUSE
20 'new' repurposed shipping containers
Doors
Windows
Sports flooring

New materials
Polycarbonate panels
Wooden structures
OSB/Plywiwood sidings
Paper granulate insulation
Central heating pipes and fixtures
ZONES FOR ACTIVITIES

Hal 7

DIVISION BY POLYCARBONATE WALL

ROCKET OVEN A LOW TECH AND SOCIAL HEAT SOURCE

ORANGERY FACADE
Recycling Centers in Musicon

14 centers in the master plan
Reuse a theme
Mapping of existing potential components
Salvaged
Stored on location by the city
Current state: Turnkey design competition
Housing project Indfaldet

2017-2020

Area 5800 m²
50 units
Status: Pre-tender (at the municipality's)
SITE
Indfaldet Housing, Musicon
Indfaldet Housing, Musicon

REUSE AND REVERSIBLE CONSTRUCTION

FACADE WITH REUSE SYSTEMS AS ORNAMENT

REBEAUTY REFERENCES
SITE PLAN
Indfaldet Housing, Musicon

Four neighbouring projects called to workshop

Contractors involved

Aim to have coherent expression

Alternative local planning process to include the builder actors

The Indfaldet Contractor/developer agreed to reuse elements
Conclusions

>> A high level of reuse is possible despite a very limited budget

>> Writing ‘reused materials acceptable’ allows contractors to think creatively and shows which materials are the most affordable

>> New reuse paradigm possible with deep collaborations between disciplines (contractor and architect)

Design for disassembly is suitable for temporary leases and changes in demands

The small scale and limited timespan of the Hal7 enables the city and us to study whether DfD ambitions can be fulfilled

Still too early to know if the city’s engagement will in fact enable further reuse in conventional housing projects such as indfaldet and Eco Village

Further research in the organizational framework in cities which enables reuse projects!