BOUNCING FORWARD

URBAN REDEFINITION FOR THE RESILIENT CITY: ENSCHEDE
final stitch to the fabric
final stitch to the fabric
final stitch to the fabric
new train of thought
urban resilience: turbulent timeline
urban resilience: disaster struck city
Research Question

How can the city redefine itself by learning from its own experience in urban resilience?
Research Question

How can the city redefine itself by learning from its own experience in urban resilience?

The case of Enschede
Research Objective

Finding direction for future urban redefinition for the city of Enschede
Research Objective

By learning from its historical moments of destruction and reconstruction
BOUNCING BACK

Latin: Resilio ("spring back"), from re (back) + salio ("I jump").
Vulnerabilities of the place

The main objective for reconstruction should not be just physical recovery, but it should also answer to the urgencies of a place...

...benefit from the opportunity to "address and rectify the vulnerably found in communities" - Mannakkara, Wilkinson on "Building Back Better"
Adaptation to environmental situations

"the process of mere rebuilding is a necessary but by itself, insufficient reaction to the "disaster-born opportunity"
- Lawrence Vale, Thomas Campanella

"societies’ success or collapse is determinated by the human capacities to adapt to different environmental situation”
- Lorenzo Chelleri on sustainable resilience
Catalyzing city development

"It aims for purposes beyond the phases of restoration and recovery."

-Catalyzing development after disaster should be implicit to the concept of resilience-

-Douglas Paton
The Learning Curve

"a transformative, 'learning-loop' attitude for the long-term development"
- Lorenzo Chelleri on resilience by adaptivity
Disaster born opportunity to accelerate urban redefinition

Obligation to predict new societal and environmental requirements

Ability to adapt and predict future vision for the scale of the city

A transformative learning loop attitude
the learning curve
The Learning Curve: Local Requirements

EXPANSION OUTSIDE FORTIFICATION
SITE-SPECIFIC MANUFACTURING
KNOWLEDGE ECONOMY
LOSS OF MONO-ECONOMY
CAPITALISM

1860
1920
1960
2000+
1862
1945
1960
2000+

KNOWLEDGE ECONOMY
SITE-SPECIFIC MANUFACTURING
EXPANSION OUTSIDE FORTIFICATION

urban
resilience
learning
curve
roombeek
re-evaluation
urban
redefinition
architecture
The Learning Curve: Paradigm Shifts

1860  MODERNIZATION
1920  INDUSTRIALIZATION
1960  MODERNITY
2000+  ?

The Learning curve
the roombeek re-evaluation
Model of Recovery Activity

Douglas Patton:
The bouncing forward principle:
aims for purposes beyond the phases of restoration and recovery

Phase 4:
Reconstruction for betterment and development
Emergency Phase

THE ACT

EMERGENCY
Destroyed
Ceased

ACTIVITY

urban resilience
the learning curve
the re-evaluation
urban redefinition

17.2 ton TNT
2.4 ton TNT

Emergency Phase
Emergency Phase

Destroyed
Cleared

EMERGENCY

ACTIVITY

Emergency Phase

2.4 ton TNT

17.7 ton TNT

TIME

EMERGENCY

the learning curve

the roombeek re-evaluation

urban resilience

urban redefinition
Restoration

- EMERGENCY
- RESTORATION
- Destroyed
- Ceased
- Patched
- Return and Function

ACTIVITY

TIME

urban resilience

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urban redefinition

architecture
Restoration

EMERGENCY
Destroyed
Ceased

RESTORATION
Patched
Return and Function

ACTIVITY
time

urban resilience

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the roombeek re-evaluation

urban redefinition

architecture
Therapeutic Townplanning
Centre-piece location provides the opportunity to project a vision for the future.
urban redefinition
Design Objective: Local Scale
Design Objective: Local Scale

Creative Symbiose

A cultural breeding ground for the city's creative forces.
Enhance inner-city climate for creation.
Exemplary role for the cultural-technological city.
Design Objectives: Paradigm Scale

1860

EXPANSION
OUTSIDE FORTIFICATION

1920

SITE-SPECIFIC
MANUFACTURING

1960

KNOWLEDGE
ECONOMY

MODERNIZATION

2020+

URBAN CLIMATE ADAPTIVITY

MODERNITY

MONO-ECONOMY

DISPERSION

URBAN RESILIENCE

the learning curve

the roombeek re-evaluation

urban redefinition

architecture
Design Objectives: Paradigm Scale

Urban Climate Adaptation:

Resource Independence
Passive climate systems
Withstands future ecological transformation
Exemplary role in climate adaptive building
architecture
Reconfigurating the city-shape
Reconfigurating the city-shape
The Cultural Hinge
Connecting ‘the Culture-Mile’
Architectural Juxtaposition
Gradient: Static to Dynamic
Stages of Creation

- Creation
- Exposure
- Incubation
- Consumption
Incubation (Memorial Park)
Exposure: Cultural Courtyard
Exposure: Exhibition Spaces
Creation: Urban Farming
Creation: Workshops
Local Hardwood (Robinia) Structure

Creation: Workshops

- robinia hardwood column
  - 400x400 mm
  - prefab polycarbonate element (insulative, ventilative)
  - 30-410-30 mm
  - robinia hardwood lamellae
  - 100x280 mm
  - R_c = 5.0 m·K/W

- planed pinewood beam 100x275
  - (c.t.c 1200 mm)
  - xps-insulation 150 mm
  - steel L-profile 200x200x20 mm
  - robinia hardwood beam
  - 500x400 mm
  - steel beam connector plate
  - steel console (c.t.c 1200 mm)
  - steel fixation profile lamellae

- 14,000
Creation: Music-Rooms
Creation: Spillover Spaces
Consumption: Market Plaza
Consumption: Biological Craft-Beer Café
Programme
Programme: Parking
Programme: Bar/Restaurant
Programme: Spillover Spaces
Programme: Workshops
Programme: Music Rooms
Urban Climate Adaptation: Food
Urban Climate Adaptation: Heat

- solar chimneys
- evapotranspiration
- geothermal energy storage
Urban Climate Adaptation: Cold

- Thermal “boxing”
- Geothermal stabilization
- Geothermal energy storage

Urban resilience
Learning curve
Roombeek re-evaluation
Urban redefinition
Architecture
Urban Climate Adaptation: Energy

sun-based building geometry

solar noon: 13:40

dusk: 22:15
dawn: 05:00

integrated photovoltaic cells

Urban resilience
the learning curve
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urban redefinition
architecture
Urban Climate Adaptation: Water

- roombeek - plaza overflow system
- grey water (toilets)
- greenhouse water system
- rainwater brewery

water retention basin (future)
Recap: Objectives

Finding direction for future urban redefinition for the city of Enschede.

The building as an example for urban resilience.

Dictated by the requirements of the future.

Direction based on requirements of place and time.
Building for a resilient future.