Garderns of Heritage

Ayelt van Veen
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**Conclusions from demographic analysis:**

**Economy**
The Smith Park enclave contains many businesses managed by its own inhabitants.

**Prosperity**
Good education and a high employment rate go hand in hand in the Smith Park enclave.

**Connectivity**
The industrial corridor separates a prosperous area from a poor area, without mutual engagement.

**Masterplan aims:**
**Creating Nanopoles of Experts.**
Joint fluid movement of prosperous and poor people.

**Prosperity**
Increase the amount of jobs and the level of education.

**Connectivity**
Triggering fluid movement between poor and prosperous people, encouraging new economic activity.

**Connectivity project aims:**
1. Integrating a pedestrian route between the Smith Park enclave and the Handicraft Enclave by making the project part of the park ring.
2. Creating an enhanced connection with public transport in different areas of the city.

**Preliminary conclusion:**
The pre-war suburbs of Chicago decayed severely since many industries have retreated.

**Research question:**
How can we design a bottom-up masterplan and project that revitalizes the potential of Chicago as a productive manufacturing economy?
FIRST PART

HISTORY OF CHICAGO + PROBLEM STATEMENT
Population size:

1950 - 3.6 million
1990 - 2.3 million
GDP PER CAPITA

CHICAGO

OUTER SUBURBS

LAKE MICHIGAN

LOW

HIGH
Would you panic if a Negro moved next door?

“I’m broad-minded,” said one home owner when Negroes moved into his block. But a short time later he panicked—and sold his house at a loss.

In this week’s Post, you’ll read how speculators decide which blocks are “ripe” for racial change. How they use vicious tactics to force out the whites. And how one speculator brags that he could “bust” your block in no time at all.
PRELIMINARY CONCLUSION

The pre-war suburbs of Chicago decayed severely since many industries have retreated.
RESEARCH QUESTION

How can we design a bottom-up masterplan and project that revitalizes the potential of Chicago as a productive (manufacturing) economy?
bottom-up VS top down?
In 2008, LA residents voted to raise LA county’s sales tax by just 1/2 penny.

The result: 40 billion dollar for new trainsit lines
WHERE IS POTENTIAL?
DEMOGRAPHIC ANALYSIS
Demographic findings around three segregation tripoints in the west of Chicago
SOME CONCLUSIONS

Lots of different businesses

Many Employed

Much-owned property

People work less than 15min from home

Many Graduates

Many Bachelors
We are local entrepreneurs
LOW EDUCATION, HIGH VACANCY
CONCLUSION C:

The industrial corridor separates people and prosperity
DEVELOP POTENTIAL ENCLAVES

Potential enclave?

Potential enclave?

Potential enclave?
DEVELOP SPECIALIZATIONS

Specialization A

Specialization B

Specialization C
STRENGTHEN THE ENCLAVE CHARACTER BY INTRODUCING AN ENCLAVE RING
BOTTOM-UP PARTICIPANTS

Locals

Land owners

Schools and other institutions

Local industries
TOP-DOWN PARTICIPANTS

Project developer

Municipality
BUILDING INTRODUCTION
VIDEO

CONNECTIE ENCLAVES
CONNECTIE ENCLAVE RINGEN
CONNECTION PROJECT AIMS

Stimulate the growth of an enclave ring by..

A .. encouraging new economic activity within the project

C .. creating a node of interaction by
  1: .. integrating a pedestrian route between the Smith Park Enclave and the Handicraft Enclave (by making the project part of the park ring)
  2 .. including an improved connection with public transport that connects different enclave rings in Chicago
Why greenery inside this building?
WHY GREENERY

ACTIVATING PEOPLE

CLIMATE ADVANTAGES

CREATING AN ESTHETICAL PLACE
PERFORATIONS
ROUTES ACTIVATE PUBLIC SPACE
WORKSHOP SPACES
Phase 1 - West Hub as it is now
Phase 2 - Local government and investors invest money to create a new Metra station together with perforations in the adjacent buildings.
Phase 3 - Greening-systems are introduced around a vascular system of perforations and routes. Some new small manufacturing industries move into the building.
Phase 4 - Greening-systems make plants grow through the vascular system. More businesses appear.
Phase 5 - Pop-up shops and businesses for the public appear close to the newly created green zones.
Phase 6 - More pop-ups appear as the building gets more attractive. New (temporal) greenery is introduced by owners of the new stores.
Phase 7 - The configuration of the pop-up units changes over time.
Phase 8 - The local economy has grown, the greenery resulted in further decay of the building. Pop-up stores and manufacturing halls have become extensive businesses that redevelop the old building partially.
Phase 9 - A new station hall and building replace the West Hub Building
DESIGN AS CATALOG
CATALOG PARTS

<table>
<thead>
<tr>
<th>Individual</th>
<th>Collective</th>
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<tbody>
<tr>
<td>Building parts</td>
<td>Greenery</td>
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- Individual
  - Building parts
  - Greenery

- Collective
  - Building parts
  - Greenery
CATALOG PARTS

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GREENING STRATEGIES

- Extension of plants that have been used to introduce climbing plants on walls.
- Irrigated boxes with plants on higher levels.
- Meshes or strings mesh in between roots in (irrigated) boxes and in soil around the building.

Components:
- Ceramic vegetation container
- Steel frame
- Drainage channel / mesh holder
- Concrete lintel
- Irrigation channel & mesh holder
- Existing concrete floor

- Simple flower pot system
- Pattet with soil and irrigation

Layers:
- Simple green floor system
- Covers the ground floor of the central hall
- Earth on concrete floor

Example: garrya-elliptica

- Specifically used to cover the sides of the elevated railway trajectory
- Wall shrub
GREENING STRATEGIES
GREENING STRATEGIES

1. Extension of plants that have roots in (irrigated) boxes and in soil around the building.
2. Used to introduce climbing plants on walls.
3. With climbing plants in irrigated boxes with a mesh in between.
4. Ceramic vegetation container, steel frame, drainage channel/mesh holder, concrete lintel, irrigation channel/mesh holder, existing concrete floor.
5. Plants grow in between concrete rubble from demolished floors.
6. Simple flower pot system with patio with soil and irrigation.
7. Crimp, gavel, felt, soil layers.
8. Simple green floor system covers the ground floor of the central hall.
9. Earth on concrete floor produced on of the elevated railway trajectory.
10. Specifically used to cover the sides of wall shrub.
Greening Strategies

Concrete rubble from demolished floors

Plants grows in between

Wall shrub

Specifically used to cover the sides of the elevated railway trajectory

Example: garrya-elliptica

Meshes or strings with climbing plants

Used to introduce climbing plants on higher levels

Climbing plants on walls

Extension of plants that have roots in (irrigated) boxes and in soil around the building

Irrigated boxes with a mesh in between

Existing concrete floor

Irrigation channel & mesh holder

Concrete lintel

Drainage channel / mesh holder

Steel frame

Ceramic vegetation container

Earth on concrete floor

Covers the ground floor of the central hall

Simple green floor system

Layers:

Soil

Felt

Gavel

Crimp

Pattet with soil and irrigation system

Simple flower pot
• Concrete rubble from demolished floors
• Plants grow in between
• Wall shrub
• Specifically used to cover the sides of the elevated railway trajectory
  Example: garrya-elliptica
• Meshes or strings with climbing plants
• Used to introduce climbing plants on higher levels
• Climbing plants on walls
• Extension of plants that have roots in (irrigated) boxes and in soil around the building
• Irrigated boxes with a mesh in between

Existing concrete floor
Irrigation channel & Mesh holder
Concrete lintel
Drainage channel / mesh holder
Steel frame
Ceramic vegetation container

• Earth on concrete floor
• Covers the ground floor of the central hall

• Simple green floor system
  Layers:
  • Soil
  • Felt
  • Gavel
  • Crimp
  • Pattet with soil and irrigation system
  • Simple flower pot
POP-UP UNITS
CATALOGS ARE IN THE BLOOD OF CHICAGOANS

THE MONCTON VI.

A very likable feature of this house is its flexibility. Not that it will bend and give to the storms, for it is as rigid as the Rock of Gibraltar, but it is admirably fitted to your precise needs, on a good tailor fits your clothes to your form.

In a county, where everything is on a large scale, the 8 ft. veranda across front and side is appreciable, handsome and useful and gives it dignity and distinction. But if you prefer less verandah and less first cost, the side verandah can be omitted without marvelling the symmetry or beauty.

If you wish it for a farm house and prefer bedroom or office to library, on the second floor, we can give you that, for a few extra dollars.

The only thing you can want in a house, which we cannot give you in this design, if you will tell us what it is, and it will cost you a cent, until it shall be as useful and tasteful as the paper fits the wall.

Plain directions and specifications make possible for anyone to erect “Auldies” houses.

Quebec—the town of the living-room, cement windows for either side, can be supplied in place of shown.

Simple, yet ideal, is the arrangement of dining room, pantry and kitchen with ready access from the latter to the cellar and front door.

If a fireplace is desired in the room, a handsome window introduces you to the hall in the second floor, from which open three good bedrooms and a bathroom. The door in the roof with its double and divided light, casement windows in an extension through the roof, of the first story bay window, and accent the beautiful lines of the roof.

Rev. Fr. Liberee.

QUEBEC—Your System saved me between $1500 and $500 in my Parish House.

See terms on page 5 and specifications on pages 71 to 73.
1830 - 1930: Balloon Framing

Many small studs (vertical members), instead of bigger members (posts). The studs extend two stories. Members are mostly nailed together.

Today this method is not allowed anymore by building codes.
EXPOSING HISTORY
BUILDING CLIMATE
THERMAL CLIMATE SYSTEM DIAGRAM

AHU

Heat Exchanger

80%

20%

Clean air

Dirty air

Cappilar surface (bioclina)

Three way system for heat/cold supply to heat exchanger

Roof extension

Big airflow through PC facade (during summer nights)

Small ventilation through steel windows (all seasons)

In-between thermal zone

Climatized pop-up unit or workshop

25% Extra El

Heat Exchanger / Pump

Water/soil heat exchanger

Clean air Dirty air

Climatized pop-up unit or workshop

In-between thermal zone

Cappilar surface (bioclina)

Three way system for heat/cold supply to heat exchanger

Roof extension

Big airflow through PC facade (during summer nights)

Small ventilation through steel windows (all seasons)
CAPILLARY VESSELS
Winter situation - day
Spread solar heat in buffer-zone

max 24.5°
Winter situation - night
Preventing heat to go out

- Doek gespannen en spiegels dicht tegen transmissie = warmteverlies
Summer situation - day
Preventing heat to come in

Op het heetst van de dag wordt het atrium dak afgeschermd met doeken en dichtgeslagen spiegels

Ventilatie door CO2
Gestuurde klepramen

INSTALLATIERUIMTE

35°C

35°C
Summer situation - day
Preventing heat to come in

Op het heetst van de dag wordt het atrium dak afgeschermd met doeken en dichtgeslagen spiegels.
Summer situation - night
Cooling down the building
BUILDING CONSTRUCTION
STEEL BRIDGES AT PERFORATIONS
STATION BRIDGE
Polycarbonate roof
Aluminium profile
T-profile
IPE120 profile
Wooden stair to platform
HE1000A primary beam
Mesh holder
Timber floor
IPE 400 secondary beam
Timber tertiary beam
HE450A Column
Steel connection plate
Rail
Train platform
MATERIALIZATION
Air handling unit
Air handling unit
STEEL MESHES
Concrete column (in wall)
Plaster
Bioclina vessel
Vapor barrier
Masonry work
Climbing plant wire
Mesh holder
Concrete plant container
Soil
Finishing floor
Bioclina vessel
Concrete screed
Wood panel
Vapor barrier
Insulation
Concrete floor
Additional window
Aluminium window frame
Windowsill
Existing steel window frame
Steel profile
Natural stone sill
Bioclina main channel
Insulation
Vapor barrier
Bioclina sub-channel
Sprayed concrete finishing
Seam filled with cement
Existing edge beam
Wire mesh
Rack and Pinion
Outer masonry work
Inner masonry work
Concrete column (in wall)
Adjusting mechanism
Anchor bar
Adjusting block
Mesh holder
Mesh
Open vertical joint for rain water
Concrete tile
Roof covering
Existing floor
Poly carbonate plate
U-Lock profile (PC)
Irrigation ventile
Soil
Plastic plant container
Steel edge profile
Aluminium window frame
Hinge for openable window
Gutter
Polycarbonate plate
U-Lock profile (PC)
Lamella with reflective face
Electric motor for lamella adjustment
Lamella connection steel profile
Stanchion
Steel connection profile
Aluminium corner profile
Gutter
1:5 vertical details
1:20 vertical façade fragment
Graduation Project:
West-Hub Park
Ayelt van Veen
Lead piece
FURTHER RESEARCH SUGGESTIONS

Effect of greenery on daylight

Effect of greenery on building decay

Maintenance collaborations
CONCLUDING:

WEST-HUB PARK SHOWS A PLAN THAT IS BUILT ON THE BORDER BETWEEN TWO ENCLAVES - BETWEEN TODAY AND TOMORROW. IT Connects TWO TOTALLY SEPARATED ENTITIES OF CHICAGO TOWARDS A SHARED FUTURE, WHILE IT REMINDS ITS USERS OF THEIR HISTORY.
MOVEMENT OF AIR

\[ \Delta P = C \alpha h \left( \frac{1}{T_o} - \frac{1}{T_i} \right) \]

\( \Delta P \) = available pressure difference, in Pa
\( C = 0.0342 \)
\( \alpha \) = atmospheric pressure, in Pa
\( h \) = height or distance, in m
\( T_o \) = absolute outside temperature, in K
\( T_i \) = absolute inside temperature, in K
LEASABLE GROUNDS
RAISING GROUND VALUE
INDIVIDUALS LEASE PARCELS
MAINTENANCE OF GREENERY HOLDERS

- Workshop Space
- Plant Container
- Temporary Wood for Maintenance
- Void
- Safety Roor

(diagram image)
EXTERIOR GREEN CONTAINERS