CHICAGO LAKESIDE PUBLIC HEALTH EDUCATION CENTRE

INTERACTION

Student: Mingjie Ning
# 4228499
Tutors: Roberto Cavallo
Hubert Van Der Meel
Henri Van Bennekom

COMPLEX GRADUATION PROJECT - CHICAGO SOUTH WORKS
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PART 1 BACKGROUND ANALYSIS

PART 2 GROUP STRATEGY

PART 3 INDIVIDUAL DESIGN

3.1 MISSION & PROGRAM DEFINITION
3.2 SITE CHOICE
3.3 CONCEPT EVOLUTION
3.4 ARCHITECTURAL STRATEGY
3.5 ROUTE ORGANIZATION
3.6 FUNCTIONAL DIVISION
3.7 STRUCTURE PROPOSAL
3.8 CLIMATE PROPOSAL
3.9 MATERIAL PROPOSAL
3.10 CONCLUSION
The site, with nearly 2.8 square kilometres, is located 24 kilometres south of the Loop and 20 kilometres west from the Midway International Airport.
PUBLIC TRANSPORTATION

The Metra line
PUBLIC TRANSPORTATION

- The lake shore drive
HISTORY OF THE SITE

- It used to be the south works site of US Steel. But it was closed in 1992, and the neighbourhood began to decline...

US Steel plant closed in 1992

More than 100 buildings on the site were demolished in 1994
■ PROBLEMS DEFINITION

♦ Many problems lead to segregation
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Healthy Chicago: Public Health Agenda

Healthy Chicago identifies 16 health outcome targets, 12 priority areas, and 193 supporting strategies. It is a continuous project with stable investment, and the government’s support make the healthcare development available. A part of the agenda has been put into practice in small scale projects, and in the following years, it needs a place to establish a strong and centralized public health base.
NEW ANCHOR PROPOSED FOR SOUTH CHICAGO: HEALTH CITY

- healthy food
- walking & biking instead of car
- sport facility
- park
- clinic
- health education
- healthcare
- health company
ASPECTS OF HEALTH CITY

- Cutting Edge Medical Technology
- Ample Health Related Service Industry
- Advanced Patient Care Services
- Environmental Quality
- Healthy Food
- Awareness of the Importance of Health
- Efficient and Environmentally Friendly Public Transportation
- Qualitative, Sustainable, Affordable Building
- Recreation & Sports Space
- Economic Opportunities
INTERACTIVE CONNECTION

RESIDENTIAL CLUSTER

SCIENCE CLUSTER

EXISTING NEIGHBORHOOD

HEALTH CITY LABORATORY

EDUCATION FOUNDATION

PUBLIC SERVICES

JOBS OPPORTUNITIES

AFFORDABLE HOUSING

MEDICAL SUPPORT
“A campus is almost a guarantee to have a mixed race without any significant social problems since it attracts multiple people. The neighbourhood where De-Paul University is was 30 years ago a poor, gang-invested, high crime ghetto area and now it is one of the best neighbourhoods in Chicago.”

From the political science lecture in De-Paul university on 08. Oct. 2013
EXTENSION OF THE EXISTING PUBLIC SPACE

- Respond to the connection with existing neighbourhood, we propose a west-east axis on the centre of the South Works site.
FUNCTIONAL DIVISION

- A health science campus is constructed along the axis. And several residential clusters are located on each side of it.
EXISTING ASSETS IN CAMPUS CENTRE

- Important symbols of the past industrial atmosphere in the site.
- Was abandoned and need new identities to prevent themselves from being demolished.
EXISTING ASSETS IN CAMPUS CENTRE
SPATIAL STRATEGY OF CAMPUS CENTRE

◆ To revive the ore walls
public route system
different value for the heritages.
MASTER PLAN OF CAMPUS
STEP 1 OF THE CAMPUS
STEP 1 OF THE CAMPUS
section 1-1

harbour
route through buildings

section 2-2

garden

section 3-3

linear park

Spatial Qualities

Linear Park
Garden
Route through Buildings
Harbour

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◆ Pioneer of the concept of health city
◆ Integrate all the related resource of health city and introduce it to the public
PROGRAM DEFINITION

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<th>LEARNING SPACE:</th>
<th>EXHIBITION SPACE:</th>
<th>FOOD SERVICE:</th>
<th>OTHERS:</th>
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<td>WORKSHOP</td>
<td>LECTURE</td>
<td>TALKING GROUP</td>
<td>SEMINAR</td>
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LEARNING SPACE:
- Lecture Permanent Exhibition

EXHIBITION SPACE:
- Temporary Exhibition

FOOD SERVICE SPACE:
- Cooking Studio

OTHERS:
TARGET GROUPS

- Interaction between local professional & public visitors

PUBLIC VISITOR
- Visitors form other areas
- Residents in adjacent communities
- Patients

LOCAL PROFESSIONAL
- Health-related businessmen
- Researchers
- Students
- Doctors
- Professors
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SITE CHOICE

There is already a lakeside park attracting people to the east end of the campus. And in our group strategy, we propose a linear park to strengthen this route.
SITE CHOICE

- Essence of the south works site
- New identity for the ore wall
- Win-win choice both for the building & existing assets
CONNECTION WITH THE CAMPUS PLAN
SITE CONDITION

- Public building route of group strategy
- Diagonal downtown view route in master plan
SPACE CHALLENGE

Two different kinds of attractive space in my site:

- NATURAL ENVIRONMENT: HARBOUR
- HISTORICAL ATMOSPHERE: HERITAGE
- NATURAL ENVIRONMENT: LINEAR PARK
SPACE CHALLENGE

A design which could bridge the space inside & outside the ore walls is necessary here.
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**HISTORICAL SCENERY INSIDE THE WALLS**

- The ore stone storing inside the walls looks like a series of hills with the effect of the gravity.
At the industrial time, a volume was defined by the solid ore walls and the sliding crane.
CONCEPT EVOLUTION

◆ The lower introverted space: a symbol of the historical atmosphere.
◆ The upper extroverted space, provided the opportunity to overlook surrounding natural environment. It looks like two parallel lines without intersection forever.
CONCEPT EVOLUTION

The original scenery inside the volume consists of a series of ore stacks which makes the relationship between the two types of space more sensitive.
The original space prototype of the ore stacks could be abstracted as a landscape form. The oscillating surface of the landscape creates interaction between the extroverted space and introverted space.
Interactive activities inside the oscillating landscape volume bring additional value to the both kind of space.
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ARCHITECTURAL STRATEGY
◆ Create a landscape volume to integrate historical atmosphere & natural environment.
ARCHITECTURAL STRATEGY

Because of the limitation of the ore walls, there is a shortage of natural light and view. So more trips are considered to make.
ARCHITECTURAL STRATEGY

- The three parallel parts are staggered with each other. Better views and more sunlight are allowed inside the building.
ARCHITECTURAL STRATEGY

- Volume adjustment according to the existing north-south routes in the master plan.
ARCHITECTURAL STRATEGY

- Make the central volume more approachable to respond to the west-east interactive route in the campus level.
ARCHITECTURAL STRATEGY

- optimization according to different roof space qualities and program demands
ARCHITECTURAL ATMOSPHERE

- Interaction with the natural environment
ARCHITECTURAL ATMOSPHERE

◆ Interaction with the natural environment
ARCHITECTURAL ATMOSPHERE

- Interaction with the historical atmosphere
ARCHITECTURAL ATMOSPHERE

Interaction with the historical atmosphere
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**INTERACTIVE ROUTE ORGANIZATION BETWEEN BUILDING & MASTER PLAN**

- Intersection point between two route systems
  They are separated in different levels, the west-east route goes over the diagonal pedestrian route.
INTERACTIVE ROUTE ORGANIZATION BETWEEN BUILDING & MASTER PLAN

Interaction A: Vertical circulation: elevator & open staircase
INTERACTIVE ROUTE ORGANIZATION BETWEEN BUILDING & MASTER PLAN

- Interaction B: Gentle pitched green roofs (outdoor cafe)
INTERACTIVE ROUTE ORGANIZATION BETWEEN BUILDING & MASTER PLAN

- Interaction C: Outdoor grandstand (stage for activities)
INTERACTIVE ROUTE ORGANIZATION BETWEEN BUILDING & MASTER PLAN

- Interaction D: continuation of green space
Interactive route organization between architecture & existing assets

- The main route responds to the west-east group routing strategy
INTERACTIVE ROUTE ORGANIZATION BETWEEN ARCHITECTURE & EXISTING ASSETS

- The main route responds to the west-east group routing strategy
- Ore wall - historical atmosphere
- Landscape - natural environment

8.5° 6.5°
Interactive route organization between architecture & existing assets

- The side routes interactive between interior & exterior space
INTERACTIVE ROUTE ORGANIZATION BETWEEN ARCHITECTURE & EXISTING ASSETS

- The side routes interactive between interior & exterior space
- ore wall - historical atmosphere
- landscape - natural environment
INTERACTIVE ROUTE ORGANIZATION BETWEEN DIFFERENT PROGRAMS

- The five volumes of different architectural program are connected by the interactive route system.
INTERACTIVE ROUTE ORGANIZATION BETWEEN DIFFERENT PROGRAMS

- Interior route go through the building
Interactive Route Organization

Section of the route system

People walking along different routes have various experience of the building and the existing assets.

- view of the building
- view of the industrial heritage
- view of the natural environment
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FUNCTIONAL DIVISION: LEARNING SPACE

◆ It integrates the academic resources of the campus and the public demands for health knowledge.

◆ Requirement on master plan:
  Close to the health science campus
FUNCTIONAL DIVISION: LEARNING SPACE

♦ programs of learning space:
lecture room
seminar room
workshop room
talking group
FUNCTIONAL DIVISION: LEARNING SPACE

space requirement:
different size
different privacy
**FUNCTIONAL DIVISION: EXHIBITION SPACE**

- It popularizes the concept of health city to the public.

- Requirement on master plan:
  Closer connection with the public visitors gathered on the lakeside park.
FUNCTIONAL DIVISION: EXHIBITION SPACE

♦ programs of exhibition space:
Permanent exhibition volume: History, achievement and vision of public health agenda of Chicago (the transformation of the South works site)
Temporary exhibition volume: Cutting-edge products and knowledge of health science
FUNCTIONAL DIVISION: EXHIBITION SPACE

◆ space requirement:
Free-flowing space
FUNCTIONAL DIVISION: FOOD SERVICE SPACE

◆ It provides a healthy dining place for people.

◆ requirement on master plan:
  Floating gesture provides people with more attracting experience with the beautiful natural scenery.
FUNCTIONAL DIVISION: FOOD SERVICE SPACE

◆ programs of food service space
  healthy food cooking studio
  healthy food experience restaurant
FUNCTIONAL DIVISION: FOOD SERVICE SPACE

♦ space requirement:
Good view and close to related natural environment
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STRUCTURE PROPOSAL

- parallel rows of columns with different height
STRUCTURE DESIGN

Two-way flat plate system:
Thickness of the floor: 260mm
Size of the steel column: 350*350mm
Reduce the height of the structure
Create continuously strip interior space without any obstruction.
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CLIMATE DESIGN

- in summer

- evaporative cooling
- water runoff
- accelerate surface air ventilation
- floor cooling system
- surface water heat exchanger system

- heat insulation ore wall
- mitigate overheating

26.6°C
51.6°C
CLIMATE DESIGN

- in winter
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MATERIAL PROPOSAL

glass
MATERIAL PROPOSAL

✨ glass
MATERIAL PROPOSAL

◆ wood
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CONCLUSION

◆ The design of the building follows the frame of Health City, and shares the same mission with the Health City. My building achieve the mission of attracting people through the interactive design with the attractive assets in the site.

◆ The design principle of interaction coincides with the group spatial strategy of the master plan. For one thing, The interactive route system in my building is an important part of the west to east spatial strategy of our group. For another, I establish connections between the public building route and the diagonal downtown-view route in the design of my building.

◆ The design responds to the challenge of the orewalls. Inspired by the original scenery inside the orewalls, I design an interactive route to bridge the historic atmosphere inside the orewalls and the natural environment surrounding it. So people could experience both of these two space qualities conveniently.

◆ The structure, clinate and material proposals all dedicate to improve the architecture concept of interaction which stands for less obstruction and more extension.
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THANK YOU