THE CREATIVE CITY
in Chicago

THE CULTURAL BRIDGE

GRADUATION PROJECT
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CONTENT

I . Introduction .05

II . Prior research
(highlights) .07

III . Strategy development site
Concept (highlights)
Design .15

IV . The building
Program
Ambition
Shape
Building technology .37

V . Design process .59
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COMPLEX PROJECTS
At the Technical University Delft, the chair of Complex Projects (CP) addresses all scales of design, from large scale (global, city) to small scale (building, details). The complex projects embrace large projects, like transportation hubs, healthcare centers, interventions on former industrial areas and harbours etc. For these projects it will be necessary to develop strategies on how the interventions on a site can transform the cities in time.

This graduation studio focuses on a large former industry area in South Chicago, Chicago. To develop strategies for this site, research will be done on all different scales to see what could be beneficial for the site, but also for city, region and even global scale.

CHICAGO SOUTHWORKS; THE CREATIVE CITY
The South Works area nowadays is an empty site, formerly owned by U.S. Steel, and is directly located next to a poor neighborhood. In this neighborhood many vacant houses and plots are found, mainly caused by the high criminal rate and low job opportunities. This has a negative affective on the liveliness of the neighborhood. In order to ensure a more vibrant neighborhood it is important to attract new people with the new development of the site to influence this.

The research done by all the students of the studio, resulting in three different research booklets for the different scales, formed the starting point to find a plausible strategy for the development of the site. For me the main issues to address were the poor state of the direct neighborhood and the extension of the Lake Shore Drive (LSD, motorway) into the site, forming a barrier between the neighborhood and the Southworks site and how this should be considered into the development of the site.

Further research on what the city wants to achieve as a city led me to the strategy of a “creative city”, focussed on arts and technology. This is related to the wish of Chicago to attract more overseas visitors by improving their global position in culture and innovation.

Different reference projects as interventions in a city and further research on the site conditions helped forming a phased strategy for the development of the Southworks site. The reference projects gave an idea on how these interventions can work, but do not necessarily have to look the same, while the site condition helped to determine when and where a certain intervention should take place in the phased strategy.

The empty site and vacant buildings and plots can be perfectly used for a development where different target groups, artists, entrepreneurs and students can learn, work together and benefit from each other. The artists and students can make use of the existing buildings, while the entrepreneurs can start with new businesses at the empty site. All these people will have the need for certain facilities, like supermarkets, restaurants, commerce, sports etc., which will also create new job opportunities for the neighborhood.

THE URBAN FRAGMENT; THE CREATIVE STRIP
In this fragment the LSD forms an important factor to consider. To be able to overcome the barrier it causes, it will be of importance to create certain flows between both sides, in such a way a will act as one neighborhood. The program of the designed “creative strip” between site and neighborhood should help to do so.

To find the program the research on landuse and program of the small-scale research booklet and the proposed landuse and program in the strategy for the site formed the base for the design of the strip. Different options led to several strips of program; education, businesses, commerce, leisure and culture, which will cross this road and enable the flow of users from development to site and the other way around.

In the first phase of the development the green strip is de first part to develop in the whole urban fragment, mainly because the green is already there, but doesn’t have a useable function yet. By creating more defined green zones, with some program, like a restaurant, fitness centre, workshop and business space, this first attempt for this flow between both sides can be made. Together with the other program strips a junction of program is created at the LSD, which makes this the most important spot in the whole urban fragment.
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THE BUILDING; THE CULTURAL BRIDGE

With the envisioned junction in mind, where all flows will meet each other, the location for the proposed building is defined. This is the location where the most people will pass by.

The building should because of its location in the strip and function, as a museum, become an icon for the neighborhood. This means that the building should be located at the LSD in such a way that it will be a recognizable object of reference.

By having a cultural program, the building should make a visible connection with the cultural strip. In the plan of development for the urban fragment this cultural strip is the only one that doesn’t continue into the neighborhood, because of the housing program in the extension of this strip.

The building should therefore ensure that also this strip has a flow from neighborhood to site and back. This will be possible by shaping the building in such a way that the park in the neighborhood finds a way towards the cultural park at the site. By aiming for this connection the building will literally bridge the LSD and give another possibility for pedestrians to cross the road in a safer way.

The form and image of the building should emphasize the bridging function of the building, which is researched by many options for the shape in mass models. The models gave insight in how the building can make a connection between both sides. This search ended in a smooth low shape above the LSD. With the idea of the shape, further research by design is done by trying different options for the structure, façade, routing and how they can work together in the form of drawings by hand and computer programs, with the goal to emphasize the connection between both sides made by this building.

PROCESS AND CONCLUSION

In this graduation project it is very clear that both semesters have there own main focus point. The first semester is used to develop a strategy for the whole site, by using general team research and own more focussed research. The general research took some time and ended in some nice booklets, but looking back to what is used of this research it might seem that too much time was spend in collecting general information. A lot of this research has not been used, because of the width of the research. It did form the base to find some problems and opportunities to address in the project, what led to the more focussed research done by myself for the development of the strategy. This research was about the strategies Chicago uses or wants to use to help the poorer citizens and the way the city wants to put itself on the map. With this research I was able to develop a starting point for the strategy and used reference projects related to the same kind of issues to develop the strategy further.

Because the research and the development of the strategy took a lot of time, there was little time for the concept design of the building and direct surroundings for the P2. Because of this it was clear to see that this part was under developed and therefore led to reconsidering a lot of the proposed design for both the building and its surroundings.

From here on a lot of research is done by design, by designing different options and relation diagrams for both the urban fragment and the building, to find a solution in connecting the site and neighborhood in a clear way. Especially the mass study took a lot of time, mainly because the main idea of connecting was not precise enough. When going back and forth between building and direct surrounding, with the use of diagrams in landuse and program, it became clearer what the building should do in the urban fragment, connecting parks, become the beginning of the cultural zone and emphasize the possibility to use the building to cross the LSD.

With this in mind the questions arise on how to construct this bridge and what kind of image it should give. The structure, facades and plans therefore are tested in different options, whereby the main ambition was to emphasize the connecting route in the image of the building. Because of this ambition the building become a smooth object crossing the LSD.

In the end I can conclude that the shape and image of the building clearly show the connection between both sides and more important clearly shows that the building can be used to cross the LSD. Because I took the connection by the use of the building and clear visibility of the route as most important factors in the image of the building, it gave the building its specific shape, making it the iconic building for the Creative City as envisioned before hand.

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THE SOUTH WORKS SITE, CHICAGO
FORMER U.S. STEEL FACTORY, SOUTH WORKS
ART DISTRICTS

798 art district
Beijing

SoHo, New York
Science park, Eindhoven

Science park, Cambridge

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POTENTIAL FOR A “CREATIVE CITY”
OVERLAP IN PROGRAM FOR TARGETGROUPS

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PRIOR RESEARCH
HIGH UNEMPLOYMENT RATE IN SOUTH CHICAGO

UNEMPLOYMENT
- < 5%
- 5 - 9%
- 10 - 15%
- > 15%

source: http://news.medill.northwestern.edu/

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Complex Projects
South Works

h th e c r e a t i v e c i t y

complex Projects
South Works

p r i o r r e s e a r c h

prior research

16/78

23
06
'14
MANY HOMELESS IN CHICAGO

116,042 homeless Chicagoans of which:

- 18,669 STUDENTS
- 10,719 youth 14-21
- 50% homeless families

source: http://www.chicagohomeless.org/faq-studies/
LOTS OF VACANT HOUSING AND PLOTS

VACANT HOUSING

- City of Chicago: 5.41%
- South Chicago: 15.95%

LONG TERM VACANT HOUSING

- City of Chicago: 52.96%
- South Chicago: 64.55%
A HIGH CRIMINAL RATE IS FOUND IN SOUTH CHICAGO

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MIXTURE OF DIFFERENT TARGET GROUPS

PROFESSIONALS
(creative)

ARTISTS
(visual/performing)

NEIGHBORS
(youth, workers, creative people)

STUDENTS
(youth)

THE CREATIVE CITY
Complex Projects
South Works
GOALS FOR THE NEW DEVELOPMENT OF THE SOUTH WORKS SITE

CREATE JOBS AND OPPORTUNITIES FOR THE NEIGHBORHOOD

- To make it desirable to live in the neighborhood
- To reduce the crime rate

CREATE OF MIX OF ETHNICITIES, AGES, CLASSES ETC.

- To be able to create a vibrant neighborhood
- To be able to create a place where people want to go to
STRATEGY

DEVELOPMENT SITE

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GREEN SPOTS AND LAKE SHORE DRIVE

A B C D E

Green Spots and Lake Shore Drive

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South Works
MAIN AXES

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USE THE AXES FOR THE MAIN PROGRAM OF THE “CREATIVE CITY”
LAKE SHORE DRIVE FORMS A BARRIER BETWEEN SIDES

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ENSURE FLOW BETWEEN SIDES TO SOFTEN THE BARRIER
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AIMED PLAN OF DEVELOPMENT

program

central junction of program strips
AIMED PLAN OF DEVELOPMENT

public transport

park accesses

connection between program

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ORE WALLS

Ore walls are the last remainings of the former steel industry

Former industry: Ore is stored between the walls
Proposal by SOM: Demolish three walls
QUALITY OF THE WALLS IN THE CULTURAL STRIP

The stored ore formed a landscape, in the new development this idea can be copied between the walls.

Because of its length a strong direction towards the water is created.

Underneath the proposed landscape dark program can be located, like theatre, cinema, clubs etc.
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Complex Projects
South Works
THE BUILDING
NEW START/END POSITION OF THE LAKE SHORE DRIVE

- Outdoor sports (cricket, golf etc.)
- Lincoln Park Zoo
- Theatre District
- Museum District
- Museum of Science and Industry

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Complex Projects
South Works
PROGRAM RELATED TO THE “CREATIVE CITY”

- Artists
- Performers
- Musicians
- Filmmakers
- Stage designers
- Cloth designers
- Etc...

- Cloth designers
- Stage designers

- Architects
- Industrial designers
- Mechanical engineers
- Etc...

- Academics
- Teachers
- Students

- Retail owners
- Craftmen
- Incubator businesses
- Small & big companies

- Neighborhood youth
- Neighborhood residents
- City residents
- Tourists

- Housing
- Ateliers
- Studio’s
- Workshops;
  - Wood
  - Steel
  - Etc...
- Exhibition spaces
- Offices
- Labs
- Classrooms
- Storages
- Workshop/masterclass spaces
- Meeting spaces
- Auditorium

- Retail;
  - Daily (supermarket, etc.)
  - Art/tech related
  - Clothing
  - Repair
  - Baskets
  - Etc...
- Lunchrooms
- Cafés
- Restaurants

- Museum
- Theater
- Cinema
- Galleries

- Library
- Media center;
  - Digital library
  - Computer spaces
  - Etc...
- Community center
- Childcare
- Sport facilities
- Station
- Market/bazar
- Shopping mall

- Educational Center
  - Too much undefined areas
- Cultural Center
  - More related to art sector
  - Possibility to combine work & education
- Multi Media Museum
  - Possibility to combine art & tech
  - Possibility to combine work, education & culture

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LAKE SHORE DRIVE

Connect both sides of the Lake Shore Drive.

A recognizable building for the creative city.

An icon that bridges the Lake Shore Drive.
BRIDGING THE LAKE SHORE DRIVE
Meaning colors threads

Green: Pedestrian routes, connecting parks
Blue: Commerce route
Grey: Lake Shore Drive (& red line) & 87th street
Black: Connection of building volumes
Important decision in process:
- All routes cross each other at the Lake Shore Drive, this should therefore become an important location in the strip, a square.
- Building volumes exactly at the junction will also become a barrier between both sides, because of blocking the views.
- The Lake Shore Drive should stay at ground floor level to ensure views on the program of the whole strip -> The pedestrian routes should therefore go under and/or above the Lake Shore Drive.
1. Start with contra form of the ore walls.

2. Turn towards park.
3. Turn into to park, enable views between parks.

4. Widen up to create direction and views.
RELATION WITH THE CULTURAL PARK

5. Respond on the landscapes that are connected by the building.

3. Shape enables passage from park to park and the use of the Lake Shore Drive.

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STRUCTURE REFERENCES TRUSSES

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Complex Projects
South Works
Concrete trusses are used because of their clear presence in the facades made by the thickness of the material.

In combination with prestressed concrete beams, because of the length of the span between the trusses.
Bubble deck floors, because of their lower weight and possibility in shaping the floors to fit in the shape of the building.

The depth of the thrusses can be used to express the building and can be (partly) used as vitrine to show art to the pedestrians using the bridge.
STRUCTURE AS PART OF IMAGE OF THE BUILDING

1. Start with the basic trusses to span.

2. Different widths to emphasize flow of the bridge. Because of the forces the openings will be less wide at the ends.

3. Combine the two trusses to conduct the forces to create more free and different shapes in the trusses.

4. Play with open and closed parts give more freedom in the image of the facade.

5. The angles can’t be sharp when pouring concrete. This fact will be used to create even more free forms in the overall shape by using different corners.
1. The corner cores will be used for the stability of the building.

2. Storey high, concrete trusses span the width between the cores above the Lake Shore Drive. The same kind of structure will be used in the whole building.
STRUCTURE OF THE BUILDING

3. Shape cores respond to the trusses

4. Pre stressed concrete beams between the trusses
5. Bubble deck floors form floors, because of the adjustability

6. Steel consoles are used to form the cantilevering parts outside of the building.
7. Prefab concrete elements form the outside public route

8. Beams and consoles to carry the roof
9. Walkable public roof

The routing in the building could be clearly devined and emphazised by the strucure and the difference in open and closed in the facades.

To highlight the route, the part of the facade under and above the route should have a monolithic appearance.
FACADE REFERENCES MONOLITH APPEARANCE

Facade Reference

Facade Reference

Facade Reference

Facade Reference
CHOSEN MATERIALIZATION FOR UPPER AND LOWER PARTS

For the appearance of the building fiberglass textile is used. This gives a monolithic appearance to the facade, because there are no window openings, but it will still be possible to look outside through the windows behind the textile.

It also helps for sunshading to prevent high temperatures behind the glass parts in the facades.
All technical rooms are located near the corners of the building to be able to use shafts in the cores easily for the distribution of ducts, pipes etc.

Because of the placement of the technical rooms the building can be divided into three different climate zones. This helps decrease the length of ducts for transporting air and prevent the threat that these ducts will be too big.
The technical rooms are located near the roof to be able to get fresh air in and release used air in such a way that it won’t be visible. The inlet is behind the cover formed by the roof and the outlet is hidden in sitting elements on top of the roof.

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HEATING OF THE BUILDING

The building will be warmed by floor heating connected to a heat pump, which is connected to an aquifer to store and use heat. The heat out of the used air is transferred to a watersystem by the use of a heat exchanger and stored in the aquifer.

The cover formed by the rood will help to decrease the heat load of the sun on the glass facades.

The use of the fiberglass textile makes it possible to look outside and have daylight coming in.
DESIGN PROCESS
Important decision in proces:
The outside public route through the building to get a closer relation between route and building program.
Important decision in proces:
A sloped roof to find a connection with the landscape and try to make the accessibility of the route clearer.
Important decision in proces:
The use of boxes to emphasise the exhibition spaces in the facades
MASS STUDY

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Important decision in proces:
A smaller footprint to ensure the building will not block the view towards the park at the other side of the Lake Shore Drive.
Important decision in process:
A smooth sloped shaped mass to appear more as a solid object above the road.
Important decision in process:
A lower building finds a better relation with the landscapes the building should connect to each other.
HEIGHT STUDY
Important decision in proces:
The use of the “extra” roof defines a clearer shape and emphazises the public route clearer in the facades.
Important decision in process:
The roof can deviate from the route slopen to empathise entrances.
Important decision in process:
Bigger boxes define the public routes clearer.
Important decision in proces:
The sloped roof is clearer and convincing with the highest point at the left side of the bridge, from where the roof can slope downs towards both parks.
STRUCTURE OF THRUSSES IN MODEL
STRUCTURE OF THRUSSES IN MODEL
STRUCTURE OF THRUSSES IN ELEVATION
Important decision in process:
The thrusses are clearly visible in the facades, to make sure they are not too much of an element on their own a solution between the appearance of the flow of the bridge/shape and the possibilities of the shape of the trusses must be found.
By changing width of openings and open and closed parts the thrusses are more incorporated in the total appearance of the building.
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