Graduation Plan: Architecture, Complex Projects

Personal information	
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Studio	
Name / Theme	**Complex Projects - Chicago Studio**
Teachers	Olindo Caso, Mick van Gemert
Argumentation of choice of the studio	Interest in complex social, economic and urban problems. Chicago is a prime example of the difficulties many US american cities face since the 1980's, when manufacturing declined. It raises a number of social, economic and urban problems these cities share. Chicago as a case study allows for theoretical and practical study of these problems.
Graduation project	
Title of the graduation project	**Manufacturing the Future: Midcity Industrial Incubator**
Goal	

Location: Cicero Avenue/ W 43rd Street Chicago, Illinois, USA

The posed problem:
The rise of Chicago in the 19th and early 20th century was based on its geographical position at the edge of the frontier, linking the inner continent to the East and Europe. It grew from a trading post to the third largest city of the US in a remarkably short period of time, became a transportation hub and developed a strong manufacturing sector. Many of the western neighborhoods of Chicago (the focus area of the project) developed from rural areas to fully developed suburban areas within a few decades.
However, in the late 20th century most manufacturing in the US went over seas,

which led to rapid decline of many midwest cities. Chicago is a prime example of this decline, ever since the city struggles with unemployment and poverty and is unable to develop a strategy for urban redevelopment. Although the city centre developed into a vibrant business centre, the western and southern neighborhoods are still awaiting their rebirth.
During our excursion to Chicago we visited a number of architectural offices which presented schemes for Chicago. All these schemes had in common that they focussed on the needs of middle and upper class residents, ignoring the working class residents of the western and southern neighborhoods. This violates ethical measures and in fact will not solve the structural problems of Chicago. More than half of Chicago's population are working class members, revitalization of the city is not possible without taking these people into account. The key to stopping the decline of the western and southern neighborhoods is providing their working class residents with jobs in order to restore the economic basis of these neighborhoods.
Chicago has many industrial districts within the city limits, but many of them face structural problems like inefficient land use, declined infrastructure, toxic ground and are threatened by urban sprawl. These industrial districts offer the opportunity to develop business areas which offer job opportunities in sectors which do not require high levels of education. If such redevelopment would succeed, wide shares of the Chicagoan population including working class members could benefit.
The challenge is to develop a strategy on how to redefine the existing industrial districts, to reintegrate them into the urban context and to upgrade business activity to a compatible level in the 21st century.

Research questions:

Urban Intervention:
What is the model for creating robust industrial zones in a urban context?

Masterplan/ Building Ensemble:
How can we foster economic development in a new/ eroded industrial district?

Building:
How can a wide range of functions spatially be integrated in one hybrid building?/
How can can a building negotiate between diverse needs and requirements that are connected to the different programmatic elements?
How can the spatial arrangement of a building foster interaction between its users in order to create a network of entrepreneurs?
How can a building contribute to the branding/ visibility of an industrial area/ cluster?

Design assignment:

Competition Brief

Manufacturing the Future: Midcity Industrial Incubator

Background (Masterplan):

In order restore the economic basis for the western neighborhoods of Chicago, the Manufacturing the Future masterplan focusses on the industrial districts along the Chicago Sanitary and Shipping Canal. It aims at restructuring the industrial areas, reintegrating them into the urban fabric and upgrading business activity in scale and quality. For the area of the former LeClaire Courts a new industrial district is proposed. For the adjacent area at the intersection of the Stevenson Expressway, Lime Line (proposed) and high speed train line (planned) it puts forward an innovation campus.

The proposal of an innovation campus is based on research on (industrial) clustering, a strategic tool which worldwide has let to the rise of many strong business areas. The aim of a business cluster is to focus on a certain part of the value chain, a certain product type or a certain production process and to create ideal conditions for innovation and business activity in this field. The main task of a cluster is to facilitate knowledge exchange, to enhance networking activities within the cluster and beyond and to provide shared facilities and general services to member businesses.

In line with the Obama Initiative on Advanced Manufacturing, the industrial cluster on the former LeClaire Courts site focusses on advanced production methods and mass customization. The aim is to attract new and existing businesses which in their production processes focus on advanced methods like 3D printing and robotics. For the innovation campus, three buildings are proposed: a research centre, a ready to use industrial space for startups and spin offs and the Midcity Industrial Incubator, the seat of the cluster organization.

Objective of the Midcity Industrial Incubator:

The Midcity Industrial Incubator is the seat of the cluster organization of the LeClaire Courts Industrial Cluster. Its aim is to provide spaces and services which initiate and strengthen business activity within the cluster. Furthermore, the building is supposed to increase the visibility of manufacturing in Chicago. Chicago possesses many of the ingredients which are necessary to rebuild its strong manufacturing sector like technical universities, industrial land and workforce. However, these ingredients do not meet. The Midcity Industrial Incubator is supposed to capture these potentials and unite them in the LeClaire Courts Industrial Cluster.

Organizational Structure:

The Midcity Industrial Incubator needs to facilitate the five main activities of the cluster organization it houses: administration of the cluster, provision of general services, creating networks within the cluster and beyond, representation of the cluster and policy making.

Administration: The cluster organization is responsible for administering the land use within the industrial district and for providing shared facilities and services like ready

to use industrial spaces and waste management.
Services: One of the main advantages of forming a cluster is the ability of such cluster to provide services that are too valuable or difficult to access for its individual businesses, especially for start ups and spin offs. These services include legal and business advice and coaching, economic monitoring, real estate agency and marketing. The Midcity Industrial Incubator is supposed to become a centre where businesses of the cluster at any stage of their development find help with the problems they face.
Networking: Networking increases innovation. The cluster organization needs to establish strong networks amongst businesses of the cluster, between these businesses and research institutions, between the cluster and other clusters and between businesses inside and outside the cluster. The building is supposed to support this spatially.
Representation: The cluster develops its own name as a brand, the Midcity Industrial Incubator is part of the representation of this brand. Furthermore, the building is supposed to increase interest amongst students of any age and educational level and adults in the advanced manufacturing sector.
Policy making: Clusters need favorable business conditions. As far as policy making contributes to these conditions, the cluster organization is supposed to work towards. The Midcity Industrial Incubator represents the LeClaire Industrial Cluster towards the political arena.

Program:
The cluster organization can be broken down into three departments: Services, conference centre and convention centre. The program is organized accordingly. However, the building is supposed to become an interactive platform. The devision into three departments does not need to be reflected in the design.

List of Spaces:

Conference Centre:
Theater
Event space (flex use)
Meeting rooms
Lobby

Convention Centre:
Exhibition space (permanent exhibition)
Educational lab
Exhibition spaces (flex use)
Showcases
Entree
Storage

Services:

General:
Offices
Meeting rooms

Advise:
Front offices
Meeting rooms
International office

Teaching:
Magazine Library
Class rooms
Meeting rooms
Working area

Others:
Cafe
Newsroom

Site:
The site is an abandoned industrial site at Cicero Avenue/ W 43rd Street. Currently, the surrounding is dominated by the Stevenson Expressway, Cicero Avenue and abandoned industrial land. However, this will radically change in the future due to the redevelopment of the area: Stevenson Expressway will be sent under ground, new public transportation lines will cross the site, the Midway Airport stop of the high speed train line will open in close proximity and the research centre of the innovation campus will be build across the street. The building should at any stage of this conversion function well within its context.

Process

Method description

The design process can be divided into a number of sections. Design solutions are to be derived from a strong background of research and analysis. While allowing the necessary deviations, the research and design process iteratively proceeds from macro to micro scale.

Sequence of stages:

- City and Urban Analysis: Analysis of the urban context in social, socio-economic, programmatic and organizational terms.
- Urban Intervention: Development of an urban intervention, based on a

deepening of research on relevant topics. The aim is to develop a strategic approach to a certain urban area and problem(s) rather than a fully drawn plan. The intervention addresses the posed problem(s) on a number of scales.

- Masterplan: Application of the urban intervention on a limited area and scale which allows to better understand the implications of the intervention. For the explored area a masterplan/ scenario planning should be developed.
- Building: Background Research: Within the masterplan, one building is developed towards an architectural design. The research should include a site analysis, the program, typology, circulation, massing and architectural quality.
- Building Preliminary Design: Development of a preliminary design based on the building research, addressing the whole building (footprint, envelope, programmatic organisation, etc) and deepening research on certain aspects (materiality, sustainability, construction, etc)
- Building: Detail Design: completion of the building design and detailing of critical components (façades, important junctions, details in key spaces, etc). All products should be upgraded to a presentable state.

Literature and general practical preference

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Reflection

Relevance

The graduation project deals with problems which are relevant for most Midwest/ US cities. Chicago is a good test case for strategies and interventions (theory and practice), which are applicable for many Midwest/ US cities.

Business incubators are a relatively well known typology for non industrial and high tech/ digital business clusters/ areas. For industrial clusters the typology is less common and can be developed further.

As a European student it is demanding to design in the cultural context of the US. Most projects I did so far were located in the Netherlands, a cultural context I understand relatively well meanwhile (I am German). My aim is to develop a design which blends in well into the american context, the challenge is not to design a piece of the Netherlands/ Europe in Chicago.

Time planning

01 Sept – 09 Oct 2014: PROJECT INITIATION - Initial Research and development of areas to be researched further. Begin work on the Research Book

10 – 24 Oct 2014: CHICAGO FIELD TRIP – Site visits, workshops, interviews, etc

24 -31 Oct 2014: P1 PRESENTATION – Finalizing Research Book, integration of insights from Field Trip. Framing a stream of focus for the coming period (Urban Design)

31 Oct – 12 Dec 2014: URBAN INTERVENTION – Deeper analysis of issues facing industry and development of urban strategy.

01 Dec 2014 – 23 Jan 2015: MASTERPLAN – Identification of an area within the

urban plan for more detailed design.

05 Dec 2014: MASTERPLAN PRESENTATION – Informal presentation of urban plan masterplan to students and tutors of Chicago Studio

12 Dec 2014: MASTERPLAN EXHIBITION

14 Dec 2014 – 23 Jan 2015: BUILDING FORMULATION – background research and initial design of a specific building within the masterplan.

23 Jan 2015: P2 PRESENTATION – Presentation of all work to this point. Background research, urban plan, masterplan and building formulation.

25 Jan – 06 March 2015: PRELIMINARY DESIGN: Implement strategy outlined at P2. Finalise conceptual strategy (factor of the future), continue development of the design (planning, massing, envelope), develop structural system and material research / selection.

06 March – 17 April 2015: DESIGN DEVELOPMENT: Development of structural, environmental envelope systems. Finalization of materials and façade (approximately 1:50 scale)

06 April – 17 April 2015: P3 PRESENTATION PERIOD

17 April – 22 May 2015: DETAIL DESIGN: Finalize building details. Prepare P4 Presentation (models, drawings, renders, etc)

11 May – 22 May 2015: P4 PRESENTATION PERIOD – Presentation of whole project from background research, urban plan, masterplan, building design and detailing.

22 May – XXXX 2015: PRESENTATION DEVELOPMENT – Develop presentation further for P5 (models, drawings, renders, animations, etc)

XXXX: P5 PRESENTATION – Public presentation of project.