Complex Projects

Shootings, crime, school dropouts, domestic- and gang violence, drug- and alcohol addiction; The South-side of Chicago today is notorious for its unsafe, empty and neglected neighbourhoods, in big contrast to the glorious days of the steel industry, once a driving force in the area. The withdrawal of the South works Steel Company in the 1970's left the area only with the footmarks of what once was a vibrant and productive community.

The area around the site is in total isolation. In social sense, because of the neighbourhood's lack of proper education, healthy food, health care and safety. In physical sense the area lies isolated as well, because of borders created by infrastructure, dividing the area in different social and ethnic classes, and the lack of proper public transportation from and to the South-side. The vacancies and empty plots are a reason the area is scattered and fragmented. This asks for an intervention that can provide it with proper access to jobs, education and health care.

By proposing common ground as a concept for development we are aiming to reconnect with reality. Injecting the South work sites with basic needs as schools, industry and agriculture, the neighbourhood can profit from education, work, and public functions. A direct interaction on the site between the production and consumption of food, will provide an example for cities in reducing their footprint while empowering the people of Chicago South in part of their basic needs: food as binding factor. Common ground is a framework for sustainable and flexible growth, with the potential for social, economic and and environmental improvement of Chicago South. By designing a fragment of the total master plan I go deeper into the social, environmental and spatial implications of this proposition.

Food as common ground

By bringing people with different backgrounds together through food, which is something we all need, that binds us, a collective awareness for our current consumption behaviour can possible be achieved. Althought the building is not a solution for the structural problems in the area, social, economic and environmental isolation, it can be an urban catalyst as a start for better conditions in the neighbourhood, providing work, education and social diversity. By exhibiting food production with architectural tools such as contextual, programmatic and spatial relations, light, materiality and spatial configuration food can be experienced, smelled, seen and touched.

As this complex on its own will not be an answer for our current food problematics and overconsumption. rethinking how we produce and consume can create more awareness for the effort it takes to feed us. with this project, I have tried to give an answer to my research and design question:

Research question

To what extent can a building contribute to the structural problems of the social, economic and environmental isolation of Chicago South and a state of overconsumption in the city?

Design question:

How can architecture contribute to awareness for our current state of food production and (over)consumption in the city?
COMMON GROUND
SCHOOL FOR CIVIC AGRICULTURE AND URBAN FOOD SYSTEMS

Theme: AR3CP01 Complex Projects
Teachers: Olindo Caso, Hubert van der Meel
External examiner: Frank Koopman
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On a crossing point

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To what extent can a building contribute to the structural problems of the social, economic and environmental isolation of Chicago South and a state of overconsumption in the city? And how can architecture contribute to awareness for our current state of food production and (over)consumption in the city?
Location
United States of America

A state of overconsumption and cheap production,

made industries leave to cheap labour countries,

GRADUATION STUDIO: COMPLEX PROJECTS CHICAGO
resulting in abandonment and complex socio-economic conditions in Chicago South

Studying spatial, social, and environmental solutions for the complex conditions found:

1. Urban strategy for Chicago South
2. The urban fragment, crossing point of people, city, nature.
3. Architecture: A school for urban food systems
former steel factory

- Social isolation: lack of diversity
- Economic isolation: lack of jobs
- Environmental isolation: victim of cheap production and consumption

7 problems:
- Unsustainable future
- A state of isolation
- Failed system
- Vacancy
- Strong community
- Collective memory
- A final state

Providing the most necessary basic needs for now: Work and education.

Creating jobs for multiple levels of degree or no degree at all.

Educating students and civilians, institute with intricate relations to the neighborhood and society.

Public functions and district board.

Awareness for the future, providing for the present.

Back to reality! Provide awareness for a common future: We aim for cities as places to fall back to, provide for our basic needs socially, economically and environmentally. Chicago South as an example to create awareness for this fact.

School for civic urban food systems in Chicago South.

STUDY COMPLEX PROJECTS
CHICAGO SCHOOL FOR CIVIC AGRICULTURE AND URBAN FOOD SYSTEMS
and 7 spatial solutions

- ecological independency
- connectivity
- power of the collective
- density
- diversity
- change collective memory
- flexibility
URBAN STRATEGY FOR COMMON GROUND
QUESTIONING THE CURRENT SOCIAL, ECONOMIC AND ENVIRONMENTAL STATE OF CHICAGO SOUTH

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On a larger scale, other problems arise. The United States consumes almost twice the amount of their resources. Together with a shrinking biocapacity per capita and a constant consumption level, the country is running out of sources. Cooperation on a small and large scale is necessary for the future. The South works-site has the potential to distinguish itself and become a place of awareness for this state of overconsumption.

Chicago’s regional position in the Midwest can reconnect the area with the rest of the country again. As it used to be a pioneer in the field of steel-production, this time it will act as the pioneer in sustainable and agricultural technology. Its strategic position can be fully exploited again. The fragmented condition of the South-side of Chicago on a social, spatial, environmental, economic and political level demands a binding factor: we propose common ground as diverse experiences where people come together, conflict, and share information, thoughts and opinions. Therefore common ground can act as a moment of self-awareness and of everyone around us, and the current state of areas in decline, like Chicago South.

By proposing common ground as a concept for development we are aiming to reconnect with reality. Injecting the South work sites with basic needs as schools, industry and agriculture, the neighbourhood can profit from education, work, and public functions. A direct interaction on the site between the production and consumption of food and energy, will provide an example for cities in reducing their footprint. Common ground is a framework for sustainable and flexible growth, with the potential assurance of spatial, social and sustainable quality for the future city.

Common ground is a strategy for urban development that consists of 7 layers with the aim for environmental, social, spatial and economic sustainability. Although this plan cannot be self-sustainable, the main goal of the plan is to provide awareness for the current state of Chicago and Chicago South.
Chicago South & urban strategy
Placed on one of the main axes in the strategy
THE FRAGMENT
CROSSING POINT OF RELATIONS FOR PEOPLE, THE CITY AND PRODUCTIVE LAND

A Land Grant school for civic urban agriculture
By designing a fragment of the total master plan I go deeper into the social, environmental and spatial implications of this proposition. The sustainable consumption and production means a radical change for the build environment, changing the relation men and productive land. It calls for a shift in the way we build and develop neighbourhoods, cities and regions, but also redefines the relationship of the individual within the collective. More important than the consequences for the built environment are the social consequences of this plan. It implies the cooperation of people in their own food production and active involvement in waste, water, energy use. This needs a collective awareness, or common ground. Chicago South offers a lively and strong community, culture and a history which an intervention has to respect and to be able to embrace.

The task is to find a relevant intervention that deals with the complexity of the present, and the future to come. So what is needed in the present? On a local scale, the area is being isolated due to closings of schools and the lack of education and simultaneous job-opportunities. The lack of education and job-prospects in Chicago South is an important issue to tackle. For the future, the area needs new meaning, not only on micro scale, but on the macro scale, in order to break the negative circle of school closings, lack of jobs and decreasing property value. Combining education and work for multiple income groups within the field of sustainable consumption and production of food, has the potential to provide new meaning and opportunities for the area on multiple scales, for the existing community and new inhabitants of South-Works. As the development will attract new people, the intervention becomes has the potential to become a place of interaction for a diverse group of people.

**Potential to deal with the complexity of the present, providing work and education**

Work: Agriculture in the city offers new employment opportunities for multiple levels of degree.

Source: Dr. Dickson Despommier: The vertical farm, feeding the world in the 21st century

Education: Based on the The Virginia tech minor civic agriculture and food systems, “Learning together”, Providing a ground not only for students, but also to support and educate the local community

Source: Ken Meter, food system analyst

The Land Grant institutions started off in 1862 with a mission: To offer classical studies so that members of the working classes could obtain a liberal, practical education. A Land Grant school for civic urban agriculture has the potential to be an urban Catalyst for Chicago South while creating awareness for a common future in which we are more aware of our food production and consumption. To offer education to members of the lost working class in the Mills, the steel production that left Chicago Sout. The school as platform for intricate contextual and social relations in response to the current state of isolation in Chicago South.

**Potential to deal with the complexity of future environmental issues, researching the state of the art in urban food production: food production in buildings (a selection of environmental advantages)**

1. Produce all year round and there are no weather-related crop failures.
2. No agricultural runoff, allowing the ecosystem to restore itself.
3. No pesticides, herbicides, or fertilizers have to be used.
4. The entire system could use 70–95 percent less water and food miles (distance food has to be covered to consumer) is drastically reduced.
5. More control of food safety and security

Source: Dr. Dickson Despommier in the vertical farm, feeding the world in the 21st century

“Greening the 21st century city will improve our health, stabilize our economy and bring us all closer together as we meet in the garden.”

Source: Viljoen in Continuous productive urban landscapes, designing urban agriculture for sustainable cities.
How can architecture contribute to awareness for our current state of food production and (over)consumption in the city?

CONTEXTUAL RELATIONS
The fragment is designed in such a way that the built environment has direct visible relations with the productive land, nature and wetlands. The school for urban food systems is placed right at the crossing point of city and productive land, creating an urban moment with views towards the open land.
A school has intricate relations with society and the city, and should not be excluded or closed off from it. The power of education lies not only in a curriculum defined by a closed institute, but also in the ability to become part of the larger learning apparatus within society itself. In this case, the school acts as a social catalyst for the area as it brings together students and local inhabitants. The school acts as a startup for productive land in the area providing knowledge and material for local inhabitant to kickstart their own food production in their gardens. To facilitate this network, a physical place is required, for people to actually meet each other, and together learn more about our food. Architecture has the potential to facilitate awareness for a common future. Architecture as crossing point of city and productive land.
A building that supports the position of common ground
A school for civic agriculture and urban food system.

providing for the present
ATTRACTION
SCHOOL: LAND GRANT COLLEGE
Educating students and civilians, institute with intricate relations to the neighbourhood and society

SUPPORTING THE COMMUNITY
Public functions and district board

AGRARIC ENTERPRISE
Creating jobs for multiple levels of degree or no degree at all

providing for the future
AWARENESS
RESEARCH ON FUTURE FOOD PROBLEMATICs
Awareness for the future

social diversity
building relations
and providing knowledge

economic potential
jobs in agraric sector

environmental frontrunner
sustainable food production

jobs

Based on the The Virgina tech minor ´´civic agriculture and food systems, which combines community engagement, education and research on urban agriculture

1. CIVIC ENGAGEMENT AND PUBLIC FUNCTIONS

what is civic engagement?

“Learning together”
KEN METER, FOOD SYSTEM ANALYST

2. VOCATIONAL EDUCATION

what is educating urban agriculture

“Experiential based education”
SUSAN CLARK, NACTA (NORTH AMERICAN COLLEGE AND TEACHER OF AGRICULTURE

3. RESEARCH

What is research on urban food systems.

“13 topics”
The RUAF foundation (Resource centre on Urban Agriculture & Food security
Food production, fruit and vegetables

| Interior 5,000 m² | Exterior 20,000 m² |
The problem
The social, economic and environmental isolation of Chicago South

Position, What to do?
The manifest for common ground

Through: the urban strategy for common ground

Architecture: place as urban incubator

Conclusion

SELECTION OF DATASCAPE

Landscape

Architecture

Platform

Visitor

Building mass

Facade

Building

SELECTION OF DATASCAPE

Large scale research fields

Vocational fields

Pasture area livestock

Commercial farms

Urban food systems

Chicago South & urban strategy fragment

Lake Michigan

Ground floor, a field

Second floor, a platform and above the building

Ground floor, a platform and above the building

Ground floor, a platform and above the building

GROUND

The fragment Chicago South and urban strategy fragment

Building structure

STUDIO COMPLEX PROJECTS  CHICAGO SCHOOL FOR CIVIC AGRICULTURE AND URBAN FOOD SYSTEMS

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The problem Position, What to do? Through: the urban strategy for common ground

The crossing of productive landscape and city

The fragment Chicago South and urban strategy ground floor first floor roof and vertical farm

Flexible development, vertical space to make development is constructed using tailor-made where necessary.

Private research/labs

Programmatic relations

Public functions are placed in the building's public area, and on the first floor directly facing the public area.

When functional elements such as vocational rooms, school functions, and research facilities are placed deeper inside the building, it is in the form of the school's interior as a city in a city. The crossing of productive landscape and city.

The building is a superimposition of a school, research facility and vertical farm. These three functions are articulated in their masses.

The area of the art in urban agriculture

Urban agricultural elements, such as roof gardens, interior gardens and vertical farming systems are placed at key points in the building.

Relation between agriculture and building

Every room in the building has visual and direct relations with one type of farming system, seeing and smelling different vegetation reduces stress and creates an atmosphere.

Orientation & climate

The building is in a city. From open field, to square to enclosed rooms, the buildings interior acts as a city in a city. The crossing of productive landscape and city.

Ground Floor acts as a field, high flexibility open, allowing the crossing of productive landscape and city. The middle floor acts as a public area, providing a buffer for the building, with the functions of the exterior and the interior. The project acts as a buffer, creating a hybrid function in the city.

The crossing of productive landscape and city.
The mass conceptually works like a piece of stone, cavities are excavated, creating interior spaces of light for interior food systems.
The buildings structure contributes to the expression of the field. In the base, by using a main structure of steel, the columns can remain slender and light, creating an artificial forest of columns on the ground floor.

The tower is a very technical story, it represents a new sort of factory, a vertical greenhouse. Because of this it is made by a complete steel structure, steel columns and steel trusses, spiralling up.
A low base and tower, Facades expressed in two different materials: wood and Steel/ETFE (transparent Polymer)
elevation East
elevation South
THE URBAN MOMENT

The fragment is designed in such a way that the built environment has direct visible relations with the productive land, nature and wetlands. The school for urban food systems is placed right at the crossing point of city and productive land, creating an urban moment with views towards the open land.
An urban moment where productive land meets the city.

Research fields
- Crop yield and data generation
- Soil chemistry and fertility
- Soil management
- Crop production
- Weed science
- Entomology
- Plant pathology

Vocational fields
- Teaching and practical education in the field of urban agriculture
- For students and local inhabitants

Wetlands and nature trail
- Natural water treatment system
- Providing leisure and a wide variety of wild plant life

Greenhouses
- Used extensively for both research and teaching, the Research Greenhouses provide facilities and support for production of agronomic, horticultural, ornamental and forest plants

Centre for advanced urban agriculture

Urban moment where productive land meets the city.
THE FIELD

A spatial answer to create openness, accessibility, and service to people is to create a field at ground level, opening up to the public. Connected from city, to building, to interior. The public interior at ground level creates a place of meeting in the city for a wide variety of people.
THE PLATFORM
Main story - urban agriculture, awareness, institute open to society

Link to relation scheme: Opened axo interior garden

Program: Interior farming

Building mass: Platform, roof garden, tower.

Floor directly facing the public: Buildings plinth, and on the first

Public functions are placed in the

Programmatic relations: total: 12,000 m², 1800 m²

1. Public functions
2. Vocational education
3. Research on food production/consumption

Wetlands
Arboretum
Large scale research fields
Research greenhouses

Architecture
Landscape

The building has intricate

towards qualities of the site.

The crossing of productive

landscape and city creates an

urban moment, an vista

Building structure: Facade, sections, elevations

Relation interior agriculture and outdoor landscape.

Every zone in the building has

visual and direct relations with

one type of farming system.

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THE VISTA

A platform
raised above the fields

architecture guiding the gaze towards the open land.
FACADE AND PERMEABILITY
The facade as tool to guide the view: open - semi transparent or closed
PROGRAM AS TOOL FOR SOCIAL DIVERSITY
The public atrium as central meeting ground

We see students that go to classes, or meeting with local inhabitants to work on their projects, people applying for jobs or going to their jobs in the food producing parts of the building and researchers working in the labs. People meeting during breakfast, lunch or dinner in the mensa next to the interior gardens where people are doing workshops. Places where local community organisations meet, discuss with Chicago’s municipal officers. All sharing the same building, binded by food.
INTRICATE RELATIONS INTERIOR/EXTERIOR

Continuation of producing landscape vertically in public space
The vertical farm

The public atrium has a central role in showing the city and its inhabitants the school is a public place. The city runs through the building, inside and outside separated by large glass planes only. The entire ground floor is public, the more private sections of the school, such as classrooms and labs are lifted up one floor, articulated in a closed wooden mass. A vertical farm marks the public atrium from far, a continuation of the horizontal cropfields outside, into a vertical cropfield inside.

Section BB'

greenhouses
used extensively for both research and teaching, the Research Greenhouses provide facilities and support for production of agronomic, horticultural, ornamental and forest plants.

research fields
- crop yield and data generation
- soil chemistry and fertility
- soil management
- crop production
- weed science
- entomology
- plant pathology

public atrium
crossing of city, landscape, interior and people
1. district board and communal space
2. public lecture room
3. helpdesk and store
4. practical research on urban food systems
5. public workstations
6. the institute, Land-Grant school for civic urban
7. cafe
8. logistics, machinery
the square
urban moment where nature and city crosses.
Connection:
Tram stop

vocational fields
teaching and practical education in the field of urban agriculture for students and local inhabitants

Arboteum
research on local tree life

wetlands and nature trail
natural water treatment system, area for leisure and a wide variety of plant life.

Continuation of producing landscape vertically in public space
The vertical farm
INTEGRATING THE STATE OF THE ART IN URBAN FOOD SYSTEMS
hydroponic systems spiralling up into the tower, one of the urban food systems integrated into the building, aiming for a closed system of water, energy and waste.
Do you know where your food comes from?

Showing what it takes to produce our daily food is a paradigm change which could make us more aware of our consumption.

Letting people smell, see the food that comes to their table, actively be involved in the production of it can change the relation food and the city.

Architecture has the ability to facilitate this idea, as a spatial answer to let people experience food. By creating visual relations with different production methods within the building. These production methods have their own architectural spatial types, such as the interior garden, (as shown in the section) the productive wall, and the vertical farm.
characteristic: light on urban food systems
LIGHT

Architectural expression of integrated food systems: marked by light and spatial configuration
The interior garden: light guides the view into the interior garden from the Atrium.
A view into the vertical landscape, at night a beam of artificial light will light the Atrium.
Light marking the productive wall and stairs
Light marking the productive wall and stairs
FOOD INTO THE DETAIL
A landmark for Chicago South
Conclusion and summary

Research question:
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Design question:
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By bringing people with different backgrounds together through food, which is something we all need, that binds us, a collective awareness for our current consumption behaviour can possible be achieved. Although the building is not a solution for the structural problems in the area, social, economic and environmental isolation, it can be an urban catalyst as a start for better conditions in the neighbourhood, providing work, education and social diversity.

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As this complex on its own will not be an answer for our current food problematics and overconsumption, rethinking how we produce and consume can create more awareness for the effort it takes to feed us.