SpongeCity Superblocks

Studio: Fall 2015 – Spring 2016
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Partners: Changde Urban Planning Bureau 常德市規劃局

Site: Changde (China) and Chicago (US)

Studio Summary:
Students will learn to design a "SpongeCity" where soft, green infrastructure collects rainfall in order to store drinking water and control flooding. And, each student will design a Superblock for a low carbon SpongeCity that is mixed-use, thoughtfully-dense, people-oriented, and ecologically-responsive for Changde, China (fall semester) and Chicago, US (spring semester).

Intro
As the world continues to urbanize at an astonishing pace, architects and urban designers must continue to find ways to steer its physical transformation. For the first time in history, the planet is more urban than rural. Existing cities are expanding and new ones are being formed with few historic precedents. In many ways, the contemporary Chinese city is a global model of future urban development. Understanding Chinese urbanization is critical to understanding urbanization of the world.
Urban China
China’s population is almost 1.4 billion, over half live in cities and urban regions. By comparison, the United States’ population is only 320 million, but approximately 80% of people live in cities or urbanized areas. Over the past 35 years, China’s urban population has exploded from approximately 150 million people in 1978 to over 700 million today. China’s growth is fueled by a booming “maker” economy, kicked-off by Deng Xiaoping’s “Reform and Opening up” policies in 1978. Since the late 1970’s, millions of rural and migrant laborers have steadily left the countryside in search of employment opportunities in urban and industrial regions. The world has never experienced this phenomena of rapid urbanization, which continues today at an unprecedented scale and pace. It took American cities decades to accomplish what China is doing in a single generation. Beginning in 2001, the pace of urban growth has been equivalent to building a new Chicago every month for 14 years.

These trends are predicted to continue into the future. China’s municipal leader’s want 70 percent of the entire population – 900 million people – to be assimilated into urban regions by 2025. This will require moving 200 to 250 million more people into cities in the next 10 years. This strategy is purely economic: since urbanized people spend more dollars (Yuan) than their rural counterparts, the idea is to strengthen the national economy by urbanizing as many domestic “consumers” as possible. This goal will create over 220 cities with over 1 million people. By comparison, Europe has 35 cities with a population over 1 million people, and the United States has only 9 cities with a population over 1 million people. The scale and magnitude of this project is enormous.

Superblock Urbanism
In China, the superblock dominates the urban landscape. From the air, looking out the window of a plane on takeoff or landing to/from China, the superblock consumes the sprawling landscape, accommodating millions of new urban dwellers. The superblock is a hold-over from Soviet-era danwei-type planning, and the Modernist’s utilitarian social housing block. Recently, over 10 superblocks have been built per day in China, accommodating thousands to tens of thousands of urban dwellers. These large scale enclaves – gated and walled communities – vary in size, some are over 40 hectares (100 acres). Superblocks also now appear in the center of existing and historic cities, sometimes dwarfing ancient architectural typologies.

Superblocks as spatial instruments
In 1997, Chinese leaders relinquished their duty to provide social housing. Since 1997, private real estate developers assumed the task of constructing dwellings to meet market based demand. The high-density superblock model was adopted as the most expeditious design solution. As spatial tools, superblocks exist between architecture and the city. Superblocks function simultaneously as architecture, urbanism, landscape, ecologies, and economies.

To raise money to build much needed infrastructure, schools, hospitals, and cultural venues (etc.), China’s municipal (local) governments sell land rights to developers. The governments first acquire large tracts of land, then assembles these parcels into “big blocks” (or, superblocks), which are purchased at auction by developers. After winning an auction, a developer has a relatively short timeframe to construct a superblock or else the developer loses their right to the land (at which time, the land is re-auctioned).

A onetime “real estate” tax is levied by municipal government as each unit within a superblock is sold. Because China does not have a policy (yet) of collecting yearly property taxes, this onetime tax is vital to the economic stability of municipal governments. These municipal governments continually parcel new tracts of land into superblocks for private developers to purchase to assure that cash flows into the government to pay for local public goods and infrastructure. The process necessitates more and more development, which leads to extremely large, often isolated housing districts (suburbs).
Urban Archipelagos
Superblock developers are often unconstrained by broad urban planning or urban design guidelines established by municipalities. Additionally, these developers often build superblocks without concern for existing or planned transportation systems, public spaces (parks and recreation areas), or support facilities (super markets or schools). A single architecture office, or “institute” often designs an entire superblock with little feedback from developers or municipal leaders. The resultant superblocks are often isolated, walled-in enclaves that require residents to spend hours getting to work or recreational areas. In urban areas with extra-high densities of superblocks, transportation by bus can take hours per day because public transportation services cannot adequately support thousands of people simultaneously.

Surrounding Walls
Many superblocks are walled-in, self-contained enclaves that function as gated communities. Like American suburbs, superblocks are often mono-functional with poor connections to public transportation. The design of interior-focused courtyards might encourage interactions between community members if the quality of the urban/landscape design promoted personal engagement. More likely, the urban spatial design within each superblock is based on parking schemes, which lead to little public open space or community engagement. Connectivity or continuity between superblocks is rare, especially when the only way to enter a superblock is through a small number of guarded passageways along unfriendly expanses of sterile walls.

Mono-functionality
Superblocks are typically not mini-cities containing all the functions and programs that a person might need in daily life. More likely, superblocks have only a single (or primary) residential function. These large scale “bedroom communities” often require multiple trips to be made outside the walls of the superblock – often by car – to work, shop, relax, go to school, or eat. Younger or older generations incapable of driving are effectively stranded unless family or friends provides private transportation or assistance on public transportation.

Tabula Rasa (Blank slate)
Superblocks typically erase urban fabric, sometimes historically important areas of cities such as Hutong neighborhoods in Beijing. Displaced people lose their homes and villages in favor of a clean start underlies a strategy of relocation to make room for generic superblocks. Modern planning and development of superblocks also requires new city-level roadways and province-scale expressways. Whatever the scale of obstruction in the way of superblock development – villages, farms, forests, hills and waterways -- is routinely flattened and eliminated.

Cultural Considerations
For those who can afford to purchase luxury apartments in Superblocks in megacities such as Beijing or Shanghai, modern China is a superb place to live. These luxury superblocks can be either gated or open as long as they are centrally located, or located within any desirable neighborhood. Developers and architects have discovered that superblocks provide their elite (wealthy) and semi-elite (professional) clientele all the modern conveniences, security, and lifestyles desired by most any cosmopolitan dweller across the world.

Superblocks are also international icons of some of the challenges China has been having with its super-fast urbanization. For many lower-income urbanites in China, superblocks located far on the edges of megacities are isolating and difficult to travel to and from on a daily basis. Suburban superblocks are hours away from the central cities where many jobs are located. Commuting times can be extreme and exhausting resulting in a poor quality of life. Forming traditional communities and familial networks while living in remote superblocks is difficult and culturally jarring.
Super-Possibilities
Despite the challenges, Superblocks can be a powerful tool to build or rejuvenate cities and sub-cities (districts, or neighborhoods). Proven benefits of superblocks include density — the close clustering of people together in communities — which has always been a huge factor in the cultural and economic progress of cities and nations. Density sparks higher energy efficiency, greater infrastructural (especially public transportation) advancements, and larger aggregates of creative and ambitious people to foster faster rates of innovation. Studies show that economic growth and development is higher in cities and urban districts that are not only dense, but where density is most highly concentrated. Three types of occupations — (1) arts, media and entertainment, (2) science and technology, and (3) business and management are strongly associated with density, and especially in cities that are more densely concentrated at their cores.

Diversity is strongly associated with density, especially foreign born new-comers to cities. People interested in alternative forms of transportation such as biking, car sharing and walking are closely tied to urban density. High-density developments such as Superblocks also help conserve and protect natural areas adjacent to cities, and minimize the encroachment of urban development on farms, forests, wetlands and ecologically vital environments. Creating and/or sustaining high-density neighborhoods through urban infill projects contributes to dynamic communities where residents enjoy spending time. New superblock developments can include desirable mixed-use urban support amenities which may not be possible or sustainable at lower densities. There are many more benefits to dense urban places if they are designed to be mixed-use and scaled for people.

Sponge City
“Sponge Cities” are new projects being launched in China to use the full potential of rain water in cities. The studio’s site in Changde is one of the first in a batch of the 16 sponge cities that will be designed to allow rainwater to be stored and purified using a permeation system. Given the growing lack of potable water in many Chinese cities, it is widely agreed something needs to be done. Rainfall in most cities usually makes its way to the nearest rivers and lakes through the local drainage system. However, many of the drainage systems across the country are still highly under-developed. This often leads to significant flooding during heavy rainfalls. But under the new sponge city program, nearly 70-percent of excess rain water will be recycled and reused on greenery, street cleaning and fire-fighting. On top of this, a bio-retention system can also be built to collect and purify rain water from green belts along the sidewalks.

Project
The studio will undertake research into the future design of Sponge Cities and Superblocks in both China and United States. Each student will design mixed-use, thoughtfully-dense, people-oriented, ecologically-focused Sponge Cities and Superblocks for both Changde, China and Chicago, US. Utilizing a design-based research process, we hope to redefine the importance, malleability, orderliness and usefulness of the Superblock. The studio will study the repercussions, possibilities and future potentials of the worldwide phenomena of the Superblock, and reevaluate the Superblock through the lens of urbanism, ecology, economy and people. We will attempt to invent new design ideas for Sponge Cities, and original ideas for Superblocks that are meaningful simultaneously in Changde (China) and Chicago (US).
1. **Sites: Changde and Chicago**

**Site - China**

湖南常德阳明湖

Changde City, Yangming Lake District in Hunan Province
本次设计用地范围约12平方公里，其中水面积约1.5平方公里，已建、已批项目约2.8平方公里，可开发建设用地约8平方公里。

Land involved in the design is 12km large, including 1.5km of water area, 2.8km of completed and approved area and 8km of land for further development and construction.
基本情况介绍

General Descriptions

（一）常德市城市总体规划情况介绍。

(I) General urban planning of Changde City.

常德市位于湖南西北部，沅江下游和澧水中下游。北与湖北省毗邻，西与张家界市相连，西南与怀化市接壤，东南与益阳市相依。常德市是湘西北区域中心城市，综合交通枢纽城市和生态宜居城市。市域人口621万，辖两区一市六县。中心城区现有人口80多万，用地80多平方公里，规划至2030年人口155万，用地160平方公里。中心城区用地呈一城三片区组团式格局（江北城区、江南城区、德山城区）。

Changde City is located in the northwest of Hunan and at the lower reaches of Yuanjiang River and middle and lower reaches of Lishui River. It borders upon Hubei Province in the north, connects with Zhangjiajie in the west, links with Huaihua in the southwest and faces Yiyang in the southeast. It is also a central city, traffic hub city and ecological city for habitation in the northwest of Hunan Province. Now it has an urban population of 6.21 million and governs two districts, one city and six counties. There are over 800,000 residents in the downtown. It covers an area larger than 80km². As planned, its population will reach 1.55 million in 2030 and its area will be enlarged to 160km². The urban area is divided into three parts, including north riverside area, south riverside area and Deshan Area.

（二）城市对外交通情况。

(II) Public transportation.

常德市是全国首批确定的20个高速公路枢纽城市之一。

Changde is one of the earliest 20 expressway hubs accredited by the State.

1、公路交通：二广和杭瑞两条国家级高速公路干线在中心城市交汇，并在城市外围形成85公里高速环线。国道207、319经过常德。

1. Highway: Trunk lines of two national expressways Erenhot-Guangzhou Expressway and Hangzhou-Ruili Expressway are crossed at the center of this city and form 85km-long bypass expressway outside the city. In addition, national highways, such as 207 and 319, are laid across the city.

2、铁路交通：境内已运行石长铁路，黔张常铁路已经动工，规划的还有常岳九铁路。

2. Railway: Shimen-Changsha Railway has been put into operation in the city. The construction of Qianjiang-Zhangjiajie–Changde Railway has been commenced. In addition, the railway extended through Changde, Yueyang and Jiujiang, has been planned.
3. 航空：有桃花源机场，开通了常德至北京、深圳、广州、上海、杭州、重庆、昆明等航线，即将完成4D级机场升级。

3. Airport: Taohuayuan Airport is available here, enabling passengers to travel to Beijing, Shenzhen, Guangzhou, Shanghai, Hangzhou, Chongqing and Kunming. It will be upgraded into 4D airport soon.

4. 水运：水运有千吨级码头通过沅江到达长江。

4. Waterway transportation: Yangtze River can be reached via Yuanjiang city through wharf with holding capacity of 1000t.

目前常德已基本形成公路、铁路、航运、水运立体交通网络，对外交通十分方便快捷。

Now Changde has a three-dimensional transportation network integrating highway, railway, airport and waterway into a whole and enjoys great convenience in transportation.

（三）项目位置及用地情况。

(III) Project location and land use.

该项目位于常德市江南城区建新路以南·桃林路西延线以北·桃花源路以东·，阳明路与大湖路以及善卷路以西所围合的区域，总用地约12平方公里，其中现状水面约1.2平方公里，已建、已批用地约2.8平方公里，开发可建设用地约8平方公里，该区域连接着江南城区的旧区与新区，是城市发展的重点区域。

The project is located to the south of Jianxin Road in the south riverside area of Changde City, the north of west extension of Taolin Road, the east of Taohuayuan Road and the west of Yangming Road, Dahu Road and Shanjuan Road. It covers a total land area of 12km², including 1.2km² of water area, 2.8km² of completed and approved area and 8km² of area for further development and construction. It also serves as a link between the old area and new area of the south riverside area and plays a decisive role in urban development.

（四）项目周边环境及市政设施条件。

(IV) Environment and municipal facility around the project

该区域地势平坦，高程在黄海30.0米左右，目前现有桃花源路已建成·建新路基本建成·杨家港路已启动建设·，阳明路已建至金霞大道，南段至丰家湾路启动前期。红云路已从金霞大道建至福广路。该区域的其他道路均未建设。在该区域已建成的项目有福捷华中城市市场·温德姆酒店·鼎丰住宅小区·领秀公馆住宅小区·鼎城区人民医院·善卷中学·常德职业技术学院综合楼。已批准的有五金交电市场·医药产业园等项目。详见有关资料。
2. Research: Changde Planning and "Sponge City"

The studio will undertake research on the following topics. Each student will be assigned one or two topics to research and present to the studio during the first four weeks (see schedule).

策划部分

Planning

1. 项目背景分析、基础资料分析、现状分析、类似项目案例分析、区域发展定位分析。

1. Project background analysis, basis data analysis, current situation analysis, similar project case analysis and regional development orientation analysis.

2. 总体思路与规划构思。

2. Design and planning outlines.

3. 实现规划构思或目标的拟建项目设想。

3. Project construction guidelines for the realization of planning ideas or objectives.

4. 项目运营建议与实施对策。

4. Proposals and measures for the project operation and implementation.

5. 总体投入产出经济分析以及相关技术经济指标。

5. Economic analysis of total investment and return and related economic and technical indexes.

6. 表达规划构思的规划设计图纸。

6. Planning and design drawings reflecting planning outlines.

7. 海绵城市

7. Sponge City

“Sponge City” (from China Daily, April 04, 2015)

The ‘sponge cities’ are new projects being launched to use the full potential of rain water in cities in China.

The first batch of the 16 ‘sponge cities,’ including Wuhan, Chongqing, Xiamen, Zhenjiang and others, will set up systems to allow rainwater to be stored and purified using a permeation system.

The systems themselves are going to be established over the next 3-years. Exact designs of the proposed systems will vary from city-to-city.
Given the growing lack of potable water in many Chinese cities, it is widely agreed something needs to be done.

Rainfall in most cities usually makes it way to the nearest rivers and lakes through the local drainage system.

However, many of the drainage systems across the country are still highly under-developed.

This often leads to significant flooding during heavy rainfalls.

But under the new ‘sponge city’ program, nearly 70-percent of excess rain water will be recycled and reused on greenery, street cleaning and fire-fighting.

Hubei’s capital Wuhan lies along the Yangtze River, and has long-dealt with flooding.

However, under the ‘sponge city’ program, authorities in Wuhan have plans to use the collected rainwater to top-up water levels in the lakes in the city.

Zhang Fei is the deputy director of the Wuhan Bureau of Water Resources. “Here in Wuhan we often view water as a potential disaster, and we try to get rid of it as quickly as we can. But now we’re going to try to ‘digest’ every drop of rainfall and reduce the runoff in the city."

But in other parts of China, the opposite situation tends to be the case. The Xixian New Area is located between the cities of Xi’an and Xianyang, two of the most prosperous cities in the province of Shaanxi, and part of the heartland of ancient China itself.

However, the area today suffers the most severe drought among the 16 locations tapped to be so-called ‘sponge cities.’

Engineer Deng Chaoxian says the ‘sponge city’ plans for the Xixian include collecting what sparse rainfall falls in the area on the roofs of buildings.

"The rain water is collected from the roofs and drained into a filtration tank. The excess rain water is then transferred into wells for later use."

On top of this, a bio-retention system is also being built to collect and purify rain water from green belts along the sidewalks.

Liu Yubin is the deputy head of the ‘sponge city’ management committee with the city of Fengxi, which is one of 4 municipalities lying within the Xixian New Area.

“A central flood drainage and storage system is under construction right now. It will collect the rainfall in the central part of our city. Once it’s finished, it’s expected to hold some 4-million cubic meters of rainfall every year."

Each of the 16 so-called ‘sponge cities’ is going to be allocated between 400 and 600-million yuan for their various projects every year.
3. **Superblock Hybrids: Architecture/Infrastructure/Urbanism**

Superblock Hybrid Architecture/Infrastructure/Urbanisms are design ideas and designed realities that, through nested components and scales, catalyze a larger and more visible public benefit to urban communities. Hybrids are designs that:

- are embedded with added value (multifunctionality, imageability, public benefit),
- represent potential prototypes, adaptable for use in numerous locations,
- are locally self-regulated and controlled (i.e. which “unlock” the grid),
- strategically attract investment and/or generate community stability, and
- generate new sustainability practices.

The studio, and this assignment, will focus on the design of Hybrids and the reciprocal integration of the large-scale building and landscape within this framework. The role of nature and the environment, with all of its emerging questions of social and performance criteria will underpin the studio.

How can new conceptions of the role of the environment and ecological processes reformulate our ideas of urban infrastructure, programmatic relationships, open space networks, social constructs, and site history? What role can public building play as a vital component to this larger urban framework?

Through a multi-scalar and multi-directional approach, students will formulate their own synthetic conceptions of Hybrid Architecture.

**What is Hybrid Architecture?**

Hybrids are characterized by a mix of uses together in the same architecture. Hybrids integrate different programs which also have different developers (public and/or private), managers and users. Relative to users, use times and program, hybrids can be as diverse as a city.

**Personality**

The personality of the hybrid is a celebration of complexity, diversity and variety of programs. The hybrid is the crucible for a mixture of different interdependent activities.

Each hybrid is a unique creation, often without previous models. The hybrid building emerges from an innovative idea -- which is resolved against the established combination of usual programs -- and bases its reason for existence on the novelty of an approach and the unexpected mixing of functions.

The hybrid is an opportunistic building; it takes advantages of multiple skills. The hybrid building looks for unexpectedness, unpredictably, intimate relationships, contextual coexistence, and is conscious that un-programmed situations are the key to the future.

The hybrid can take on multiple personalities and representations, even apparently contradictory representations inherent in architecture, urban landmarks, sculptures, landscapes or anonymous spaces/objects.
The landmark hybrid is not subject to indifference. It is meant to impact the observer. It does not go unnoticed, but publicly manifests its skills, its extroverted character and its attractive points. The landmark hybrid is a milestone, an actor in a starring role on the urban stage.

The anonymous hybrid, on the contrary, requires each part of the program to lose its uniqueness. If it holds a public program, aspects of its character will dissolve to become a simple secondary actor on the daily stage of the city.

Sociability
The ideal hybrid feeds on the meeting of the private and public spheres. The intimacy of private life and the sociability of public life find anchors of development in the hybrid building.

The permeability of the hybrid makes it accessible to the shared city; and, certain private uses often function 24 hours a day. This means that activity is constant and is not controlled by private or public rhythms. Another use category is created, a full-time building.

Form
The form/function dialectic relationship of a hybrid can be explicit or implicit: one part of the dialectic might lean towards fragmentation, the other toward integration.

A generic hybrid is an undifferentiated building-container that attempts to generically house a diversity of functions and spaces.

The hybrid building will always fight to unite disparate influences that provide life and energy.

Typography
The primitive hybrid, or proto-hybrid, has not reached the highest point of integration among its functions and is seen as a set of typologies that have yet to be fused. One cannot classify hybrid buildings by typologies -- the very essence of the hybrid is to exist apart from formal categories.

Processes
The mixture of uses within a hybrid is part of its becoming. Property and land development can be hybridized by means of combining public and private development. Structure can be hybridized based on a mix of material [concrete, steel, etc] solutions. Construction can be hybridized with dry assembled elements with wet joints, or the same can be done with prefabrication and traditional assembly methods. Management can be hybridized, with individual and community multi-properties.

Programs
The mixing of uses in a hybrid building generates potential, and protects weaker uses from stronger uses. Hybrid buildings are organisms with multiple interconnected programs, which are both planned and unplanned activities in a city.

Density
Dense environments with land use limitations are good sites to cultivate hybrid situations. The hybrid scheme proposes intense environments of cross fertilization, which mix known genotypes and create
genetic allies to improve living conditions and revitalize their surrounding environments.

Scale
Hybrids are small “interventionist urbanisms” such as provisional, informal, guerrilla, insurgent, DIY, hands-on, informal, unsolicited, unplanned, participatory, tactical, micro, and open-source architectures. These hybrids are associated with a scale of modesty, ground-up action and a just do it demeanor.

And, hybrids are super-buildings, super-blocks, megastructures or a Building-as-a-City. These hybrids are associated with a certain form of grandeur, splendor and gigantism, because mixing implies size, and superposition demands height or breadth. The taking over of the surface to extend the program takes up land. It also needs a creative impulse and economic confidence, since it produces new situations inadequate for times of indecision.

The scale of a hybrid and its relationship with the environment is measured by the juxtaposition of programmatic parts.

City
The definition of a hybrid includes urban composition, perspective, grid insertion, and strategic dialogue with other urban landmarks and interrelationships with the surrounding public space.

The hybrid goes beyond the domain of architecture and enters the realm of infrastructure and urban planning.

Precedent Study Notes
A vital goal of studying precedents in architecture is to make exemplary parts of the past part of the present. By identifying and analyzing themes and patterns of prior built (and unbuilt) paradigmatic form, we strive to pursue ideas that could help us generate outstanding architecture today. Precedent analysis is also a vehicle for the discussion of organizational concepts and ineffable ideas through the use of past (or contemporary) example.

A major objective of precedent analysis is to investigate physical and spatial characteristics of buildings (or landscapes, cities, or districts within or parts of cities, etc.) in a way that a “parti” can be understood. A parti is a design decision or series of decisions encompassing a big idea. It is the chief organizing thought or concept behind an architect’s design, most often manifest as a reductive diagram and a simple statement. The parti encapsulates the most salient and essential characteristic of a design, without it architecture (as opposed to buildings) would not exist.

A major concern of studying and analyzing architectural precedents is to investigate the formal, spatial and material characteristics of a building/landscape/city in such a way as to uncover a parti. To accomplish this, a multiplicity of fundamental characteristics, relationships and ideas might be explored and diagramed/drawn/modeled based upon the original work. Issues available to critically analyze a design include (but are not limited to, and in no particular order):
• **Beauty**: the quality present in a thing that gives intense pleasure or deep satisfaction to the mind, whether arising from sensory manifestations as shape, color, sound, etc., a meaningful design or pattern, or something else;

• **Firmness**: physical strength and endurance secured through a building’s structural integrity;

• **Utility**: efficient arrangement of spaces and mechanical systems to meet the functional needs of its occupants;

• **Massing**: bulk, size, expanse, or massiveness, an aggregate and/or whole, and a body of coherent matter;

• **Shape**: the quality of a distinct object in having an external surface or outline of specific form or figure;

• **Morphology**: the form and structure of a building considered as a whole;

• **Plan to Section/Elevation**: the relationships of plan configuration to vertical (2D or 3D) information;

• **Natural Light**: daylight and solar positioning;

• **Circulation**: the transmission or passage from place to place;

• **Part to Whole**: cohesion and/or tension between a determinate form and the combinatory potential of adjoining, separate, overlapping, or hierarchical fragments;

• **Repetition**: to design, create, or perform again and again;

• **Pattern**: a combination of qualities, acts, tendencies, etc., forming a consistent or characteristic arrangement;

• **Symmetry (and Balance)**: the correspondence in size, form, and arrangement of parts on opposite sides of a plane, line, or point; regularity of form or arrangement in terms of like, reciprocal, or corresponding parts;

• **Asymmetry (and Balance)**: not identical on both sides of a central line;

• **Geometry**: a formative idea in architecture that embodies the tenets of both plane and solid geometry to determine built form;

• **Additive and/or Subtractive**: formative ideas developed from the process of adding, or aggregating and subtracting built form to create architecture;

• **Hierarchy**: the physical manifestation of the rank ordering of an attribute or attributes, and the assignment of relative value to a range of characteristics.
Hybrid Superblock Case Study project

From a list of precedents (choose two per 2-person group, see below), students will develop and present an analysis of urban design Hybrid examples. All analyses should be formatted within the given template so that precedents can be compared across the studio and included as studio referents:

1. Data for cover page: Project name, year, location with basic climate data (temperature, precipitation), sizeyscale, author, density given in site FAR (list surrounding density for open spaces projects), constituencies, bibliography.

2. Core diagrams: figure ground (figure/field for open spaces) showing surrounding urban fabric, circulation/transportation networks, daylight/shadow analysis, hydrology (canals, rivers, tides, stormwater), program, habitat, topography/geography, section, and phasing (if applicable). Provide title and scale for all drawings.

3. Synthetic diagrams [3 minimum per group, newly drawn diagrams—not simply copy/pasted from books/websites]: analyze the conceptual strategies for each project. For instance, in diagram form, the following should be answered (provide title, scale and orientation (i.e. north arrow) for all drawings):
   a. What is the dominant design strategy in the project (identify the situation or condition that is solved by the project).
   b. What tactics are deployed to achieve this strategy?
   c. If the strategy is hierarchical, what element is dominant?
   d. If the strategy is non-hierarchical, how is synthesis achieved?
   e. In what way does the project relate to its context (social, formal, economic, ecosystemic)?

4. Models [scale to be determined]

Superblocks [in groups of 2, choose 2]:


Steven Holl - http://www.stevenholl.com
4. Researching Architectural/Urban/Infrastructural Models

Models are a critical part of taking a vision from concept to proposal and ultimately approval as they
give an easily understandable form to the concepts that architects, landscape architects and other
designers develop.

Vincent de Rijk is a well-known architectural model maker. He studied at the Design Academy
Eindhoven and graduated with an industrial design degree. Based in Rotterdam he opened his own
workshop in 1987. Since then he has been involved with a number of the most conceptual architectural
firms based around the world.

Vincent de Rijk has been responsible for developing a number of new techniques of model making
dealing with plastics, ceramics, mixed aggregate castings, foam, wood and metals.

From Vincent de Rijk’s website (http://www.vincentderijk.nl/), students will present one architectural
model. All analyses should be formatted within the given template so that precedents can be compared
across the studio and included as studio referents. Analyses should include:

1. Data for cover page: original architecture project name, author, location,
   size-scale/materials/process of model, year completed.

2. A description of the original architecture project and a critical description of how/why the model
   was designed to represent the original project.

3. Images (can be copy/pasted from Vincent de Rijk’s website) of the model and images of the
   original project (diagrams/drawings/images of the built project and/or drawings/diagrams of
   the unbuilt project).
5. Graphic Arguments

Context

The construction of a Graphic Argument will become the foundation of the "Studio Project" wherein each student is expected to initiate, and convincingly develop all aspects of an architectural project – formal, spatial, experiential, organizational, structural, and technical – and create a clear, full, and persuasive presentation of her or his work. A Studio Project is a comprehensive architectural design project that includes the development of program spaces and relationships, development of structural and environmental systems, building envelope systems, principles of sustainability, life-safety issues, technical construction sections and assemblies, along with experiential drawings and renderings, and a focus on telling a critical project story. Consequently, Graphic Arguments are to focus on the development of a holistic architectural project.

Graphic Argument

Each student will develop an independent, critical position on the making of architecture in the world – an individually initiated intentional, programmatic, and situational framework to serve as the basis for their research. Following extensive data-gathering research in a chosen area of inquiry the student will develop an aspiring and compelling conceptual framework toward a Graphic Argument in BOOK FORMAT. This project premise will position the student’s intentions in a clear relationship to a contemporary architectural discourse. The work of the final deliverable of a book will be intensively personal, informative and iterative.

The Graphic Argument will also be the basis for communication and feedback between student, faculty and advisors.

Chapter Format within Book

Each student will develop a personalized format for their Graphic Argument book. Minimally, contents should include:

- Hypothesis (based on Research Topic)
- Conceptual Investigations and Analyses of Hypothesis
- Precedent Research
- Site Research and Proposal
- Documentation of Spatial and Environmental, [etc] Concepts
- 2D/3D Spatial Investigations
Schedule

Fall

Mon, Aug 24, 2pm       Studio Lottery

Wed, Aug 26, 2pm       1. Sites: Changde and Chicago
                       2. “Sponge City” Planning and Design

                       4. Researching Architectural/Urban/Infrastructural Models

Fri, Oct 6, 2pm        Fall Semester Mid-Term Review

Mon, Oct 9, 2pm        Superblocks

Mon, Nov 13, 2pm       5. Graphic Arguments

Fri, Dec 04, 9am       Fall Semester Final Review

Final Deliverables

- Presentation quality 3 minute video.
- Presentation quality physical model (scale to be determined).
- Presentation quality Site Plan at a scale necessary to communicate design.
- Presentation quality Floor Plans (one floor plan for every unique floor) to a scale necessary to communicate design.
- Presentation quality Building Sections to a scale necessary to communicate design.
- Presentation quality renderings of the Superblock project.
- All of the above research, drawings, images of the models (and project descriptions) will be formatted in a booklet at the end of each semester as “Graphic Arguments” (PDF format).
Schedule

Spring

Mon, Jan 11, 2pm   Studio Lottery

Wed, Jan 13, 2pm   Superblocks for Chicago

Mon, Feb 29, 2pm   Fall Semester Mid-Term Review

Mon, April 04     “Pencils Down”
                  Design Ends, Final Presentation Documentation Begins

Wed, April 27, 9am   Studio Final Review

Final Deliverables

• Presentation quality 3 minute video.
• Presentation quality physical model (scale to be determined).
• Presentation quality Site Plan at a scale necessary to communicate design.
• Presentation quality Floor Plans (one floor plan for every unique floor) to a scale necessary to communicate design.
• Presentation quality Building Sections to a scale necessary to communicate design.
• Presentation quality renderings of the Superblock project.
• All of the above research, drawings, images of the models (and project descriptions) will be formatted in a booklet at the end of each semester as “Graphic Arguments” (PDF format).
• Open House (year-end exhibition): all students in the studio are required to present their work at Open House. The work will be presented as a booklet and Superblock models.
References

Films

Manufactured Landscapes, 2006 (Baichwal, Jennifer)
Suzhou River, 2000 (Lou Ye)
Platform, 2000 (Jia Zhangke)
The World, 2004 (Jia Zhangke)
24 City, 2009 (Jia Zhangke)
Still Life, 2006 (Jia Zhangke)
Meishi Street, 2008 (Ou Ning)
A Beautiful New World, 1999 (Shi Runjiu)
Chungking Express, 1994 (Wong Kar-wai)
Beijing Bicycle, 2001 (Xiaoshuai Wang)
The Shower, 1999 (Zhang Yang)
To Live, 1994 (Zhang Yimou)
Raise the Red Lantern, 1991 (Zhang Yimou)

Superblock Readings


**Chinese/Asian Architecture, Urbanism and Culture:**


Dutton, Michael [ed.]. Streetlife China (New York: Cambridge University Press, 1999.)

Freidman, John. China’s Urban Transition (Minneapolis: University Of Minnesota Press, 2005.)

Grima, Joseph. Instant Asia (Milan: Skira Editore, 2008.)


Hassenpflug, Dieter. The Urban Code of China (Basel: Birkhauser, 2010)

Hornsby, Adrian and Neville Mars. The Chinese Dream (Rotterdam, Netherlands: 010 Publishers, 2008.)

Klein, Caroline. Ai Weiwei Architecture (Cologne: DAAB MEDIA, 2011.)


Ma, Laurence J. C. and Fulong Wu [eds]. Restructuring the Chinese city: changing society, economy and space (New York: Routledge, 2005.)

Rowe, Peter and Seng Kuan. Architectural Encounters with Essence and Form in Modern China (Cambridge, MA: The MIT Press, 2002.)

Rowe, Peter. East Asian Modern (London: Reaktion Books, 2005.)

Rowe, Peter. Emergent Architectural Territories in East Asian Cities (Basel: Birkhauser, 2011.)


Ecological Urbanism


Urbanism


Shane, David Grahame. Urban Design since 1945 – A Global Perspective [West Sussex, UK: John Wiley and Sons, Ltd., 2011.] Chinese Film:

Methods & Syllabus

The studio is built on the idea that interdisciplinary collaboration is needed to solve complex problems facing humanity. Engaging stakeholders, users, communities and members of the public in the design process is crucial, as is developing holistic design practices that create robust, long-term solutions. Further, documenting and exhibiting the results of our learning is a top priority. Importantly, the studio will foster systems thinking that aims to reveal patterns through observing, modeling and visualizing complex variables and interdependencies; systems thinking makes tangible the multi-dimensional nature of today’s urban challenges. The result of working with these principles will be a rewarding and transformative experience that stretches the boundaries of convention, and grows individual and communal capacities for action. To this end, the studio will emphasize the following practice-based methods:

- Learning in a studio environment where students, faculty, advisors and experts come together to conceptualize, visualize and design.
- Working on real-world challenges with real-world partners, with the potential for global benefits.
- Sharing the findings with the public in meaningful ways.
- Structuring the learning in teams where students, faculty and mentors act as both leaders and followers, sharing their own knowledge and learning from others.
- Assuming a variety of roles on the project and collaborating across boundaries to innovate in design.
- Providing lectures and workshops from local and global leaders that augment overall knowledge and skills and provide critical appraisal and real-time direction and support for project deliverables.
- Receiving feedback from faculty, peers and mentors, to augment a self evaluation process.
- Adopting a “think and do” approach to research combining secondary, primary and applied research methodologies to the design process.
- Following best practices of a real-world studio using design strategy, systems analysis, design briefs, design management and project management tools.

Syllabus Breakdown

The studio is a combination of short and long-term design-based research projects that connect and overlap throughout the entire year. Charettes, exhibitions and research trips take place in both semesters. Guest lecturers are also embedded in the curriculum. Government, industry and educational partners support research and design projects in a variety of ways, including participation in events, providing expert guidance, and partnering on the development of projects.
Schedule (Basic)

This studio will meet three times a week (M/W/F 2-6pm) in Crown Hall (subject to change). Students will be expected to use time beyond scheduled class time for their field research and design activities. See the studio website for detailed class schedule.

Course Requirements

1. Complete attendance in all classes is mandatory. Absences must be excused in writing in advance and under special circumstances acceptable to the instructor.
   
   a. Two unexcused absences will result in the loss of a grade in your grade for the semester.
   
   b. Three unexcused absences will result in failure of the course. Being accessible to the instructors by working in class is mandatory.
   
   c. An evaluation of Attendance and Participation is to be made by the instructor based on observation, and feedback from fellow student team members. This will include Attendance and Participation in enrichment activities as required by the course schedule.
   
   d. Please refrain from listening to or watching non-studio related media during studio meeting times.
   
   e. Please refrain from non-studio related electronic communications during studio meeting times, i.e. Mobile phone calls, Text Messaging, E-mail, Instant Messaging, Etc.

2. The course will include readings, discussions and assignments. All assignments will be due on time and on designated dates. Late assignments without a valid excuse will lose a letter grade for each day of lateness. Three days of lateness will result in a failure for that assignment.

3. The application of the above criteria can be avoided if the student has very clear and complete communication with the instructors about work completed and excused absences requested. To communicate outside of studio the student should always call or email the instructor directly and well in advance of class time.

4. The primary means of communication will be through IIT e-mail and class websites. Students are required to check regularly for course updates.

Grading Criteria

The success of this studio depends on students’ self-discipline, willingness to learn and active participation in discussions, and of course, the completion of work that is required to be done outside the class time. Students are expected to be at the studio at least 12 hours each week during scheduled class time and for special events, plus an additional 18 hours (minimum) outside of class time. There will be some required seminar time to become familiar with various issues. Students may be assigned to work individually or in teams by the instructors. Every student is committed to his/her group and has shared responsibility to that group. Teamwork is essential for this studio, and your teammates may be asked to rate your effort and participation.
All exercises will be due on time and on designated dates. Deadlines for the submission of required work will be announced and must be met. Students are responsible for checking their IIT email daily for class related announcements. Failure to submit work in a timely manner will result in a reduction of your final grade.

Evaluation of your work involves both criticism and grades. Criticism should be understood by students and faculty as a positive means for learning. In all cases, criticism is directed at a project or a process, not at the student who has produced the project. Specific criteria for each project will be determined independently, but may include clarity of Idea/Theme, quality of design concept, quality of oral Presentation, and quality of graphical presentation. General criteria for evaluation will always apply as follows:

1. Concept: Did the student explore and evaluate a range of possible choices before settling on a particular solution? Did the student test various aspects of the solution? Did the student make enough effort to improve/strengthen the solution? [Concept accounts for approximately 20% of final grade].

2. Craft: Are the ideas correctly and thoroughly communicated? Has the student crafted the drawings and models with care and precision? [Craft accounts for approximately 50% of final grade].

3. Completion: Did the student produce all required drawings and models on time and in the required format? [Completion accounts for approximately 30% of final grade].

Letter grades should be interpreted as follows*:

**A**: Excellent work. Exceeds all criteria. Exhibits insights indicating that the experiences from one phase to the next are cumulative and transferable. Constructively challenges design issues brought forth during the quarter. Demonstrates exceptional enthusiasm and intensity for learning. Demonstrates capacity to be self-critical.

**B**: Above average work. Performance at the level necessary for a graduate degree. Meets all criteria. Good understanding of concepts. Constructively challenges design issues brought forth during the quarter. Shows ability in basic critical thinking.

**C**: Performance below the overall level necessary for a graduate degree. Meets minimum requirements. Indicates some difficulty in understanding the concepts. Exhibits need for improvement in work habits and Critical thinking skills. Insufficient participation.

**D**: Below average work. Does not meet minimum requirements. Indicates serious difficulty in understanding concepts. Probable indication of a lack of commitment to the course.

**E**: Unsatisfactory performance. This grade cannot be used to fulfill a graduate program requirement. If required in a program of study, the course must be repeated. Late, incomplete, failing, or work not submitted.

* Please refer to graduate bulletin for official IIT university grading policies.

**AMERICANS WITH DISABILITIES (ADA):** Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must go through the Center for Disability Resources office. The Center for Disability Resources (CDR) is located in Life Sciences Room 218, telephone 312 567.5744 or disabilities@iit.edu