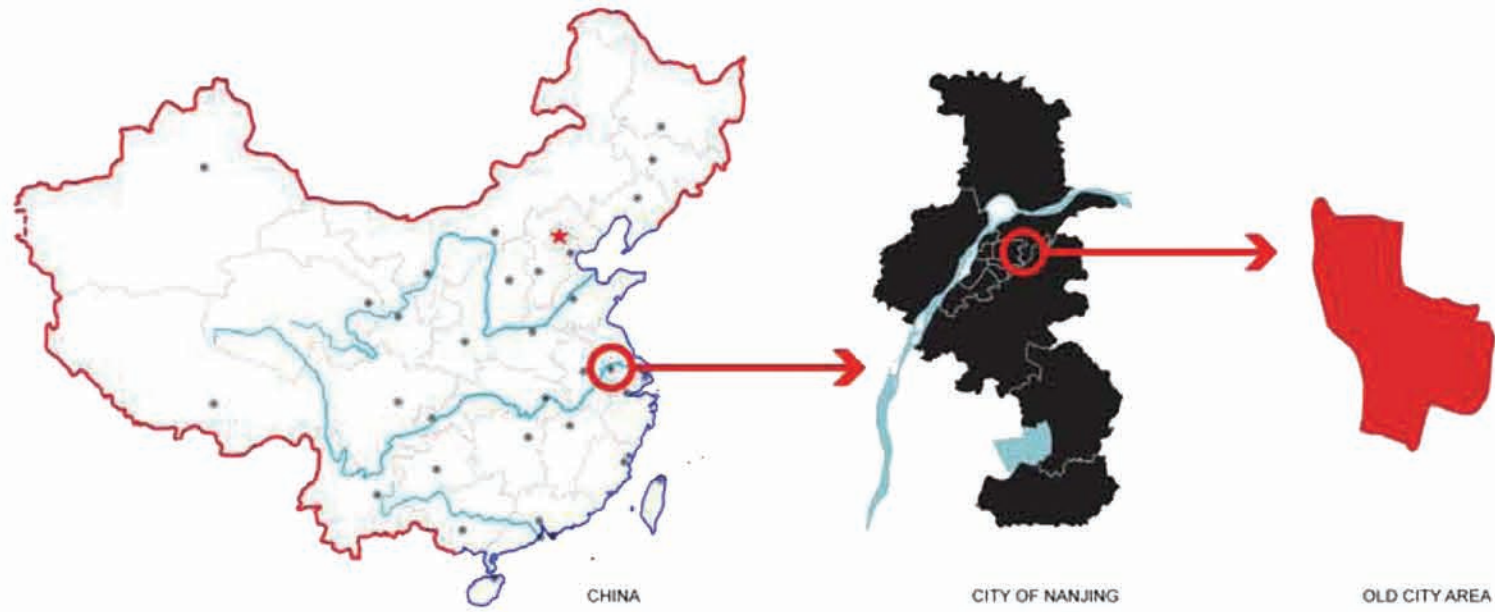




URBAN REDEVELOPMENT FOLLOWING CATASTROPHE IN NANJING, CHINA
WU, YINGQIU - MASTER PROJECT 2011 SPRING - MARTIN FELSEN

ECO-LIFE



Project statement

My project is an **urban redevelopment following catastrophe**. A catastrophic explosion in 2010 left a portion of Nanjing city destroyed. The project proposes a new urban plan to rebuild the neighborhood and restore the community.

A powerful explosion at an abandoned plastics factory in Qixia district of Nanjing city has left several people dead and dozens injured. Buildings and vehicles within 100m of the factory destroyed, 3000 citizen got the key of the street and buildings suffered varying degrees of damage in the area 8 miles in circumference. The blast was caused by a leak from a gas pipeline inside the factory, the blast happened after workers dismantling the plant damaged a propylene pipeline. The leaked gas was then ignited when a car engine was started at the scene. There were a community college and several kindergartens in this area, fortunately, it was summer break at that time, no students hurt reported.



It is a unique opportunity to develop a plan in an urban context when the prior years of development have been wiped away. The purpose of the project is giving condos return to 3000 people who lost their houses in the explosion and planing mix-used buildings of the community for next 20 years.

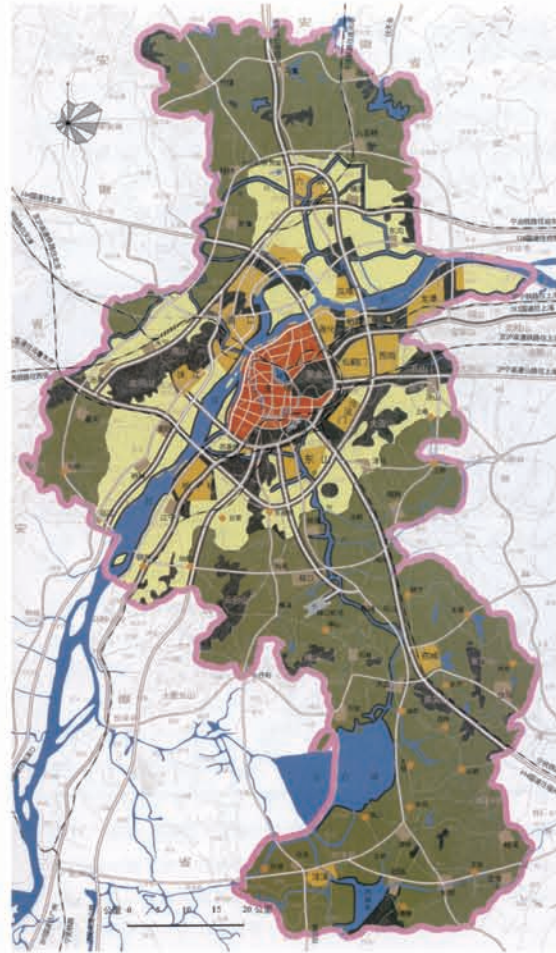


At present, many old neighbourhoods in China are being replaced by new ones. In the most cases, the existing urban patterns are erased and a town is built with out any links to what had previously existed there. My ptoposal is reusing most of the existing tree line streets, river and bridges. The key of this proposal is sustainability, first idea is using existing river to develop a nce wetland park and the second idea is farming gradens.

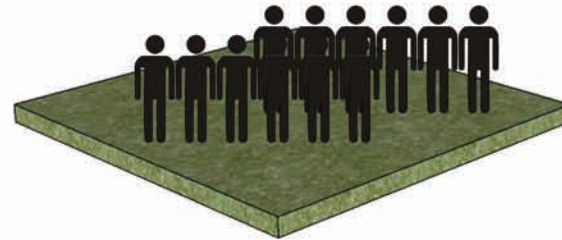
Figure 1. ruins after the powerful explosion
Figure 2. devastated bus

City size & Population

Nanjing is the same size as Chicago, and twice population of Chicago...



NANJING



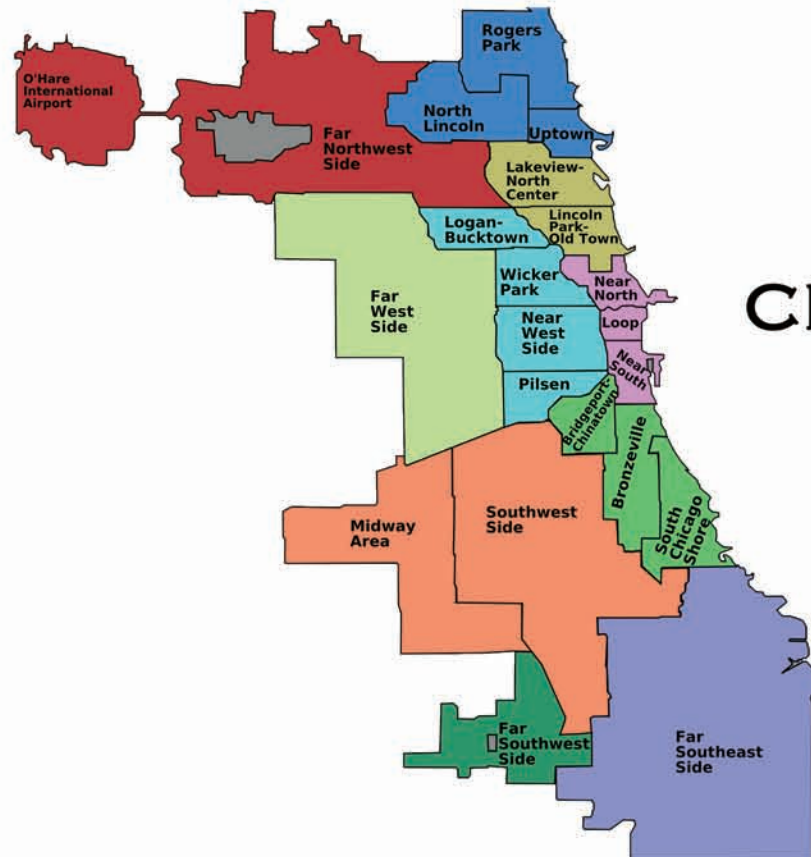
Traditional city & Sprawling city

Open space and city culture has been eroding...

The city of Nanjing is a great historic city sitting in the southeastern coast of China, with a total land area of 2,547.5 sq mile. The total population in Nanjing is 7,588,900; density is 2,909.9/sq mile. As a city area, Nanjing has over 2400 year's history. Nanjing had its concrete city plans and outline in the first time dated back from the Ming Dynasty, which started from 14th. Nanjing is used to be the capital for 10 different dynasties in Chinese history.

As the result of typical classic city planning, there are some excellent ancient fortress cities which could illustrate the old city fabric and organization very well. Most of those famous fortress cities in the history are planed by certain symmetrically geometric shape, like grid city, radioactive city. Different from these cities, Nanjing is a unique example of organizing in a organic way which followed the geographic changes.

Entering the new era, those great ancient cities are all facing to the increasing population change and new development within old area. How to keep the traditional city fabric and culture? Simultaneously, how to balance the new development and historic preservation?



CHICAGO

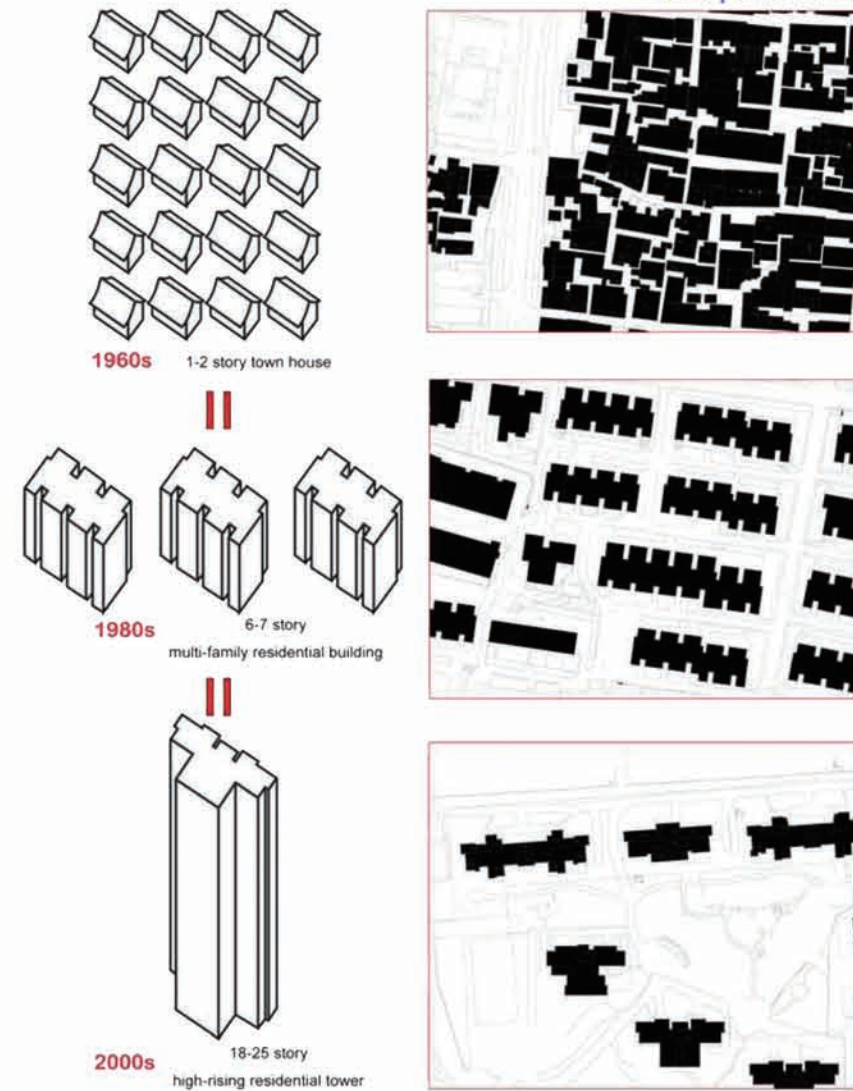
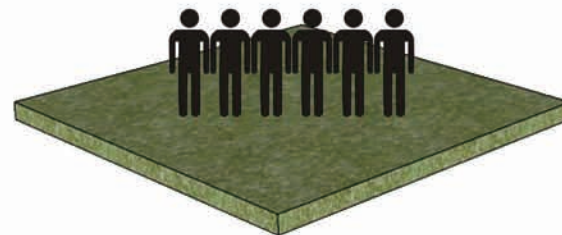


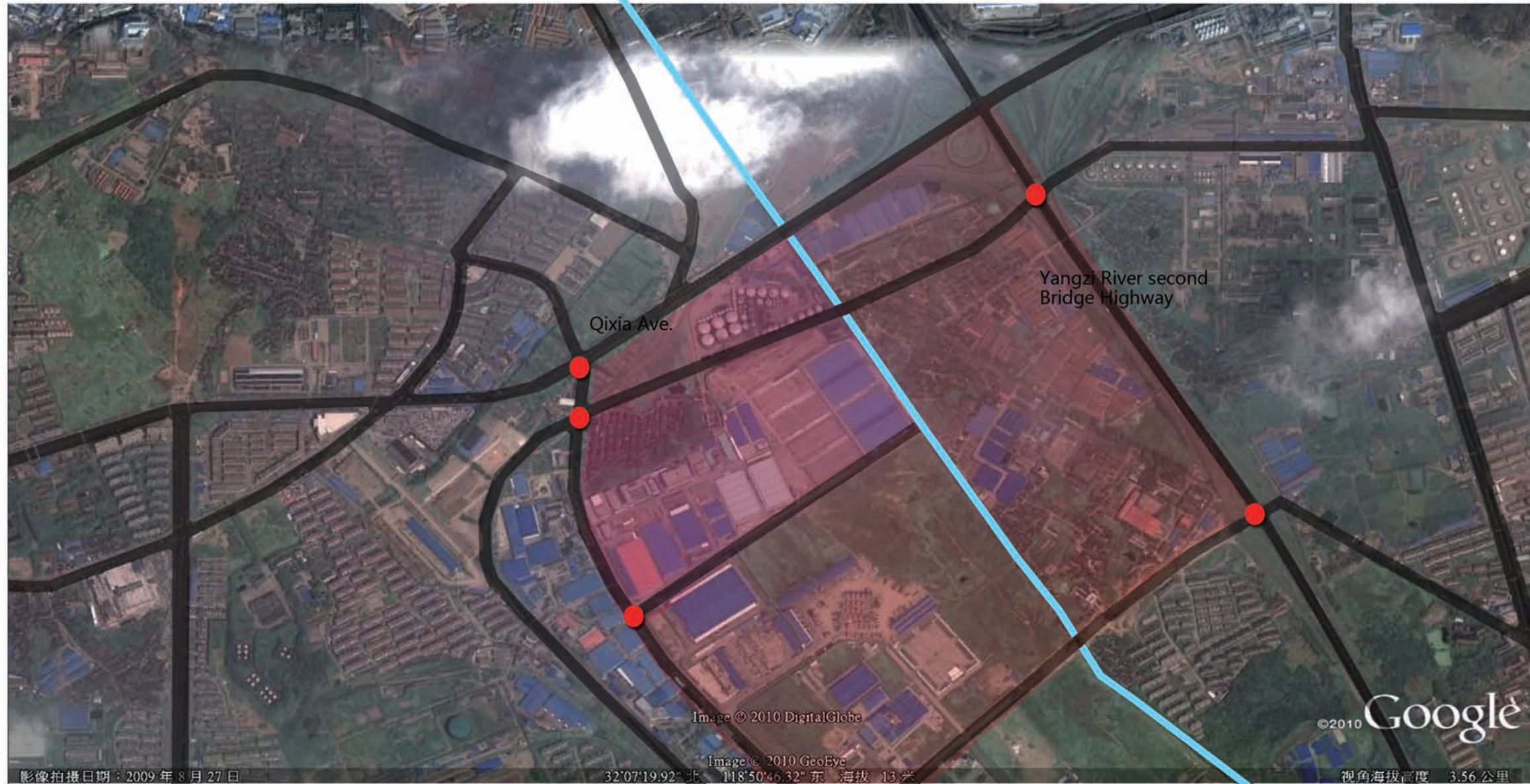
Figure 1. Nanjing of Ming dynasty (14th century)
 Figure 2. Downtown of Nanjing (1962)
 Figure 3. Downtown of Nanjing (1984)
 Figure 4. Downtown of Nanjing (1995)
 Figure 5. Nanjing city (2009)



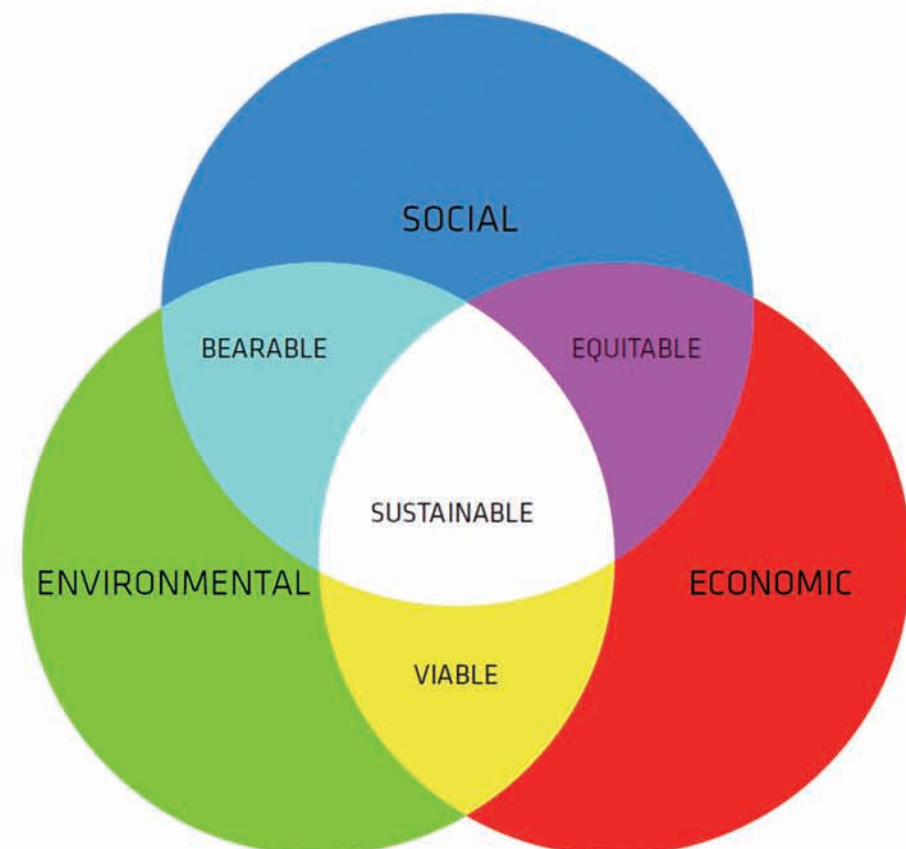
Existing around site



The site before explosion



● Access point



Passive Strategy Supply Strategy



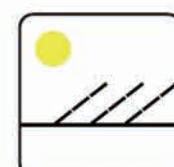
Passive Heating



Waste



Natural Ventilation



Solar

A sustainable development has three interdependent requirements:

Environmental sustainability

Social sustainability

Economic sustainability

A precinct will be successful only if people feel comfortable and like the area. Issues such as architectural quality, mix of people living there, quality of retail, restaurants, security aspects etc. as well as environmental quality in the public realm (sun, light, wind) are essential. Optimizing these factors is probably the most important basis for an economically, and also socially, successful development.

All of these aspects are important to everybody who is going to live, work or develop a building in this precinct.

However, there are certainly conflicting interests on a building scale.

A developer puts his focus on maximizing massing even if it is on the expense of solar access and if the building will create issues with draft within the public realm. Therefore a truly sustainable development requires a different design process that interconnects the interwoven dependencies on the different scales of the development and interests of the involved parties.

Eco-Life

- an ecological community together with its environment, functioning as a unit.
- a system formed by the interaction of a community of organisms with their environment
- a collection of living things and the environment in which they live.

Ecology – is the study of the house or living

Economy – is the management of the household

Ecosystem – is the system of houses or living = the city.

To design our cities and buildings in such a way that they form sustainable equilibriums for the present and the future, is to design ecosystems.

It requires a systemic approach to architecture and urbanism that doesn't distinguish between city and landscape, manmade and natural, but attempts create holistic entities that channel the flow of people, goods, light, air, heat, water and other resources in a form of perpetual motion engine of renewable resources.

-the eco-life of the neighborhood

At the scale of the neighborhood we propose a series of strategies to improve pedestrian wind comfort, solar access for active as well as passive solar gains and view of the skyplane for daylight both inside the buildings and outside on the streets. The mutual exchange principles of ReciproCity form the basis for the smaller scales.

-the eco-life of the building

At the scale of the individual building we have developed two examples of how to transform a ReciproCity building block into a specific architecture. Mixed use programming of retail, commercial and residential is a key ingredient in exploiting the available resources optimally. Passive solar heat gain, proportion and orientation of glass surfaces, selective deployment of solar heat- and PV panels and a general use of façade materials with fortunate properties is combined to obtain optimal use.

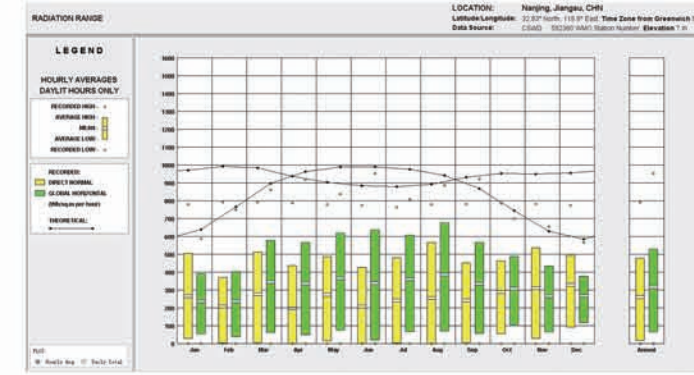
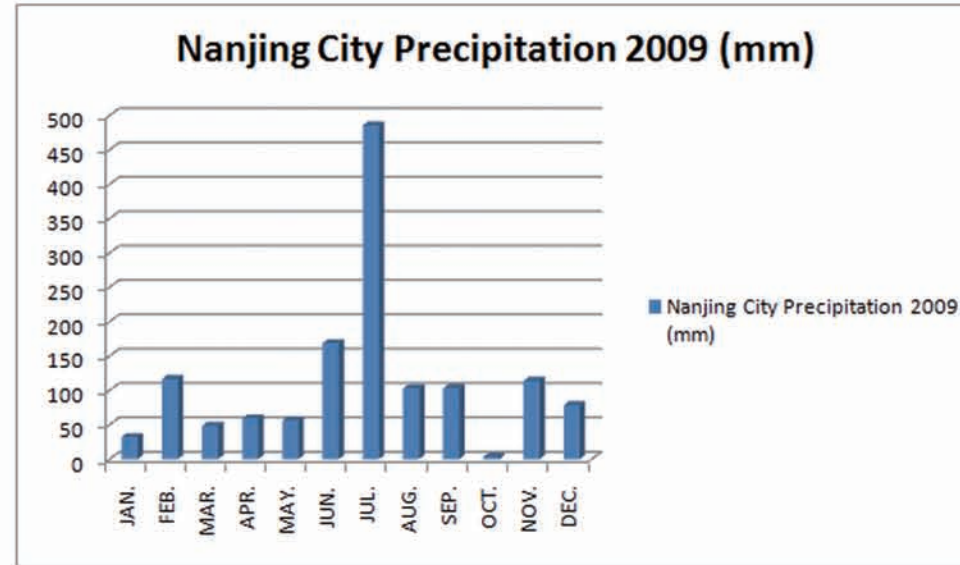
-the eco-life of the living unit

Finally we propose a whole series of lo-tech principles for the individual unit including active slab cooling and exposed thermal mass to reduce peak loads. The amount of eligible strategies at this scale are almost endless and would be finalized in direct dialogue between team and clients at a later stage.

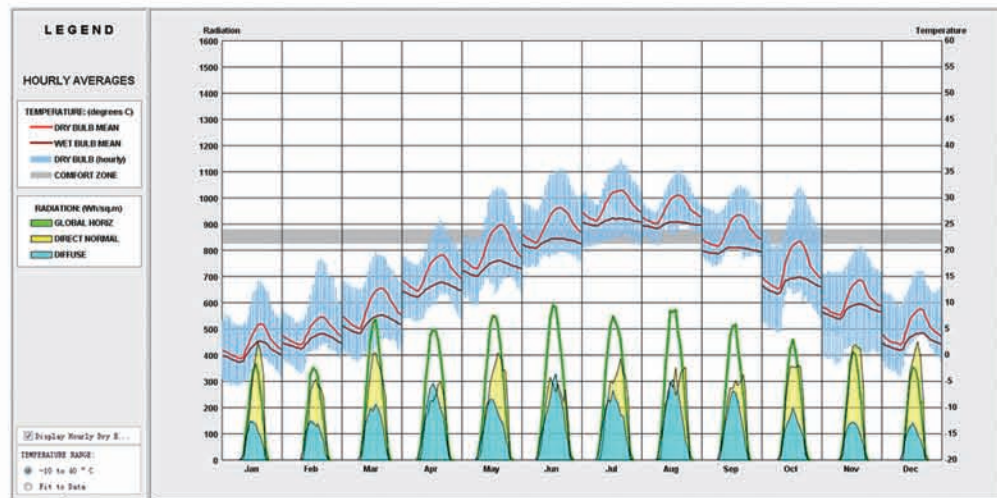
Local climate

Architectural massing works with climate. A sustainable development project adopts a broader consideration of climate in the built environment that aims to create not only an energy efficient indoor building climate, but also greater pedestrian comfort in the public realm.

Through consideration of daylighting, wind, and renewable energy sources, reductions in energy consumption are achieved, and a more sustainable approach to everyday life which encourages walking, biking and greater use of public transit is enabled. By working with and understanding climate.

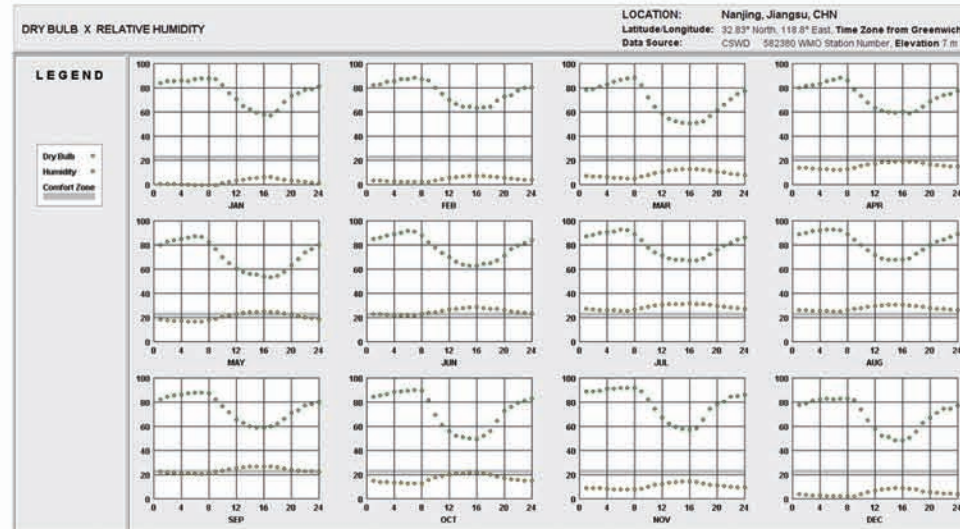


Solar Radiation

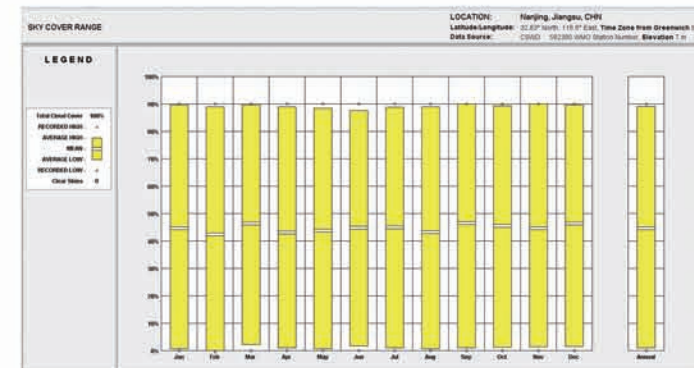


Diurnal Range

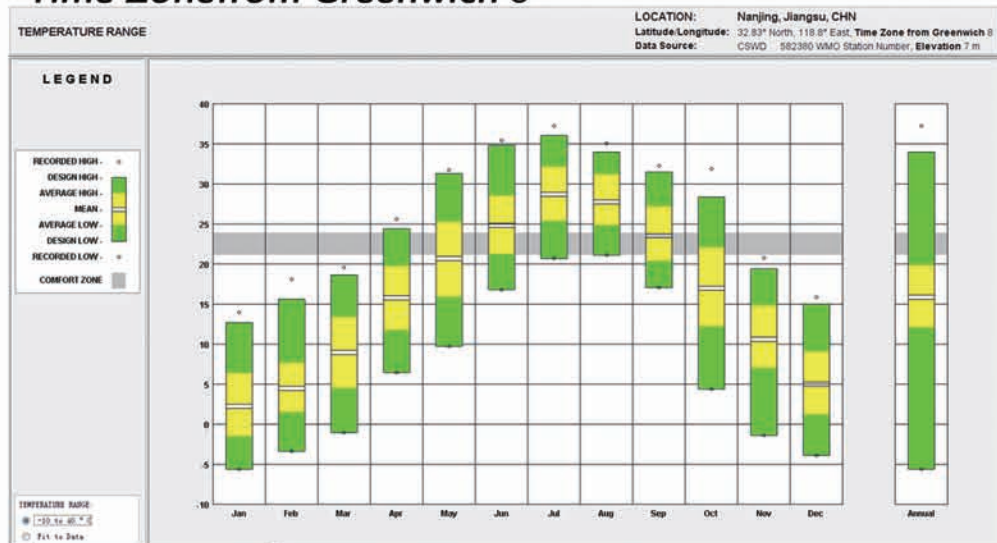
Nanjing, CHN:
Latitude/Longitude 41.98°North, 87.92°East,
Time Zone from Greenwich 8



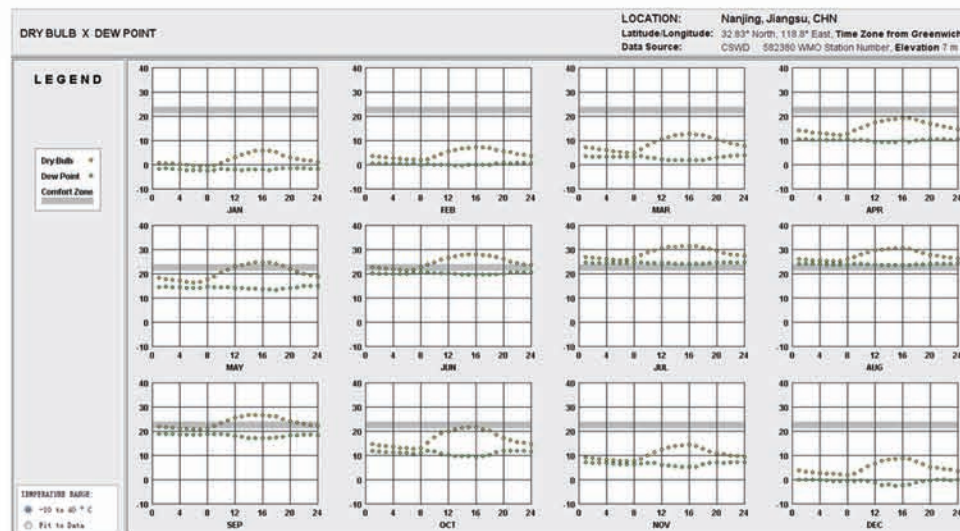
Dry Bulb x Relative Humidity



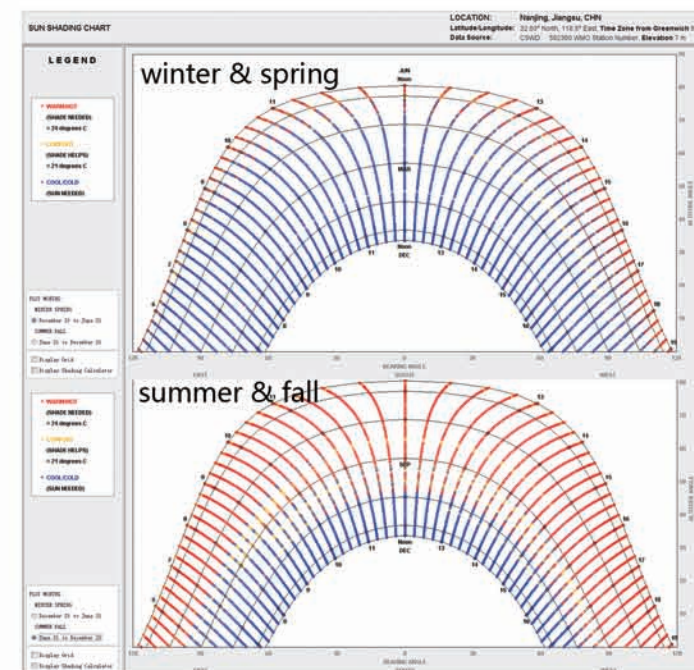
Sky cover range



Temperature Range



Dry Bulb x Dew Point



Sun Shading Chart

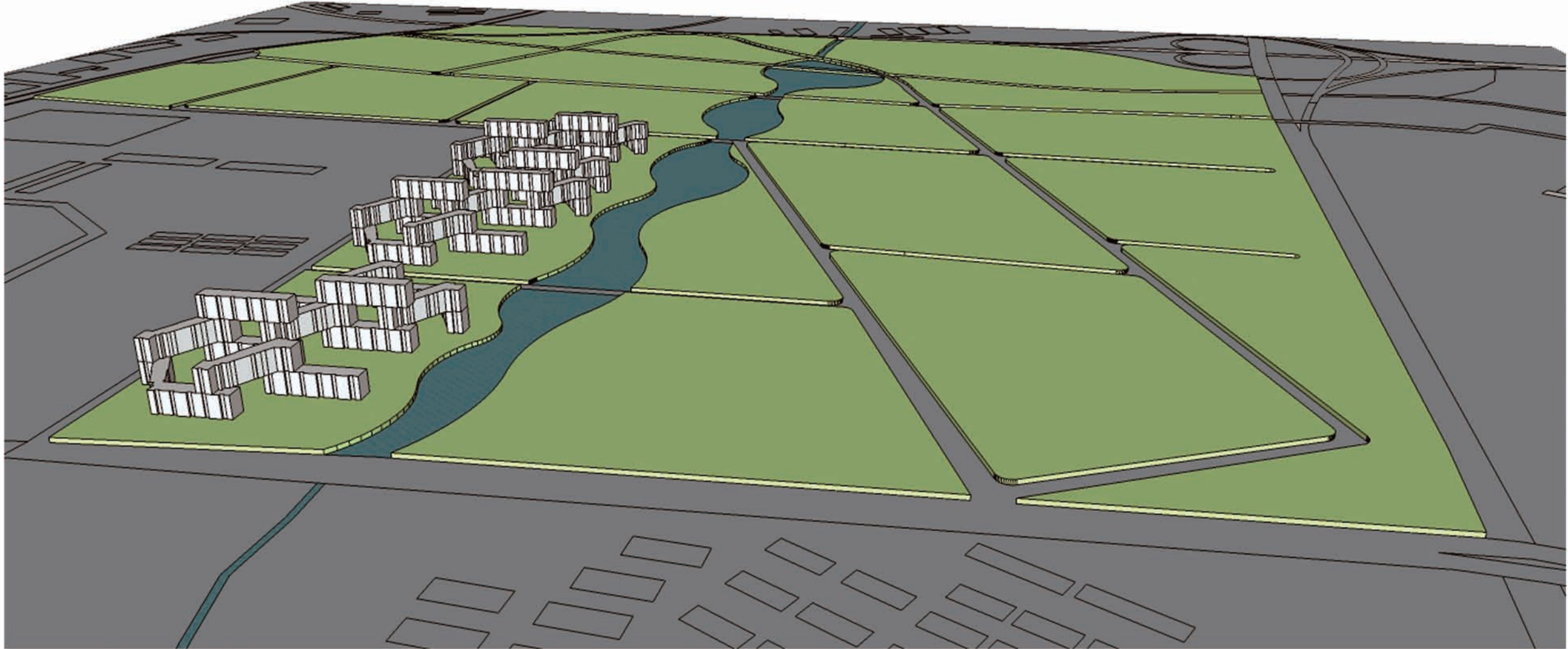
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Master plan



- ▶ Entry
- The first block
- Wetland & river

Master plan



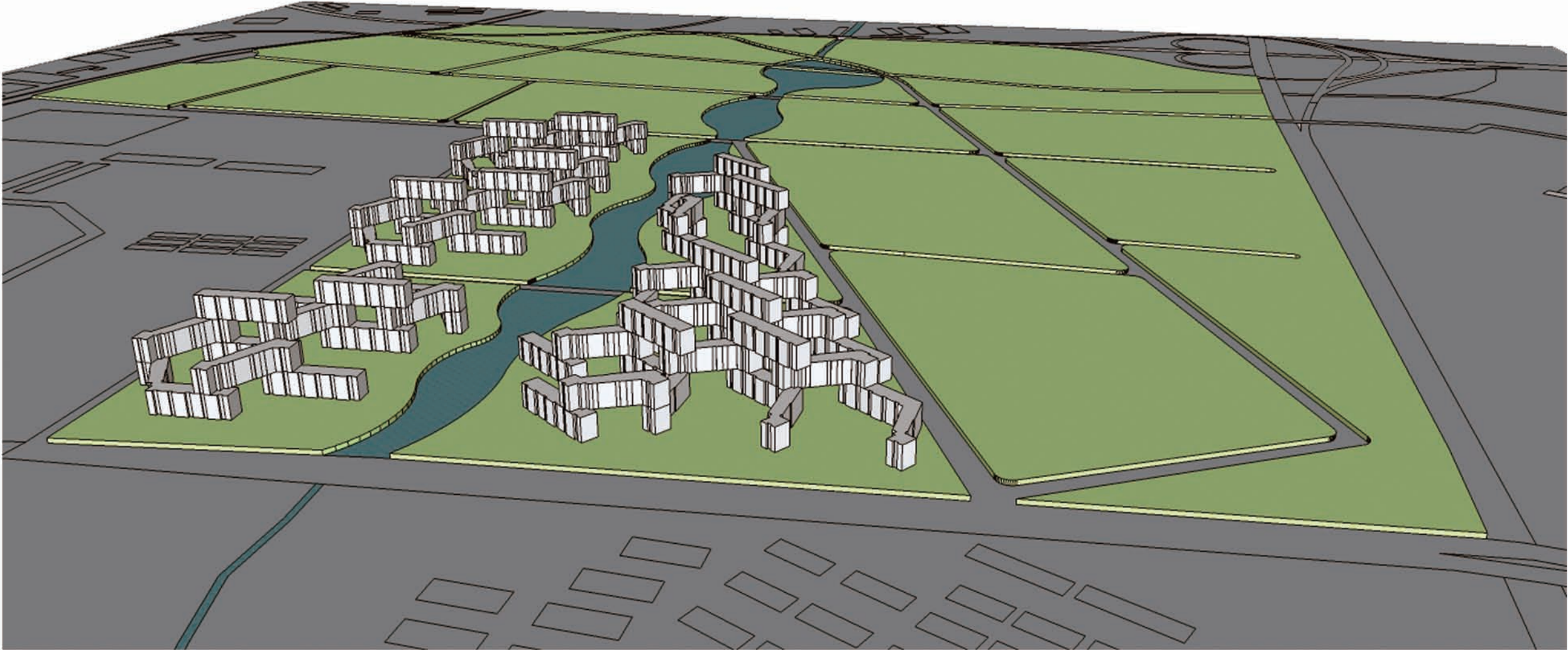
● Wetland & river

Master plan



● Wetland & river

Master plan



● Wetland & river

Master plan



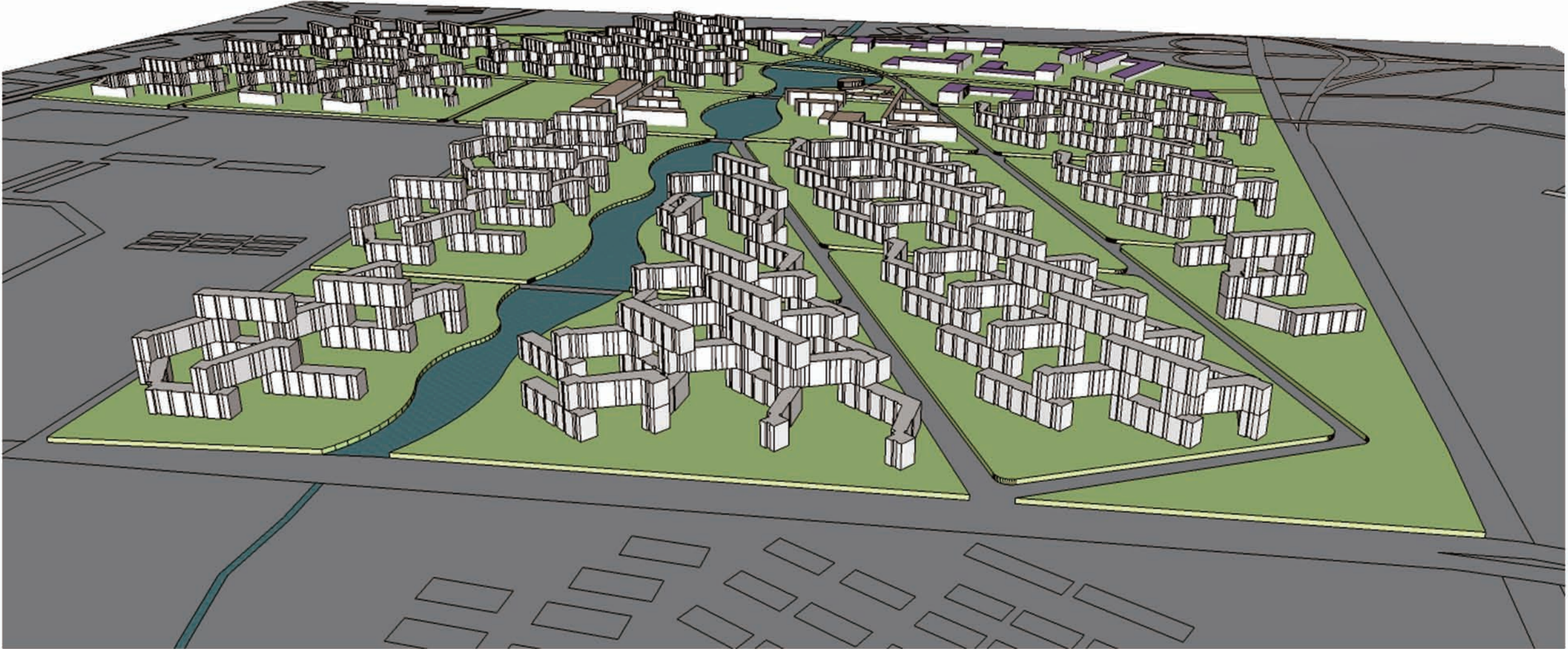
● Wetland & river

Master plan



- Education Area
- Commercial Area
- Wetland & river

Master plan



- Education Area
- Commercial Area
- Wetland & river

Block Design



kids paradise

BLOCK SITE PLAN

Wetland & river

Block Design

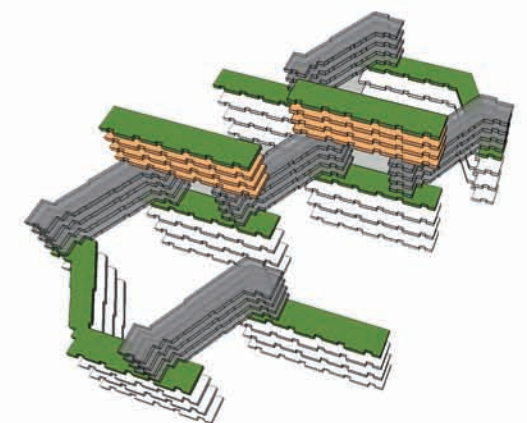
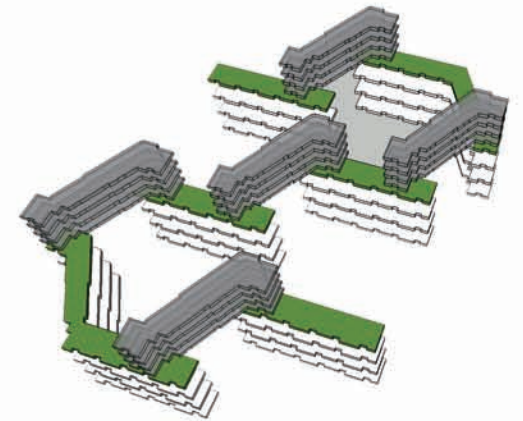
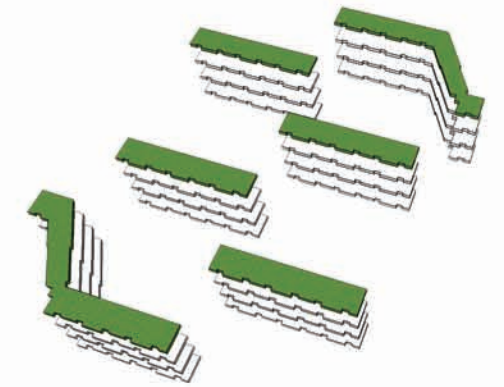


Building Design



The First Floor (Kindergarten)

- Kindergarten
- Public space of a unit
- Private space of a unit
- Farming indoor & balcony
- Cores

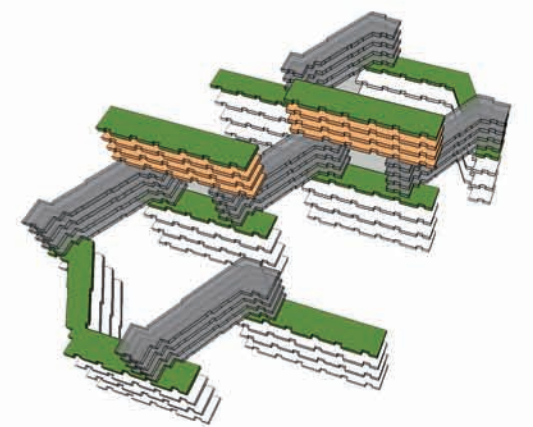
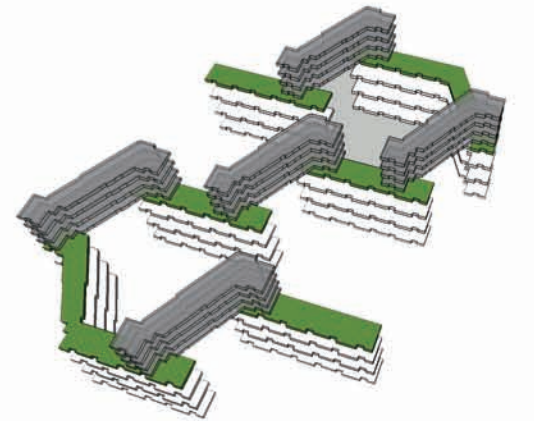
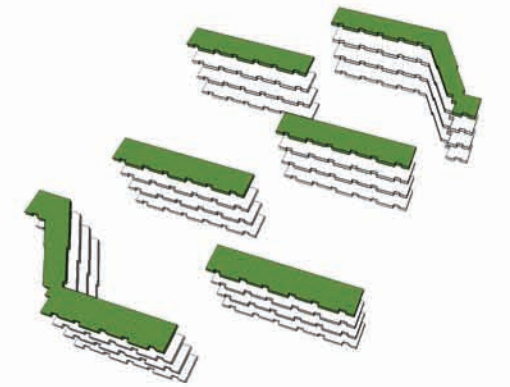


Building Design

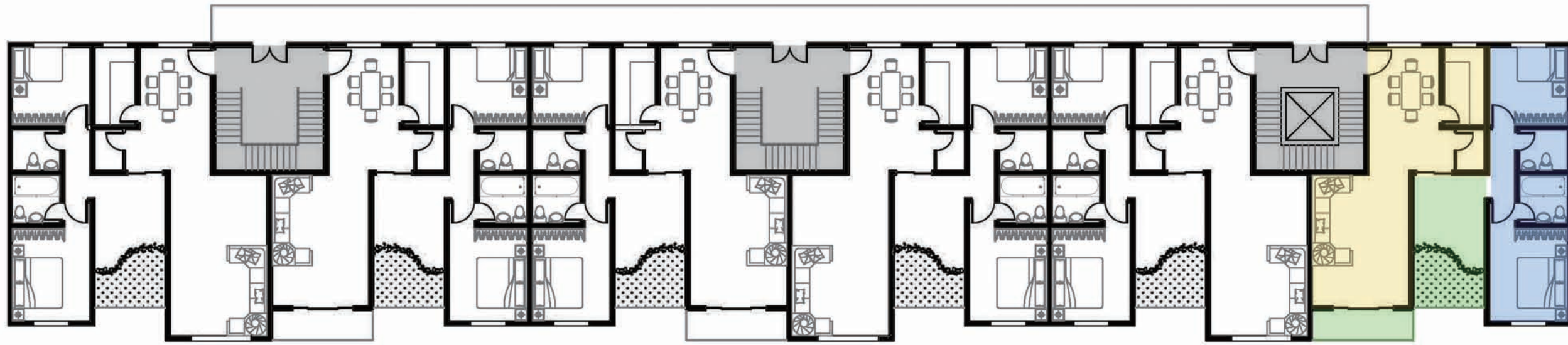


The Second Floor (Kindergarten)

- Kindergarten
- Public space of a unit
- Private space of a unit
- Farming indoor & balcony
- Cores

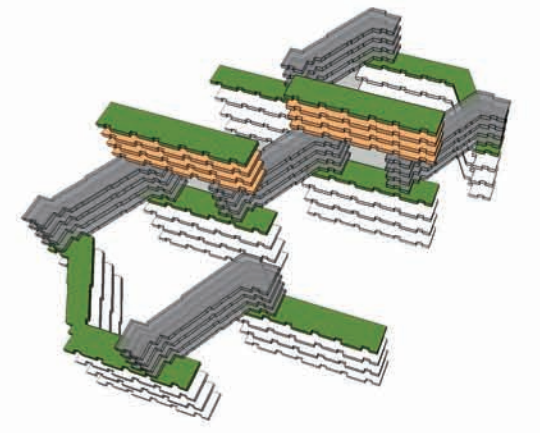
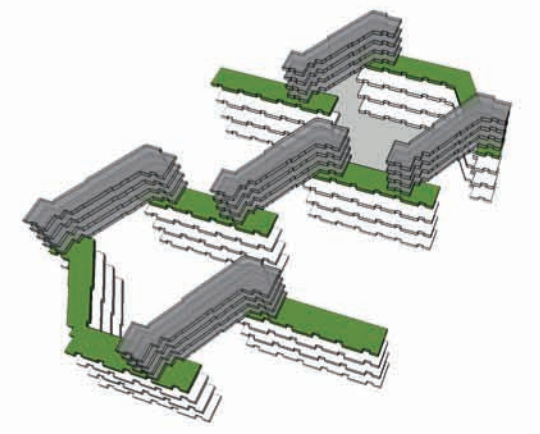
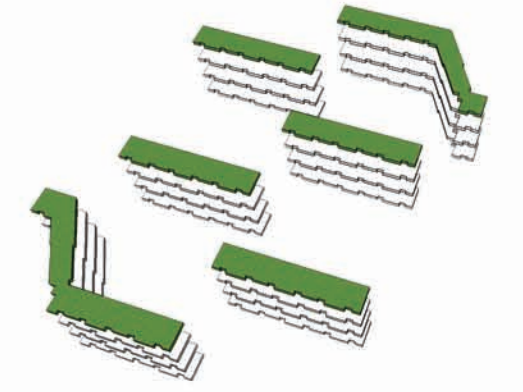


Building Design



The 3-4 Floor (Kindergarten)

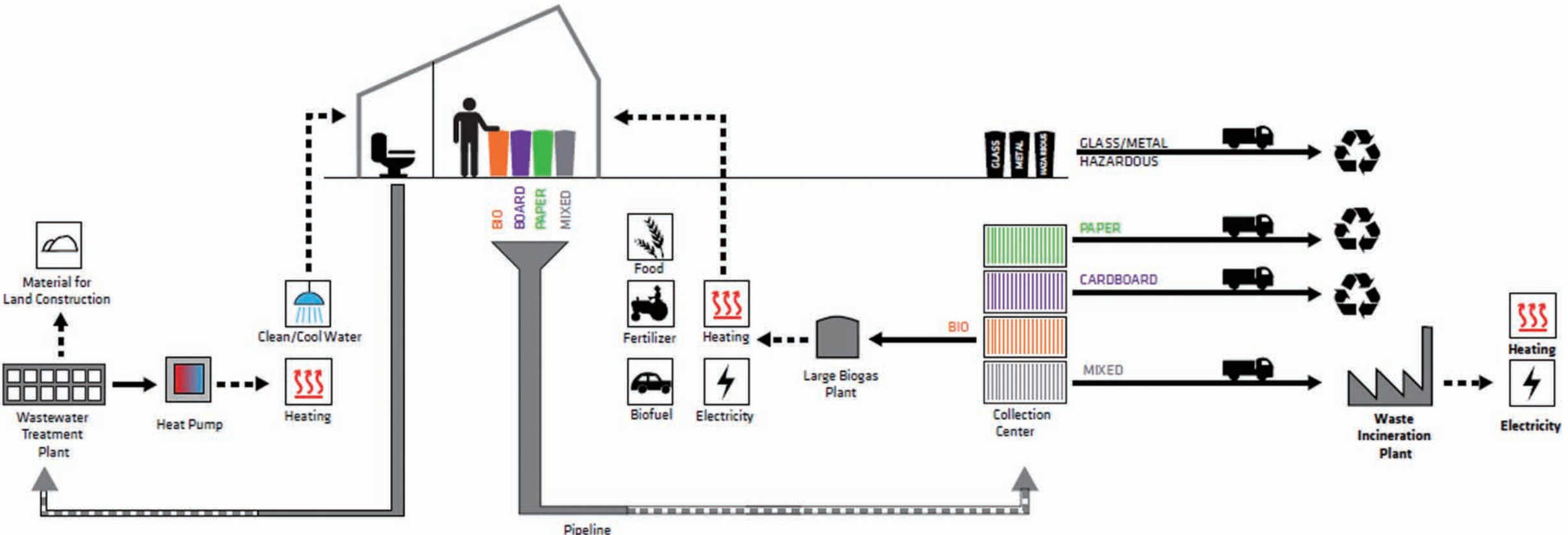
- Public space of a unit
- Private space of a unit
- Farming indoor & balcony
- Cores



Building Design - Sections

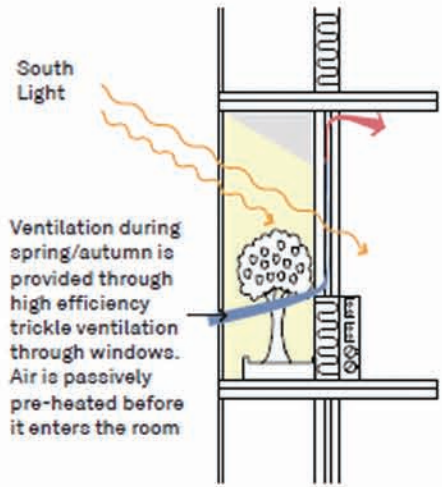


Building Design

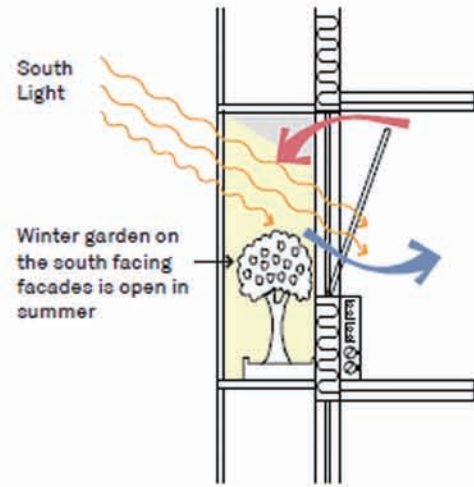


RESIDENTIAL

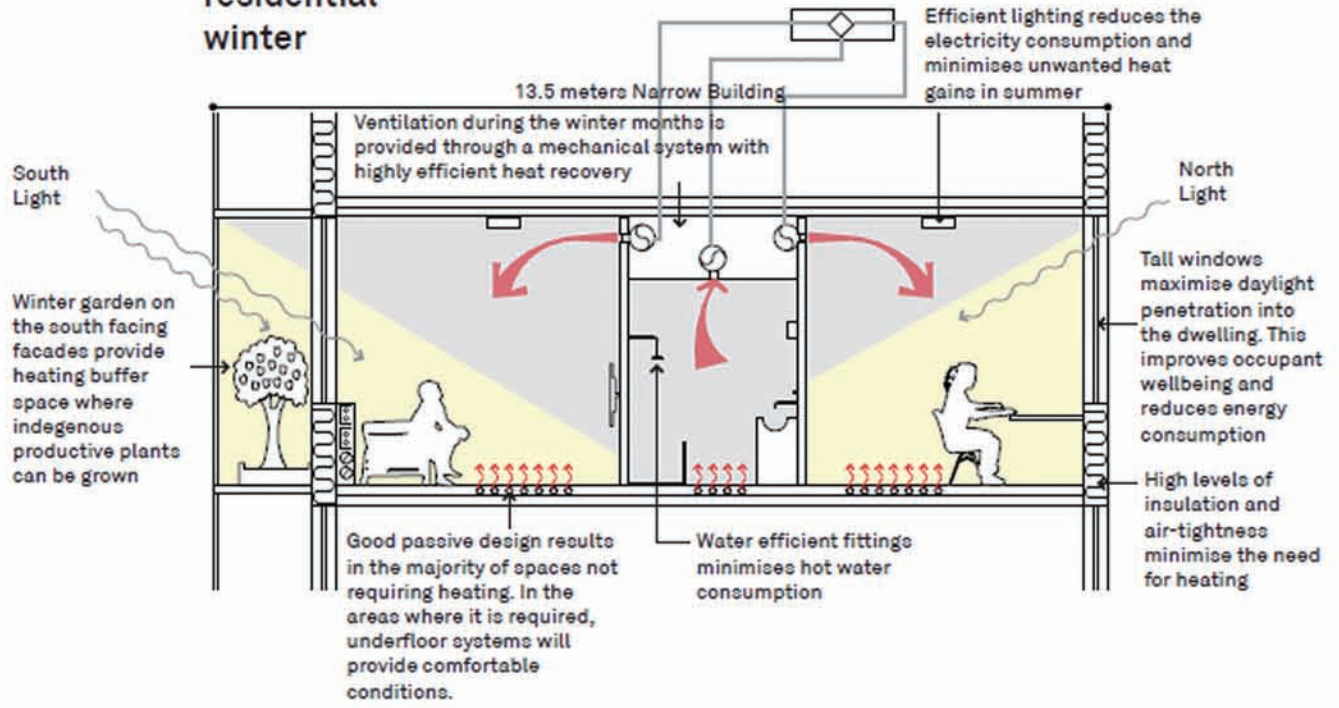
residential spring/Autumn



residential summer

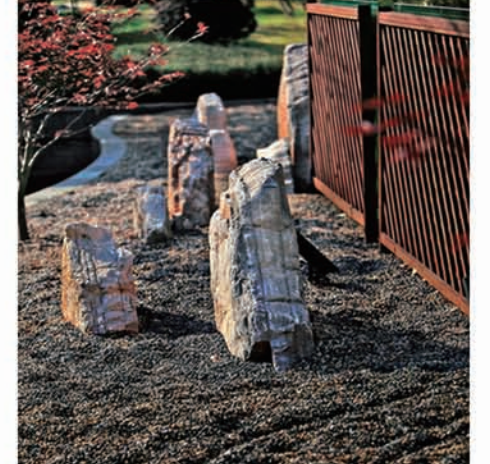
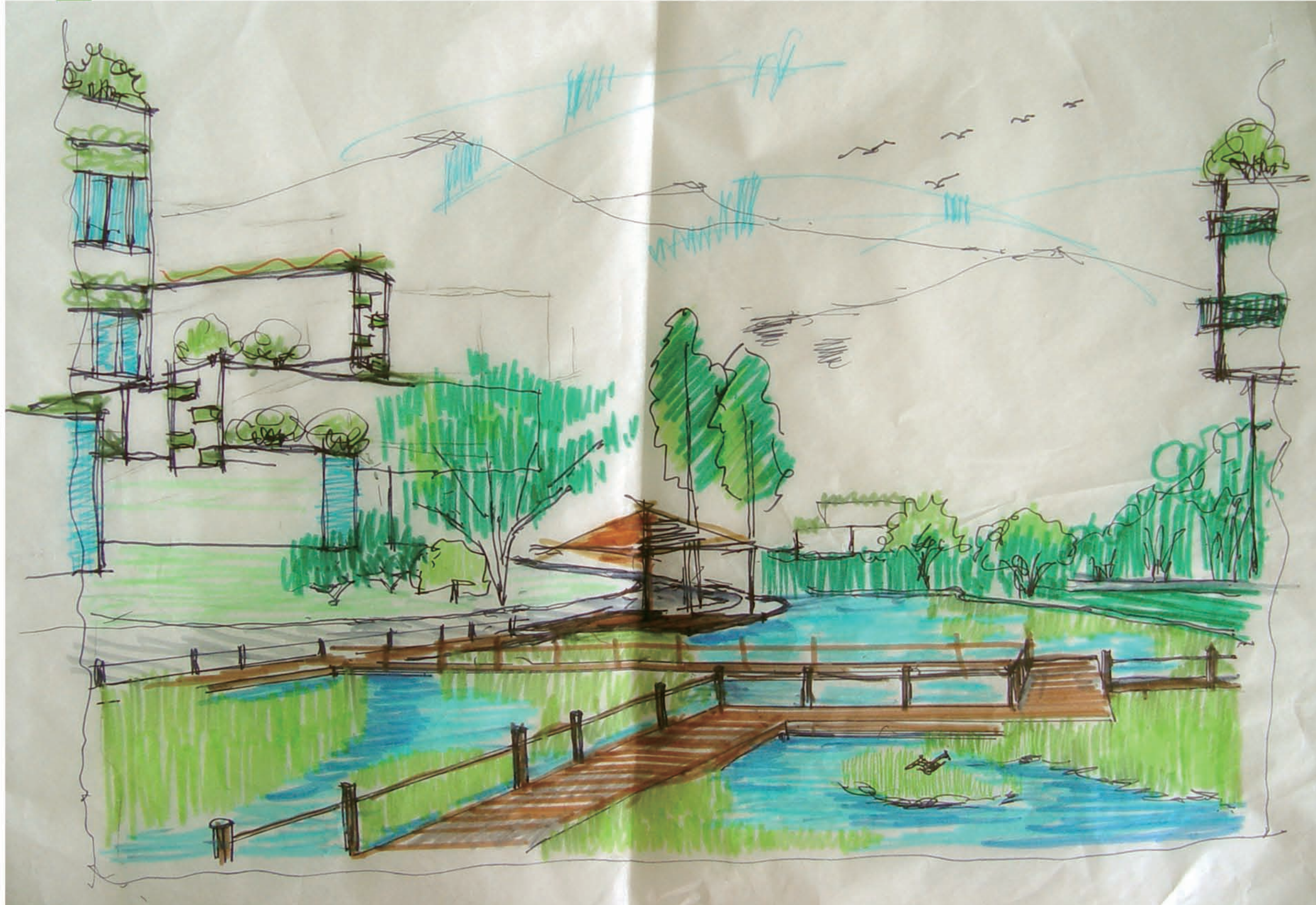


residential winter



Ecology Landcape Design

1_WETLAND



Ecology Landcape Design

1 WETLAND



Ecology Landcape Design

2_FARMING







This project is a redevelopment of the area which was destroyed by a powerful explosion last summer in Nanjing, China. A catastrophic explosion in 2010 left a portion of Nanjing city destroyed. The project proposes a new urban plan to rebuild the neighborhood and restore the community.

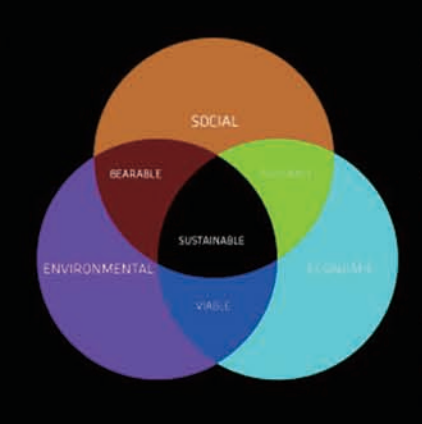
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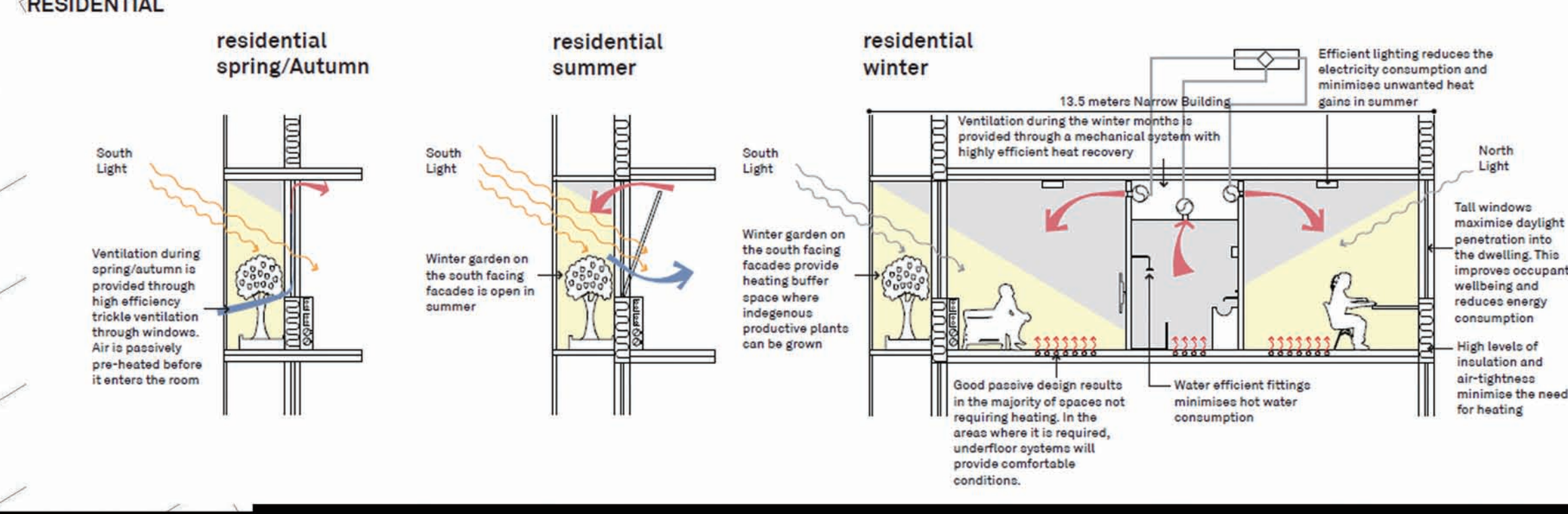
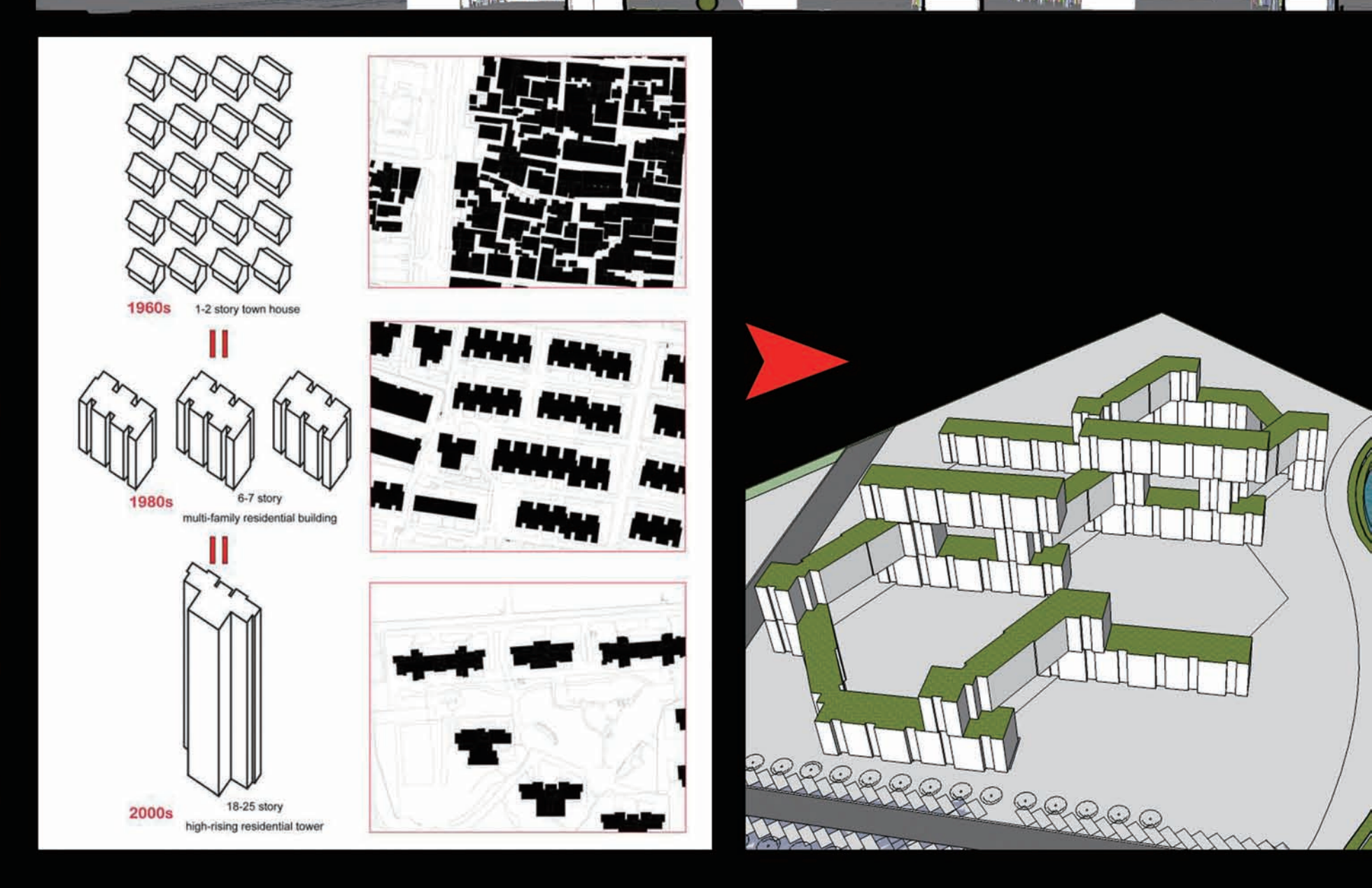
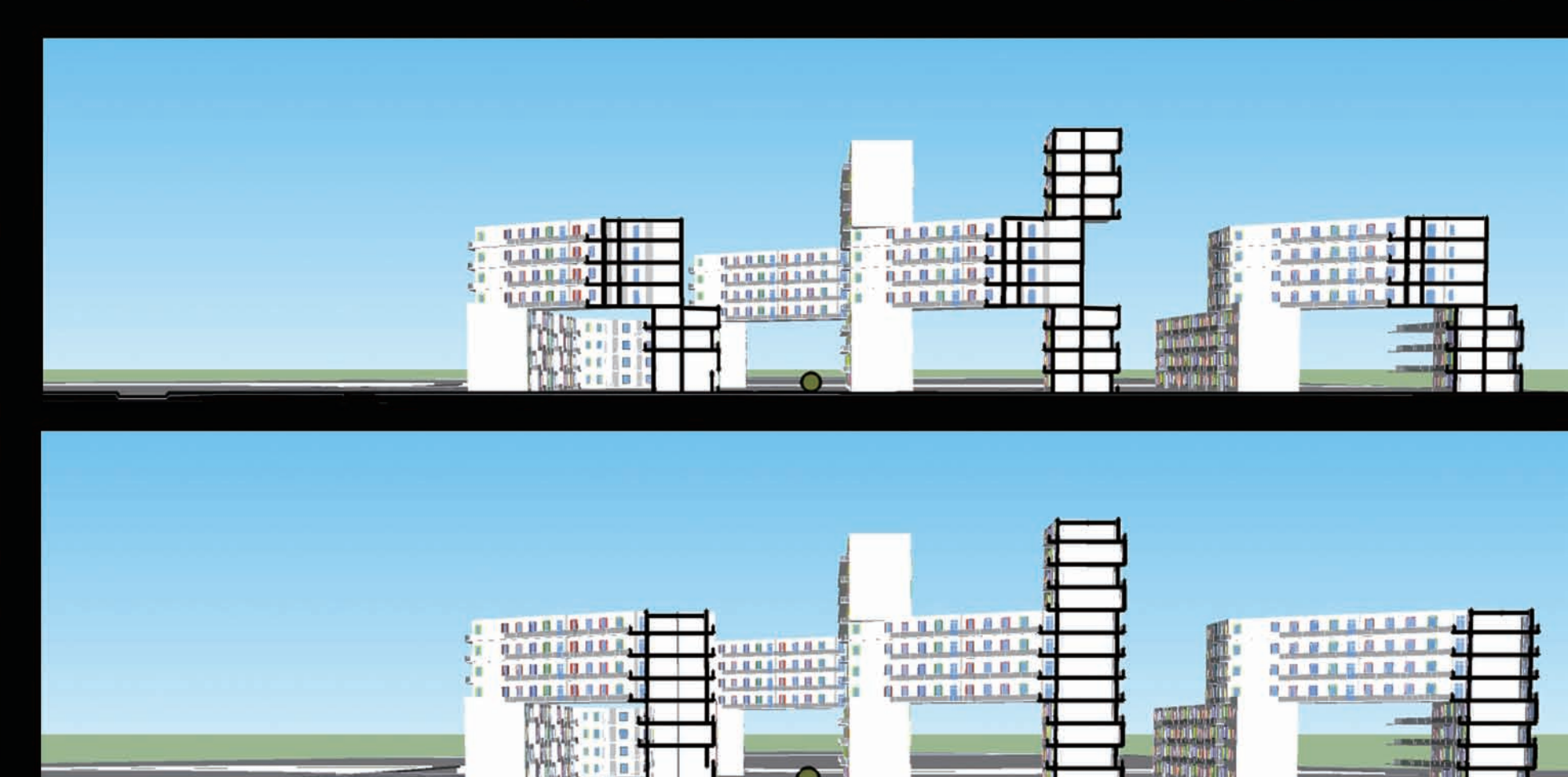
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- Social sustainability
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ECO-LIFE

MASTER PROJECT - 2011 SPRING - YINGQU WU



BLOCK SITE PLAN 1:1000