KOWLOON CITY REDEVELOPMENT - Alternative urban solutions within the neoliberal frame
Ting Wen 4119509
Kowloon City redevelopment
Alternative urban solutions within the neoliberal frame
PROJECT POSITION
Framework: “Who shape the city?” VS “Who has right to the city?”
New urban policy

While rapid economic globalizing process, urban policy of cities shifts away from social distribution like welfare considerations towards the New Economic Policy like more market-oriented and market-dependent approaches aimed at pursuing economic promotion and competitive restructuring.

A reorientation in attitudes of urban policy had taken place in the advanced capitalist countries. The “managerial” approach so typical of the 1960s has steadily given way to the “entrepreneurialism”.

- David Harvey

Splendid image of “good business climate”
New urban governance

The new urban policy that characterized by large-scale urban projects always emphasizes on its coordinated action of different actors, the encouragement of partnerships, and the building of network governance. It is presented as offering a better form of urban management, more flexible and efficient, that are more adapted to the competitive trends of globalization.

Urban governing is carried by a wide variety of institutions and organizations. It operates through a range of geographical scales, and mobilizes a wide variety of social actors. The forms of governance are characterized by a broadening of the sphere of governing while narrowing the space of the properly political.

- Erik Swynedouw
Rights to the city

Whose city?

Berlin is a liveable city. Low-income people can find accommodations which are half-way decent to live in. But the result of that is Berlin, by all the indexes which are typically used to describe success, is considered a very unsuccessful city. Because the developers cannot get much going, that there is not much of a market for what they do, and therefore it is not considered a very dynamic city.

Hong Kong is regarded as one of the most economic successful metropolis in the world. However the people there are experienced probably the most brutal living environment.
This new regimes of Governance-beyond-the-State in fact annuls the foundation of the democratic polis. While promising equality, it produces an oligarchically instituted form of governing in which political power seamlessly fuses with economic might and a governance arrangement that shapes the city according to the dreams, tastes and needs of the transnational economic, political and cultural elites.

To answer “whose city?”, at stake are some specific social groups that have been historically been absent from the city center or whose presence causes problems: low-income people, racial minorities, immigrants, certain types of workers, and homeless people. In areas like Hong Kong, London and Manhattan, only some specific groups can live closed to the city center.

- Sharon Zukin

Research theme: Alternative urban strategies within the neoliberal frame
Hong Kong as the site: totally within the framework

Hong Kong, being synonymous with conditions of Globalisation, Neoliberalism and “Culture of Disappearance” has the quite evident character of “urban asymmetry”.
National context
Linked globally
Gate of China

China economy regions
Pearl River Delta: Best global connection
Regional context

Hong Kong has the best location of foreign trade in the Pearl River Delta region. For a long time, it is the most important gate of China towards the world.
Hong Kong economy-based urbanization process

1840s-1890s  Early Entrepot Economy

1900s-1930s  Entrepot Economy

1940s-1960s  Industrialization period

1970s  Economy diversification

1980s-1990s  Financial Economy

2000s  High-tech and knowledge economy

- Commercial area
- Industrial area
- Reclamation area
- High-tech industry and third industry
- New town
Spatial hierarchy and social lamination

In Hong Kong, the social lamination is very obvious and it is shown as the spatial hierarchy. The new town program made the population and industry urbanized, but the significant financial, commercial and culture infrastructures were still located in the center. Thus, every node still need to depend on the center. Districts that are closer to the sources have a higher class. That forms the spatial hierarchy.
Problematic areas & plan from the decision maker

Great Pearl River Delta project:
Cross border living and working

South East Kowloon Project:
Creating new center for the city
South East Kowloon project: create dual-core for Hong Kong

In 1991, the Metroplan Selected Strategy proposed a broad land use framework for redevelopment of the Kai Tak Airport. The framework envisaged a mix of public and private housing developments, new commercial developments, high-tech industrial zones and open space system. Later in 1993, the Framework has been translated into more specific planning objectives: a development area of about 580 ha, with about 300 ha of reclamation area, to accommodate an overall population of 285,000 persons.

In 2011, Hong Kong Chief Executive Sir Donald Tsang Yam-Kuen pointed out in the Policy Report:

During the past decades, the area of Class A office buildings in Kwun Tong and Kowloon Bay has increased 2.5 times to 1.4 million square meters. As the development of the Kai Tak area into a mixture of office building, high-class housing and tourism recreation, the South East Kowloon has the potential to become the second “Central” in Hong Kong.
South East Kowloon Project: background of the project
District context - Kai Tak as the core

- Mixed industrial and residential
- Medium-rise residential
- High-rise residential
- Business
- Park and playground

Kai Tak redevelopment: mix of commercial, sports, residential, recreation and transportation

Kai Tak project
Kowloon city, part of the East Kowloon Project, has a quite unique position. It used to be one of the “black hole” area of the city that closed to the Kowloon walled city. It formed a special food street due to the neighbor the airport. In the future, it is going to be part of the dream of “good business climate” within the large-scale urban regeneration project.

**Position**

Kowloon city, part of the East Kowloon Project, has a quite unique position. It used to be one of the “black hole” area of the city that closed to the Kowloon walled city. It formed a special food street due to the neighbor the airport. In the future, it is going to be part of the dream of “good business climate” within the large-scale urban regeneration project.

**Challenge**

The challenge is to balance the demand of development for the area and keeping its special identity from swallowed by the commercial interventions nearby.
SITE ANALYSIS
## Comparison between the site and Kowloon city district

### Demographic characteristics

<table>
<thead>
<tr>
<th>Site</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population:</td>
<td>365,800</td>
</tr>
<tr>
<td>Aged under 15</td>
<td>13.0%</td>
</tr>
<tr>
<td>Aged 15 - 64</td>
<td>72.7%</td>
</tr>
<tr>
<td>Aged 65 and over</td>
<td>14.4%</td>
</tr>
<tr>
<td>Median age:</td>
<td>40</td>
</tr>
</tbody>
</table>

### Household characteristics

<table>
<thead>
<tr>
<th>Site</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic households number:</td>
<td>122,500</td>
</tr>
<tr>
<td>Average household size:</td>
<td>2.9</td>
</tr>
<tr>
<td>Median monthly domestic household income (HK$):</td>
<td>20000</td>
</tr>
</tbody>
</table>

### Labour force characteristics

<table>
<thead>
<tr>
<th>Site</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male:</td>
<td>68.4%</td>
</tr>
<tr>
<td>Female:</td>
<td>53.8%</td>
</tr>
<tr>
<td>Labor force rate:</td>
<td>60.4%</td>
</tr>
<tr>
<td>Median monthly income for working population (HK$):</td>
<td>10,500</td>
</tr>
</tbody>
</table>

### Education characteristics

<table>
<thead>
<tr>
<th>Site</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>School attendance rate of population aged 6 - 18 (%):</td>
<td>97.3</td>
</tr>
</tbody>
</table>

### Housing characteristics

<table>
<thead>
<tr>
<th>Site</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of occupied quarters:</td>
<td>118,821</td>
</tr>
<tr>
<td>Average number of domestic households per unit of quarters:</td>
<td>1.01</td>
</tr>
<tr>
<td>Proportion of domestic households owning the quarters they occupy (%):</td>
<td>59.3</td>
</tr>
<tr>
<td>Median monthly domestic household mortgage payment and loan repayment (HK$):</td>
<td>10,500</td>
</tr>
<tr>
<td>Median mortgage payment and loan repayment to income ratio (%):</td>
<td>29.8</td>
</tr>
<tr>
<td>Median monthly domestic household rent (HK$):</td>
<td>2,500</td>
</tr>
<tr>
<td>Median rent to income ratio (%):</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### Demographic characteristics

<table>
<thead>
<tr>
<th>Lung Shing</th>
<th>Kowloon city district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population:</td>
<td>13,440</td>
</tr>
<tr>
<td>Aged under 15</td>
<td>12.8%</td>
</tr>
<tr>
<td>Aged 15 - 64</td>
<td>70.2%</td>
</tr>
<tr>
<td>Aged 65 and over:</td>
<td>17.0%</td>
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<tr>
<td>Median age:</td>
<td>40</td>
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### Household characteristics

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<th>Lung Shing</th>
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<tbody>
<tr>
<td>Domestic households number:</td>
<td>5,182</td>
</tr>
<tr>
<td>Average household size:</td>
<td>2.5</td>
</tr>
<tr>
<td>Median monthly domestic household income (HK$):</td>
<td>13,600</td>
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</tbody>
</table>

### Labour force characteristics

<table>
<thead>
<tr>
<th>Lung Shing</th>
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<tbody>
<tr>
<td>Male:</td>
<td>68.1%</td>
</tr>
<tr>
<td>Female:</td>
<td>47.3%</td>
</tr>
<tr>
<td>Labor force rate:</td>
<td>57.4%</td>
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<tr>
<td>Median monthly income for working population (HK$):</td>
<td>9,000</td>
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### Education characteristics

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<td>5,148</td>
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<tr>
<td>Average number of domestic households per unit of quarters:</td>
<td>1.01</td>
</tr>
<tr>
<td>Proportion of domestic households owning the quarters they occupy (%):</td>
<td>70.0</td>
</tr>
<tr>
<td>Median monthly domestic household mortgage payment and loan repayment (HK$):</td>
<td>6,300</td>
</tr>
<tr>
<td>Median mortgage payment and loan repayment to income ratio (%):</td>
<td>30.0</td>
</tr>
<tr>
<td>Median monthly domestic household rent (HK$):</td>
<td>3,800</td>
</tr>
<tr>
<td>Median rent to income ratio (%):</td>
<td>29.1</td>
</tr>
</tbody>
</table>

- Lung Shing has more aged population
- Lung Shing has low household income
- More females do not have job in Lung Shing
- Most of the people in Lung Shing owned their house
**Kowloon City District - Demographic characteristics**

**District Council Constituency**

1. Ma Tau Wai
2. Ma Hang Chung
3. Ma Tau Kok
4. Lok Man
5. Sheung Lok
6. Ho Man Tin
7. Kadoorie
8. Prince
9. Kowloon Tong
10. Lung Shing
11. Kai Tak
12. Hoi Sham
13. To Kwa Wan North
14. To Kwa Wan South
15. Hok Yuen Laguna Verde
16. Whampoo East
17. Whampoo West
18. Hong Ham Bay
19. Hong Ham
20. Ka Wai
21. Oi Man
22. Oi Chun

**Proportion of population (%)**

- Green: Aged under 15
- Yellow: Aged 15 - 64
- Blue: Aged 65 and over
Kowloon City District - Demographic characteristics

Proportion of population that above 65
- 6%-12%
- 12%-20%
- >20%

Proportion of population that below 15
- <10%
- 10%-20%

Parents with child and old people
Parents with child
More families only have old people
Kowloon City District - Labour characteristics

High income area: Residents have the highest households income, but their occupation salary are not the highest ones.

High income area: Residents have the highest households income, and their occupations have quite high salary.

Low income area: Households income is quite low, just enough for basic expenditure. Residents here mainly work as general workers or lower salary occupation.

Medium income area: Households income is in medium level and residents mainly work as general office worker.

High income area: Residents have the high households income, and their occupations have quite high salary.
Kowloon City District - Household characteristics

Proportion of households owning the quarters they occupy (%)

Median monthly domestic household rent (HK$)

District Council Constituency
1. Ma Tau Wai
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21. Oi Man
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High rent payment
Flowing population
Kowloon City District - Household characteristics

Proportion of households owning their house:
- < 33%
- 33% - 66%
- > 66%

Median monthly domestic household rent:
- < 2000 HK$<br/>
- 2500 - 6000 HK$<br/>
- 6000 - 10000 HK$<br/>
- > 10000 HK$

Rent payment is quite high.

Flowing population: part of them live in public housing, part of them rent the house.

Rent payment is increasing and in medium level.
Problematic area in east Kowloon
Site identity: Pre 1998

Mong Kok
(city center of Kowloon)
# Formation of identity: History of Kai Tak area and Walled city

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1905</td>
<td>Kowloon City and its surrounding villages</td>
</tr>
<tr>
<td>1920</td>
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<tr>
<td>1920</td>
<td>Government development plan for Kowloon City in 1920, yet most of it was not realised.</td>
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<td>1925</td>
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<tr>
<td>1941</td>
<td>Kowloon city and suburbs in 1955</td>
</tr>
<tr>
<td>1954</td>
<td>Construction of new runway</td>
</tr>
<tr>
<td>1954</td>
<td>Extensioon for Royal Air Force</td>
</tr>
<tr>
<td>1958-1962</td>
<td>Development with a 2529m runway and new terminal building</td>
</tr>
<tr>
<td>1984-1988</td>
<td>Further reclamation with an extension of the runway in 1975</td>
</tr>
<tr>
<td>1997</td>
<td></td>
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## Kai Tak Area

<table>
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<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>1920</td>
<td>Development for Kai Tak</td>
</tr>
<tr>
<td>1925</td>
<td>Flying Club &amp; School of Aviation</td>
</tr>
<tr>
<td>1941</td>
<td>Extensioon for Royal Air Force</td>
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<td>1954</td>
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## Kowloon Walled City

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<tr>
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<td></td>
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<tr>
<td>1988-1995</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>1988-1995</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Kowloon walled city was demolished from 1988-1990</td>
</tr>
<tr>
<td>1995</td>
<td>Kowloon walled city was rebuilt as walled city park in 1995</td>
</tr>
<tr>
<td>1990</td>
<td>Kowloon walled city in 1970</td>
</tr>
<tr>
<td>1990</td>
<td>Kowloon walled city in 1970</td>
</tr>
</tbody>
</table>

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Kowloon City and its surrounding villages

Kowloon Walled City in 1920
Formation of identity: resident
Formation of identity: visitor

Tourist

Local visitors

Airport

City center

Walled city

Special restaurant area
Site risk: losing identity

Pre 1998
- Walled City
- City center
- Airport

Up to 2020
- Park Museum
- City center
- Culture area
- CBD
- Culture area
- Park playground
- Metro
- Artist village culture center
- CBD area
Challenge for rebuilding identity: physical disconnection
Function: residential area with food street

Walled city park
Housing typology: 7 types

Unit: 73.8 m²
Price: 79,950 HK$/m²
Unit price: 5,900,000 HK$

Unit: 44.5 m²
Price 1: 82,700 HK$/m²
Unit price 1: 3,680,000 HK$
Price 2: 40,220 HK$/m²
Unit price 2: 1,780,000 HK$

Unit: 22.2 m²
Price: 57,210 HK$/m²
Unit price: 1,270,000 HK$

Unit: 11 m²
Price: 22.270 HK$/m²
Unit price: 2,450,000 HK$

Unit price: 860,000 HK$
Housing typology: shophouse as the dominant one
Space & building:
lacking visual identity and public space
People: half of the residents are low-income groups

300 population

Employees (5495)

Employers (520)

Self-employed (299)

Unpaid family workers (89)

Home-makers (1380)

Students (2192)

Retired (2102)

Others (1363)

Working population by main occupations

Managers, administrators

Professionals

Associate professionals

Clerks

Service & shop sales workers

Craft, plant & machine operation workers

Elementary occupations

Working population by monthly income

> 25000 HK$ 

15000 - 24999 HK$ 

10000 - 14999 HK$ 

6000 - 9999 HK$ 

< 5999 HK$

Low-income groups
URBAN STRATEGY
Urban level: problematic area
Urban level: Possibility of regenerate east Kowloon

- Wong Tai Sin Temple
- Lok Fu Park
- Artist village & Culture facilities
- New CBD
- New metro line
Site level: Design for who?

- Employees (5495)
  - Employers (520)
  - Self-employed (299)
  - Unpaid family workers (89)
- Home-makers (1380)
- Students (2192)
- Retired (2102)
- Others (1363)

Working population by main occupations:
- Managers, administrators
- Professionals
- Associate professionals
- Clerks
- Service & shop sales workers
- Craft, plant & machine operation workers
- Elementary occupations

Working population by monthly income:
- > 25000 HK$ (with people icons)
- 15000 - 24999 HK$ (with people icons)
- 10000 - 14999 HK$ (with people icons)
- 6000 - 9999 HK$ (with people icons)
- < 5999 HK$ (with people icons)

Design for WHO?
Site level: What do they need

Space Demand
1. More public space
2. Public space with higher quality
3. Public space with hierarchy

Function Demand
1. Better chance for home business
2. Higher level employers

Groups having spare time
- Home-makers (1380)
- Students (2192)
- Retired (2102)
- Others (1363)

Low-income groups
- Service & shop sales workers
- Craft, plant & machine operation workers
- Elementary occupations

300 population

Low-income groups
- 6000 - 9999 HK$
- < 5999 HK$
Existing public function & space in the site

Sports center + Library + Food Market
13000 m²
Elderly health center + dispensary
1300 m²
Accessibility & active street

Nan Kok Street

To Shan Shui Po

Bus station

To Mong Kok

To Hong Ham

• Bus stop
Contradiction of public function & dynamic street
Urban strategy: function exchange

Sports center + Library + Food Market
13000 m²
Elderly health center + dispensary
1300 m²

Public function

Housing
19600 m²
Commercial
5000 m²

Sports function
Stadium
Urban strategy: function exchange

**Urban strategy**
1. Street and block function exchange
   strengthen the street food identity but bring in more commercial types

**Space Demand**
1. More public space
2. Public space with higher quality
3. Public space with hierarchy

**Function Demand**
1. Better chance for home business
2. Higher level employers

**Groups having spare time**
- Home-makers (1380)
- Students (2192)
- Retired (2102)
- Others (1363)

**Low-income groups**
- Service & shop sales workers
  - 6000 - 9999 HK$
- Craft, plant & machine operation workers
- Elementary occupations
  - < 5999 HK$
ARCHITECTURE STRATEGY
Possible public space of the dominant shophouse typology
Potential of the existing space

Terrace in backyard

Roof

Minor road
Hong Kong typical public space: organized by walkway

- Shophouse colonnade
- Podium of tower
- Footbridge between buildings
Diverse public space network in Hong Kong urban area with high density

Public space in Hong Kong is not necessarily worked as square, park etc. The pedestrian way is the important element for the public space to organized in Hong Kong. This type of public space is the one that Hong Kong people get familiar and know how to use it.
What will the diverse public space network work in low density context?

Low-rise street < 15m = ?
Diverse and hierarchical public space

- Culture & Housing function
- Public space organized by walkway
- Commercial function
- Pedestrian street
- Traffic
Reactivated minor road, roof and terrace
Site level: What do they need

Architecture strategy
1. Build public walkway in different level
2. Reactive roof and terrace and minor road
3. Make the upper layer housing connected to the public space.

Space Demand
1. More public space
2. Public space with higher quality
3. Public space with hierarchy
   - public, private ➔ public, semi-public, semi-private, private

Function Demand
1. Better chance for home business
2. Higher level employers

Groups having spare time
- Home-makers (1380)
- Students (2192)
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- Others (1363)

Low-income groups
- Service & shop sales workers
  - 6000 - 9999 HK$ (300 individuals)
- Craft, plant & machine operation workers
  - < 5999 HK$ (300 individuals)
- Elementary occupations
  - < 5999 HK$ (300 individuals)
Connection across highway

Narrow underground channel

Wide zebra line in ground
Connection across highway
Regional connection between walled city park and Kai Tak

Walled city park
Carpenter road park
Song Wong Toi park
Stadium, Metro park
Buildings to design
ARCHITECTURE DESIGN
Concept: Vertical lamination

Culture & Housing function: Theatre, Dwelling, Community activity center, Library (right to left)

Public space organized by walkway

Commercial function
Concept: Horizontally connect public space and function to the existing residents

Outdoor public walkway

Interior function

- Third floor
- Second floor
- First floor
- Ground floor

Legend:
- Red: Existing shophouse
- Black: Commercial
- Gray: Culture
Landscape scheme

Tree
System with granular drainage

Bush
System with granular drainage

Grass
System with drainage mat
**Statistics for two system**

- **System with granular drainage**
  - Maximum nominal thickness < 500mm

- **System with drainage plates**

---

**Table:**

<table>
<thead>
<tr>
<th>System Designation</th>
<th>P1</th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
<th>G4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Plants</td>
<td>sedum herbs</td>
<td>sedum herbs, perennials</td>
<td>sedum herbs, perennials</td>
<td>perennials, grasses, shrubs</td>
<td>grasses, shrubs, trees</td>
</tr>
<tr>
<td>Extensive Soil Mix</td>
<td>3”</td>
<td>2”</td>
<td>4”</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Intensive Soil Mix</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6”</td>
<td>9”</td>
</tr>
<tr>
<td>Separation Fabric</td>
<td>1/8”</td>
<td>1/8”</td>
<td>1/8”</td>
<td>1/8”</td>
<td>-</td>
</tr>
<tr>
<td>Drainage Plate</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
</tr>
<tr>
<td>Protection Mat</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>1/4”</td>
</tr>
<tr>
<td>Nominal Thickness</td>
<td>4”</td>
<td>4”</td>
<td>6”</td>
<td>10”</td>
<td>14”</td>
</tr>
<tr>
<td>Dry Weight</td>
<td>13 lbs/ft²</td>
<td>16 lbs/ft²</td>
<td>24 lbs/ft²</td>
<td>40 lbs/ft²</td>
<td>56 lbs/ft²</td>
</tr>
<tr>
<td>Saturated Weight</td>
<td>21 lbs/ft²</td>
<td>23 lbs/ft²</td>
<td>36 lbs/ft²</td>
<td>58 lbs/ft²</td>
<td>82 lbs/ft²</td>
</tr>
<tr>
<td>Minimum Slope</td>
<td>1/4:12</td>
<td>0:12</td>
<td>0:12</td>
<td>0:12</td>
<td>0:12</td>
</tr>
<tr>
<td>Maximum Slope</td>
<td>1:12</td>
<td>1:12</td>
<td>1:12</td>
<td>1:12</td>
<td>1:12</td>
</tr>
<tr>
<td>Water Retention</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
<td>80%</td>
<td>-</td>
</tr>
</tbody>
</table>
Use of the space under green: Landscape combined with ventilation
Section model from the community center
Structure for the community center:
combination of steel and concrete

Concrete

Steel space frame

Balanced cantilever

Flexible facade
Tectonic of the wall

Concrete column

Concrete beam

Steel space frame

Steel V column

Steel beam
Timber handrail connected to the steel sheet for every 4 wooden sticks

Steel lug connected to the concrete beam

4 sticks as one prefabricated component with steel frame and wooden topping
Wall & Window

Continuous runner channel
light-gauge steel studs (200 wide)

C-stud
(65 thick, 100 wide)

Flexible partition for
window and door

Bolted to the foundation slab

U-glass
Roof

- Cap sheet
- Water proof
- Insulation
- Vapour check
- Timber deck
- Steel frame
- Timber purlin
SCENARIO
Let the local to programme their activities

This community center functions as semi-public or semi-private space to offer various chances for the local public life.

The activities can be programmed by the local residents. And the design just provide a series of big, medium and small space for all the need.
Different activities for local groups can be loaded into the space

Community dancing club
Hand-made craft fair
Children play ground
Religion ceremony

......
Entrance to the dwelling
Scenario: Landscape as public core
Scenario: Grey space
Scenario: reactive existing roof
Scenario: Roof garden for new housing
Scenario: public space and semi-public space
**Scenario: Existing life**

**Small business**

**Relax time**

**Roof**

**Parking**
Scenario: Better chance, better life

Small business chance

Relax time

Facilities

Roof activities