

國立交通大學

建築研究所

碩士論文

延續

Extend: Landscape & Life
Living Energy
Structure
Function & Space

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ABSTRACT EXTEND

延續(extend)是一個來自非建築系背景(雕塑)的汪柏成，在經過建築殿堂的浸潤的過程中，檢視並整合兩種專業。建築的生產是從創意到服務到執行的旅行，如何延續旅行的熱情直到最後；現在才正開始。

延續(extend)是象徵，也是創作手法：從設計初階段發生的任何現象甚或部件，觀察其歷史進而從線索中逐地分析其可被發展的機會，到空間生產的階段加入基地條件後產生為融合美學，力學及社會學的作品。

"Duck's Happy Place"是將原先的地景做為底圖，進行縫合原本不合理的景觀以及動線上的計畫。將校園中重要的水紋整合，同時延伸原來的植栽計畫，將原本被擠壓的禽類生活空間拉回到與人類生活空間相同的品質。

"Green Light"最有趣的就是從都市中搜尋"現象"開始：可能是建築構件，是一個事件，是一種生態；去認識我們找到的部分，將其延伸演化成生產單元，接著將一組個人分析的部件置入基地互相擾動，定義基地中能被討論的新議題。

"Shockproof Core"將重點放在木構造的合理構築與木構造創新之間的平衡：以達震災區重建安全建物之範例。依據馬爾康的氣候，地震及風力的影響創造出橢圓型的結構物，立面上創造特定的斜率來柔性抵抗風壓，並利用這個斜率裝設太陽能光電板及強化導水功能。

"Cortex"是經由都市中的物件觀察，進行尺度或物理現象的分析。透過階段性的延伸與抽象物件的本質使得最後設計被放進基地時有更多空間及機能層次的表現。

"Extend" comes from my background of sculpture, examine and integrate two specialties during the infiltration of architecture palace. Architecture life is a trip from originality through service to execution, how to extend the passion of the trip till the end; now it's just the beginning.

"Extend" is a symbol, also a creative technique: observe the history of any phenomenon even component occur at the beginning of design, analyze the opportunities of development from clues, add in the base conditions during the stage of space production, bring forth the pieces integrating with esthetics, mechanics and sociology.



CONTENTS

EXTEND

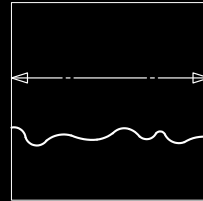
“Duck’s Happy Place” is a project that takes the original landscape as the base map and links up the unreasonable scape and circulation. Integrating the hydrology of the campus, extending the plant to raise the compressed birds living space to the same quality of human living space.

“Green Light” starts from searching “phenomenon” in Urban: it might be a component, an event or ecology; to recognize the parts we found, extend them into one unit, and put the components analyzed by six persons into base to disturb each other.

“Shockproof Core” emphasizes the balance between the reasonable construction of wooden structure and the innovation of wooden structure, to reach the models of rebuild safe architectures in earthquake disaster area.

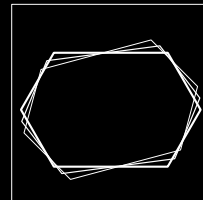
“Cortex” is the analysis of scale or physics phenomenon through the observation of the objects in urban. Through phasis extension and the essence of abstract objects, the final design will have more expressions about space and function when it’s put into the foundation.

001



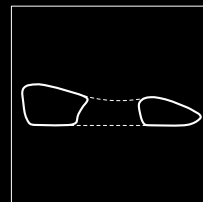
Landscape & Life
_Duck’s Happy Place

014



Living Energy
_Green Light

037



Structure
_Shockproof Core

055



Function & Space
_Cortex



EXTEND

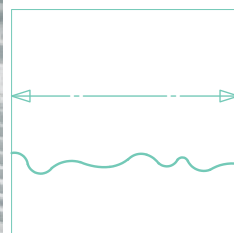
Land



Image © 2009 DigitalGlobe



Scap e + L f e



Duck's Happy Place

Location | NCTU, Hsinchu, Taiwan
Scale | Campus



Duck's Happy Place

這個案子是將原先的地景做為底圖，進行縫合原本不合理的景觀以及動線上的計畫。

SITE

位於新竹交流道旁的交通大學光復校區，校園規劃始終缺乏創意及一致性，校園被車道及一塊塊學院群給切開，植栽的設計過於理性人工；這一切導致校園缺乏生氣，師生間的互動僅止於學園內，而該屬於校園的氛圍看不太到。

RESEARCH

試圖從地景設計的相關技術重新建構好的品質的校園空間。

CONCEPT

將校園中重要的水紋整合，同時延伸原來的植栽計畫，將原本被擠壓的禽類生活空間拉回到與人類生活空間相同的品質。

PROGRAM

01. 測繪出水域(蓮花池、竹湖)的高低差，以連續的草溝地景控管建物基地周邊的逕流量並且連結三片水域，並且重新檢討生態滯洪池在這個案子中的重要性。
 02. 以不影響人類移動習慣為前提，將人車動線與地景分層計畫，設計出生態濕地，野鳥棲地與親水場域。
- 竹湖_南向往北向以漸深的方式讓池子利於曝氣，改善之後的水質可用於灌溉，洗滌，與供人類親近。
- 荷花池_教育解說或觀察。
- 小池_親水設施為主。

三池以循環系統及草溝相連結，池體以自然生態工法建構，營造水棲生物喜愛的緩坡及多孔隙空間。三池之間的道路系統及人行步道，以透水性強的石鋪取代原先的柏油及水泥路面。

SITE

Located in the Guang Fu campus of Chiao Tung University next to Hsin-Chu interchange, the campuses, which were separated by lanes and college buildings, are lack of originality and coincidence, besides, the design of plantings was too artificial. All these result in the campuses lack vitality, the interaction between teachers and students only occur in colleges, there's few atmosphere belonging to the campuses.

RESEARCH

Try to re-construct good campus space through associated techniques of landscape design.

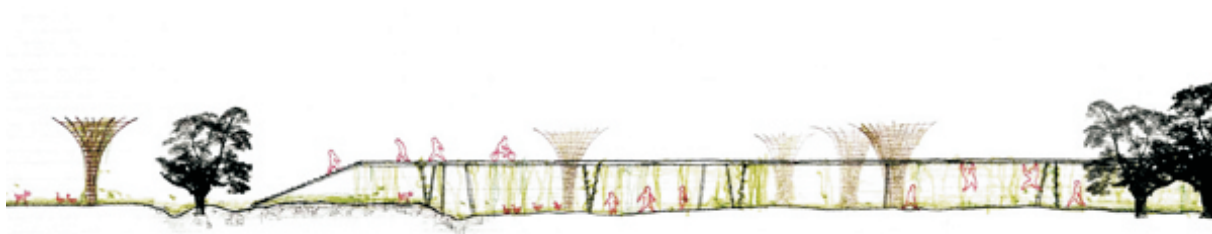
CONCEPT

Integrating the hydrology, extending the plantings project to raise the compressed birds living space to the same quality of human living space.

PROGRAM

01. To measure and draw the height differences of water region, control the flow quantity of the edge of building base by the grass ditch, and review the necessity of the ecological stagnant pond.
02. To delaminate routes for men and vehicles from landscape on the presupposition of not affecting human moving habits, establish ecological wetlands, wild birds habitats and water-intimated areas.





Site issue



很清楚地，自然景觀被各種形式，材質的車道，人行步道切斷。人與人，人與動物間的關聯變的薄弱。

Image of Grass Ditch

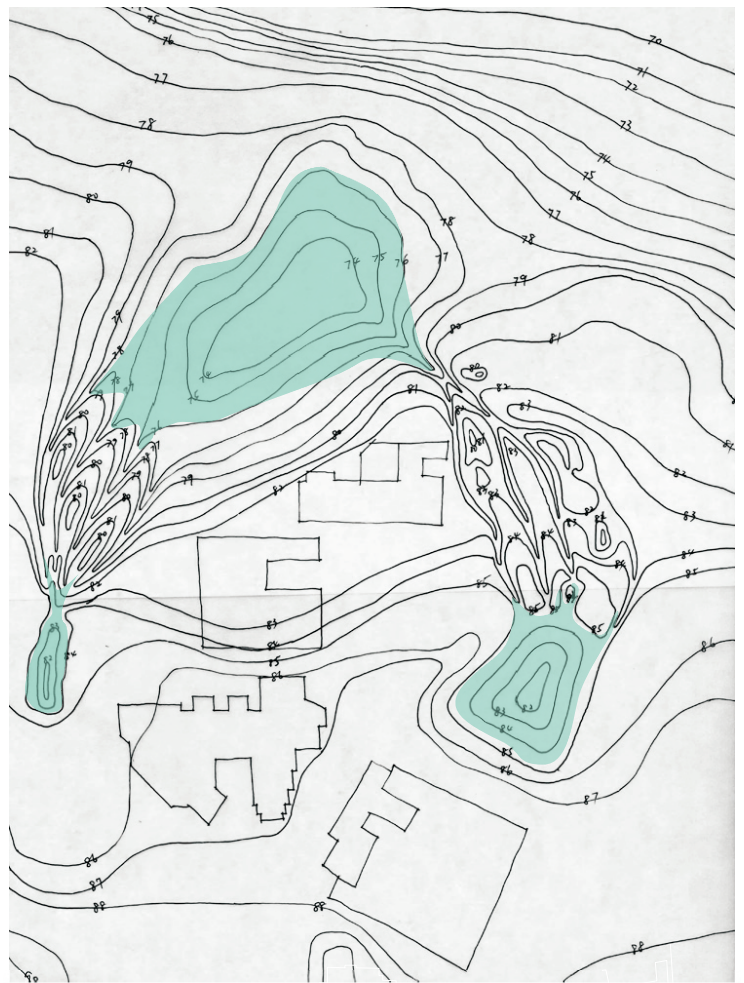
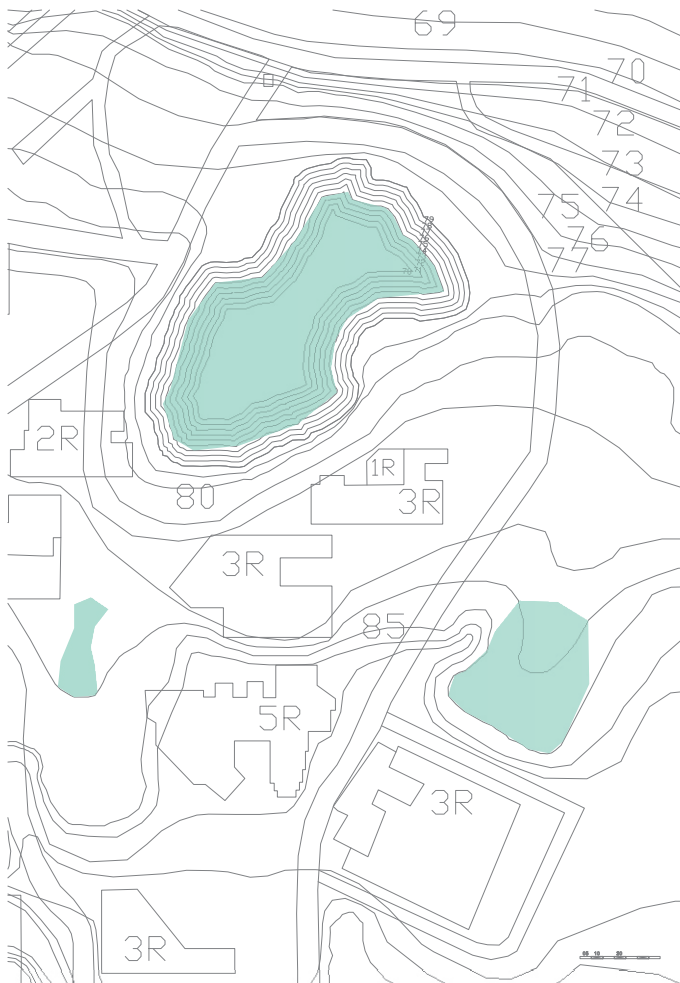


First, To link up Waters



沒有考慮到

藉水之間的被串連從新定義交大校園的門戶意象。





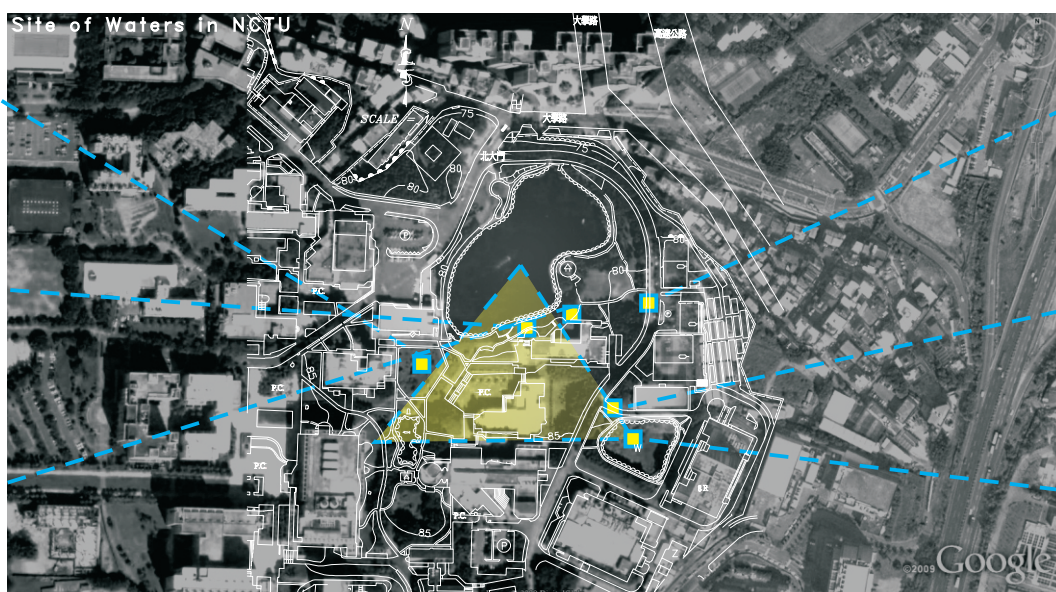
整體環境的植栽計畫



機能低的座椅區



無法親近的水



被車道切割的校園

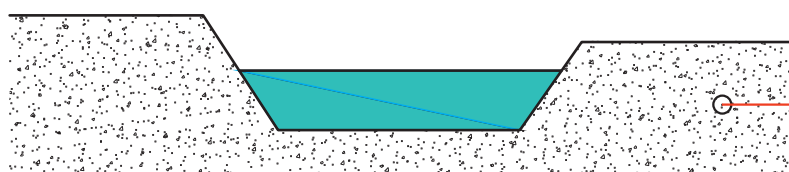


過於清楚的邊界

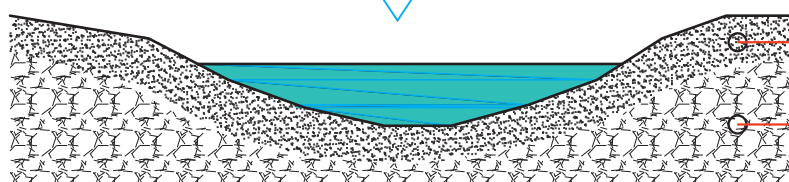


失控的蓮花池

Transform the Waters into Retarding Basin



混凝土

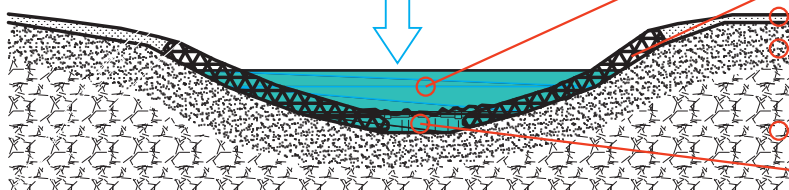


不透水層-黏土夯實60~80cm

透水層-砂石，卵石



Ecological Engineering Methods



10~60cm的淺深水區

藤編蛇籠(內填卵石)

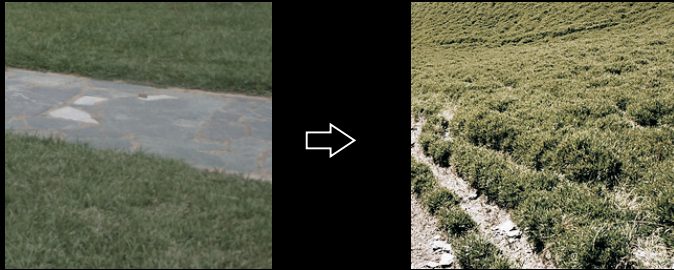
草坡

不透水層-黏土夯實60~80cm

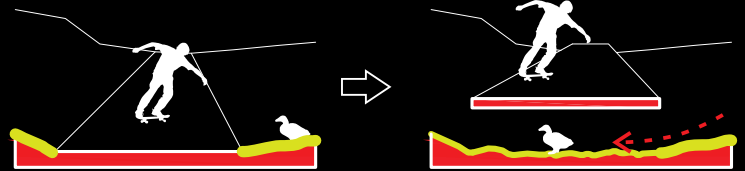
透水層-砂石，卵石

多孔隙材料-木塊，石堆

Image of Grass Ditch

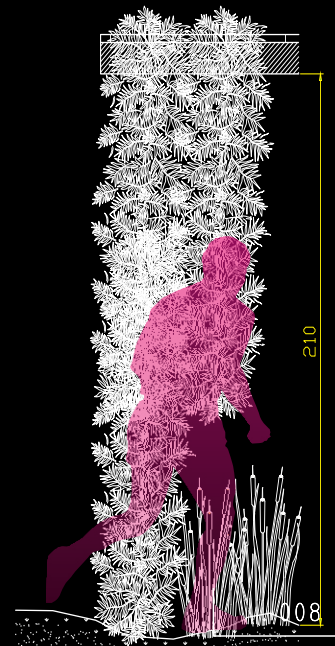
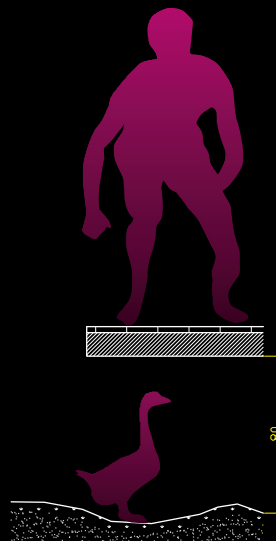
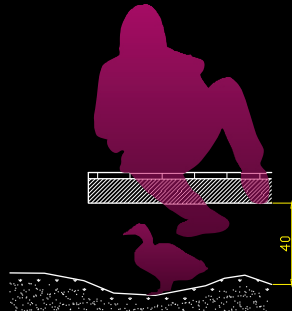
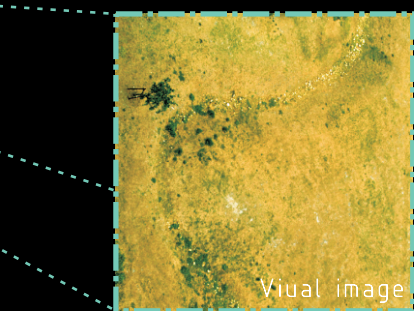
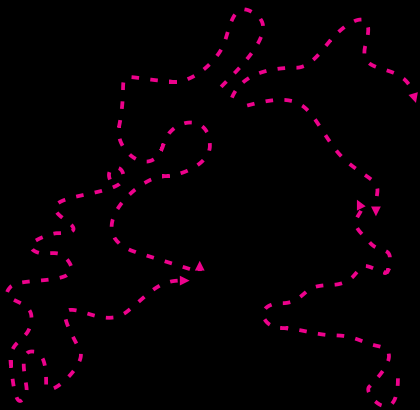
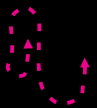
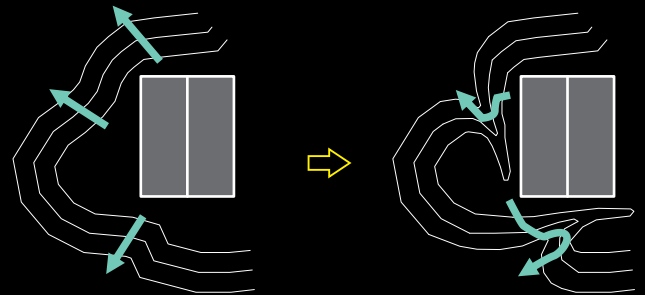
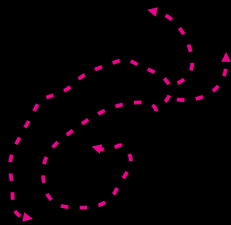


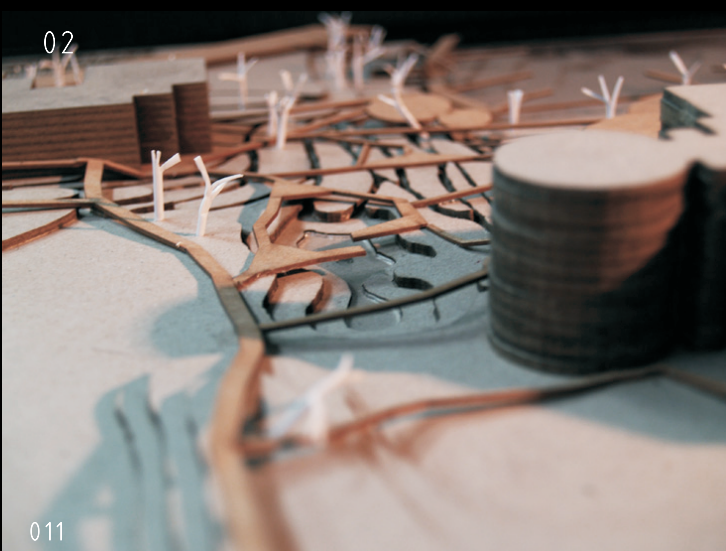
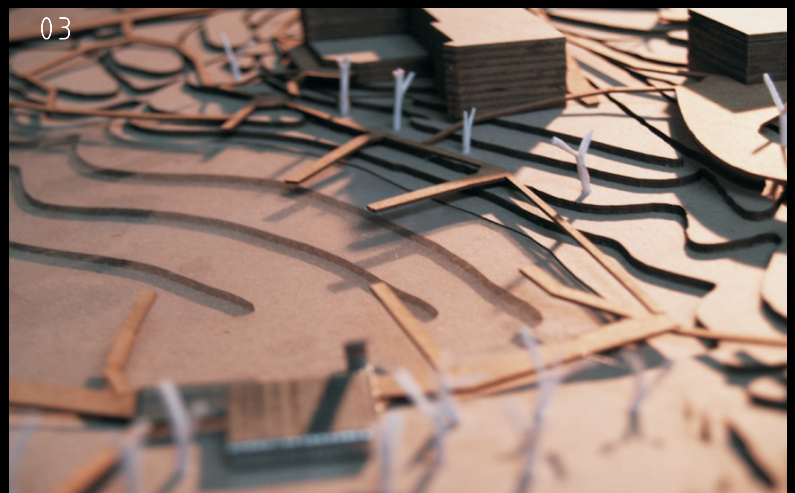
Transform One Circulation into several Layers



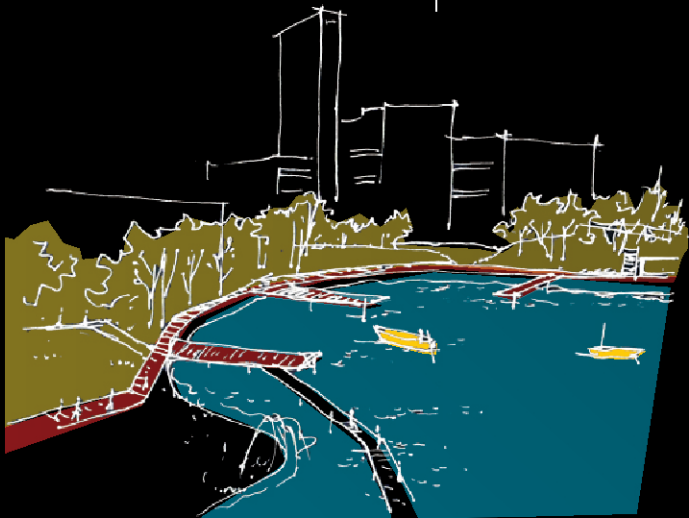
Animals loop

Diagram of Height of Runoff





Imagine of new Landscape



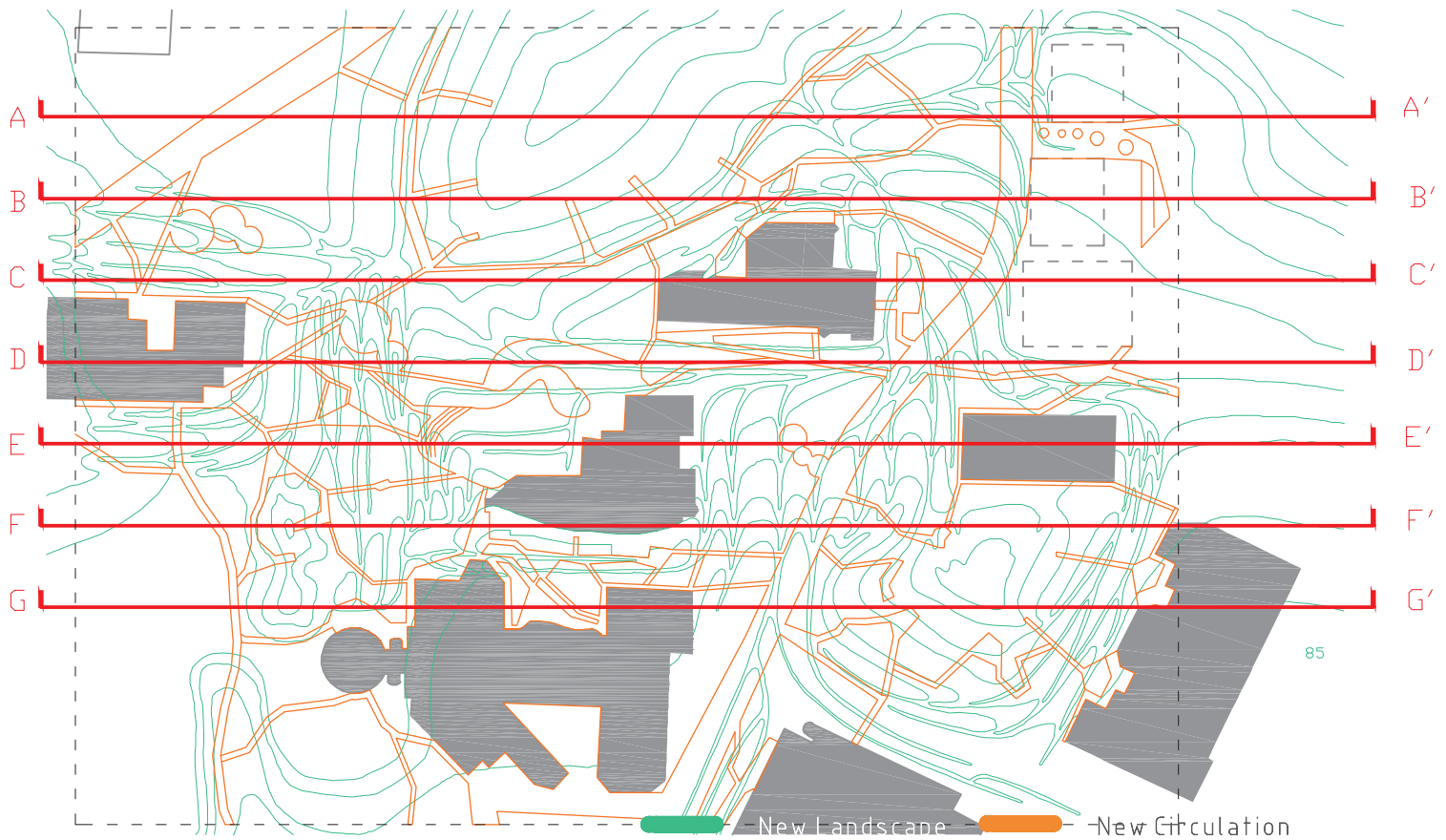
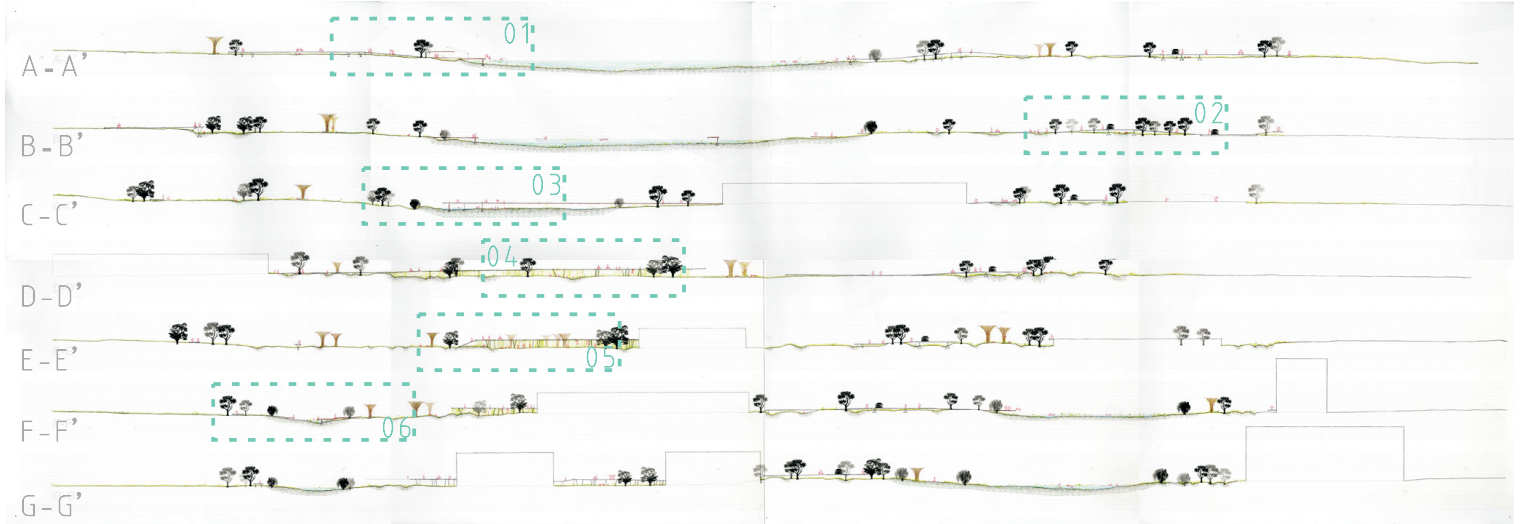
illustration



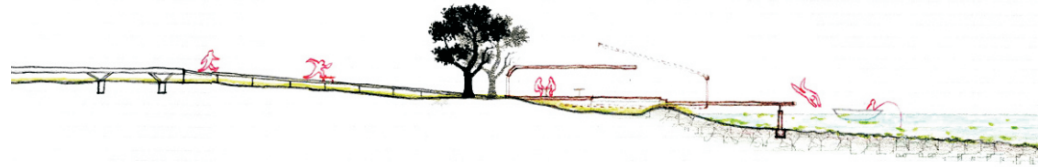
Site model in NCTU__ Duck's Happy place



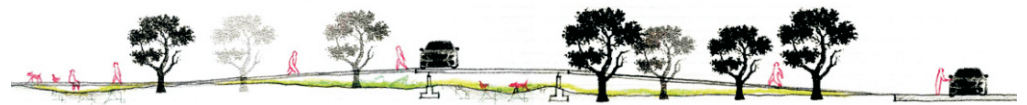
Section of New Landscape & New Circulation



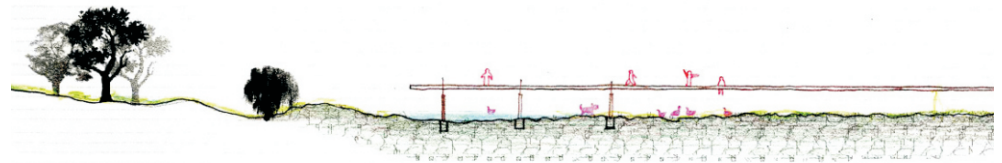
01



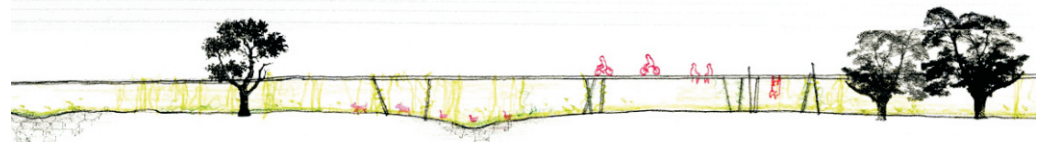
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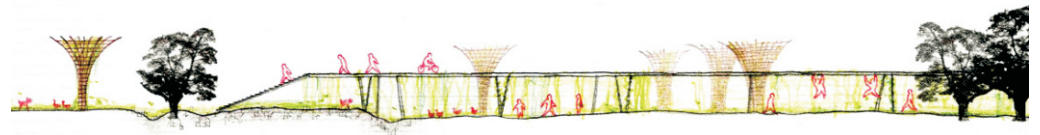
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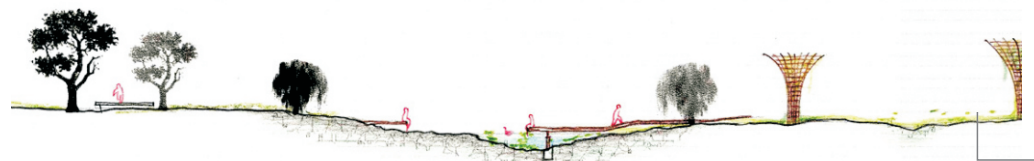
04



05



06

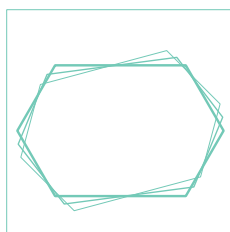
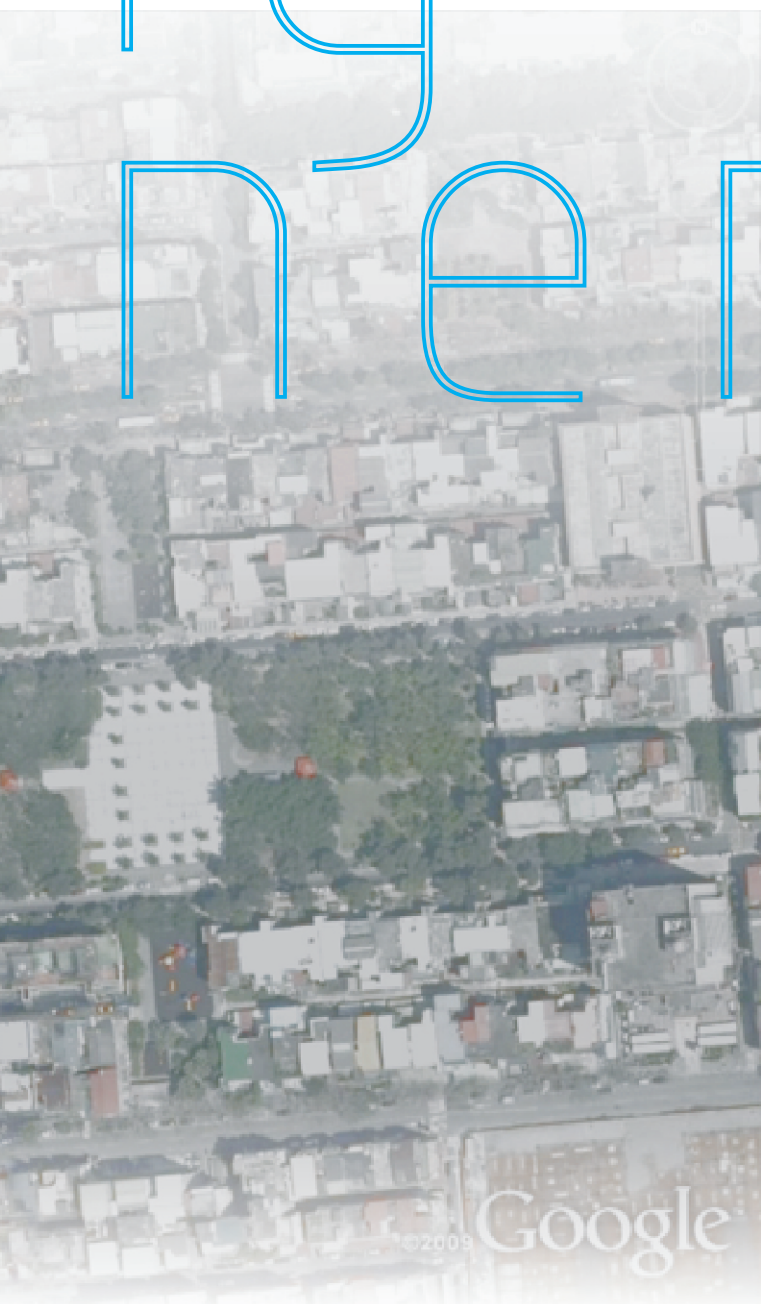


EXTEND

LIVE



Energy



Green Light

Location | MinSheng Community
Taipei, Taiwan
Scale | Micro City

014

Green Light

最有趣的事情往往就在我們身邊，這案子就是從都市中搜尋「現象」開始：可能是建築構件，是一個事件，是一種生態；去認識我們找到的部分，將其延伸演化成生產單元，接著將一組6個人分析的部件置入基地互相擾動，定義基地中能被討論的新議題。

SITE

位於台北市的民生社區。

RESEARCH

找到一個關鍵的現象/臨時性棚架，分析現象的組織，例如生產過程，組成單元。利用合理的單元植入進基地；同時依著基地條件/社會條件去變形成我們想要的生活畫面。

CONCEPT

關於都市內容物的結構性議題以「組」為單位共同設計之。分成以下幾種類型：A.停車空間+

便利商店。B.綠色生活服務盒。C.腳踏車專

用坡道+腳踏車維修站。D.都市人文咖啡廣

場。E.集合住宅層。F.托兒中心+空中菜田。

B部分是我研究設計的範圍：

棚架的結構行為與販賣行為/生活方式被延伸成生活服務盒得以被成型的催化劑。

01.臨時性>永久性

02.分散性>共同性

03.快步調>慢步調

04.都市便利性+鄉村舒適性

PROGRAM__common

目的是希望在擁擠的都市生活空間中營造出慢步調與便利性共存的新社區。

將以下幾種機能垂直分層：

A.停車空間。B.休閒商業空間+腳踏車活動。

C.集合住宅。D.空中菜田+托兒中心。

PROGRAM__personal

綠色生活服務盒(Green Light)的內容：

01.水電_供給社區，社區附屬菜園之管線集中。結構物降溫系統：噴灑裝置。

02.行_散步道垂直化。(提高社區交流機會。)

03.綠_垂直菜田與集合住宅層整合，垂直步道旁設計攀藤植物(視覺綠化+降溫效果)。

SITE

Located in Min-Sheng Community in Taipei City.

RESEARCH

Search key phenomenon / temporary arbors, analyze the organization, such as production process, composition unit. Embed reasonable units in base; form the living appearances according to the base conditions.

CONCEPT

The construction issues about city subjects are designed by the unit of “team”, divided into the following types: A. Parking lot + convenient store. B. Green Light. C. Bicycle ramps + bicycle repair station. D. City humanities café plaza. E. Gathering residence parts. F. Baby care center + overhead farm.

Part B is my research and design range.

The construction and selling behaviors of arbor are extended to the activator of Green Light.

01.Temporal > Permanence

02.Scatter > Common

03.Fast pace > Slow pace

04.City convenience + Country Comfort



PROGRAM__common

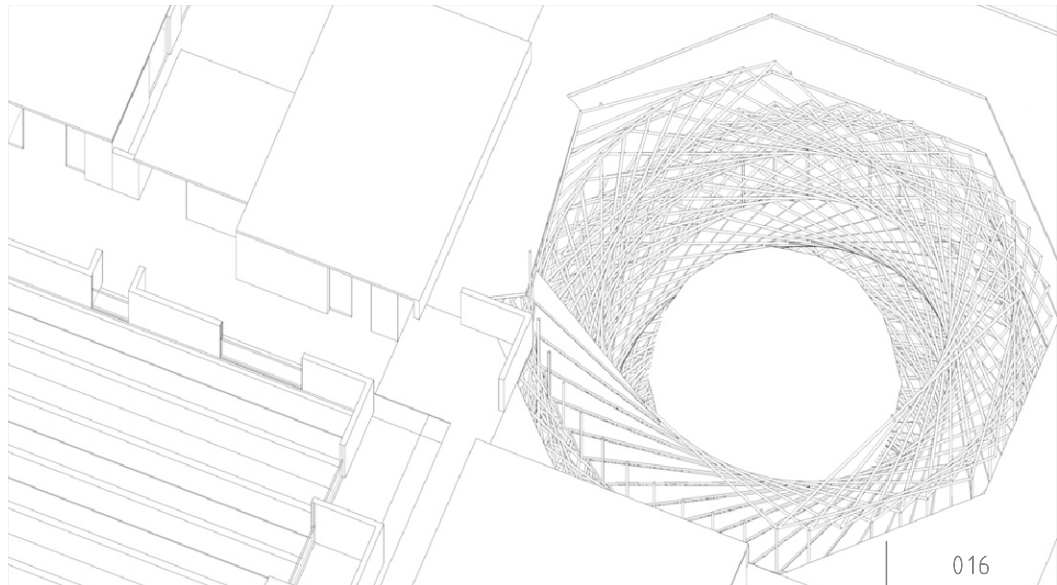
The purpose is to construct new communities coexisting with slow pace and convenience in city living space. Delaminate vertically the following functions:

- A. Parking space. B. Leisure commercial space + Bicycle activities.
- C. Gathering residences. D. Overhead farm + Baby care center.

PROGRAM__personal

The content of Green Light:

- 01. Water and electricity _ gather the pipe network of community farm. Building temperature-lower system: spray devices.
- 02. Walk __ vertical stroll footpath. (To raise the communication opportunities between the community.)
- 03. Green __ vertically integrate farm and gathering residence parts, plant climbing vine beside the vertical footpath.



+ Pavilion的典型 | 水晶宮

Pavilion Research_

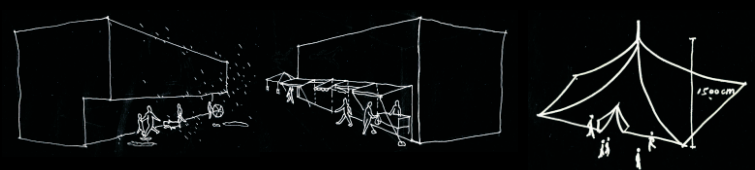
人類生活型態的多元造就都市各種容器不斷質變，棚架的形式對應人類的內容，活動模式直接影響建築的各種表現。

在台灣，氣候潮濕多熱，沒有騎樓的街景中，凡有交易性質的空間棚架使用頻繁，其相對成為活動的**保護裝置**或某種**路徑**的選擇；我想藉著棚架的**構造**，**顏色**，**氣味**來揣摩我們身邊正發生的事件；並試著創造出可能性。



+ 活動

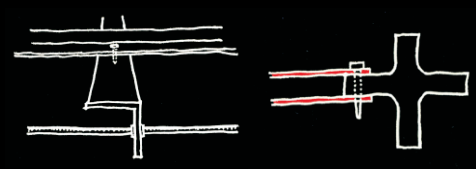
在台灣，只要人活動的場所，往往能看到各種形式的



無論人們在以上不同的活動中流竄駐足，均是**水平移動**的狀態；棚架的功能自然是遮陽避雨，接近一樓住家高度的棚架讓活動更自在沒有壓迫感。

+ 構造

棚架依著機能(活動)而生，構造的合理性與複合性



臨時性的棚子透過**模矩化**的部件被簡易組合，構造**(型態)**顯示活動的特質，活動物件們被巧妙安置在主體上，沒有多餘動作。

+ 顏色

顏色跟環境有相對關係，視覺刺激與活動有絕對關

人 + 慾



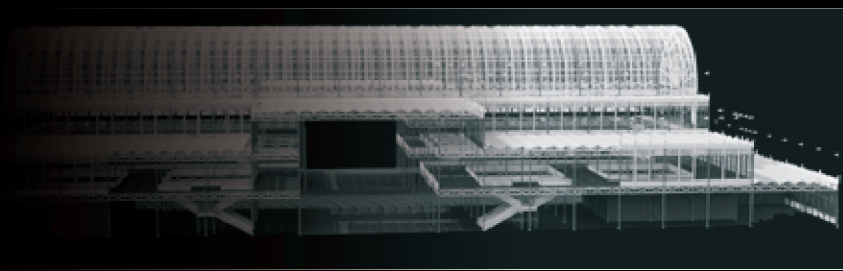
+ Pavilion的典型 | 水晶宮

設計者 | 園藝師 Joseph Paxton
建造時間 | 1850年8月~1851年5月
面積 | 74000m² 寬125m、長564m、高3層樓
材料 | 鐵柱3300根 鐵樑2300條
玻璃84000m²
活動 | 第一次世界博覽會
死亡時間 | 1936年11月30日

Define the “Pavilion” in Taiwan_

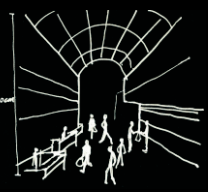


- 一、功能全新：要求巨大的內部空間；
- 二、快速建造，工期九個月；
- 三、造價大為結省；
- 四、在新材料和新技術的運用上達到新高度；
- 五、實現形式與結構、形式與功能的統一；
- 六、棄古典主義的裝飾風格，向人們預示一種新的建築美學質量，特點就是輕、光、透、薄。

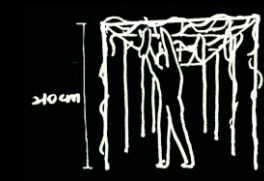


棚架；或獨立或依偎。多數人認為它們應該存在，些許人覺得極度醜陋，少數人則被19世紀現實主義以降的醜陋美學所吸引著。

馬戲團經常出現高空表演內容，另外因為巡迴性質，材質與構造選擇延展性強且容易搭建的方式來呈現。



從日治時期遺留下來的傳統市場仍可見到此種樣式，當時因為住店有**合併使用**的情況，而出現比住宅高的大棚子讓消費者能安心在‘室內’街道購物。



以上活動的共同點是**靜態** (ex. 聊天。煮飯。種瓜。)，**高度之於人能觸碰的極限** (ex. 換燈。修枝。摘瓜。)**遮蔽範圍大幅縮減**，因此選擇傾向最低限材料及工法。



以上活動的主角是**食物**，人類在處理過程中，必須讓**工作變輕鬆**，才能進行複雜工序。因此棚架的位置接近桌面高度。

比任何事都重要。

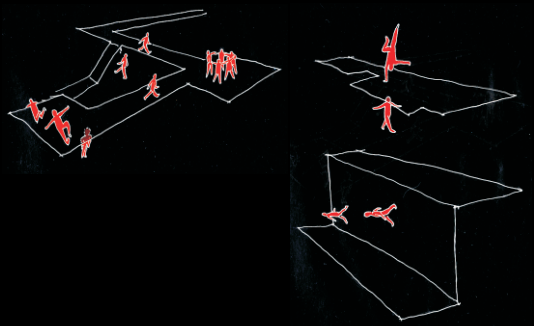


+ 氣味

嗅覺整合其他器官無法感知的部份，令活動的體驗變的更完整。

Try to imagine some pictures of New Pavilion with some experience:

- Vision +
- Olfaction +
- The sense of touch



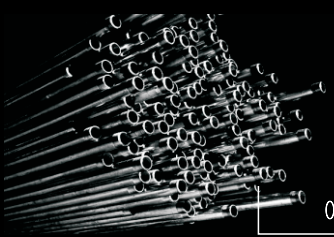
關係。



TEMPORARY PAVILION



Great image of Temporary pavilion



SITE_ 民生社區_台灣第一個全國性美式示範社區



民生社區的中心點位於三民路和民生東路交叉的民生圓環。



社區內有25座大小公園，綠地占社區面積1/10。



街道規劃採井字形式，每條馬路均有喬木人行道集中隔島樹，使得整體社區呈現綠意盎然景觀，電線全面地下化，使街道活動更寬廣。



社區文教-

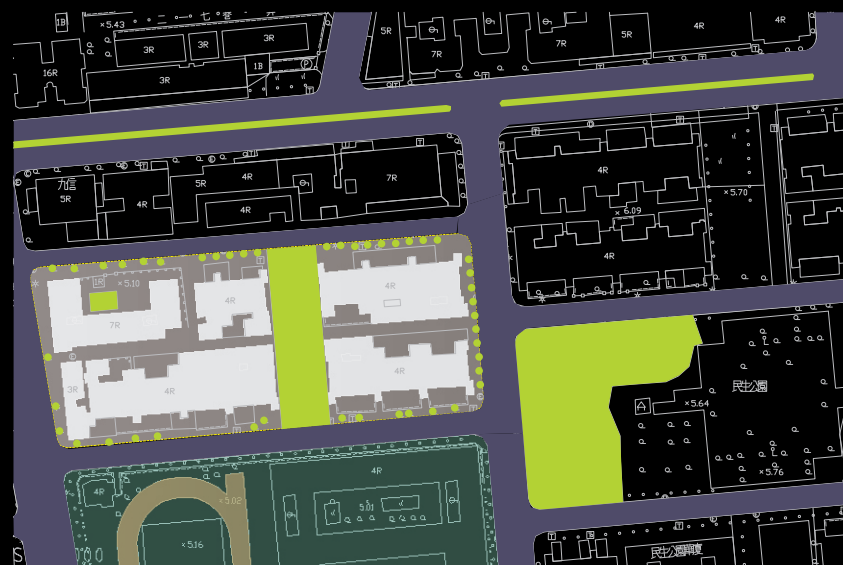
民生社區內同時依照居民規模，規畫多所國民學校，包括兩所國中/ 台北市立介壽國民中學+ 台北市立民生國民中學，四所國小/ 台北市立民權國民小學+ 台北市立民生國民小學+ 台北市立民族國民小學+ 台北市立三民國民小學。



基地範圍

基地分析

01. 基地四面臨路，住商混合齡成熟，符合便利條件。
02. 基地中間及基地東南方綠地充足。
03. 基地南方有文教地，休閒範圍明確。



WHY We choice the Site?

2002~2006

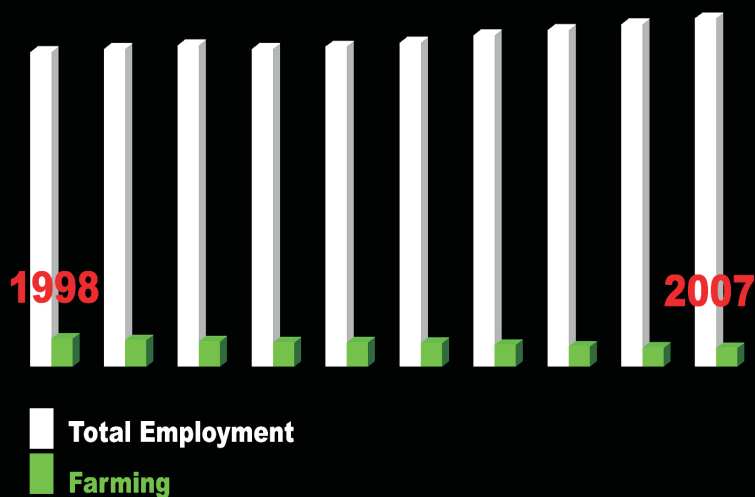
fallow Farm increase **550km²** in Taiwan

1998~2008

460km² Farms disappear

Employment + 100,000 person/ year

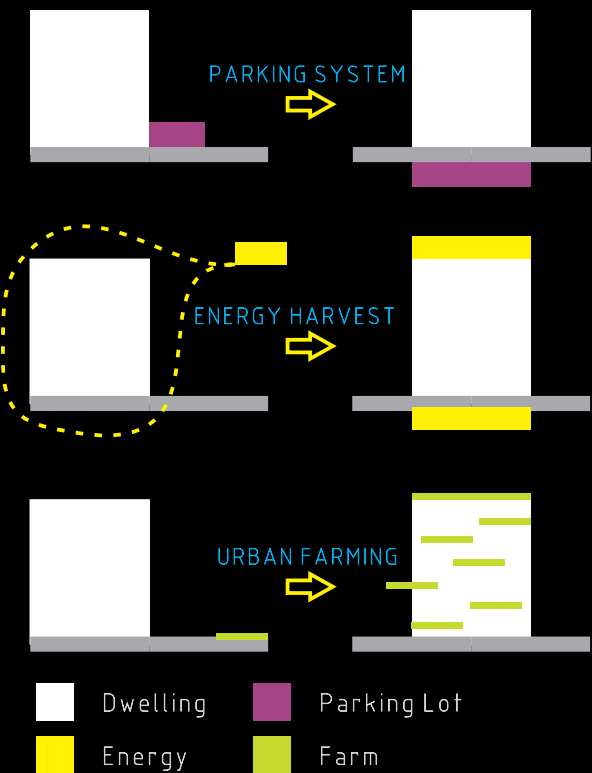
Farming - 50,000 person/ year



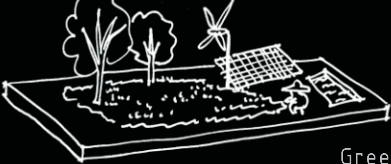
For this REASON



Concept of New Life Style



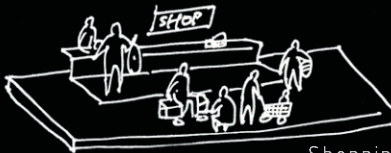
4 Layer for New Community



Green: Children care center_ Kindergarten
Farm for rice
Storage for rice
Micro wind power plant



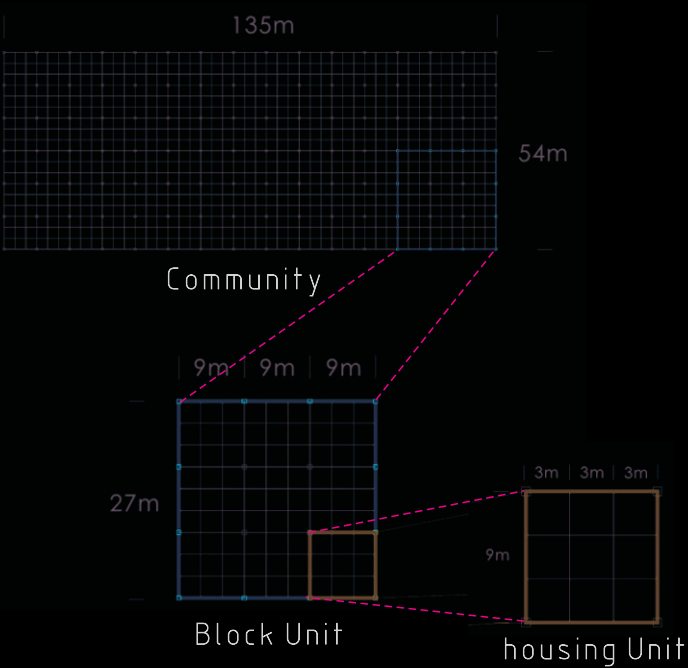
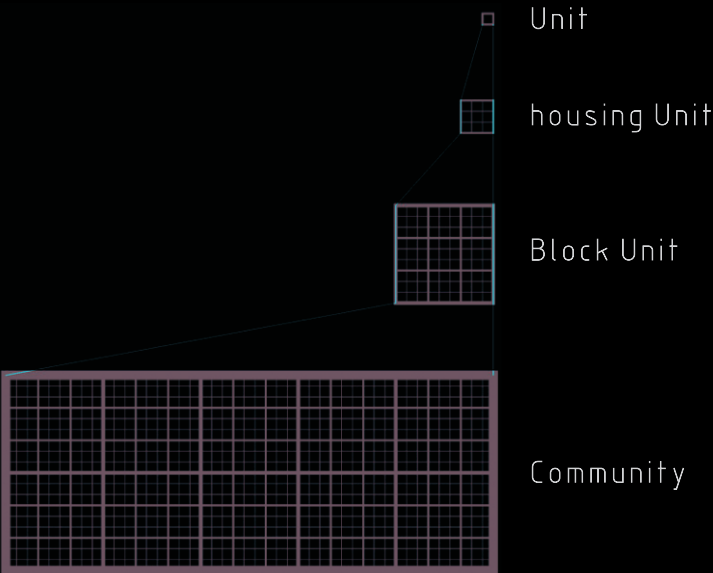
Living: Housing_ Container
Living Core_ Green Light
Farm for vegetable



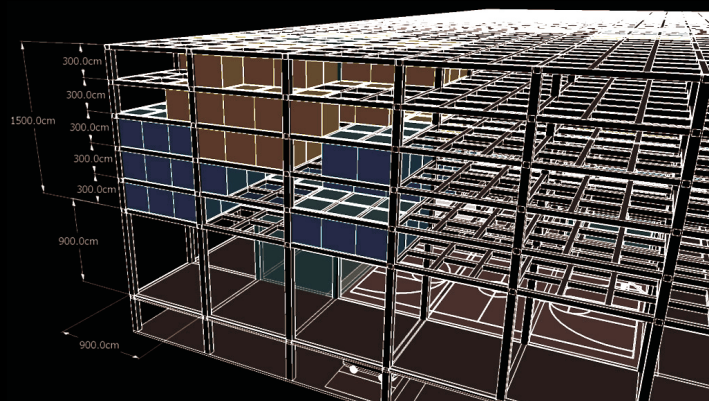
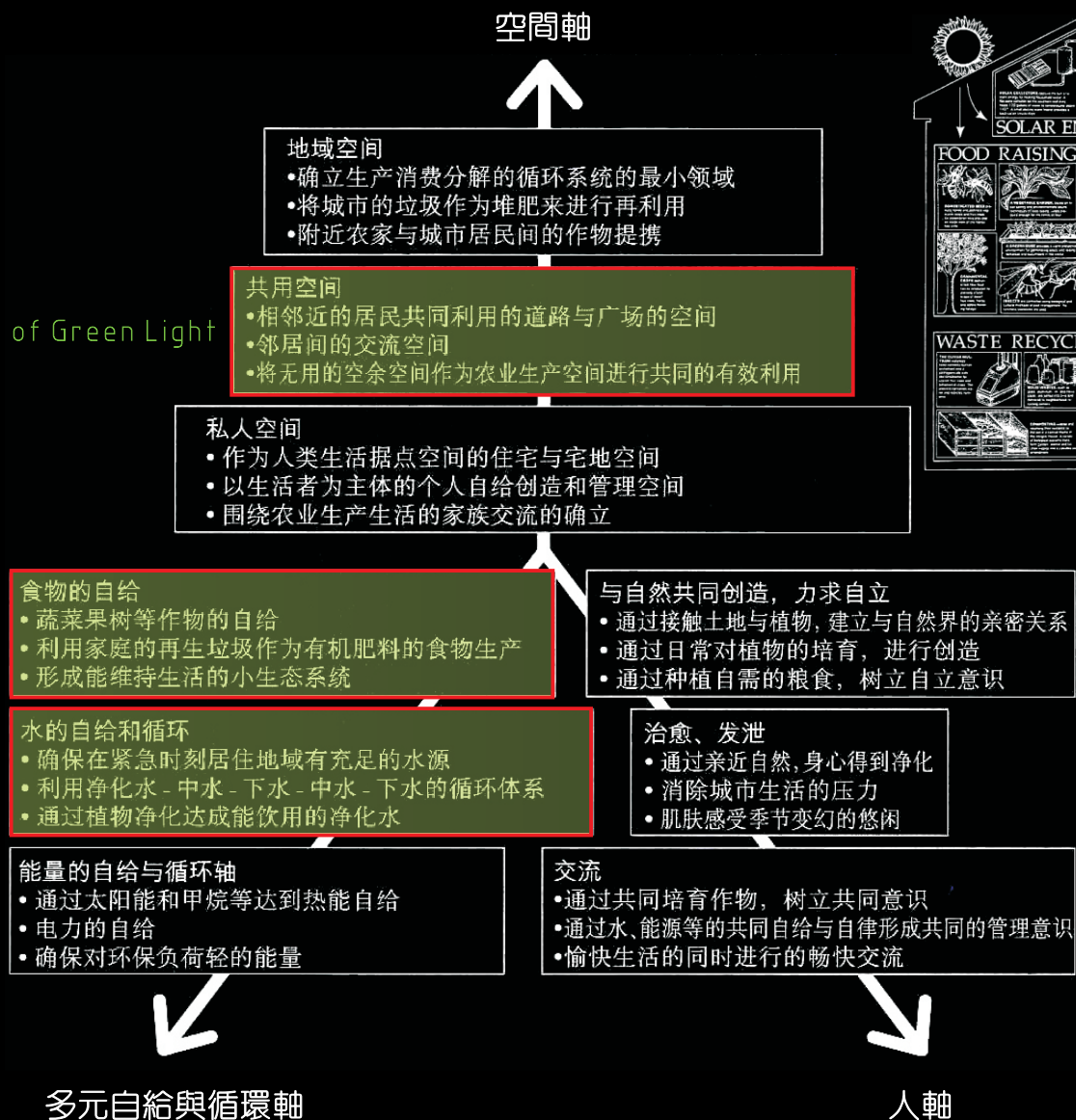
Shopping: 7-11_ Coffee 7
Coffee Shop_ Star88
Bike Shop_ Bike Slope

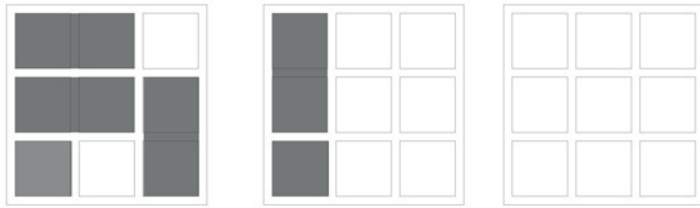


Parking: Parking+ Water tank

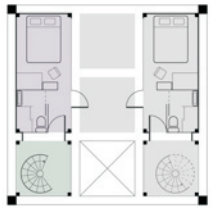


Function of Green Light





■ x 5 



■ x 7 



■ x 10 



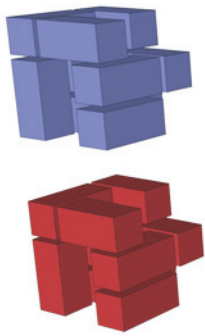
LOWER LEVEL

MIDDLE LEVEL

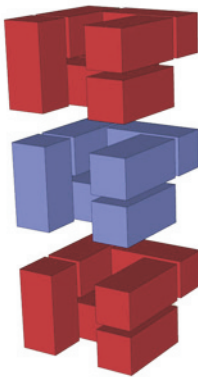
FOR 5 - 6 PEOPLE

FOR 3 - 4 PEOPLE

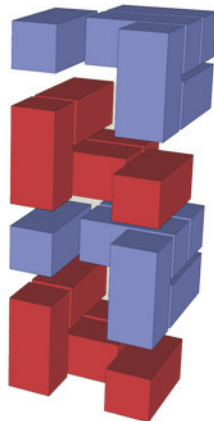
FOR 1 - 2 PEOPLE



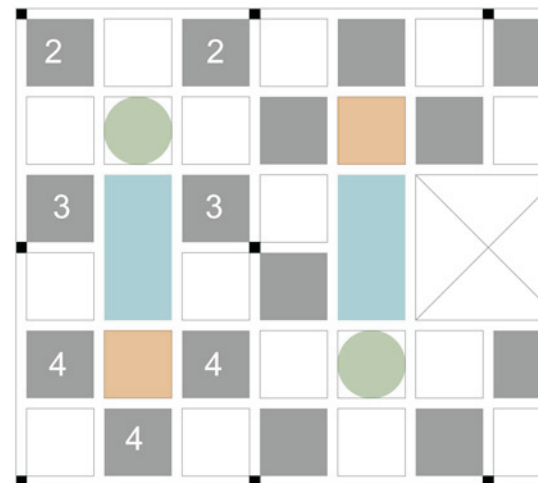
2 UNITS IN 6 LEVELS



3 UNITS IN 6 LEVELS



4 UNITS IN 6 LEVELS



82 UNITS





5 CONTAINERS

- LIVING
- DINING
- KITCHEN & LAUNDRY
- VERTICAL CIRCULATION
- BEDROOM



7 CONTAINERS

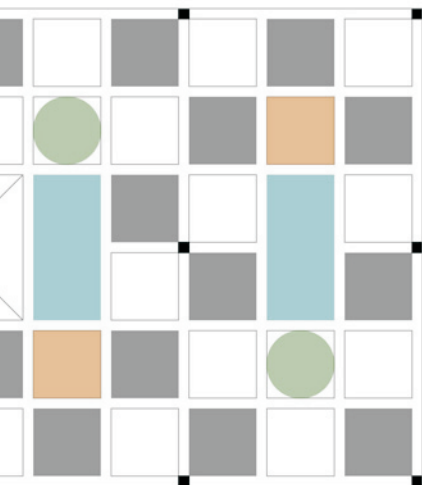
- LIVING
- DINING
- KITCHEN & LAUNDRY
- VERTICAL CIRCULATION
- CORRIDOR & TOILET
- BEDROOM



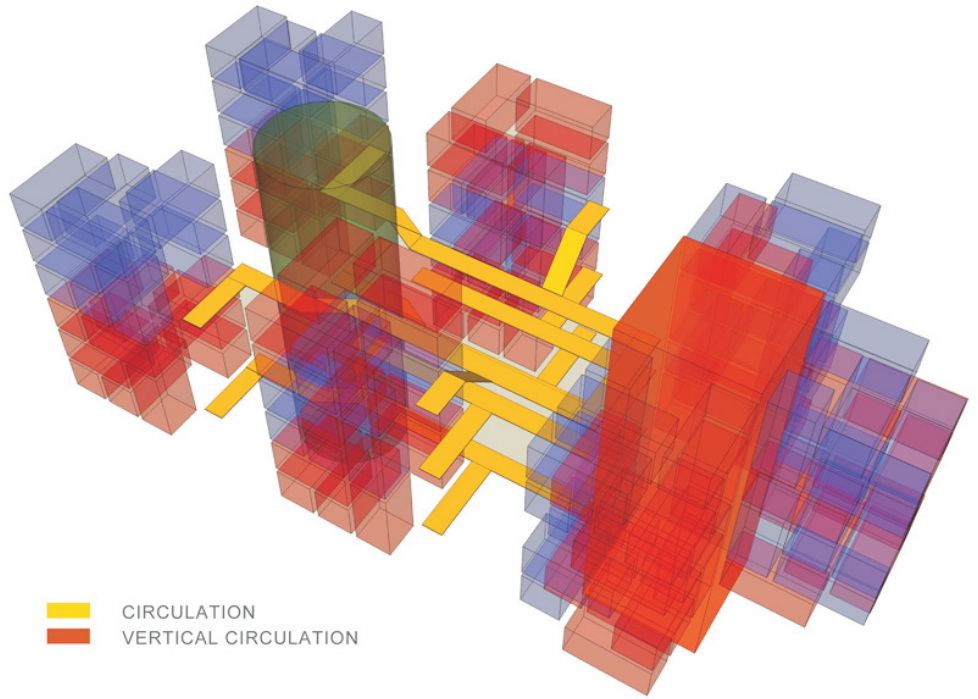
10 CONTAINERS

- LIVING
- DINING
- KITCHEN & TOILET
- VERTICAL CIRCULATION
- CORRIDOR & TOILET
- READING ROOM
- BEDROOM

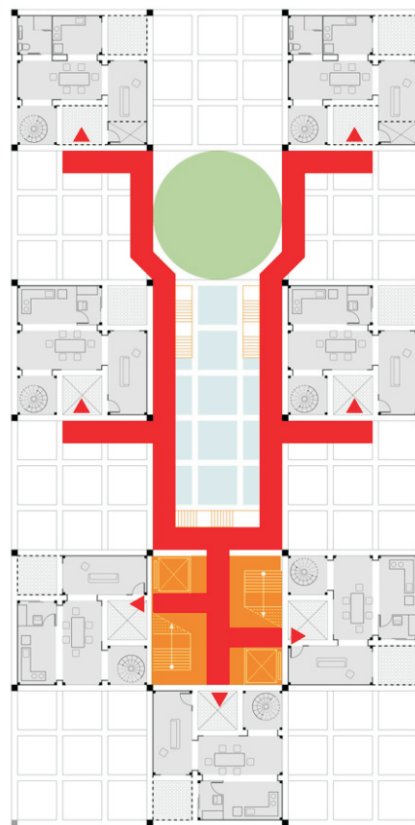
HIGHER LEVEL



- GREEN CORE
- VERTICAL CIRCULATION
- SKYLIGHT
- RESIDENTIAL UNIT

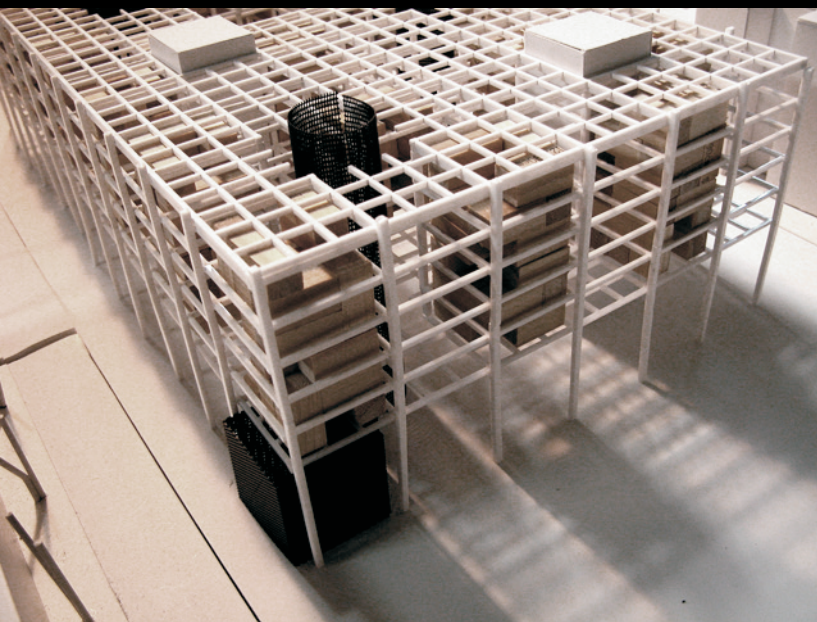


- CIRCULATION
- VERTICAL CIRCULATION

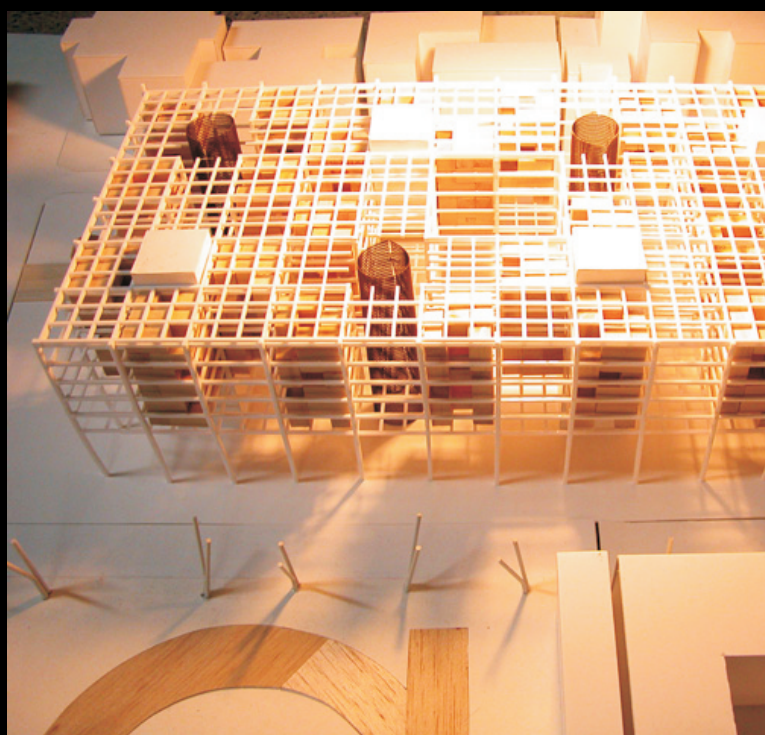
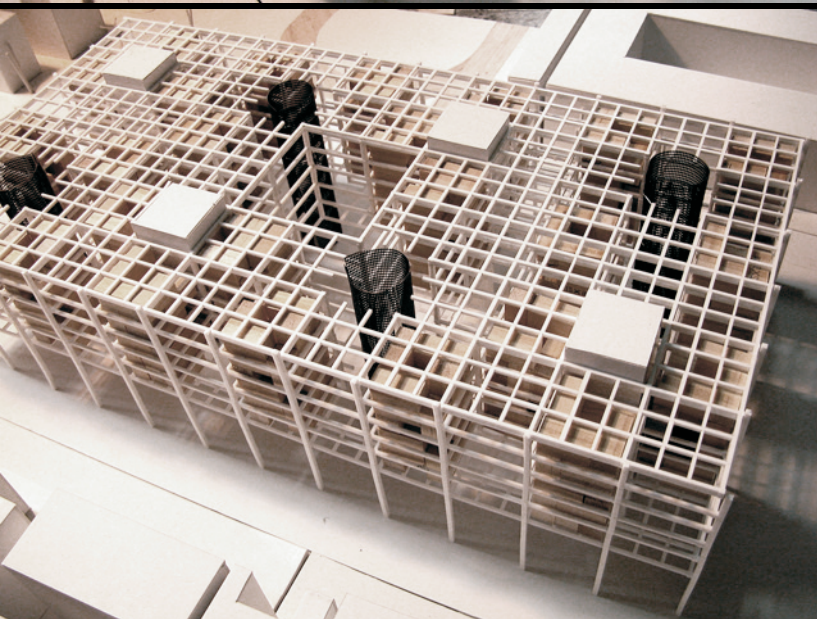


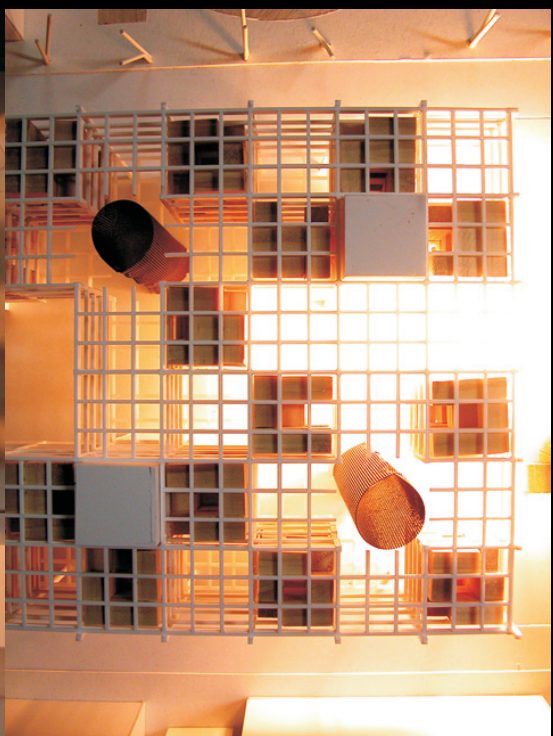
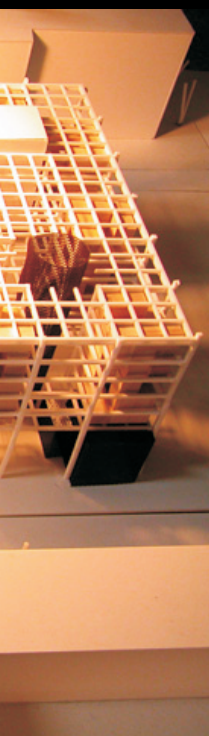
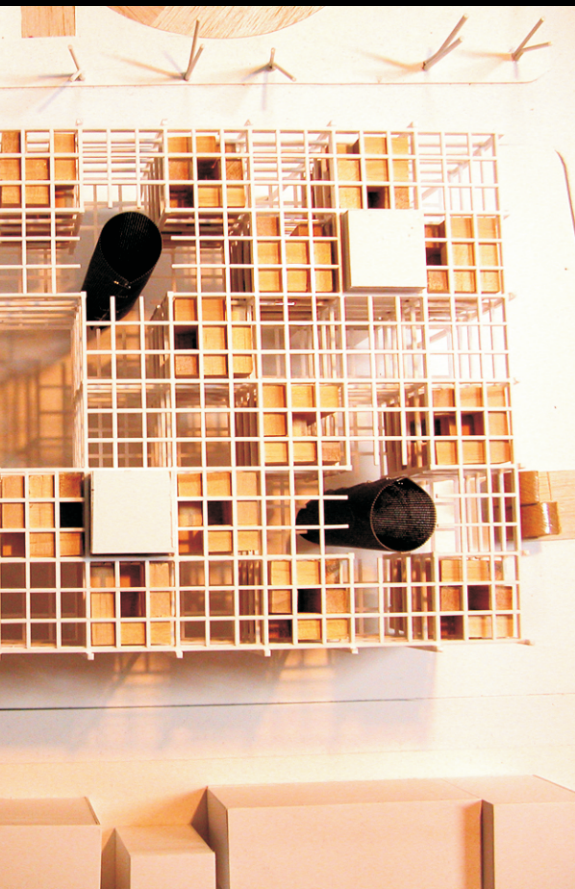
- CIRCULATION
- VERTICAL CIRCULATION

Physical model

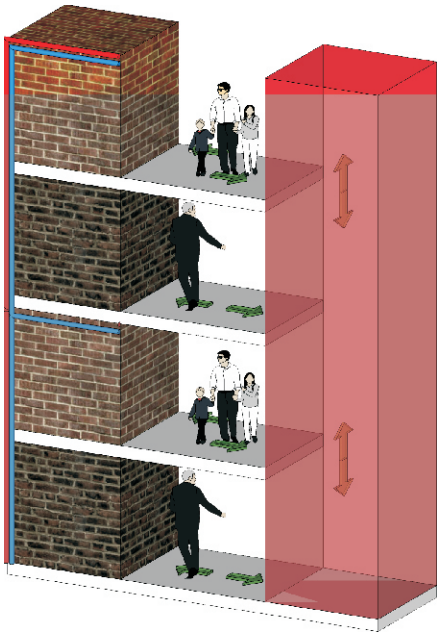


Model of Common Site at MinSheng
Community in Taipei



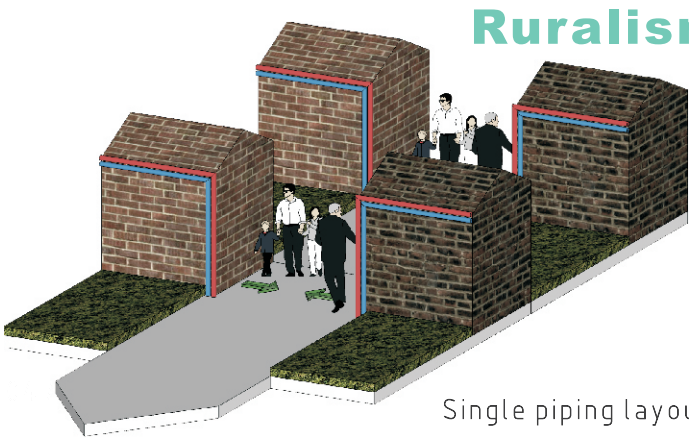


Concept Drawing



Urbanism

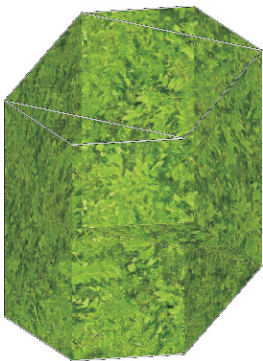
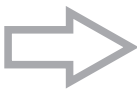
- Common piping layout
- Vertical circulation
- No vertical experience
- No exchange
- No Green
- Convenient



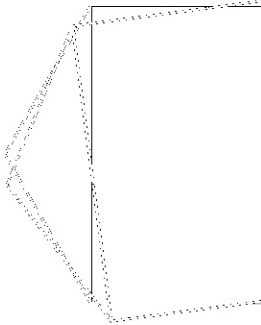
Ruralism

- Single piping layout
- Common footpath
- Good Social contact
- Personal garden
- Comfortable

Evolutional Program



Vertical



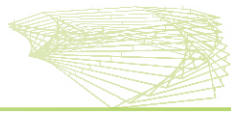
Horizontal



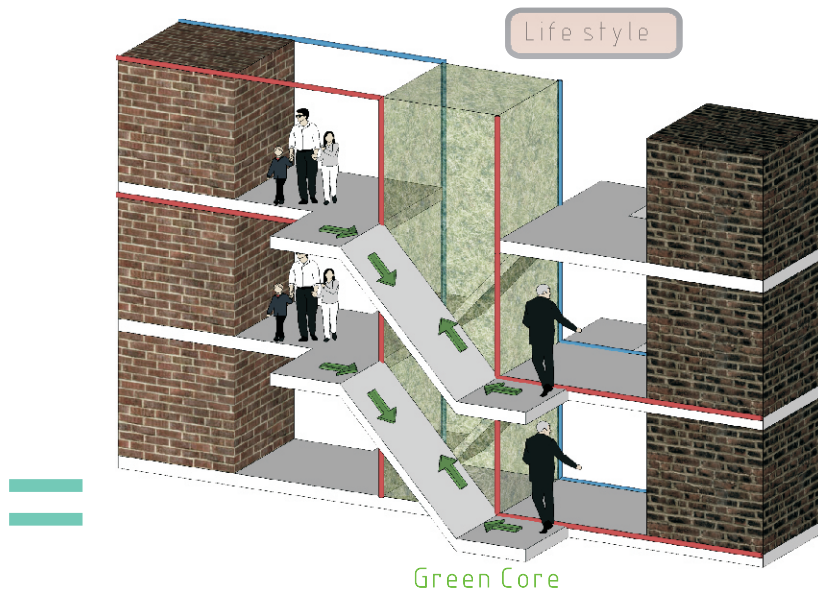
contain: Market, Wedding, Funeral, any Celebration

- contain:
- Common Piping
- Natural lighting
- Recycling rain water
- Temperature control
- Exercise footpath
- Green wall
- Farm





GREEN LIGHT

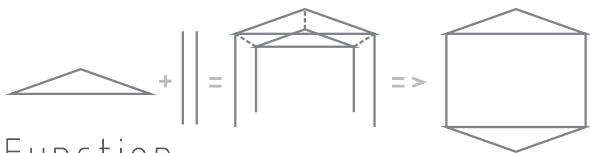


Uralism

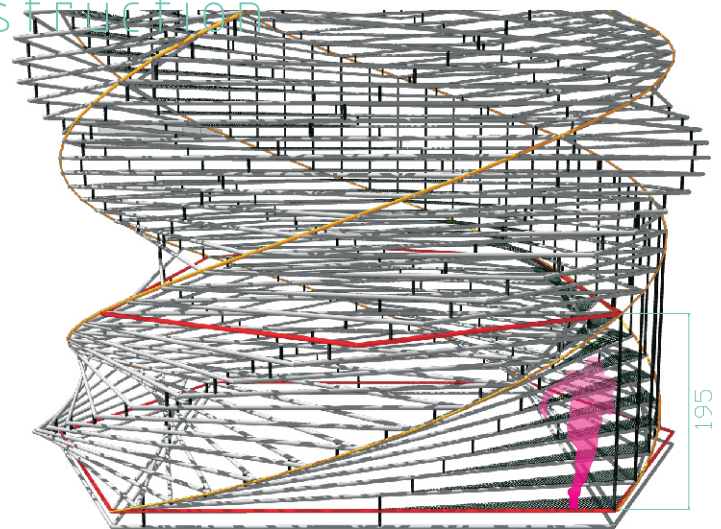
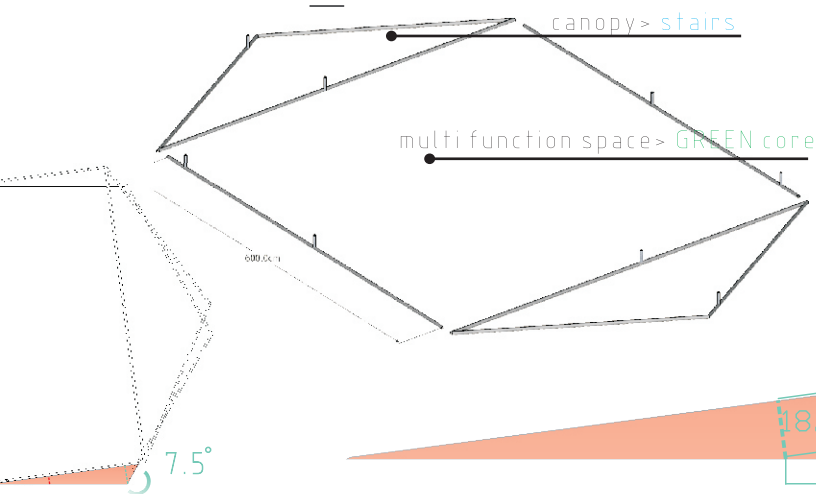
- Vertical Visual experience-
 - Vertical common piping layout
 - Vertical Green
- Vertical Psychology experience-
 - Vertical footpath
 - Vertical social contact
 - Natural light

about Unit & Function & Construction

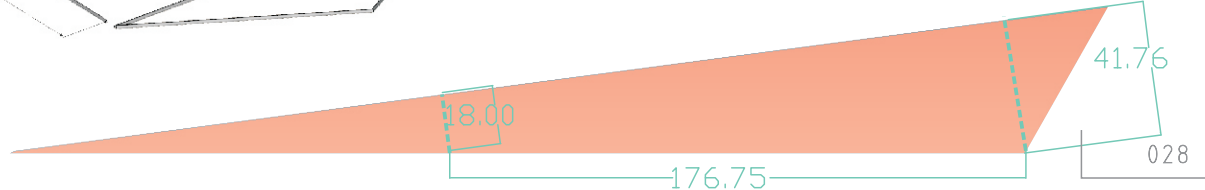
Structural elements _



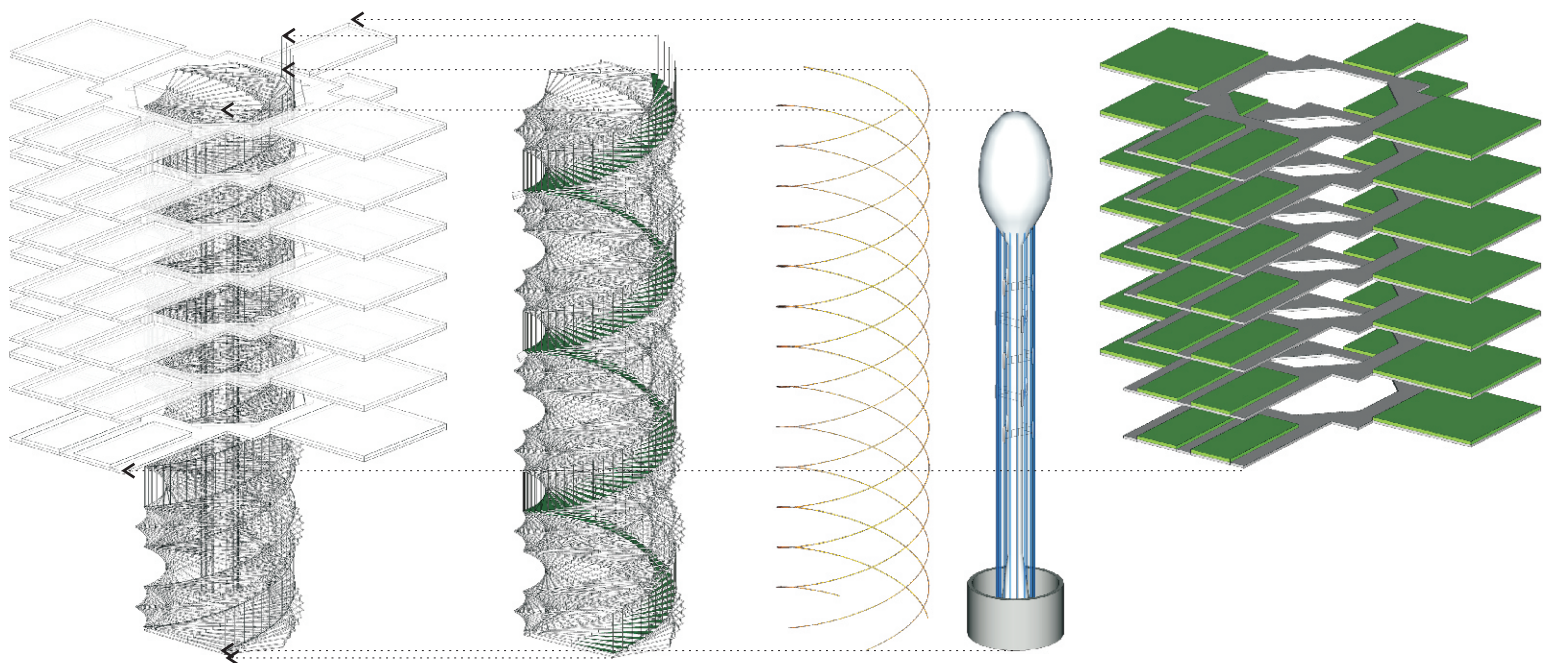
Unit & Function _



Spiral structure have the best performance in principle of mechanics with polygon shape.



Components of Green Light



GREEN LIGHT

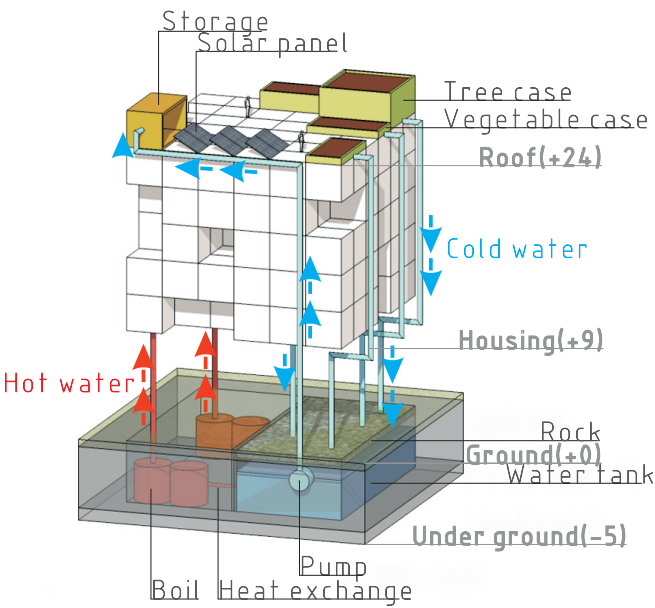
Natural lighting
Temperature control
Exercise footpath
Green wall

Cable

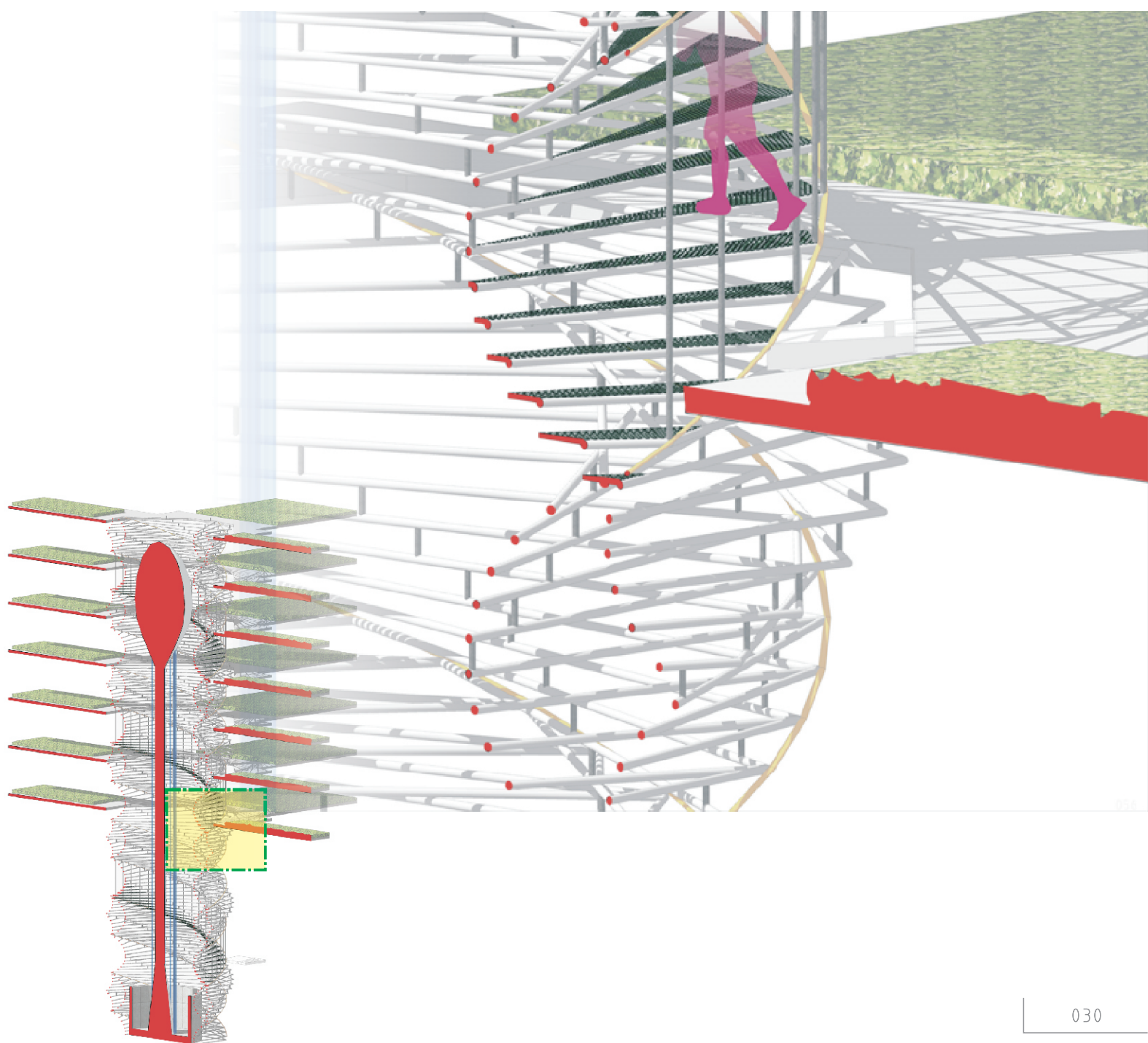
Standpipe
Common piping
Water tank

Farm
Storage

Concept diagram of Water cycle

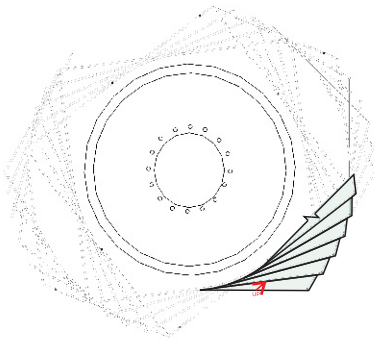


Section of Green Light

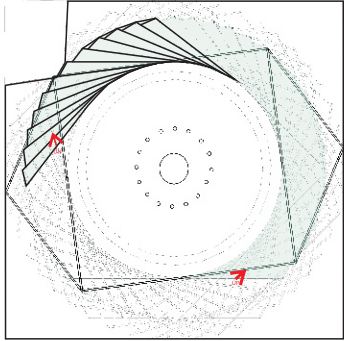


Section plan S=01:100

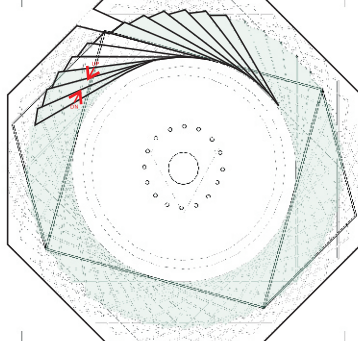
-05m



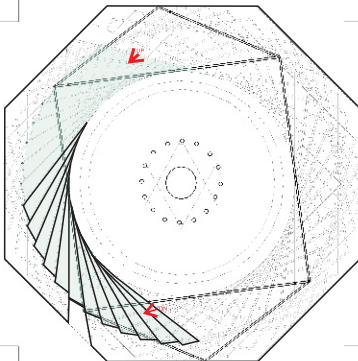
0m



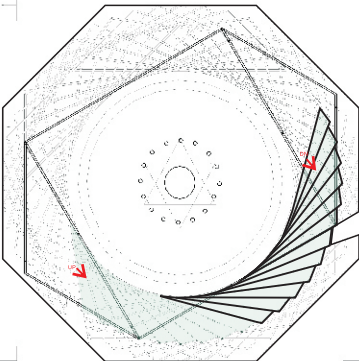
+09m



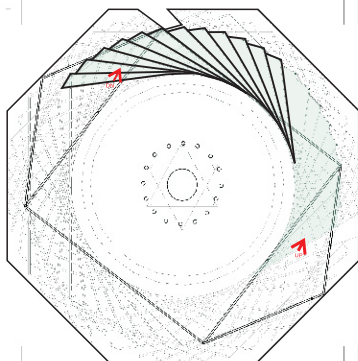
+12m



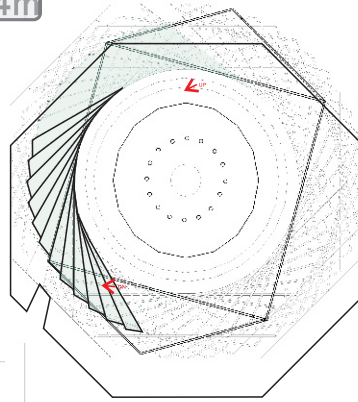
+15m



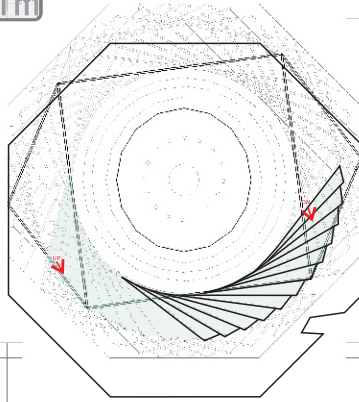
+18m



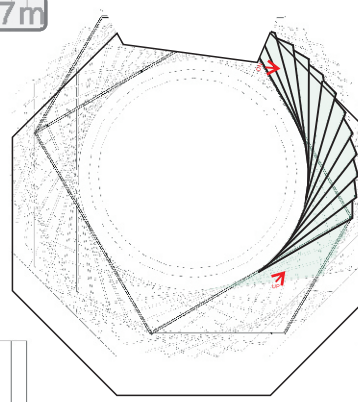
+24m



+21m



+27m

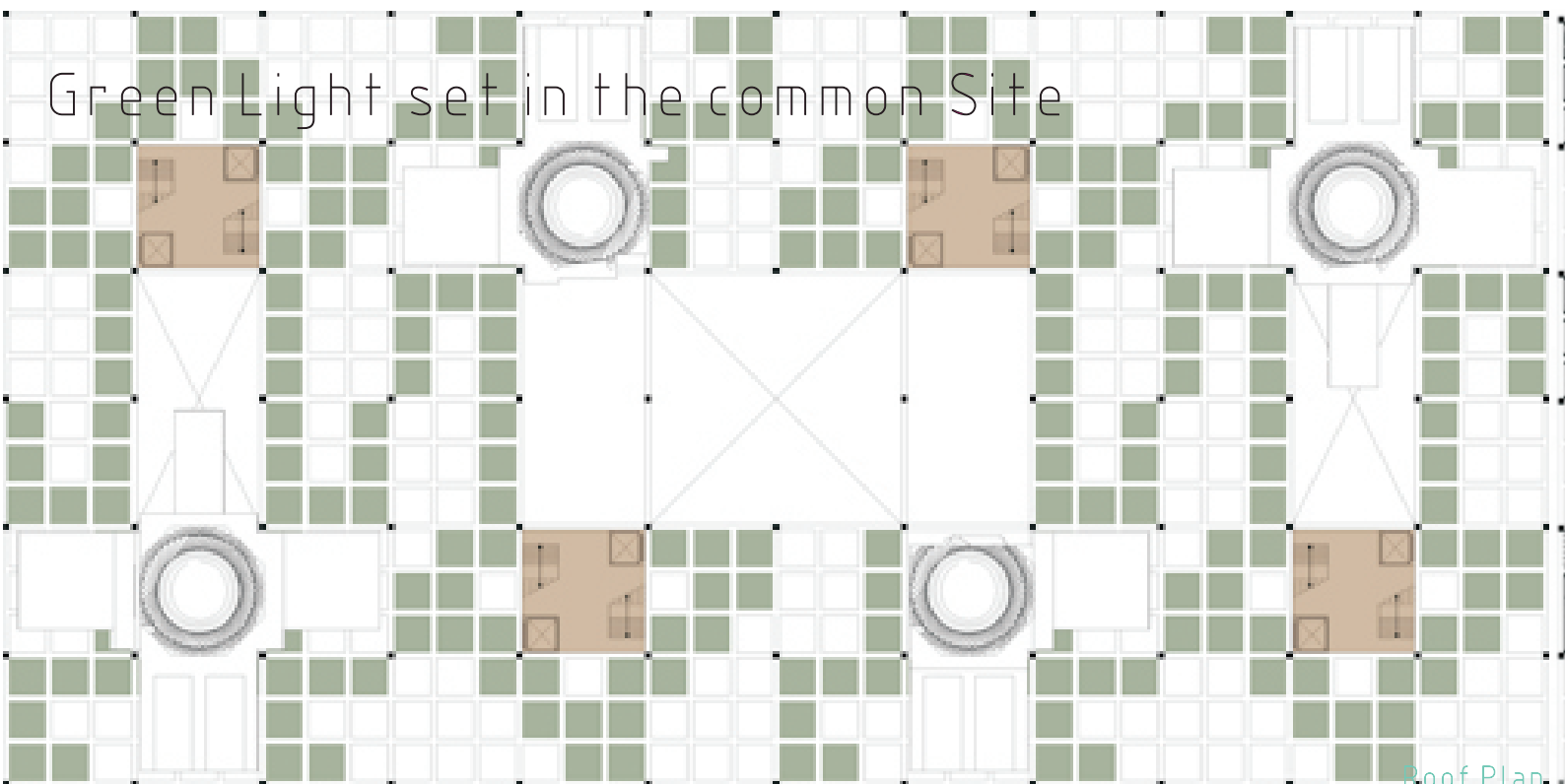




Vision of NEW LIFE STYLE of GREEN LIGHT

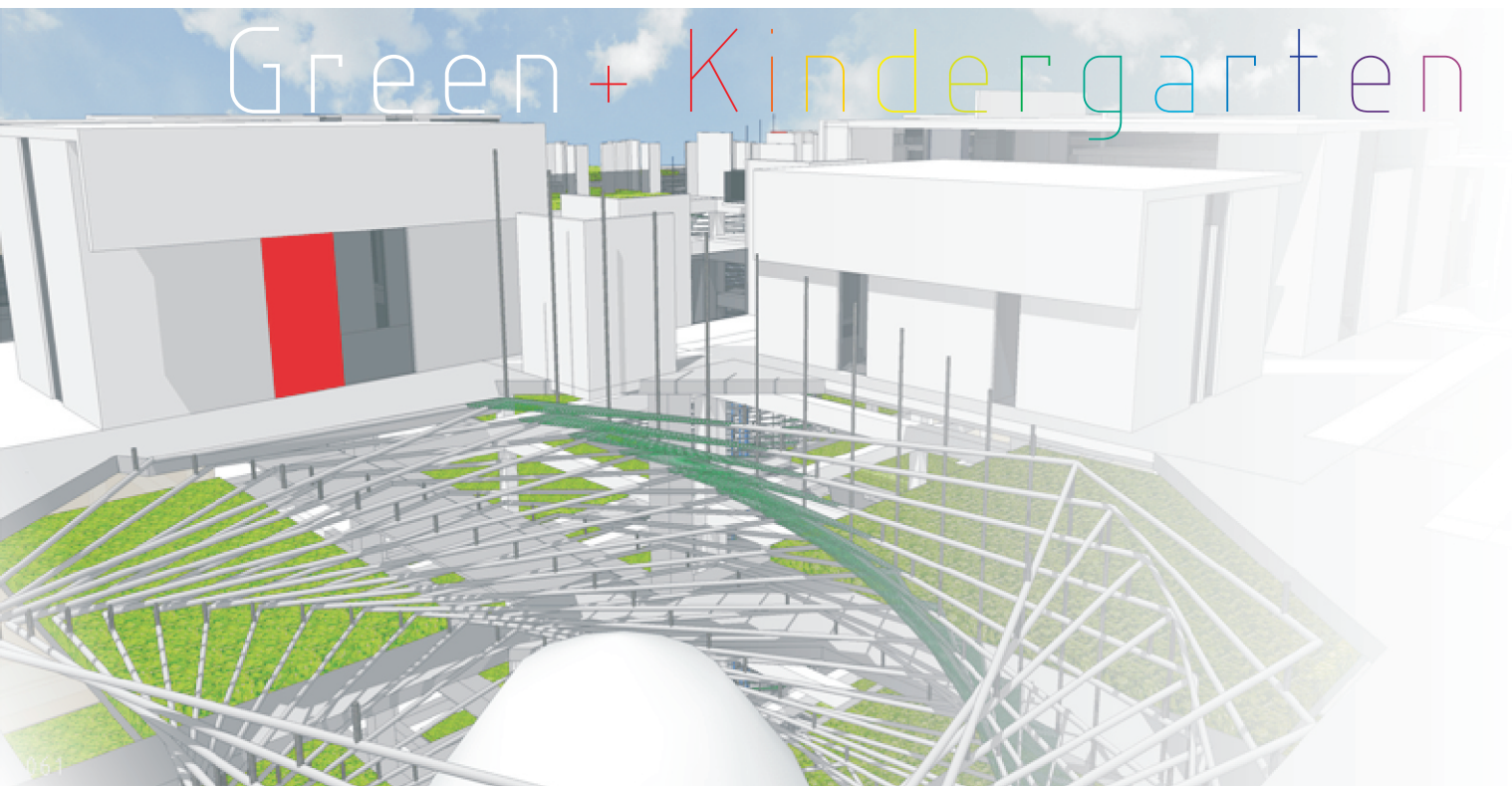


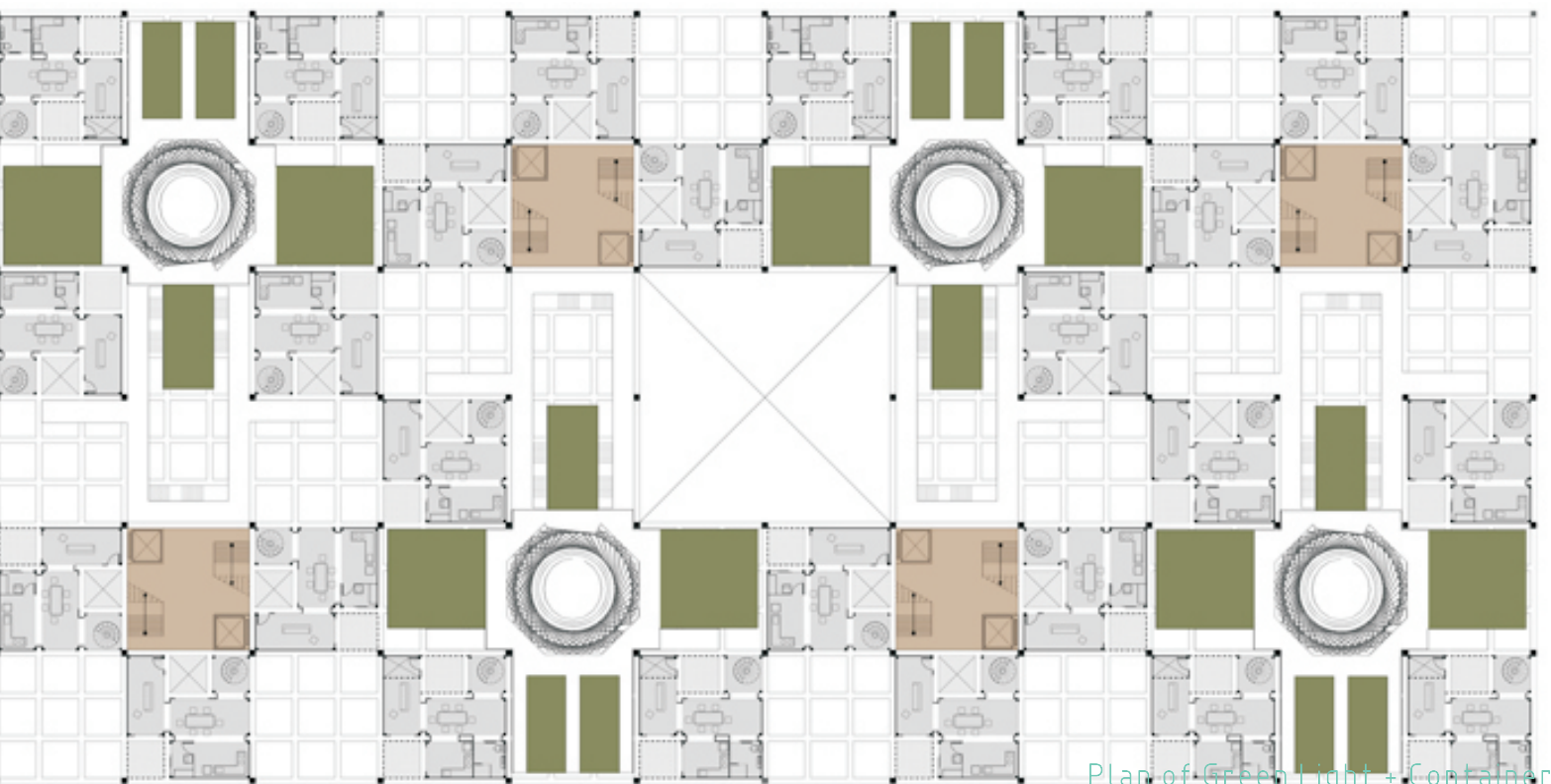
Green Light set in the common Site



Roof Plan

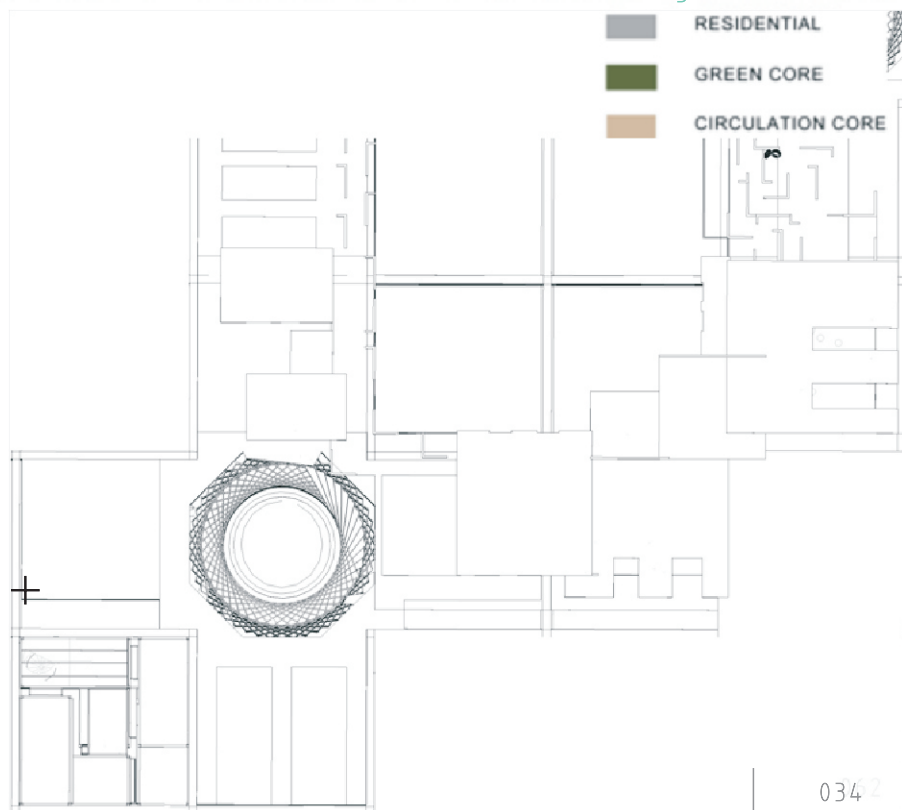
Green + Kindergarten





Plan of Green Light + Container

Green+
Kindergarten+
Container



Partial Models of Structure of GREEN LIGHT



