Sandwiches Between Urban Building

There are many unused spaces between buildings in the world, like the "meat" in the middle of a sandwich. Tasty treatment can make the whole sandwich (building) delicious（interesting), but if not properly treated, it can ruin the whole thing.

Beijin, China

Italy, Rome

London, England

Newyork, America

Seoul, Korea

Hongkong, China

Tokyo, Japan

Paris, France

Sydney, Austrialia

Why choose urban seam space?

1、 The ubiquity of abundance and idleness

Exit in almost every region of every country and still an unsettled issue

2、 Different to use in such low practicality

2.1 Different to clean up cause the overgrown weeds

2.2 Poor light

2.3 Small space and the less likely to be multiple used

3、 Poor user 's experience

Low favorability which is associated with darkness and humidy like garbage
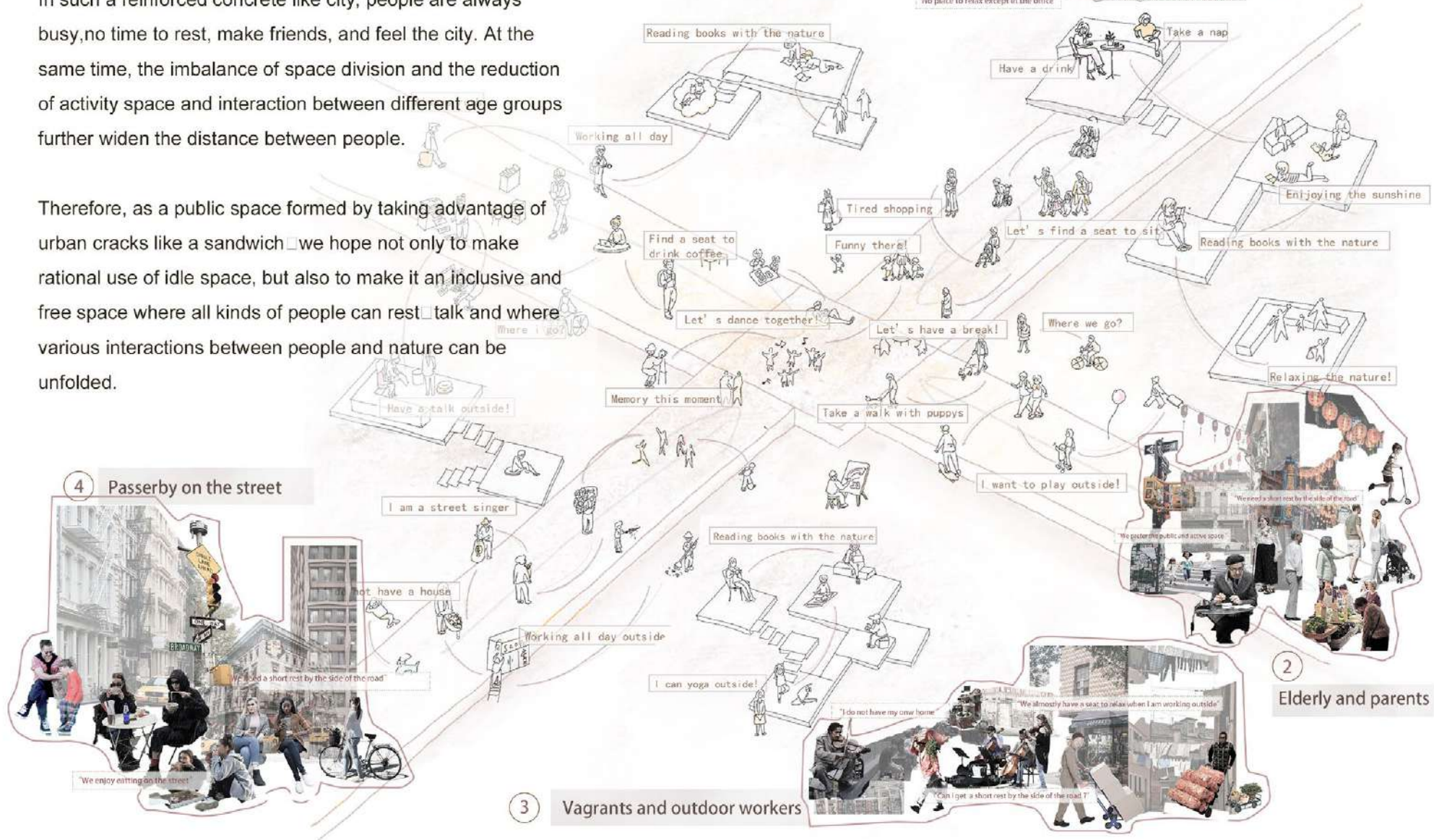
Intended population

First of all, I will divide the adaptive population into four types:
1. Working class; 2.Eelderly and parents; 3. Vagrants and outdoor workers; 4. . Passersby

In such a reinforced concrete like city, people are always busy,no time to rest, make friends, and feel the city. At the same time, the imbalance of space division and the reduction of activity space and interaction between different age groups further widen the distance between people.

Therefore, as a public space formed by taking advantage of urban cracks like a sandwich，we hope not only to make rational use of idle space, but also to make it an inclusive and free space where all kinds of people can rest，talk and where various interactions between people and nature can be unfolded.
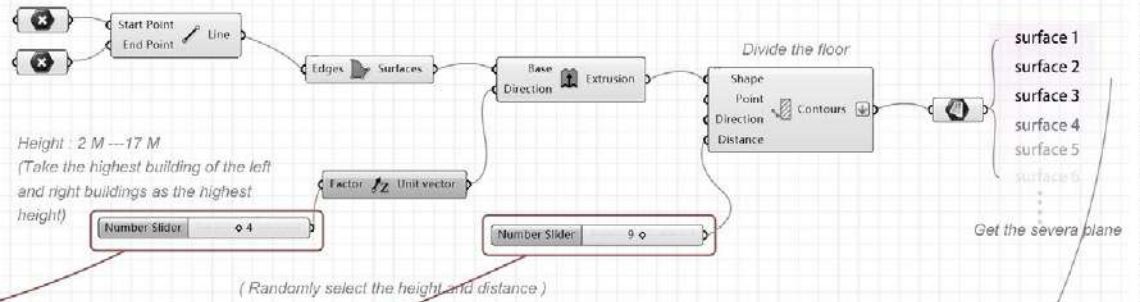
① Working class

"We want sunshine, vehicle noisy, dessert instead of working"

"Chatting at the office"

"No place to relax except in the office"

"Work while having afternoon"

Reading books with the nature

Take a nap

Have a drink

Working all day

Enjoying the sunshine

Tired shopping

Let's find a seat to sit

Find a seat to drink coffee

Funny there!

Reading books with the nature

Let's dance together!

Let's have a break!

Where we go?

Memory this moment

Take a walk with puppys

Relaxing the nature!

I want to play outside!

④ Passerby on the street

I am a street singer

"We need a short rest by the side of the road"

"We prefer the public and active space"

not have a house

Reading books with the nature

"We need a short rest by the side of the road"

Working all day outside

"We almostly have a seat to relax when I am working outside"

I can yoga outside!

② Elderly and parents

"We enjoy eatting on the street"

"I do not have my onw home"

"Can I get a short rest by the side of the road？"

③ Vagrants and outdoor workers

Octopus conception

Variate
① Building height
② Floor spacing

Optimal object
① Illuminance(max)
② Area(max)
③ Wood length(min)

Phenoty   Phenotyp

Step1 :
Determine the height , distance and floor

According to the boundary lines of two adjacent buildings in the target area ro determine the size of the area and randomly select height and distance ,then divede the floor.
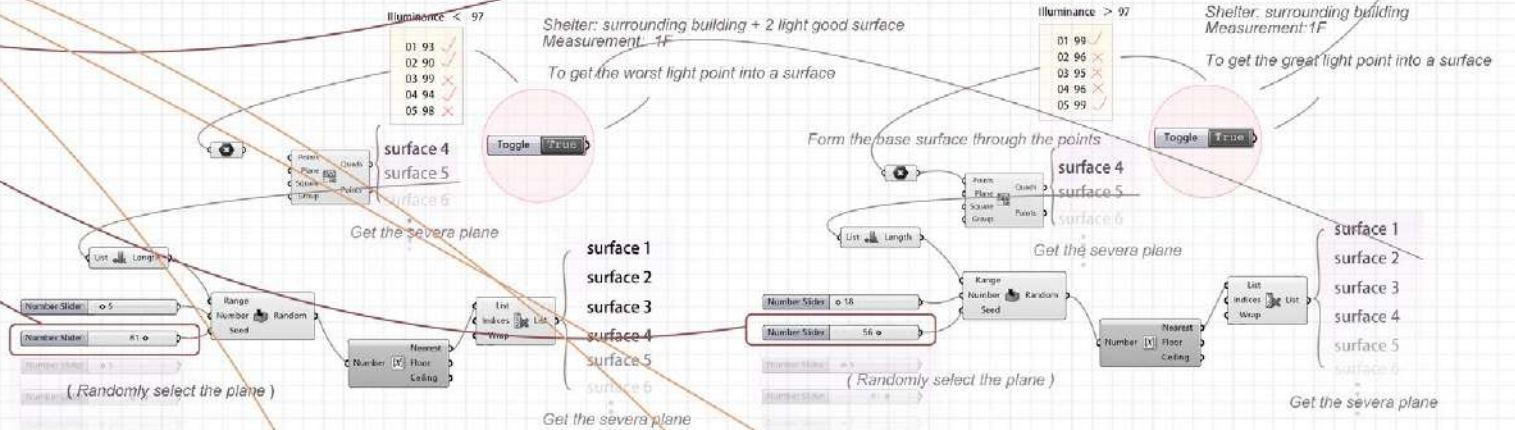
Height : 2 M ---17 M
(Take the highest building of the left and right buildings as the highest height)

Number Slider   ◇ 4

Number Slider   9 ◇

(Randomly select the height and distance)

Start Point
End Point   Line
Edges   Surfaces
Base   Extrusion
Direction
Factor   Unit vector
Divide the floor
Shape
Point
Direction   Contours
Distance

surface 1
surface 2
surface 3
surface 4
surface 5
surface 6

Get the severa plane

Step 2 :
Get the best illumination

Best to ensure that each region illumination, first start from surrounding buildings as the cover, the underlying point for measuring surface draw better illumination,ormation of surface projection to the second floor, then, will have to add a cover on the second floor, measuredagain to get the poor point, projecting to the second floor, and so on. (3F 4F5F·· as the same□
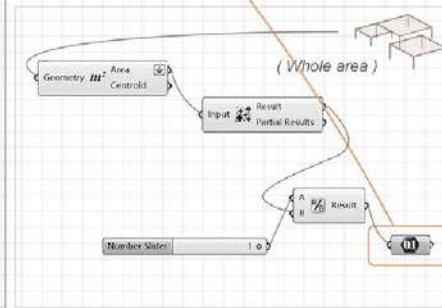
Illuminance < 97
01 93 ✓
02 90 ✓
03 99 ✗
04 94 ✗
05 98 ✗

Shelter: surrounding building + 2 light good surface
Measurement: 1F
To get the worst light point into a surface

Toggle   True

surface 4
surface 5
surface 6

Get the severa plane

Number Slider   ◇ 5
Number Slider   81 ◇

Range
Number   Random
Seed

(Randomly select the plane)

List
Indices   List
Wrap

Number   Floor
Ceiling

surface 1
surface 2
surface 3
surface 4
surface 5
surface 6

Get the severa plane

Illuminance > 97
01 99 ✓
02 96 ✗
03 95 ✗
04 98 ✗
05 99 ✓

Shelter: surrounding building
Measurement: 1F
To get the great light point into a surface

Toggle   True

Form the base surface through the points

Points
Plane   Crowth
Square
Group   Points

surface 4
surface 5
surface 6

Get the severa plane

Number Slider   ◇ 18
Number Slider   56 ◇

Range
Number   Random
Seed

(Randomly select the plane)

List
Indices   List
Wrap

Nearest
Number   Floor
Ceiling

surface 1
surface 2
surface 3
surface 4
surface 5
surface 6

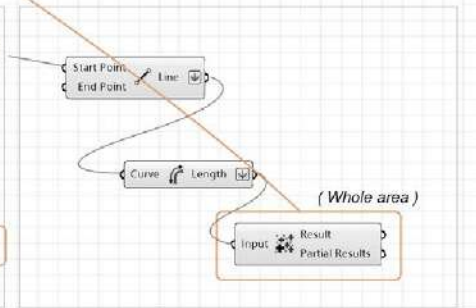Get the severa plane

Step 3 :
Draw the conclusion

According to the previous results, the total illumination, total area and the length of the total timber support are calculated as the input of the optimization objective. The 'OCTUPUS' automatically calculates the results with the best illumination, the largest area and the shortest length of the timber frame.
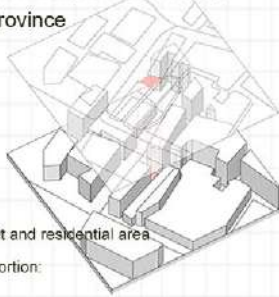
Illuminance > 97
The best light

99	True ✓
10	True ✓
0	False ✗
89	False ✗
95	True ✓
98	False ✗
96	False ✗
89	False ✗
95	False ✗
90	True ✓
99	True ✓
98	False ✗
92	True ✓
98	

Maximum area

Geometry   Area
Centroid

Input   Result
Partial Results

Result

Number Slider   1 ◇
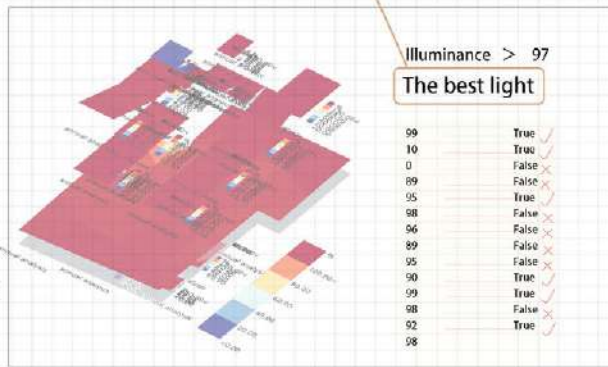
(Whole area)

Shortest length of wood components
(lowest budget)

Start Point
End Point   Line

Curve   Length

(Whole area)

Input   Result
Partial Results

4 example site

Site 1: Zhongxiao East Road, Da'an District, Taipei City, Taiwan Province
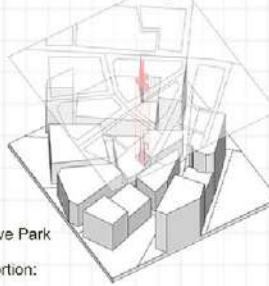

Site style: famous shop street and residential area

Surrounding population proportion:
leisure entertainment 82%
enterprise 65%
resident population 36% < floating population76%

Project objective: illumination > area (minimum budget)

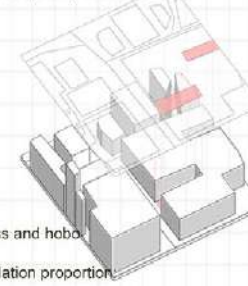**Site 2: M+ Maliwen Innovation Park, Jing'an District Shanghai,China**

Site Style:Cultural and Creative Park

Surrounding population proportion:
leisure entertainment arts
financial office 23%
resident population 42% < floating population72%

Project objective: illumination > area (minimum budget)

Site 3: Skid row, LA, America

Site style:homeless and hobo

Surrounding population proportion:
tramp tent 87%
business office 34%
resident population 26% < floating population72%

Project objective: illumination > area (minimum budget)

Site 4: Wall St, New York, America

Site style: Commercial office street

Surrounding population proportion:
commercial office 82%
catering entertainment 56%
resident population 14% < floating population81%

Project objective: illumination > area (minimum budget)

Octopus optimization results of Site1
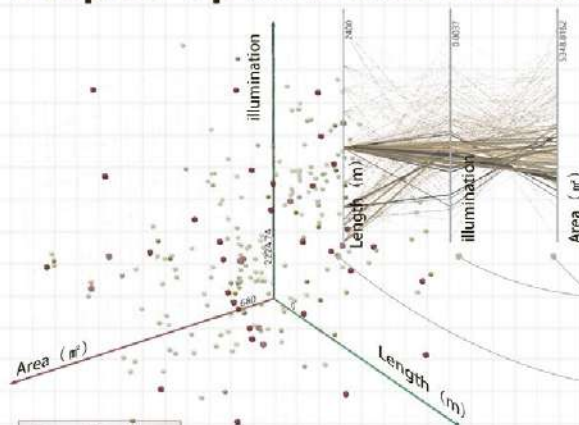
If we set it to 4 floors
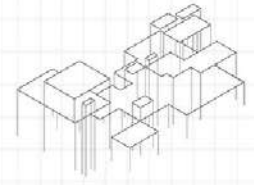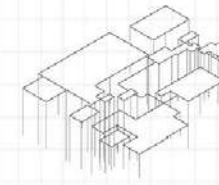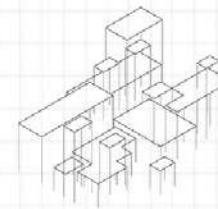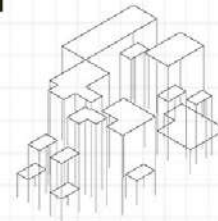
Situable site	3&4	3&4	1&2	1&2
Illumination(%)	73	72	76	78
Area（㎡）	309	308	345	372
Length (m)	1152	1440	1920	960
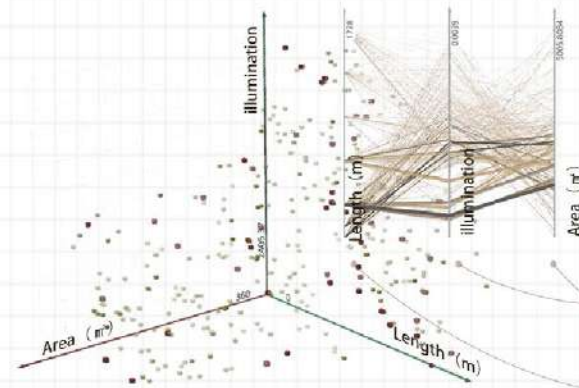
If we set it to 3 floors

Situable site	3&4	1&2	1&2	3&4
Illumination(%)	67	63	68	69
Area（㎡）	341	323	330	383
Length (m)	864	576	1152	576

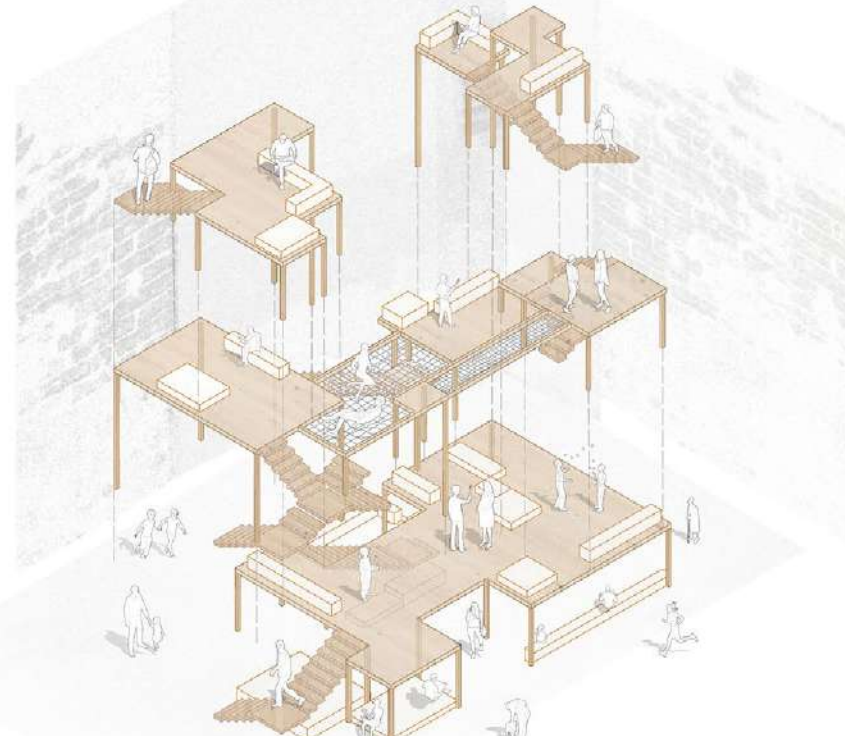# Pick one octopus optimization results of Site1
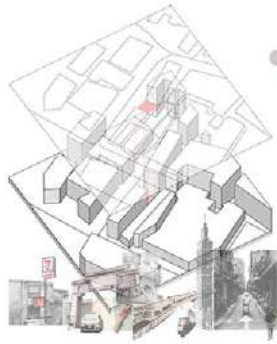
Exploded diagram

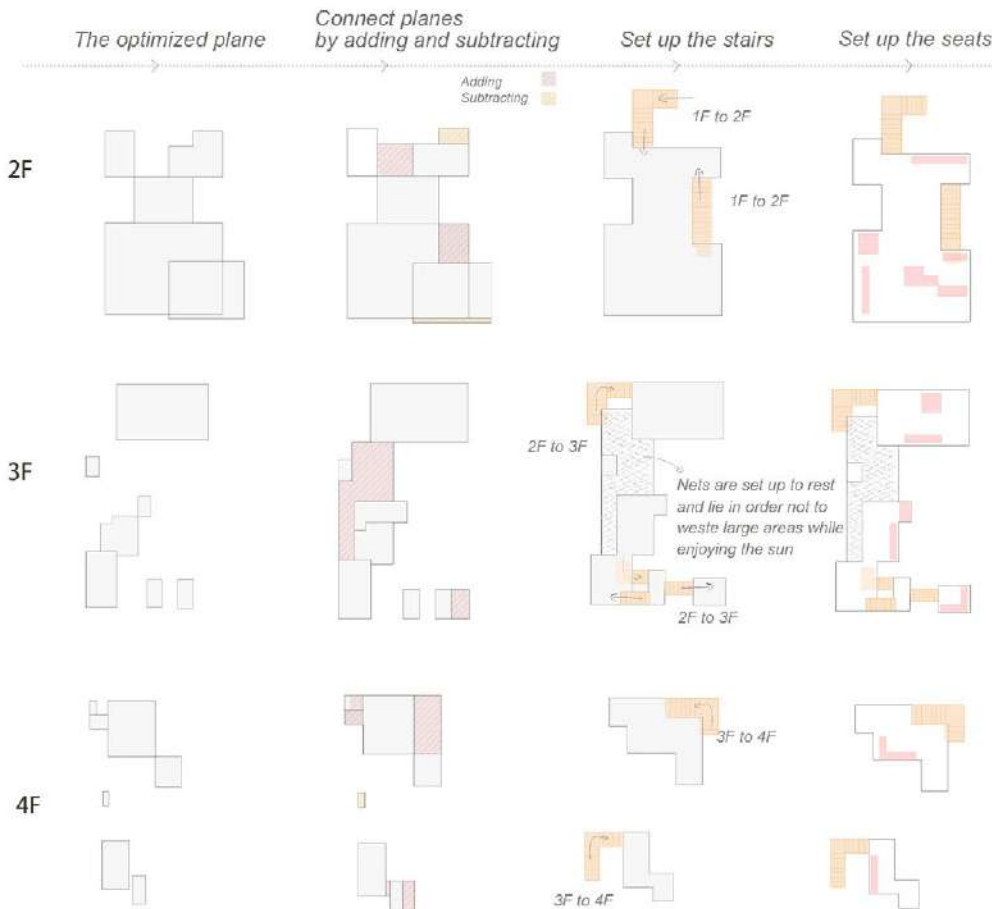● Site 1: Zhongxiao East Road, Da 'an District,
Taipei City, Taiwan Province□China

Illumination(%) 78
Area（㎡）   372
Length（m）   960

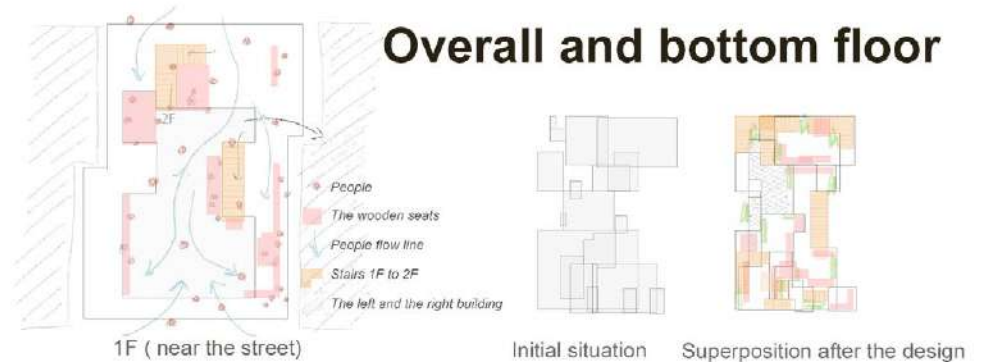# How to plan the plane

The optimized plane	Connect planes by adding and subtracting	Set up the stairs	Set up the seats

Adding
Subtracting

2F

1F to 2F

1F to 2F

3F

2F to 3F

Nets are set up to rest and lie in order not to waste large areas while enjoying the sun

2F to 3F

4F

3F to 4F

3F to 4F
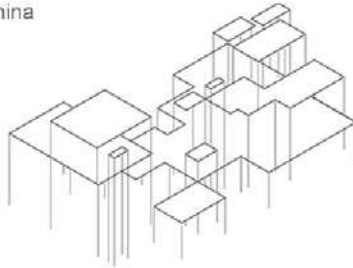
Overall and bottom floor

2F

People
The wooden seats
People flow line
Stairs 1F to 2F
The left and the right building

1F (near the street)

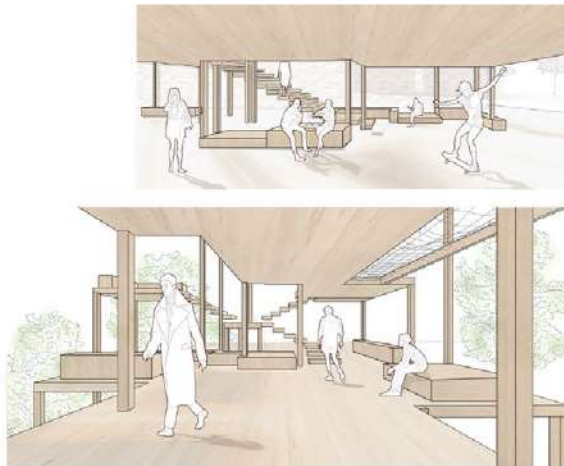Initial situation   Superposition after the design

Scene Rendering

As a public space that is welcomed by all kind of people in the city, all kinds of activities can be carried out here.

At the same time, in order to make the overall atmosphere more warm and comfortable, in contrast to the gray tone in the city, I finally chose wood as the main material .

Efficient construction

On the basis of the result of the octopus optimization, the platform area, the number and length of the wooden pillars are drawn the conclusion. Through the factory processing directly to the target site for a quick and simple assembly setup.