

Water is the most important feature The canal literally characterizes the urban fabric of Amphawa community since it plays many significant roles for the area for both local & non-local people, both in general usage & special occasion or festival times.

For local people, the villager's life has tied with the water on daily routine. They usually use the canal side area for resting and meeting. Also, there are several waterfront Buddhism temples, churches and public spaces such as agriculture farm or market provided wharfs for the transportation boat.

For public activities, the canal & riverside elements are still be the main arena for the community, they could be benefited by both local people & tourist in many ways such as transportation or eating place. Moreover, in the same space, the activities are usually changed depending on times they occur.

Agriculture

The main characteristic of orchard & agriculture field in Amphawa is created by local people wisdom who learnt to adapt & lived their lived harmoniously with environment.

The local farmer conducted the waterway to feed their plant by the small branch canals and small network of access canals those connect to the main canal. These small ditches spread through all the orchard area which the main plantation is coconut tree in order to produce sugar & sell coconut (their main agriculture products).

This feeding system is called "kanad suan" in Thai, means set of plantation or set of orchard. One set is a combination of ditch that leads the water continuity flow into the orchard area and dike that grows the coconut trees. **This system is also greatly useful during flooding period** because it can help to spread water to the main canal which is the main catchment area like blood vessels.

Location & general data

Amphawa canal is Thai water-based community located at the north gulf of Thailand in Samutsongkhram province in the central region, around 80 - 100 kilometers west of the capital, Bangkok where has been becoming popular for tourism in past 10 years because of its rich cultural river-life atmosphere. Amphawa community canal is defined the local village settlement that stretch along the canal side. It is sub-district of Amphawa municipality.



access to the canal



access to the canal



riverside walk way

local daily routine



activity between riverside walk way & boat vender



children's playground



Buddhism religious ritual



waterside shelter as gathering space

Public activities



transportation



riverside eating place



floating market



floating market



firefly tourism tour

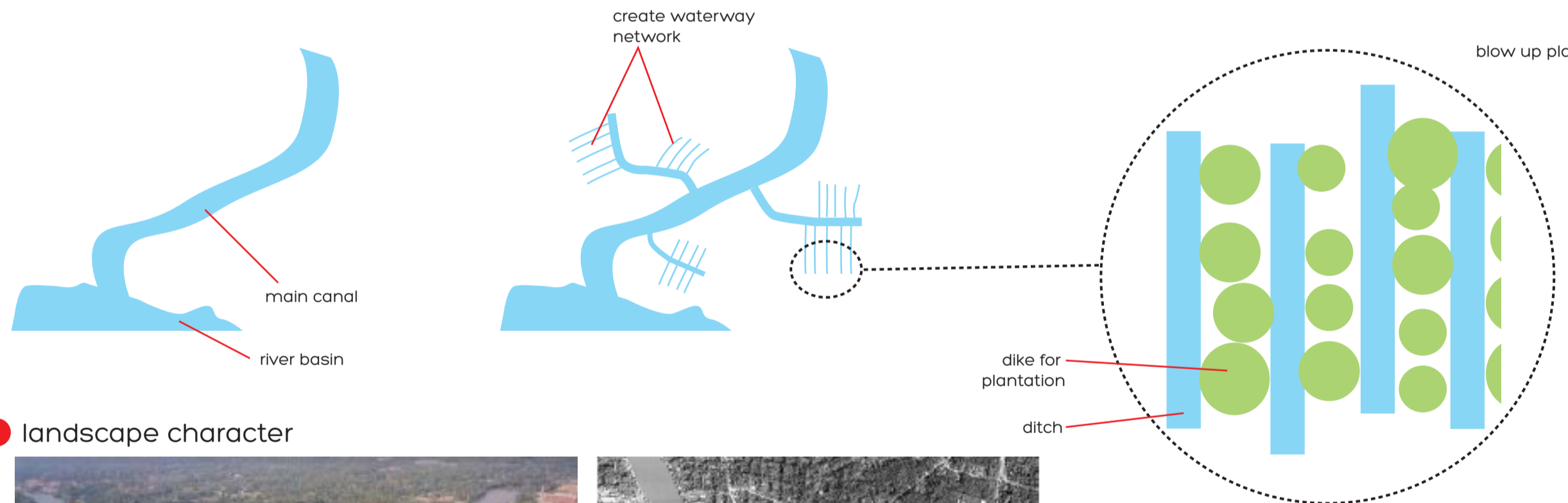


wooden boat racing event



bridge as a theatre during the event

plantation system concept



landscape character



bird eye view & top view images show the landscape of the main river basin of Samutsongkhram province & Amphawa canal that dominated by water & tropical agriculture features

Kanad suan



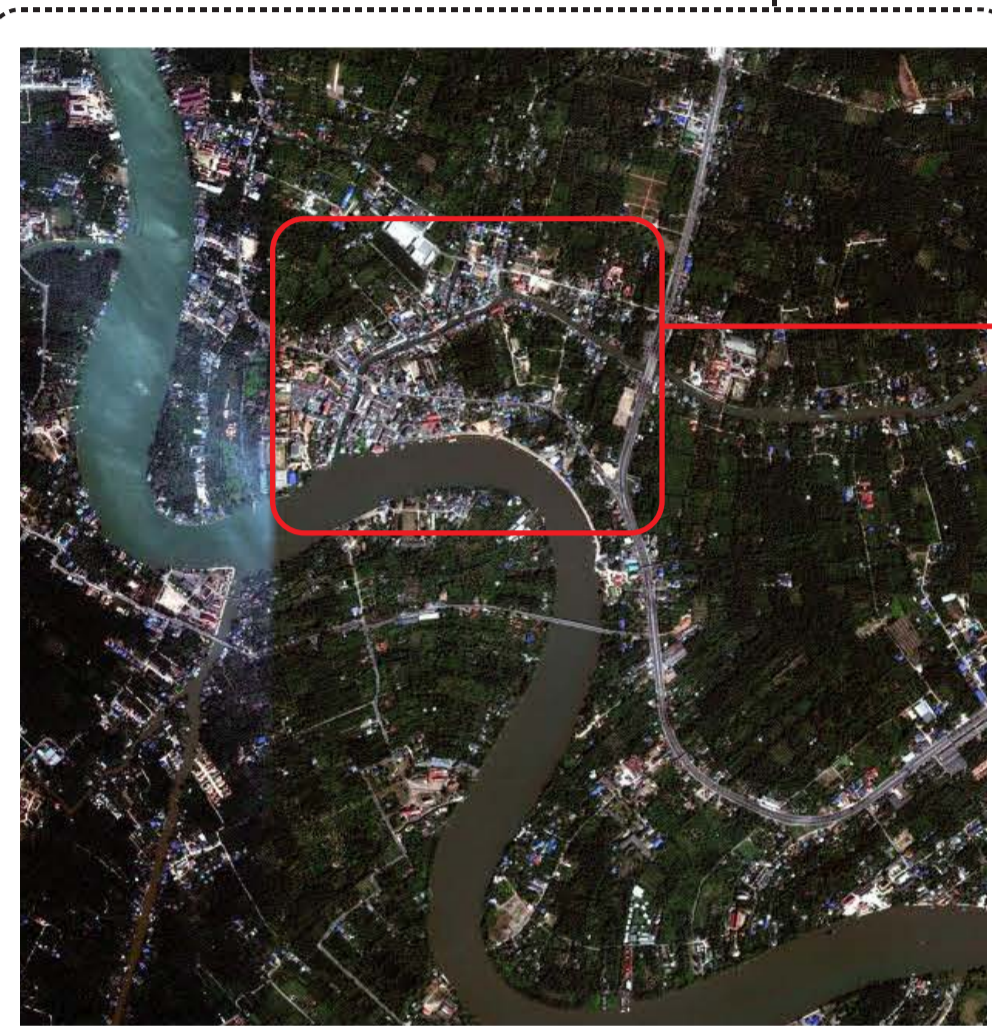
ditches & dikes of "kanad suan"



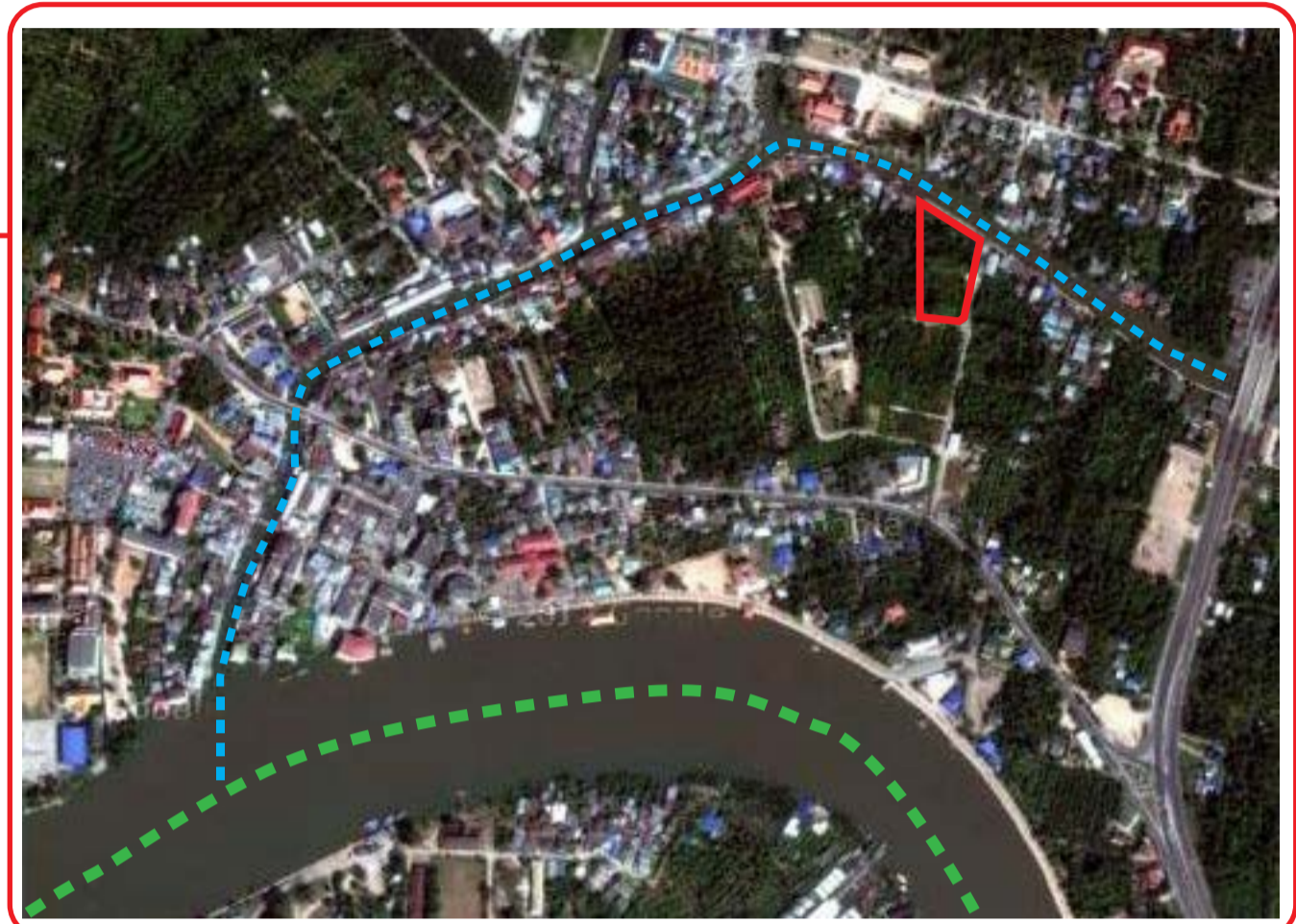
small access canal



orchard man is conveying his product on the ditch



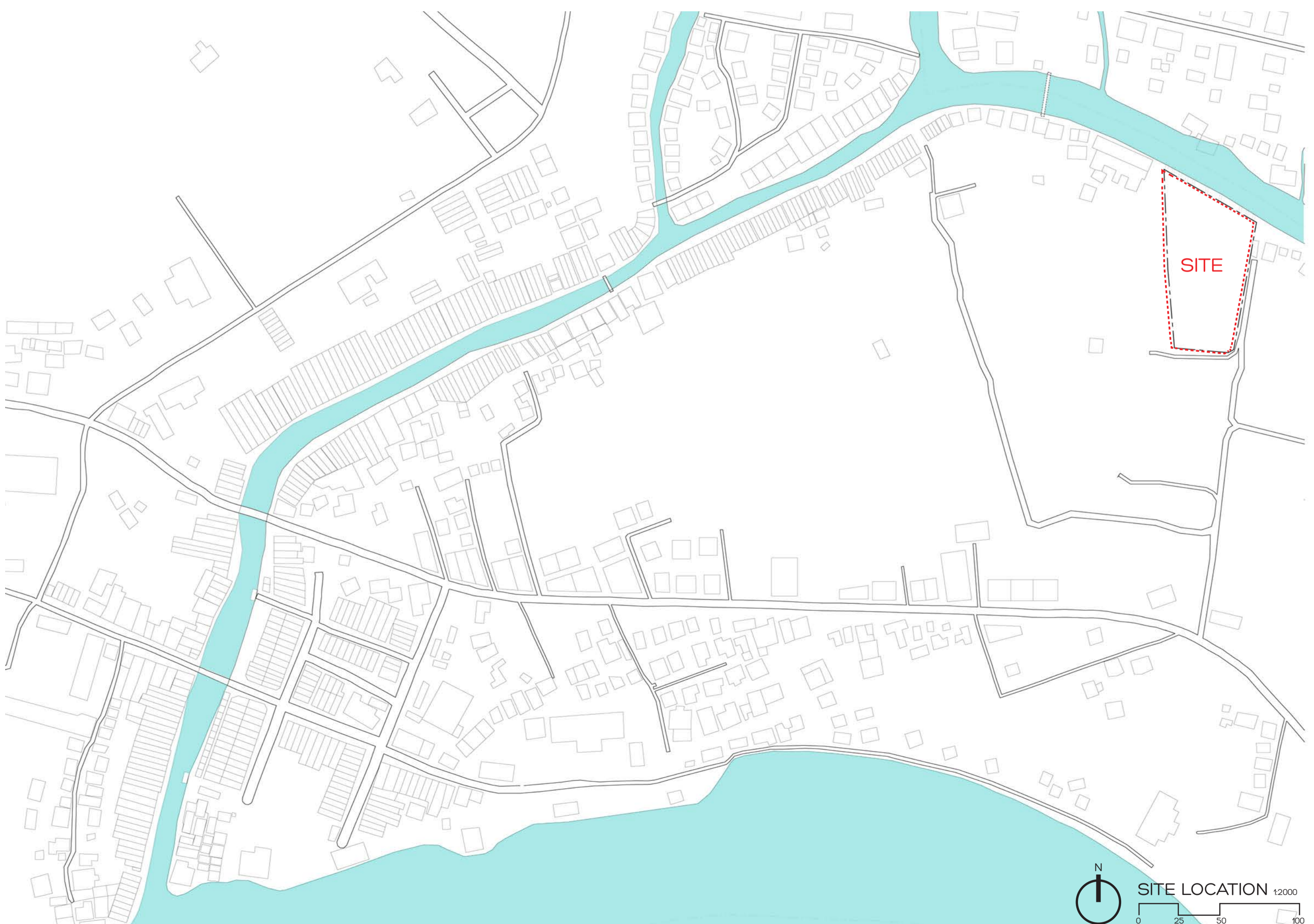
aerial view shows the main river basin pass through Samutsongkhram province



aerial view shows Amphawa canal community location

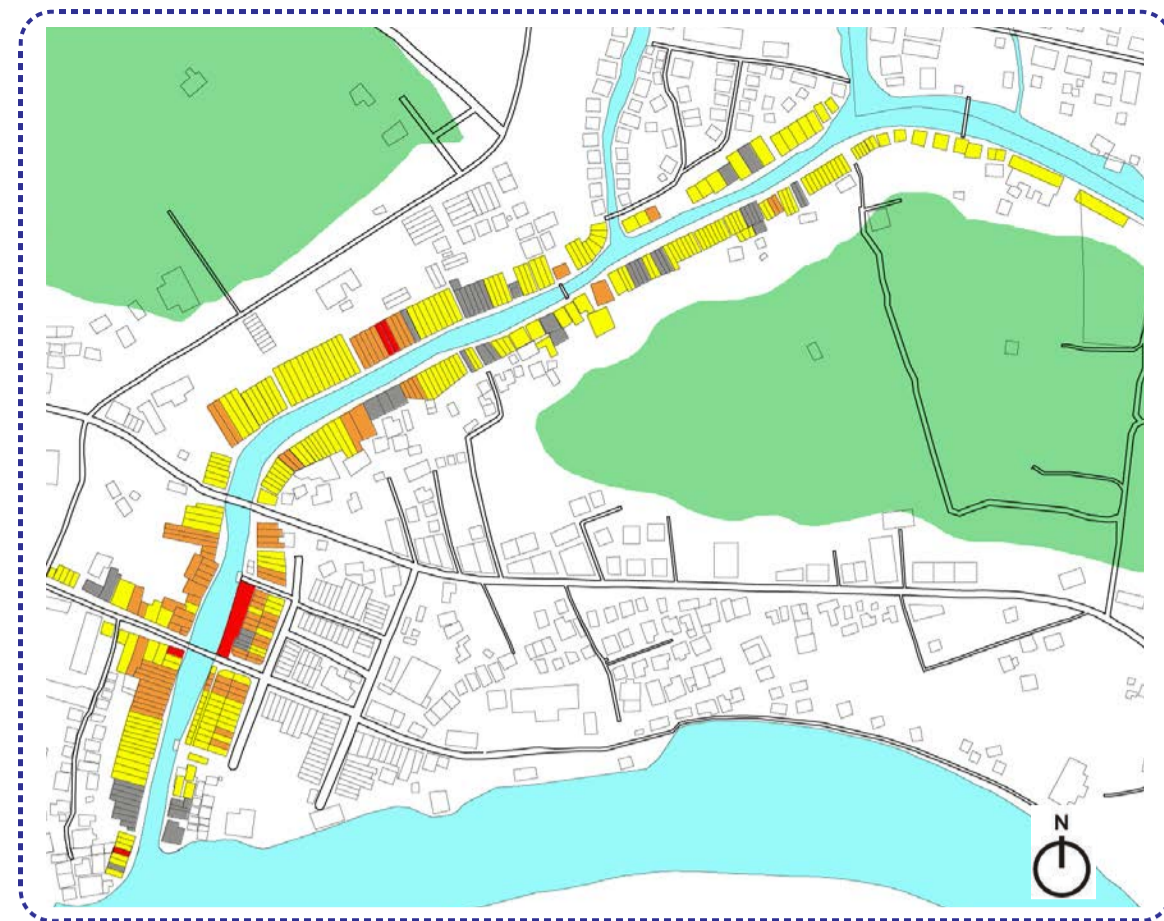
- project area
- main river basin
- Amphawa canal

general data
 building units : 360
 population : 1470 (avg)
 water type: brackish water
 main occupation : agriculture
 Climate : hot humid
 season : rainy, winter, summer

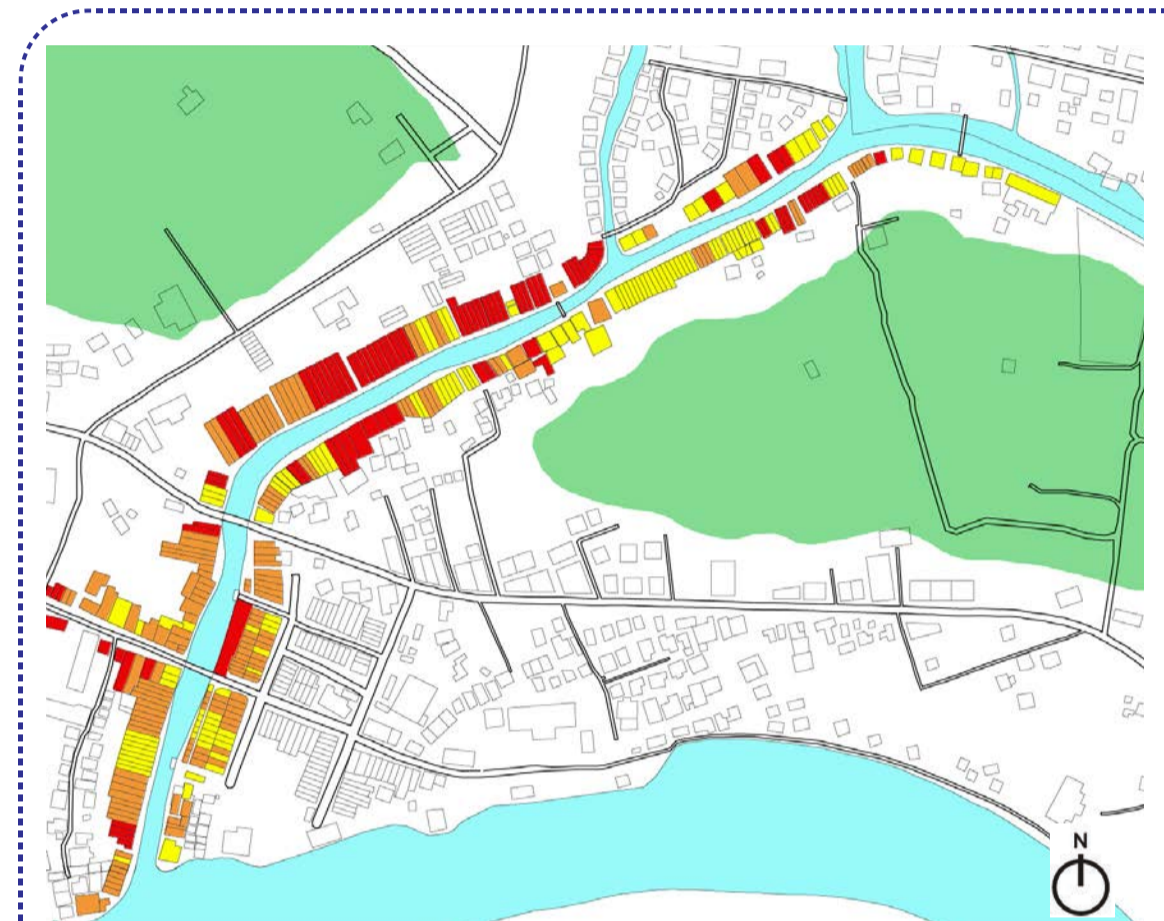


SITE LOCATION 1:2000

landuse 2001



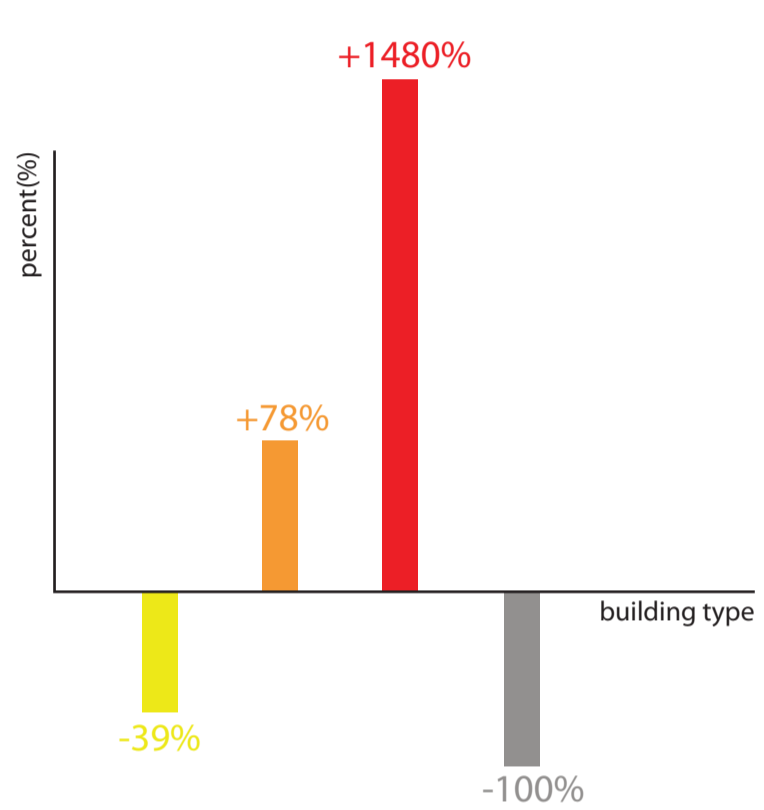
landuse 2011



- 2001 - started pilot project of Amphawa canal environmental preservation & development.
- 2004-2005 - started "Amphawa preservation & restoration of historical house in waterfront area" project.
- 2008 - earned "UNESCO Asia Pacific heritage award"
- 2011 - "tourism booming age"



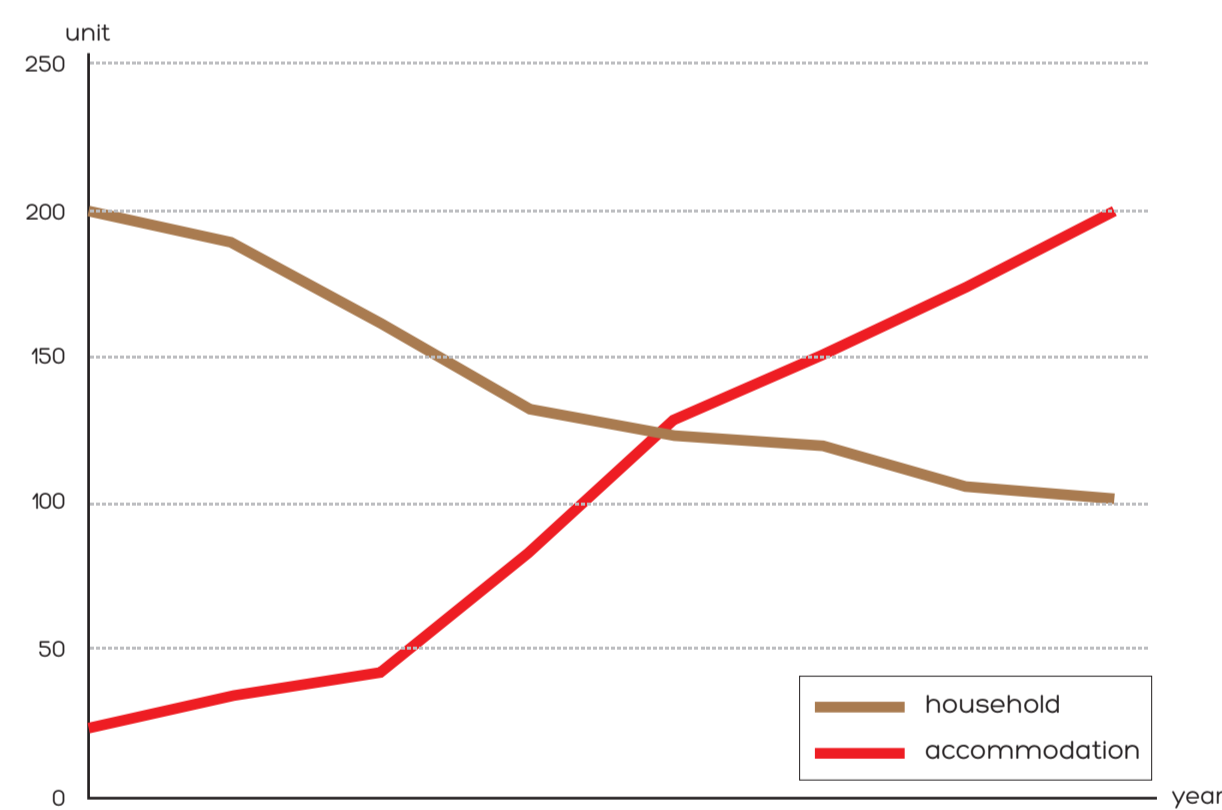
earned "UNESCO Asia Pacific heritage award"



graph shows the transformation of landuse from 2001-2011

landuse type	2001		2011		change	
	unit	percent change	unit	percent change	unit	percent change
residential	202	57.55	122	33.89	-80	-39.60
commercial	5	1.42	79	21.94	74	1480
residential & commercial	89	25.36	159	11.17	70	78.65
abandon	55	15.67	0	0.00	-55	-100
TOTAL	351	100	360	100	9	2.56

2001 & 2011 landuse static table of Amphawa community area, percent change as shown.



the relationship between household units & accommodation units in Amphawa community

Local housing & Tourism accommodation

Table and graph indicate the landuse transformation of the area. The table shows landuse types changing in unit and changing in percentage. The table also shows that all abandon areas have been developed in order to take benefit corresponding to the increasing number of commercial units.

Graph describes the relationship between local household unit and tourism accommodation unit as of 2004-2011. Tourism accommodation units rising meanwhile local house units were declined significantly in contrast.

- residential
- residential + commercial
- commercial
- abandon
- agriculture

Physical transformation

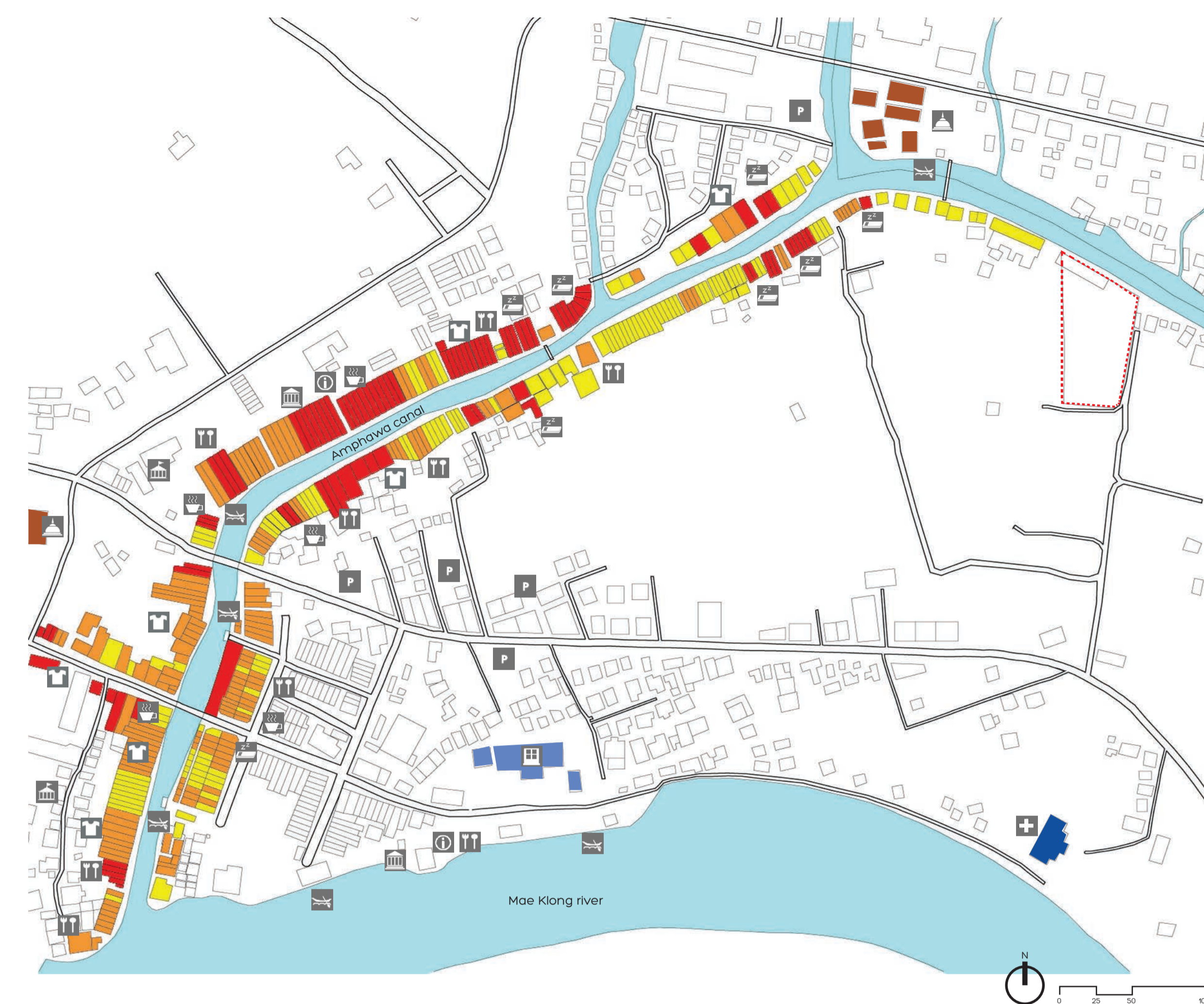
Since tourist population increasing, consequently, many of traditional houses have been modified or converted to get visitor's attention which physically effected to the architectural appearance. New materials, for example, metal sheet roof with fancy colour, light box sign, are employed to construct. Moreover, on the waterside public walkway is interrupted by showcase or small booth from the shop house.



the roof is replaced by new modern material but still remain the traditional form.

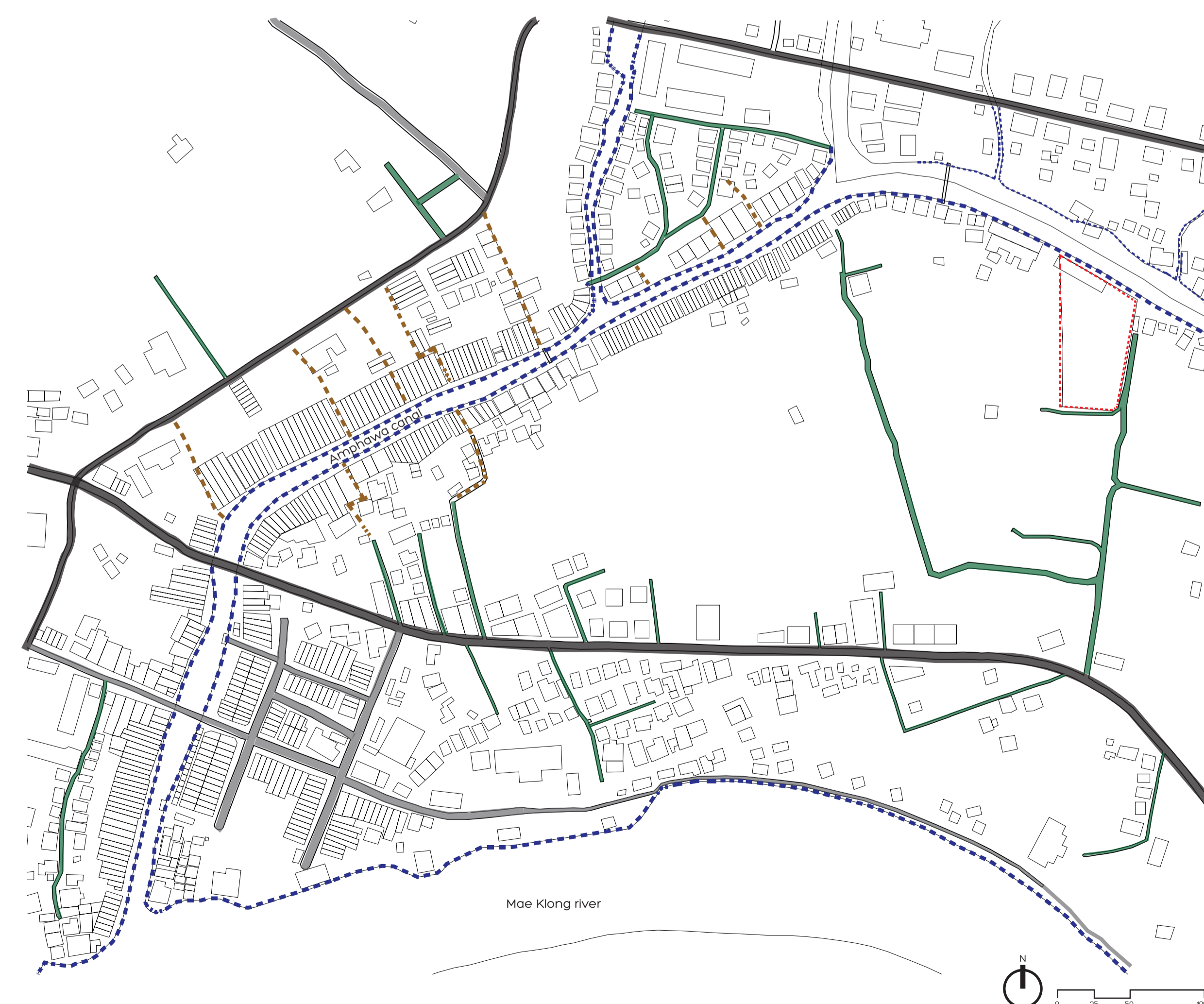


the waterside walkway showcase & decoration



- Symbol
- souvenir shop
 - accommodation
 - restaurant
 - coffee shop
 - museum
 - school
 - buddhist temple
 - info. center
 - port
 - parking area
 - municipality
 - public health

- Legend
- residential
 - residential + commercial
 - commercial
 - municipality
 - public health
 - buddhist temple
 - SITE



Accessibility

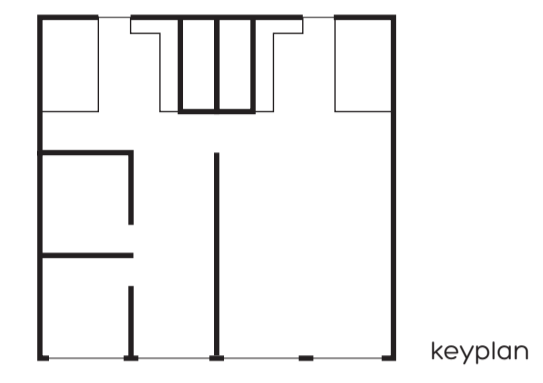
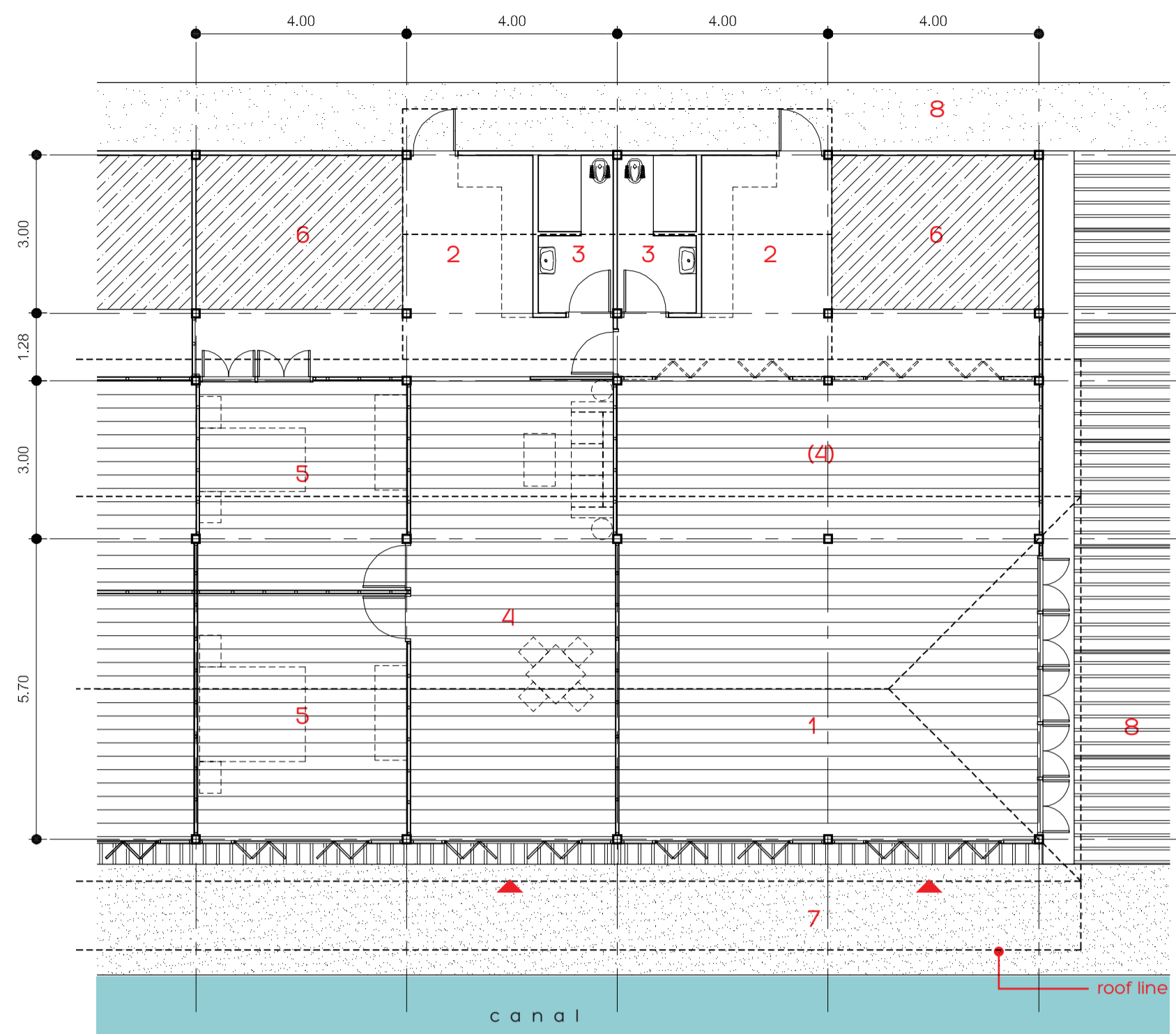
Map presents the accessibility of traffic to the area. Apart from water transportation, site can be accessed by both on ground vehicle and by pedestrian.



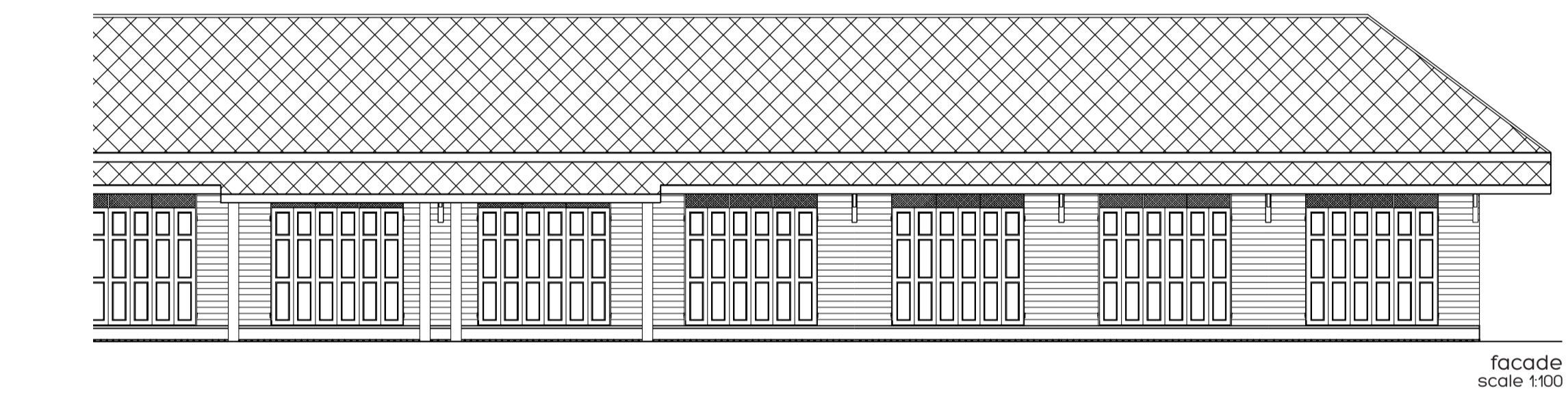
- Legend
- main street
 - secondary street
 - local street
 - riverside walkway
 - alleyway
 - SITE

Traditional wooden row house

Wooden row house is main architectural feature represented the water trading community and also characterized the urban fabric of the area. The traditional wooden row house as shown by technical drawing is built by hard wood panel - the local material which make easily restoration when needed, suitable and harmoniously blending with environment.



- ground floor plan scale 1:100
- 1 showroom
 - 2 kitchen/ storage
 - 3 toilet
 - 4 living area
 - 5 bedroom
 - 6 garden/ future expansion
 - 7 waterside walkway
 - 8 alley between building



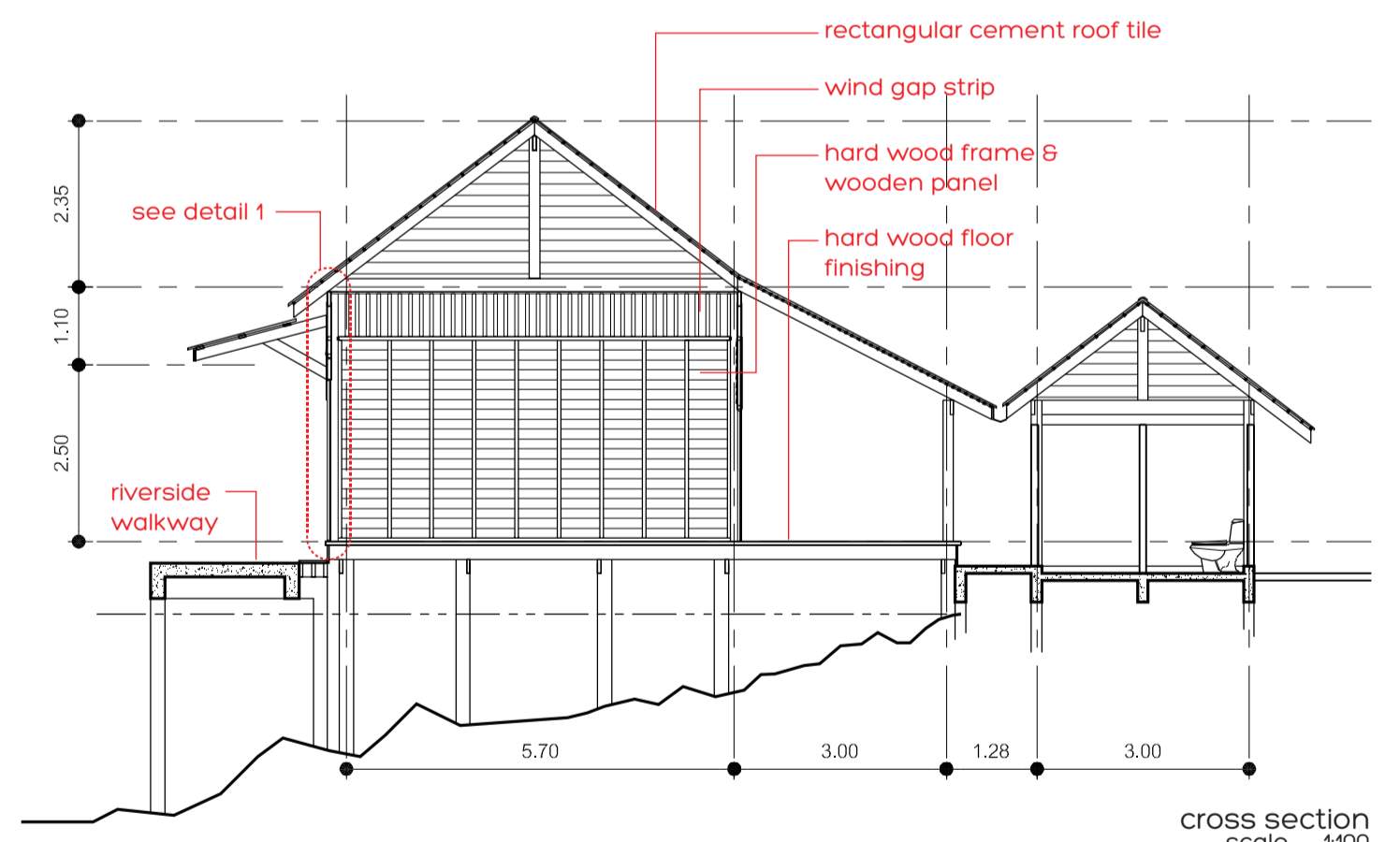
Building typologies

The map shows the difference building types in the area where dominated by traditional wooden row houses along the riverbank with distance followed by individual wooden house and few number of modern age concrete building.



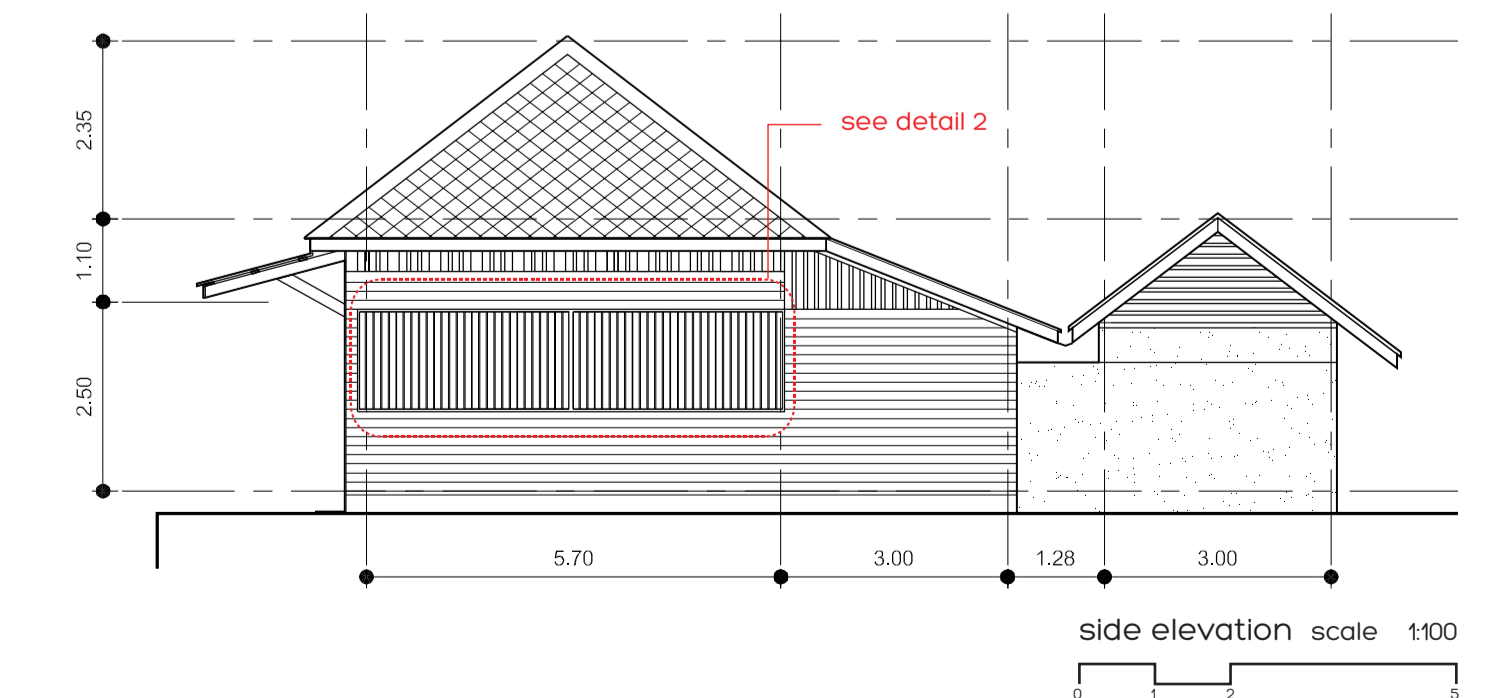
- Legend
- yellow wooden row house
 - orange individual house
 - blue modern age concrete building
 - grey buddhist temple
 - red dashed line SITE

Architectural details

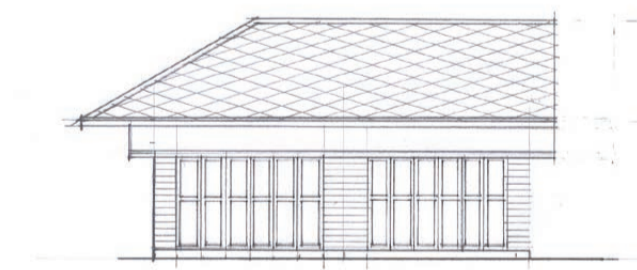


Traditional wooden row house

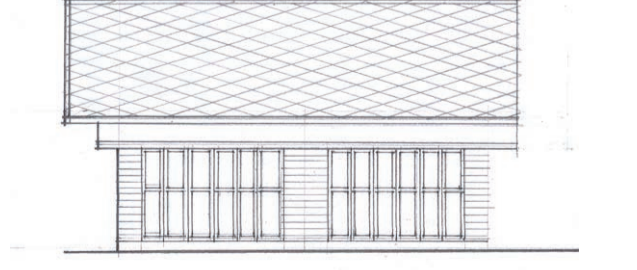
There are 2 authenticity roof forms : hip roof and gable roof. According to its hot humid climate, the roof is typically overhang from the column span as a shading device to protect other components from direct sun light and rain. The main material is clay tile or shingle. The facade is occupied by wooden folding door set in order to maximize the natural ventilation, in the same time creates the open plan and flowing of space between inside and outside.



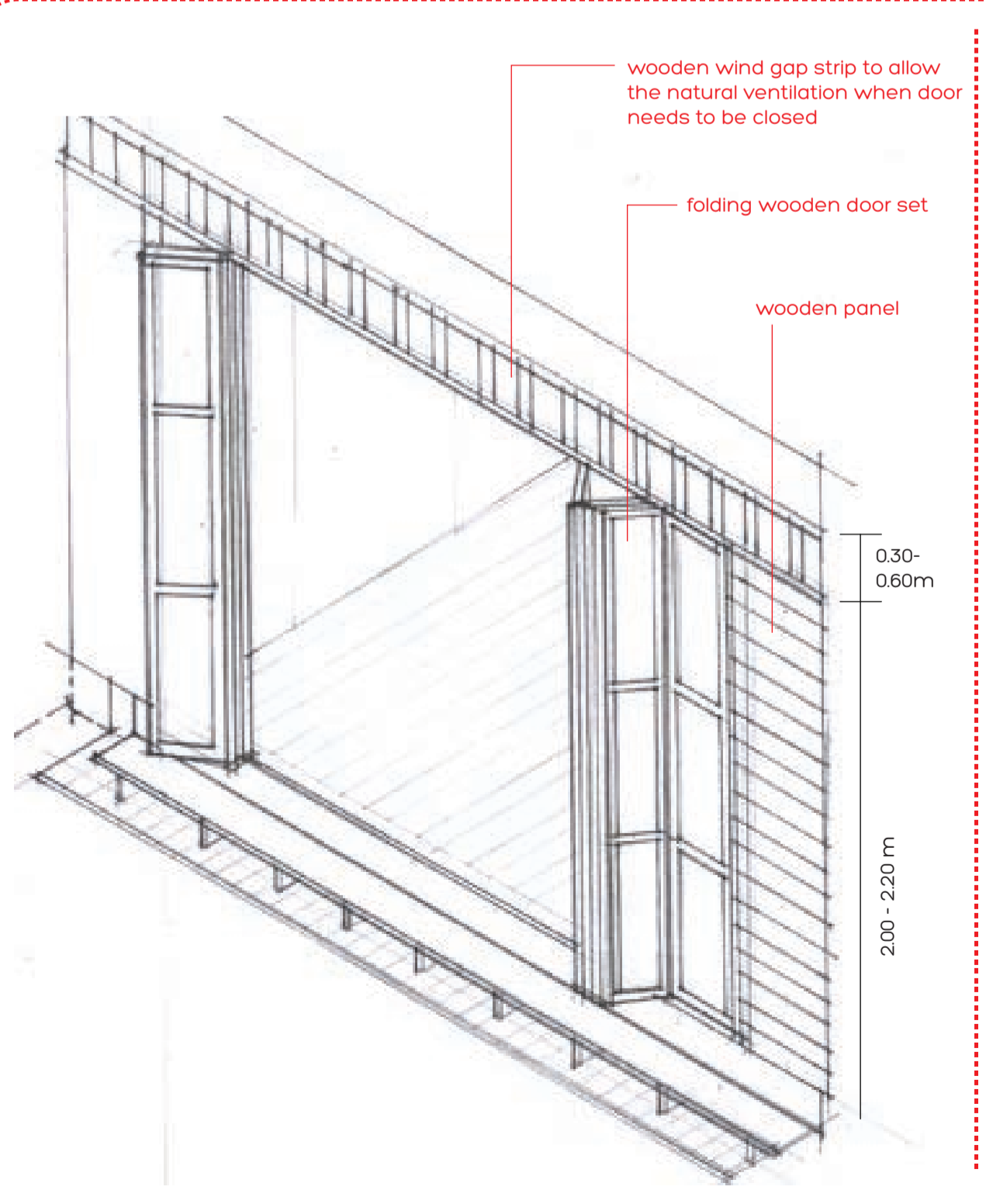
roof form 1 : hip roof



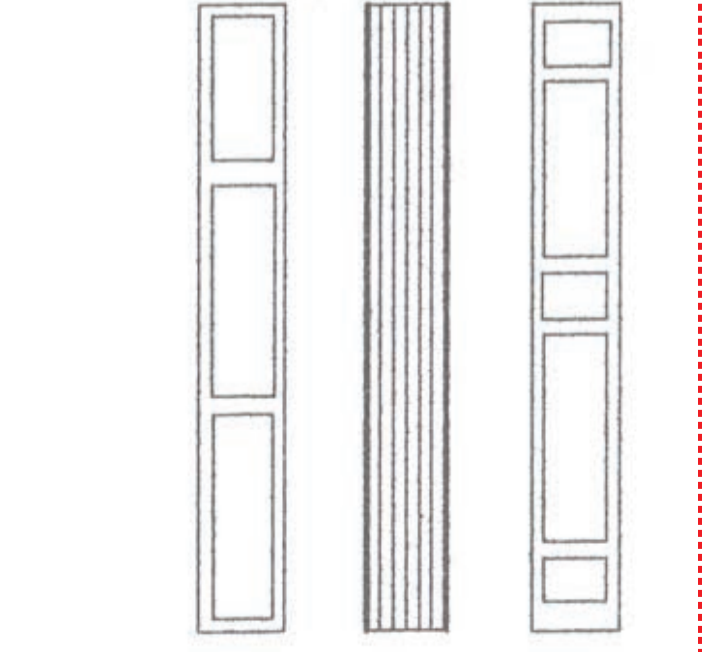
roof form 2 : gable roof



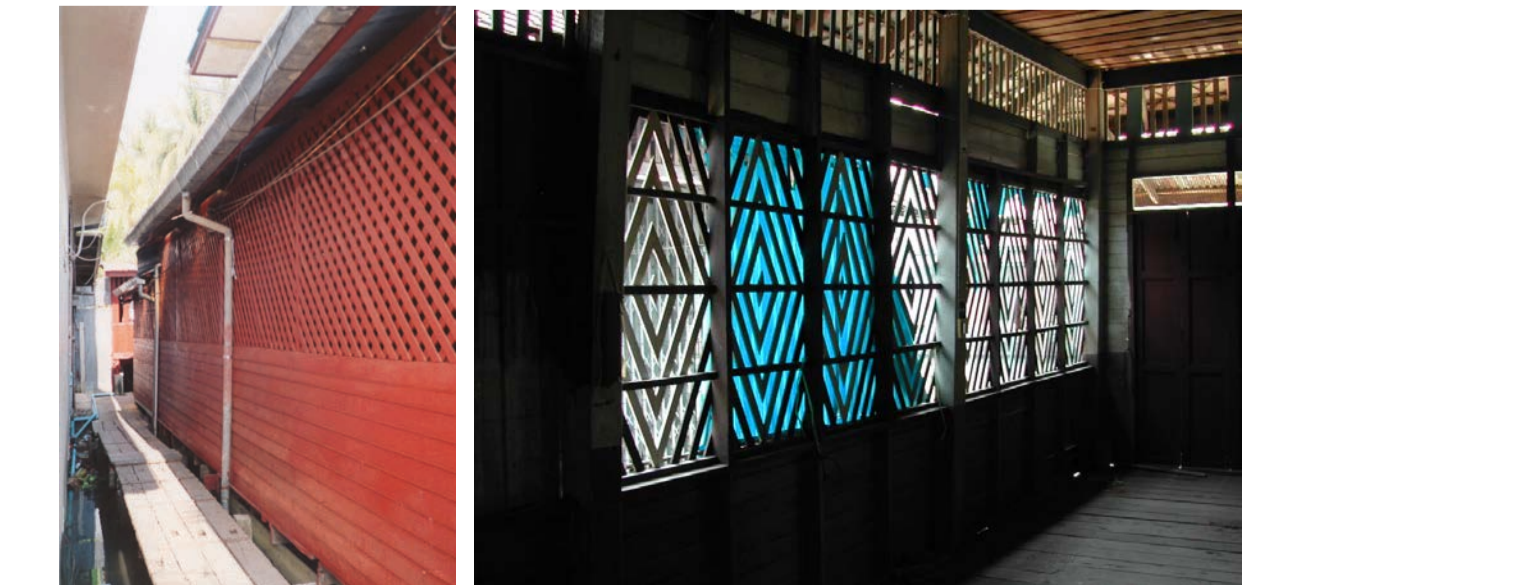
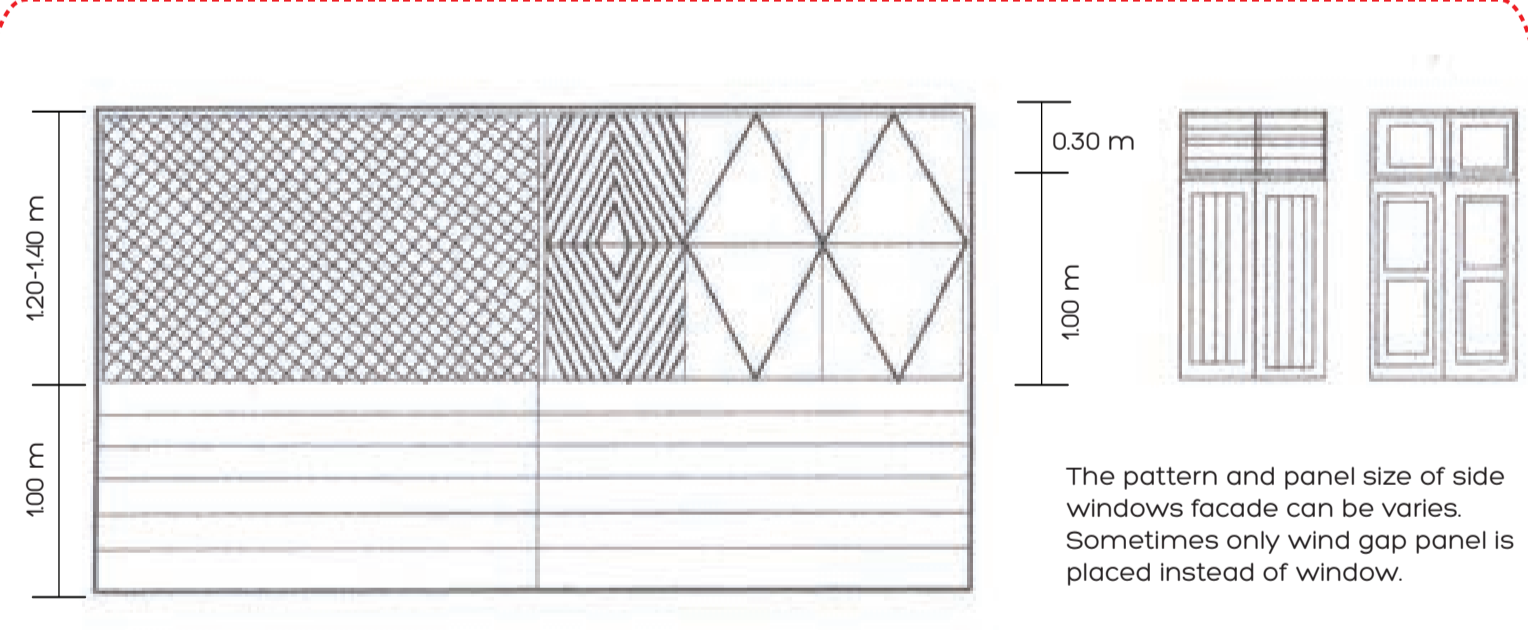
Detail 1 : folding door



the door pattern variation

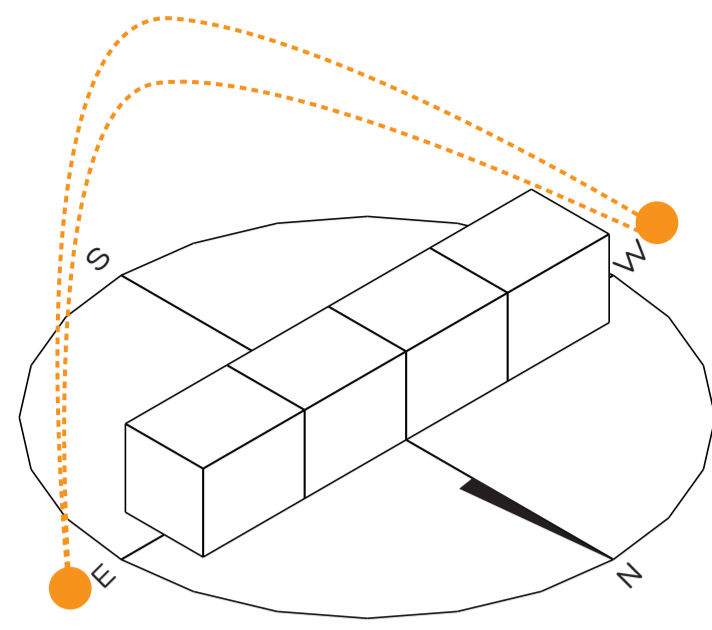


Detail 2 : window

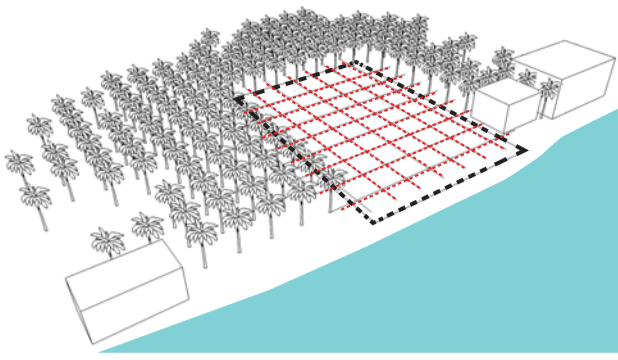


Building orientation

According to the hot humid climate, the simple linear rectangular building shape is chosen. The long side of building is orientated to face North-South in order to maximize the passive ventilation while the short side is faced East-West to minimize heat gain from critical sunlight direction during the day. The linear shape is as well represent and connect to the traditional wooden row house style that characterize the urban fabric.

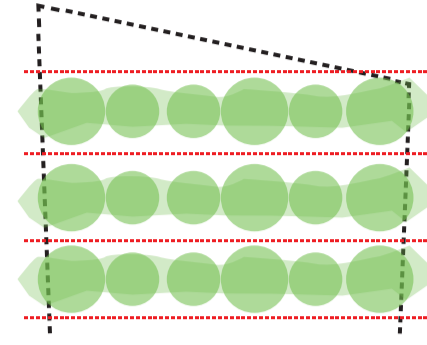


Planning concept

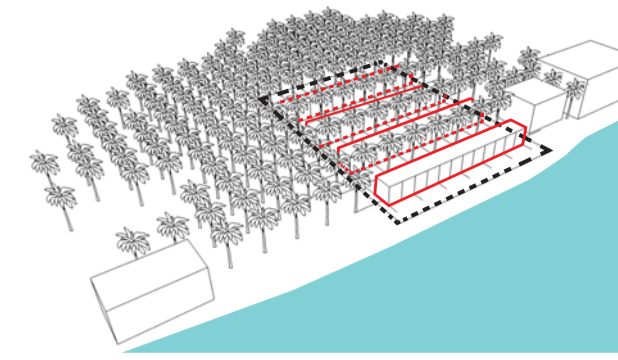


Site and context

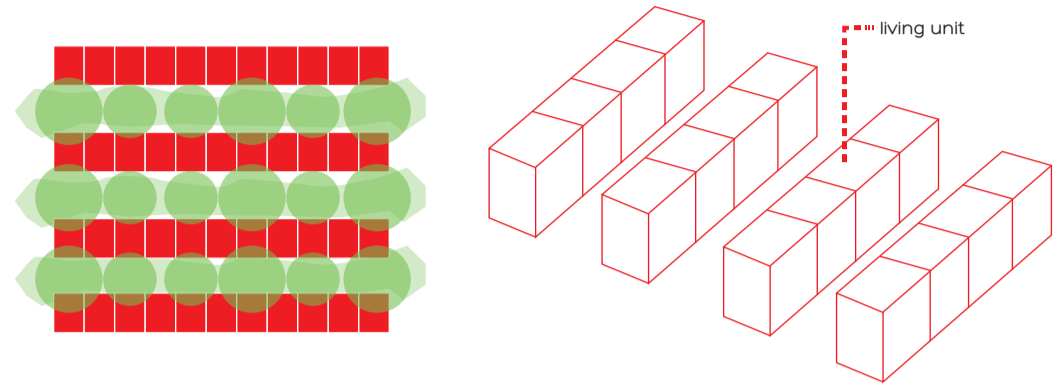
Apart from canal, site is surrounded by local orchard field where are planted according to local wisdom process of dike& ditch-the main local occupation of community. Automatically created natural plantation grid line of palm tree field to the site.



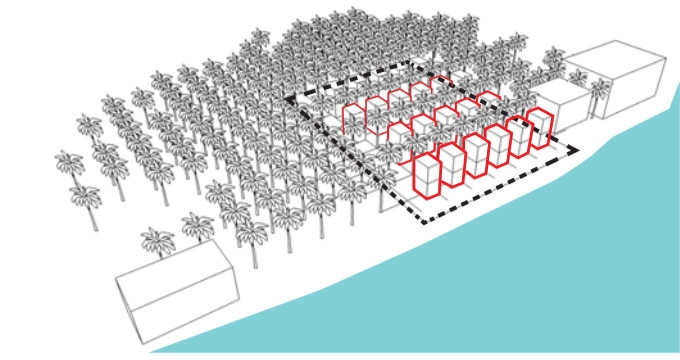
Architecture and context



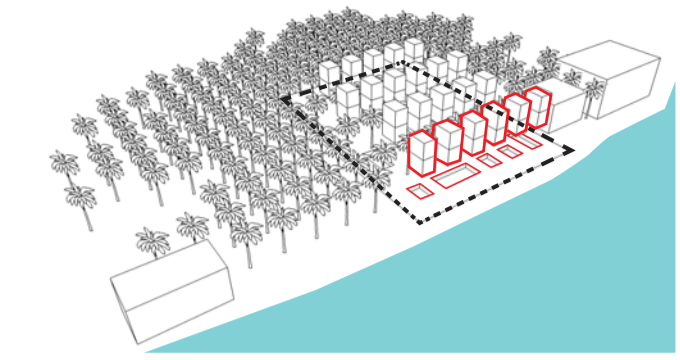
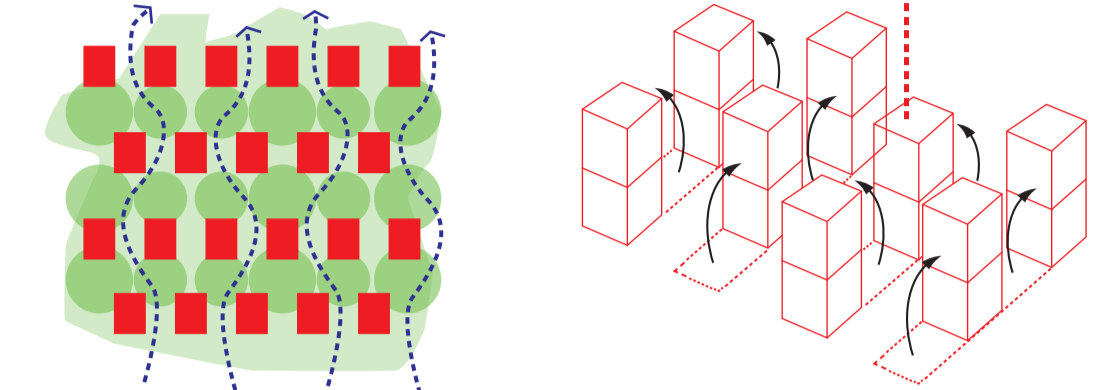
Starting by introduce continuity of plantation into the site, then place the building unit among the palm field along the plantation grid line to bonding how people live with what they do on daily basis.



Architecture transformation

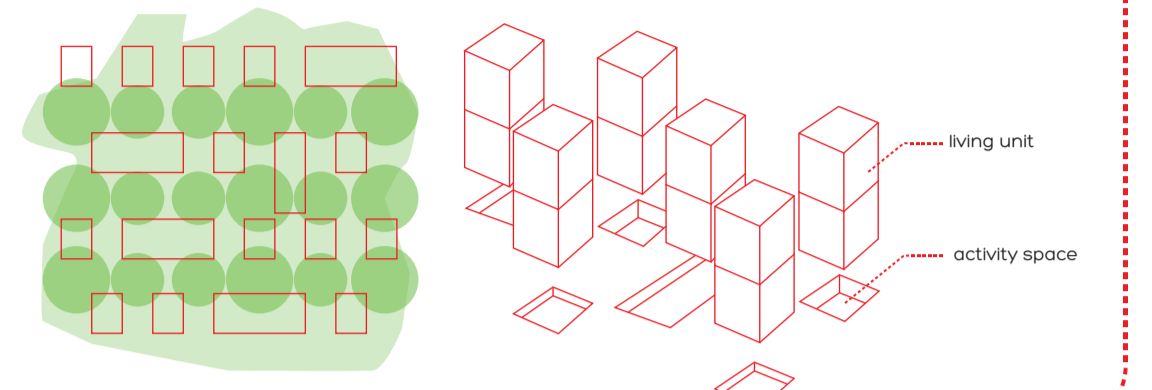


Vertically stacking the units in order to create the continuity of open space, create better view and also better natural ventilation flow.

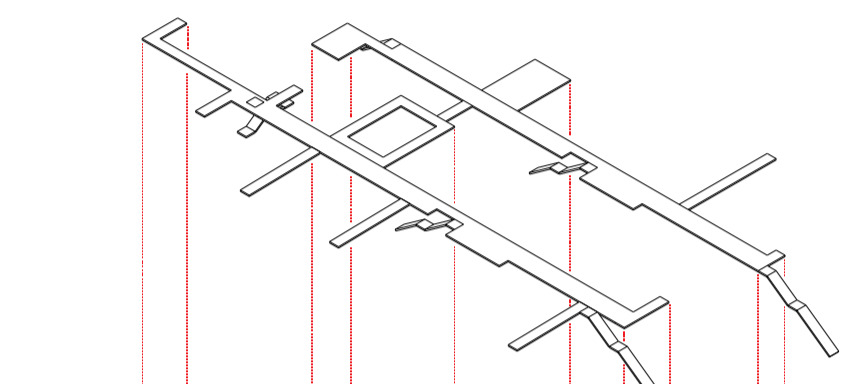


Activity space

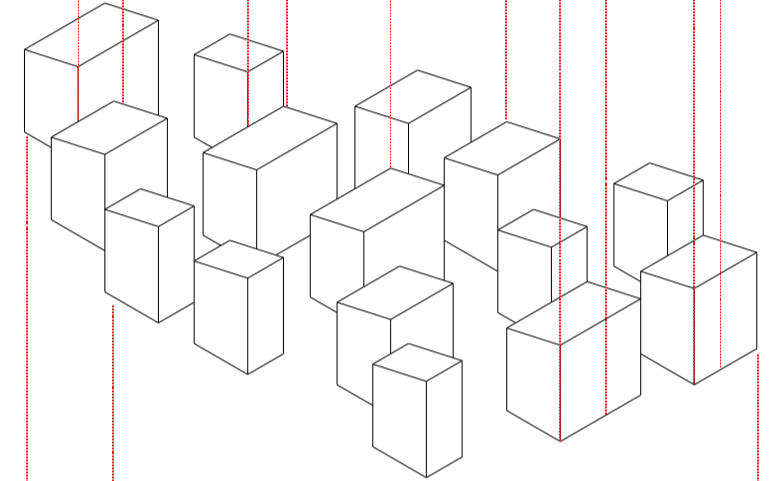
Lift up the unit and create the sunken courtyard to define activity space where local meet visitor and keep continue the flow of people on the ground level.



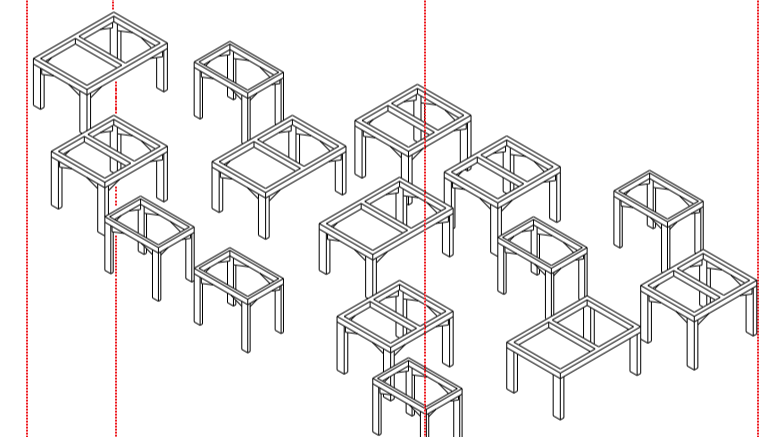
Project layering



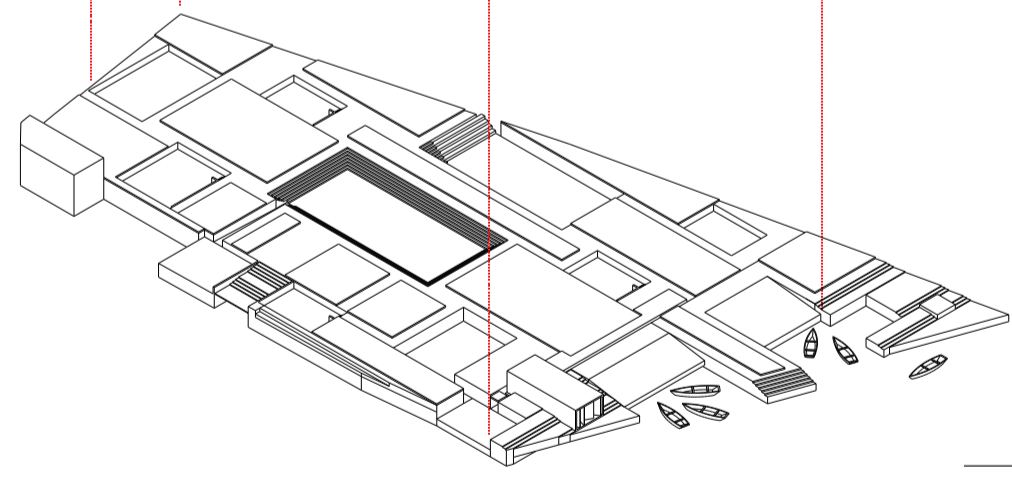
Distribution corridor



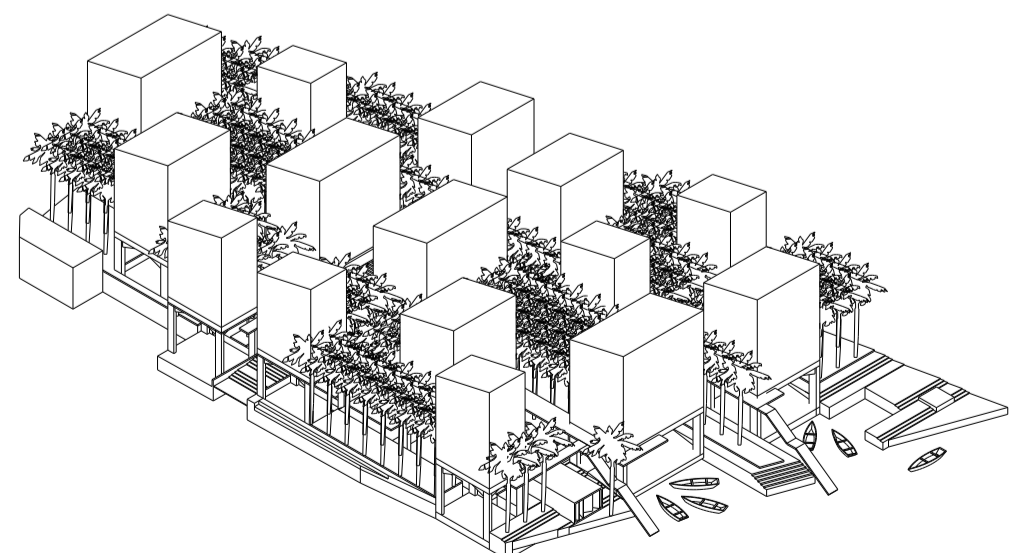
Living units



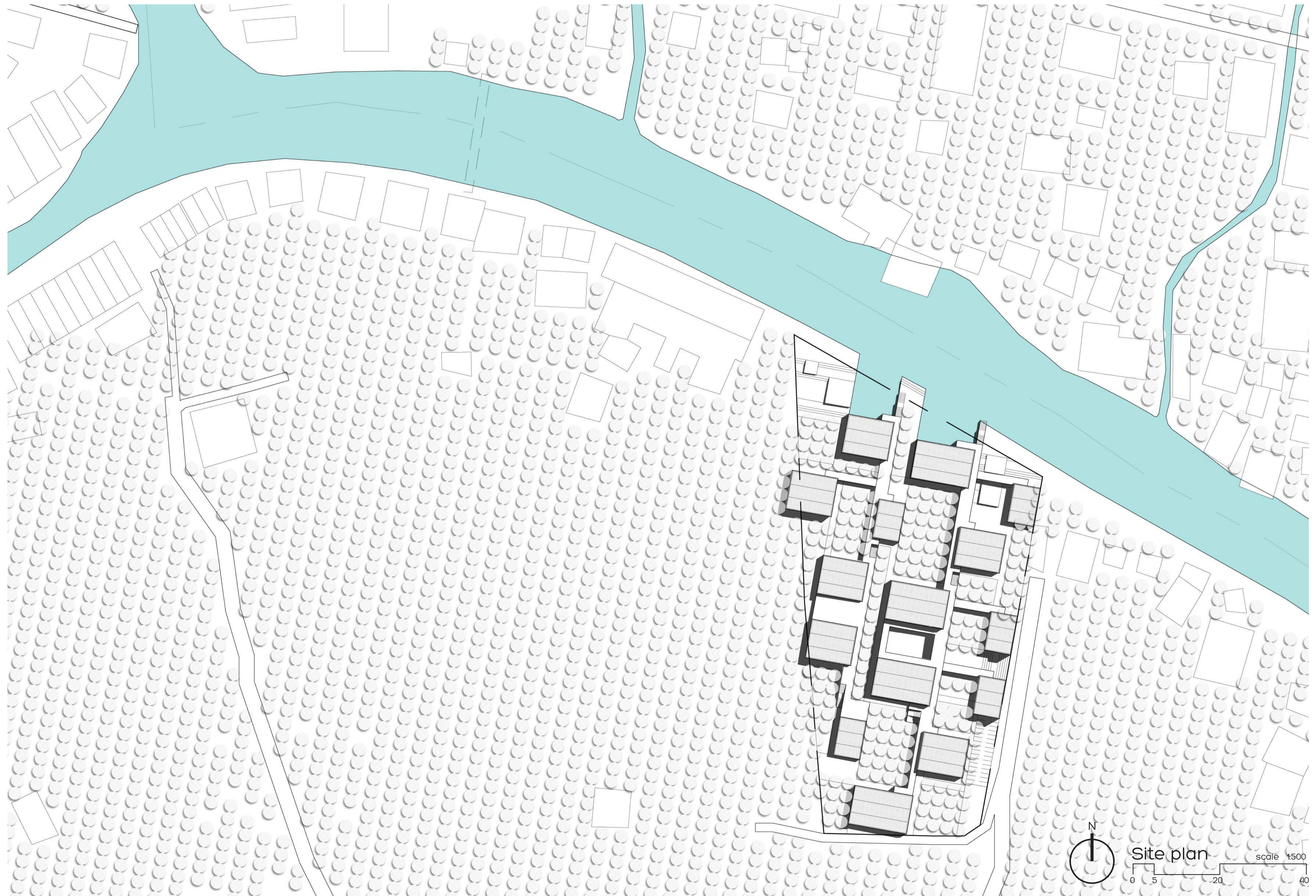
Pilotis



Ground



Isometric



Site plan

scale 1:500





- 1 entrance piazza
- 2 pier
- 3 social shop
- 4 social shop courtyard
- 5 multi-purpose courtyard
- 6 amphitheatre
- 7 sport field
- 8 kid's playground
- 9 sub entrance
- 10 motorcycle parking
- 11 mechanical rooms

Ground floor plan
scale 1:200



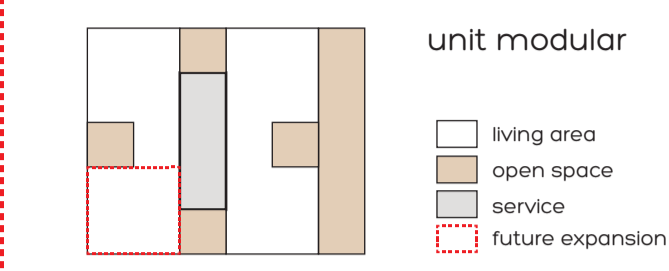
- 1 small unit
- 2 medium unit
- 3 large unit
- local shop (convertible)

1st floor plan
scale 1:200



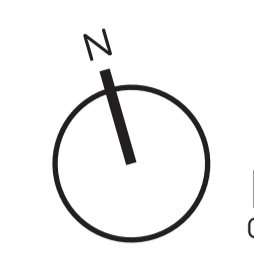
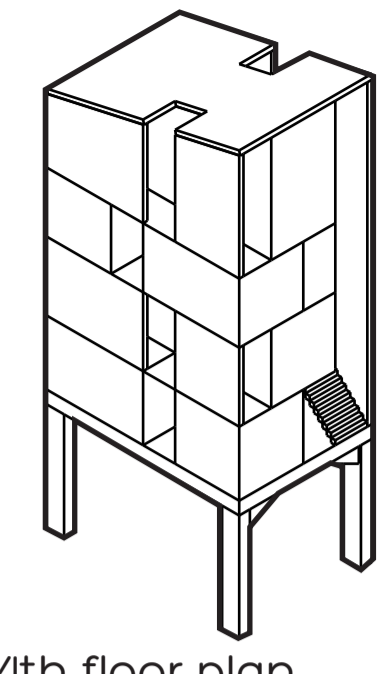
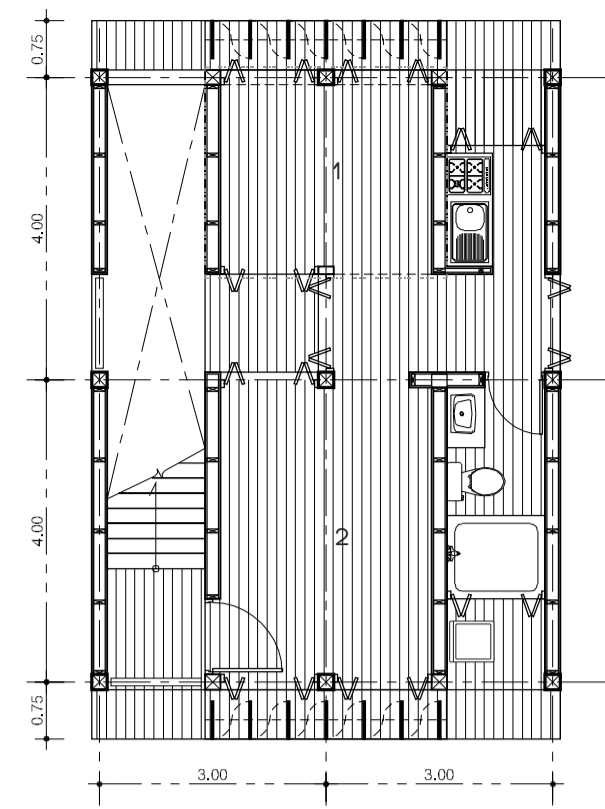
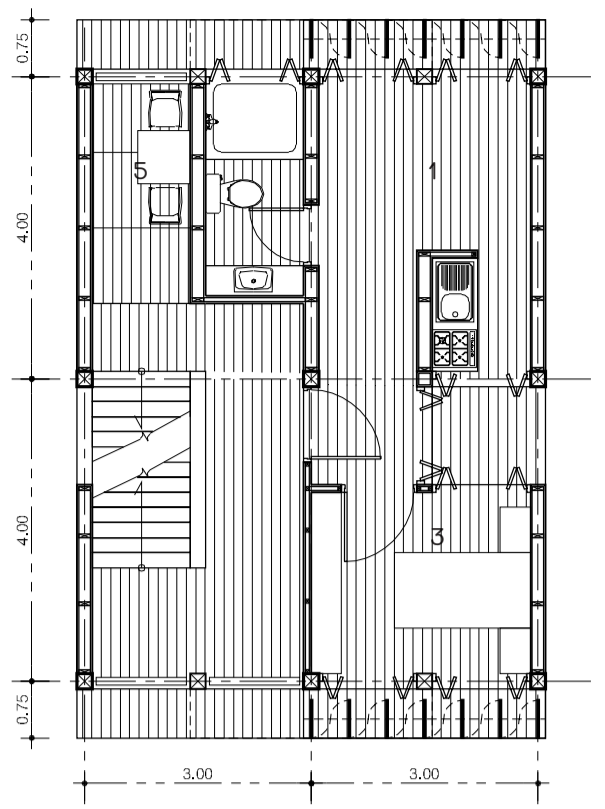
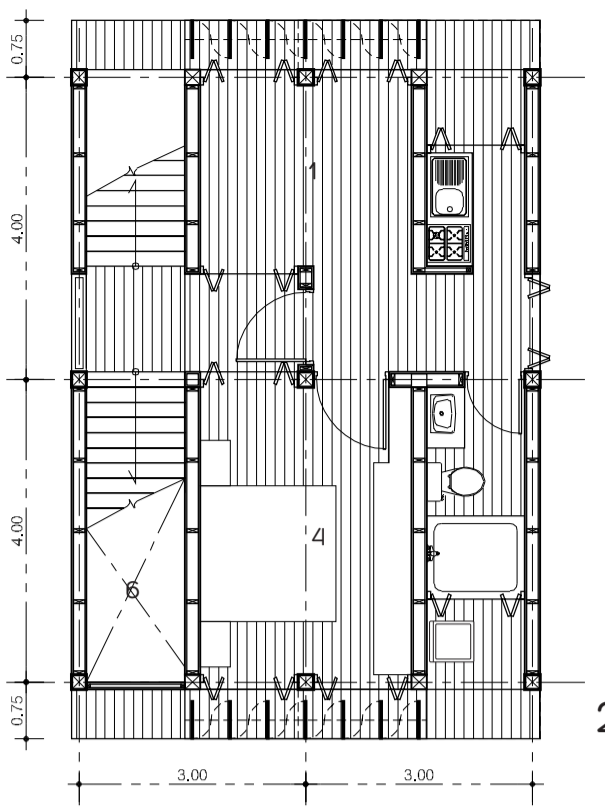
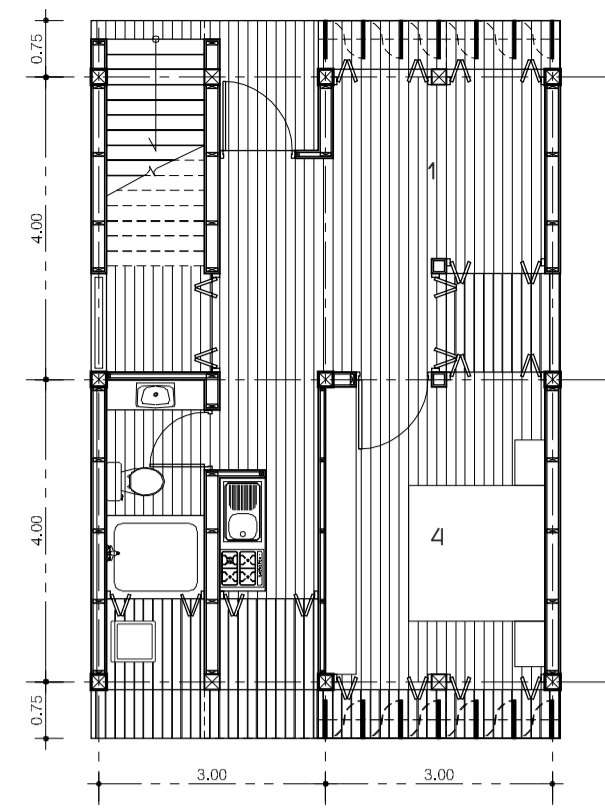
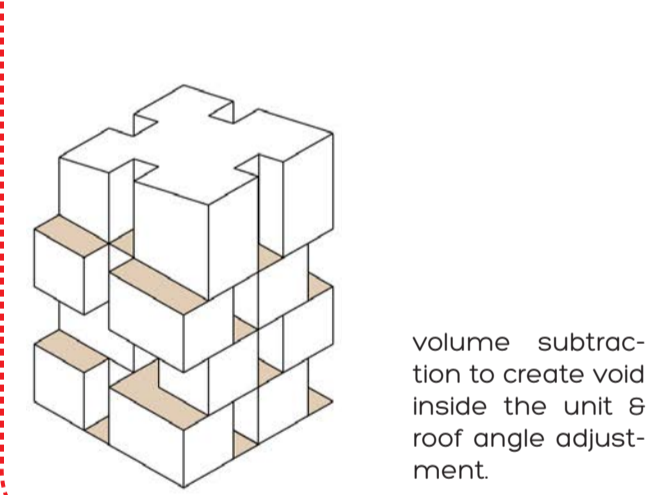
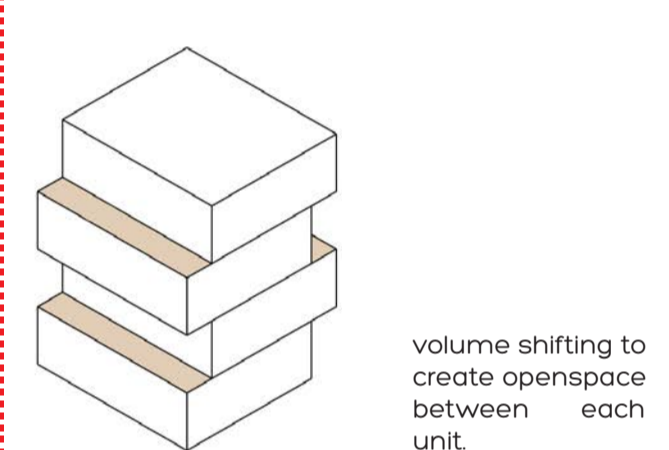
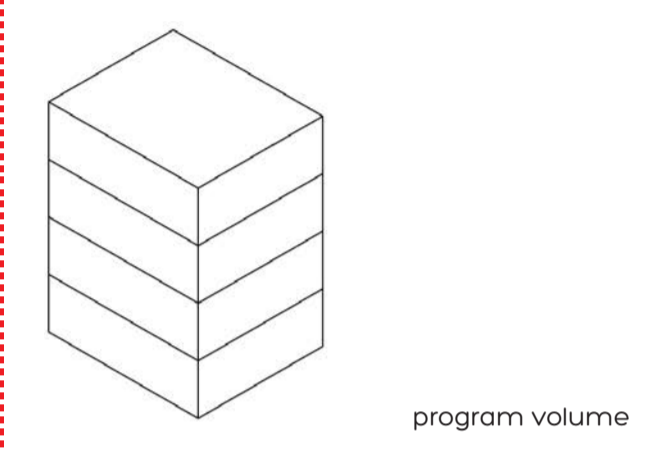
Living modular

3 sizes of living unit are proposed to cover each family scales of inhabitant. Since the local people way of life is extended family from 1 generation to the next one, each living unit provides the multi-purpose room that could be converted for future expansion of the family.

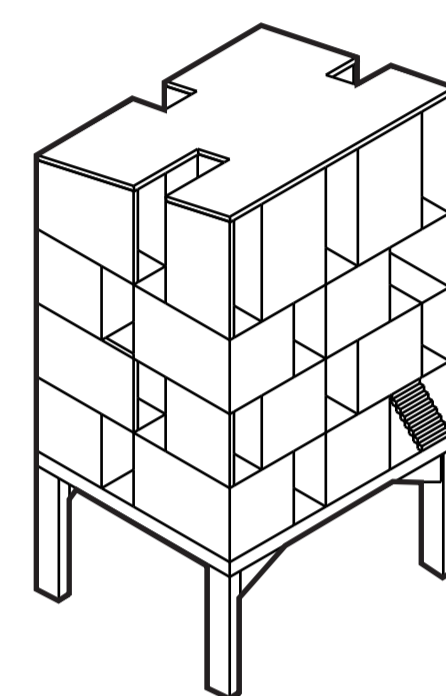
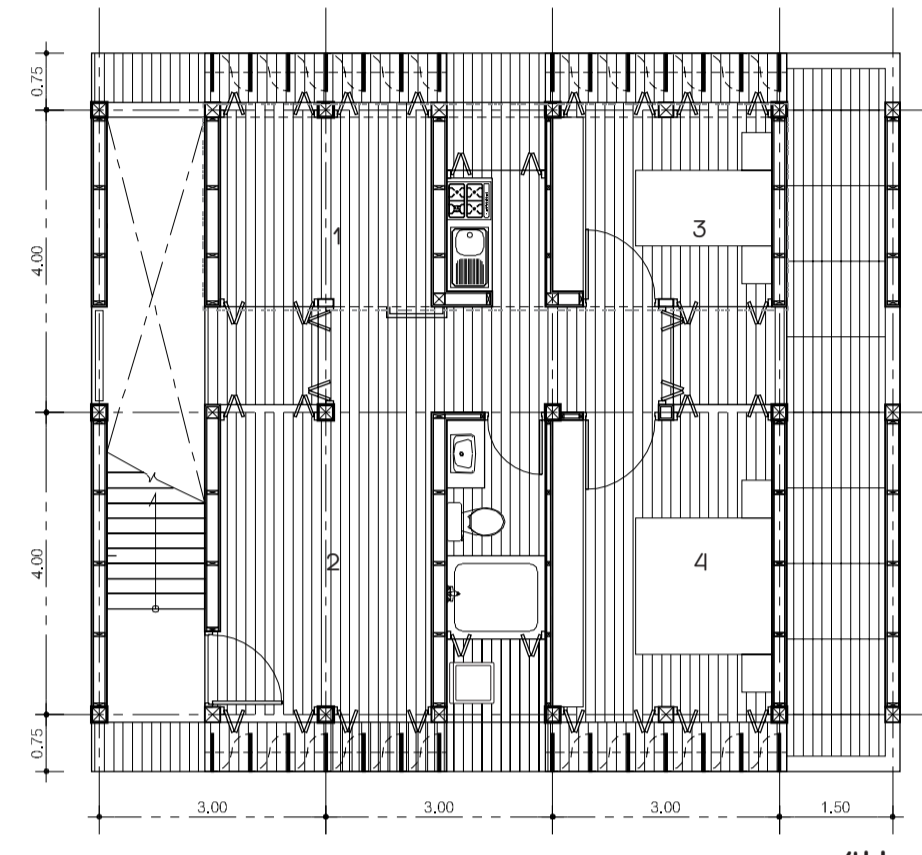
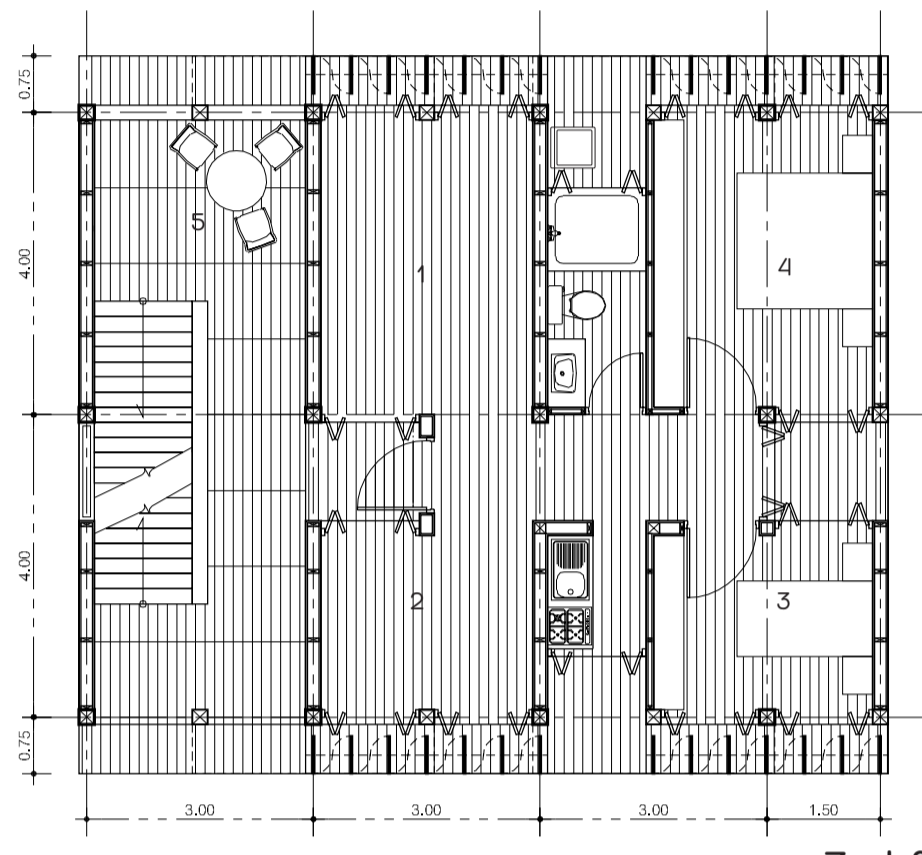
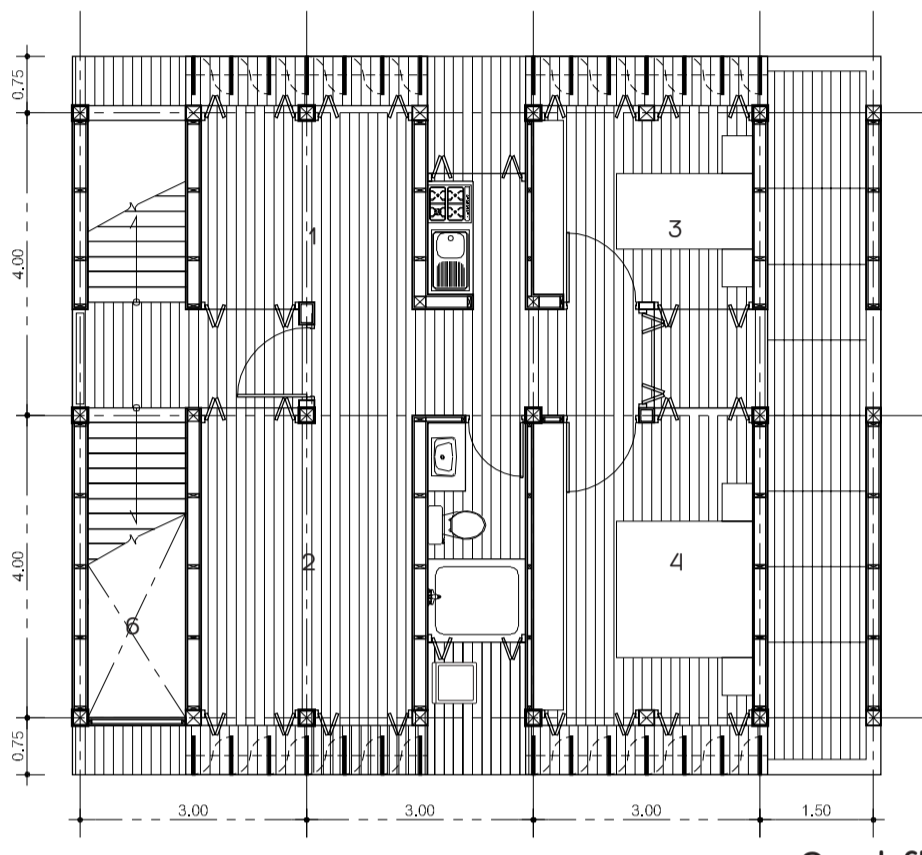
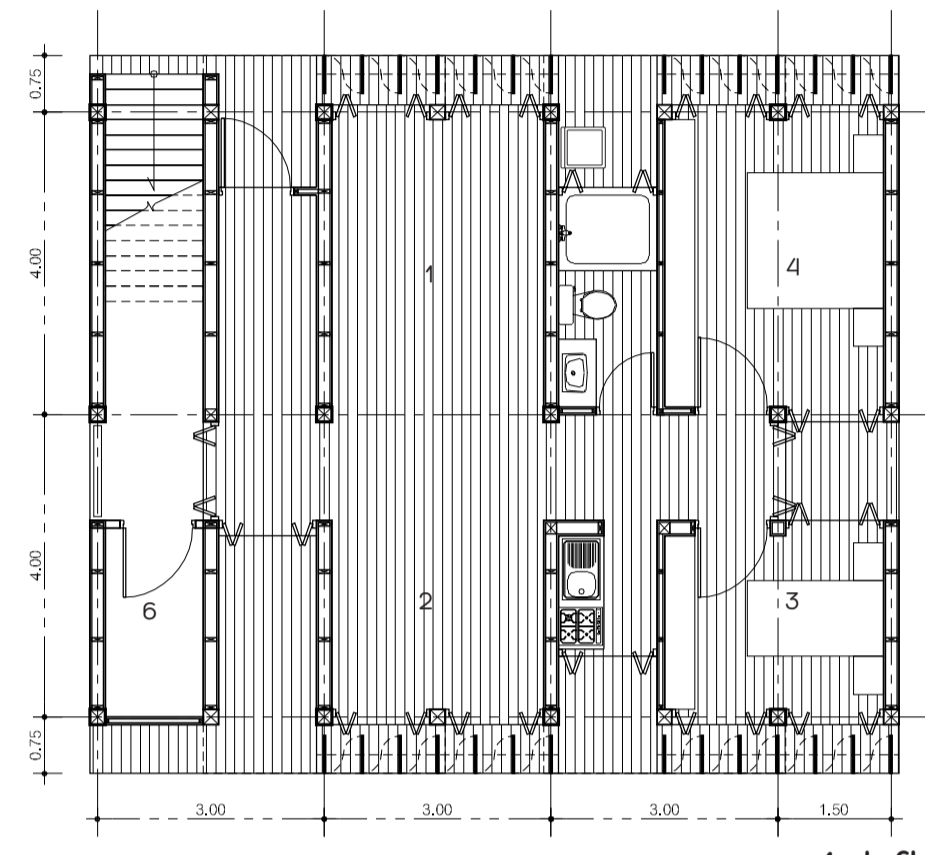


Open space

Each living unit has been shifted horizontally to create open space for inhabitant both on private scale (balcony, terrace) and public scale (public open space) depends on size of living unit. In the same time, these voids also introduce natural light and benefit from natural ventilation in order to minimize energy consumption.

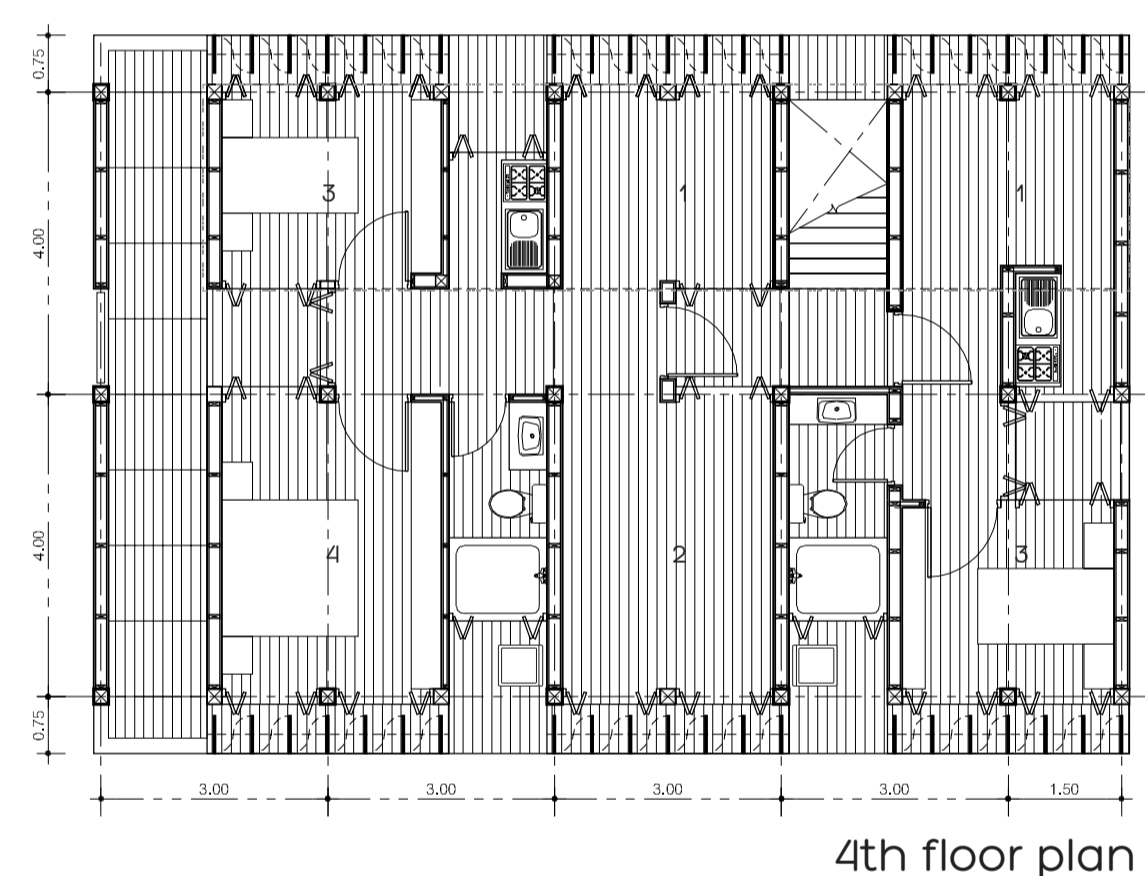
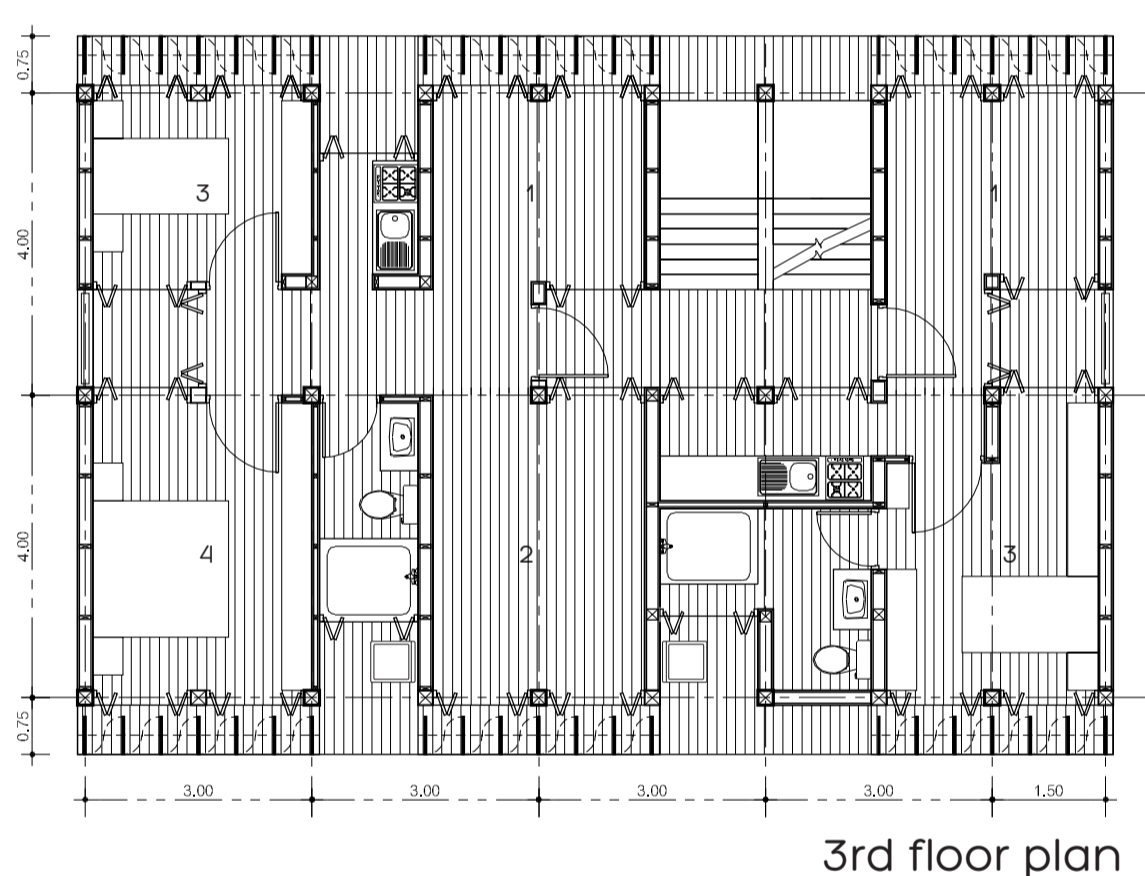
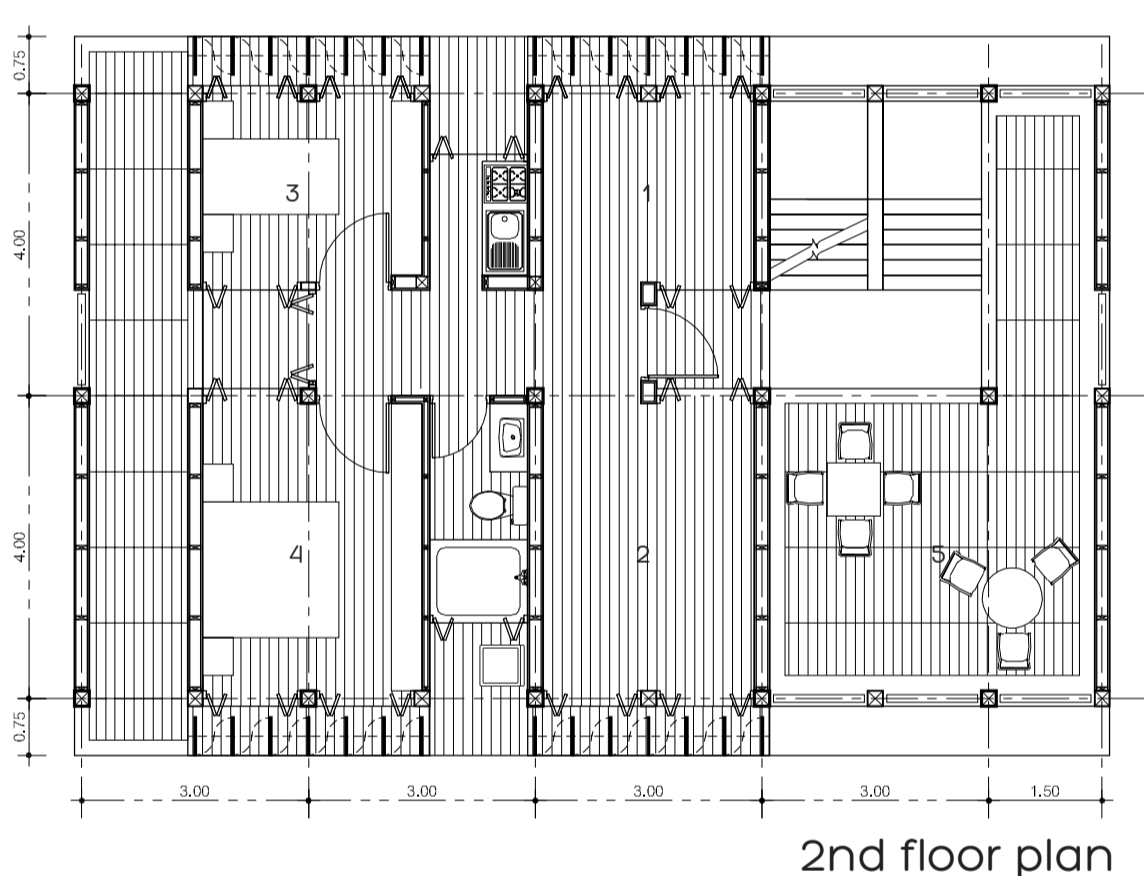
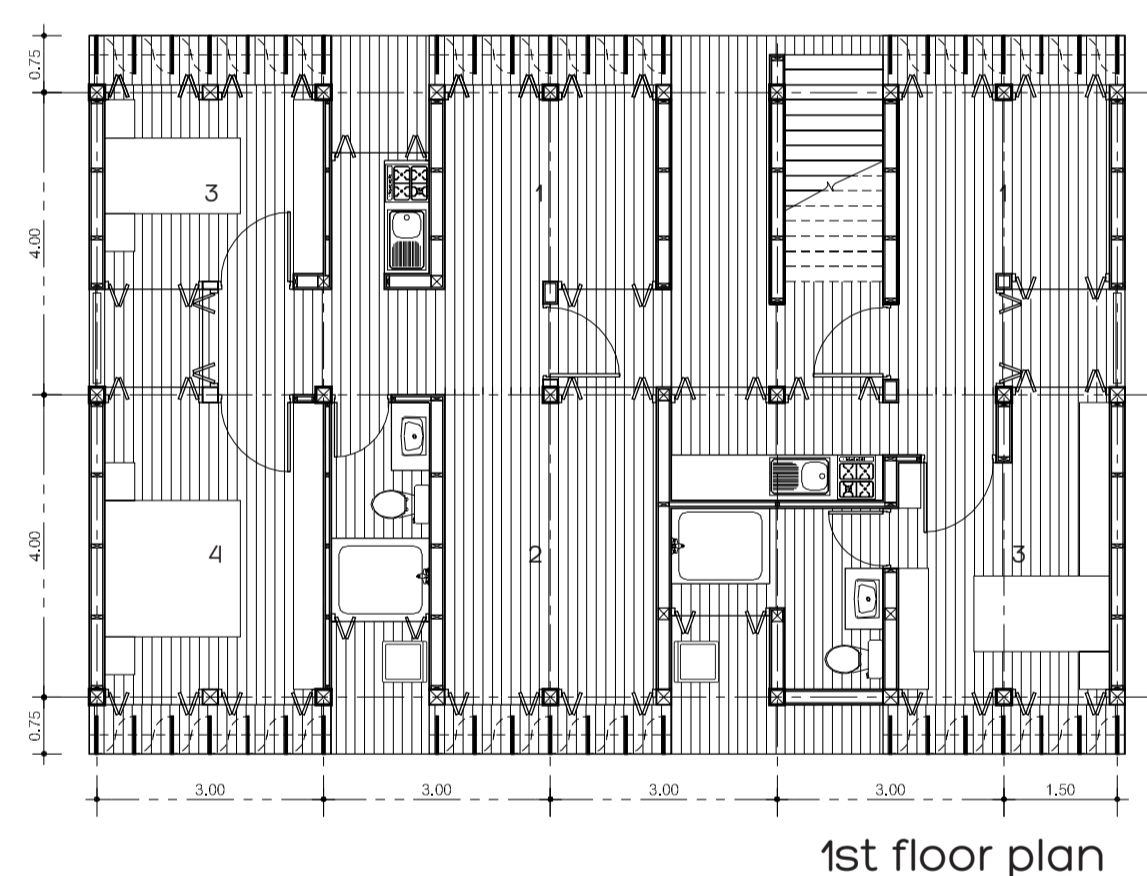


- 1 living area
- 2 multi-purpose (future expansion)
- 3 bedroom
- 4 master bedroom
- 5 public open space
- 6 service/storage
- mezzanine above



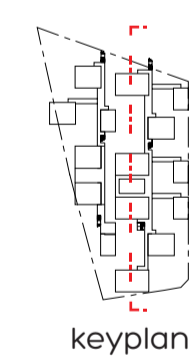
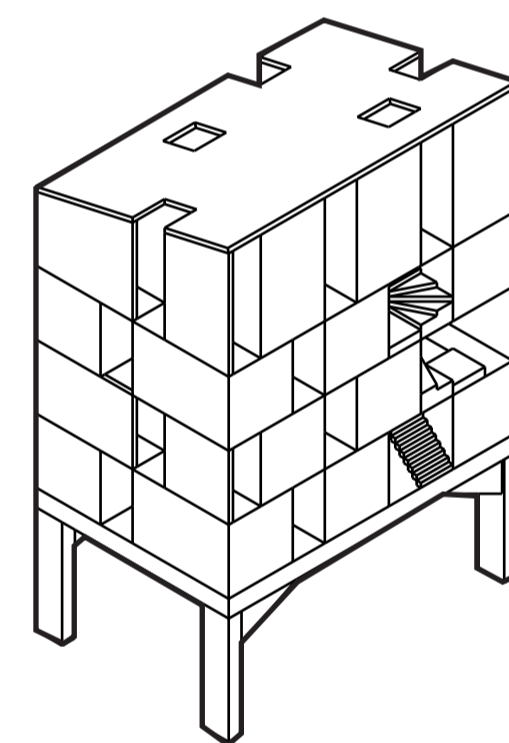
Medium modular

2 bedrooms (extendable to 3)

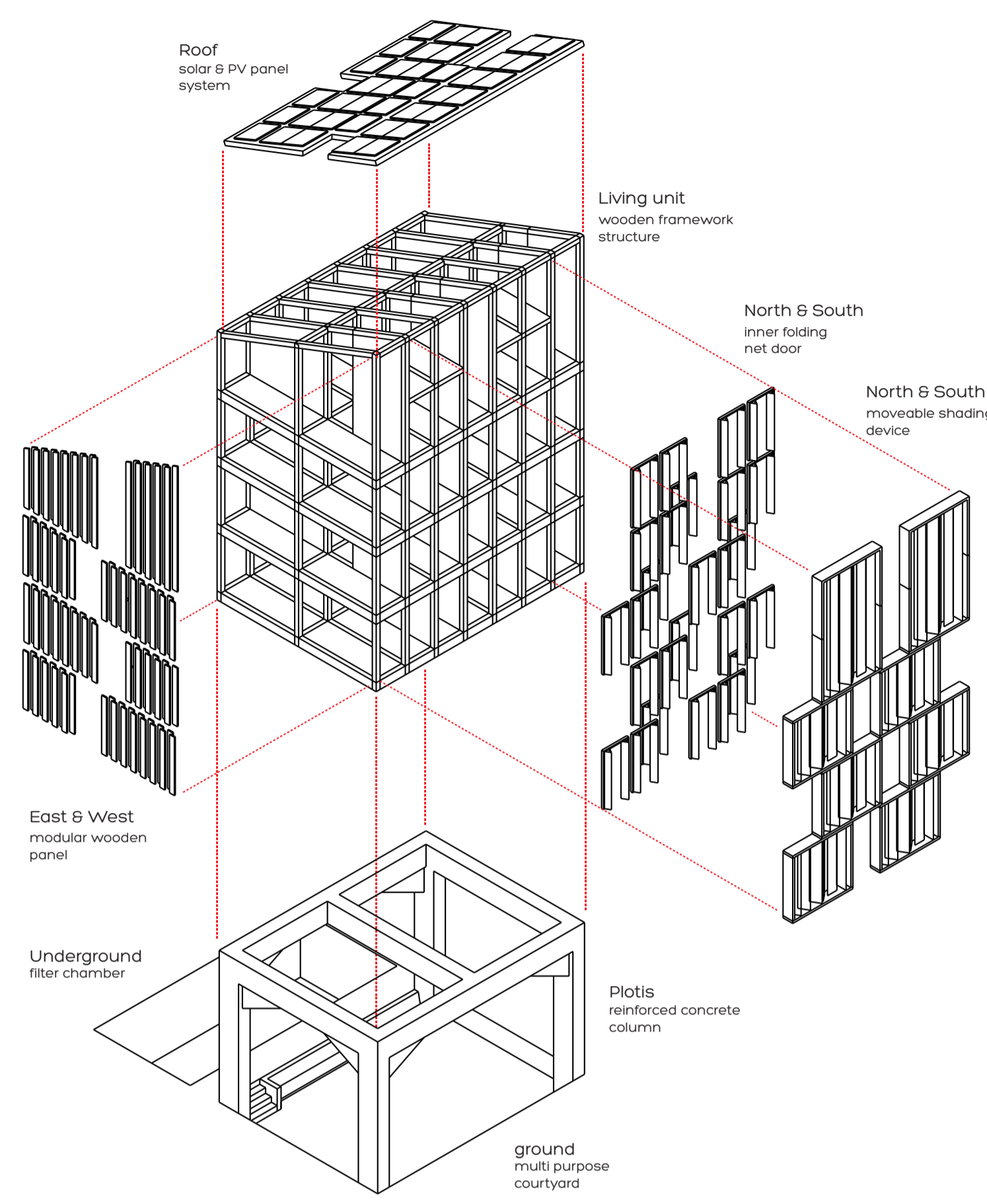
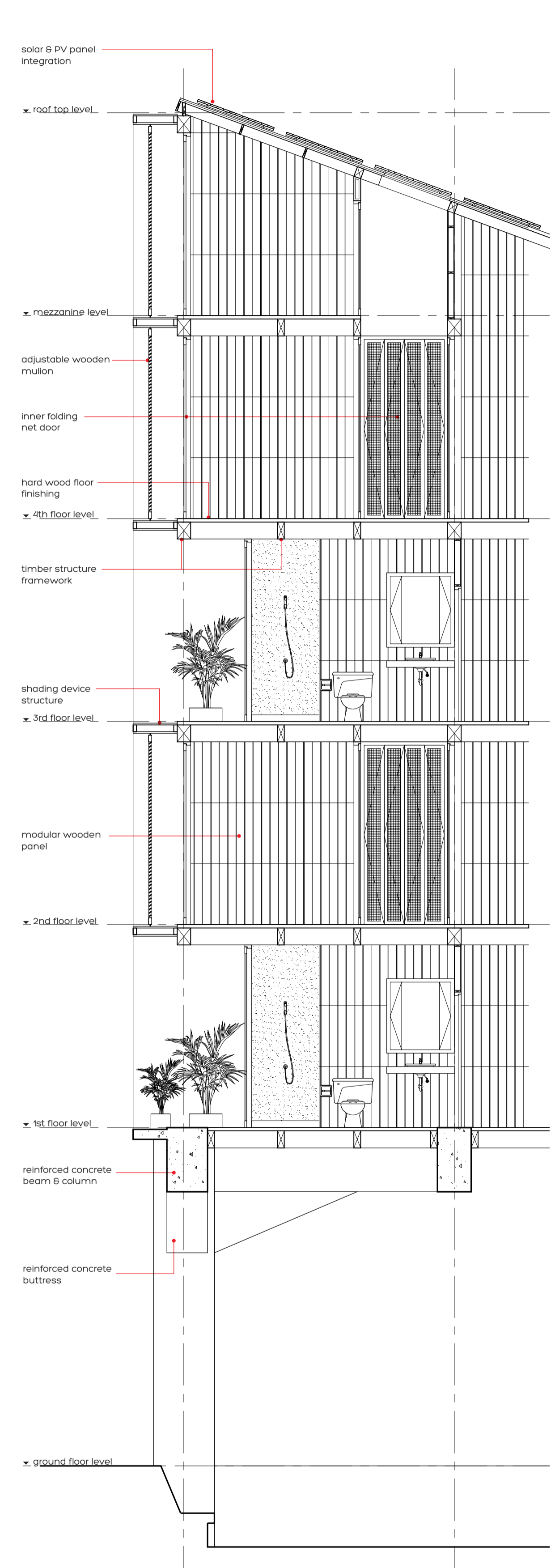


Large modular

3 bedrooms (extendable to 4)



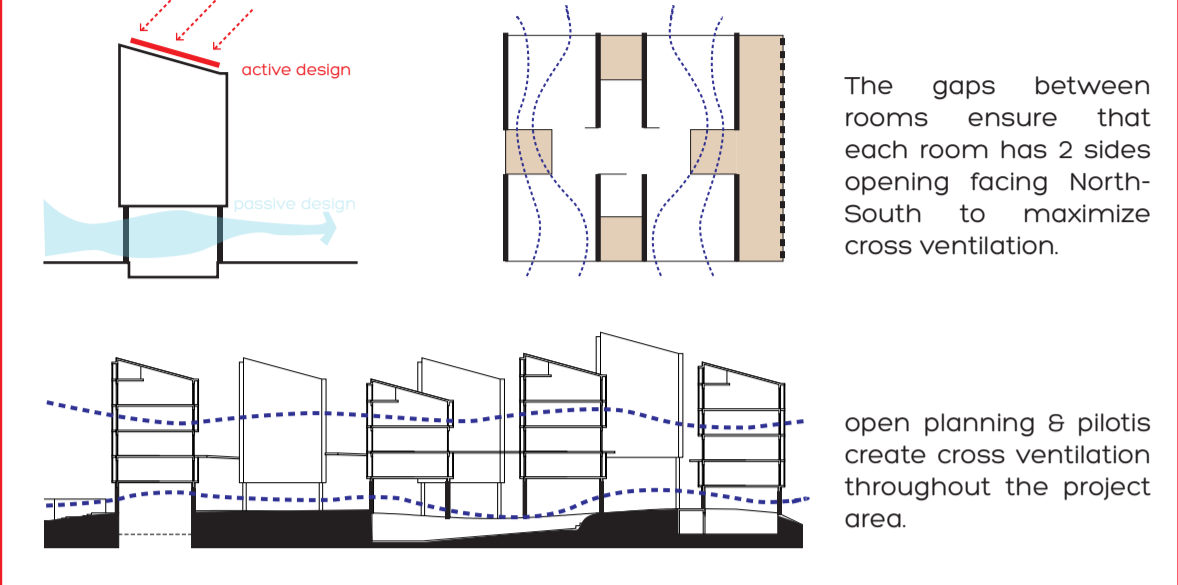
Longitudinal section scale 1:200



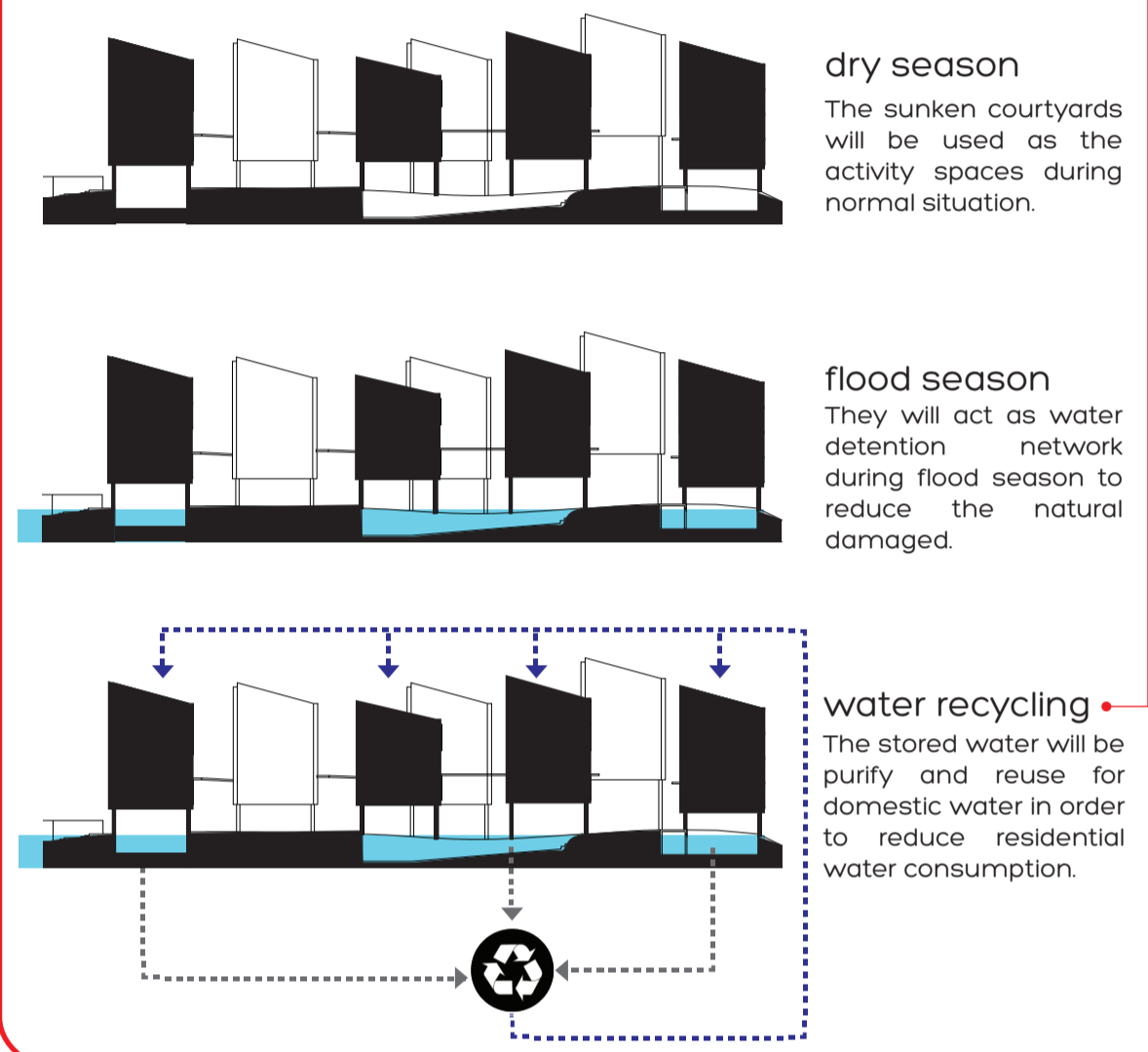
Wall section
scale 1:50

Project is located in hot humid climate zone. Therefore, heating protection and natural ventilation are the main keys to achieve comfort design. The design is combining both passive design strategy (building orientation, open planning and solid facade) and Active design strategy (shading device & solar panel).

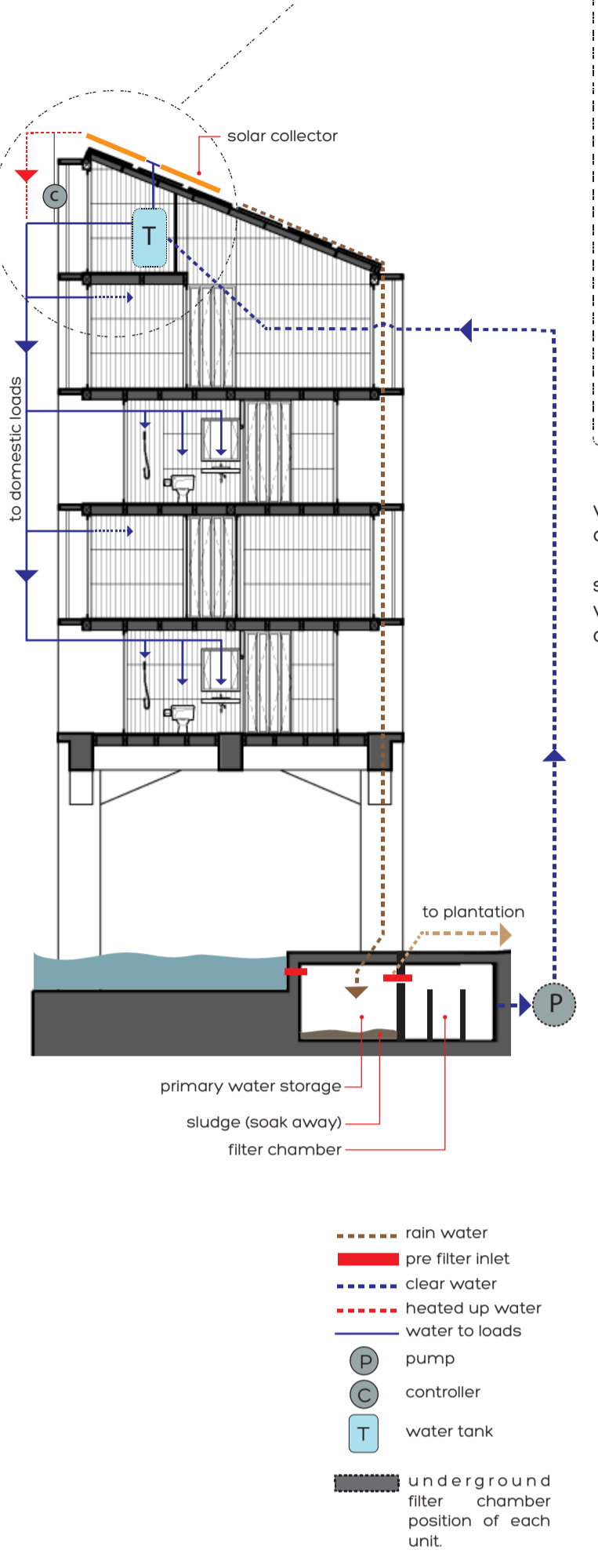
Natural ventilation



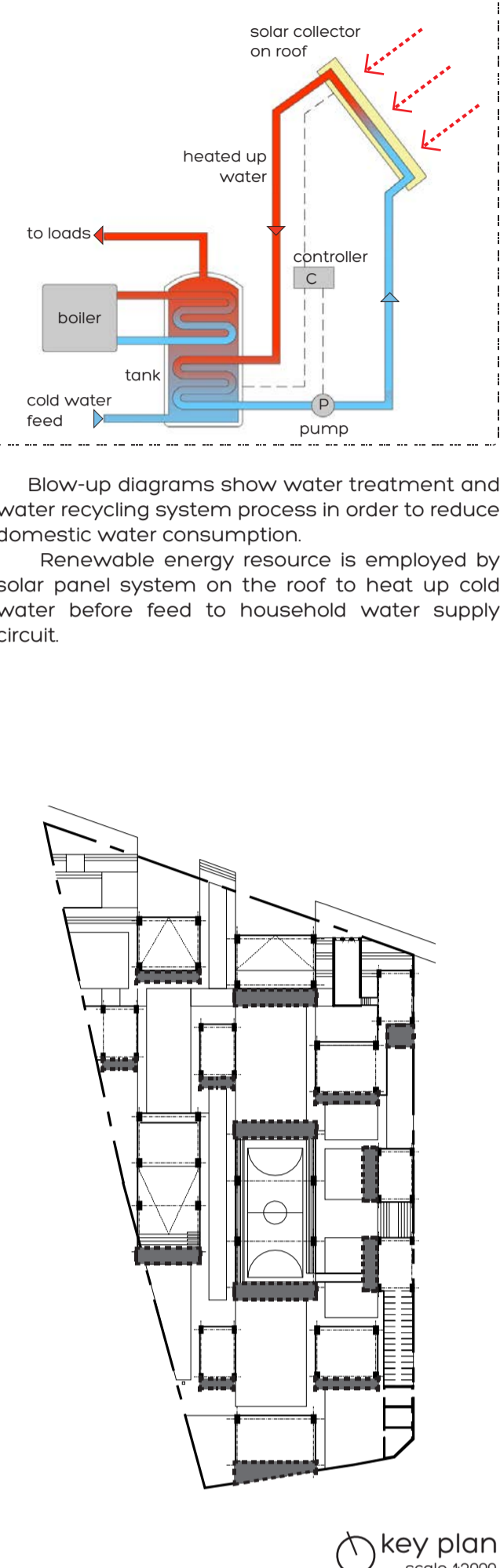
Water management



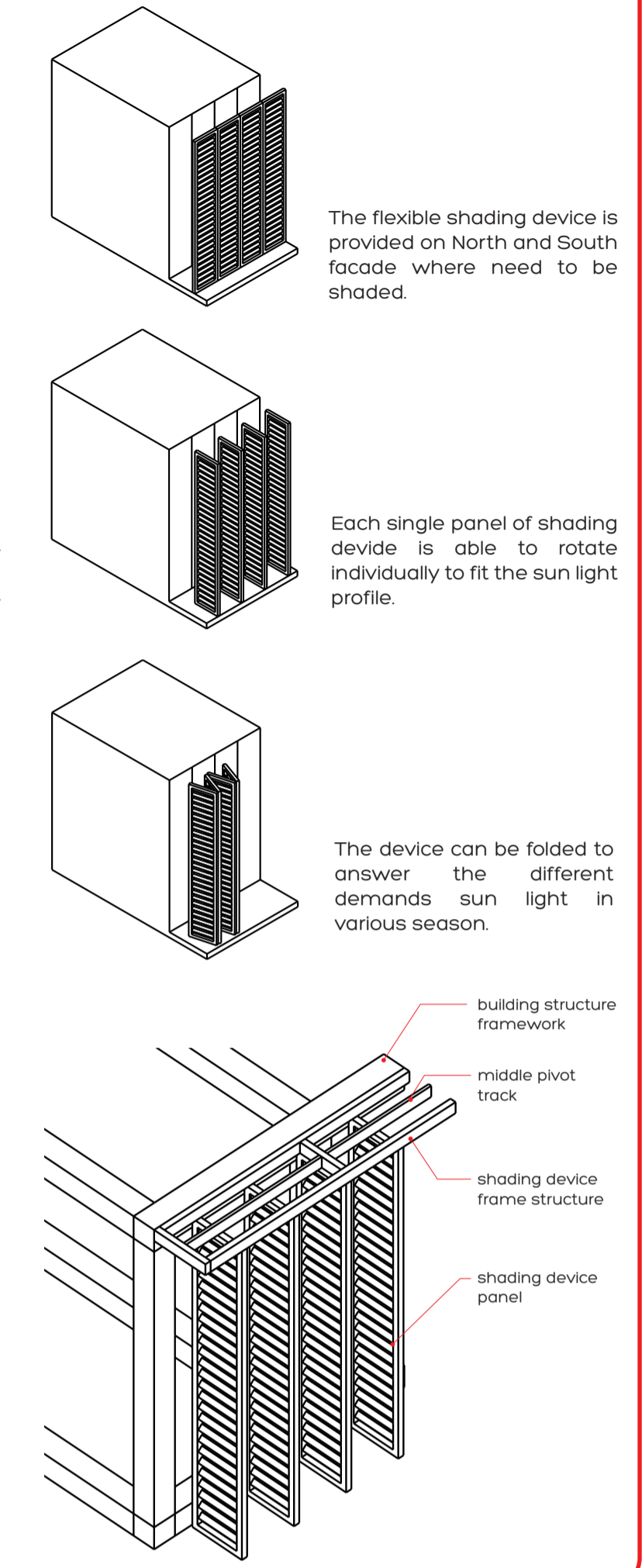
Water recycling diagram



Solar water heating diagram



Shading device



1st floor terrace



view from canal