



KAMPONG THE NEXT LEVEL

Context

Location
Why?
What?

Research

Main focus
Research
Inspiration
Level up

Concept and design

Urban development
Stroke development
Structure

Impact

Other locations
Quality of life

Indonesia



Bandung



Bandung

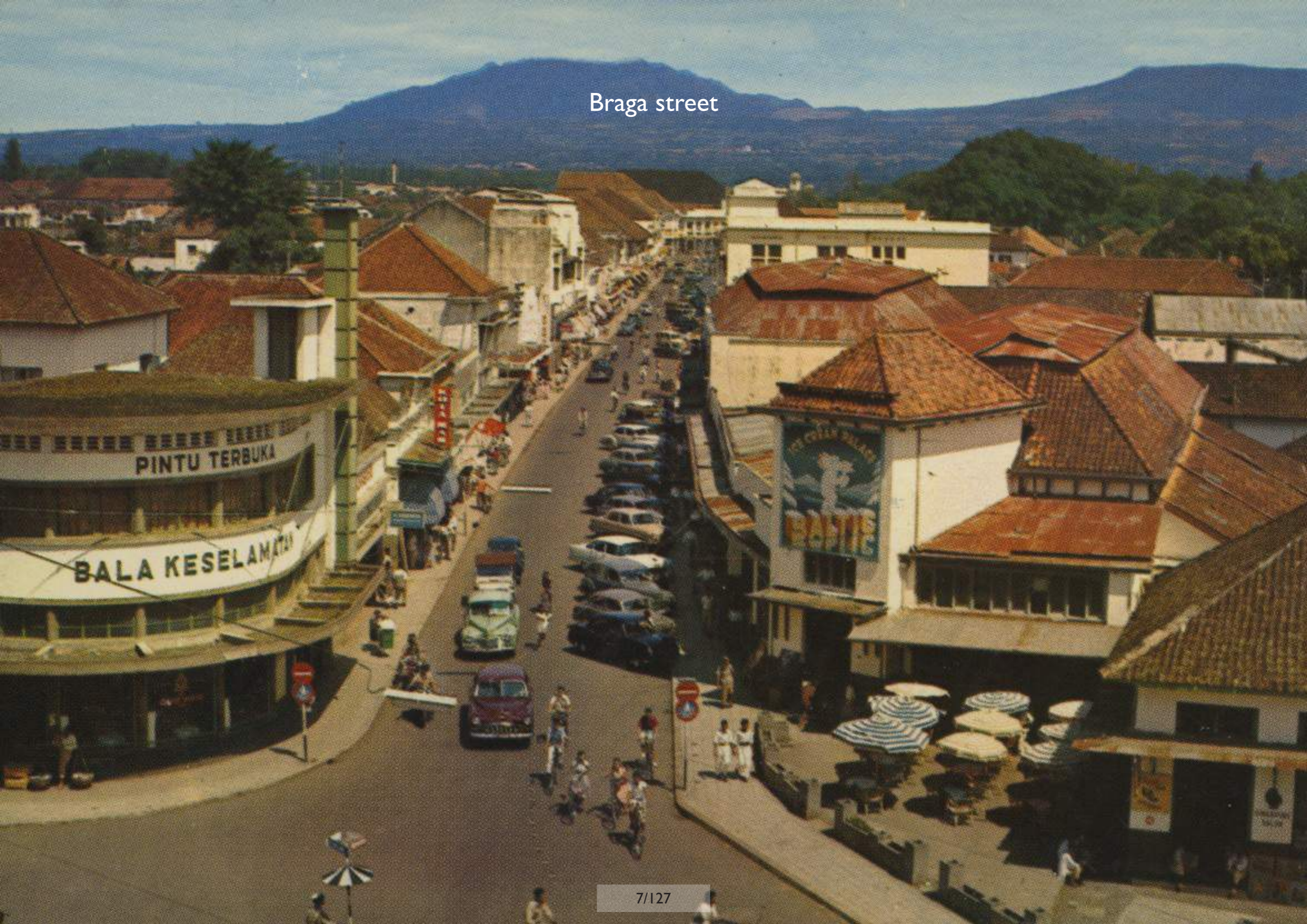
Urbanisation



Colonial city centre



Braga street



Braga street



Kampong Braga



Kampong: a collection of houses that visibly belong together surrounded by a fence.

Kampong Braga



SHARED HERITAGE

Consequence of colonial time

Materials

Urbanization





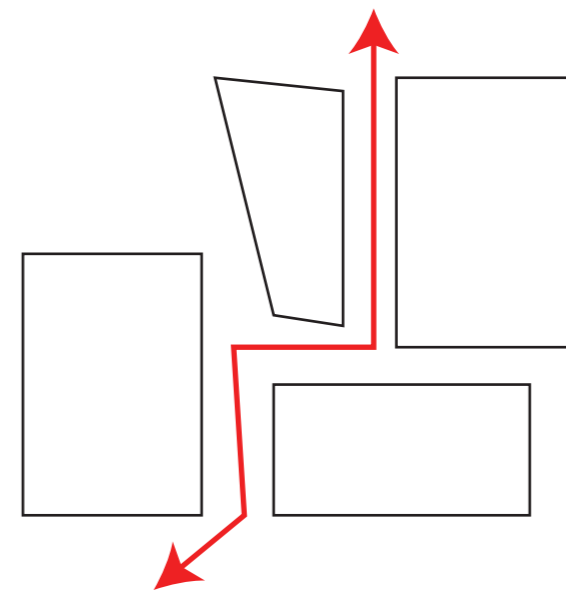
What makes the kampong a unique place which should be maintained?



Strong community

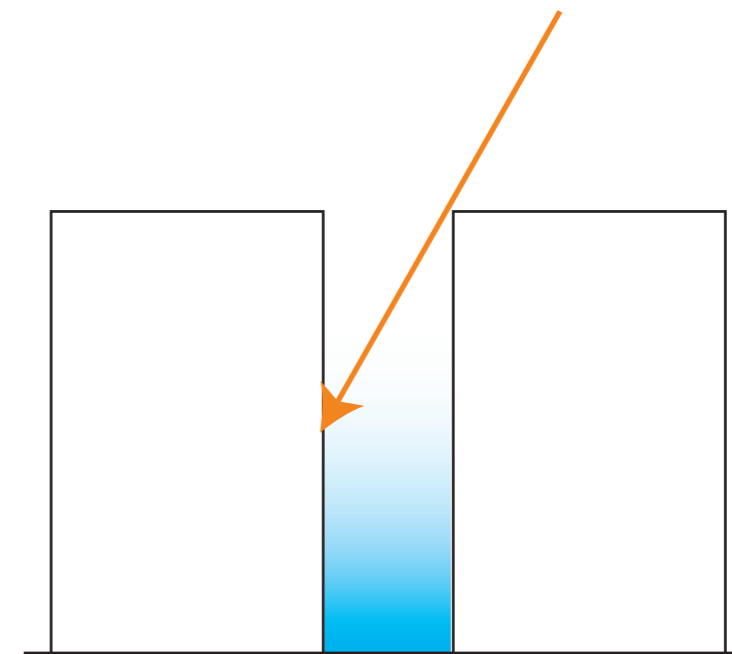


Unique atmosphere



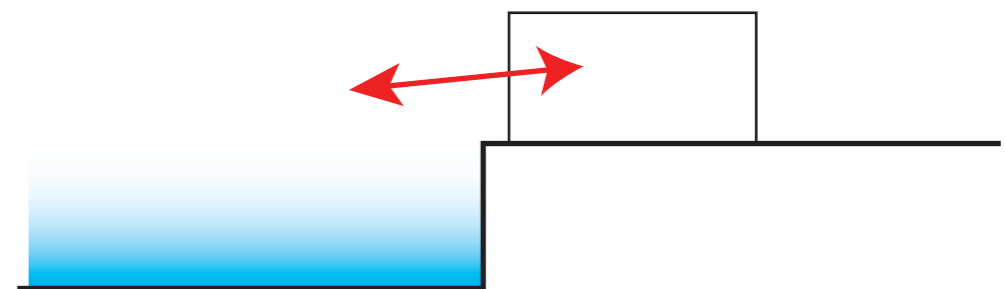



Pleasant climate





Near the river





Result of rapid urbanisation?





What has to be improved?

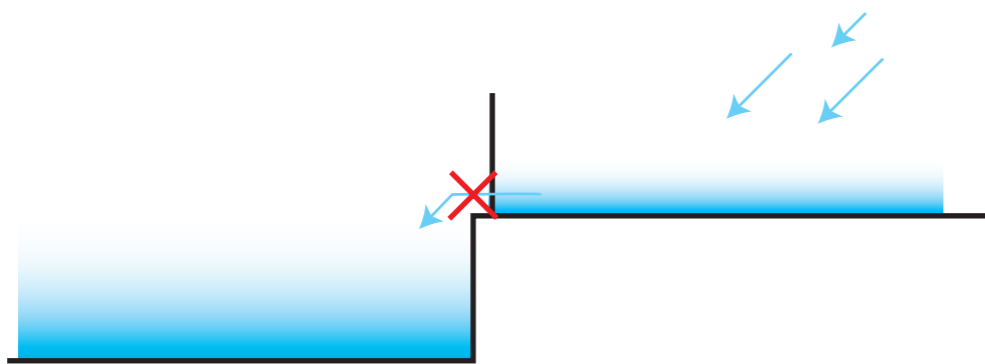
Urban

Few public spaces

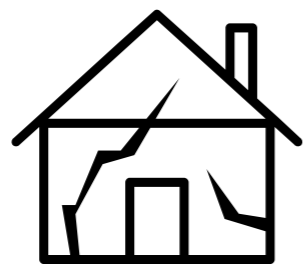


Urban

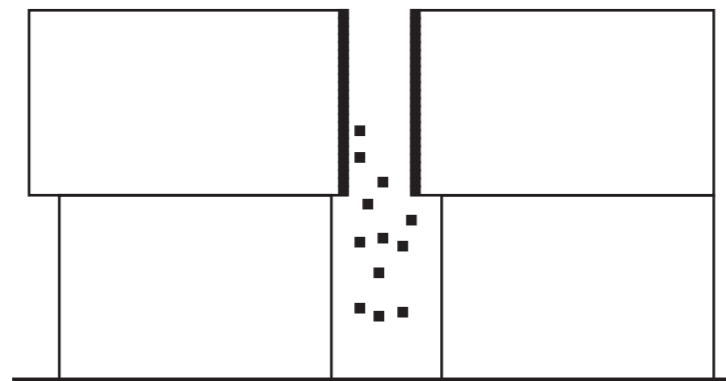
Danger of floodings



Poorly made houses



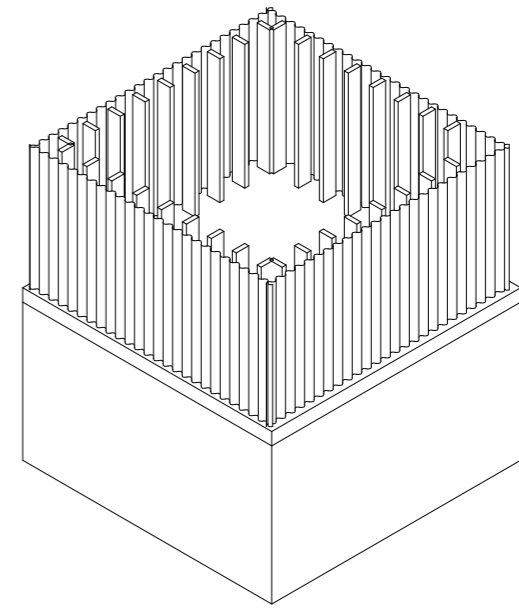
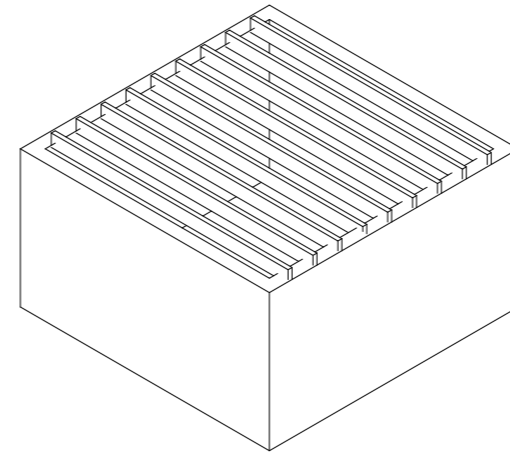
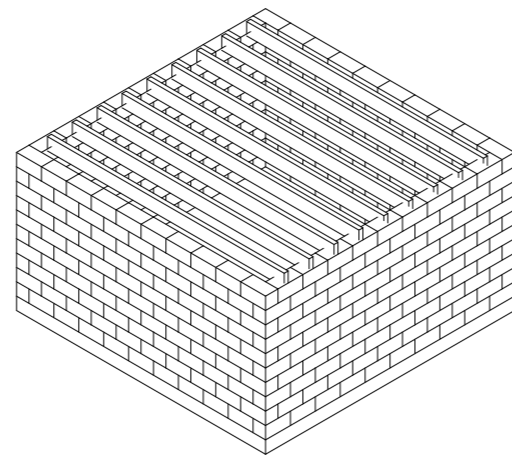
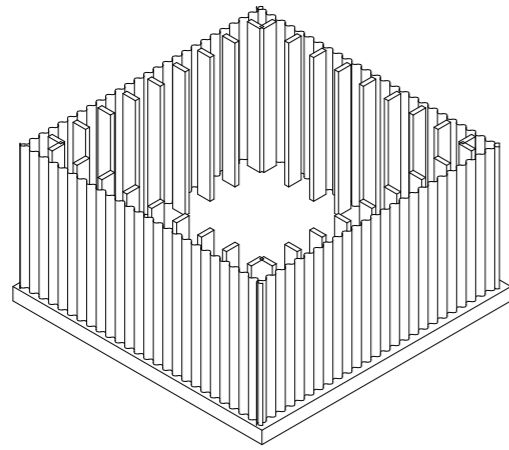
Unsafe enviroment



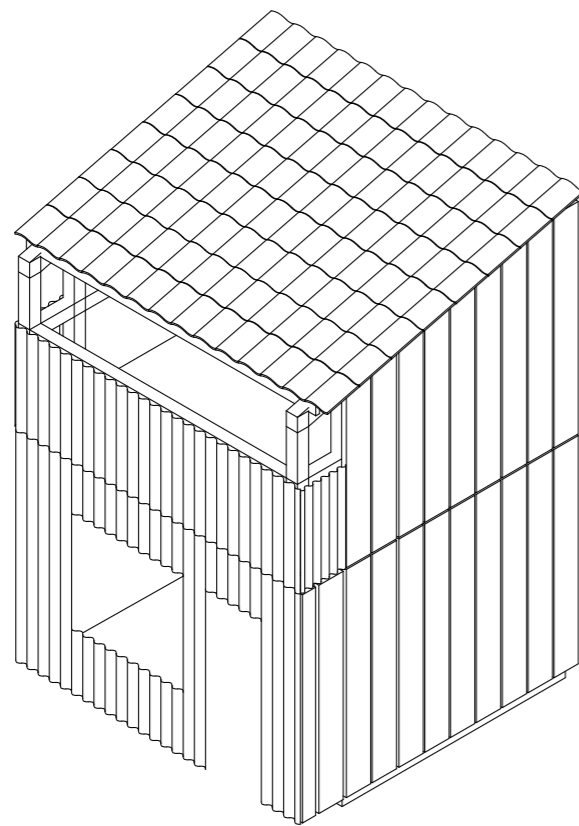


How do they build in the kampong?

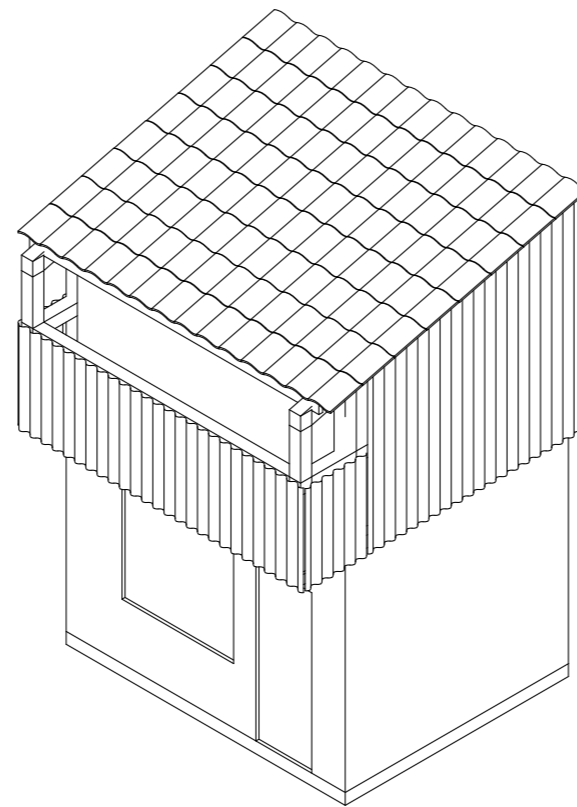
Construction



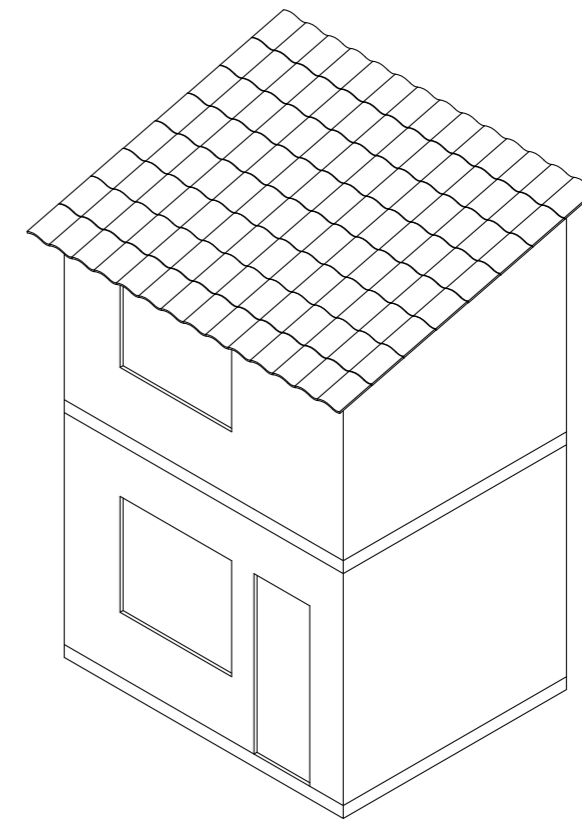
Typologies



Temporary
Timber and sheet metal

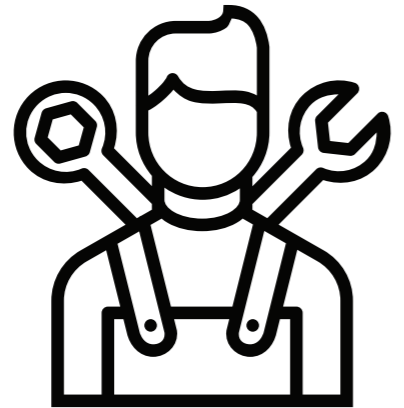


Semi-permanent
Brick/concrete base and temporary top

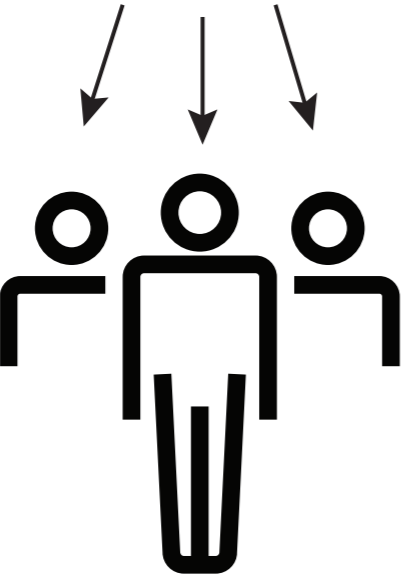


Permanent
Fully build of brick or concrete

Shop and hierachy



Tukang



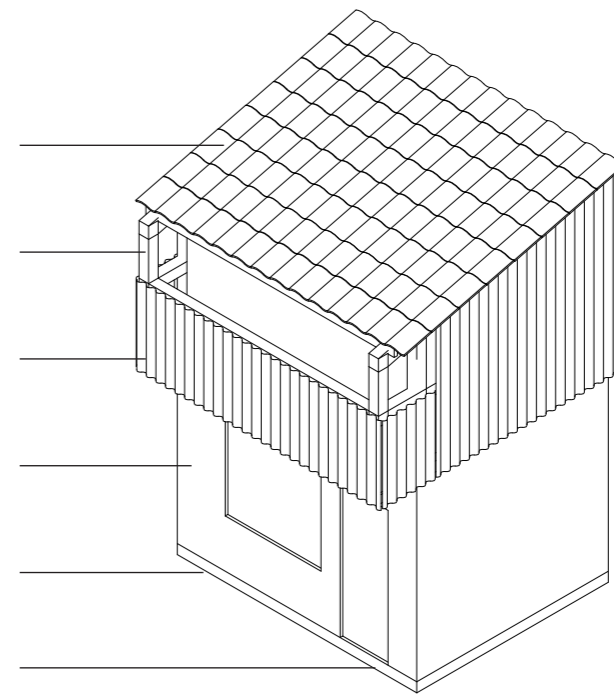
Laden





Materials used

- Roof: tiles or sheet metal
- Structure: Timber, aluminium
- Cladding: Sheet metal, plaster
- Base: Brick or Concrete
- Floor: concrete or Timber 2nd
- Foundation: Concrete



Semi-permanent
Most common type

Creativity of the kampong

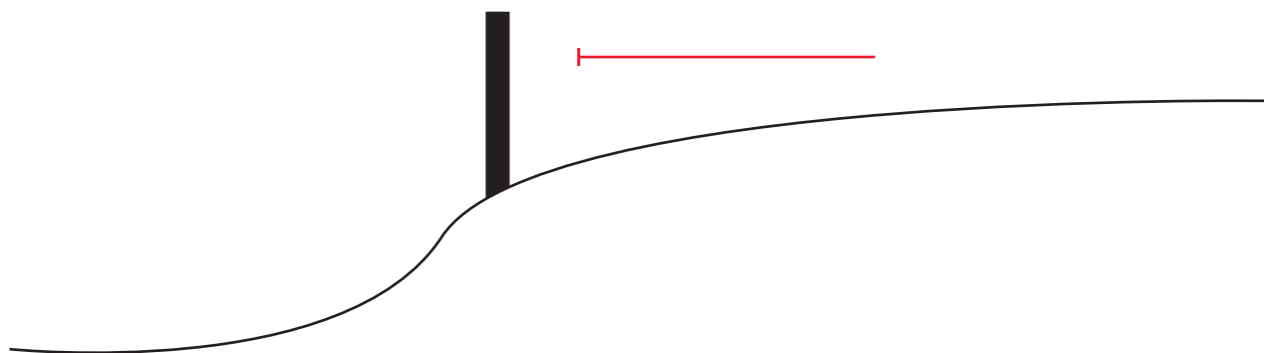


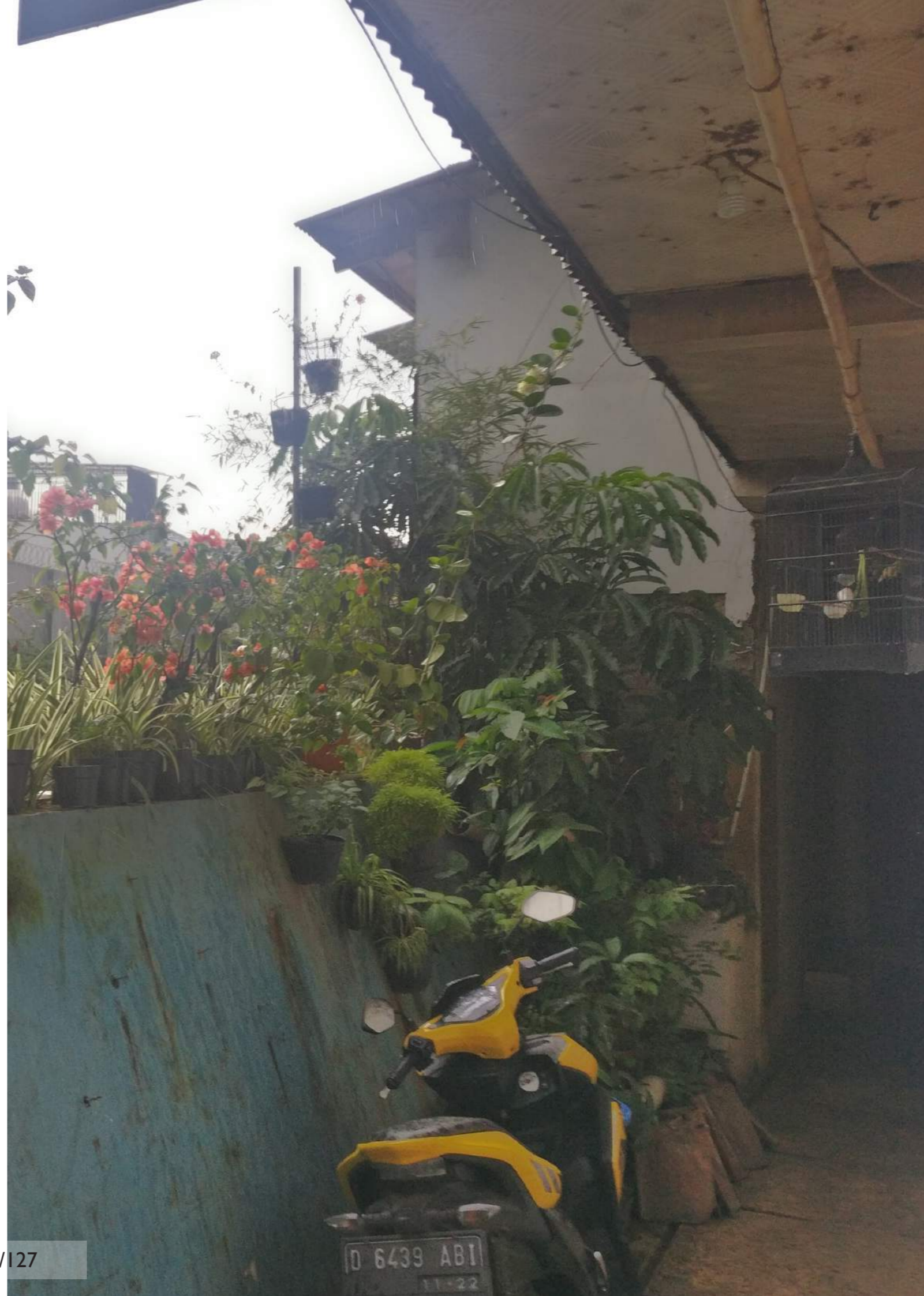
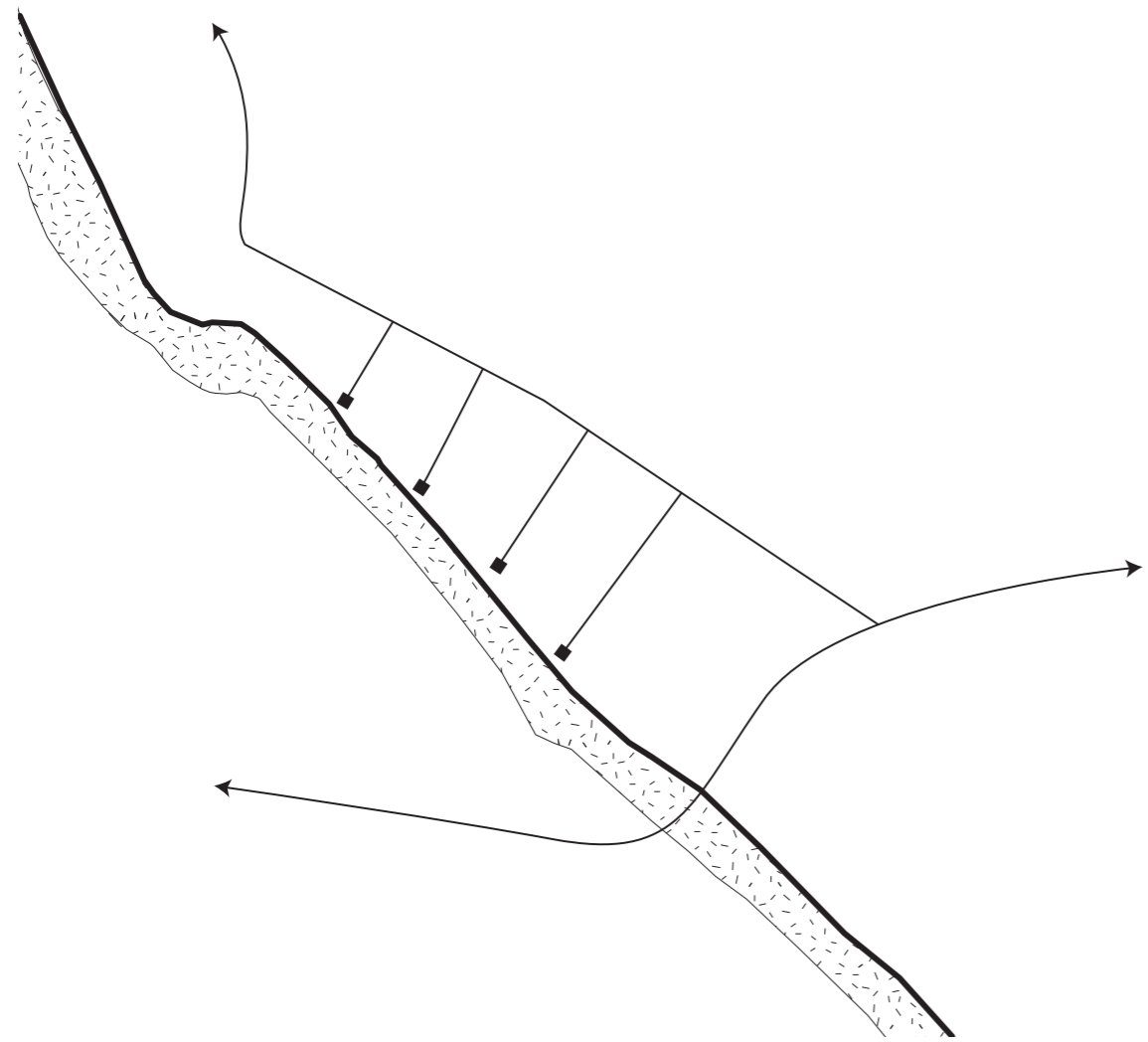


Chikapundung river



Closed to the river





Context

Location
Why?
What?

Research

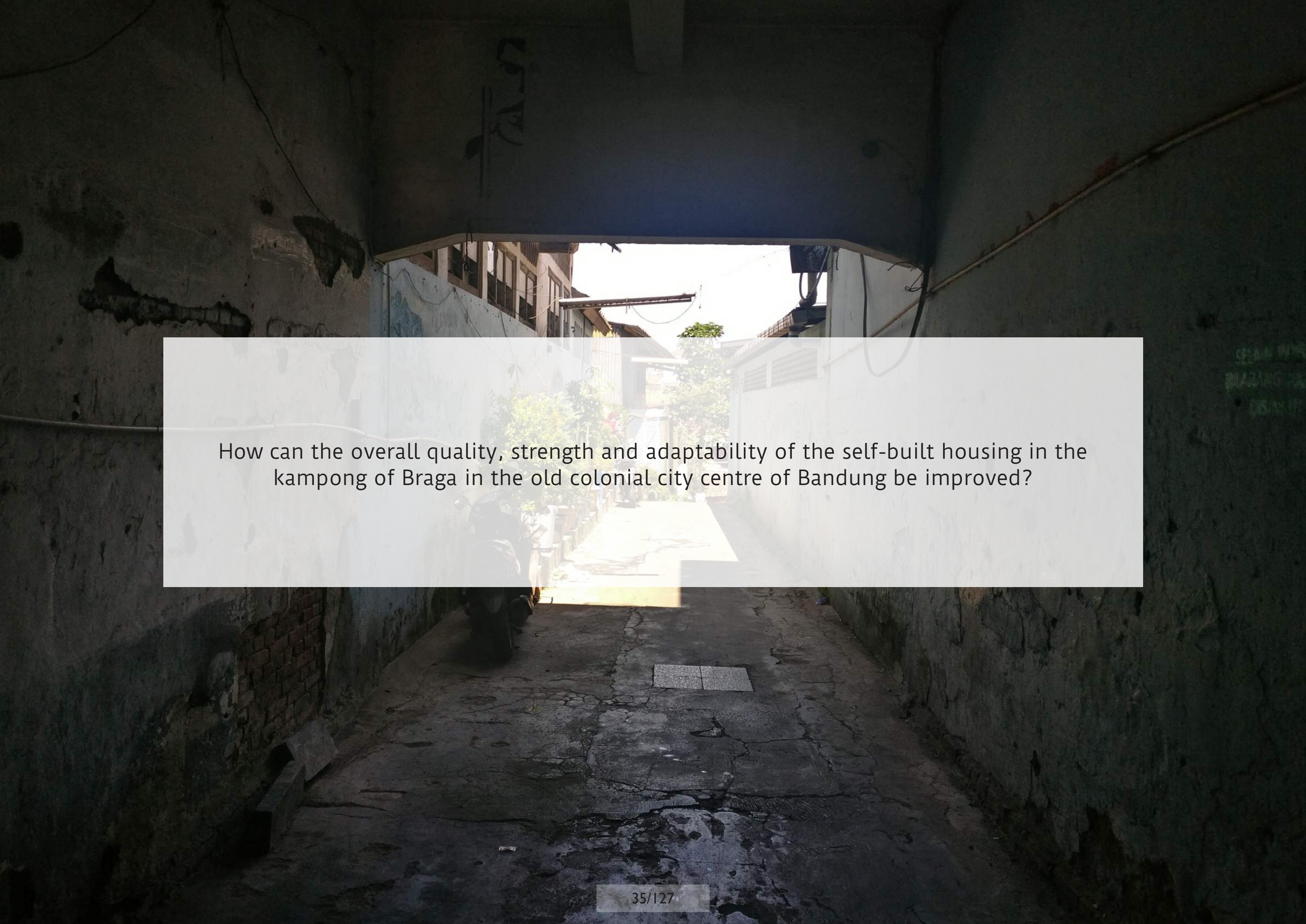
Main focus
Research
Inspiration
Level up

Concept and design

Urban development
Stroke development
Structure

Impact

Other locations
Quality of life

A photograph of a narrow, dark alleyway in a kampong in Braga, Bandung. The alleyway is flanked by old, weathered buildings with peeling paint and exposed brick. The ground is cracked and uneven. A white text box is overlaid on the center of the image, containing the text: "How can the overall quality, strength and adaptability of the self-built housing in the kampong of Braga in the old colonial city centre of Bandung be improved?".

How can the overall quality, strength and adaptability of the self-built housing in the kampong of Braga in the old colonial city centre of Bandung be improved?

Research methodology

Context



Technology

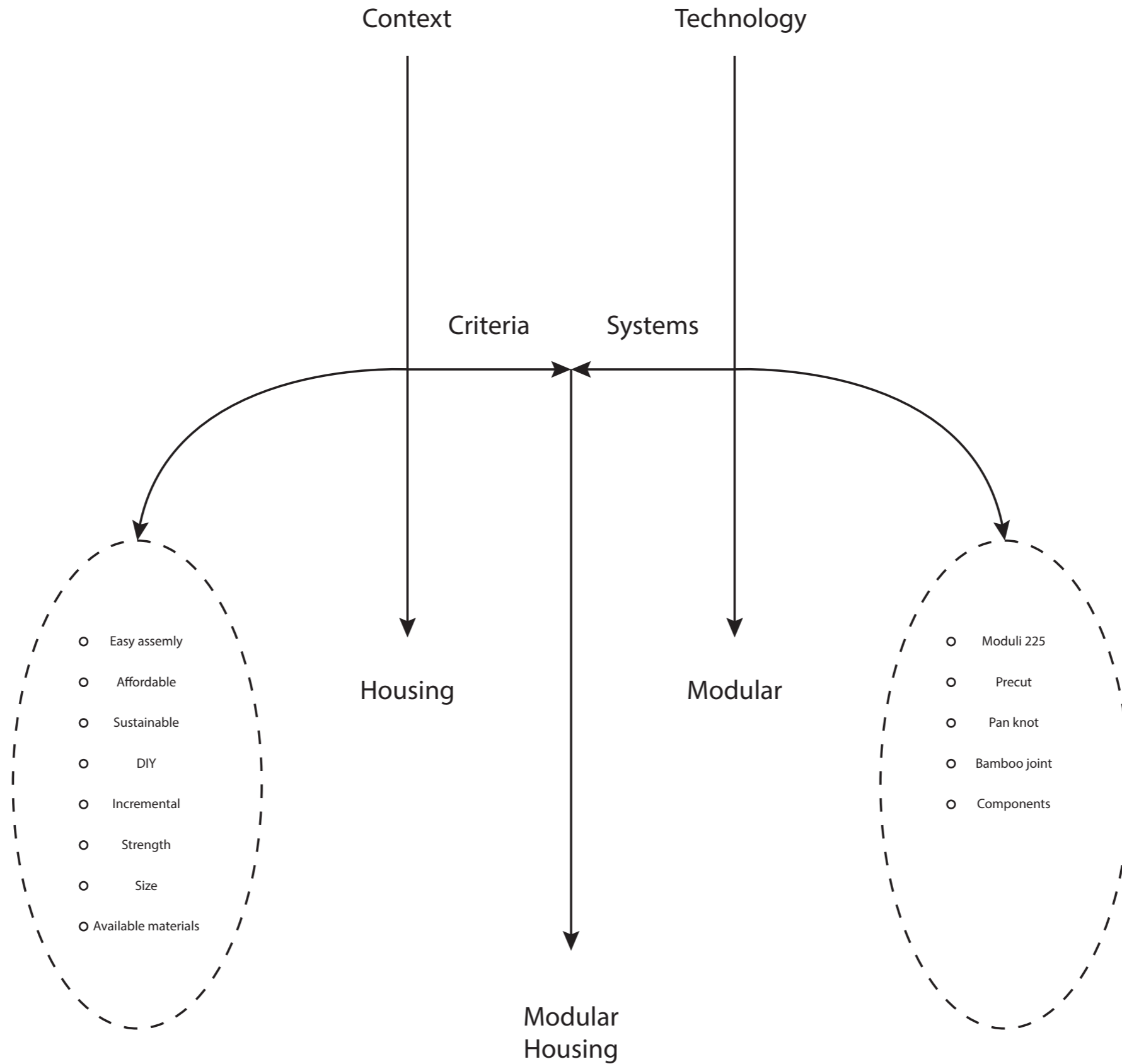


Criteria and systems

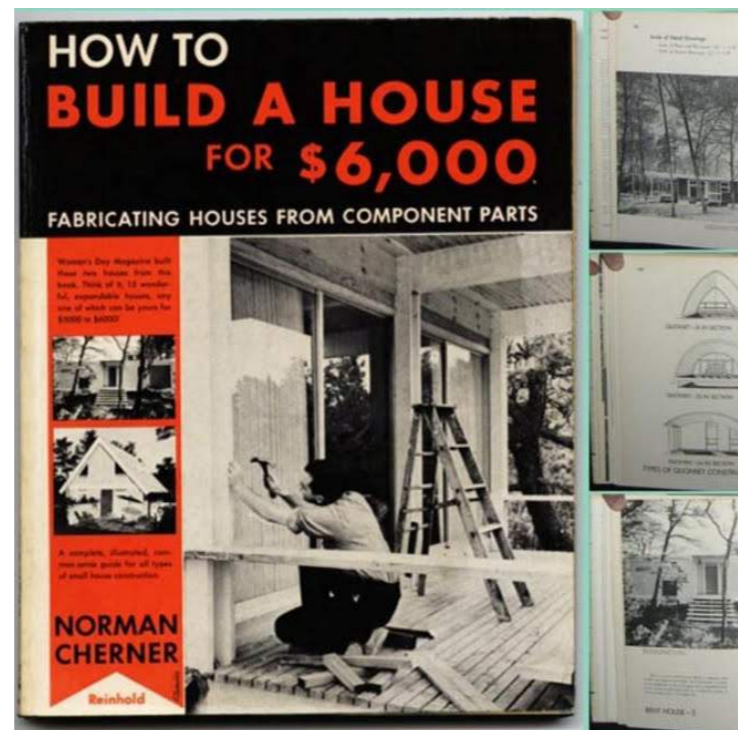
- Easy assembly
- Affordable
- Sustainable
- DIY
- Incremental
- Strength
- Size
- Available materials

- Moduli 225
- Precut
- Pan knot
- Bamboo joint
- Components

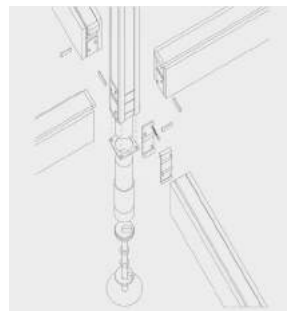
Research methodology



Modular systems



Design matrix



	Japan prefabricated Pre-cut	Moduli 225	Pan-knot	Bamboo modular joint	Pre-built house of 6000\$
Material joint connection					
Connection to existing					
Incremental upgradability					
Connection with infill					
Connection size	0 	10 	30 	40 	20
Expression					

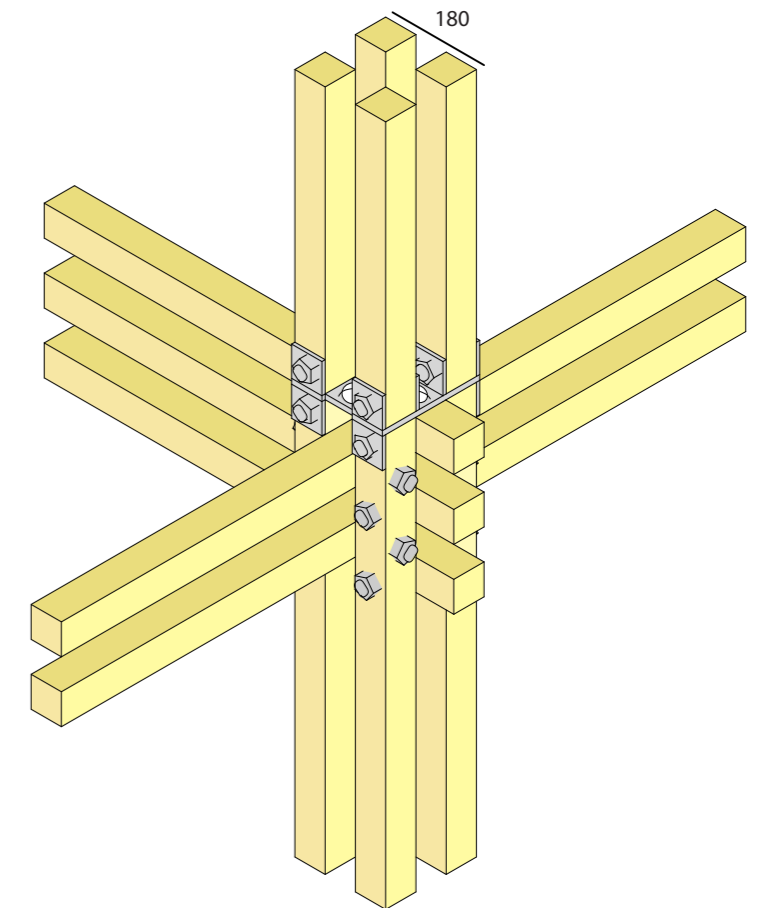
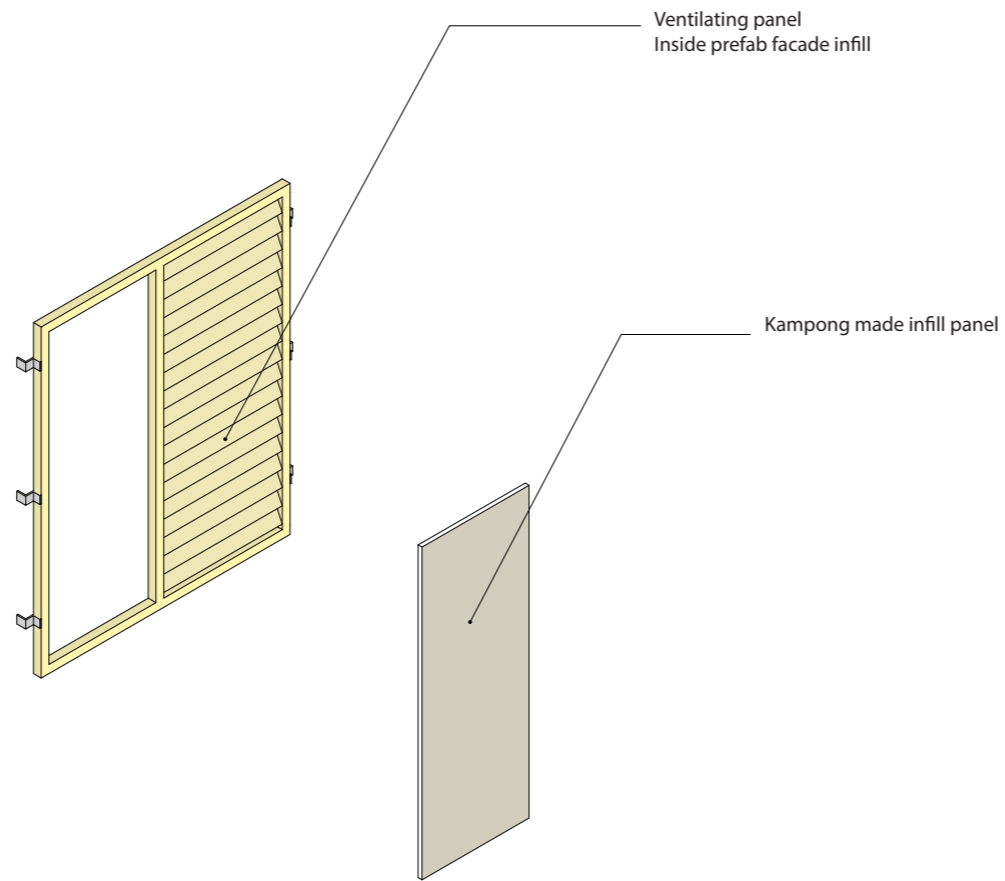
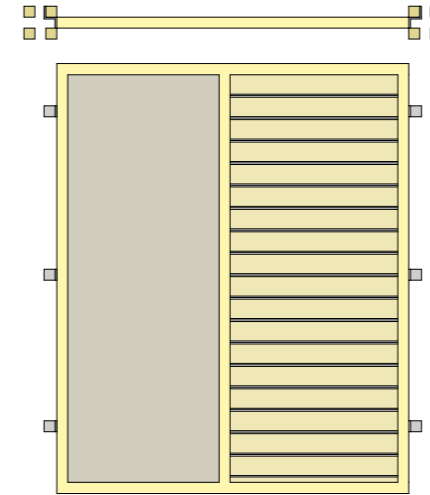
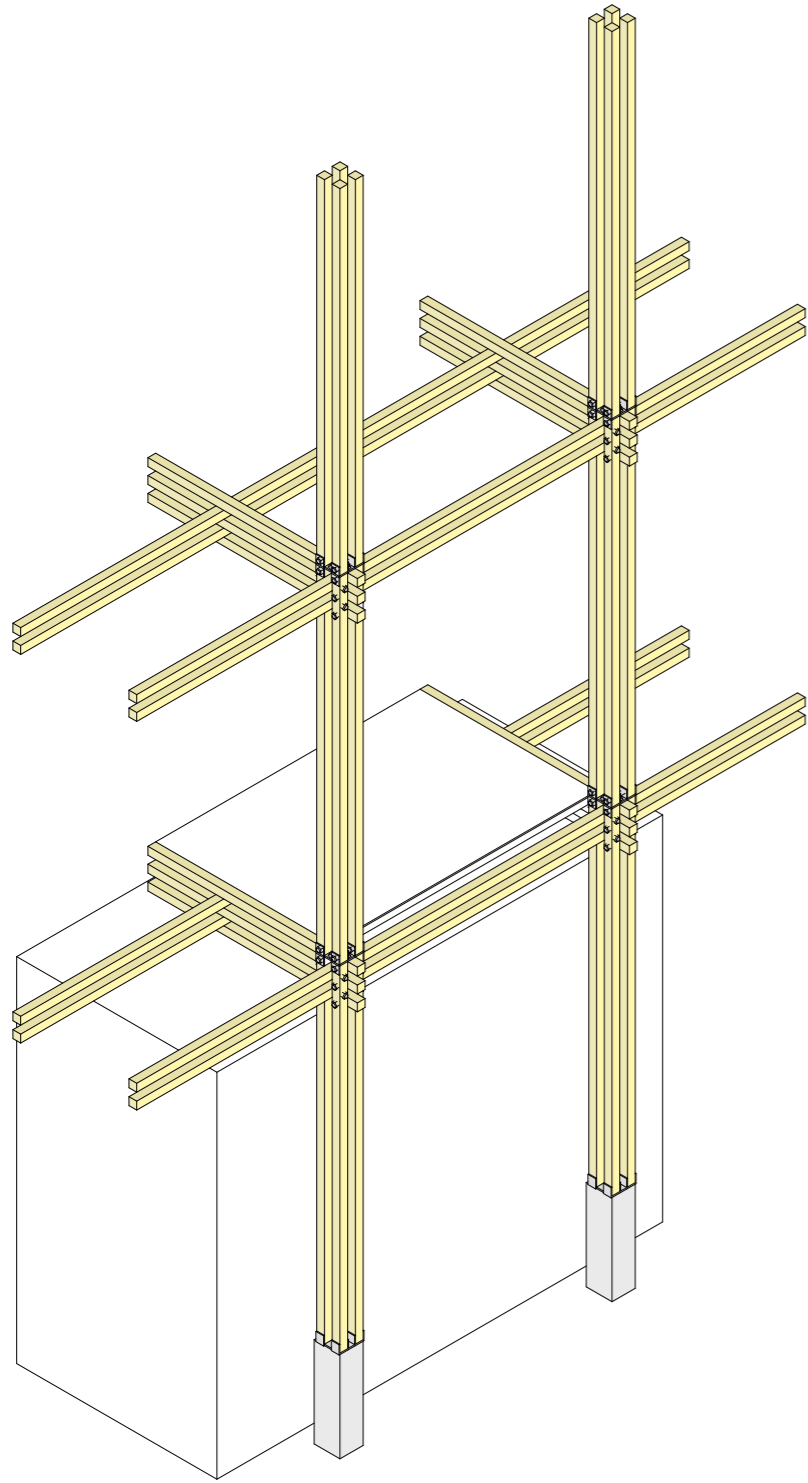
Example: adaptability

	Japan prefabricated Pre-cut	Moduli 225	Pan-knot	Bamboo modular joint	Pre-built house of 6000\$
Material joint connection					
Connection to existing					
Incremental upgradability					
Connection with infill					
Connection size	0 	10 	30 	40 	20
Expression					

Example: affordability

	Japan prefabricated Pre-cut	Moduli 225	Pan-knot	Bamboo modular joint	Pre-built house of 6000\$
Material joint connection					
Connection to existing					
Incremental upgradability					
Connection with infill					
Connection size	0 	10 	30 	40 	20
Expression					

Result modular joint



Why lightweight structure?

Movable through alleys

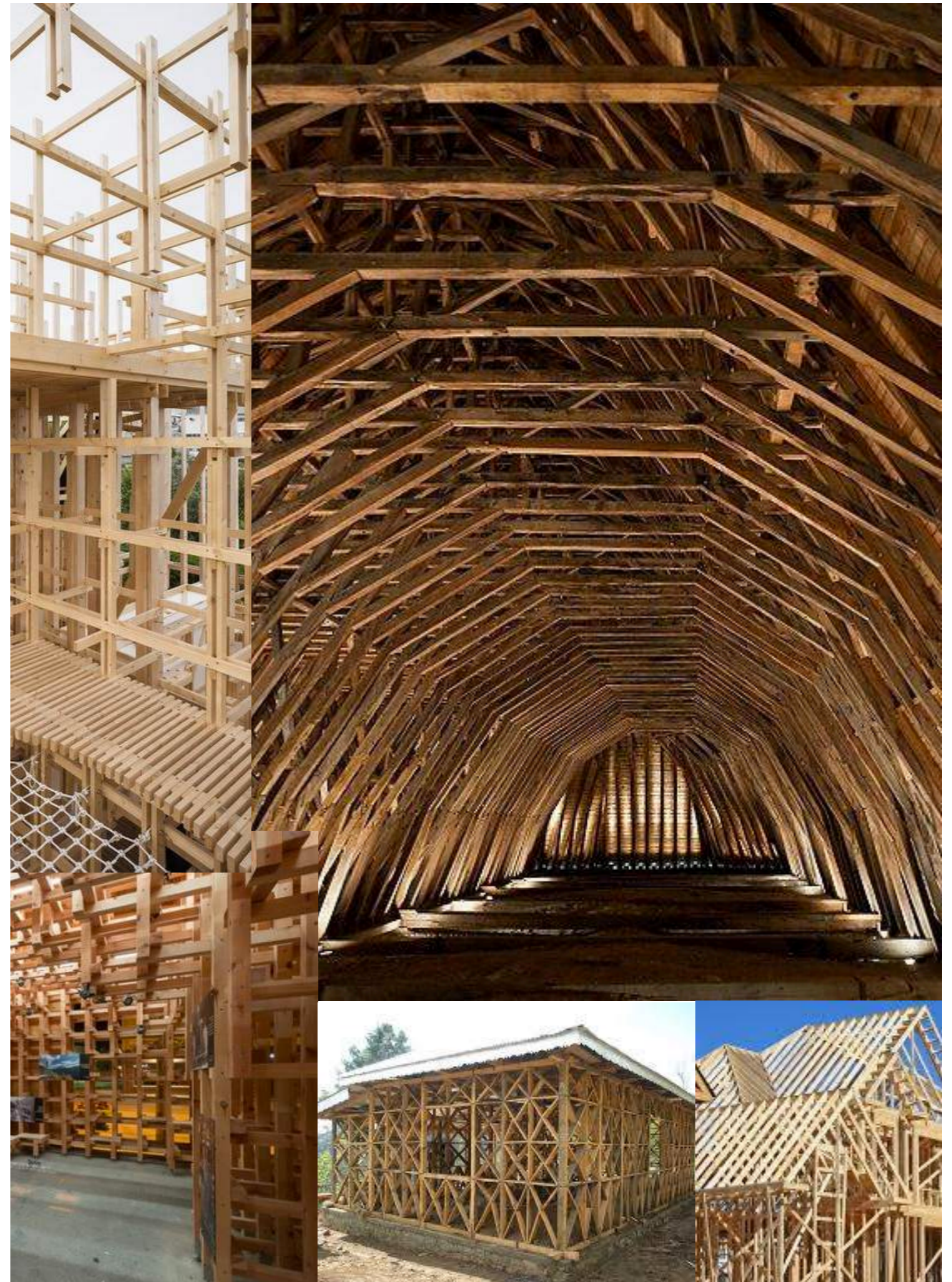
No heavy tools needed

Economical

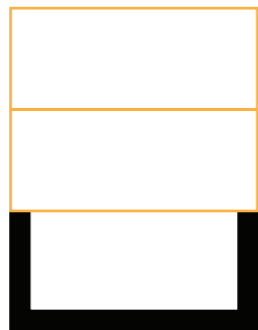
Efficient with materials

Better for seismic tremors

Re-useable

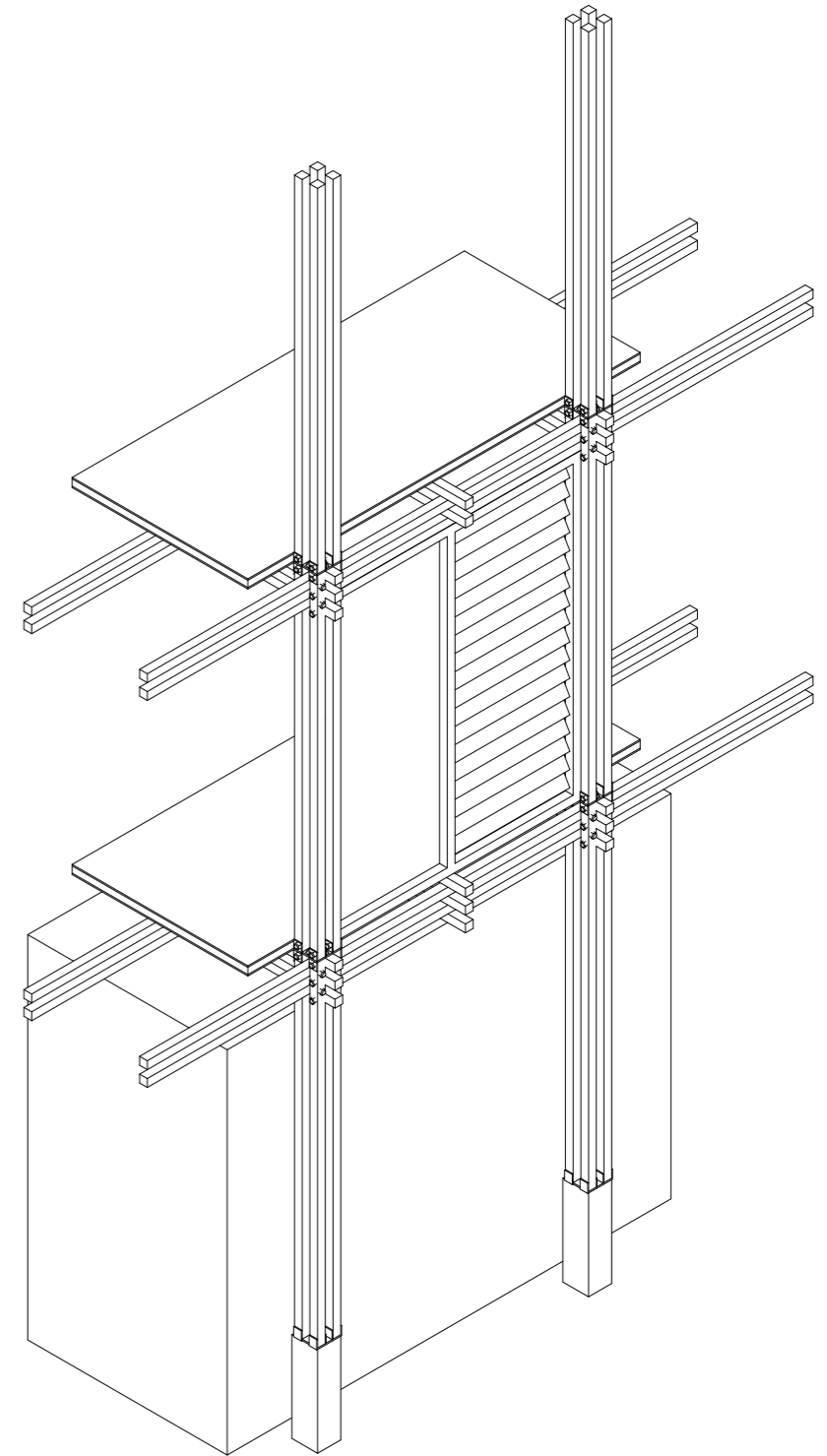


Already building lightweight in the kampong



Room for improvement

Modular lightweight structure





A narrow alleyway between traditional wooden buildings. The ground is a dirt path with a stone-lined drainage channel on either side. The buildings have dark wood walls and some have thatched roofs. The scene is dimly lit, with light coming from the end of the alley. A semi-transparent white box is overlaid in the center of the image.

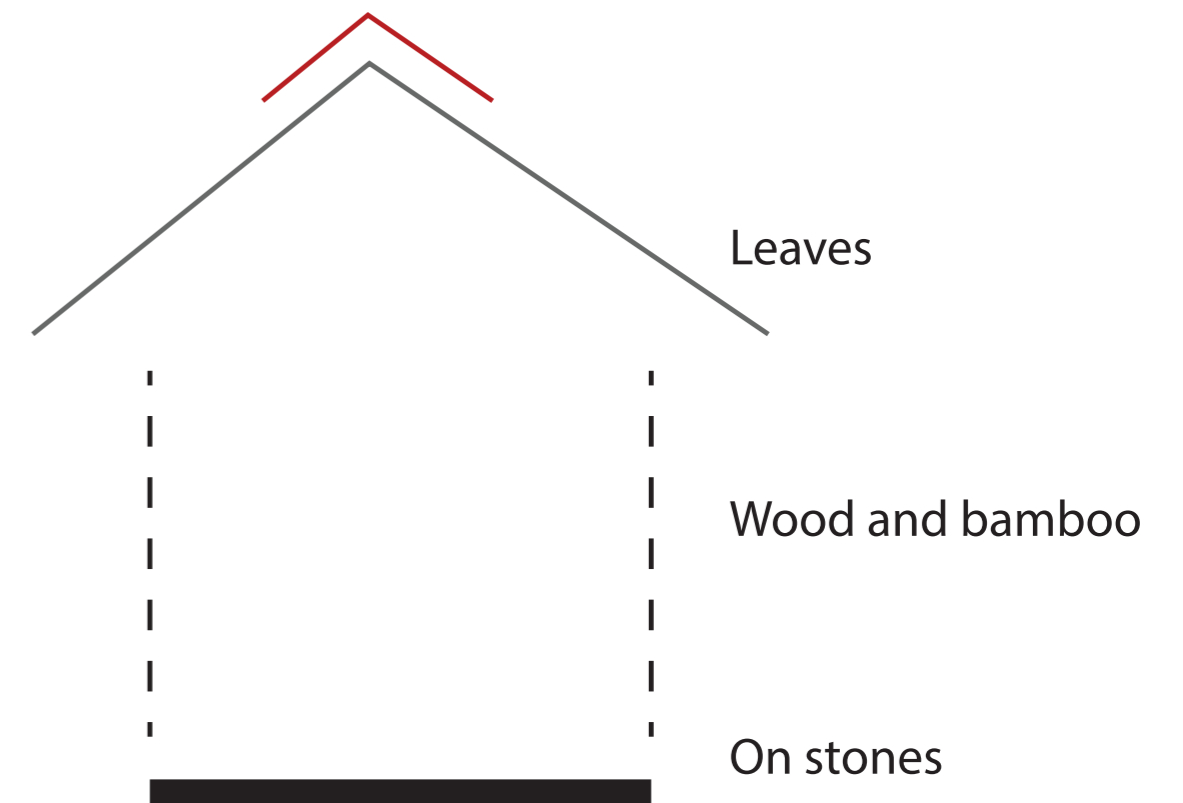
Inspirations



Vernacular architecture



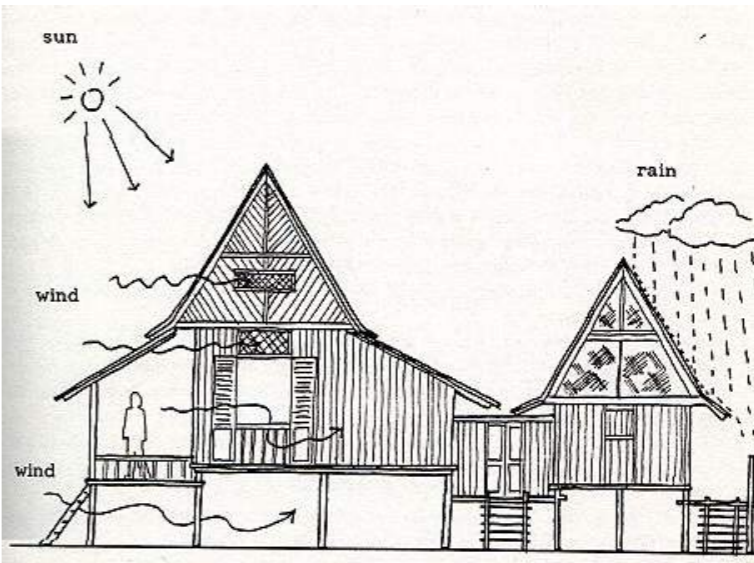
Vernacular architecture



1 level: 2,5m
Porous walls
Hollow attic
Ventilation through roof

Natural ventilation

Climate material use





Riverside housing



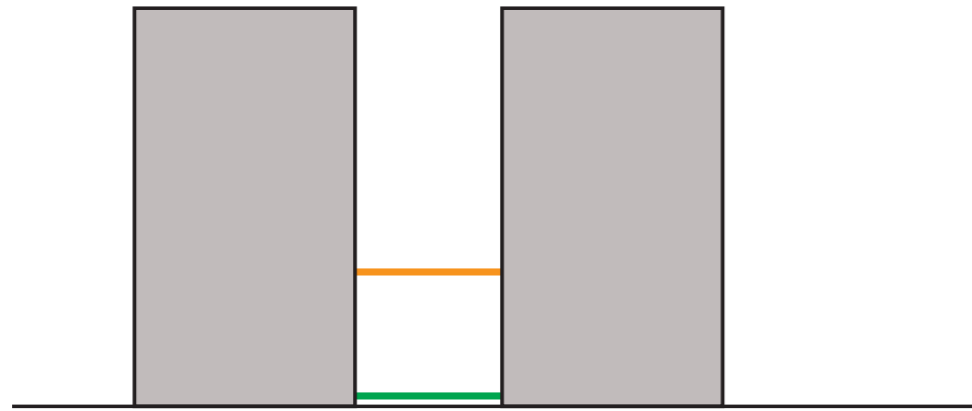
View

Protection

Ventilation

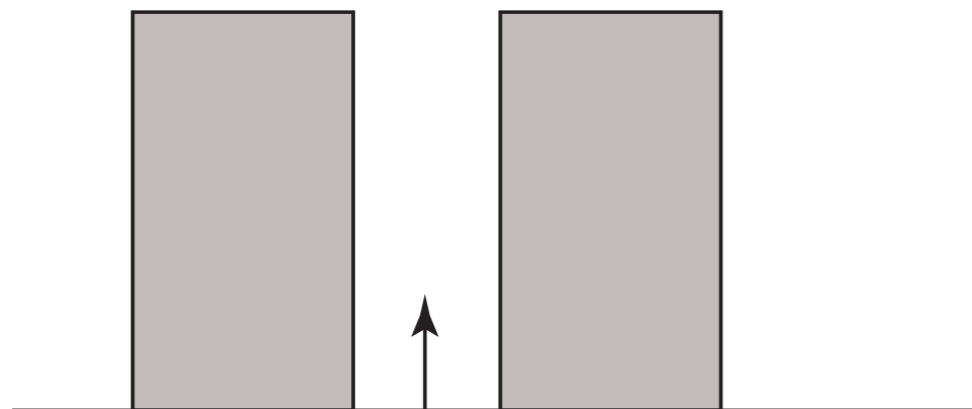


Raised walkway



Create space for the water

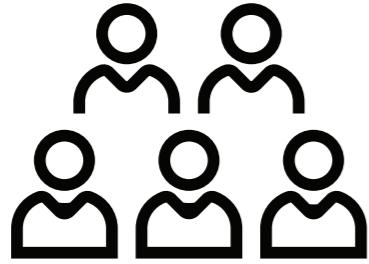
New layer of infrastructure



Extra space



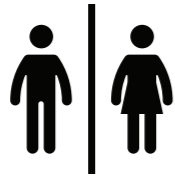
Co-housing



Seperation wet rooms



Sharing facilities reducing space needed



Strengthen the comminty



Context

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Level up

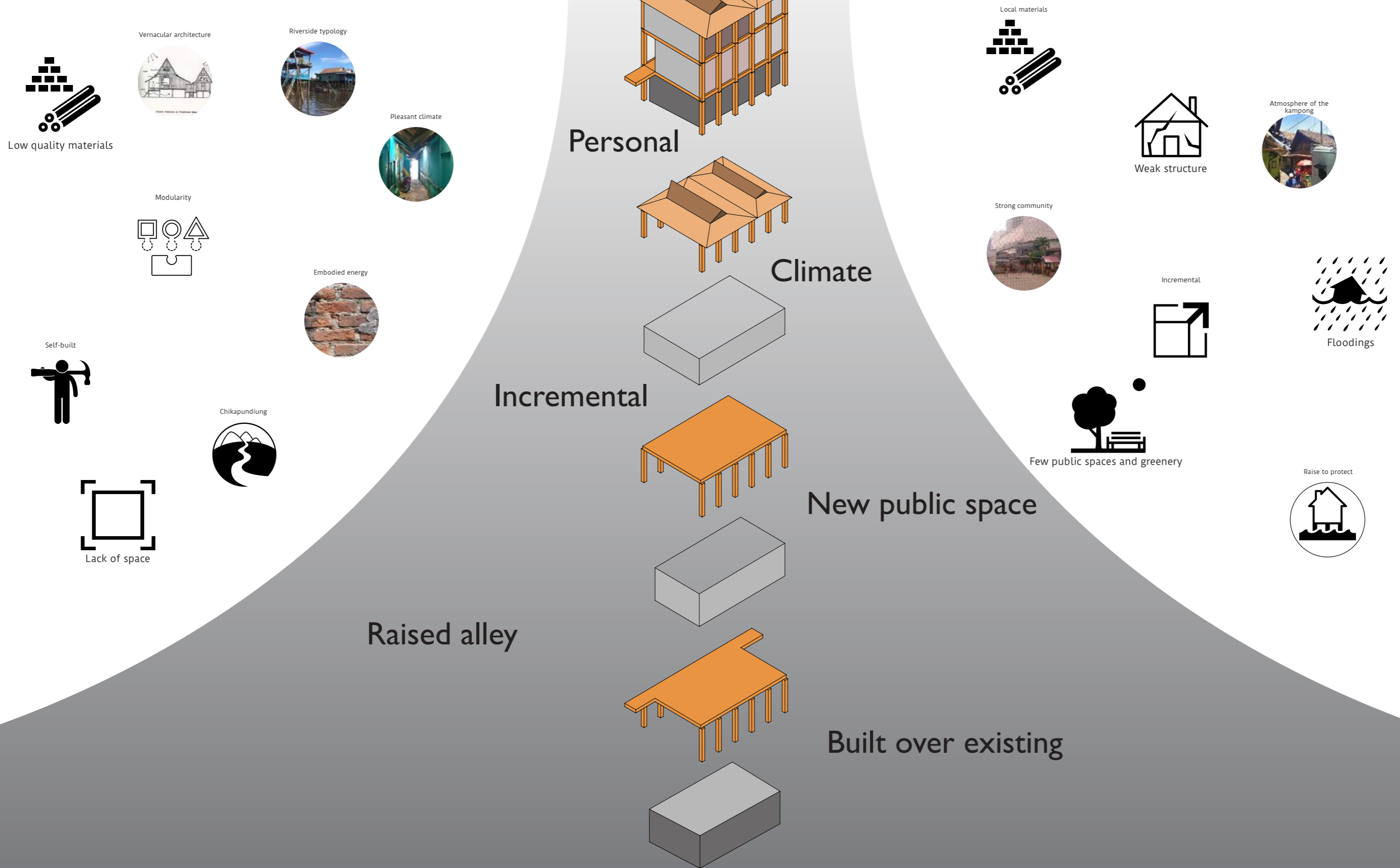
Concept and design

Urban development
Stroke development
Structure

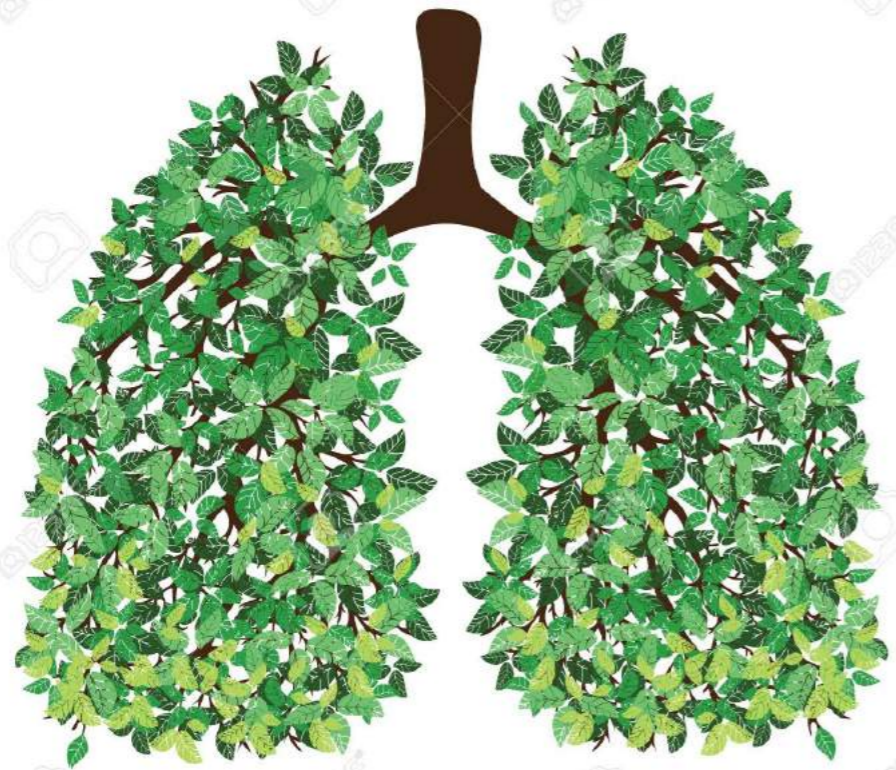
Impact

Other locations
Quality of life

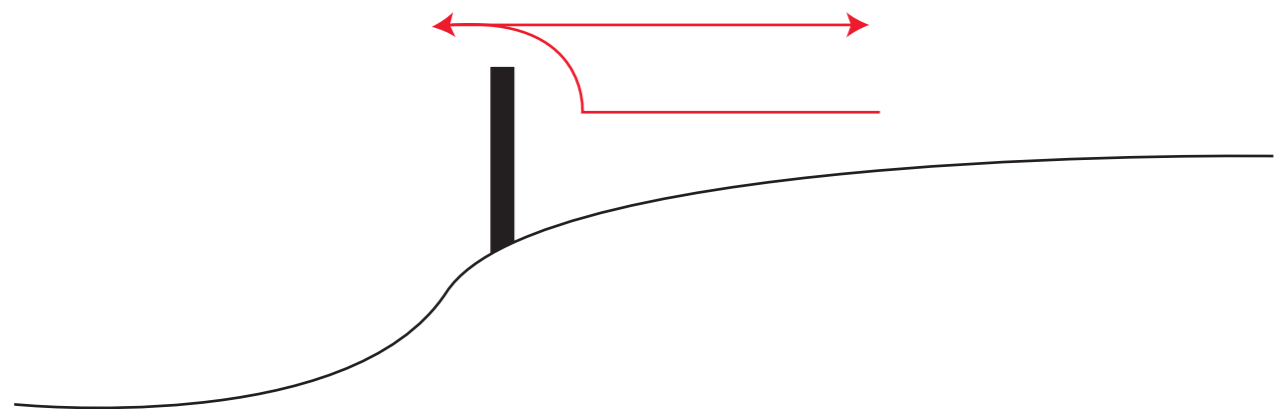
The Next Level



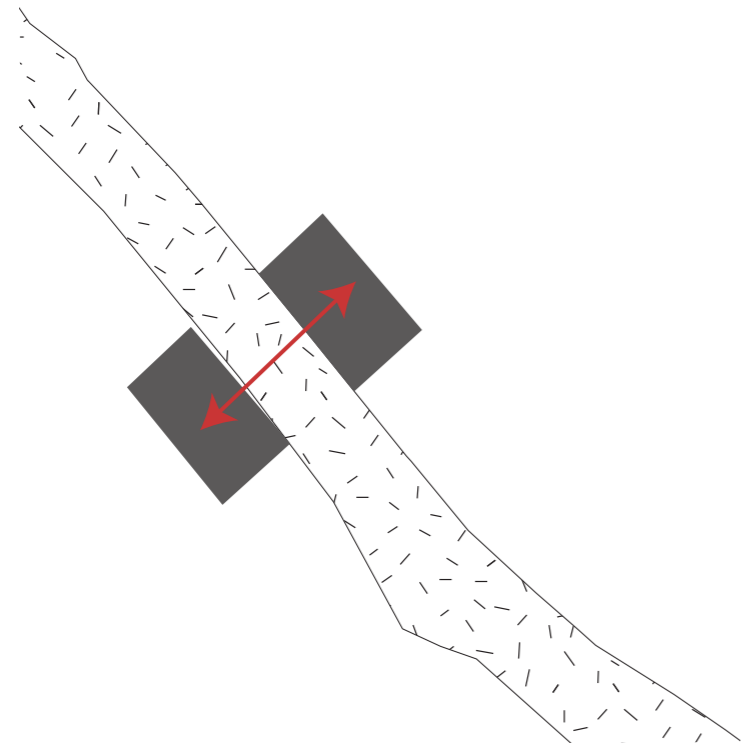
Facilities



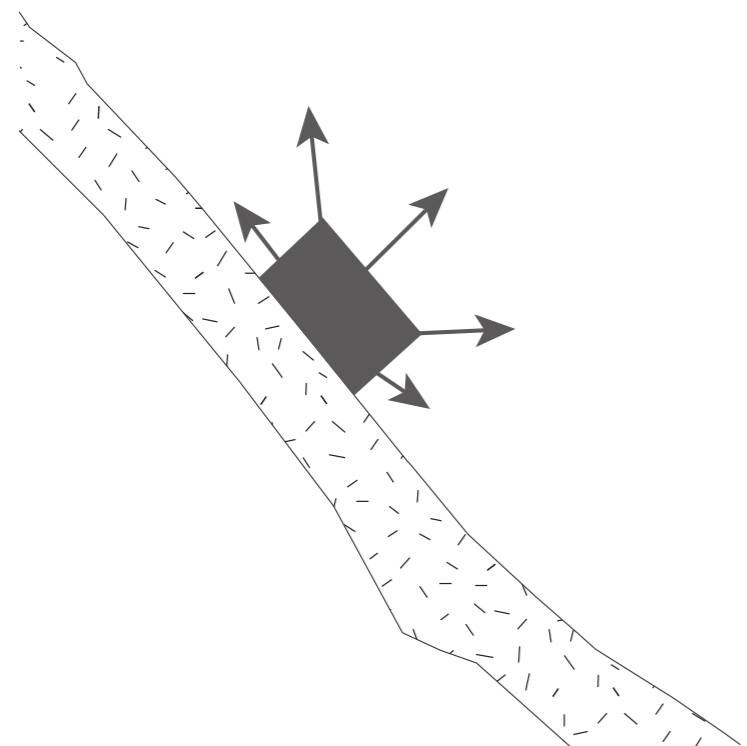
Opening up to the river



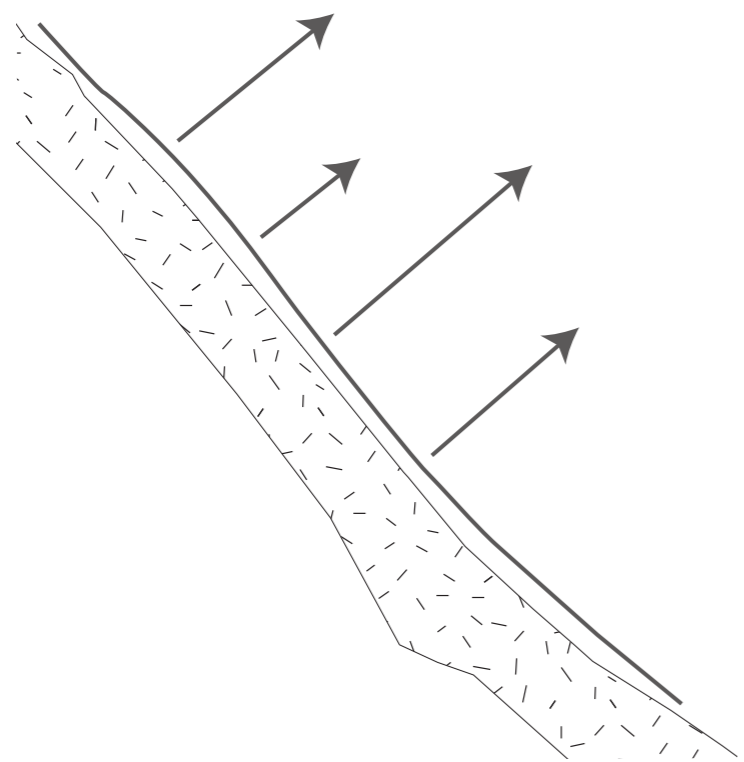
Connecting the riverbanks



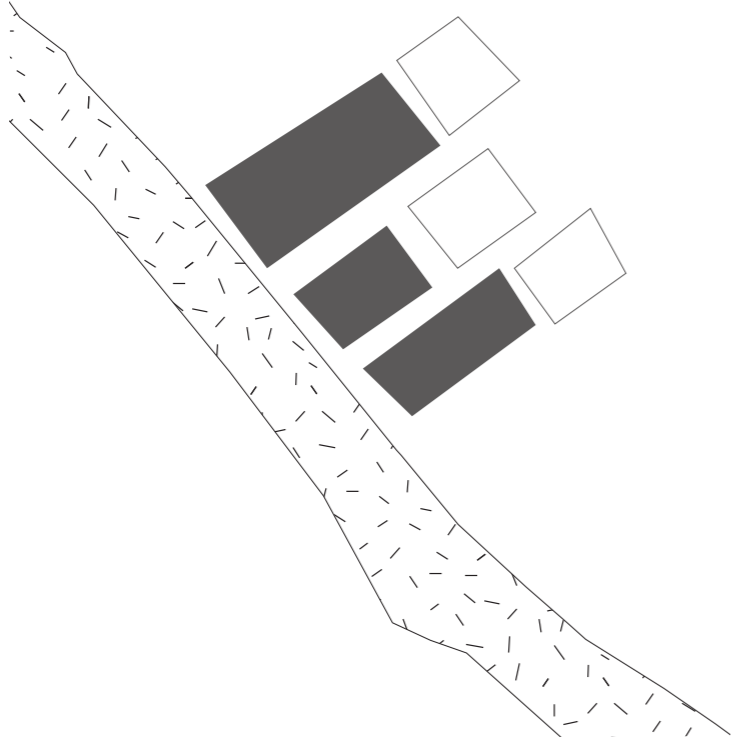
Growing from the river



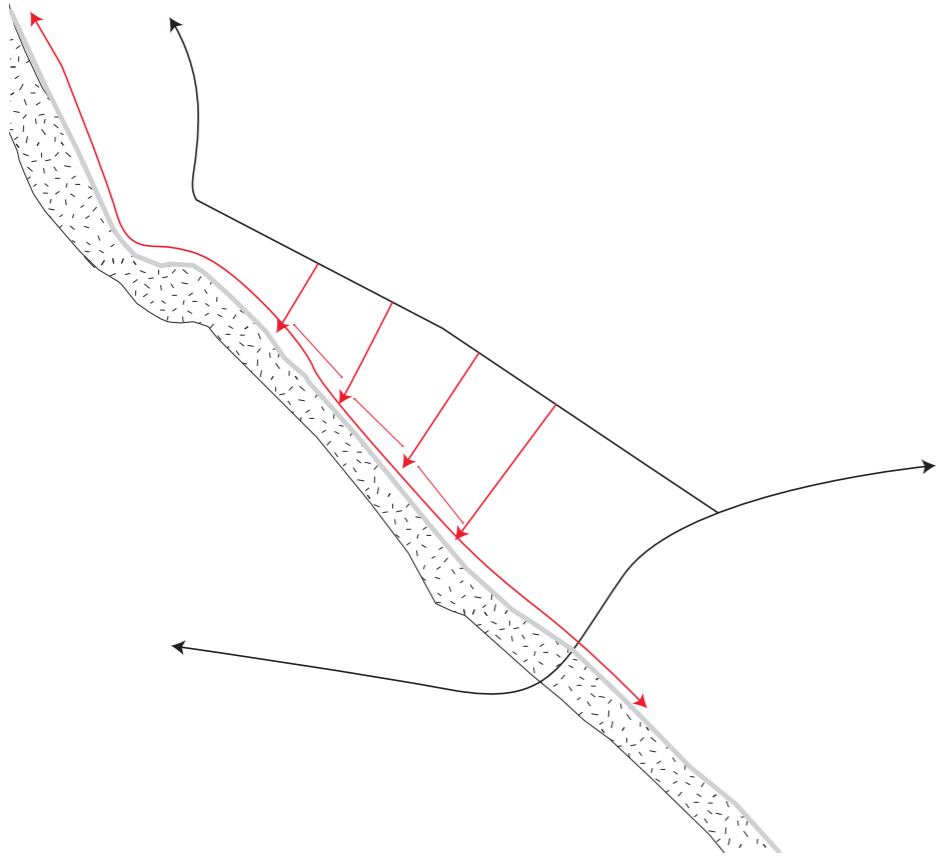
Growing inland

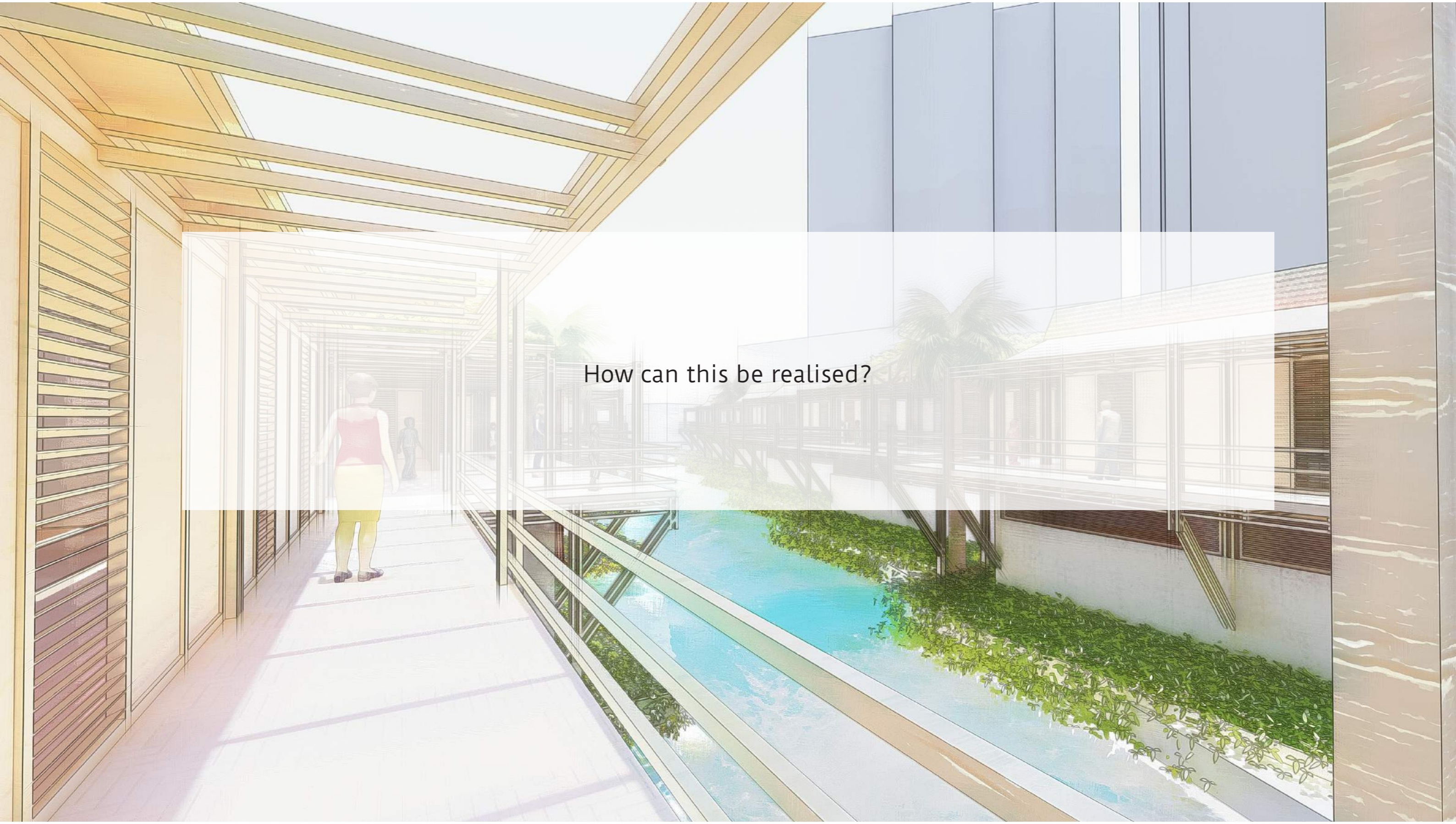


Adapting to the existing



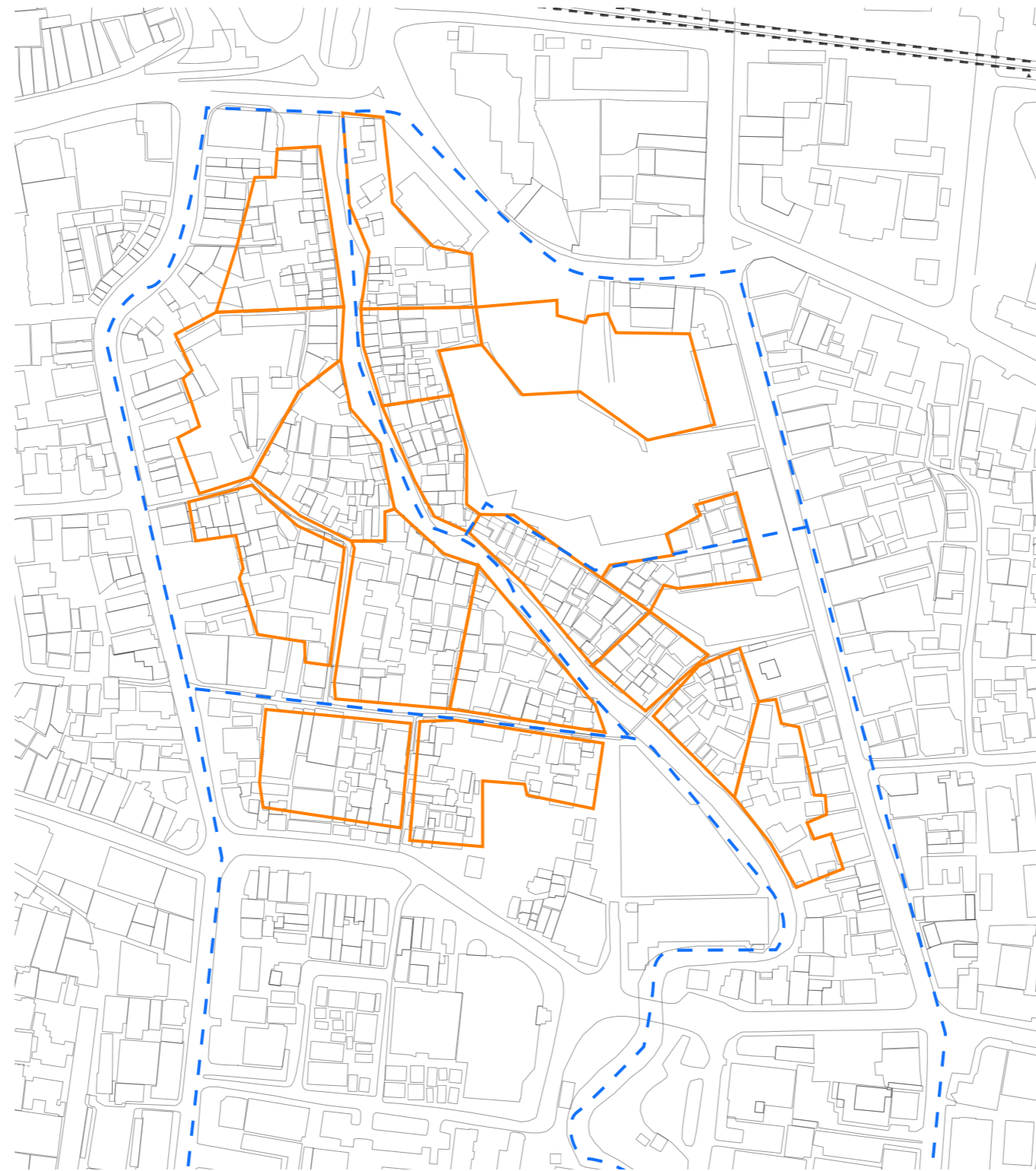
Creating walkway next to the river

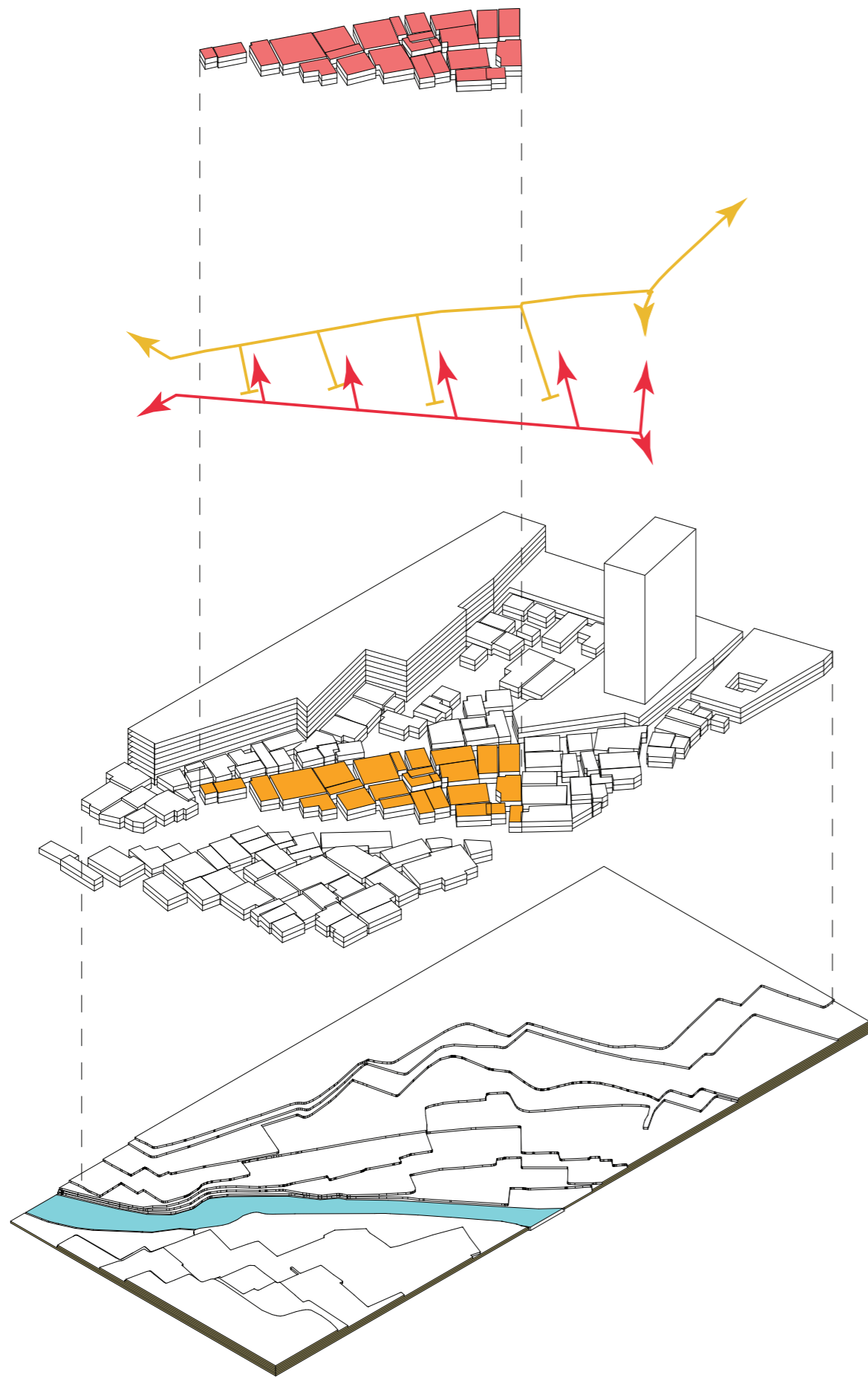




How can this be realised?

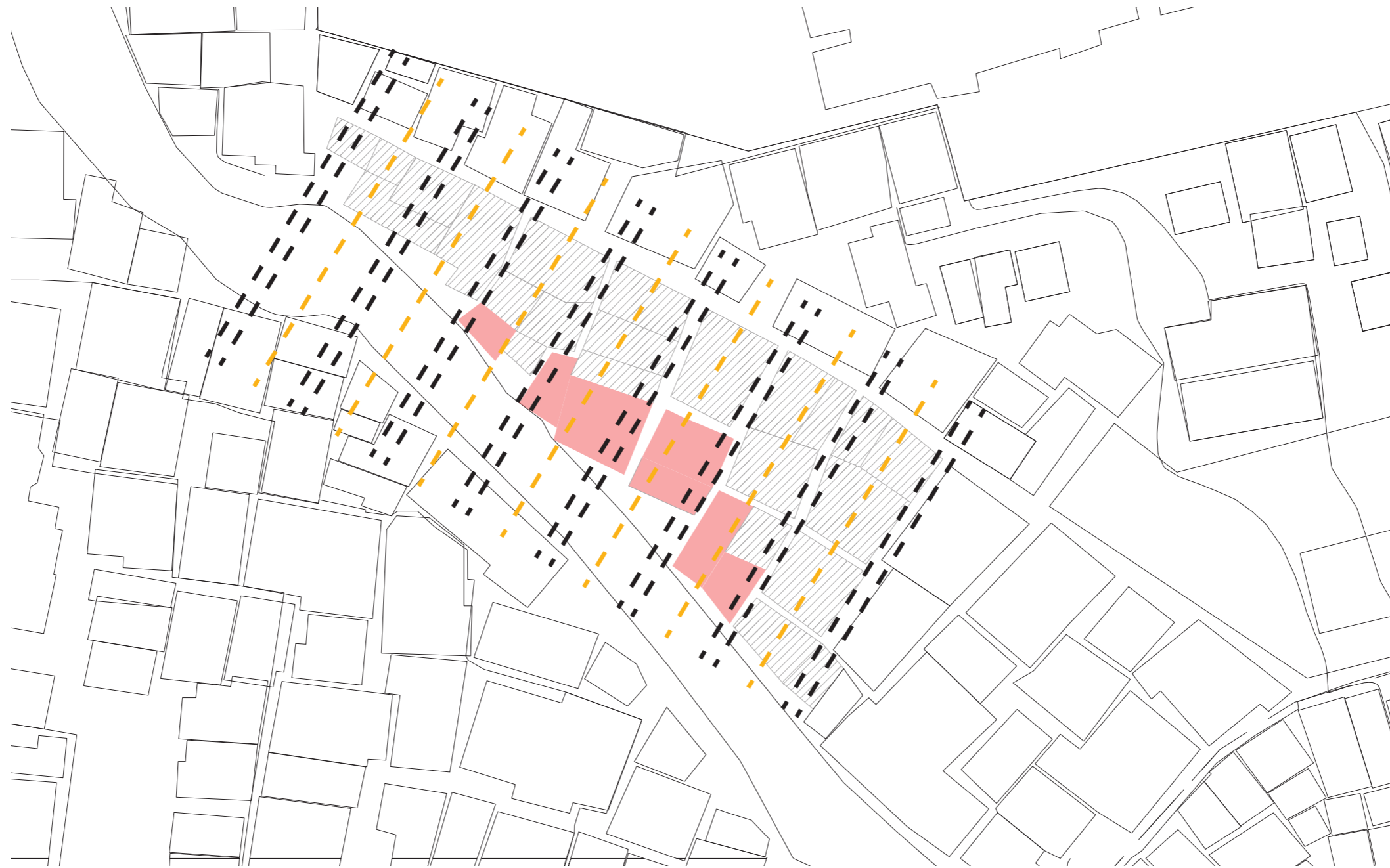
Using existing social structure



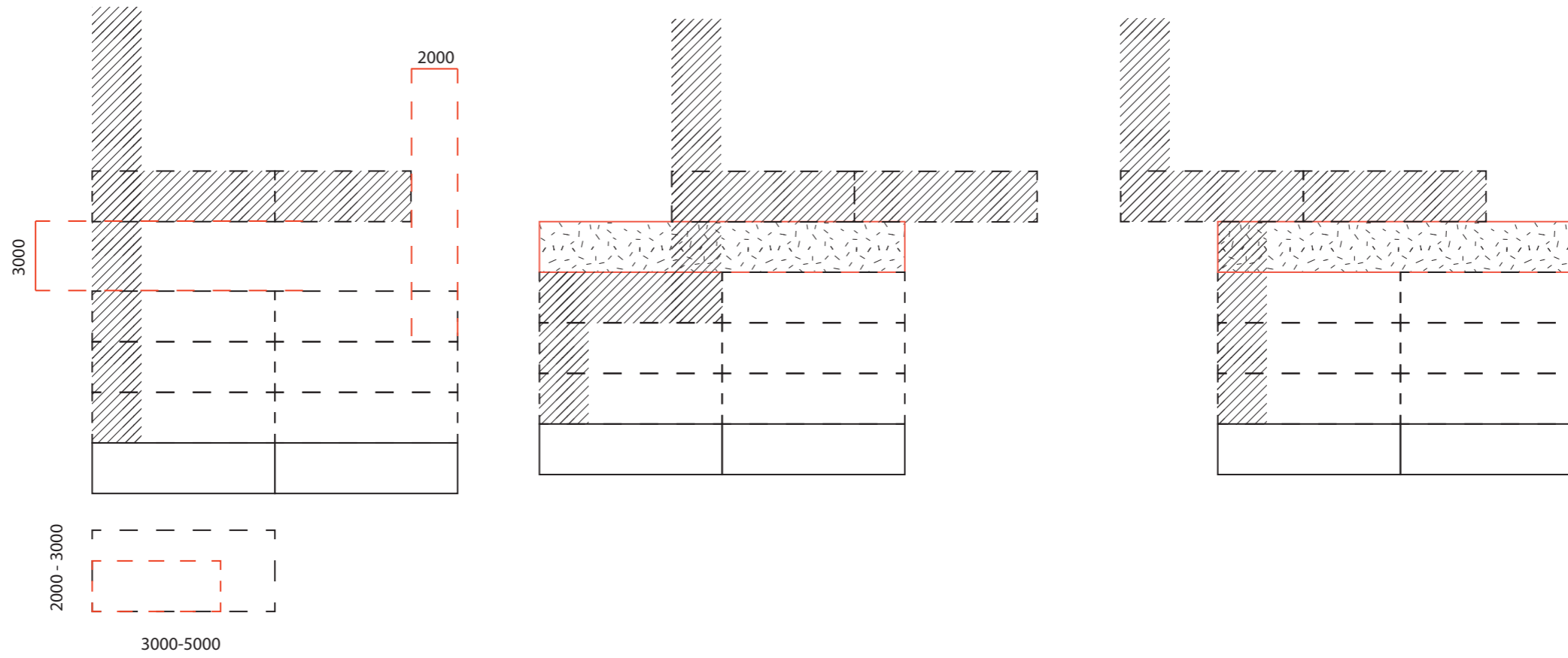


1 RW = 5-7 RT
1 RT = 300 persons
35 houses
1 house = 6-9 familymembers

Introducing a grid



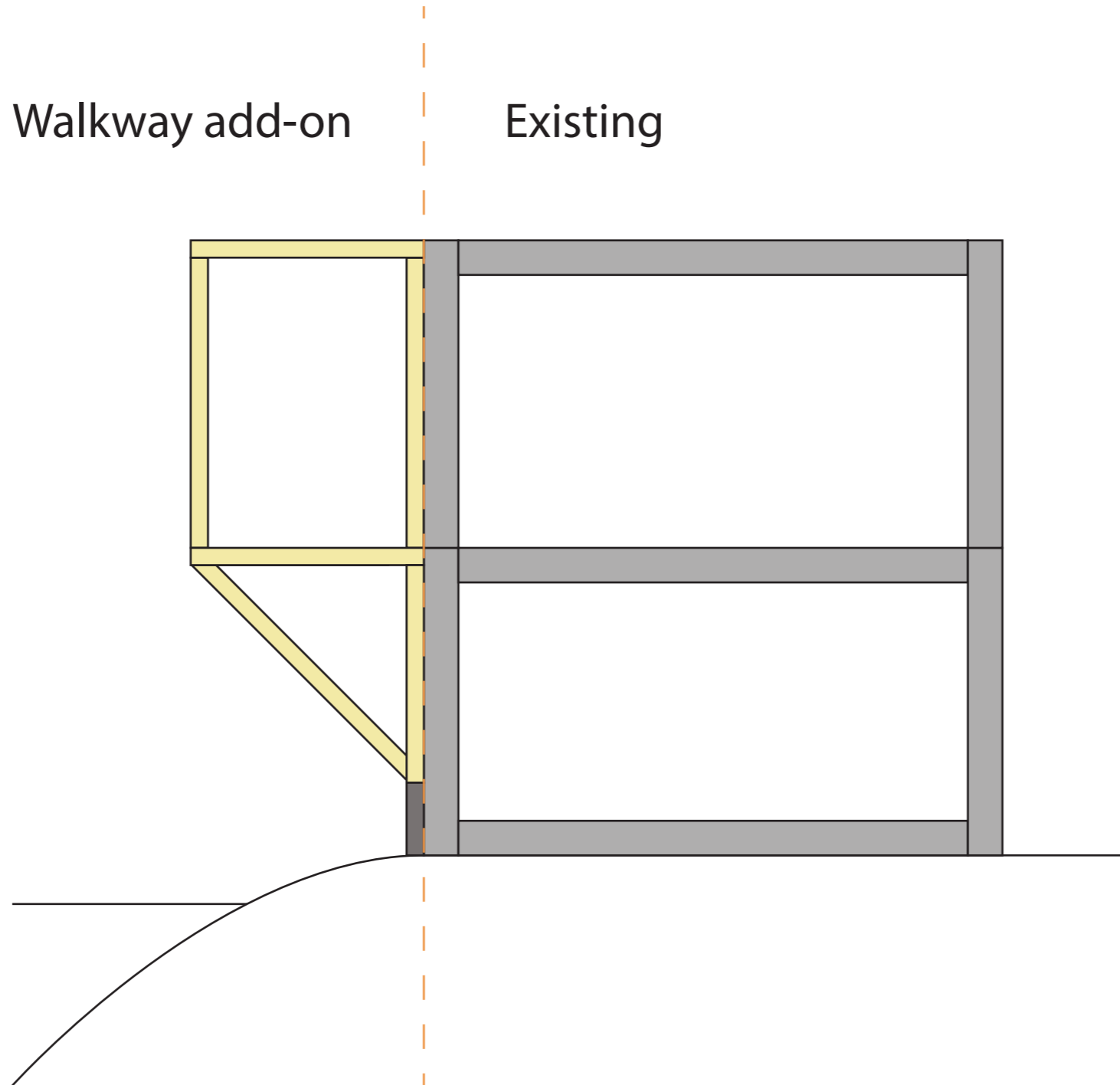
Flexibility



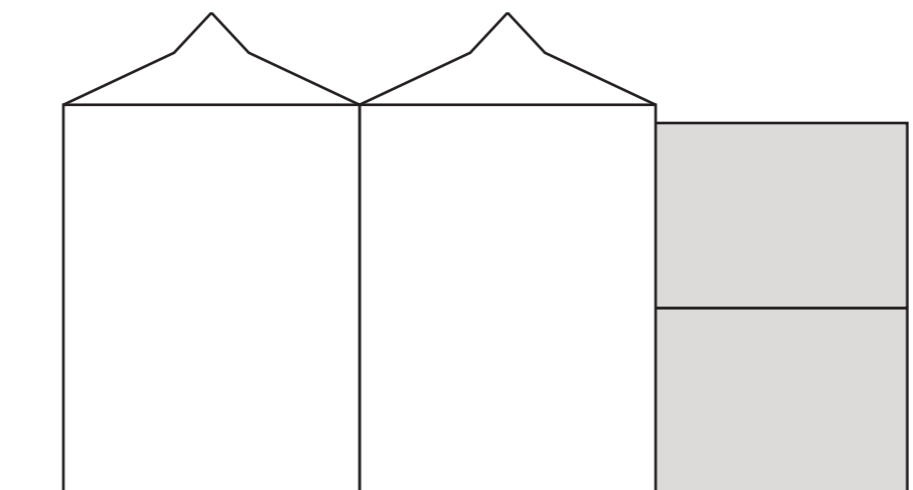
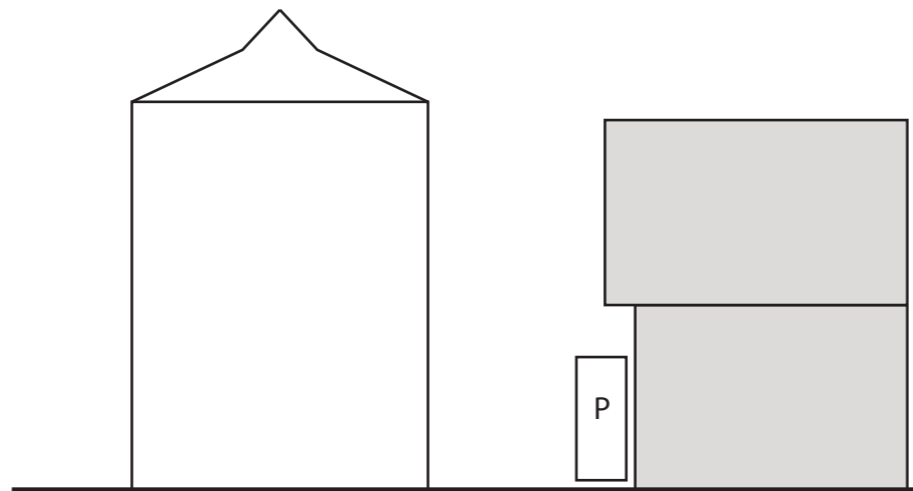
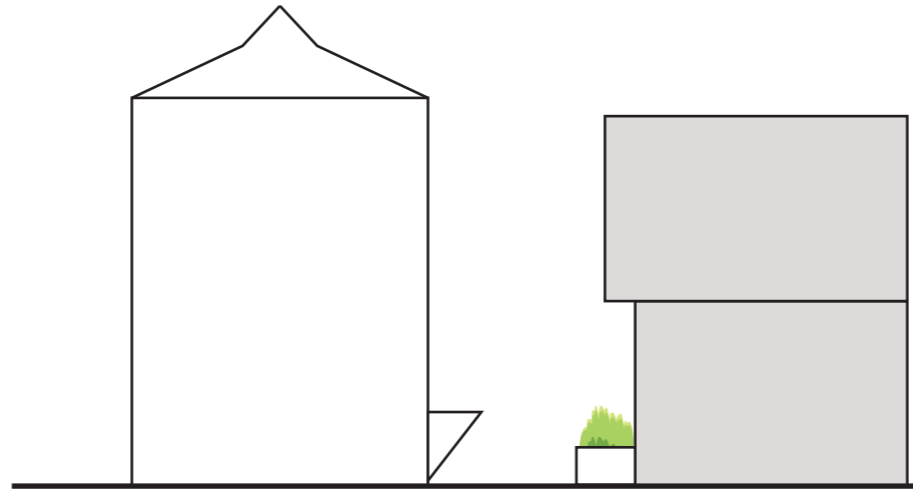
Walkway to existing

Walkway add-on

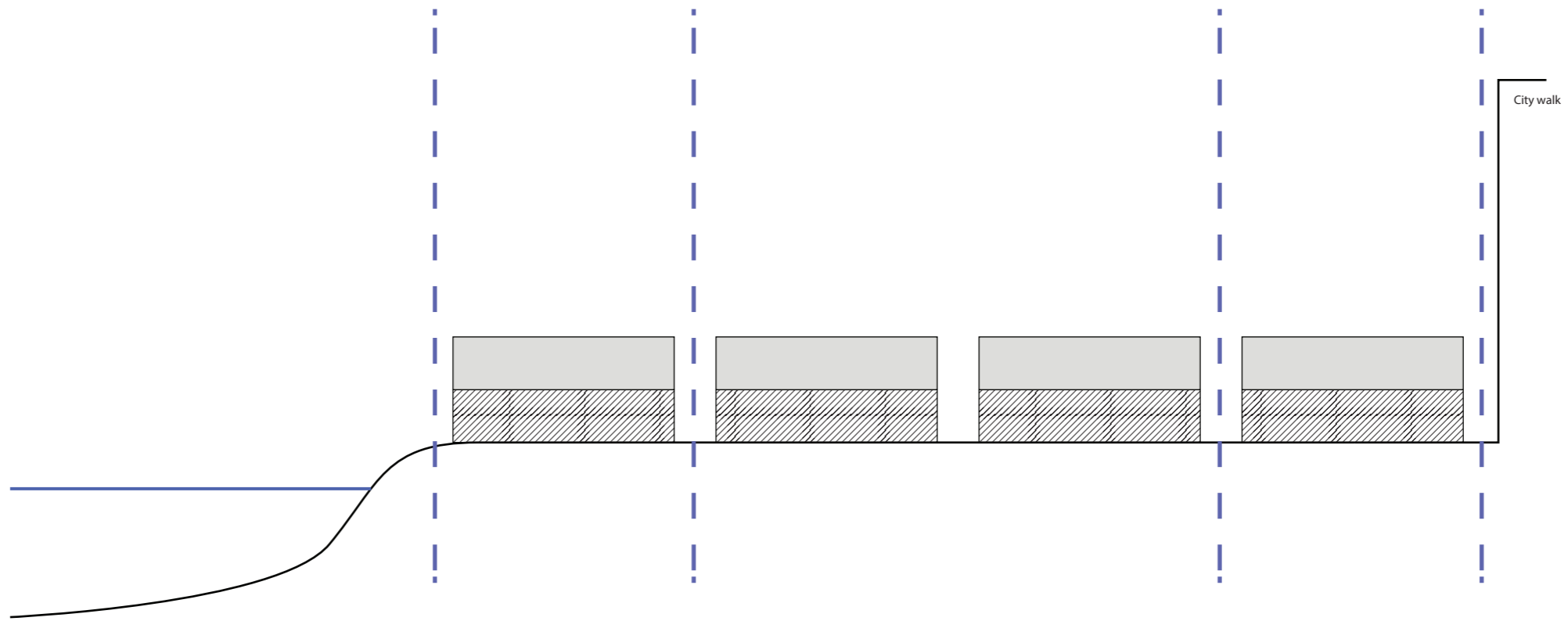
Existing



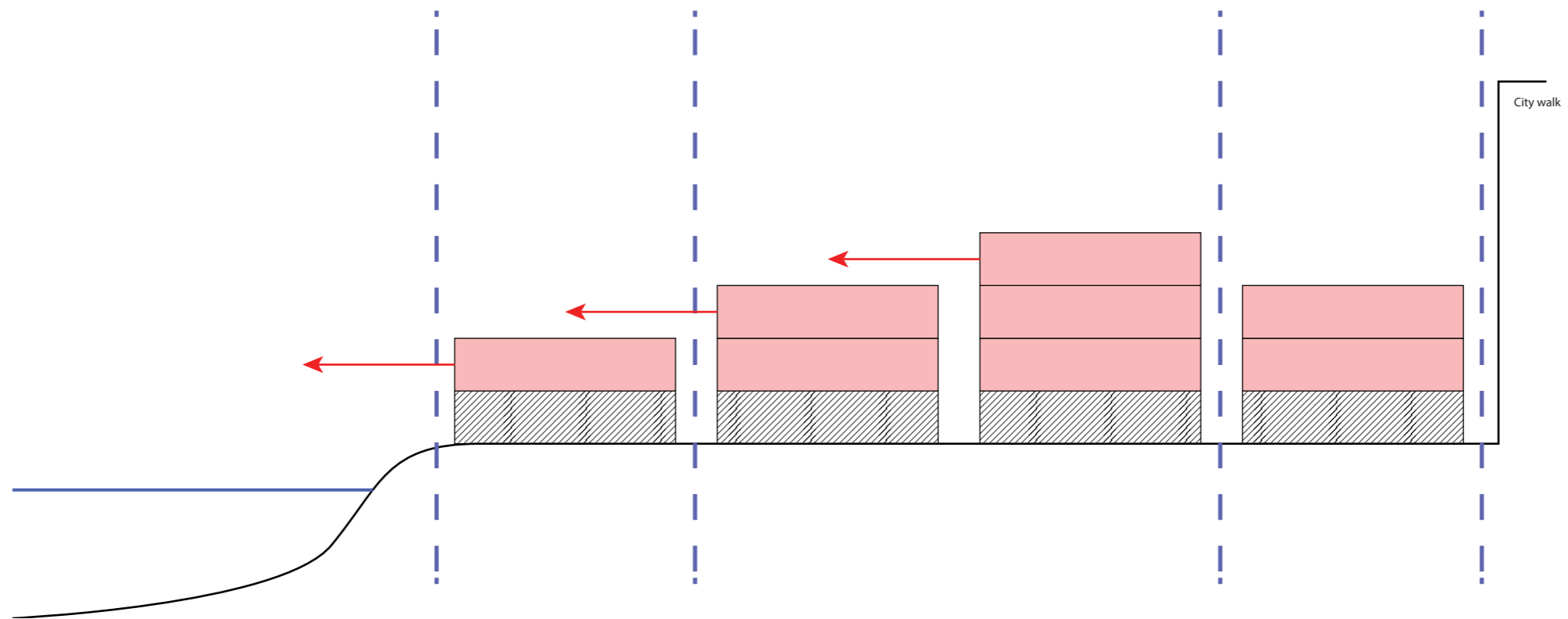
Inbetween space



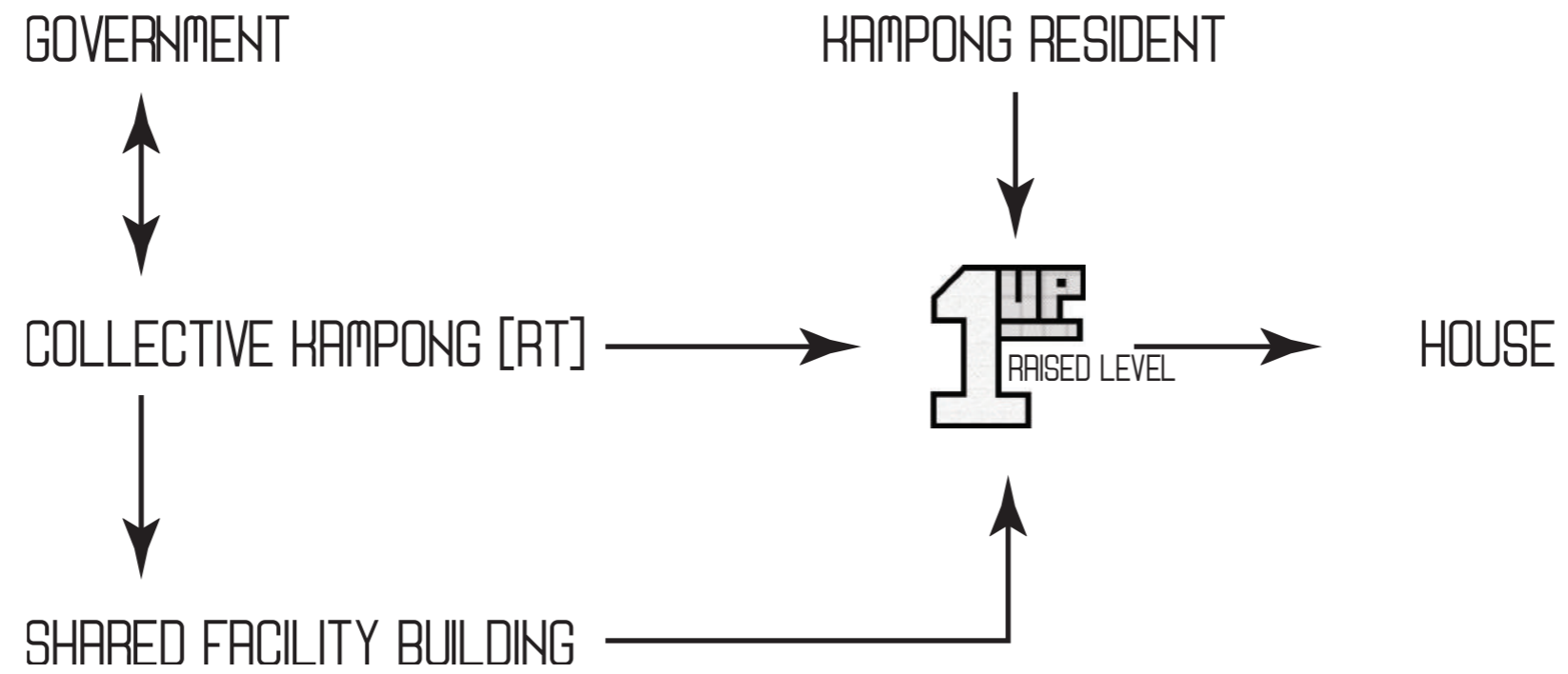
Existing height



Height restrictions



Business model



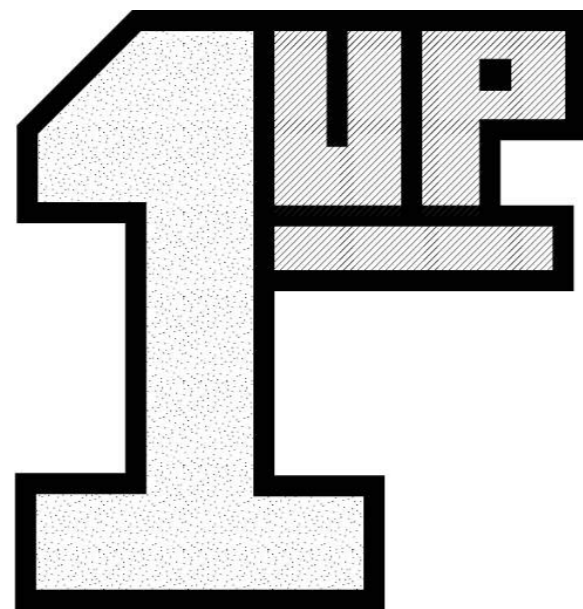
Role of the government

GOVERNMENT

- Public infrastructure: walkway
- Public facilities

COLLECTIVE HAMPONG (RW)

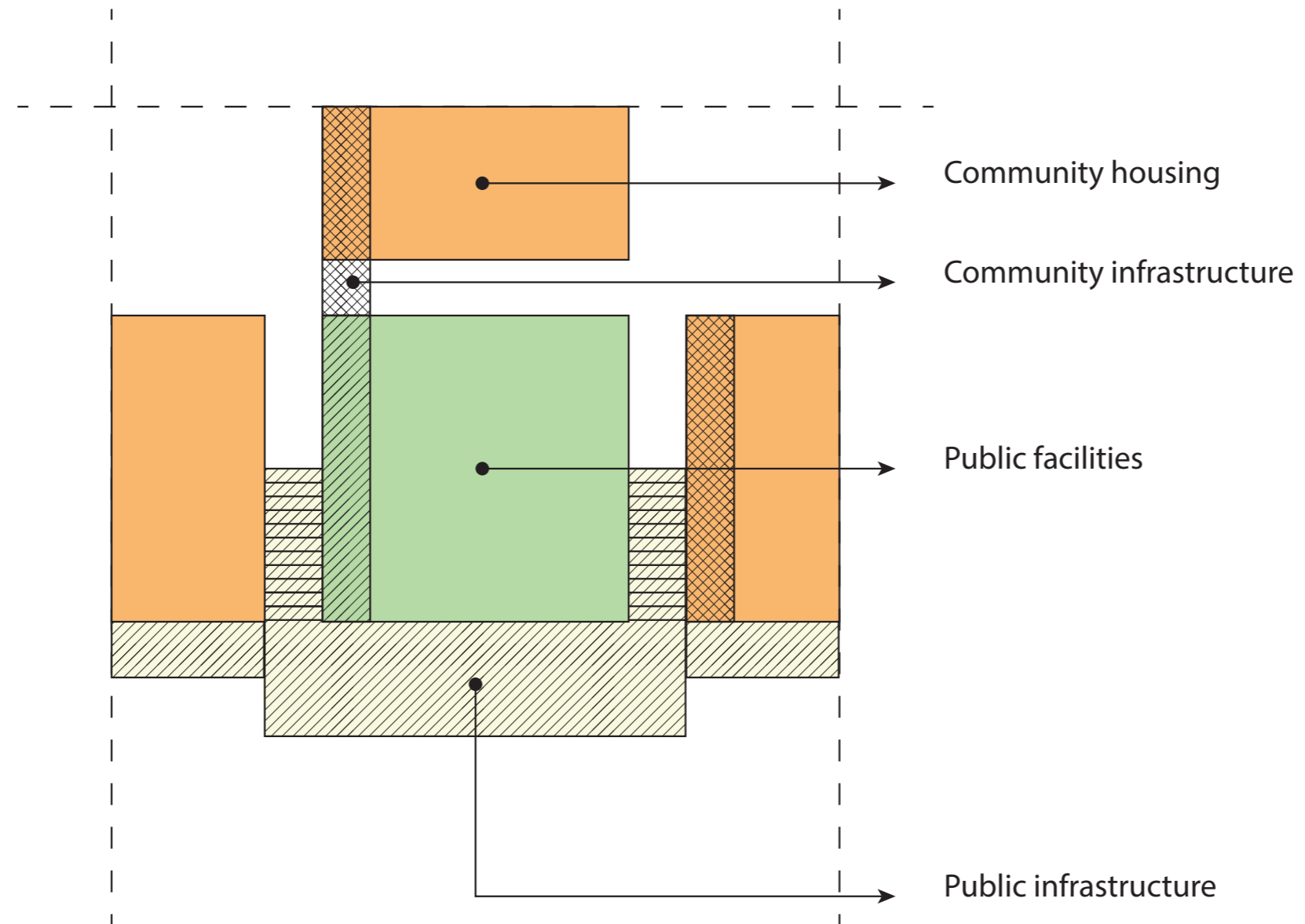
- Maintenance: public infrastructure
- Maintenance: public facilities



COLLECTIVE HAMPONG (RT)

- Community infrastructure: raised alley
- Community housing
- Community maintenance

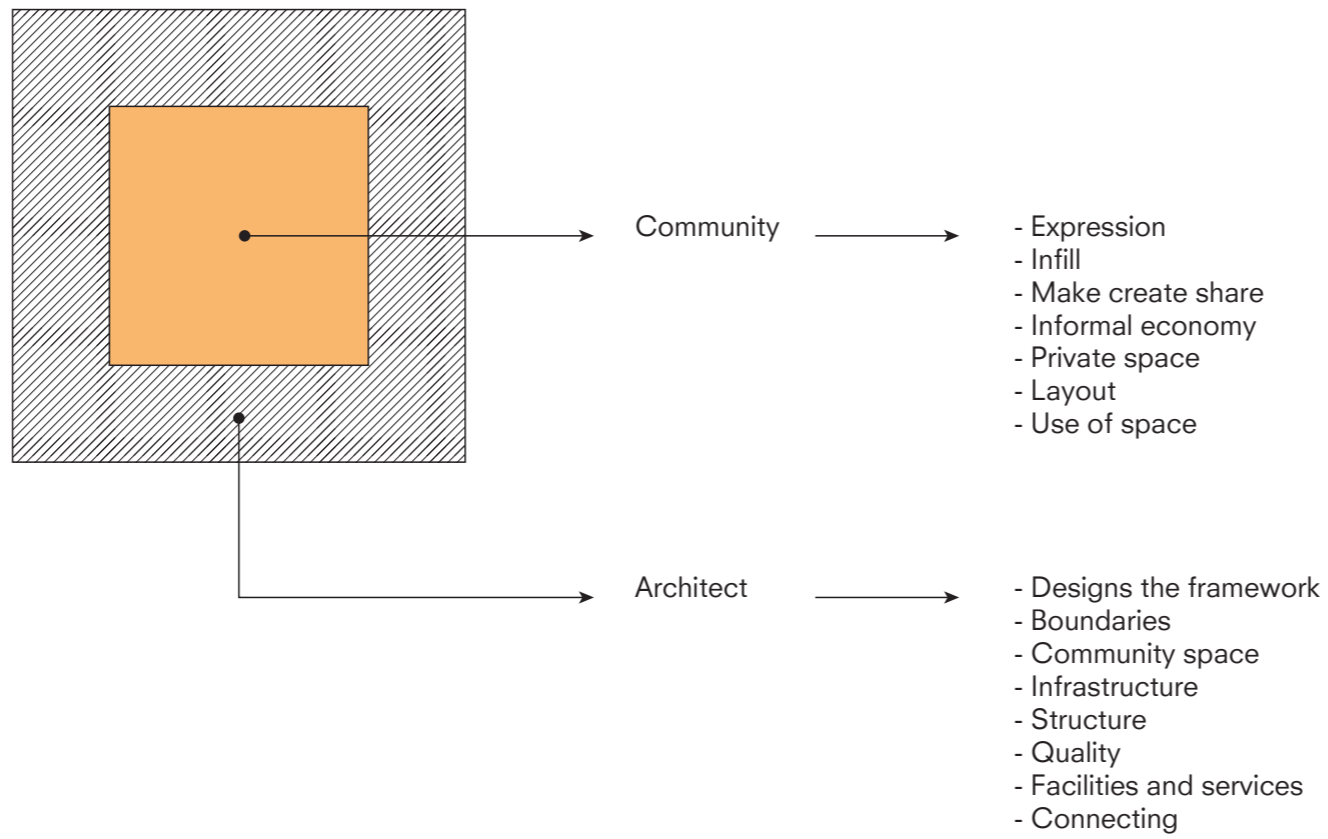
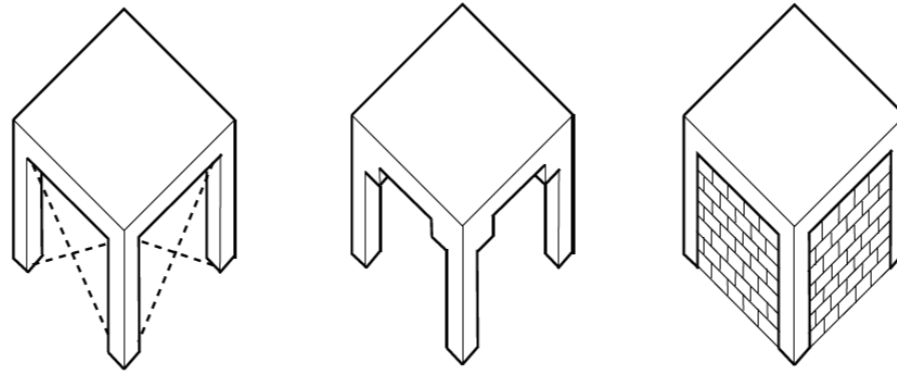
Role of the government



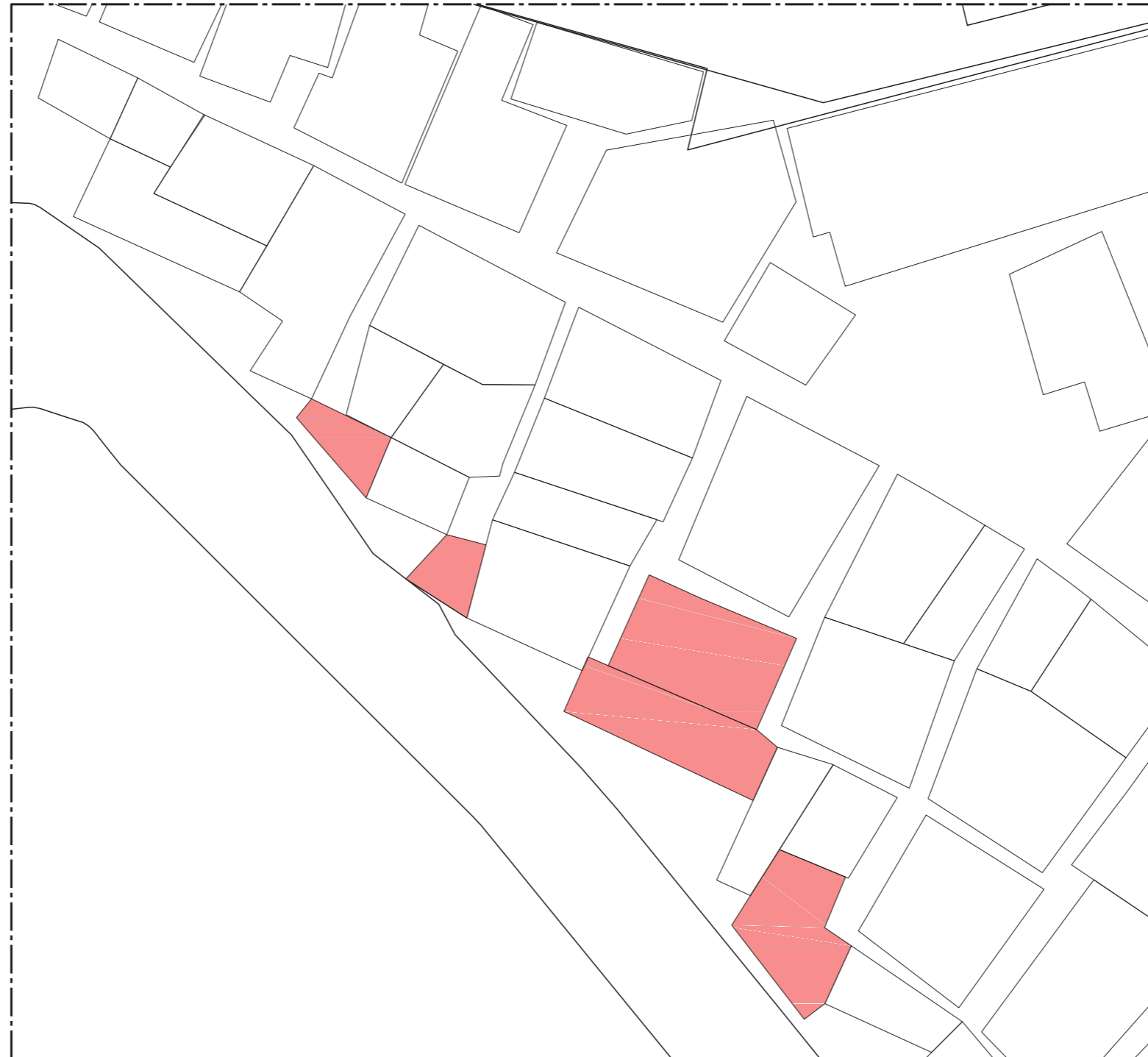
1 UP THE 10 RULES FOR LEVELING UP

1. Built with elements of 60x60x2600 Borneo wood
2. built 900mm from groundlevel for water clearance
3. At riverside maximum buildingheight of 2 levels
4. Alley size of 1800mm
5. Column distance 1800mm
6. Beam length between 3000mm and 5000mm
7. Next row of housing maximum one layer higher
8. Infill has to have one ventiation panel
9. Roof has to be ventilating
10. Next row of buildings has to connec to raised walkway

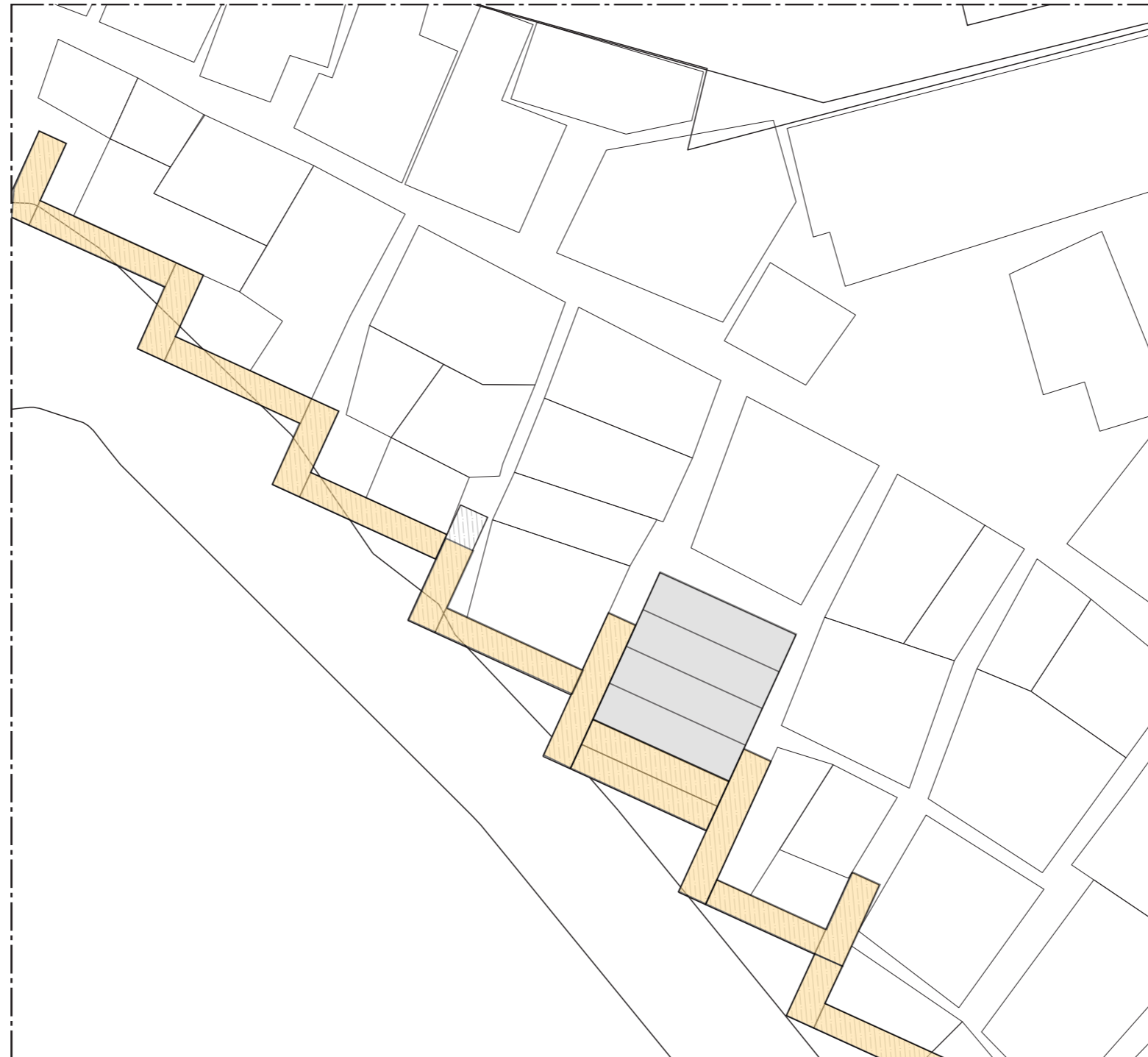
Role of the architect



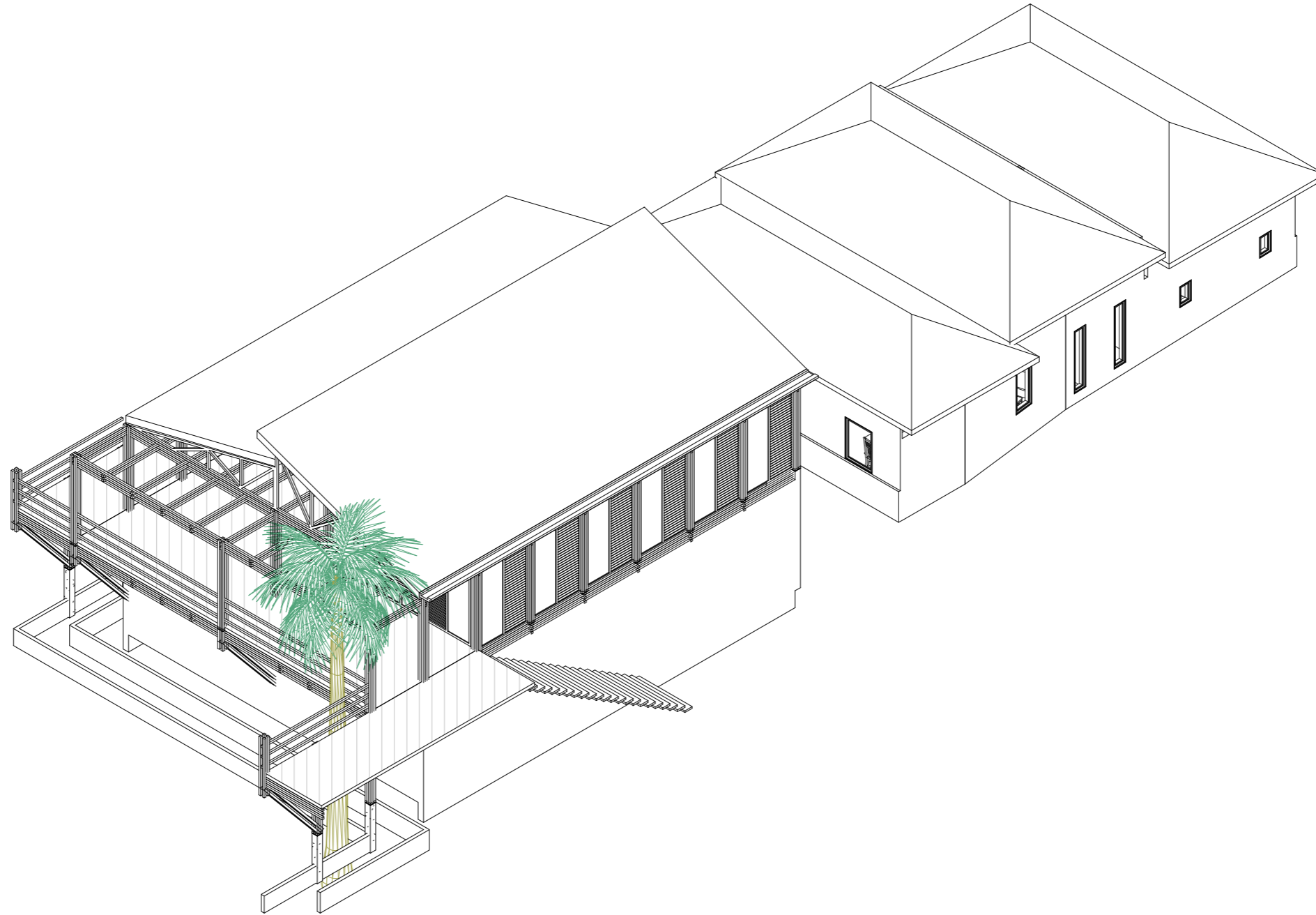
The start



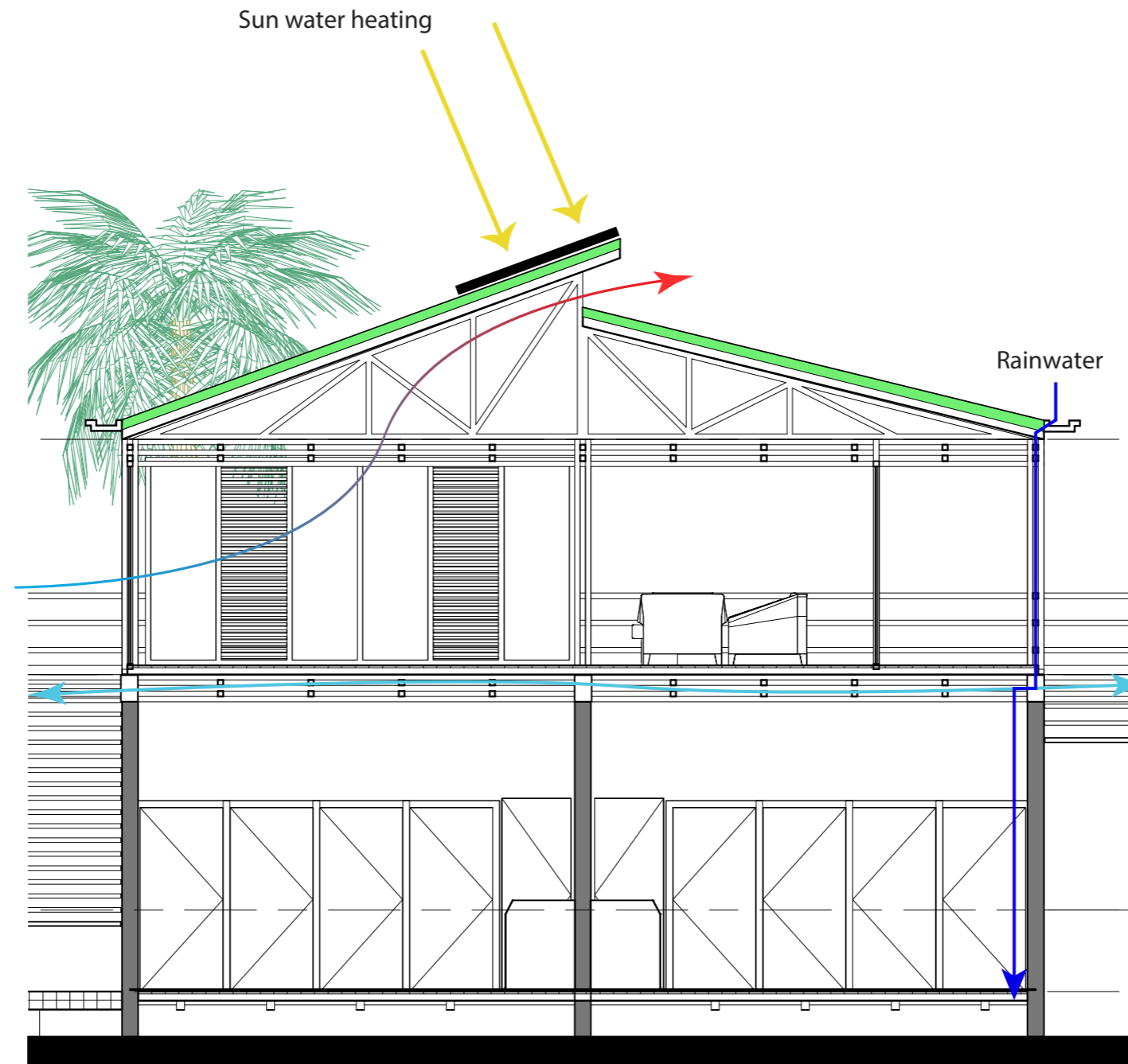
Facility building



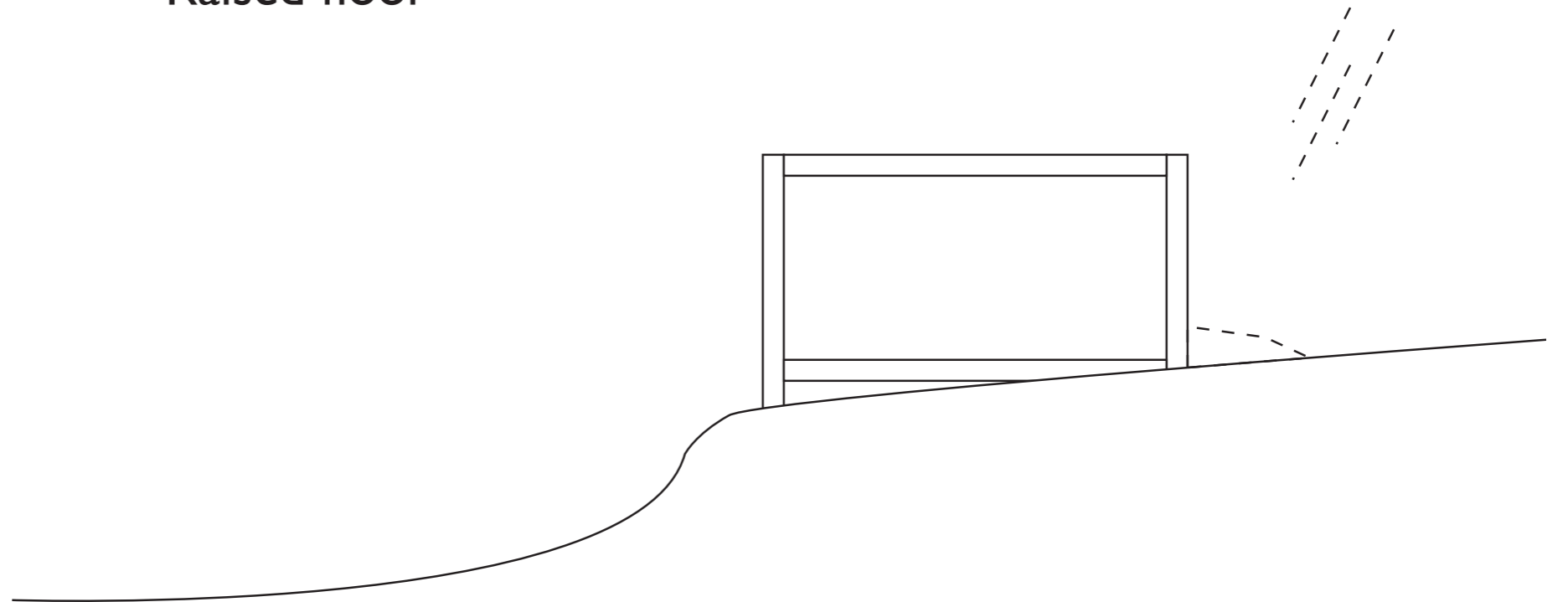
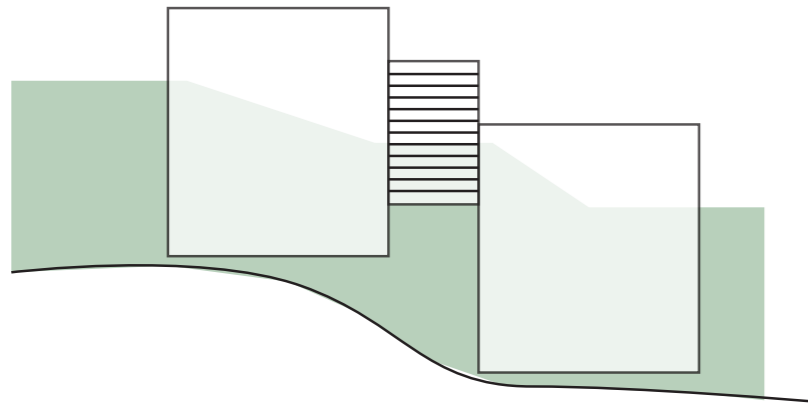
Facility building



Section facility building

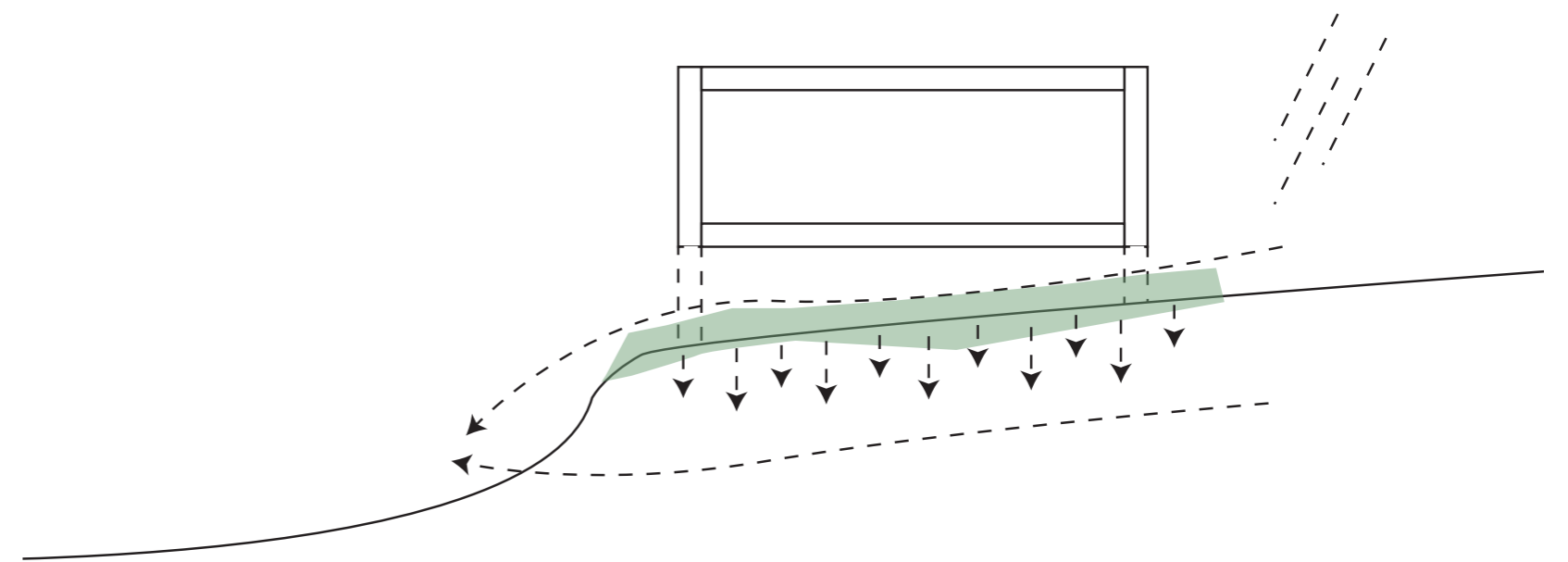
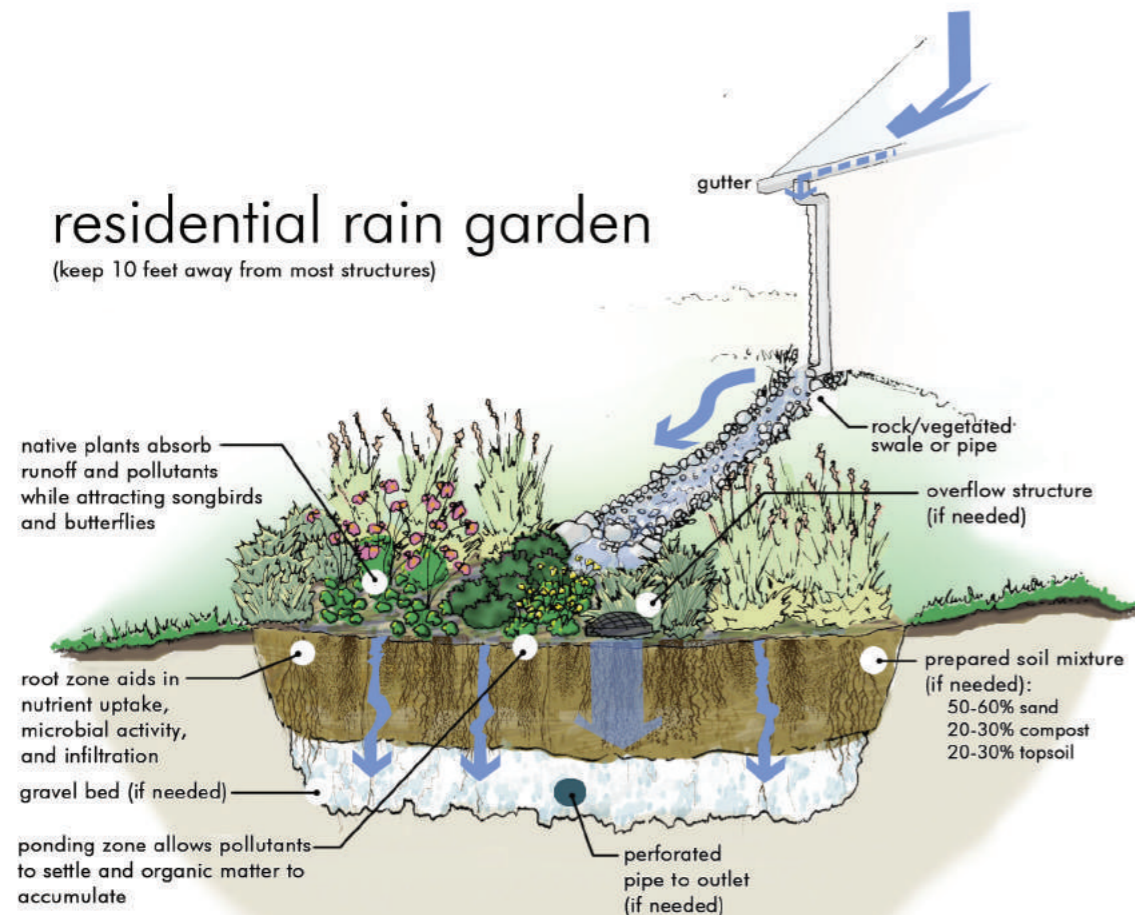


Raised floor

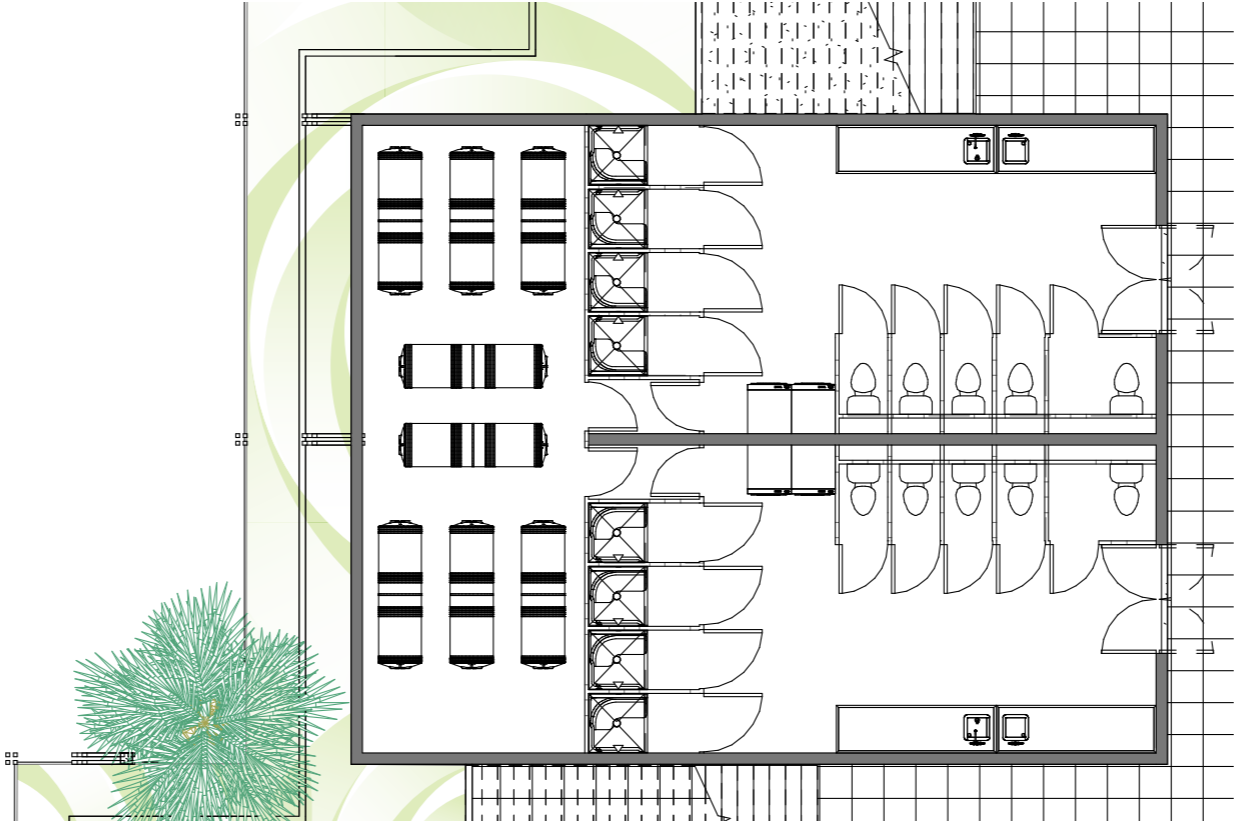


residential rain garden

(keep 10 feet away from most structures)



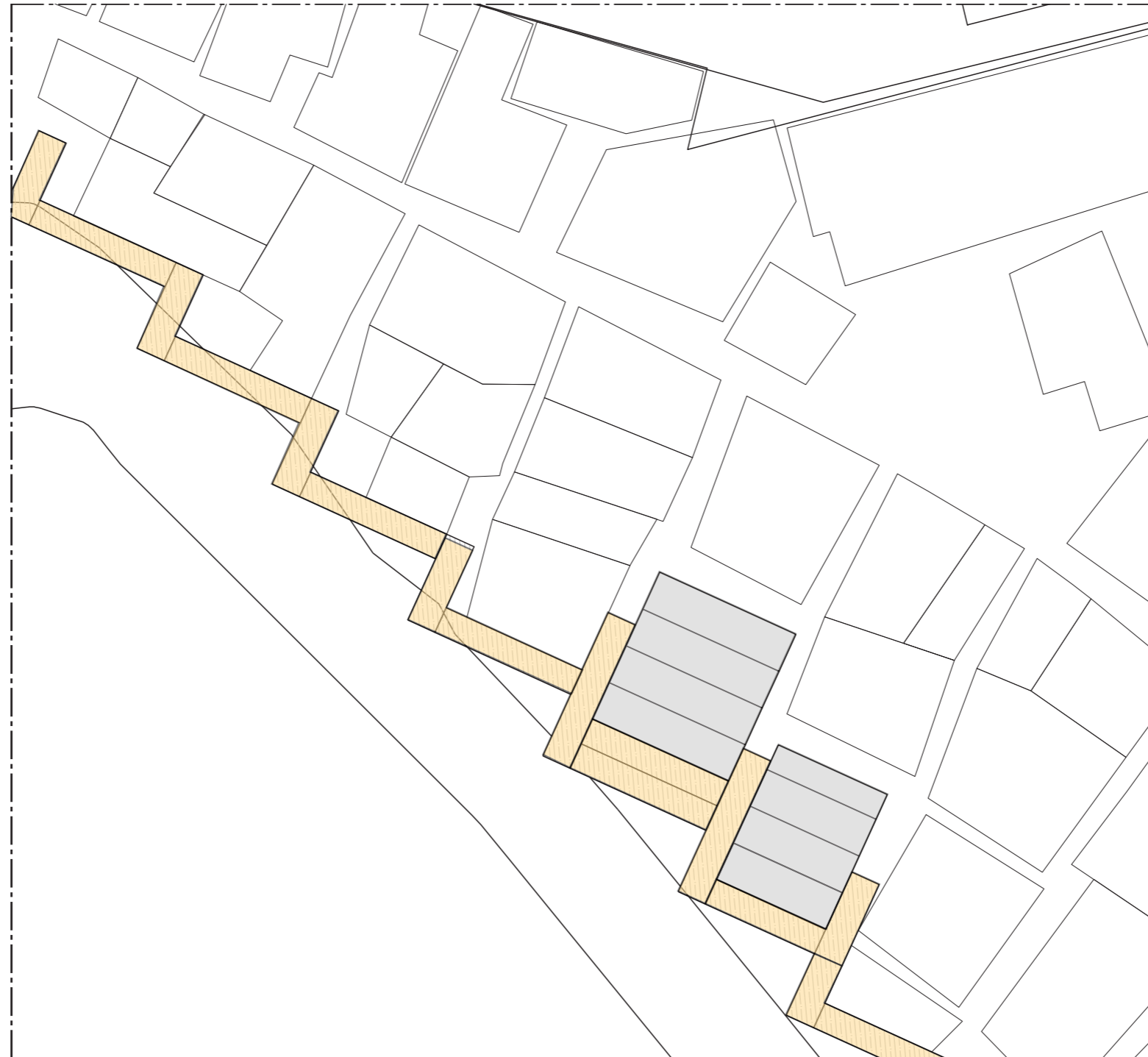
Floorplans facility building



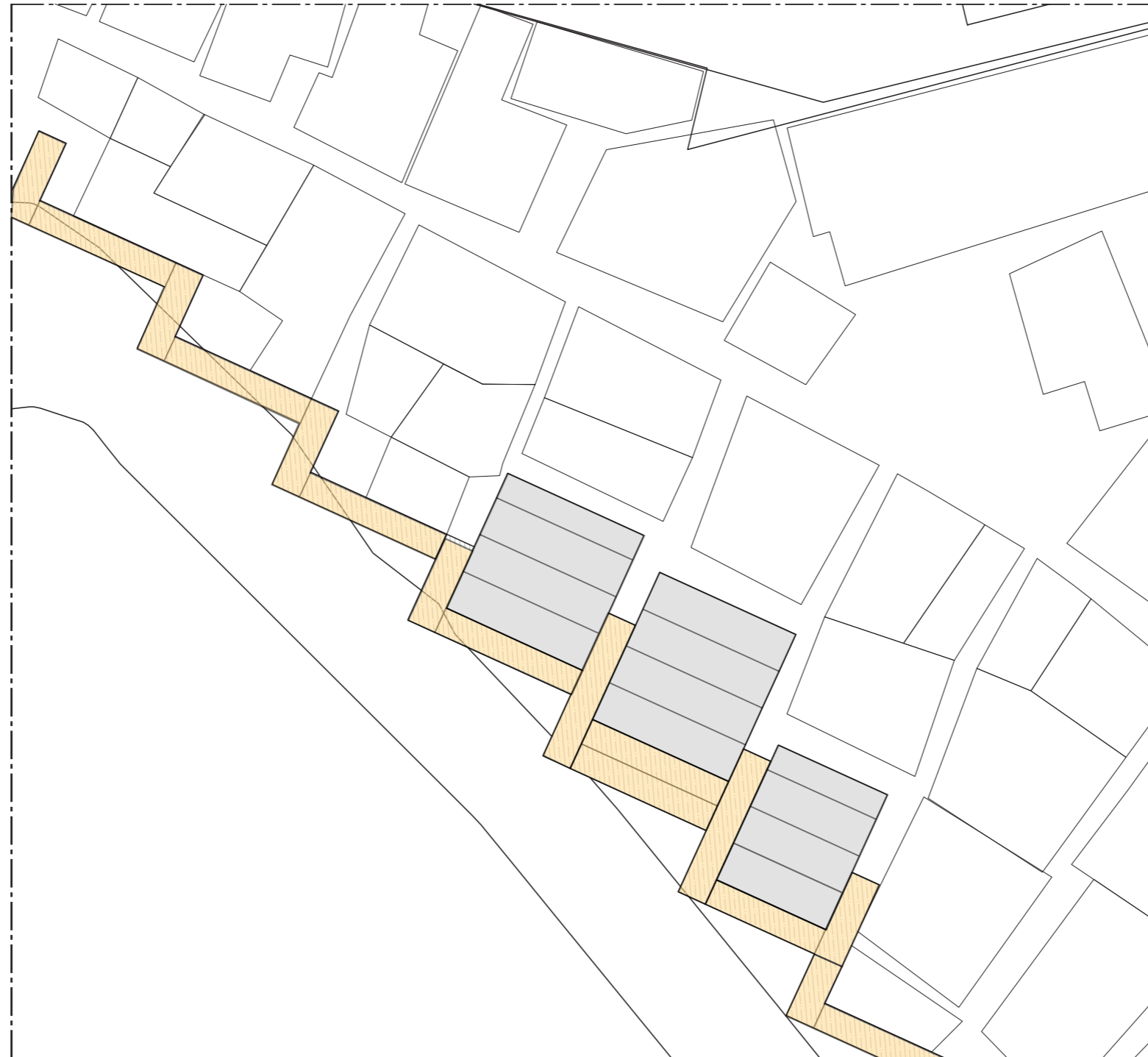




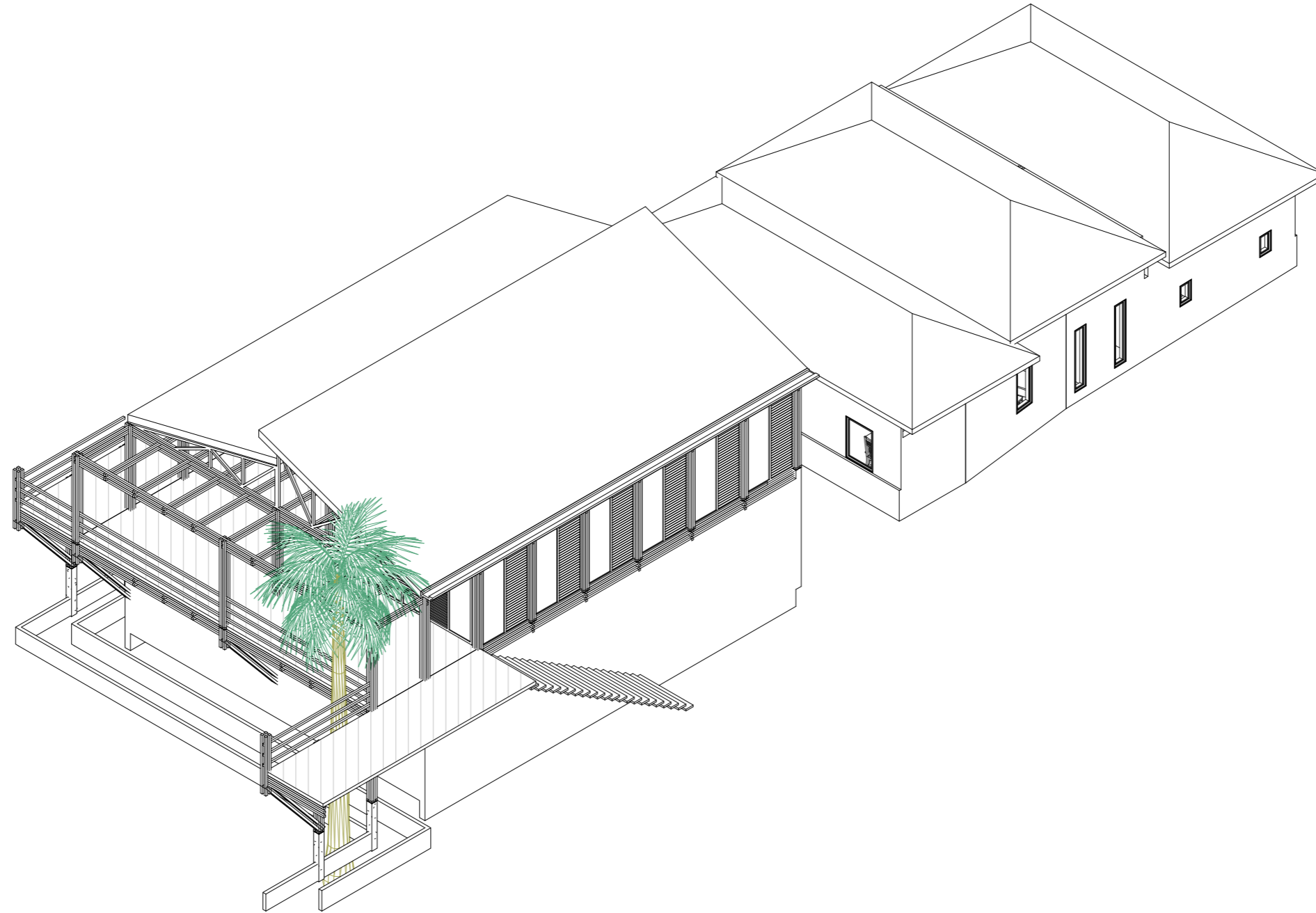
Incremental growth



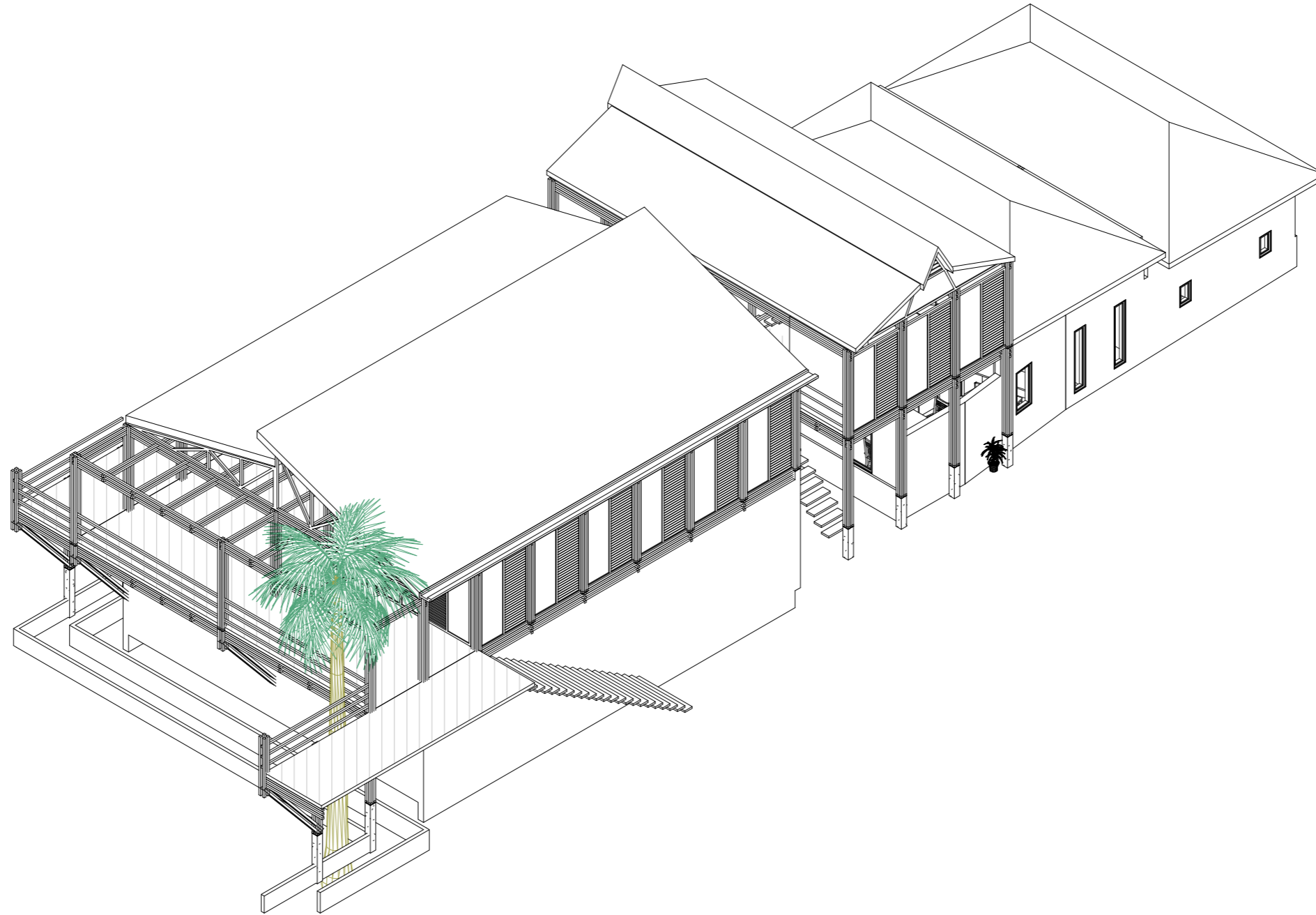
Incremental growth



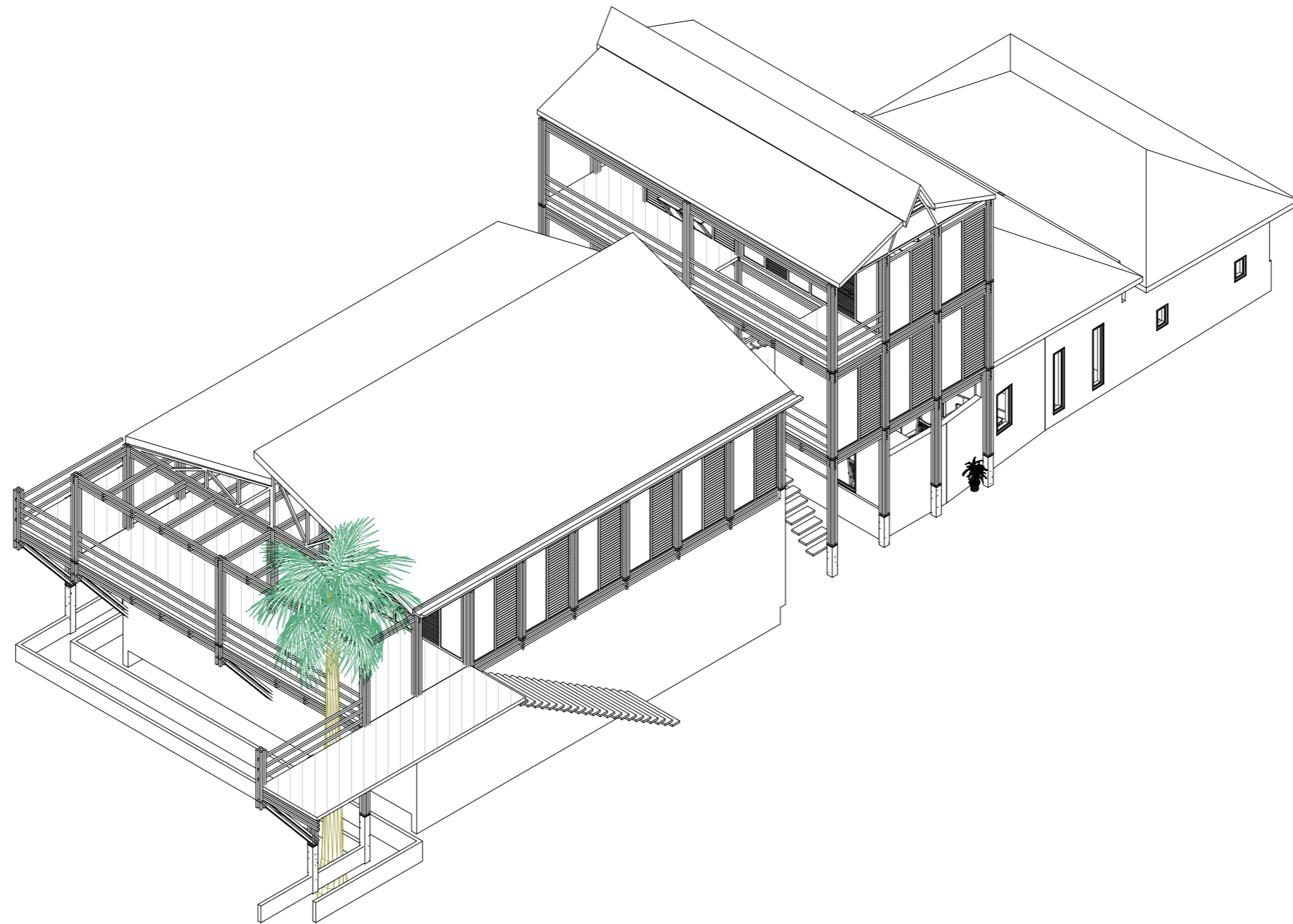
Incremental growth



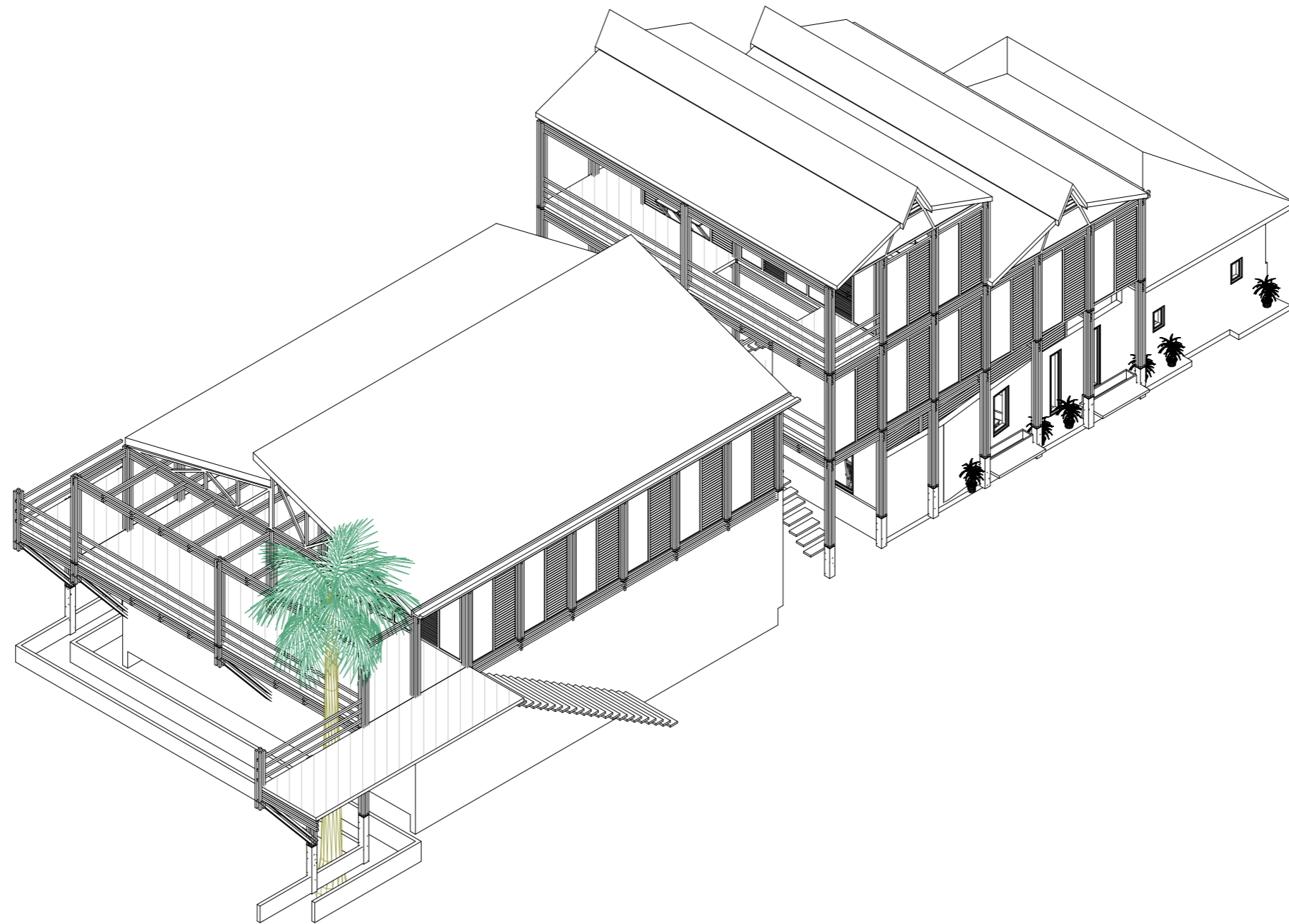
Incremental growth



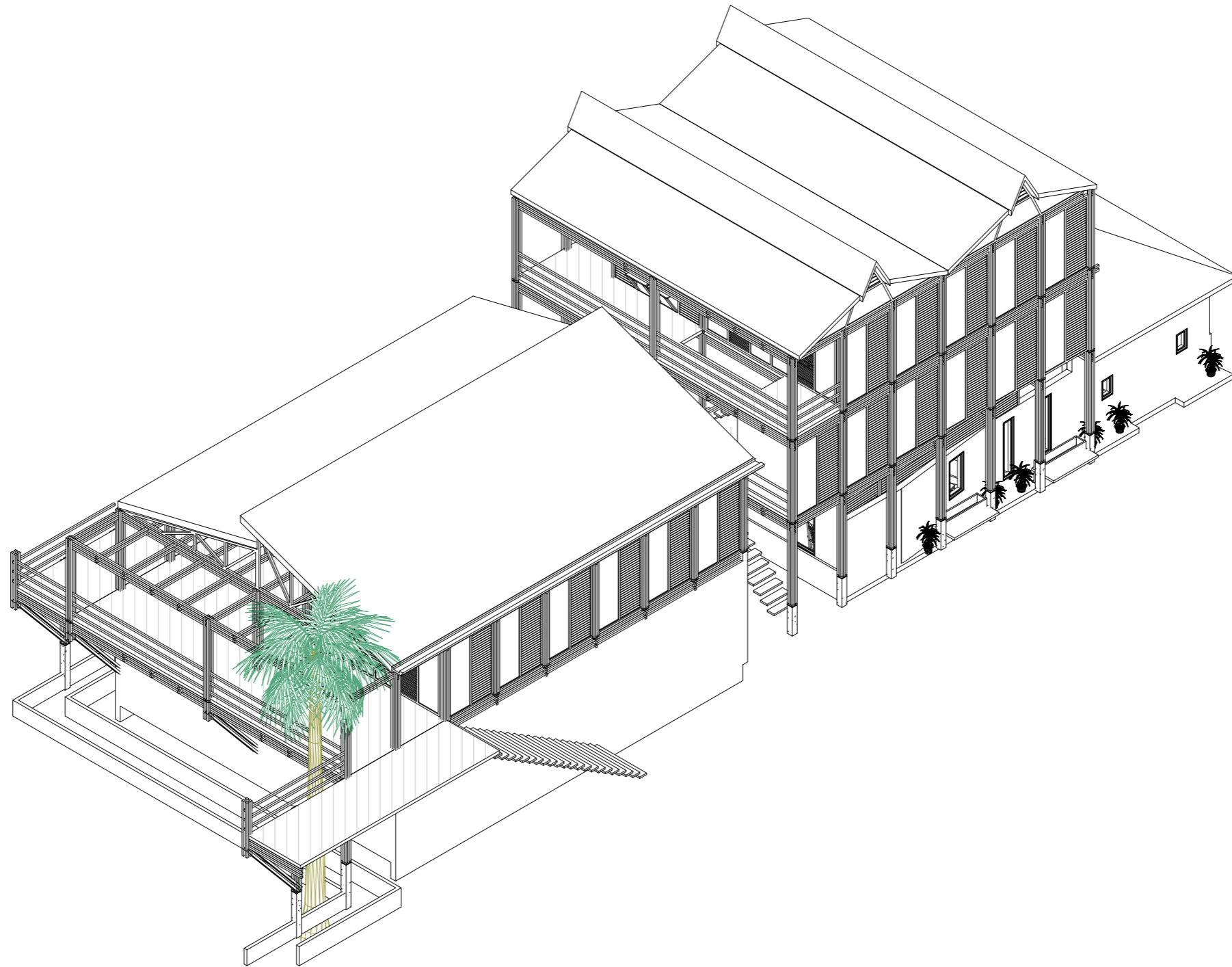
Incremental growth



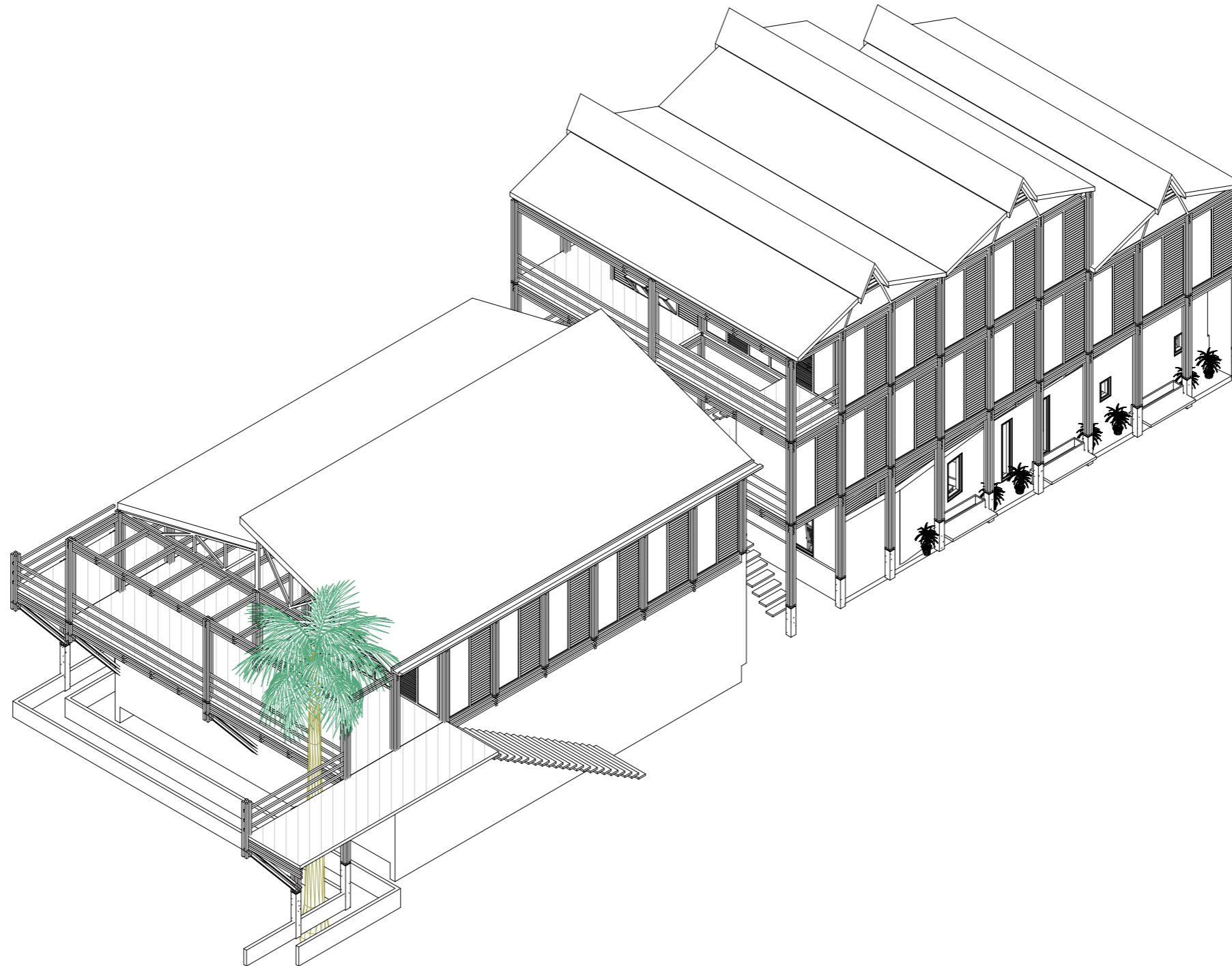
Incremental growth



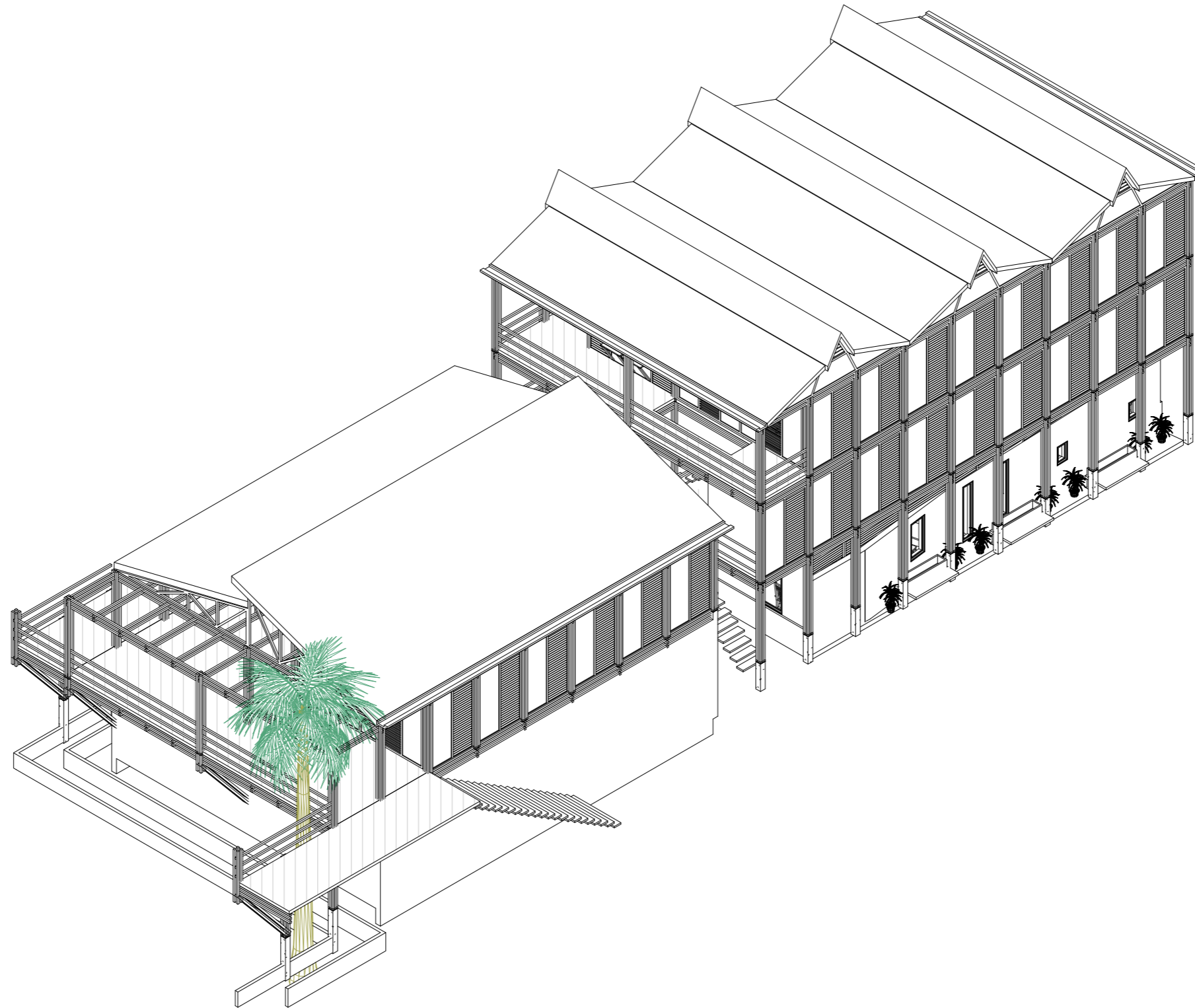
Incremental growth



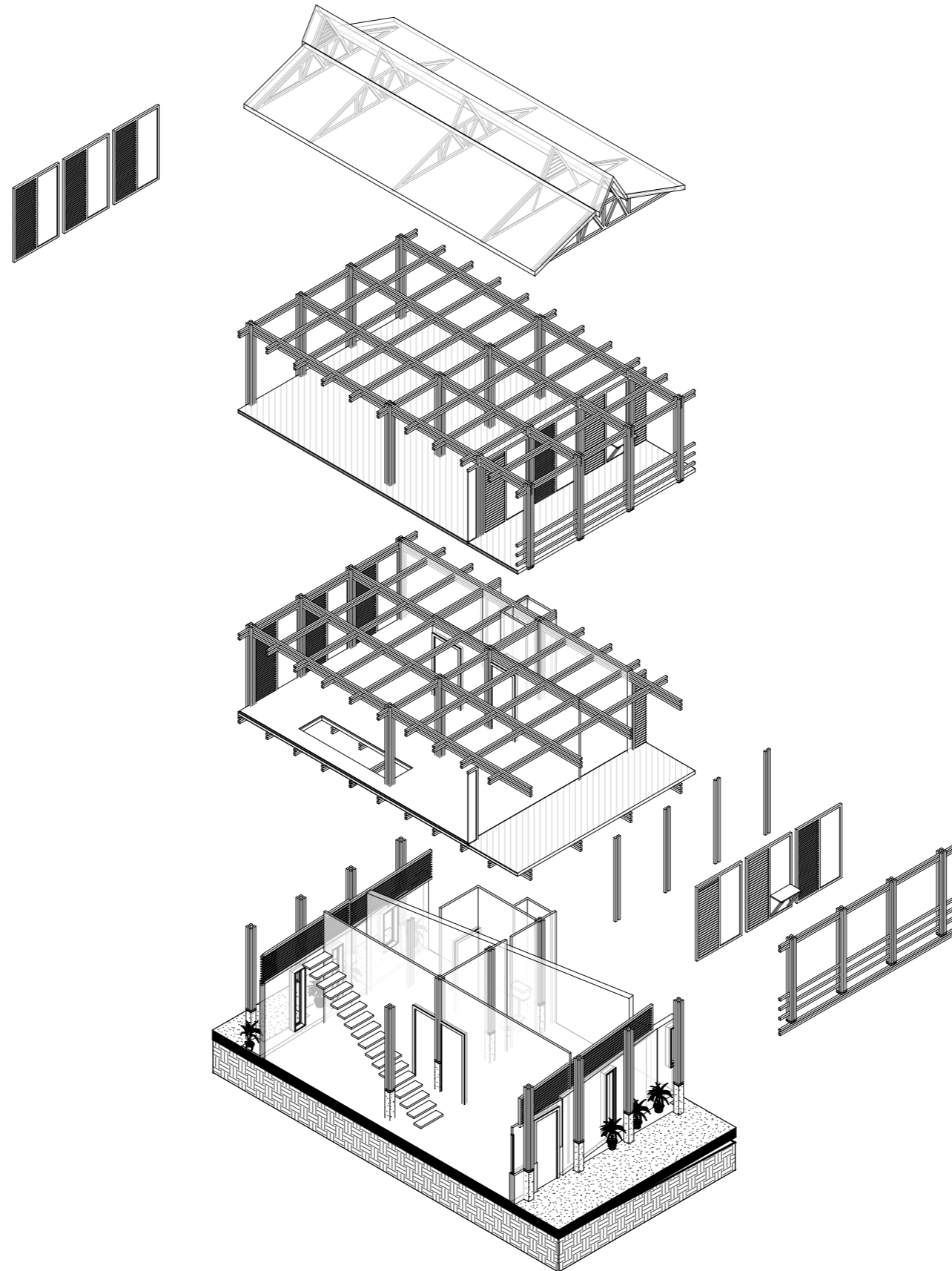
Incremental growth



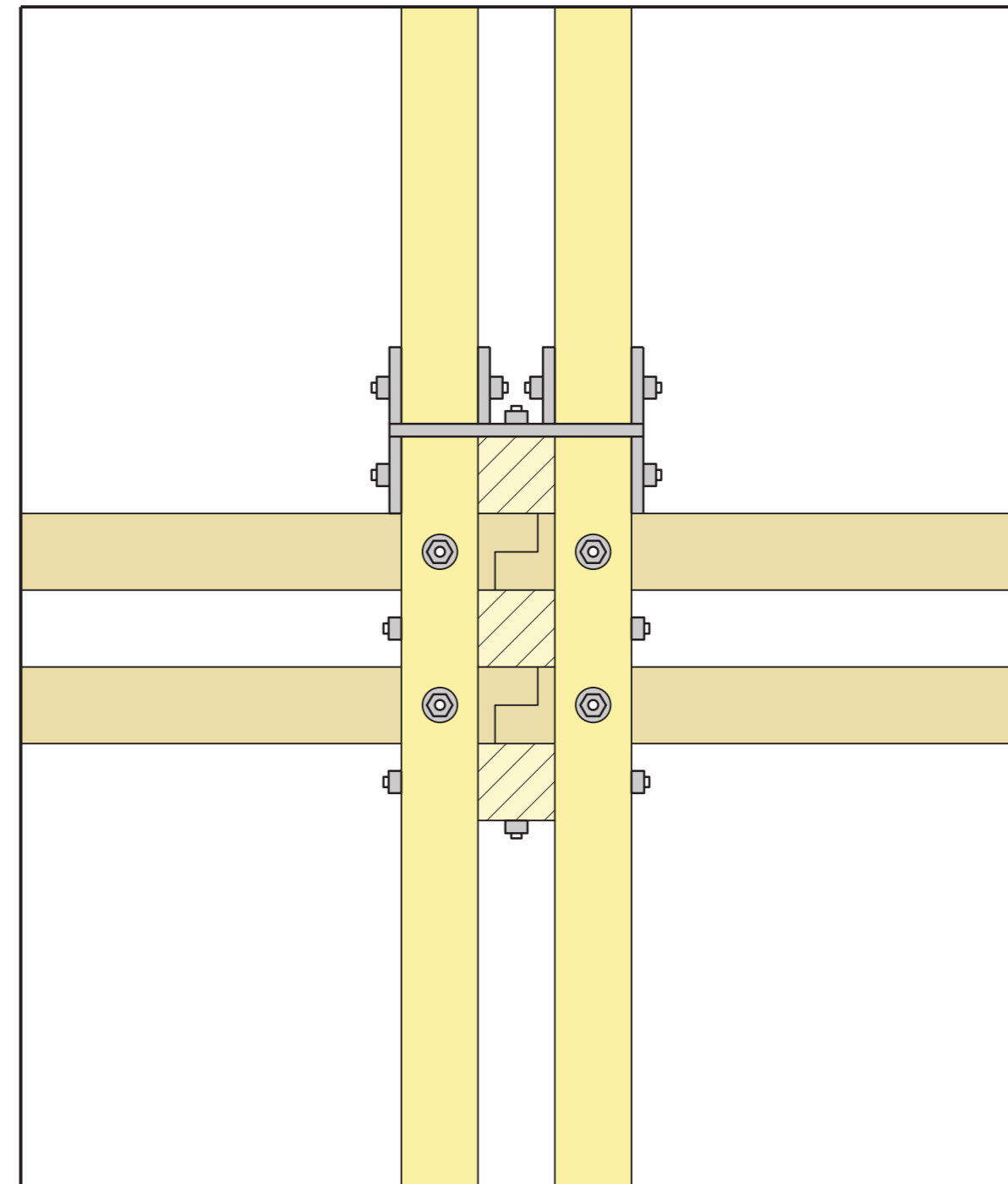
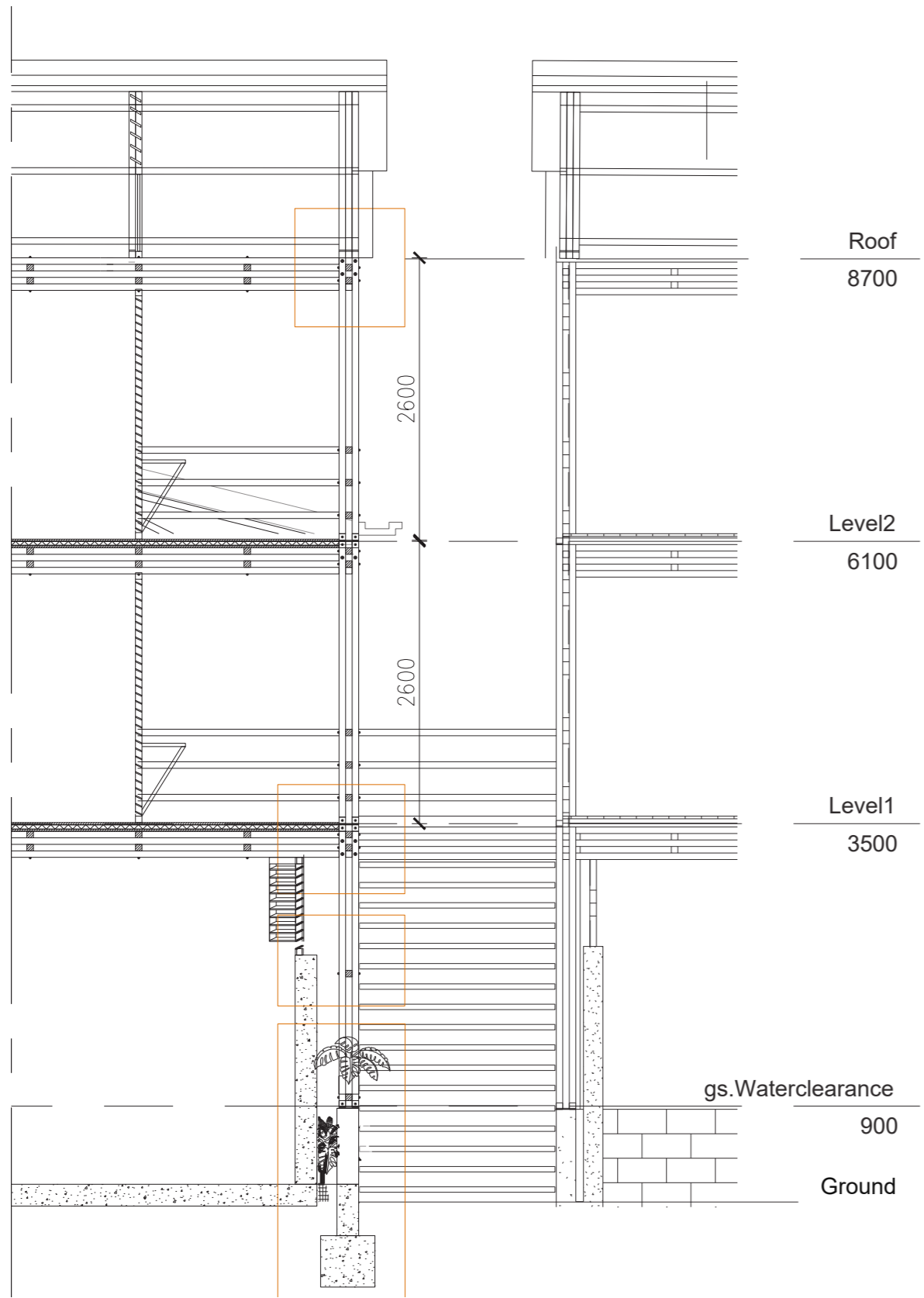
Incremental growth



Exploded view



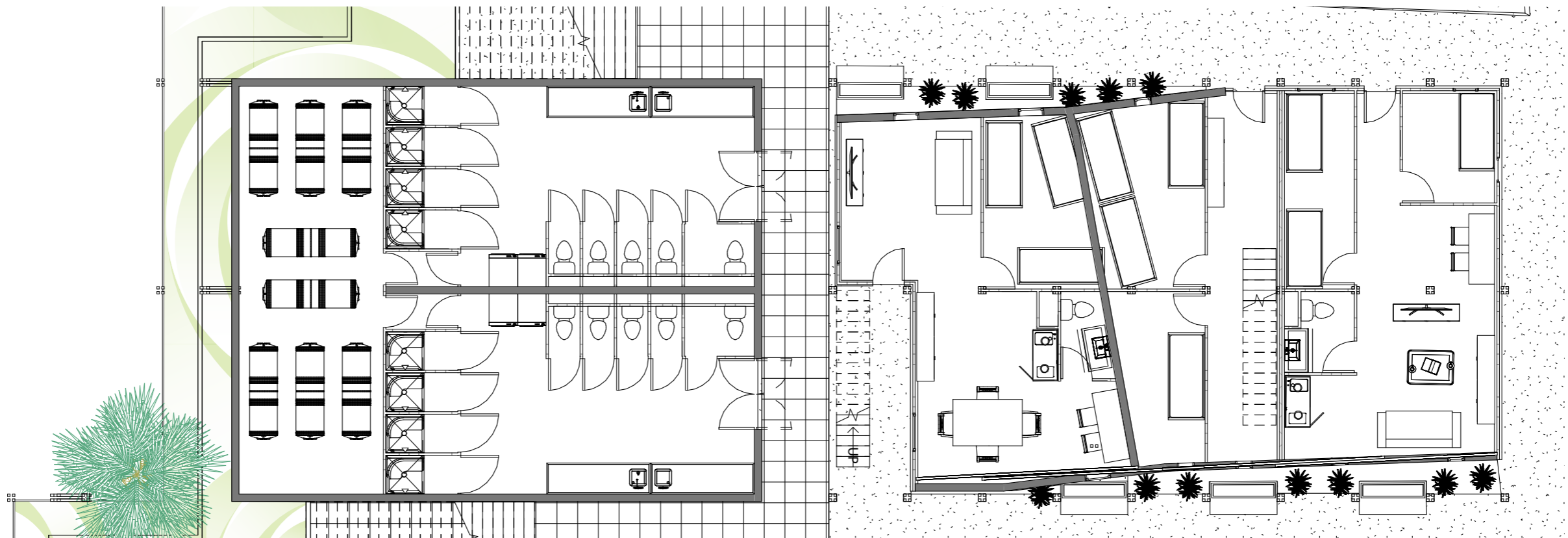
Modular joint



Section



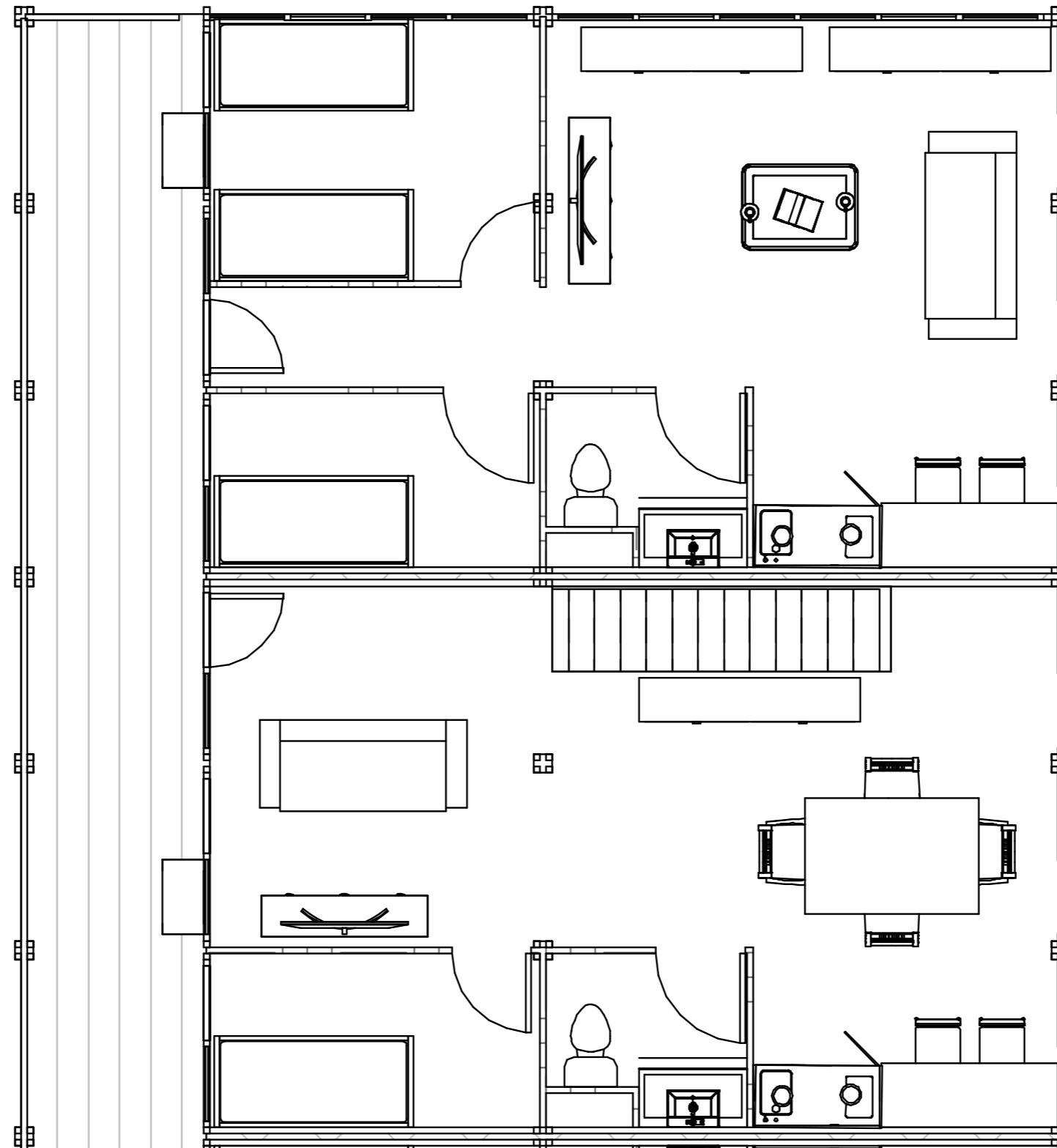
Floorplan ground



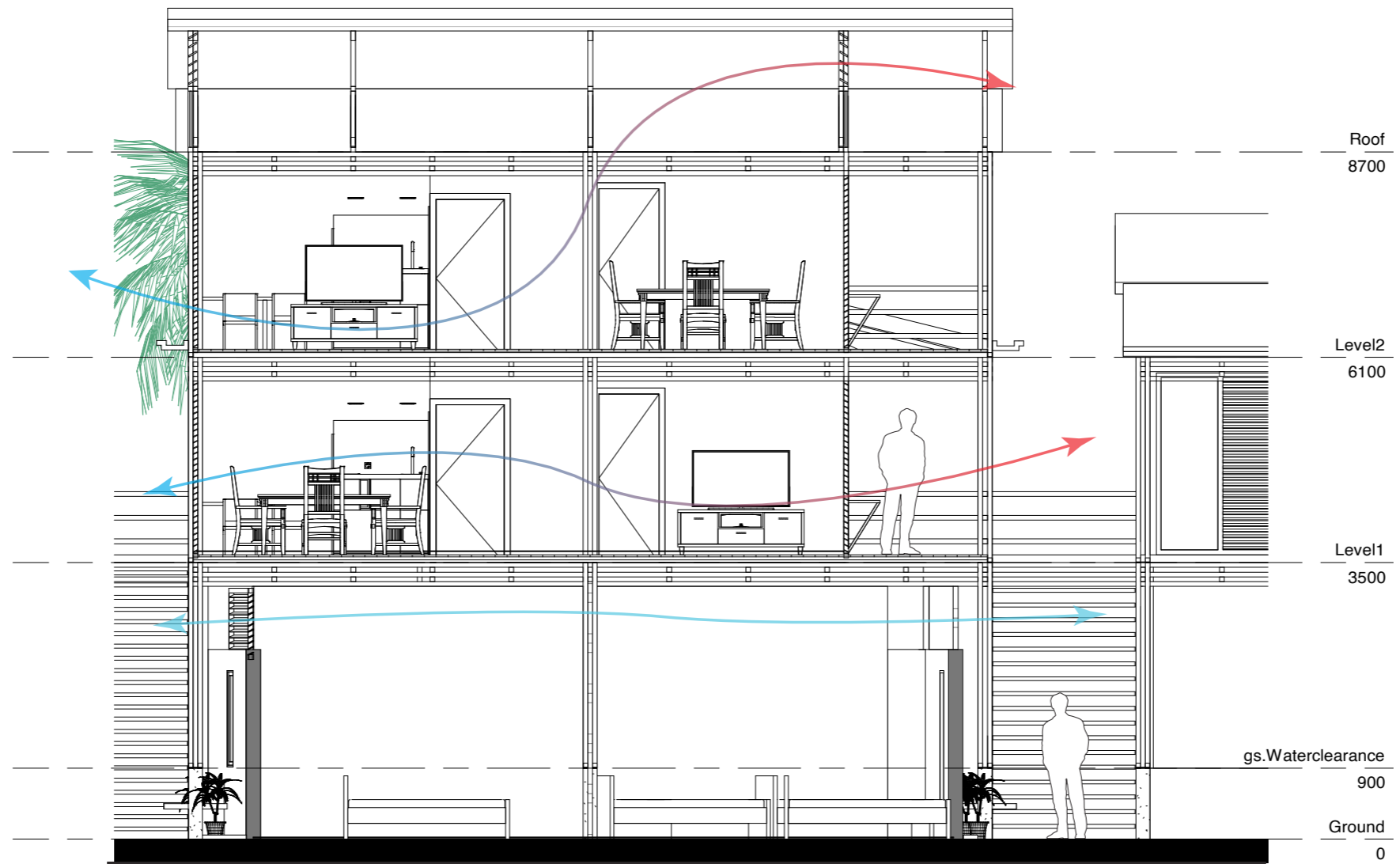
Floorplan first floor



Floorplan dwelling



Section dwelling

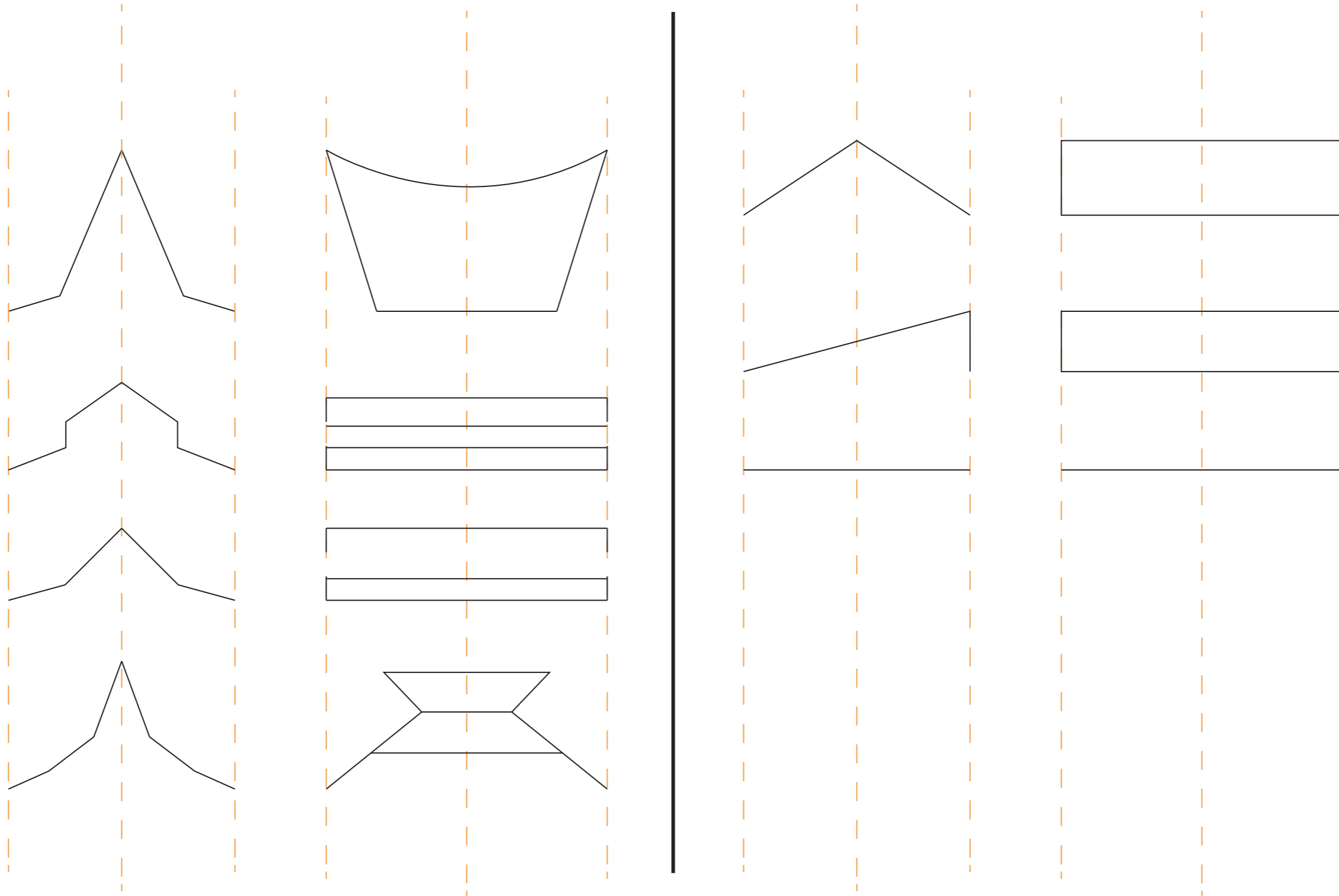




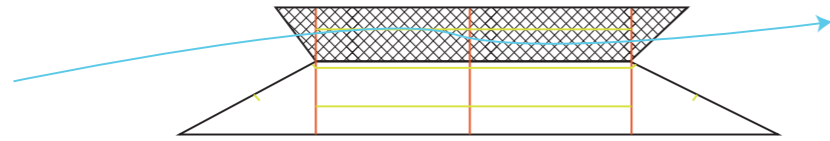




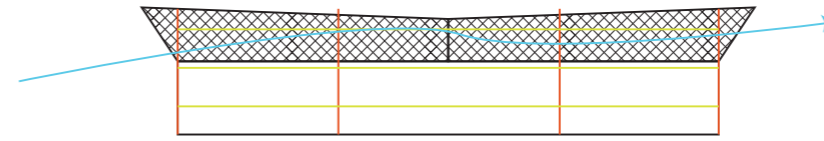
Roof shapes



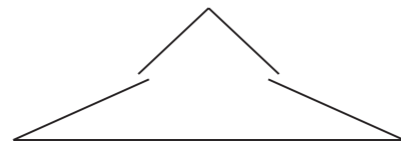
Roof choice



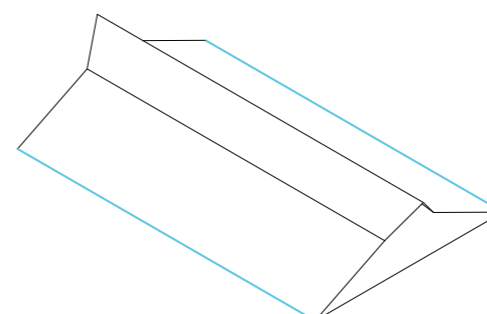
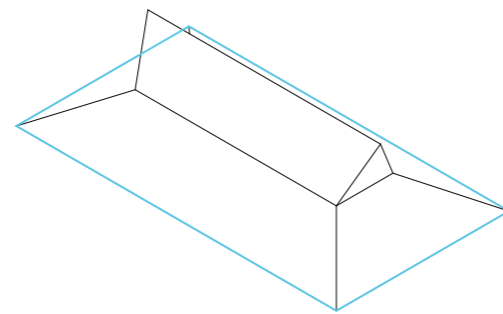
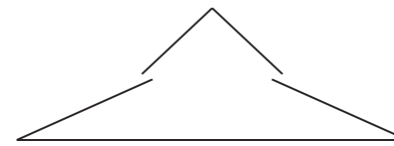
Less material



Simpler construction



Same section and climate principles



2 sides gutter

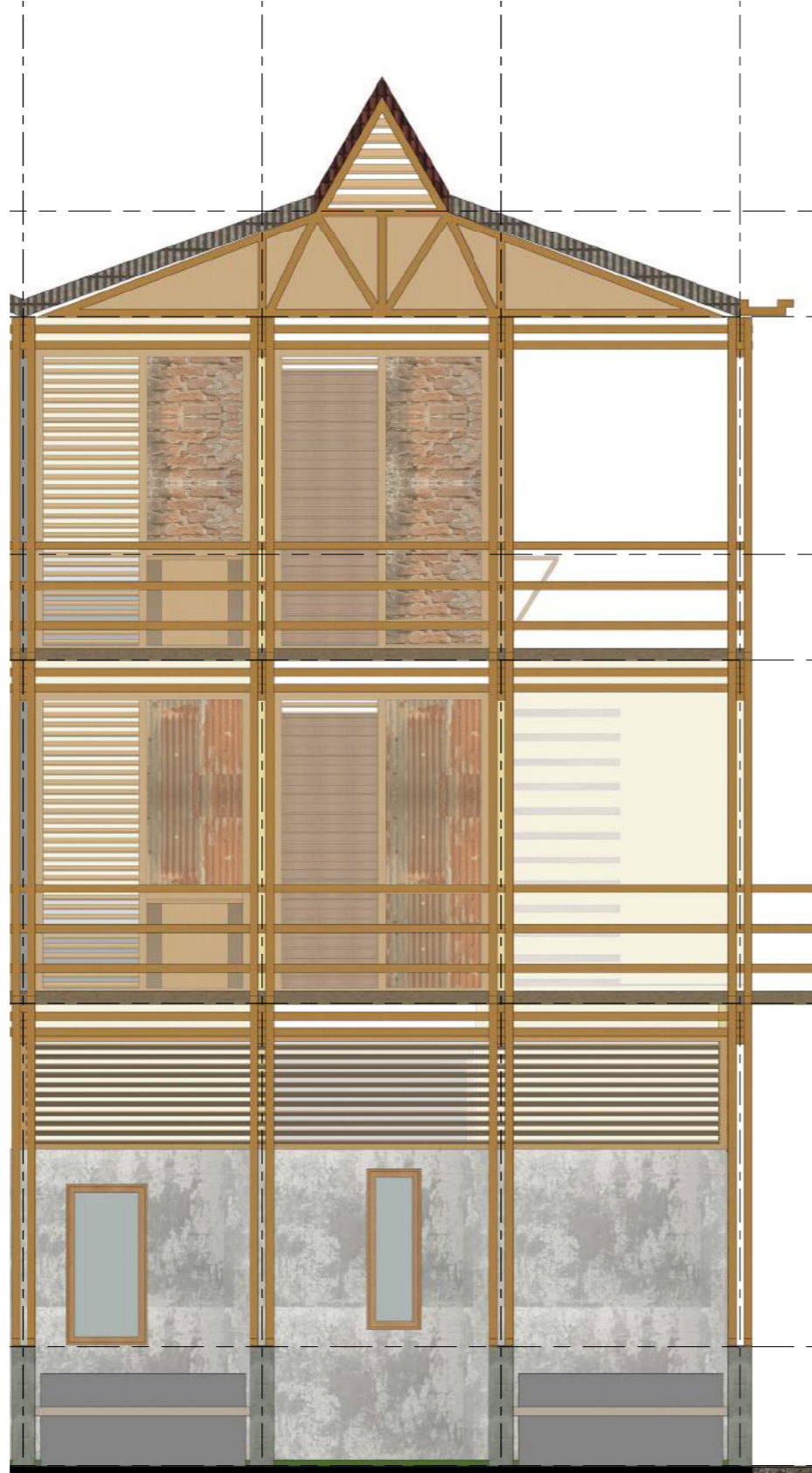
Wind direction



Alley facade



Facade section



River section



River facade







How it can develop





Context

Location
Why?
What?

Research

Main focus
Research
Inspiration
Level up

Concept and design

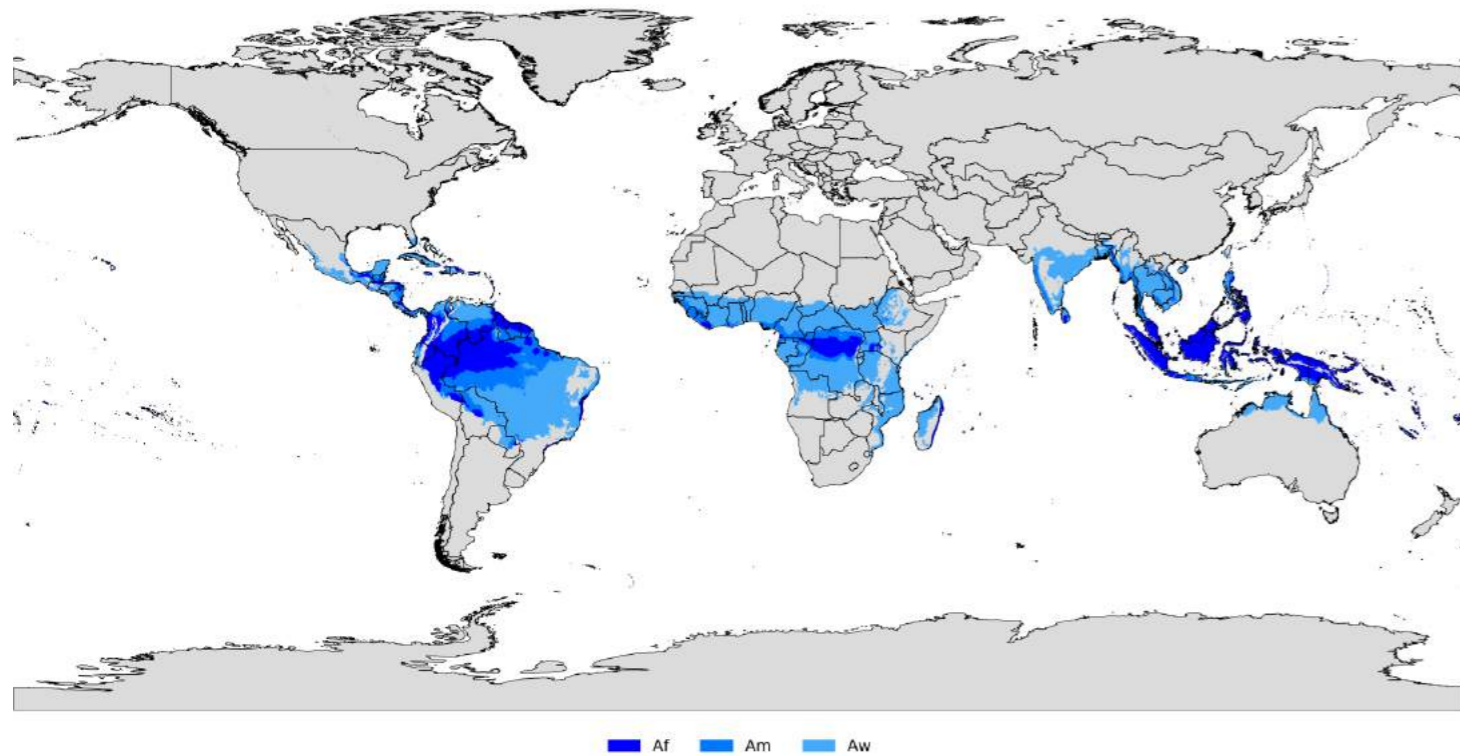
Urban development
Stroke development
Structure

Impact

Other locations
Quality of life

Where else?

Tropical (1980–2016)

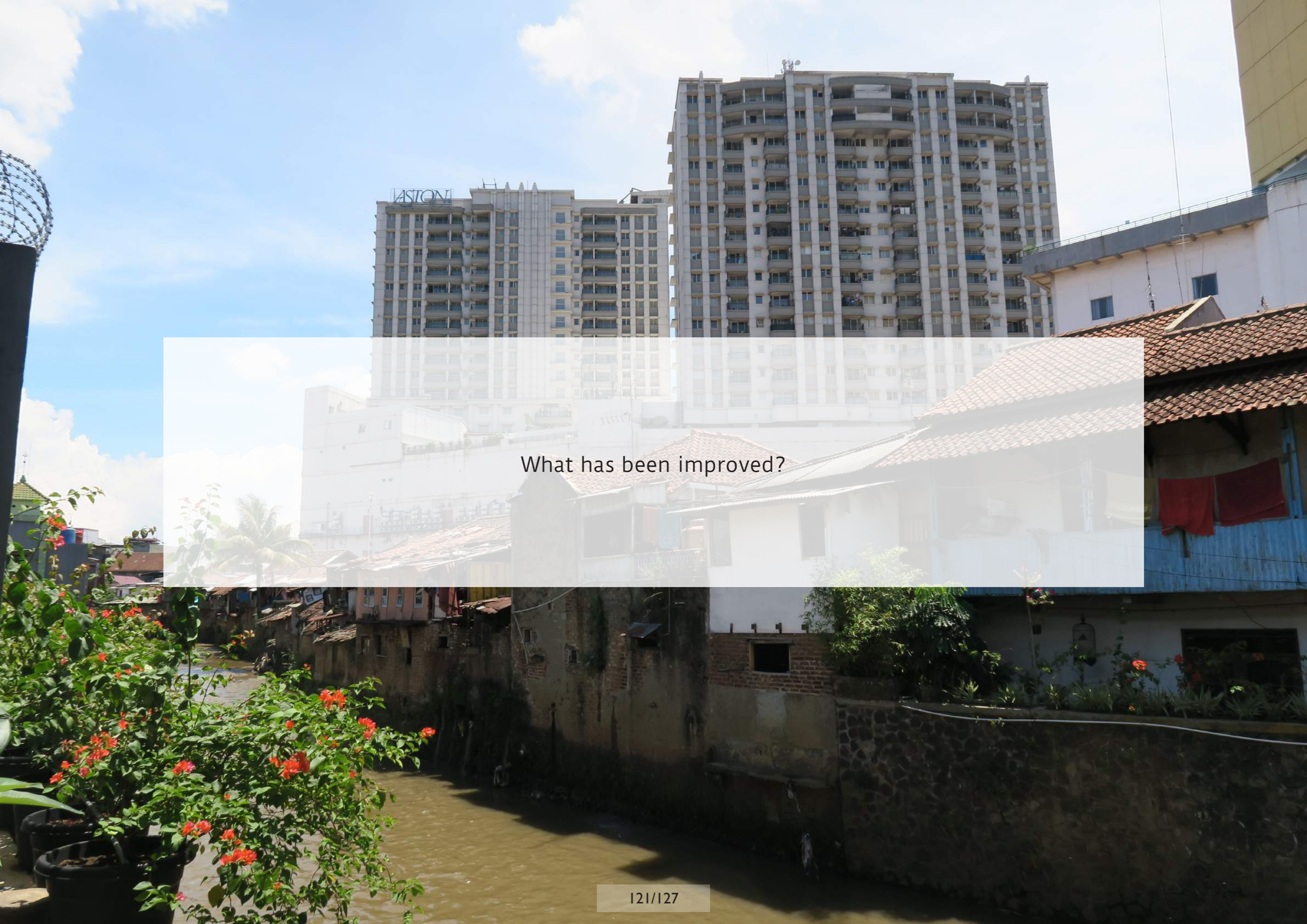


Source: Beck et al.: Present and future Köppen-Geiger climate classification maps at 1-km resolution, *Scientific Data* 5:180214, doi:10.1038/sdata.2018.214 (2018)

Other riverbanks facing the same problems

Rural or city kampongs

Other tropical countries



What has been improved?



More public space and space for water



Connection to the river and otherside



Stronger and safer structures



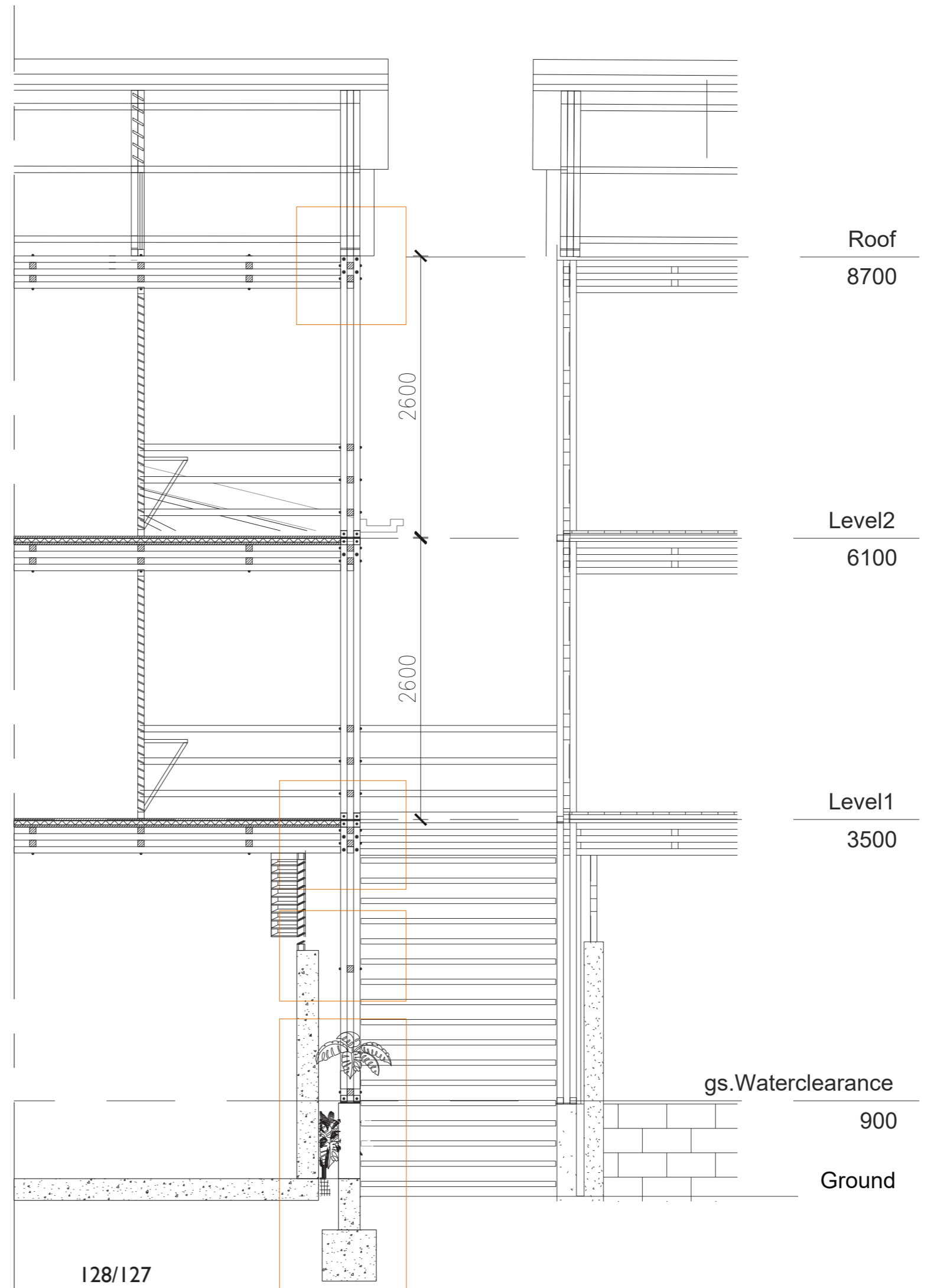
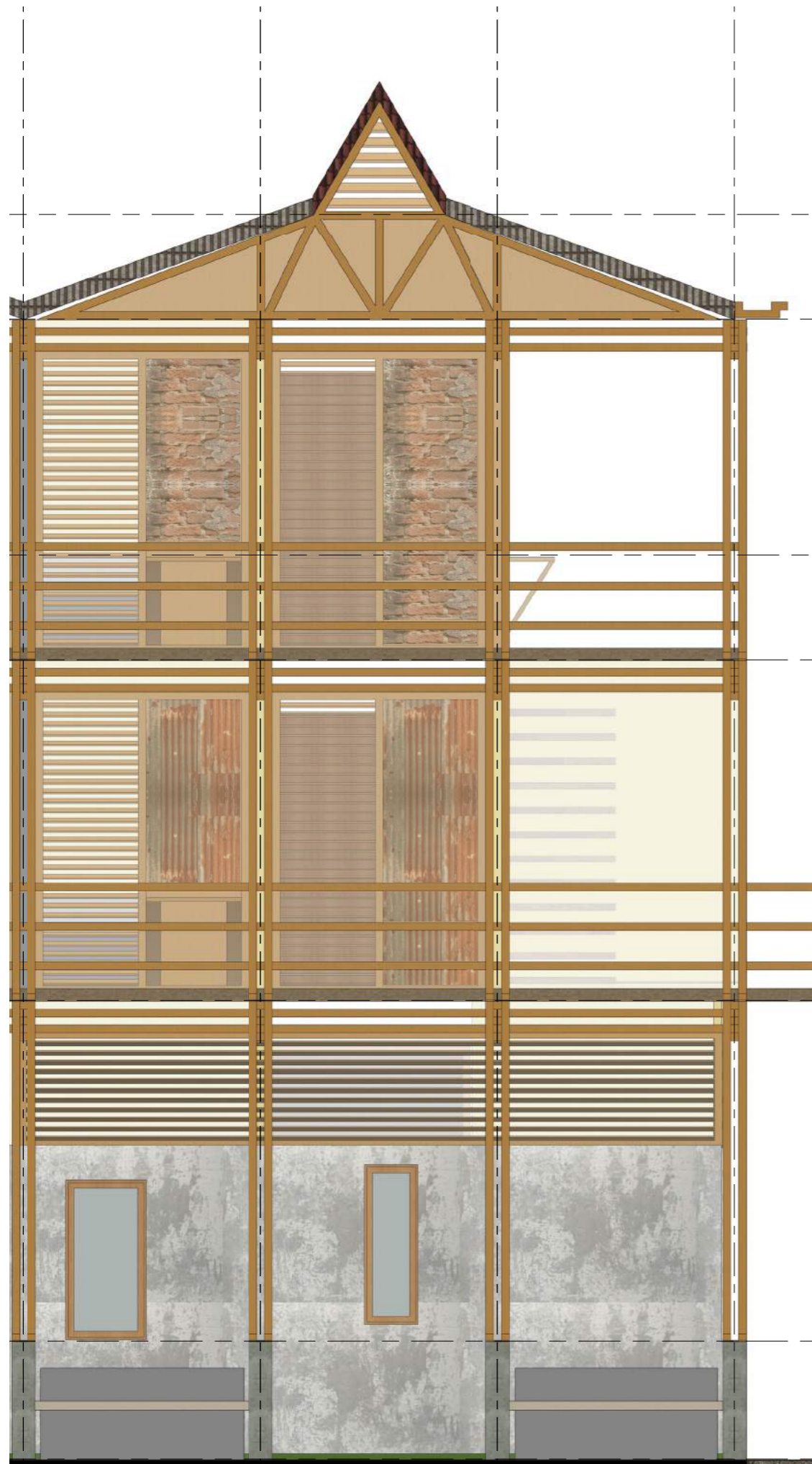
Same kampong feeling

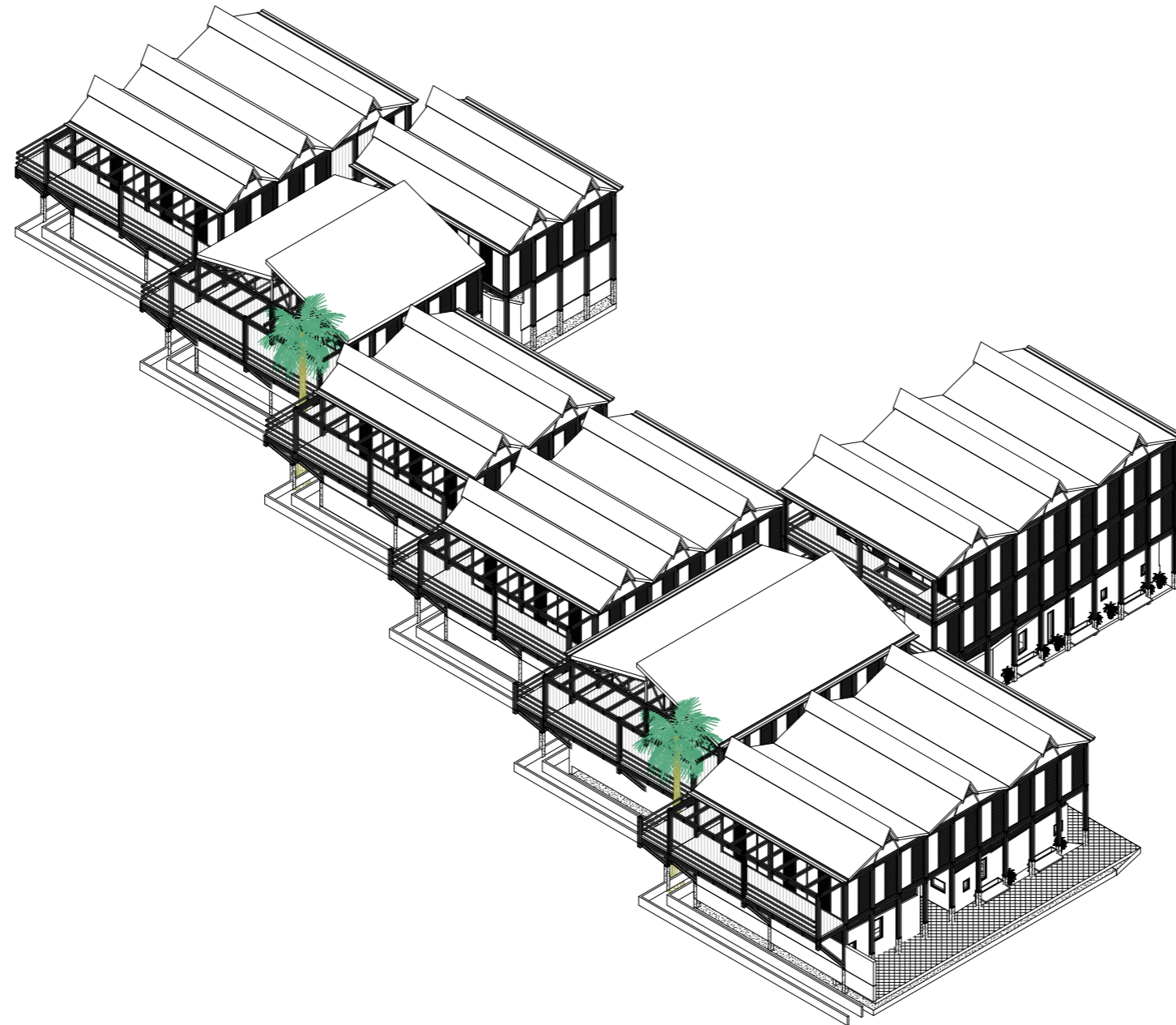


New infrastructure

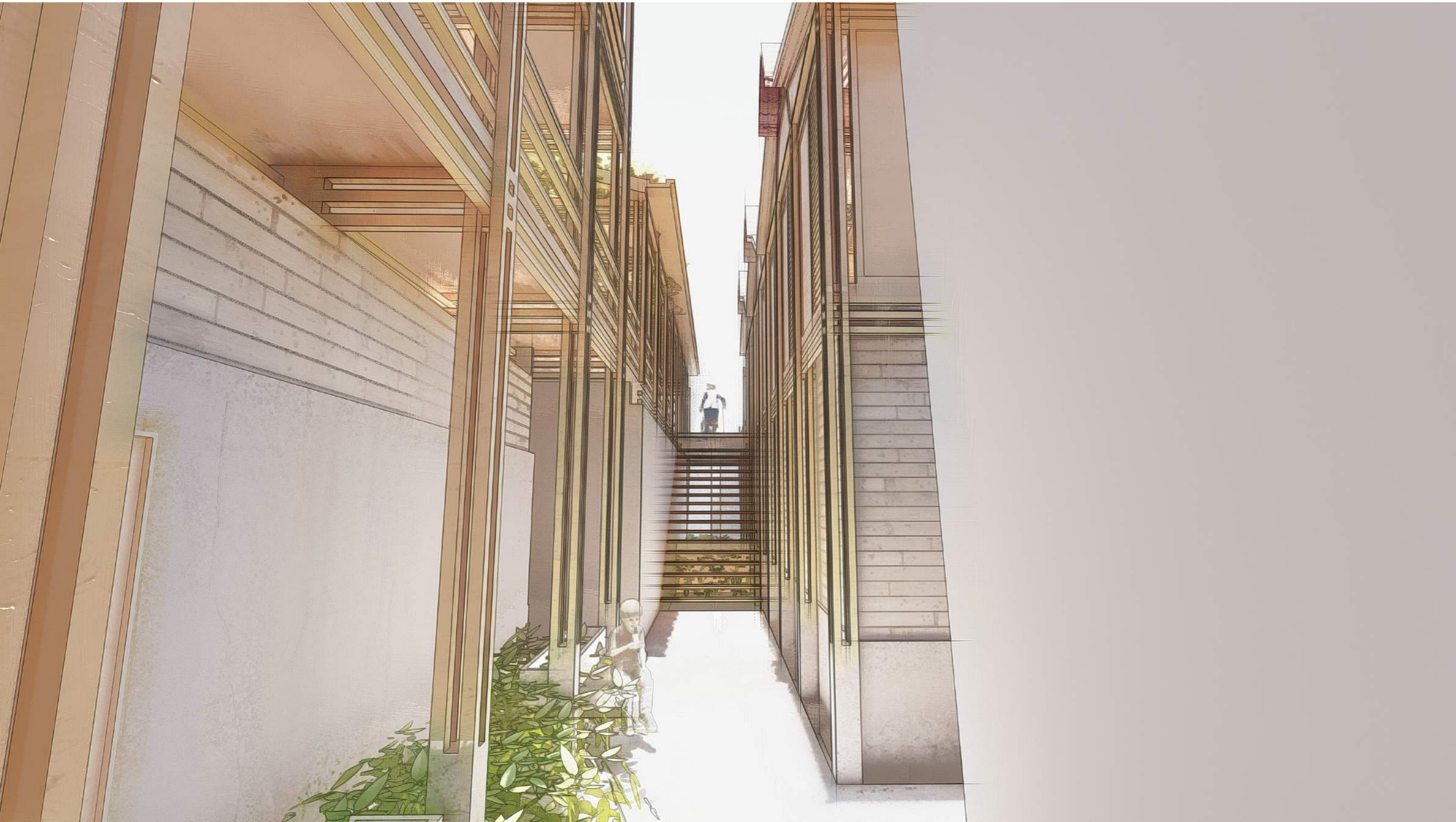
QUESTIONS?

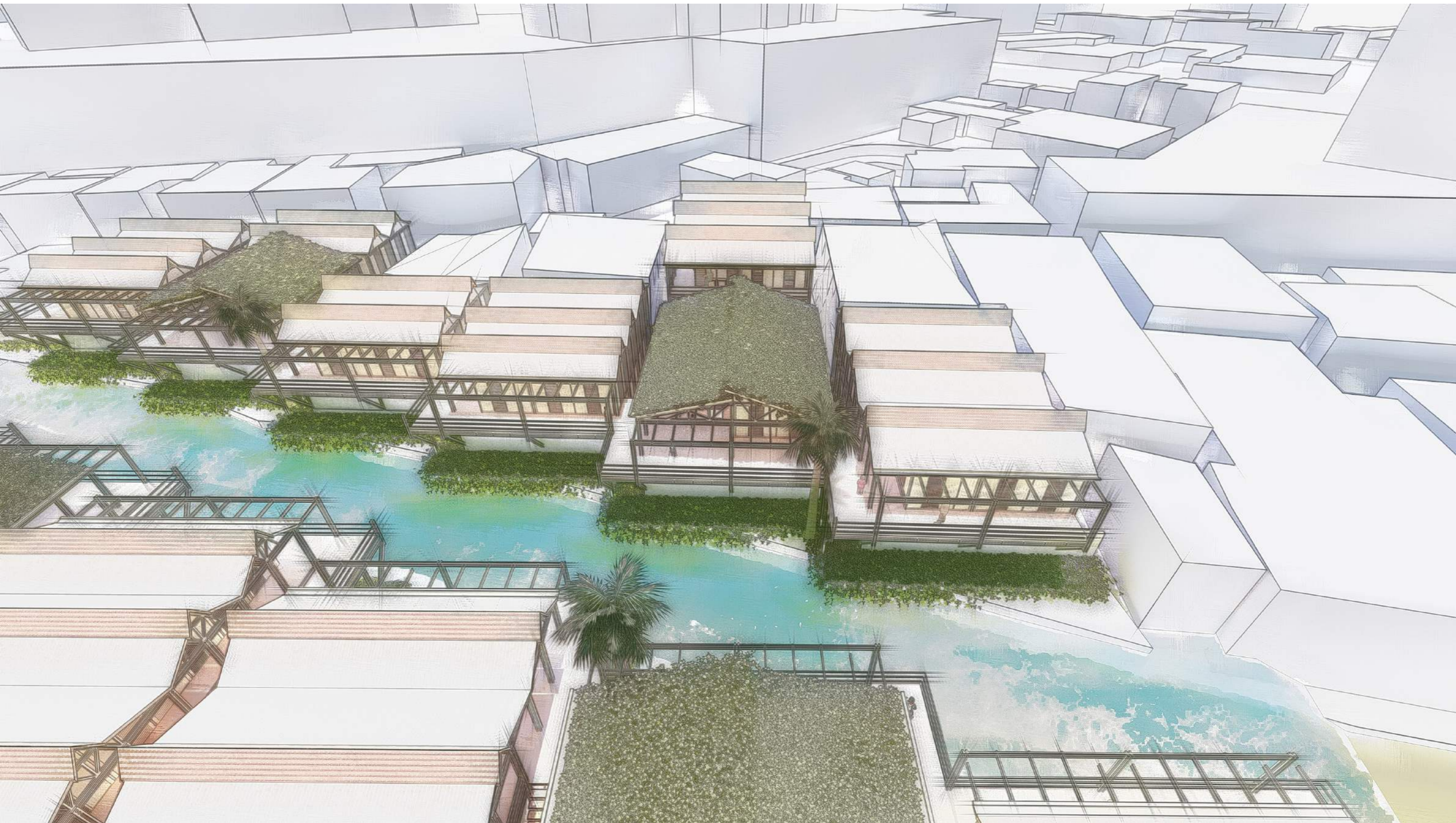


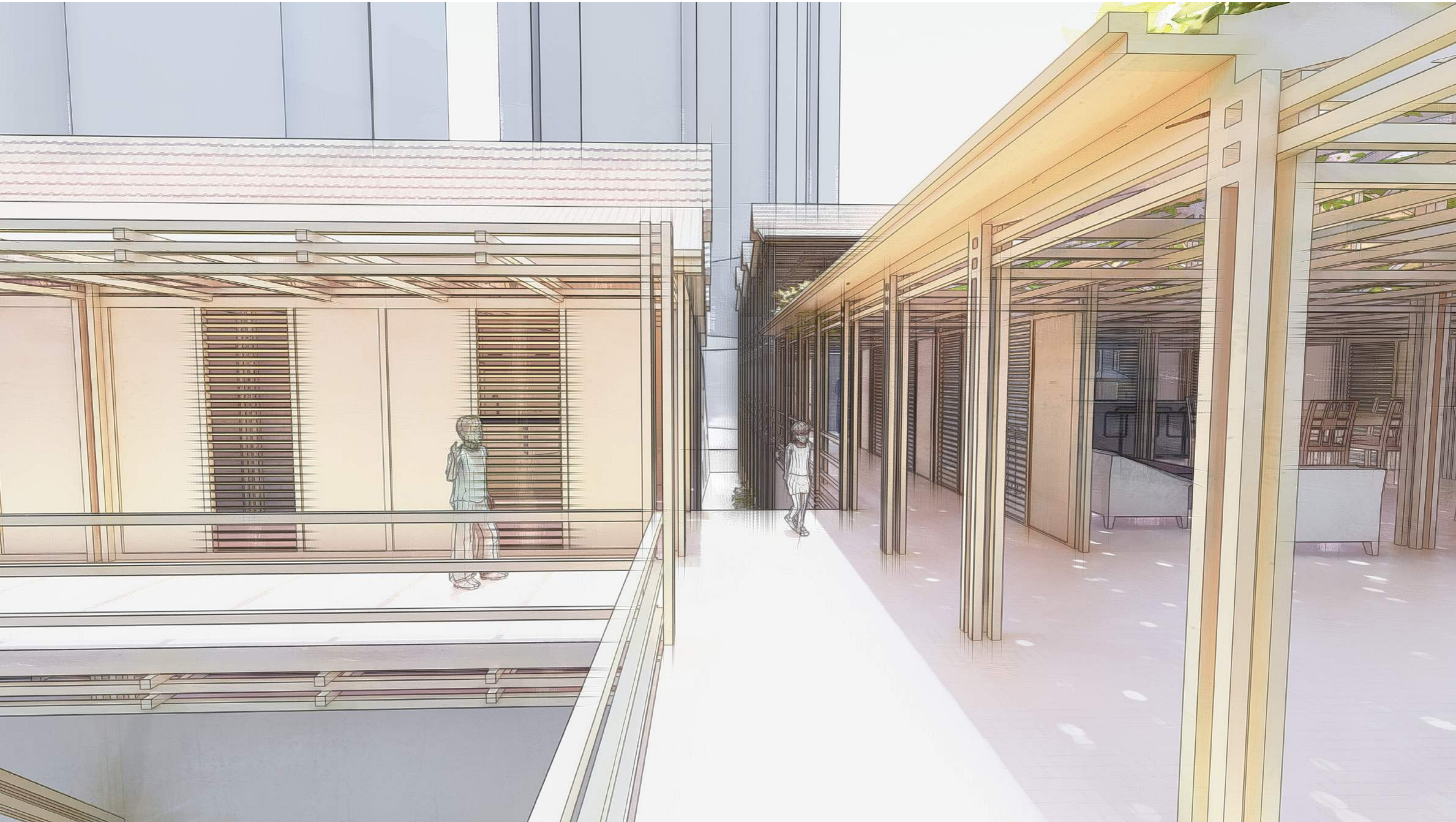


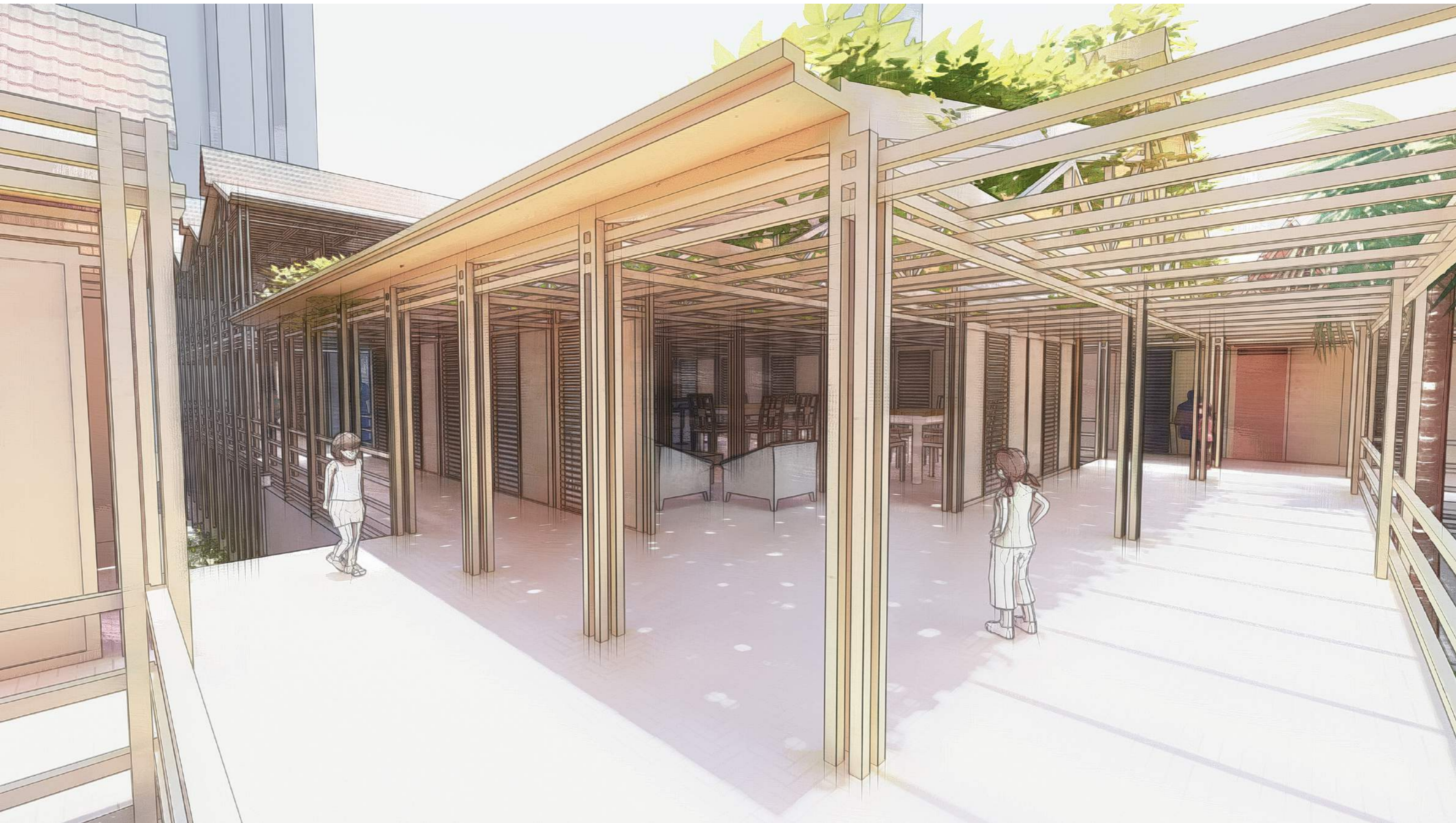










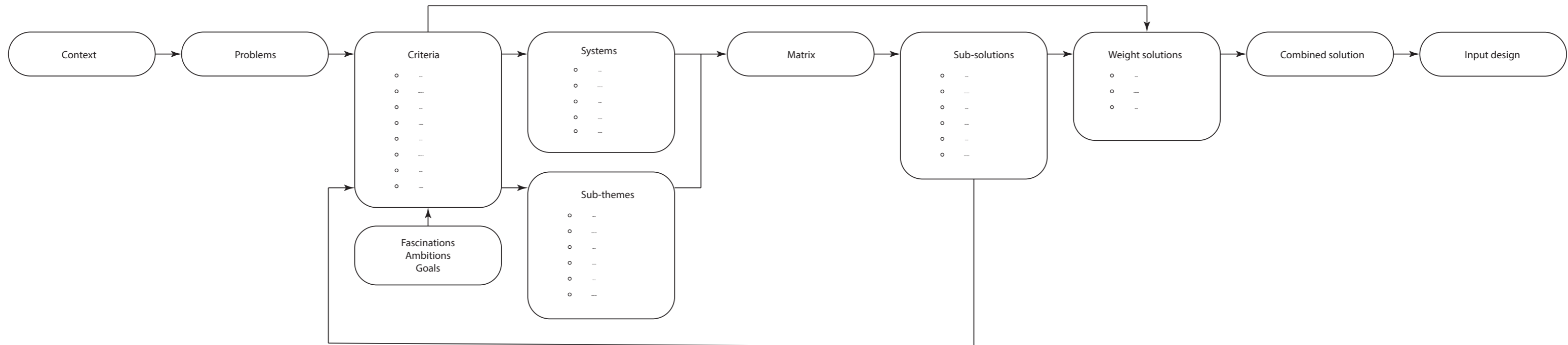








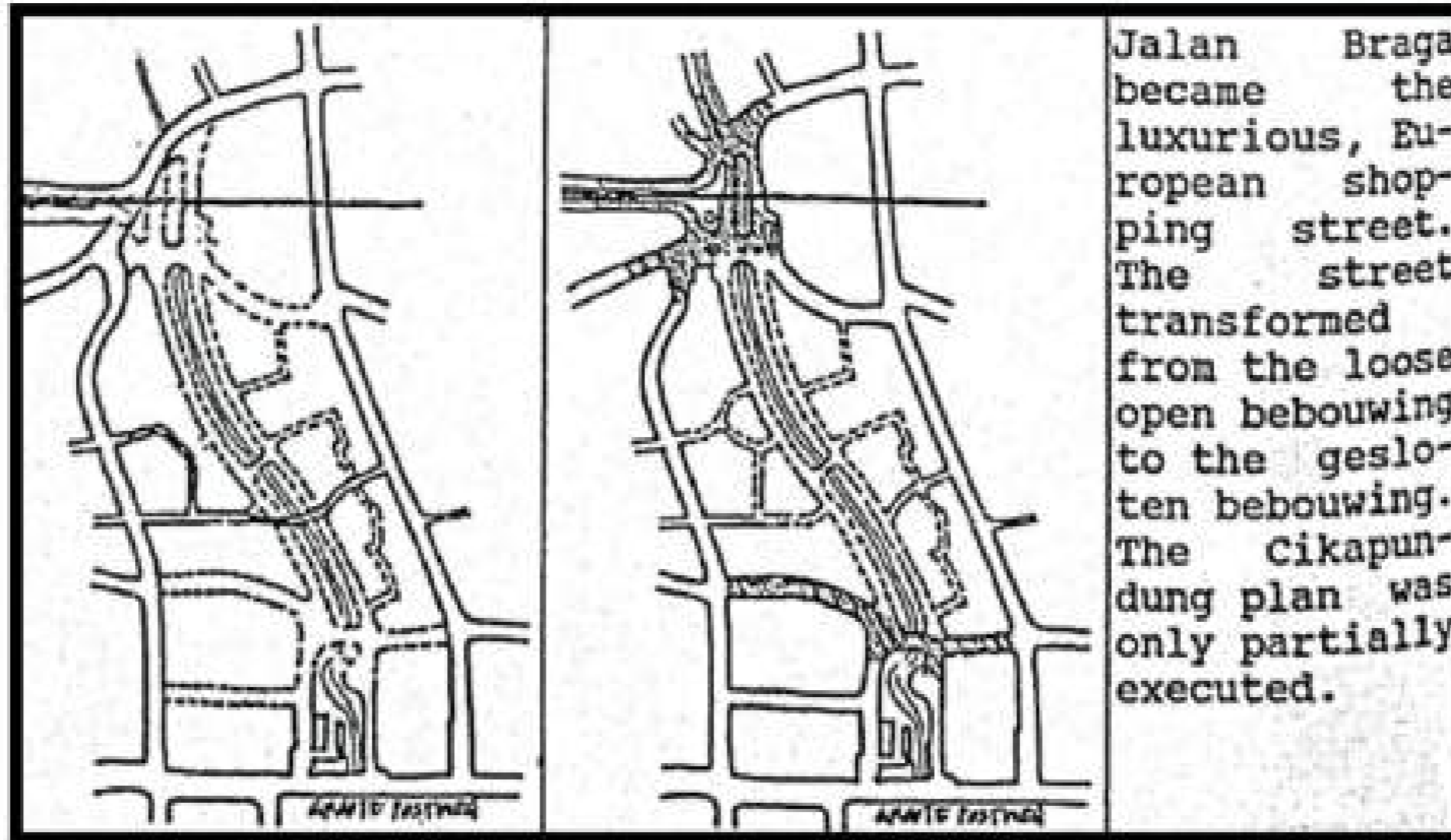
Research methodology



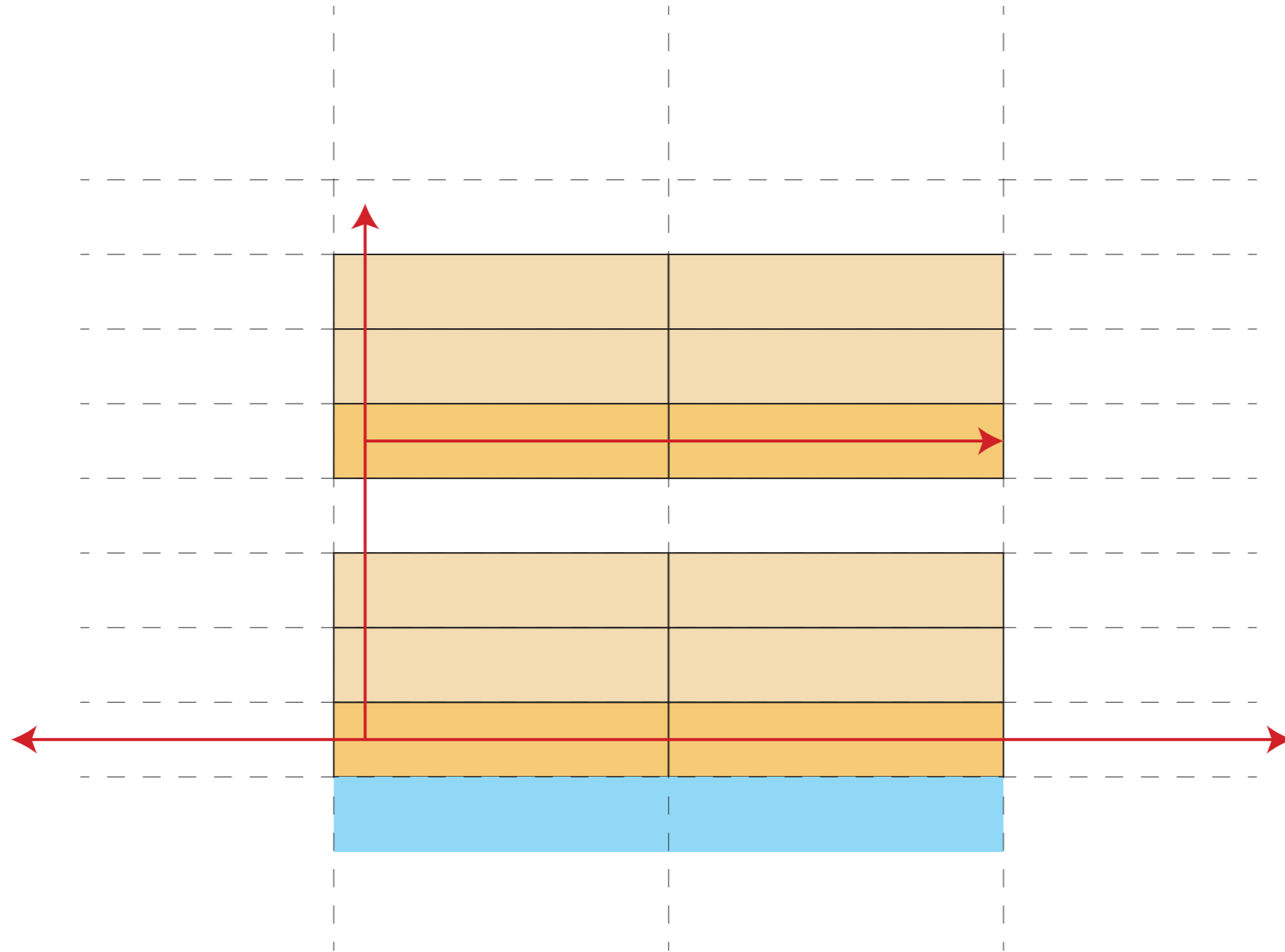
Incremental growth



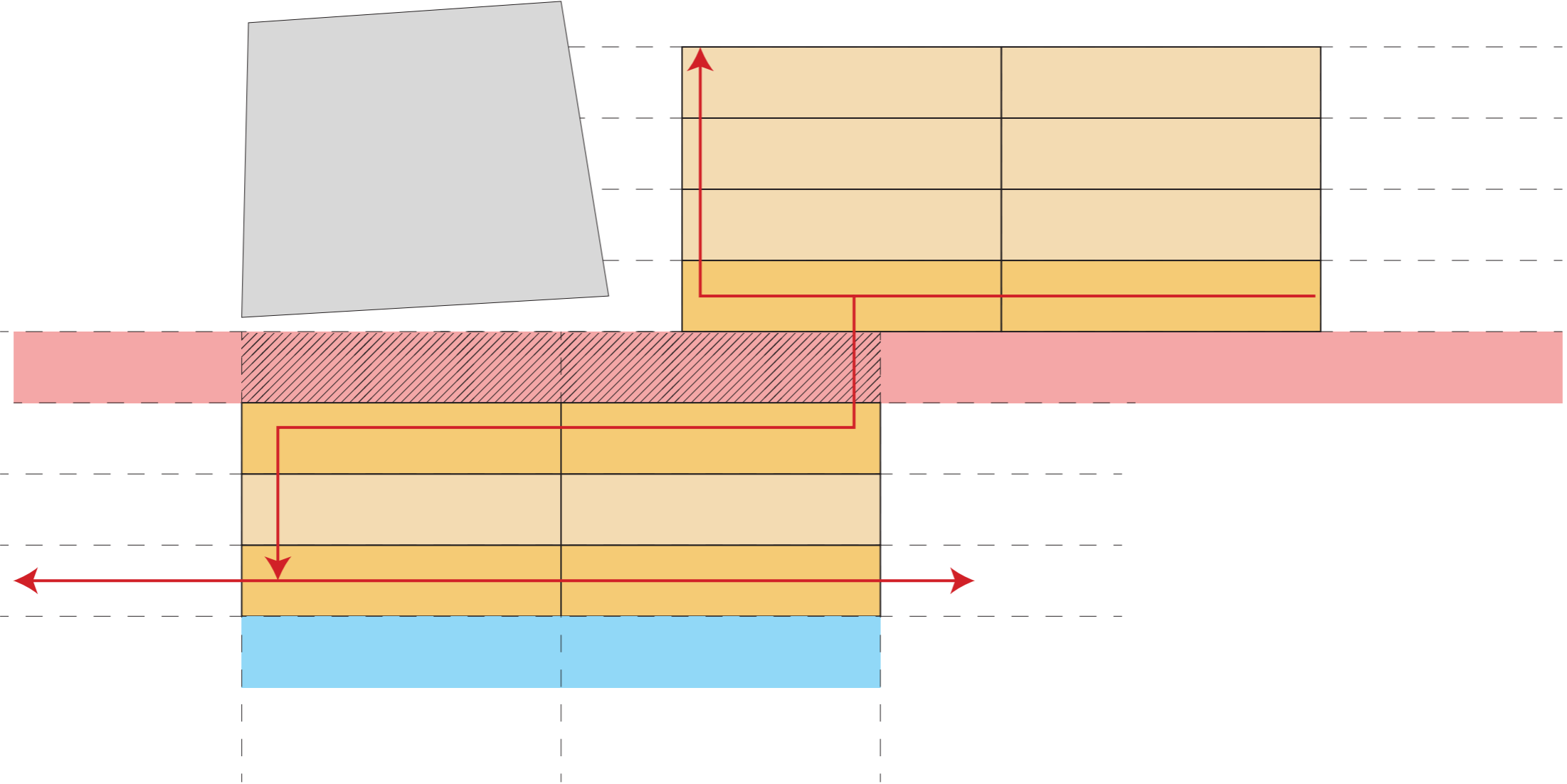
Riverside plan Karsten



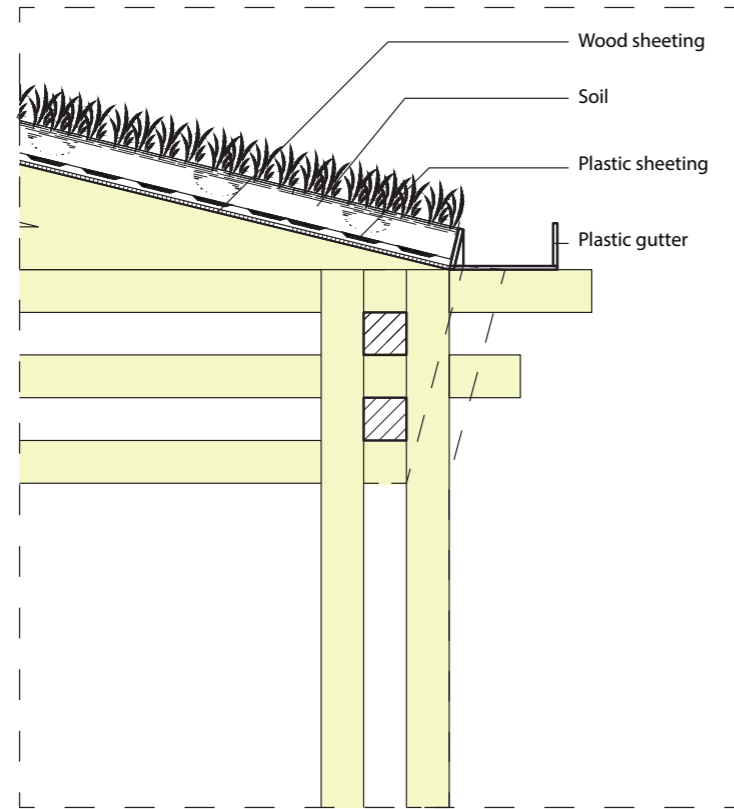
Growth



Dealing with existing



Green roof



Solar panel integration in roof

