

LEARNING BY DOING
IN CUBAN URBAN IDYLL

MSC3-4 COMPLEX PROJECT | HAVANA | ALAMAR
P5 PRESENTATION | 06-07-2017

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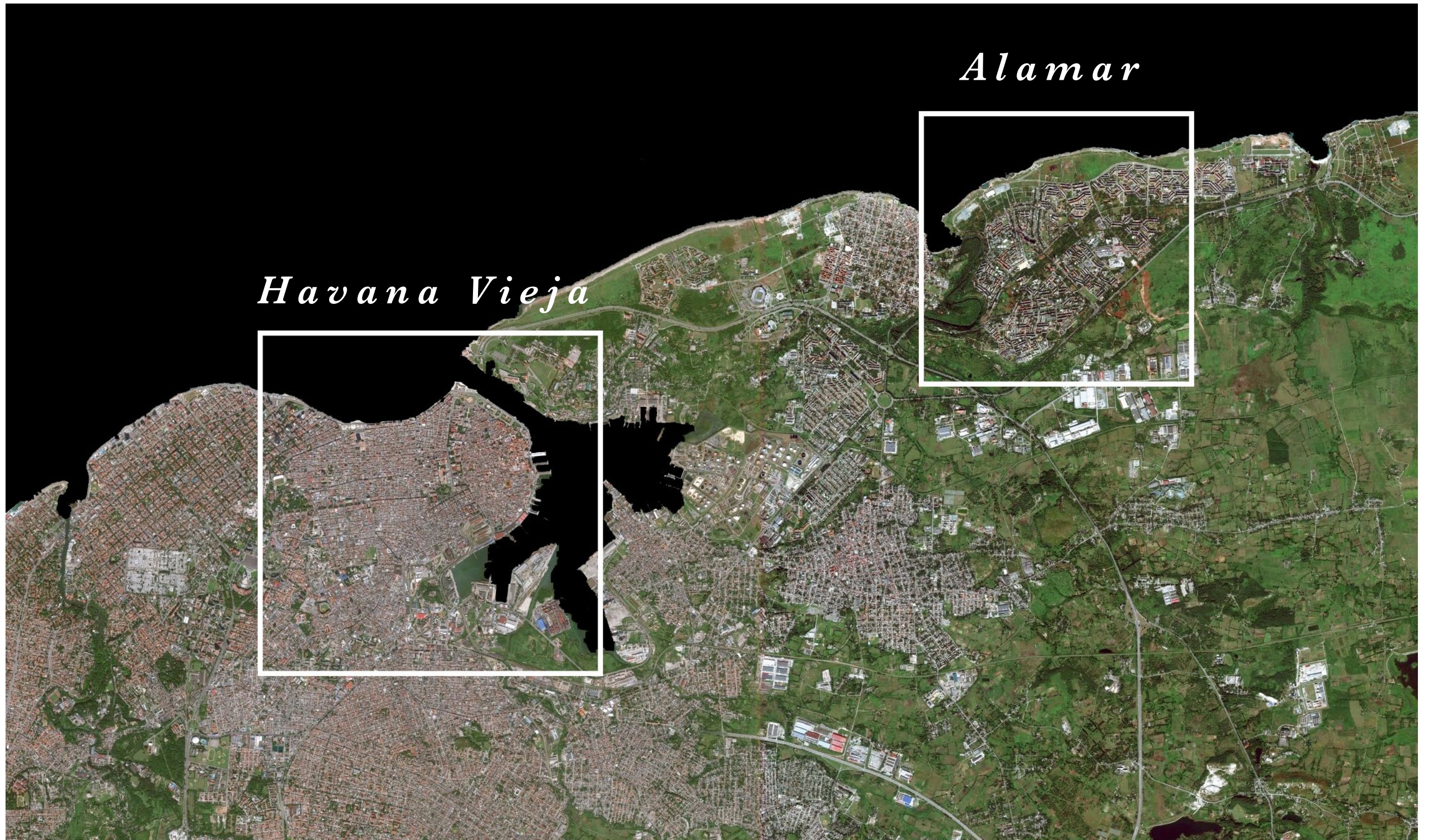


Havana



Alamar

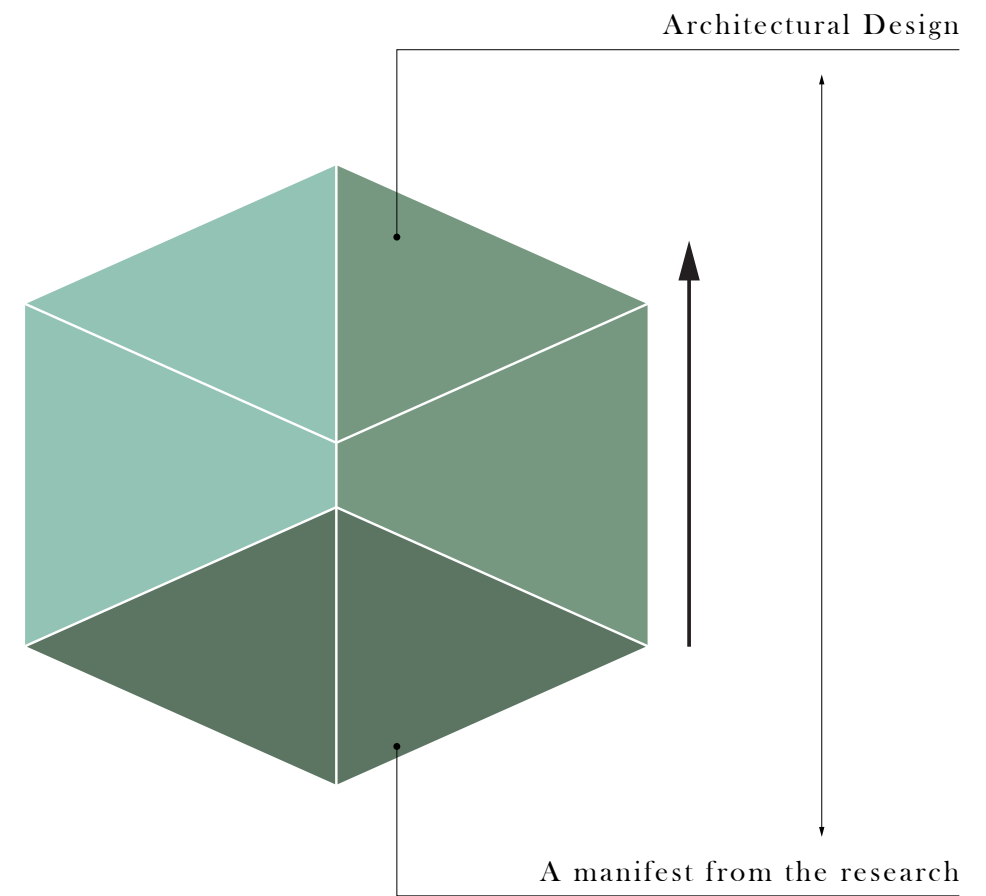
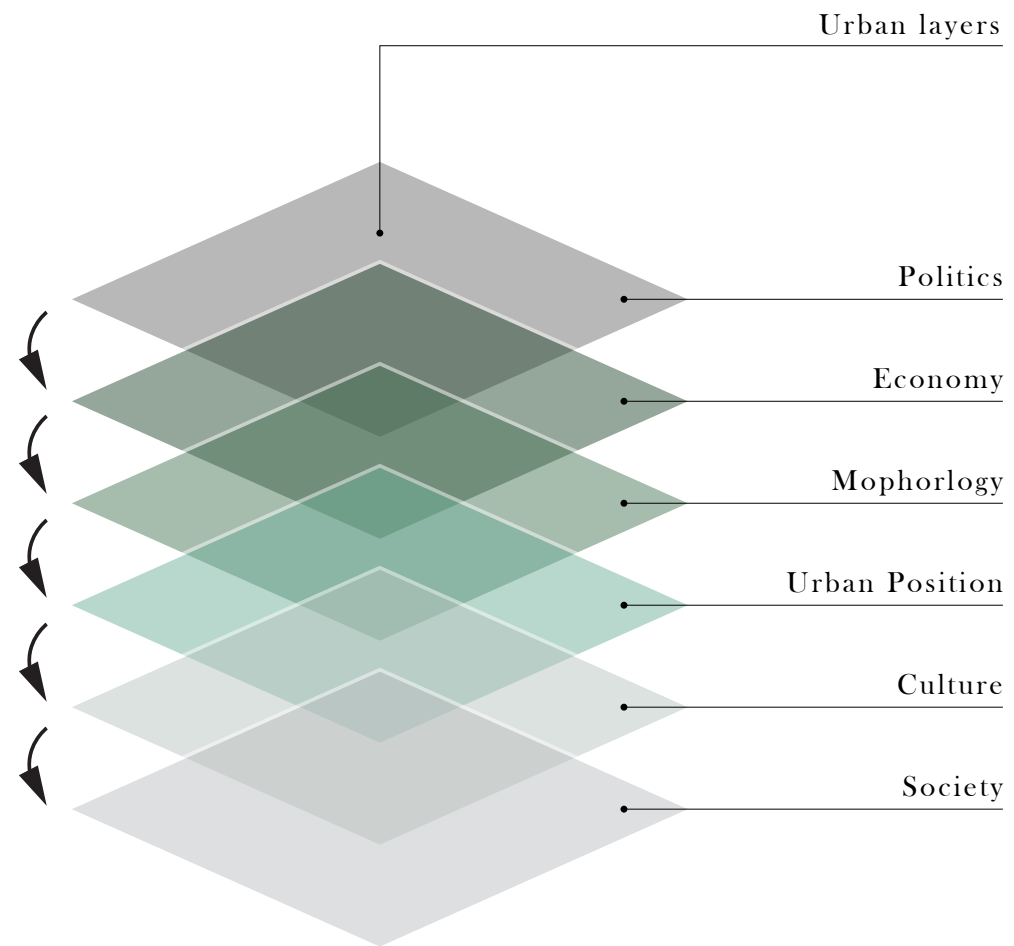
A NEW CITY





What's Alamar?

METHODOLOGY AND ASSIGNMENT



Research



Proposal



A city for Alamar people



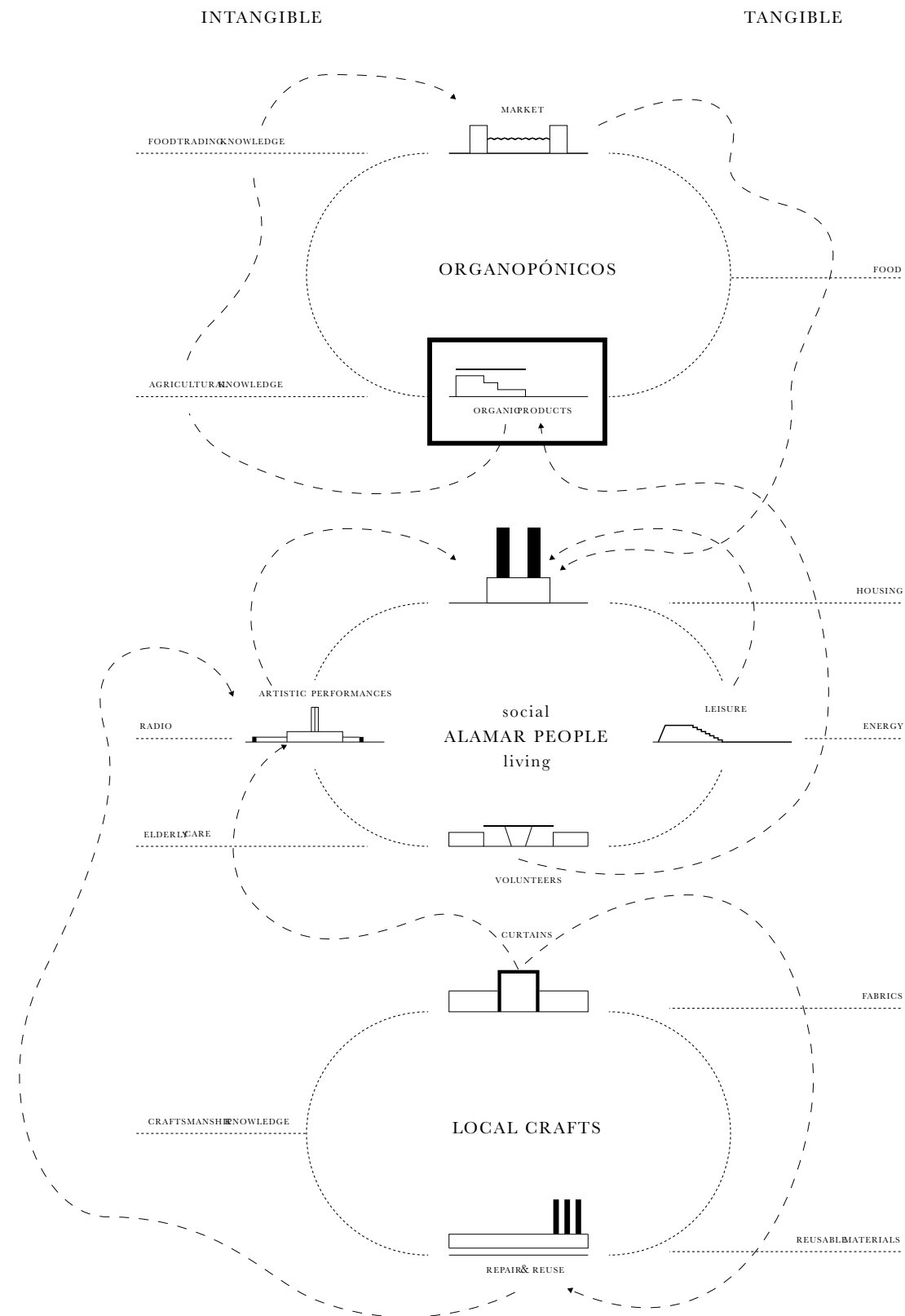
Bottom-up



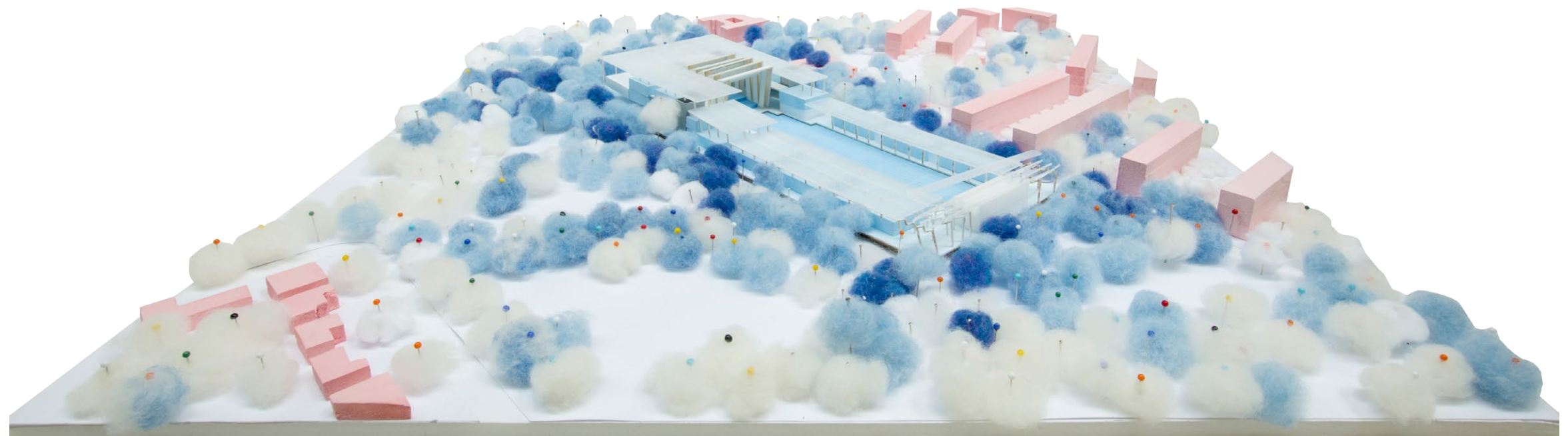
spontaneous



INTERVENTIONS



URBAN CATALYST



ALAMAR'S BUSINESS CARD
LINK THE GREEN TO THE FUTURE



Urban agriculture and the wild greenery create a different living quality to Alamar. From the perspective of bottom-up, using local identity and resources are the representation of the manifesto as a future-oriented approach.

The project is right aiming to create a prototype of educating younger generation exploring value out of their own hands from the earth.

CONTENTS

01 THE THEME

02 THE PROGRAMME

03 THE BUILDING

01 THE THEME

We are going to demonstrate what real socialist agriculture is.

– Fidel Castro



Sugarcane





Organic



Urban

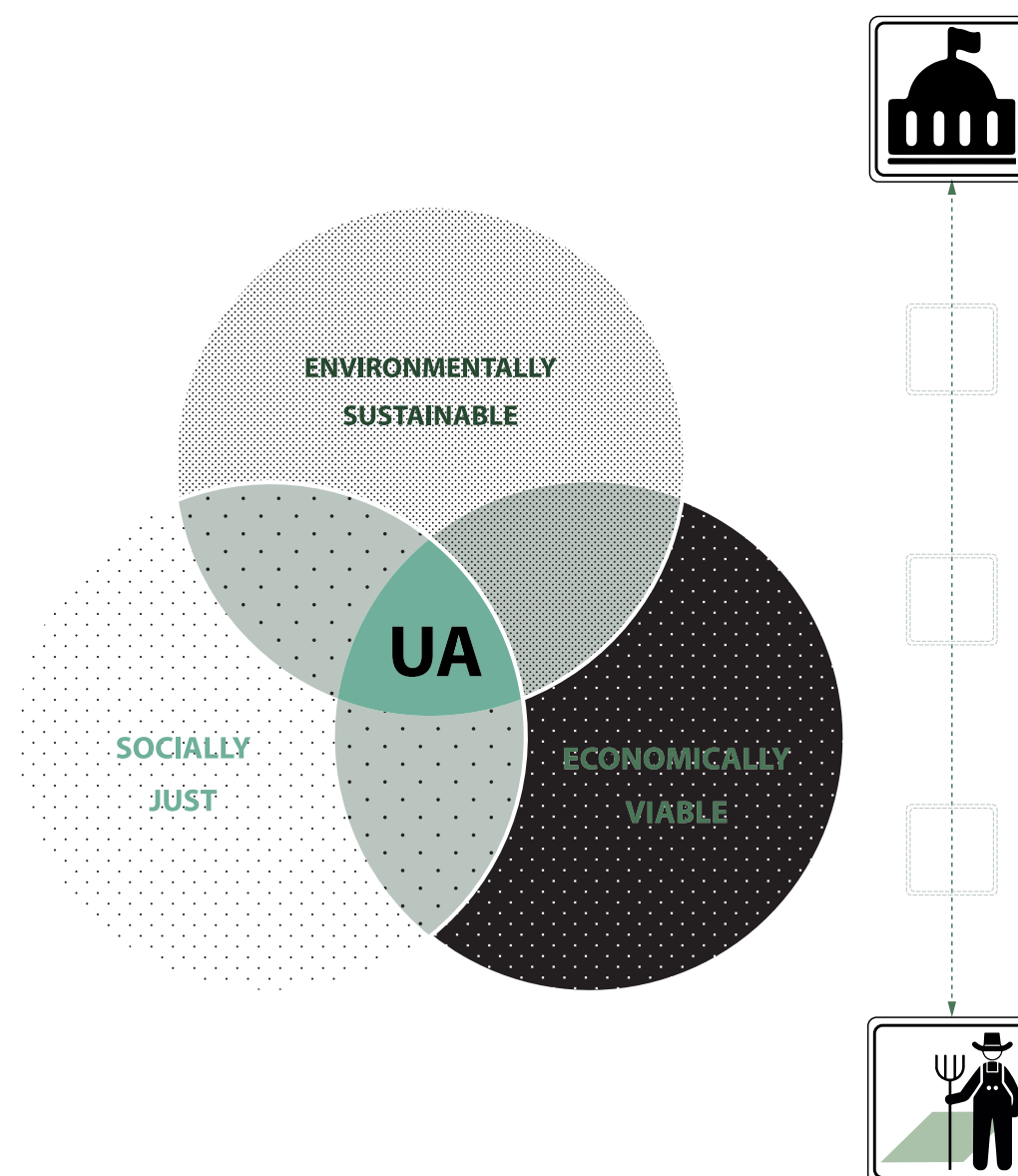


'Low-tech'



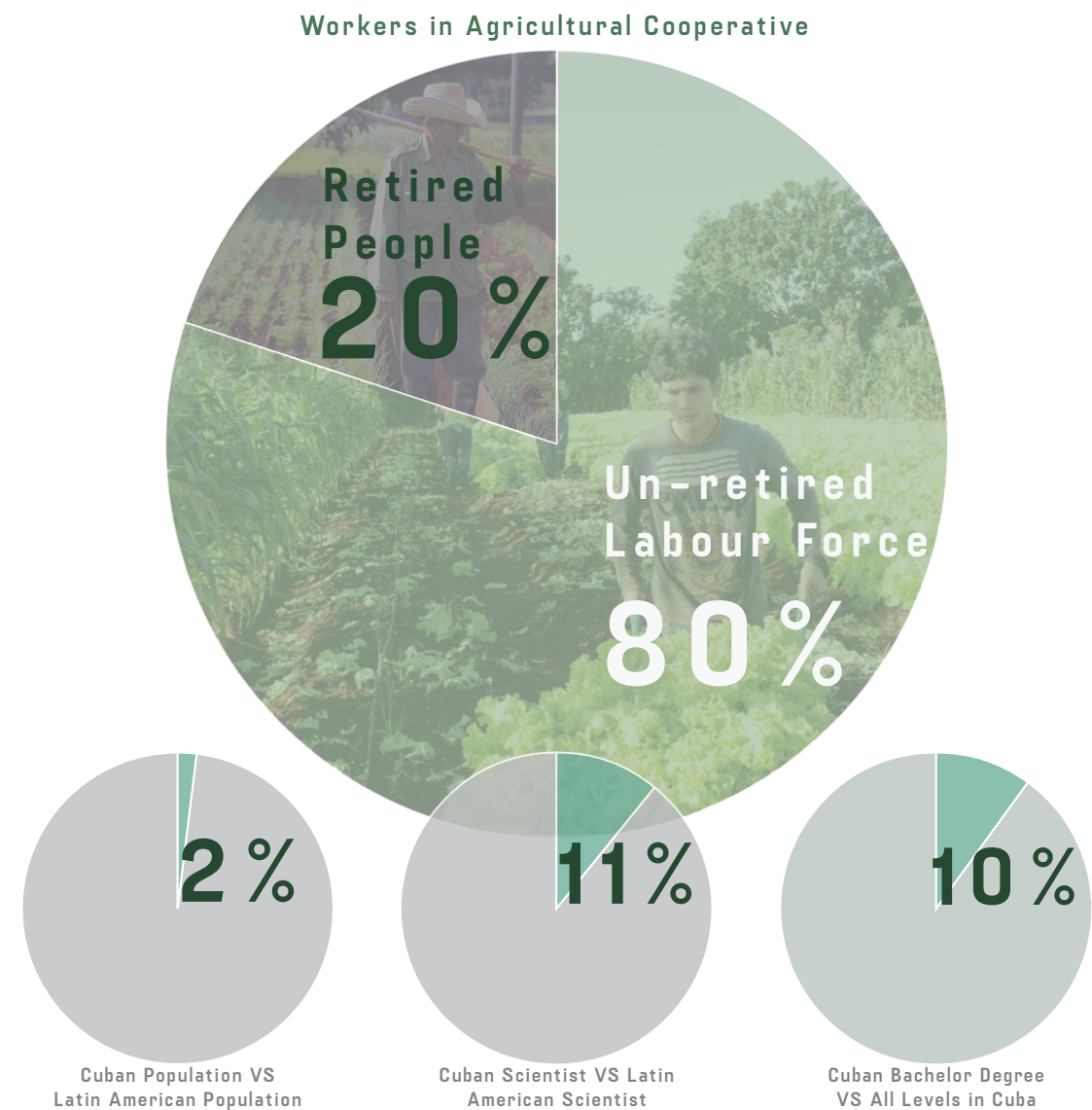
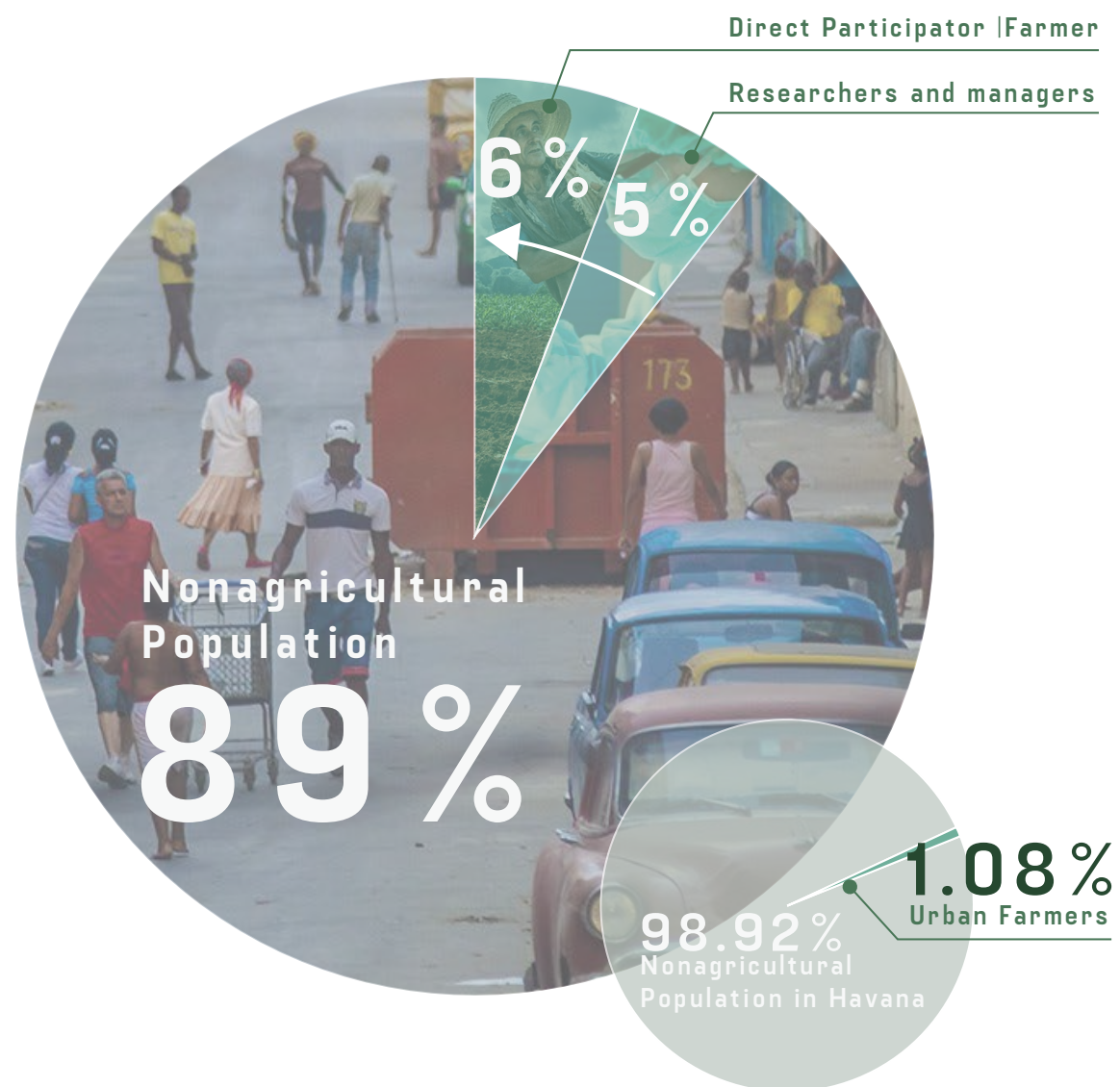
High-tech

NATIONAL IDENTITY



With the remarkable achievements, urban agriculture in Cuba becomes a multi-dimensional profitable sector. The area is especially shaped by the agriculture landscape and natural landscape, becoming its identity which is different from the city of Havana.

CURRENT DILEMMA LACK OF YOUNG PARTICIPATOR



Hard working condition, high-educated level and non-relationship with 'new things' push most of the younger generation far away from the farmland. Half of the agricultural population is actually researchers and managers.



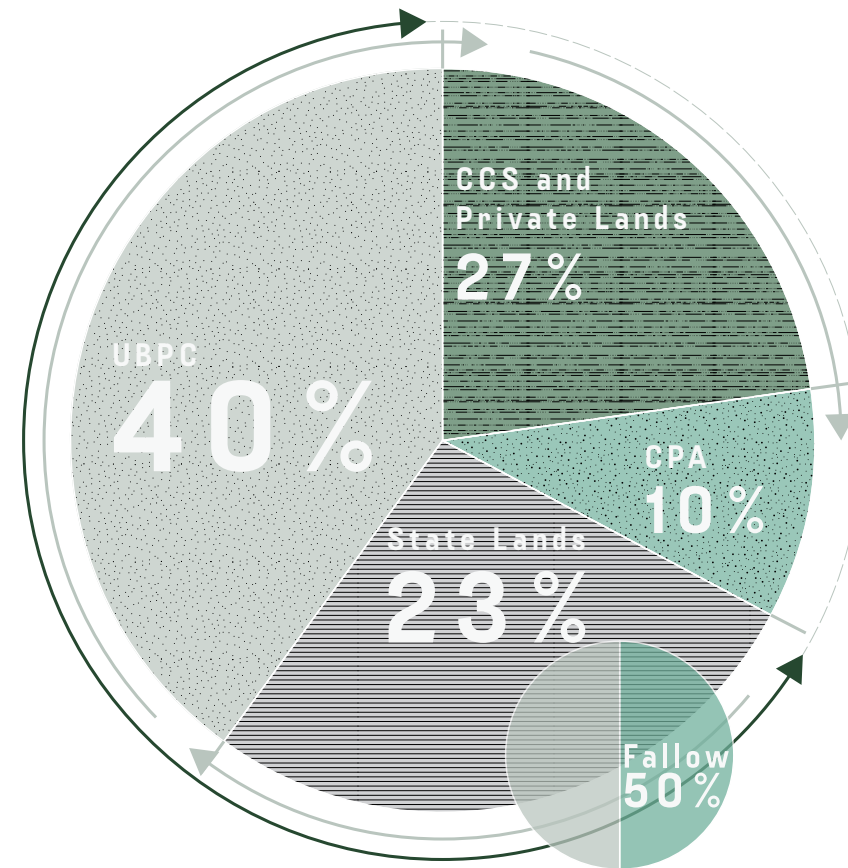


Fenced-up



Locked-out

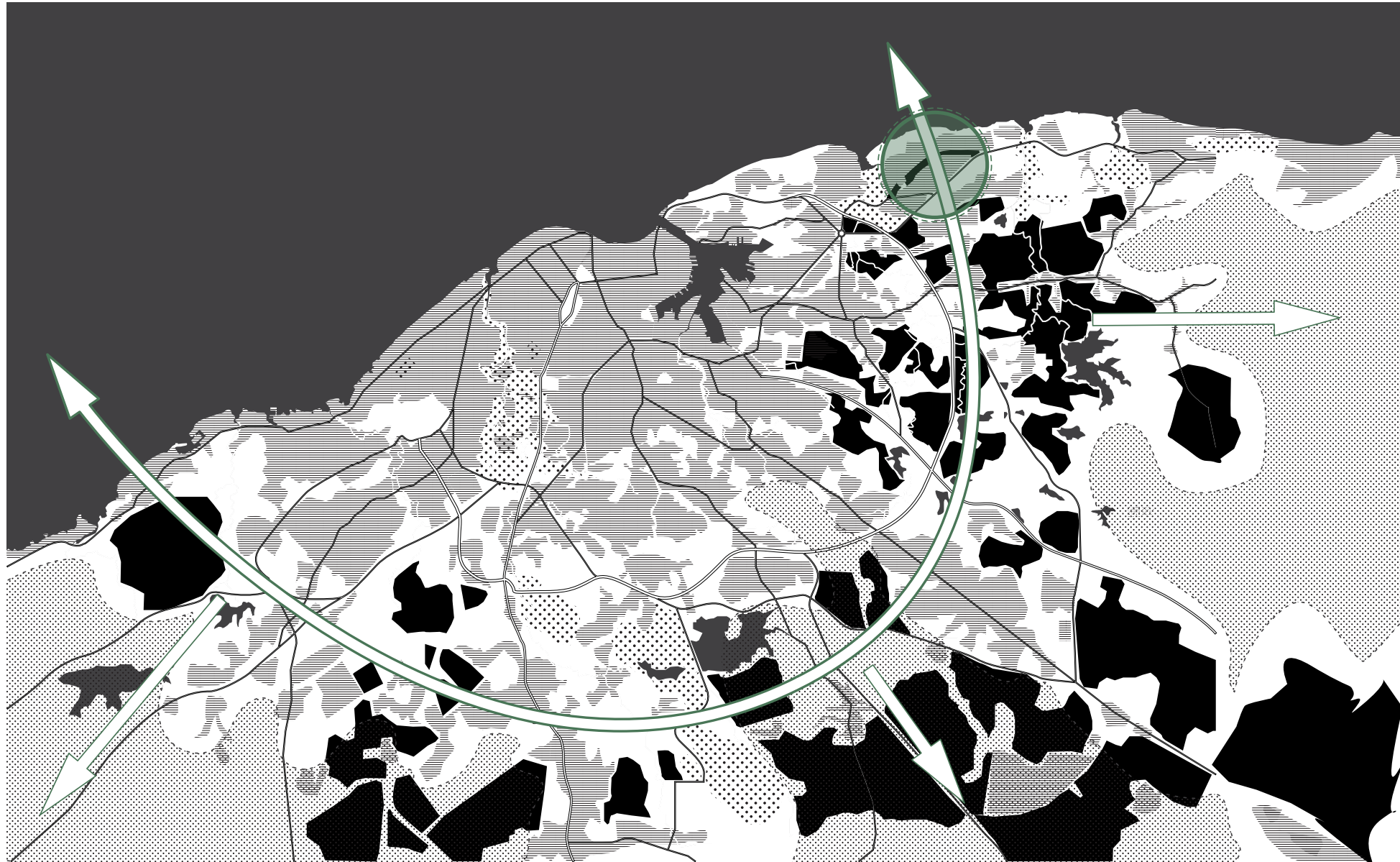
POLITICAL POTENTIAL PRIVATISATION AND DECENTRALISATION



63% Public-owned
37% Small-farmers-owned

Privatisation will be gradually realised in Cuba, which suggest a possibility of transforming the state-owned agricultural enterprises into small scale, eco-friendly, private-owned 'fincas' to improve the yield.

POLITICAL POTENTIAL HUGE SPACE FOR DECENTRALISATION



Instead of traditional large-scale soviet farmland, the decentralisation of agriculture is also the direction of future development, for example, the popularisation of urban and suburban agriculture. Reuse the abandoned lands or exploiting the suburban areas are both options for the next step.

INTELLECTUAL POTENTIAL BOTTOM-UP INNOVATION



The innovations from the farmers are naturally given the patents and protected by laws, sometimes popularising by the publications. Farmers are literally the protagonists on the stage. Cuban Government encourages bottom-up innovations and catagorises 200 items into one publication, including agriculture, stock farming, water resource, rebewavke energy and even agricultural architecture.

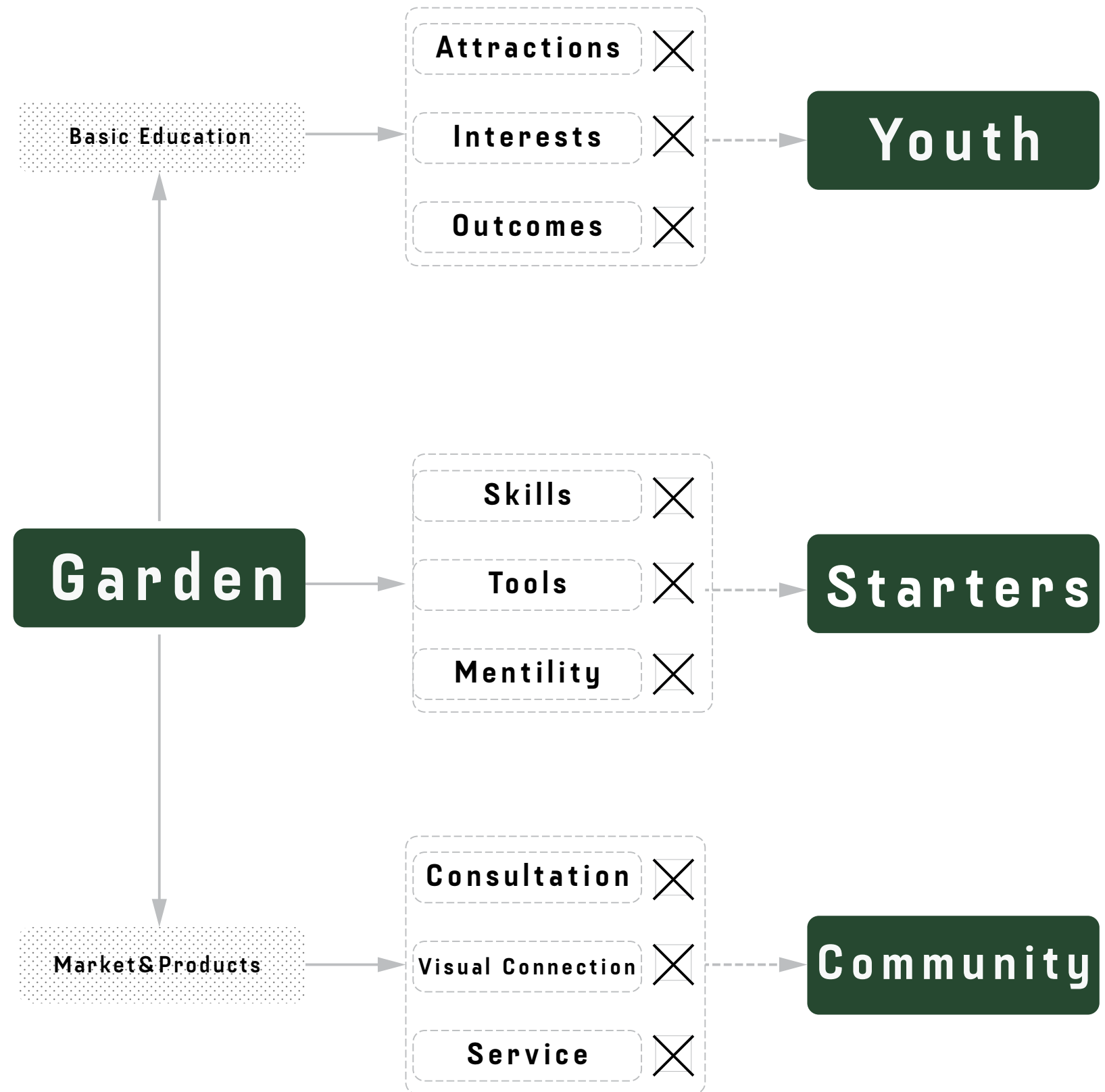


Individual Renovation



Collective Reuse

THREE DETACHMENTS



RESEARCH QUESTION

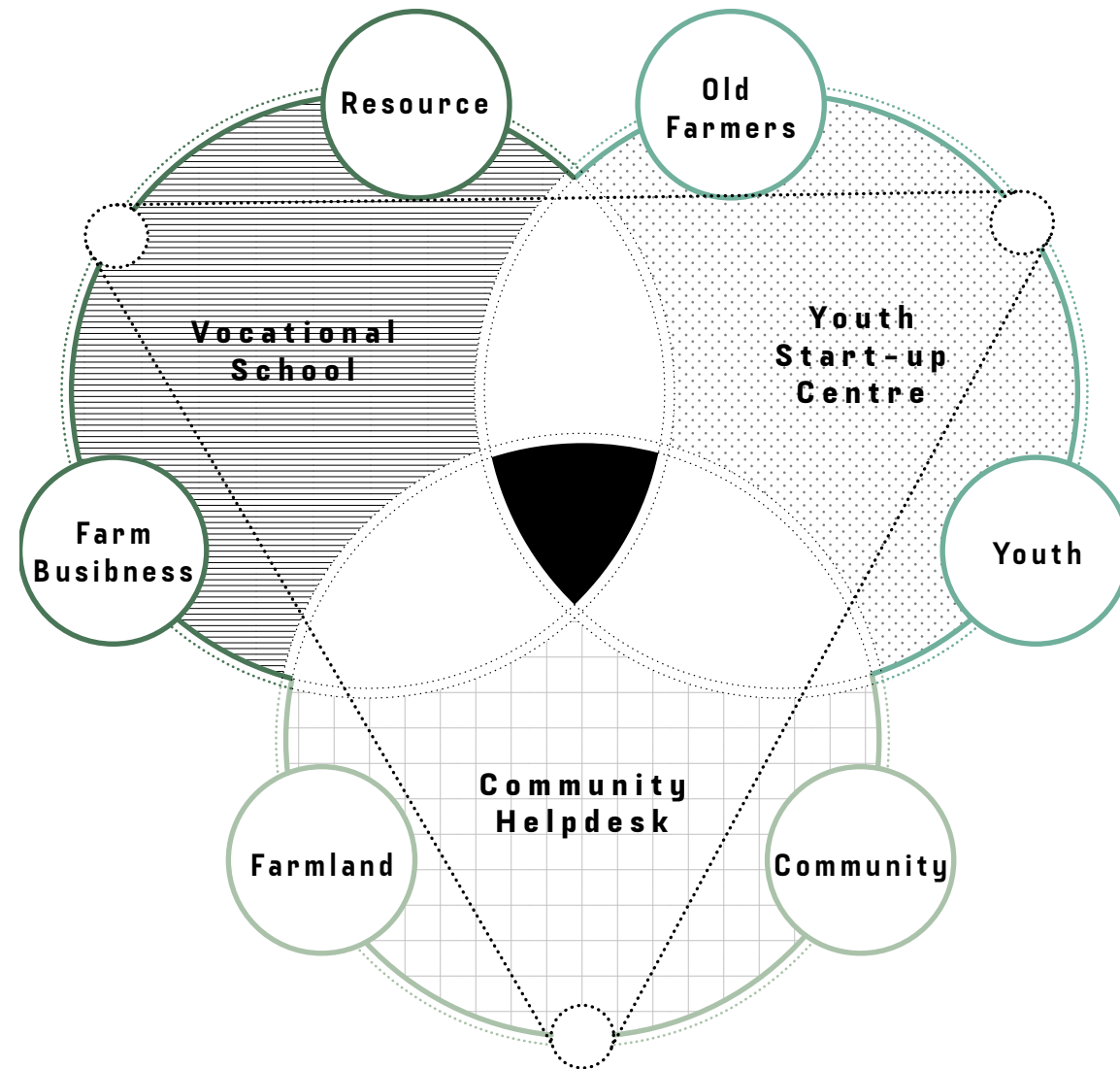
How to spread the knowledge of organic urban farming to the younger generation in order to ensure the continuity of the benefits and profits it has brought to the people and country?

02 THE PROGRAMME

The success depends on the intelligence with which we act on.

— Raul Castro

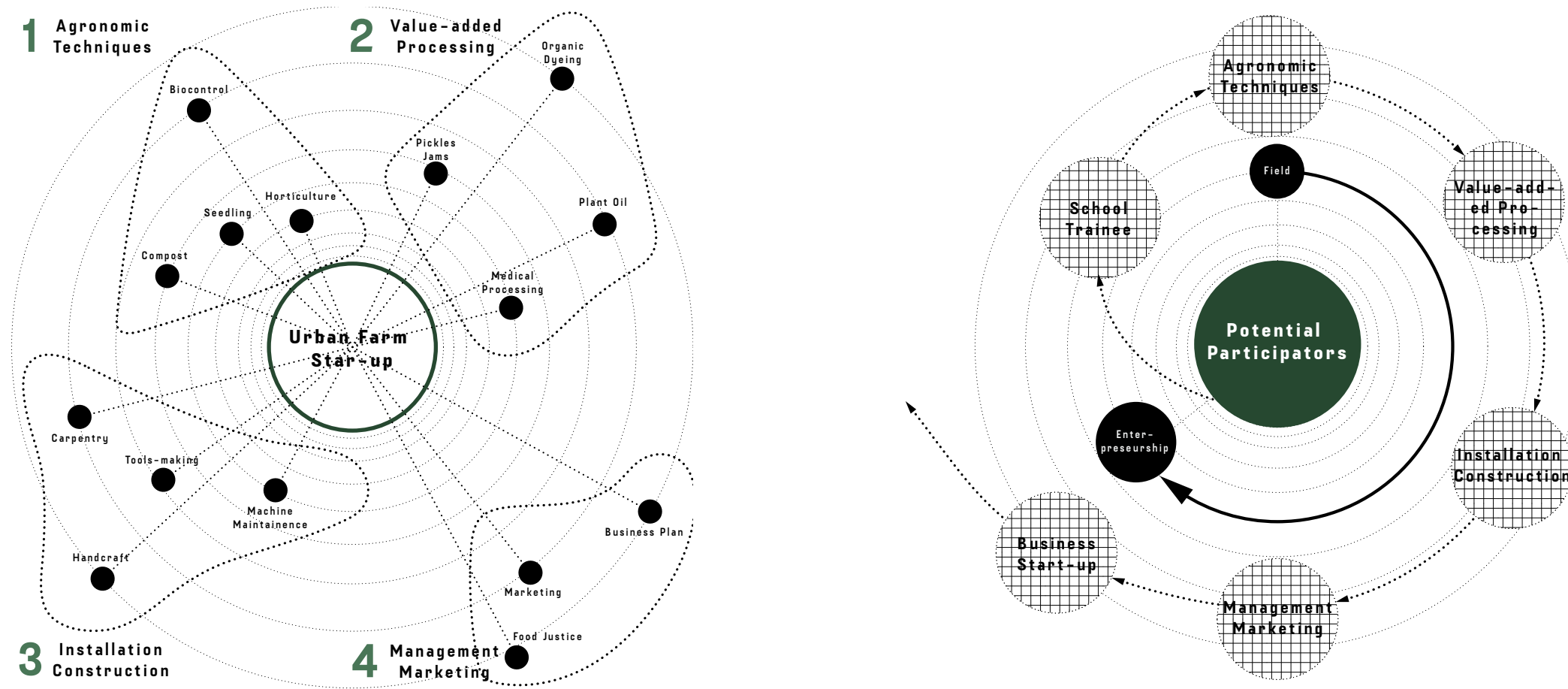
PROGRAM STRUCTURE A PILOT EDUCATIONAL PROJECT



The three functions are the three hinges to connect the detachments from physical perspective. Pass the knowledge and mentality to the next generation.

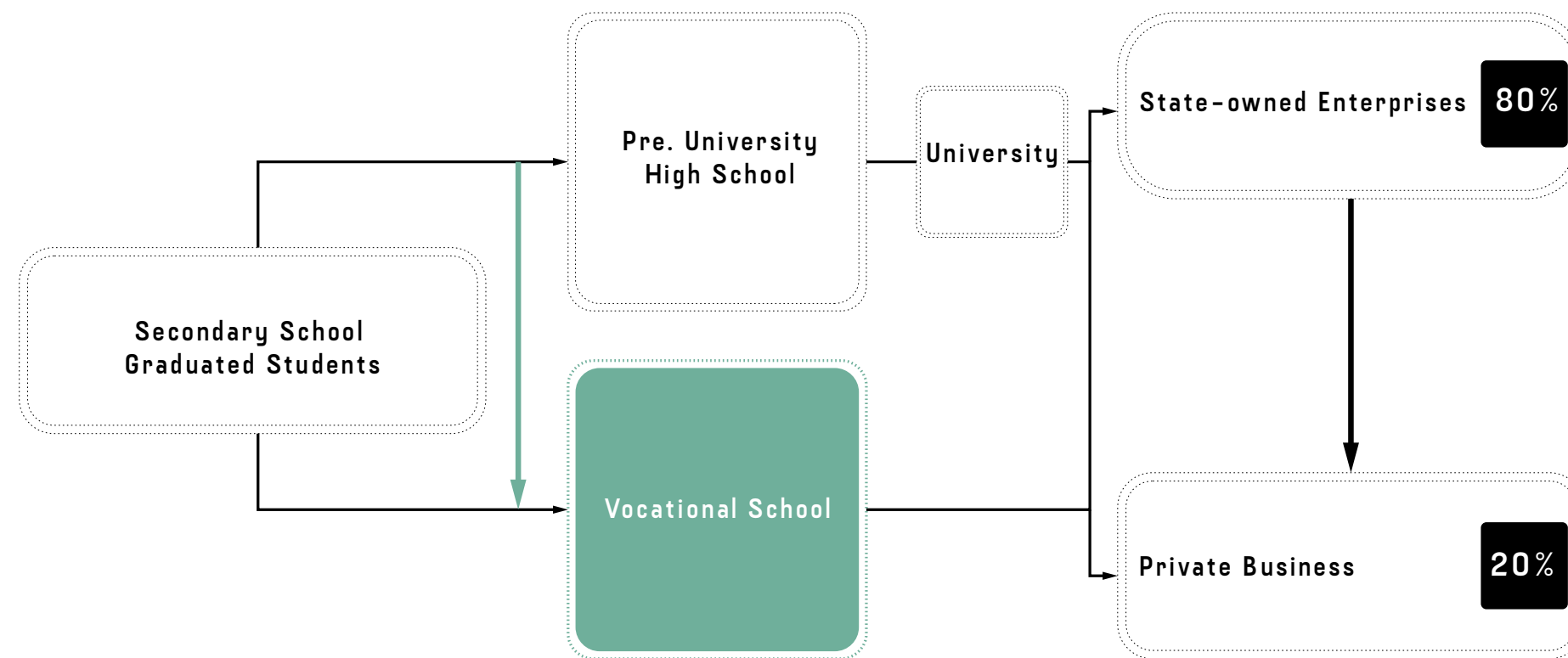
PROGRAM STRUCTURE

FUNCTION WORKING PRINCIPLE



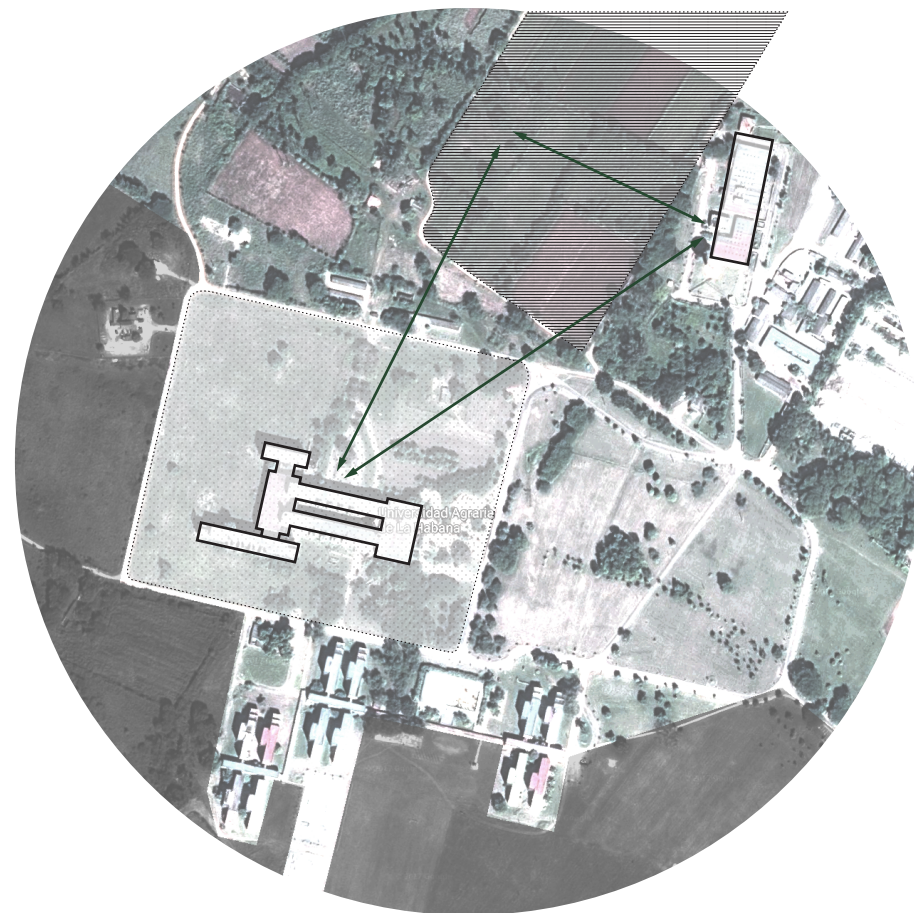
Rather than point to point support and training, the school will provide a series and integrated subjects, and also regular and stable.

PROGRAM POSITION CUBAN CONTEXT



With the upcoming process of privatisation and the open of labour market, the vocational education will gain a huge opportunity, especially the organic urban farming sector, which is profitable for multi-dimensions.

PROGRAM POSITION CUBAN CONTEXT



The traditional agronomic schools were mostly before the special period, which means the architectural language was meant to apply the traditional study and practice with heavy agricultural machines.

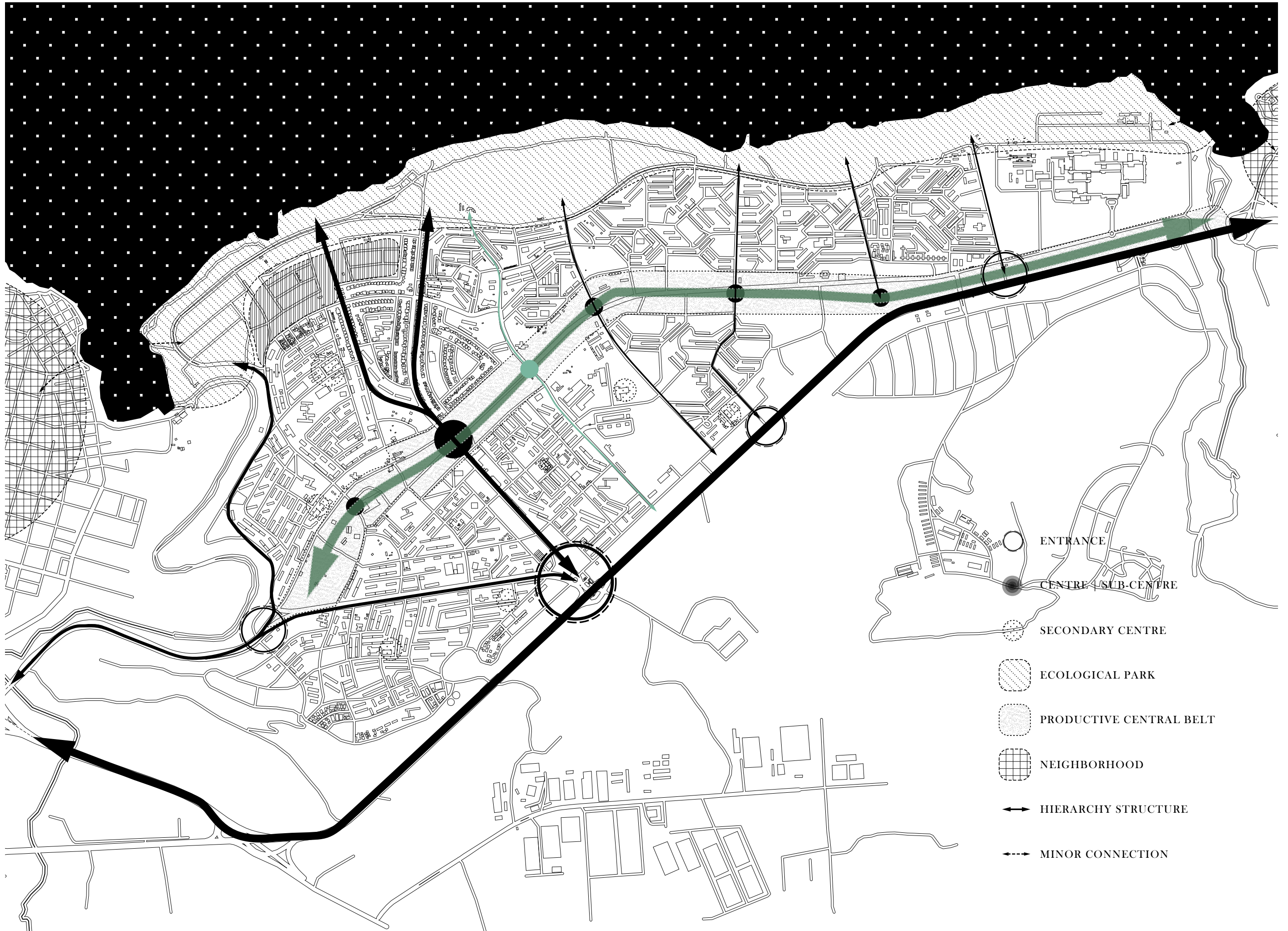


Practice



Local Skill

*How can the vocational school locate itself
within Alamar?*



LOCATING ACCESSIBILITY



The school should be well connected by public transportation within Alamar and its neighbourhood.

LOCATING URBAN CATALYST



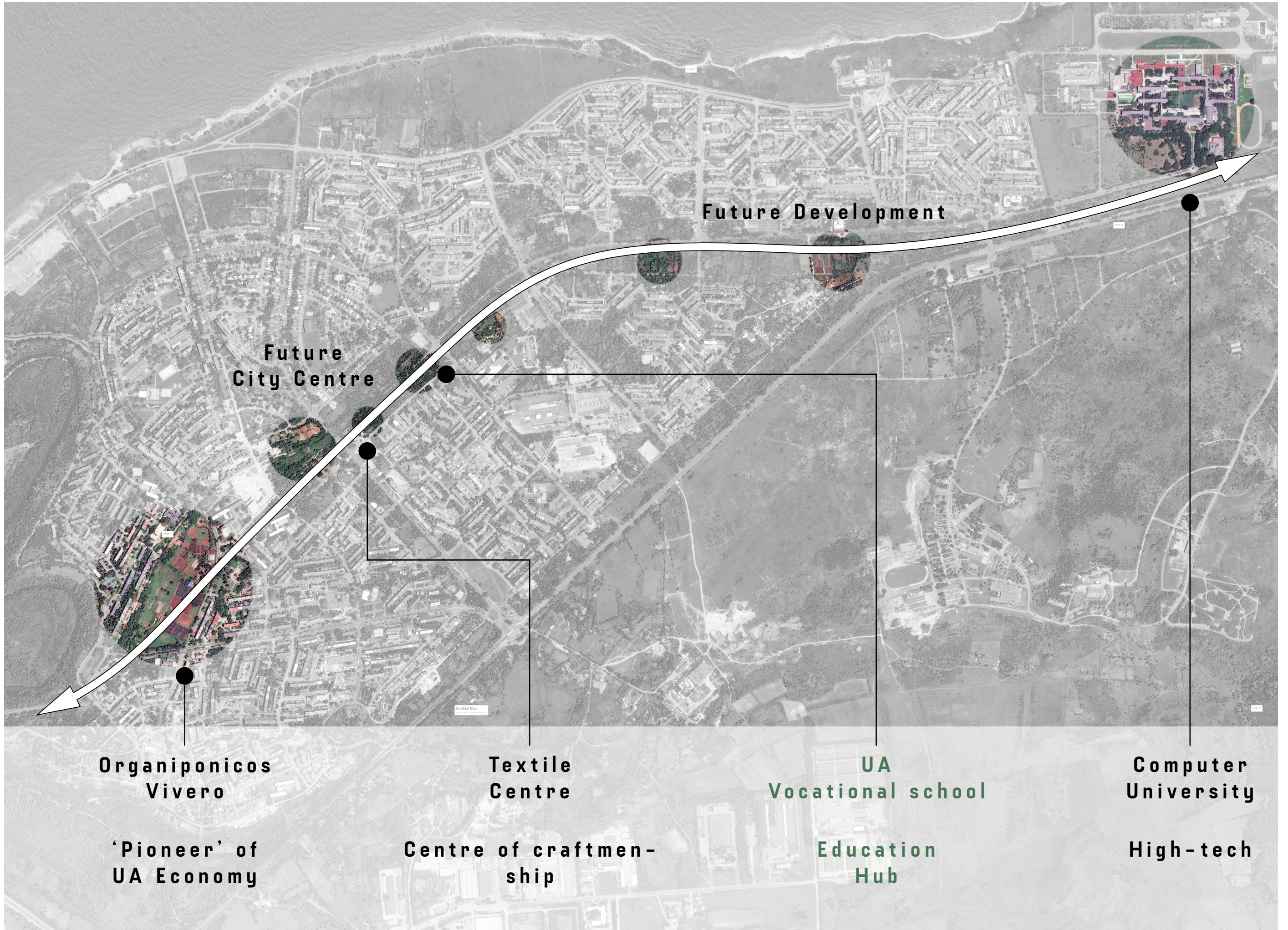
The school should balance a little bit within the unbalanced eastern part, 'Siberia'.



Land resource



Sector pioneer



Organiponicos Vivero

'Pioneer' of UA Economy

Future City Centre

Textile Centre

Centre of craftsmanship

UA Vocational school

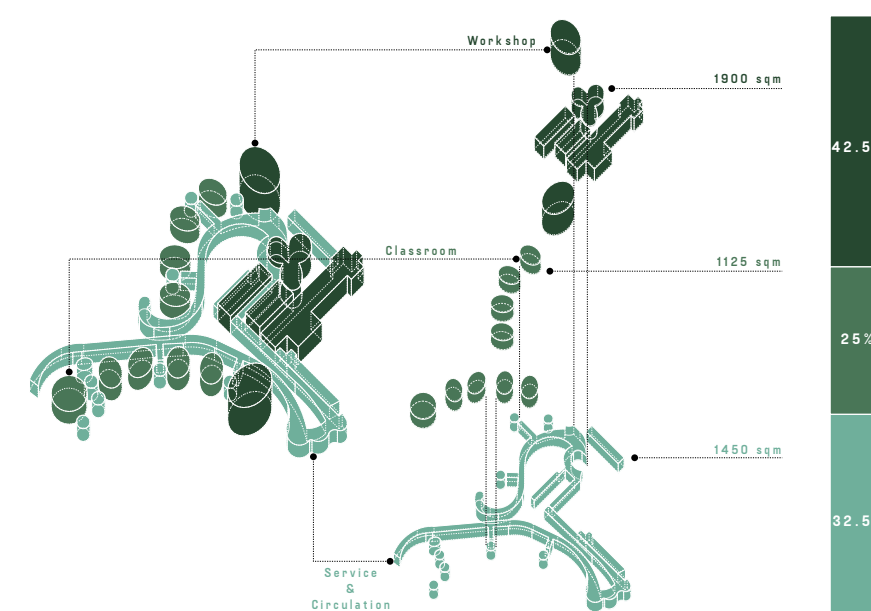
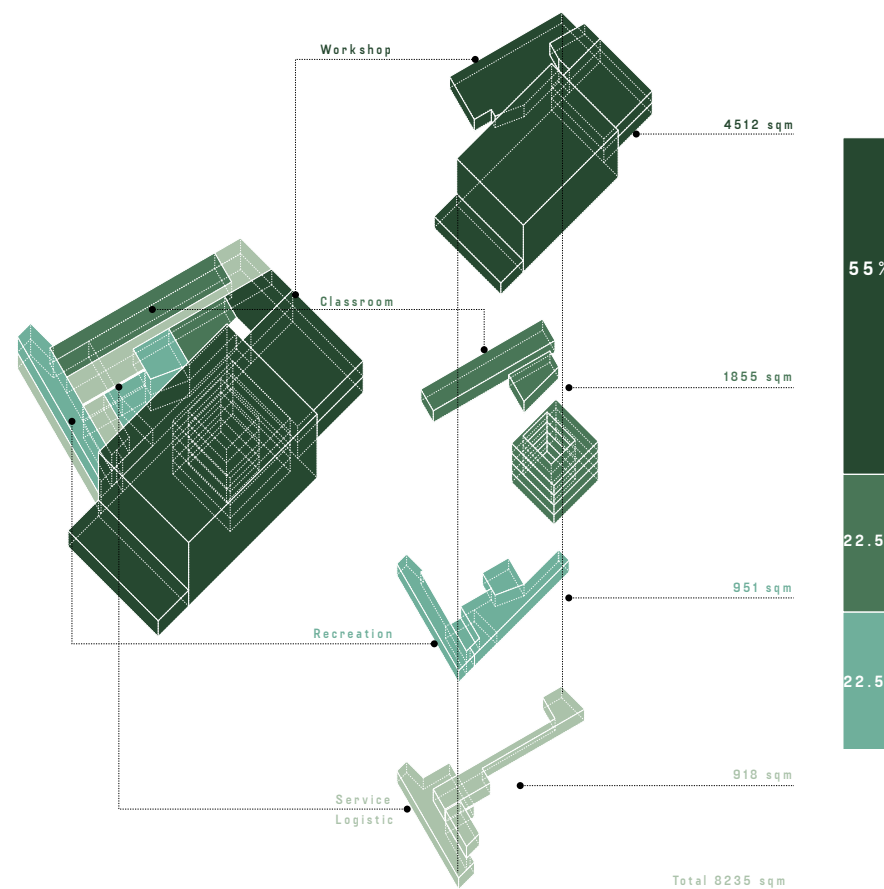
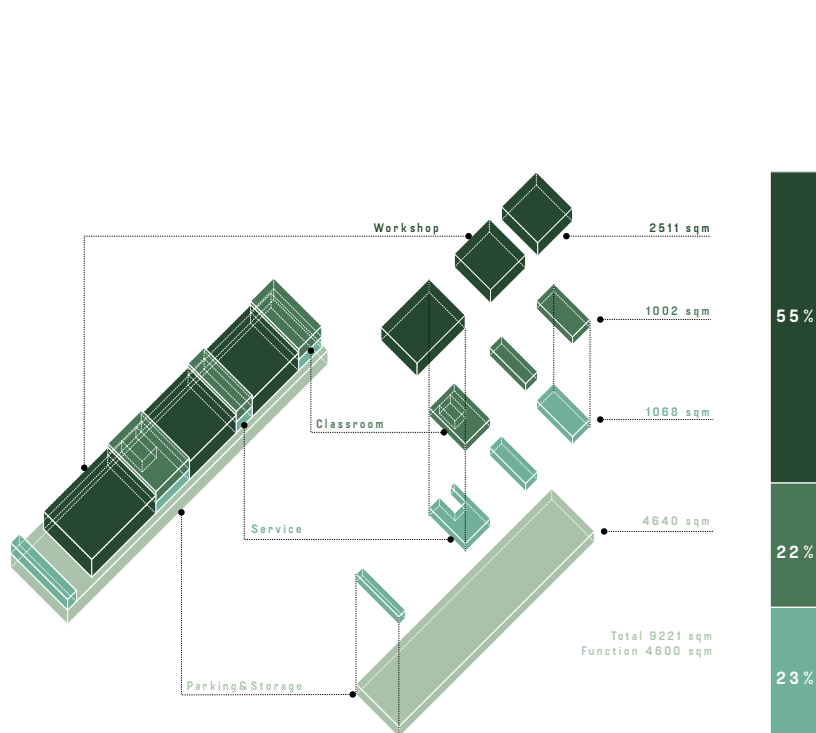
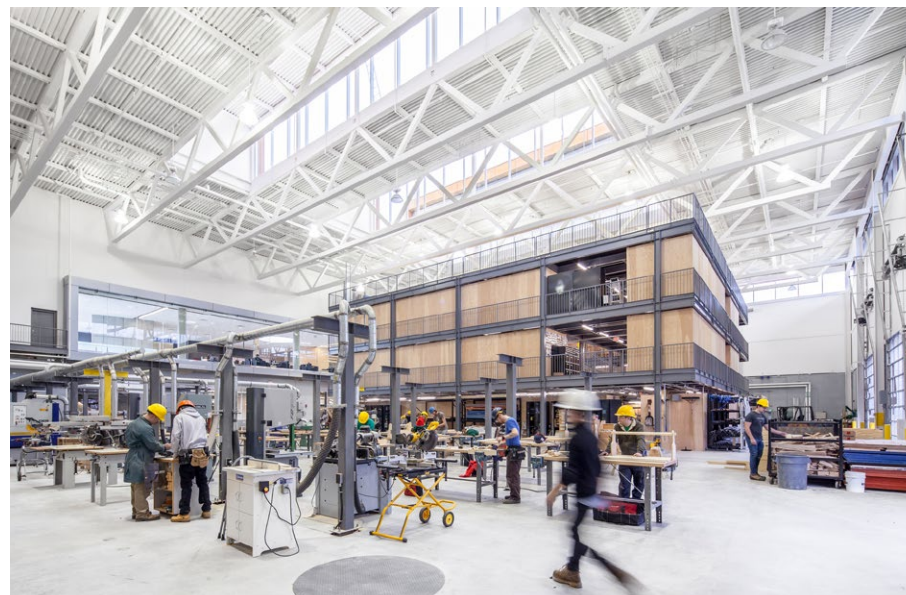
Education Hub

Future Development

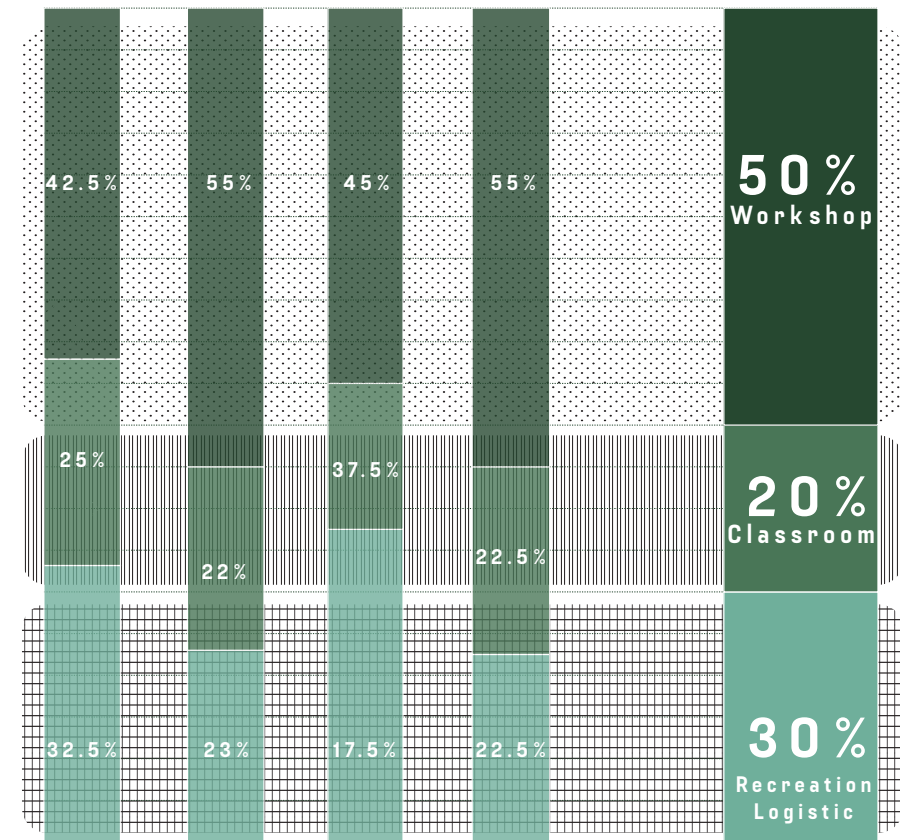
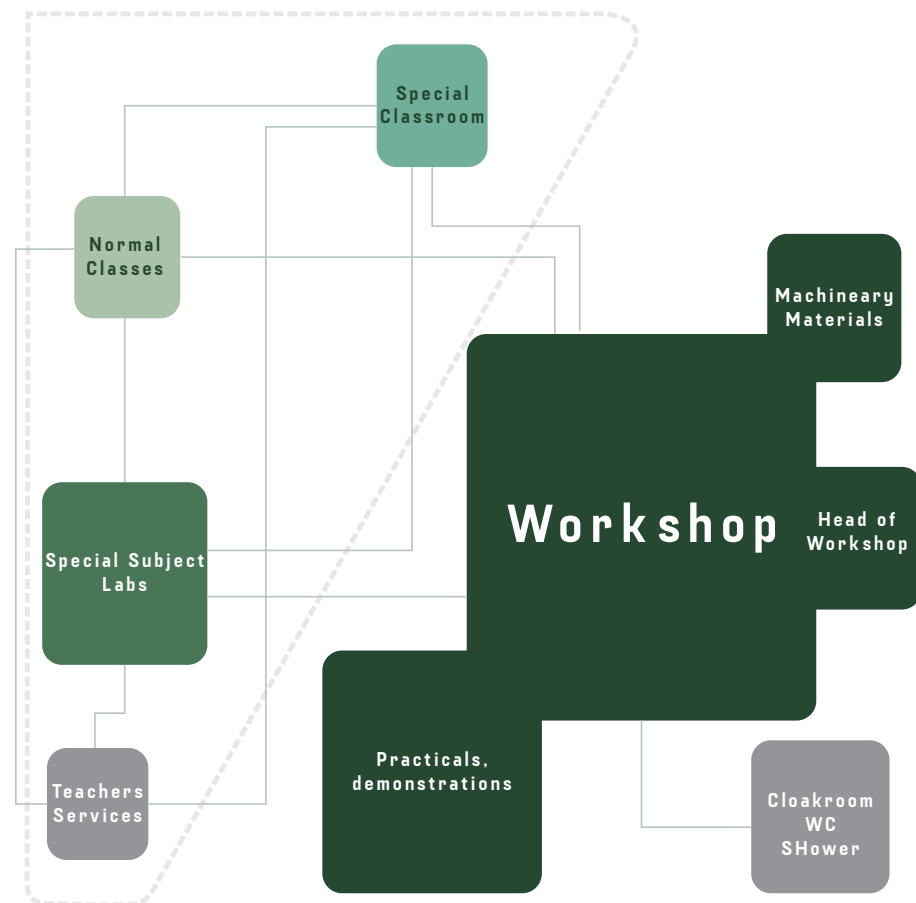
Computer University

High-tech

FUNCTIONAL COMPOSITION



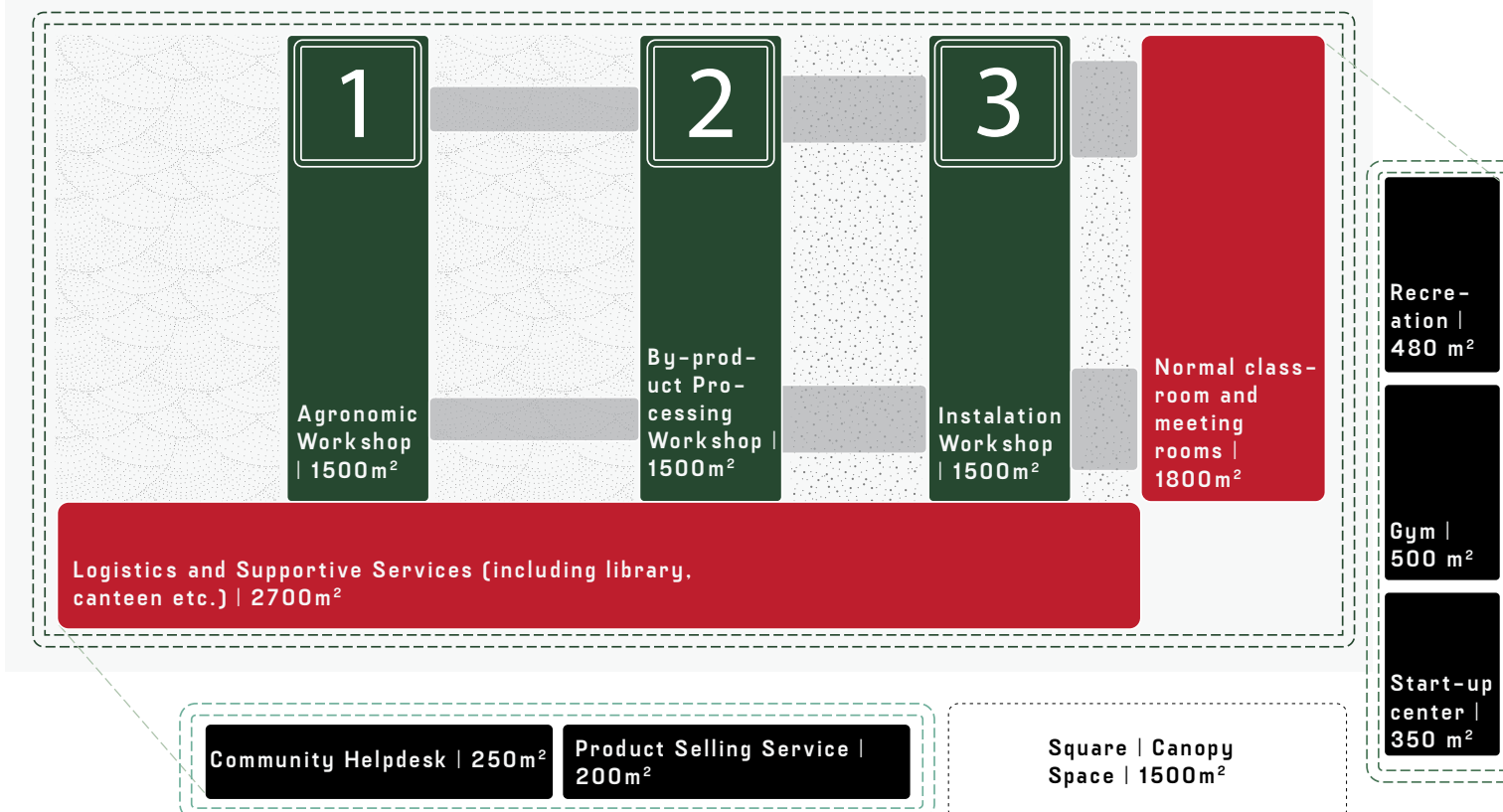
FUNCTIONAL COMPOSITION CONCLUSION



Generally, the practical teaching space can be summarised as workshop with material, administration, logistic and demonstration spaces. The workshop will occupy half of the school as the backstage and the spatial climax. However, the proportion should be reconsidered due to the specialisation.

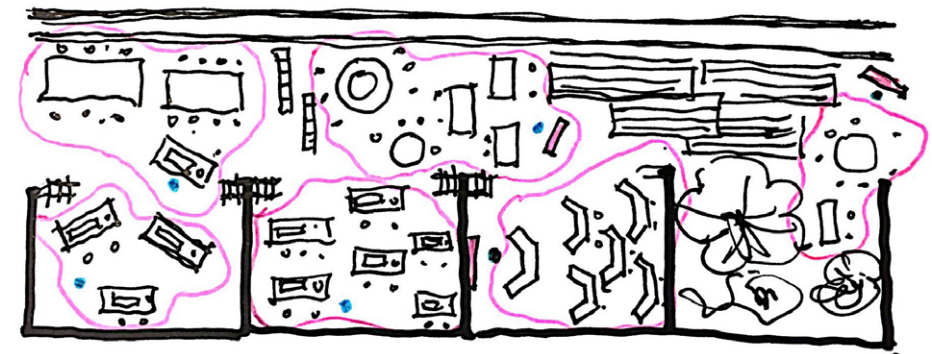
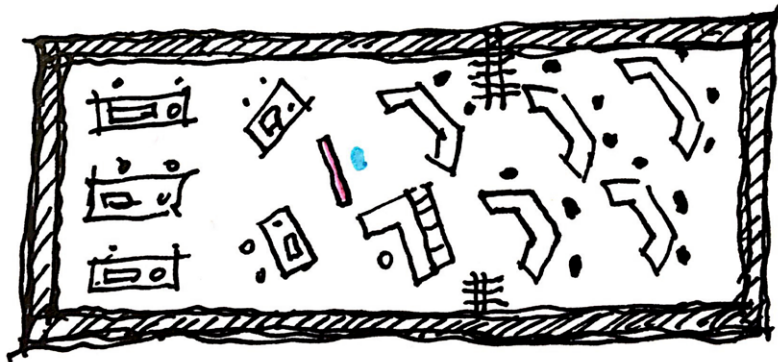
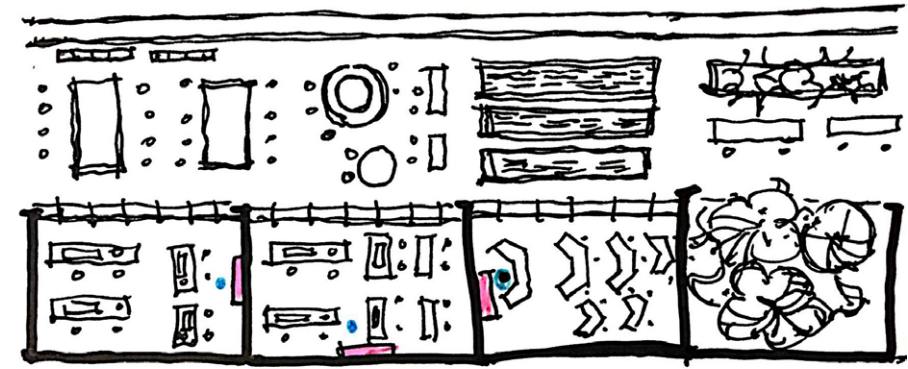
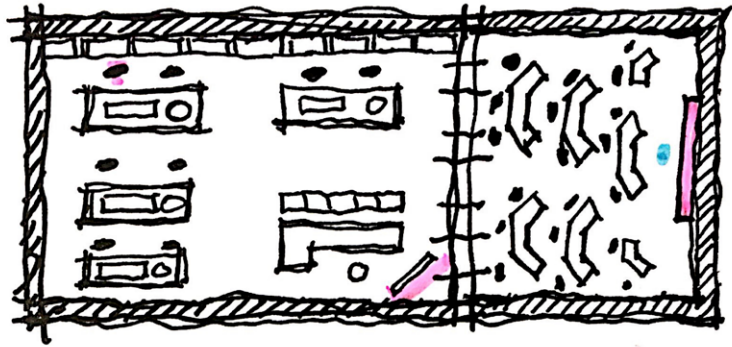
PROJECT PRESET

PARTITION AND REFLECTION



*How to make the overlapped partitions into a entity
and make the school more flexible and coherent
with agriculture?*

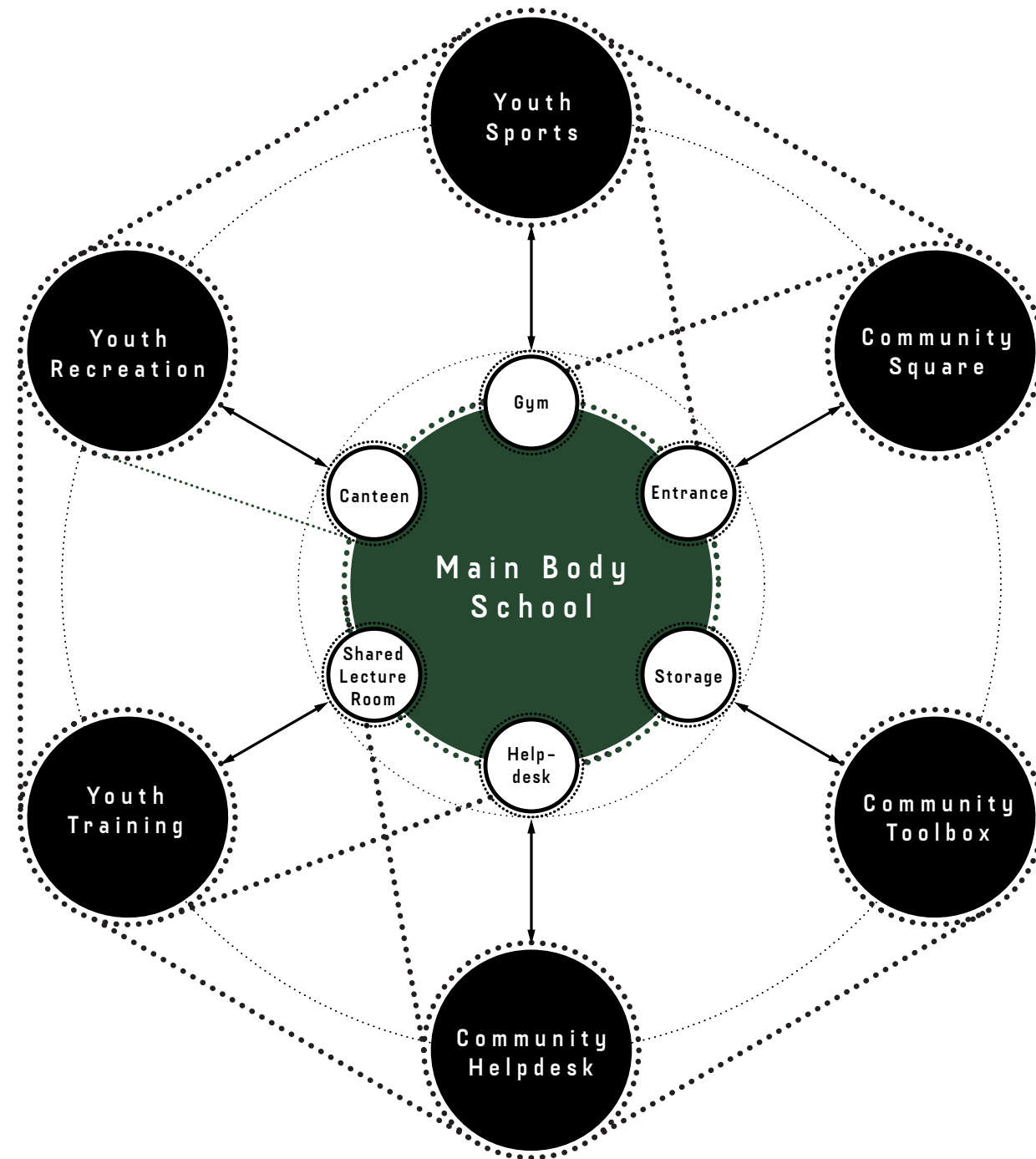
REFLECTION
INTEGRITY FLEXIBILITY AND MOBILITY





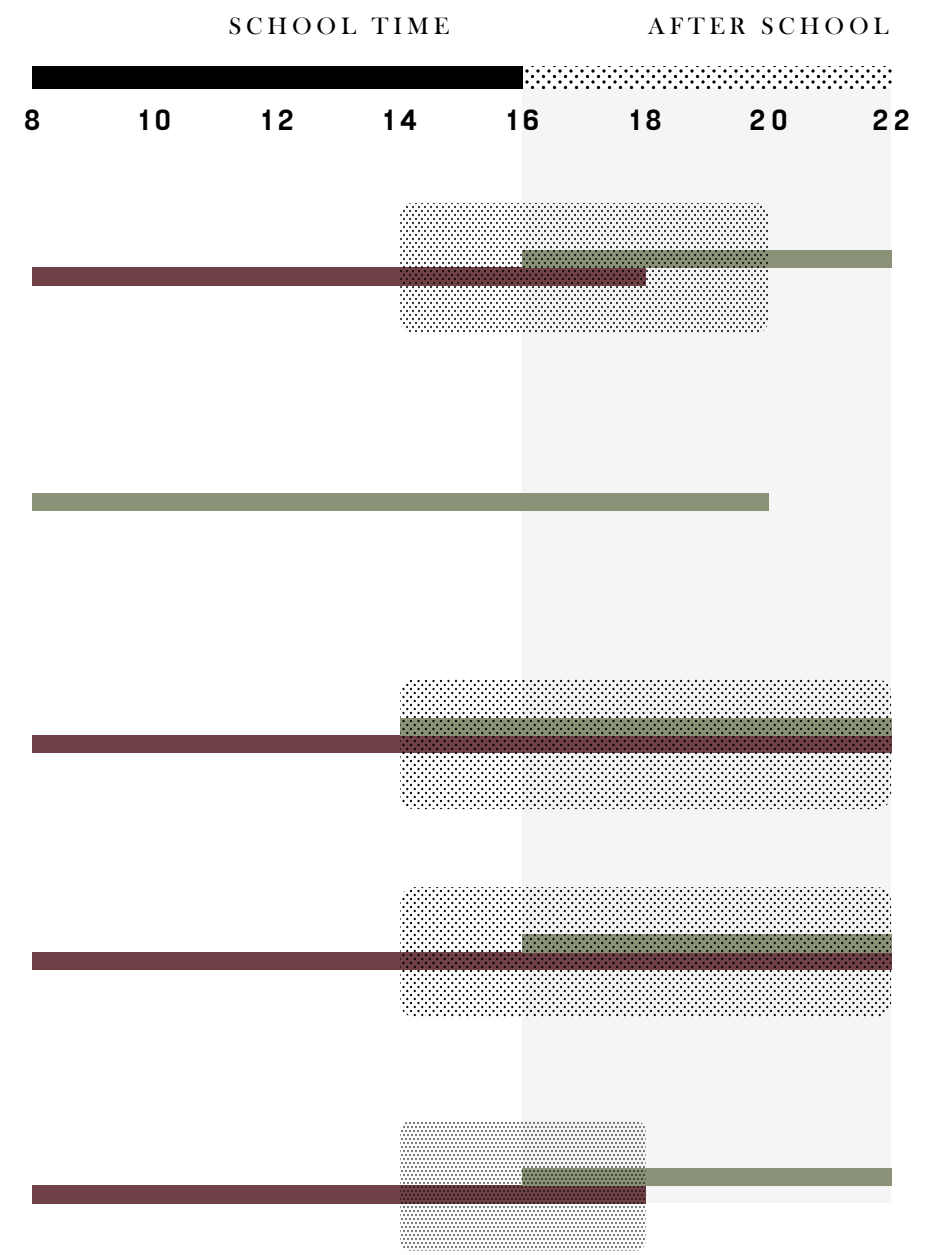
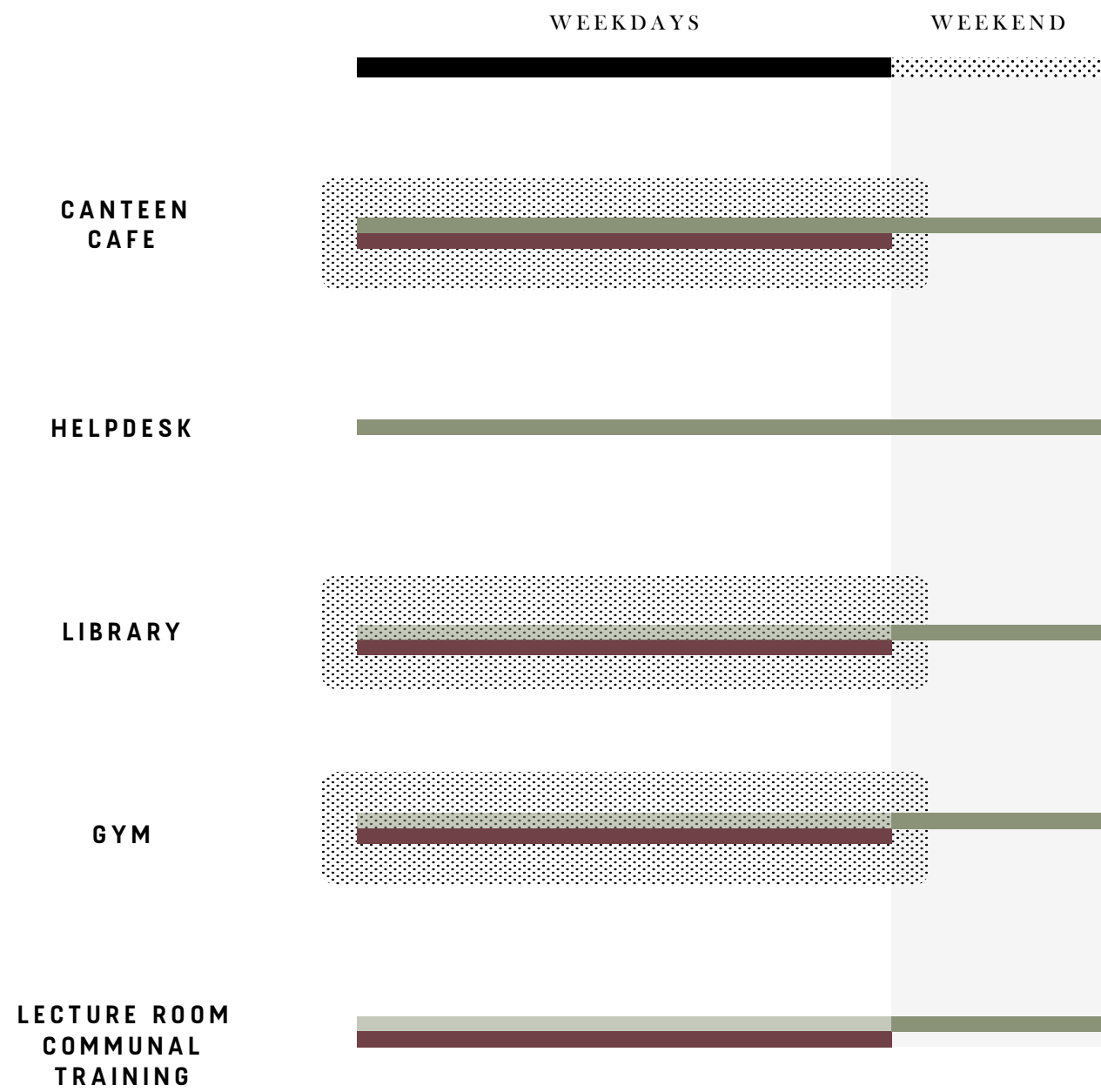
REFLECTION

MAXIMISE SOCIAL EFFICIENCY



REFLECTION

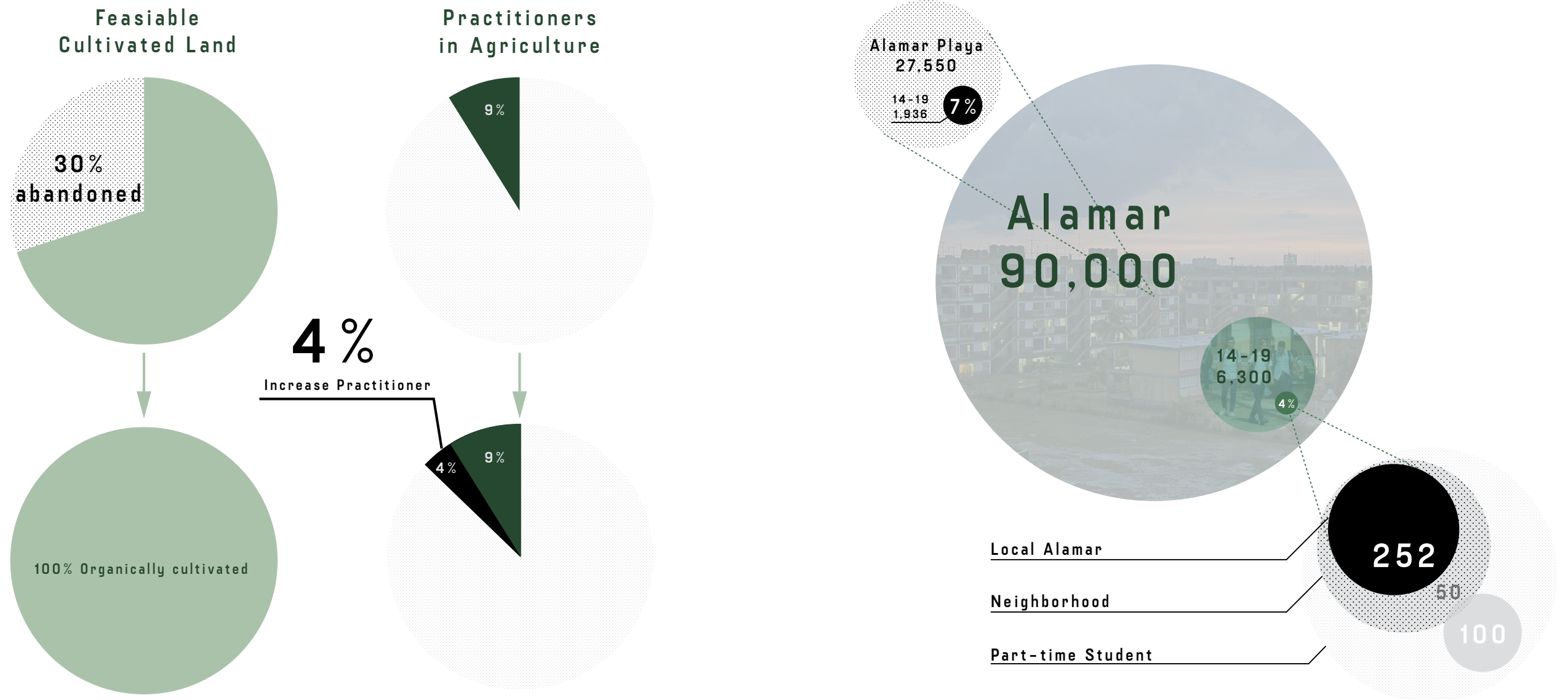
JOINT-USED PUBLIC FACILITIES



REFLECTION
REORGANISATION AND OPTIMISING



PROJECT PRESET USERS



As to re-cultivate the abandoned farmland in Cuba (30%), there will be 4% more population taking part into the direct agricultural activities. Alamar is a community owning 25% juveniles and 6,300 high school students. Within the area, there's only one regular high school. Taking 4% out of the area as the assumption.

Learning landscape | 17.5%

Common learning area
250X2=500 sqm

Auditorium | Central Courtyard
520sqm

Corridor (Semi-open)
1250sqm (50%)

In total 1770 sqm

Practical Education Sector | 31%

Practice Space

Agronomic Workshop (self-working | semi-open)
300X3+150X3= 1350 sqm

Seedling
400 sqm

By-product Processing Workshop
300+4X100=700 sqm

Installation Workshop
300+4X100=700 sqm

In total 3150 sqm

Theoretical Education Sector | 13.7%

Regular Learning Space

Classroom
50X5=250 sqm

Shared-use Lecture room
4X100= 400 sqm

Individual Space

Self-learning
250 sqm

library
500 sqm

In total 1400 sqm

External Service Sector | 12.3%

Communal Helpdesk

Helpdesk for consultation
250 sqm

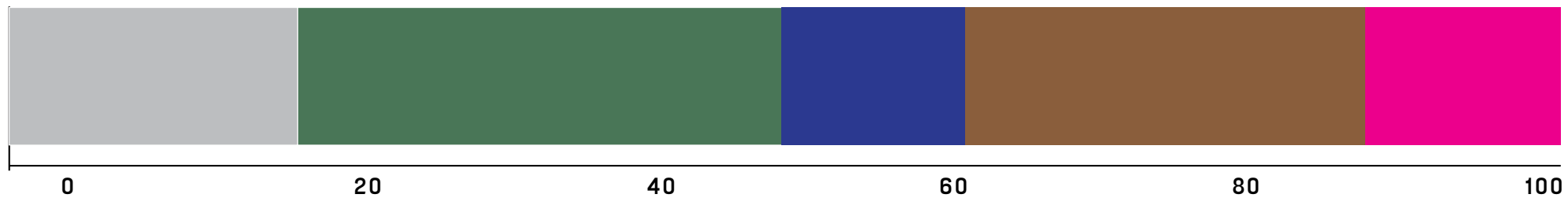
Communal Corner
150 sqm

Youth Center

Gymnastic
500 sqm

Cafe
(Also for the students)
350 sqm

In total 1250sqm



Logistic, Administration and circulation | 25.5%

Logistics

Administration
450 sqm

Workshop Support
450 sqm

Storage
400 sqm

Equipment
400 sqm

Personal storage
150 sqm

Foyer | Reception
300 sqm

Circulation
450 sqm

In total 2150 sqm

In total 10170 sqm

04 THE DESIGN

How to translate into architecture?



Middle school



Bus stop



Baseball field



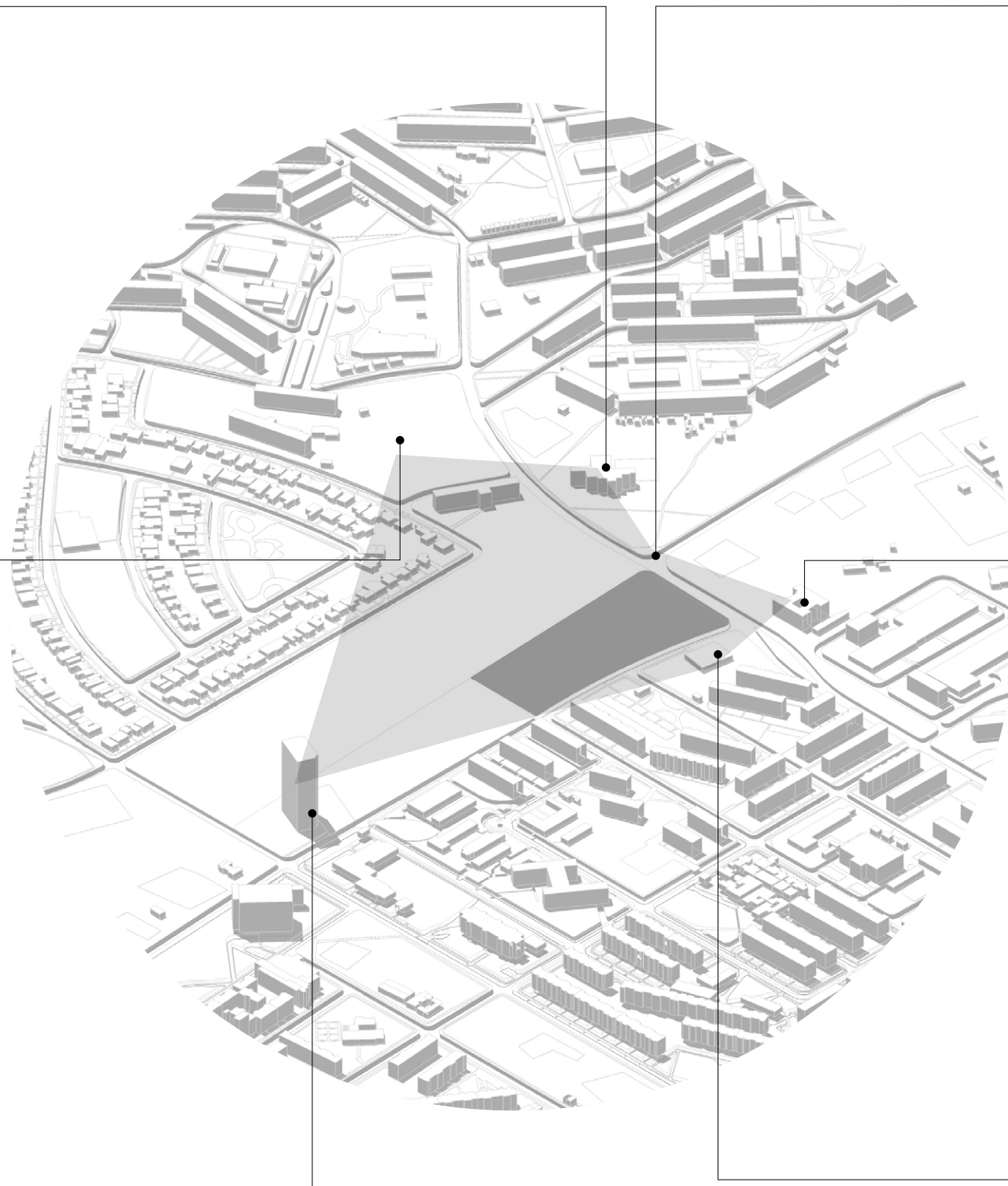
Hospital



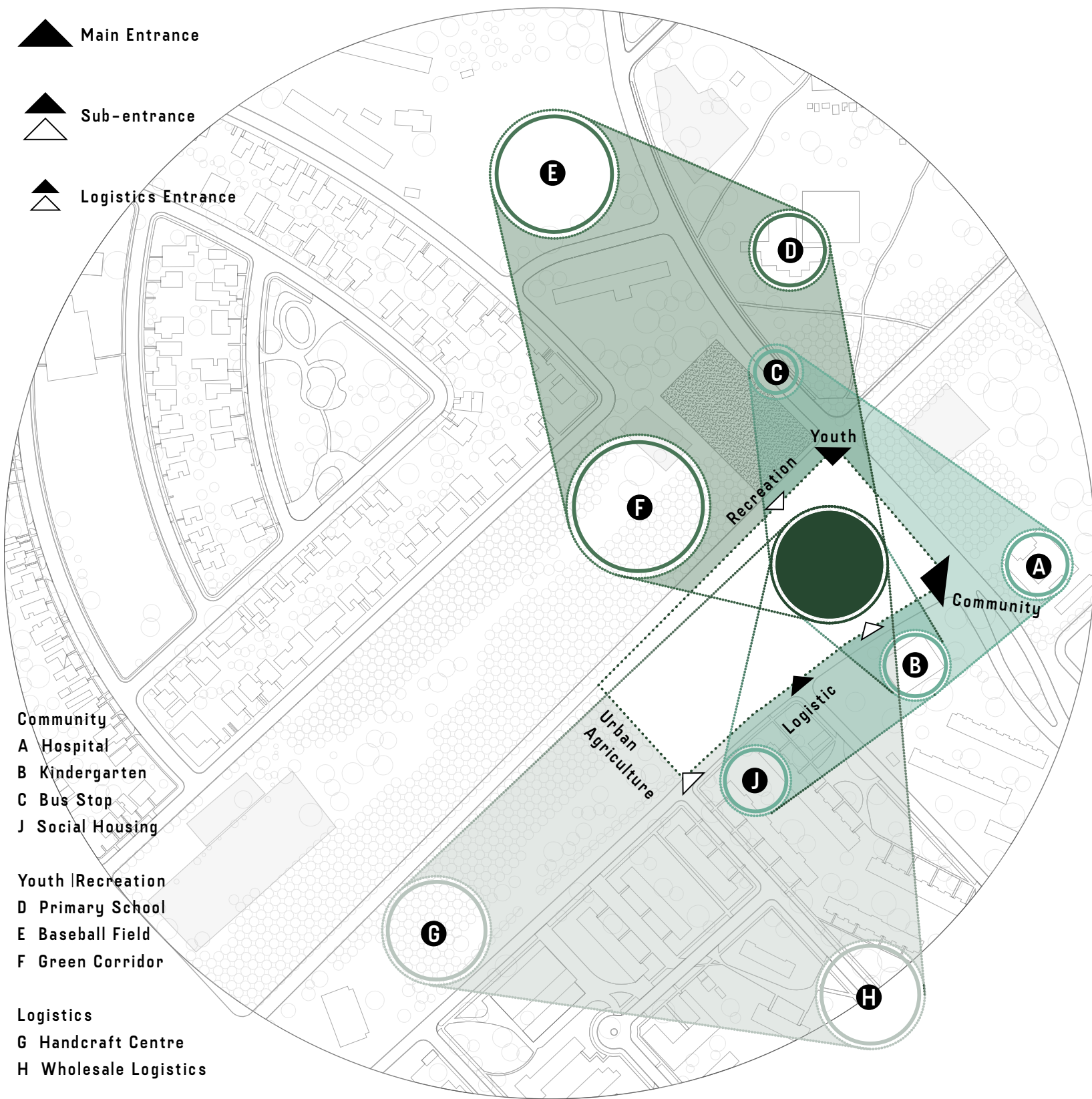
Landmark Tower



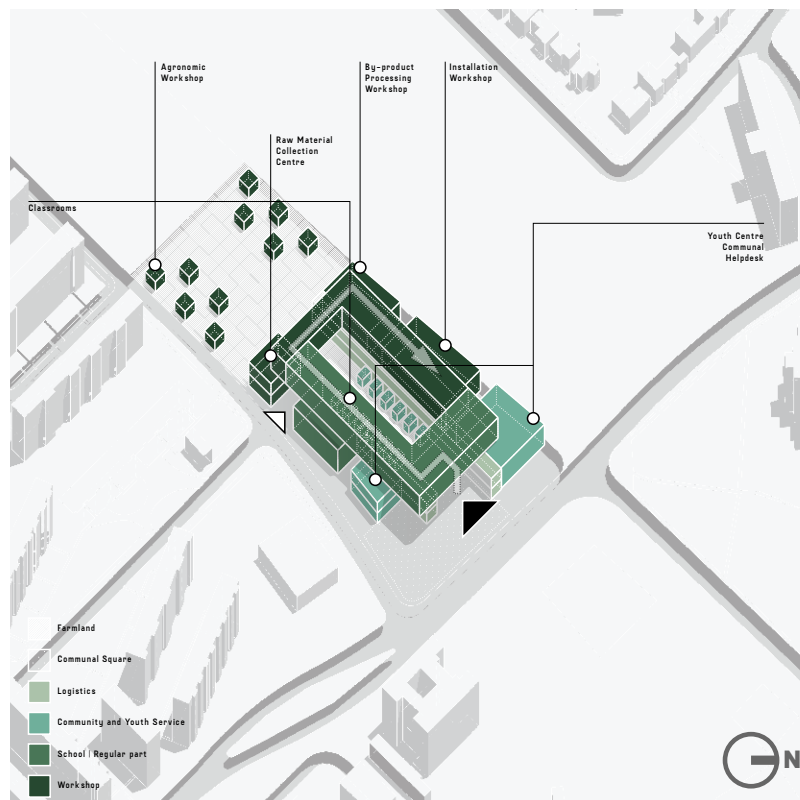
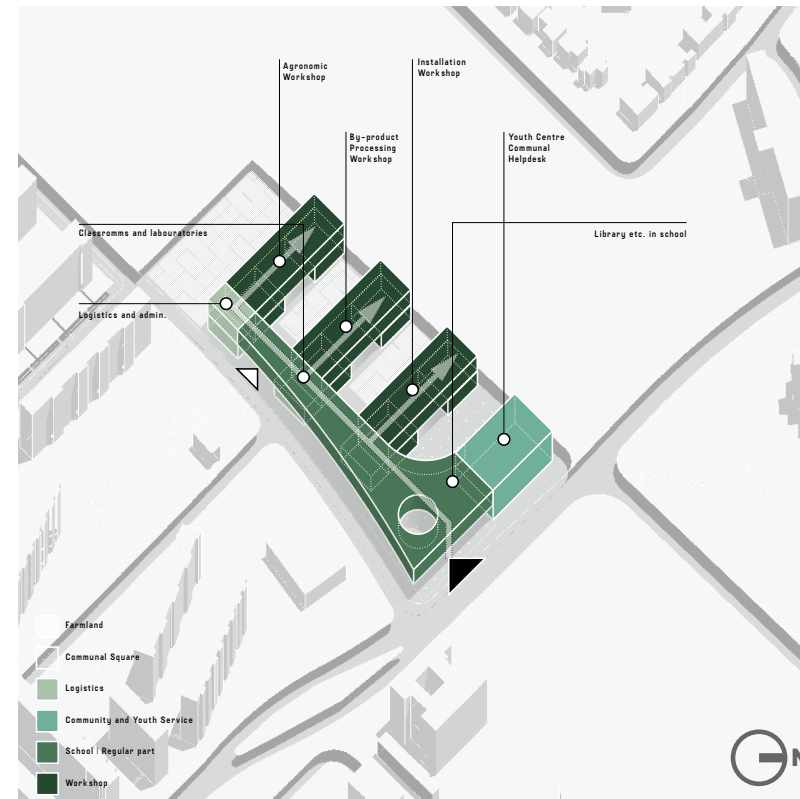
Kindergarten



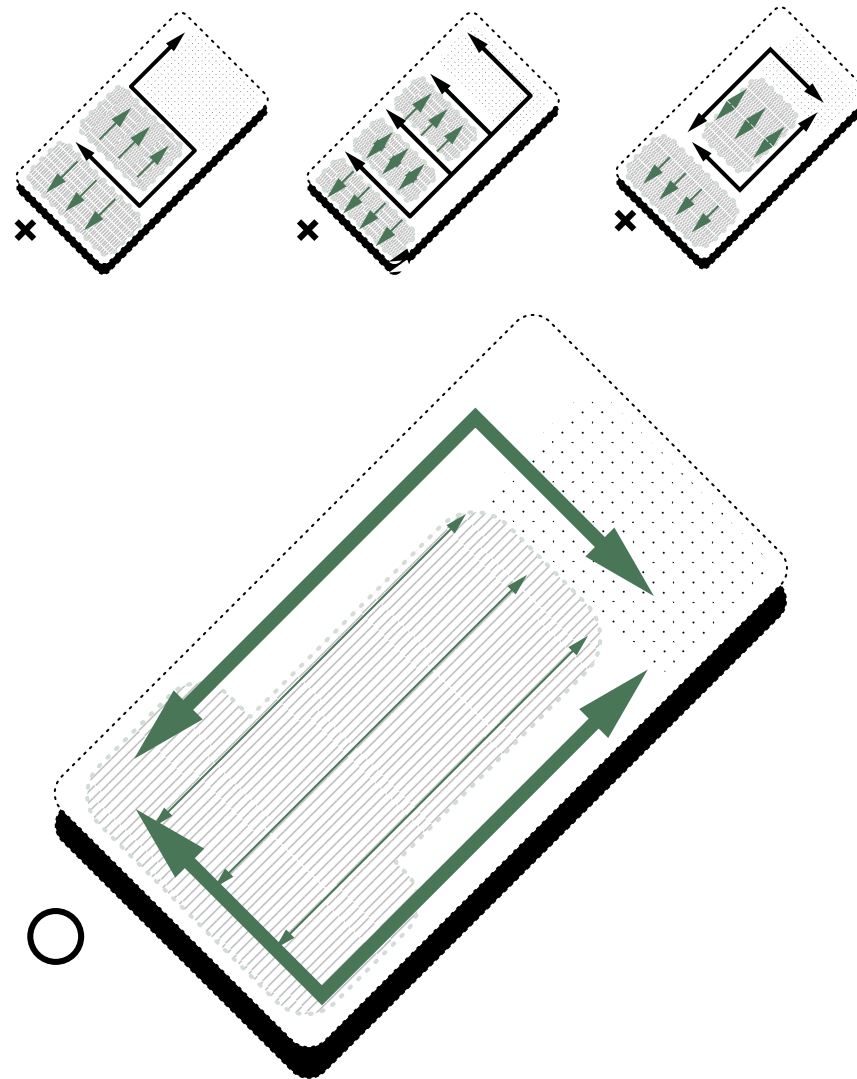
NEIGHBOURHOOD ANALYSIS THREE 'FACADES'



FARMLAND-BASED FORM



FARMLAND-BASED FORM

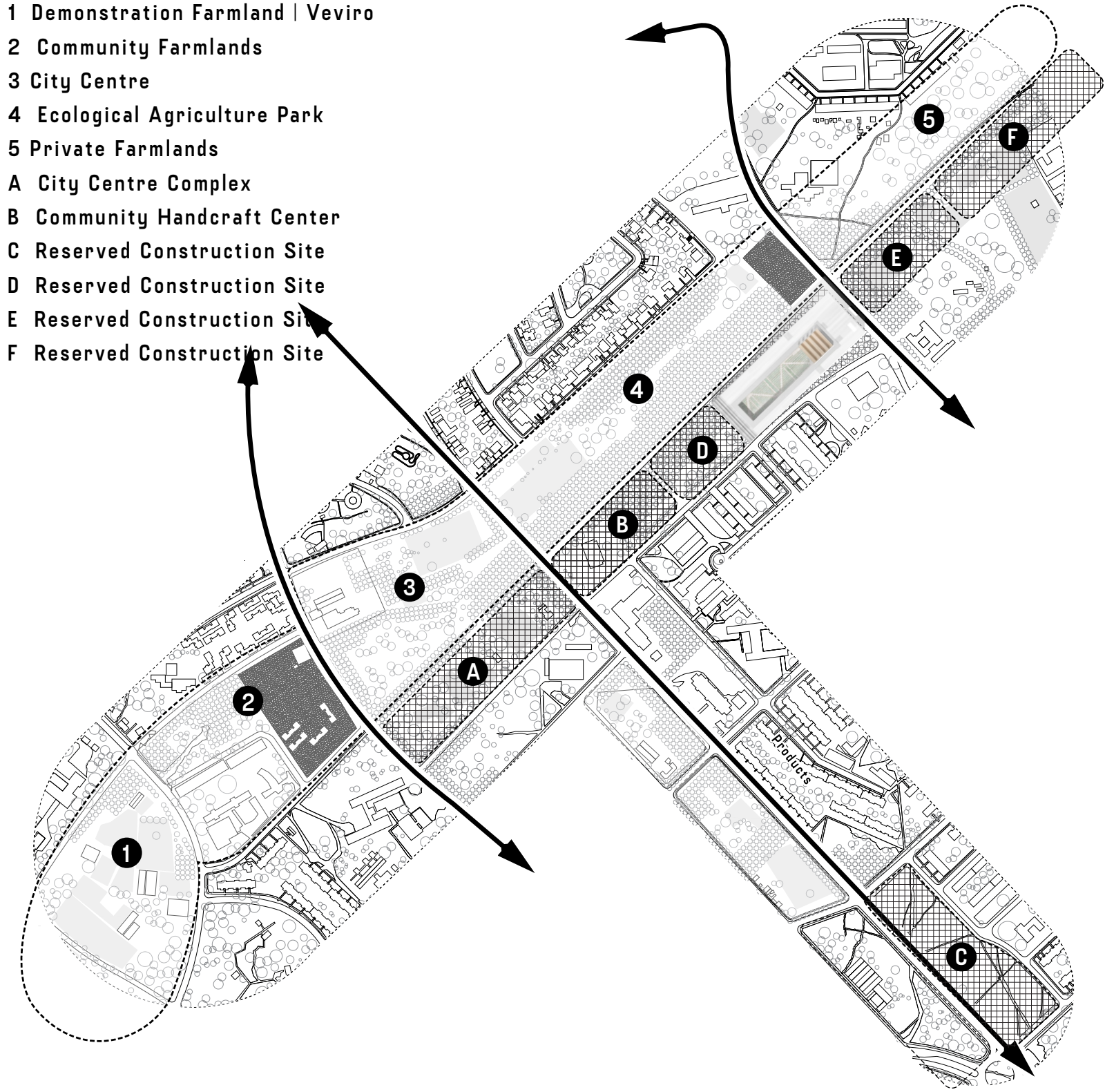


Invite the farmland spontaneously going into the school.

URBAN PLAN
DEFINED BORDER AND COMPLETE URBAN SURFACE



FUTURE SCENARIO A CATALYST FOR SURROUNDINGS



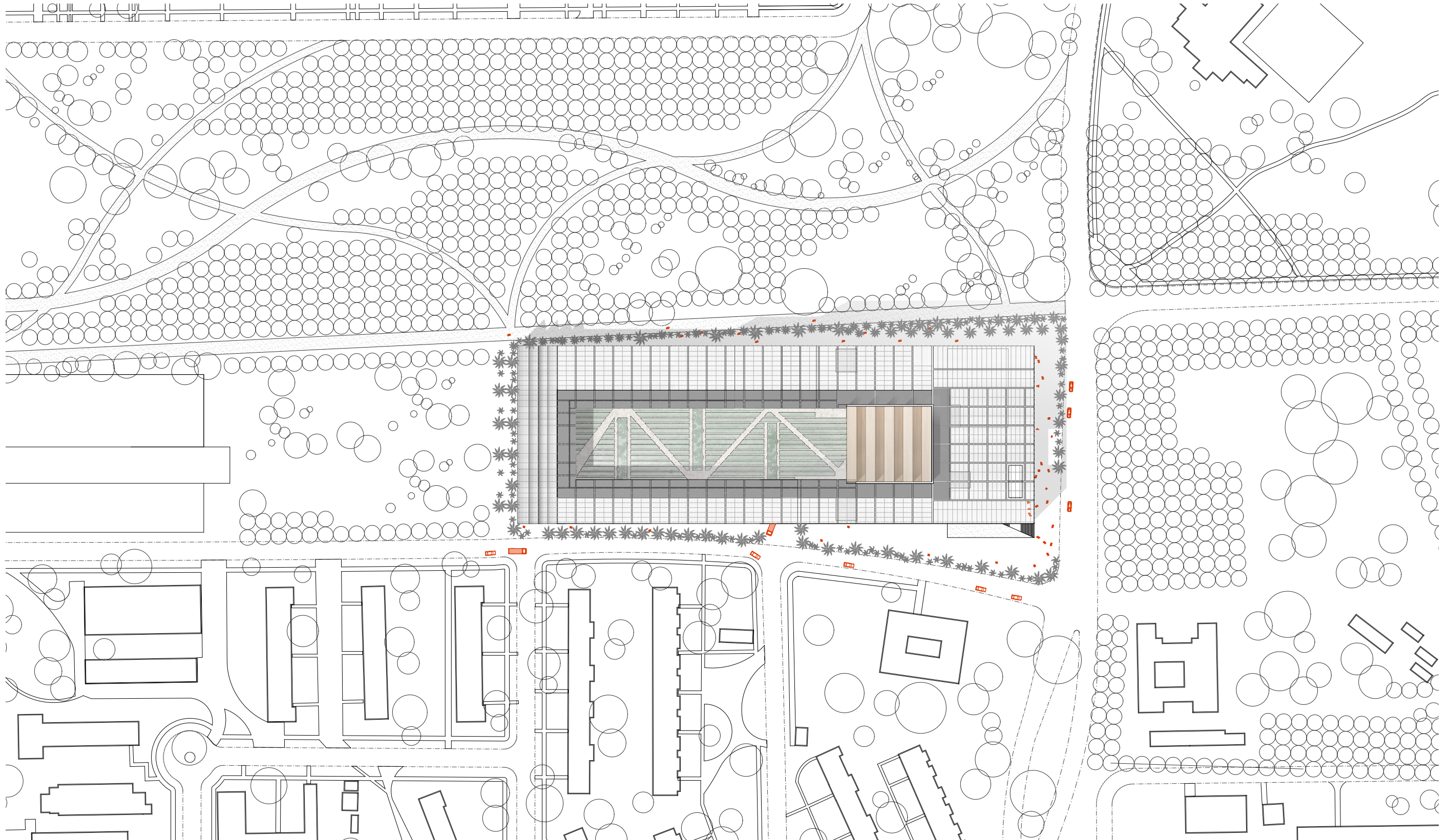
CANOPY-DEFINED FIELD CONTINUITY AND SPATIAL IMPLICATION



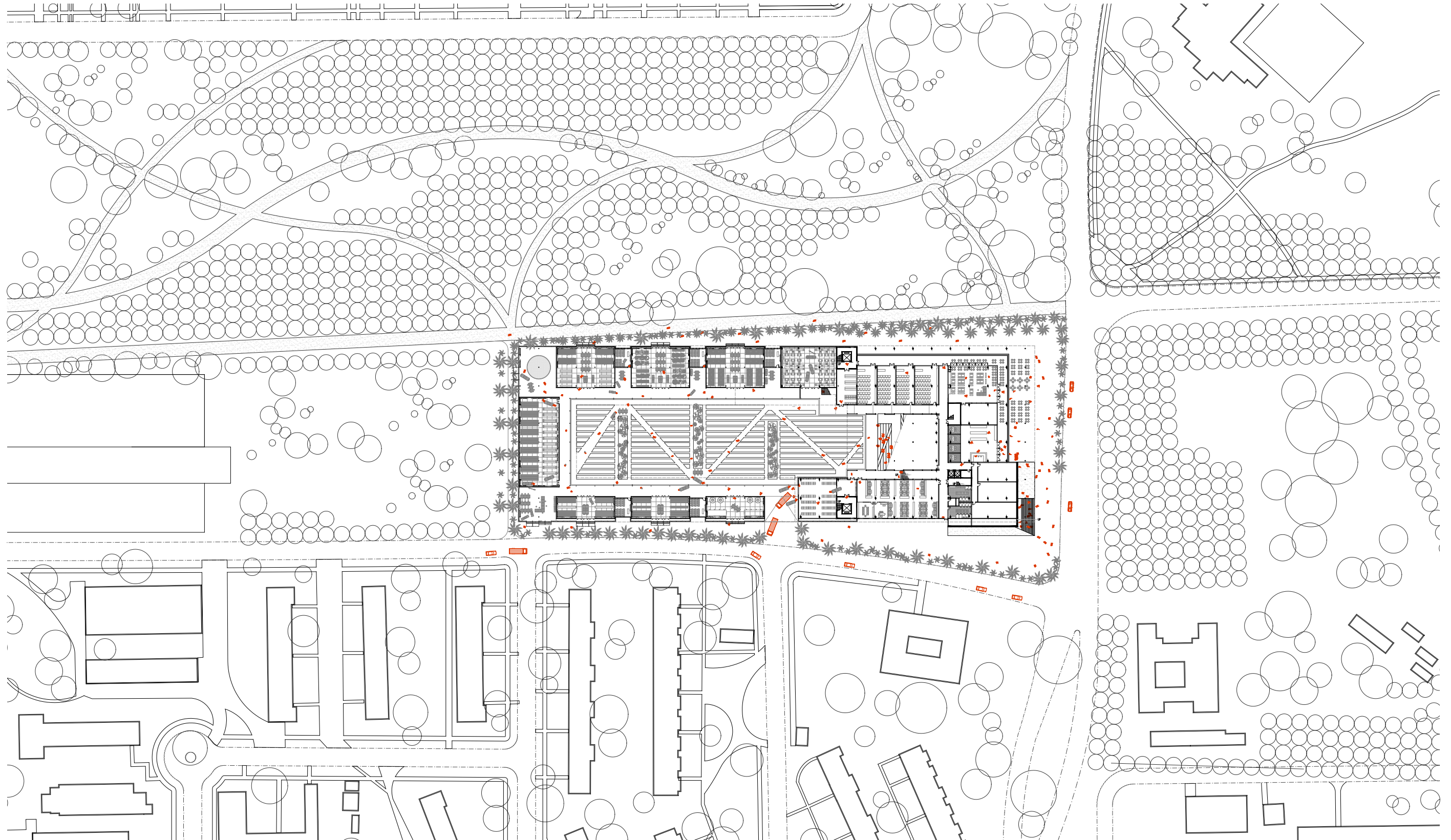
CANOPY-DEFINED FIELD CONTINUITY AND SPATIAL IMPLICATION



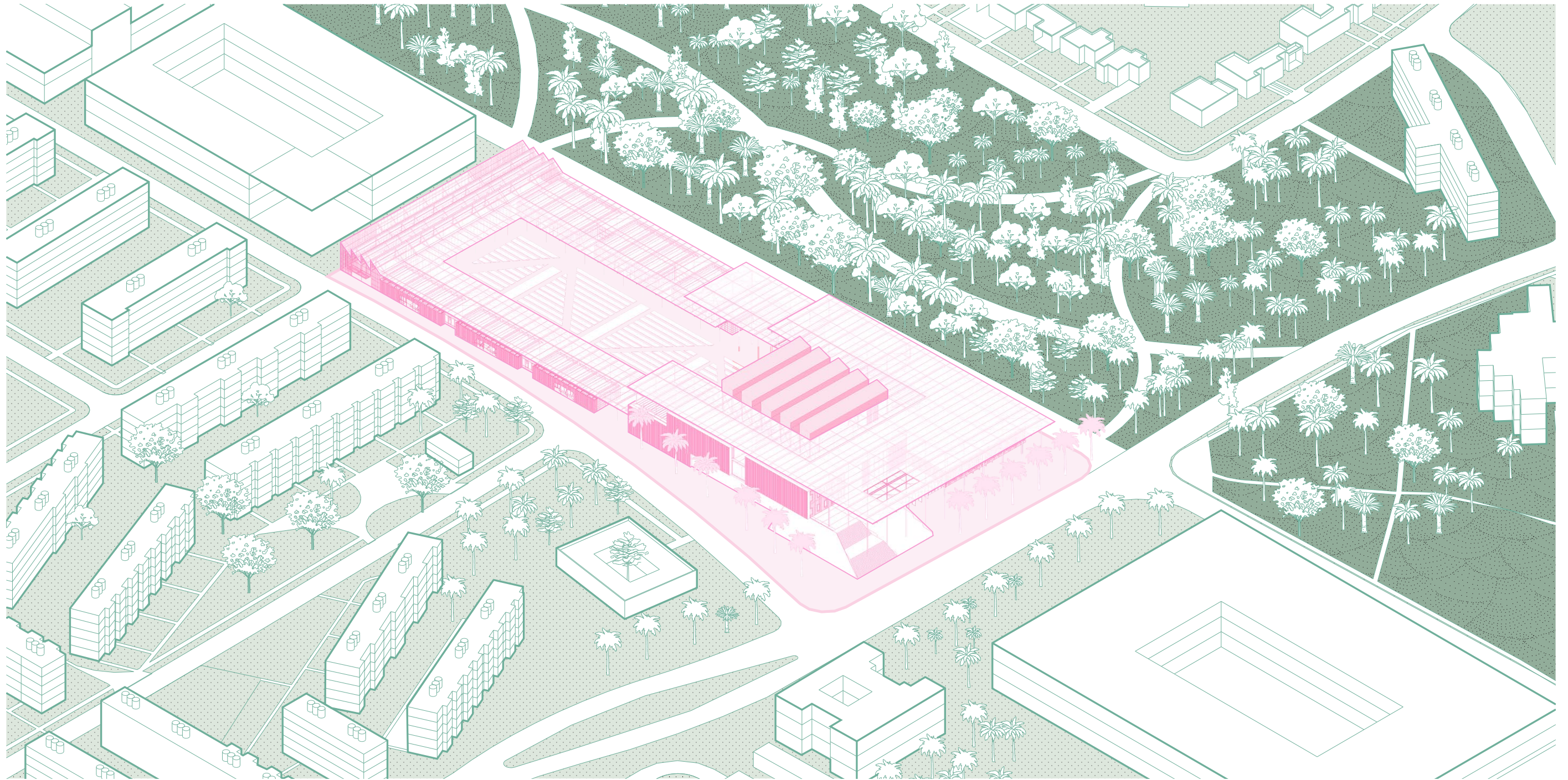
SITE PLAN
A CANOPY-DEFINED SPACE



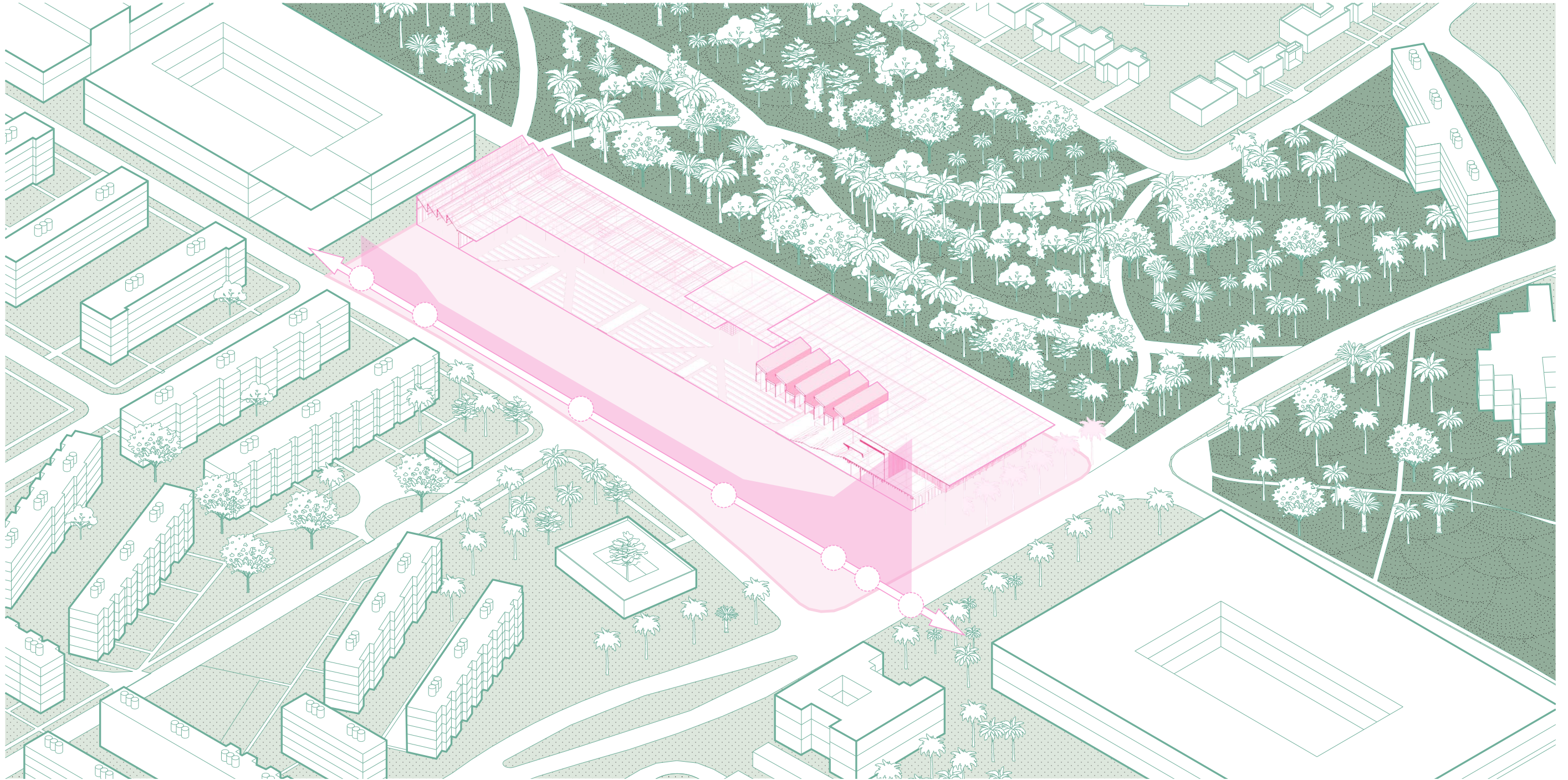
URBAN IMPLEMENTATION PLAN A WORKSHOP-DEFINED BLOCK BORDER



URBAN CONDITION
BETWEEN THE FARMLAND AND THE CITY

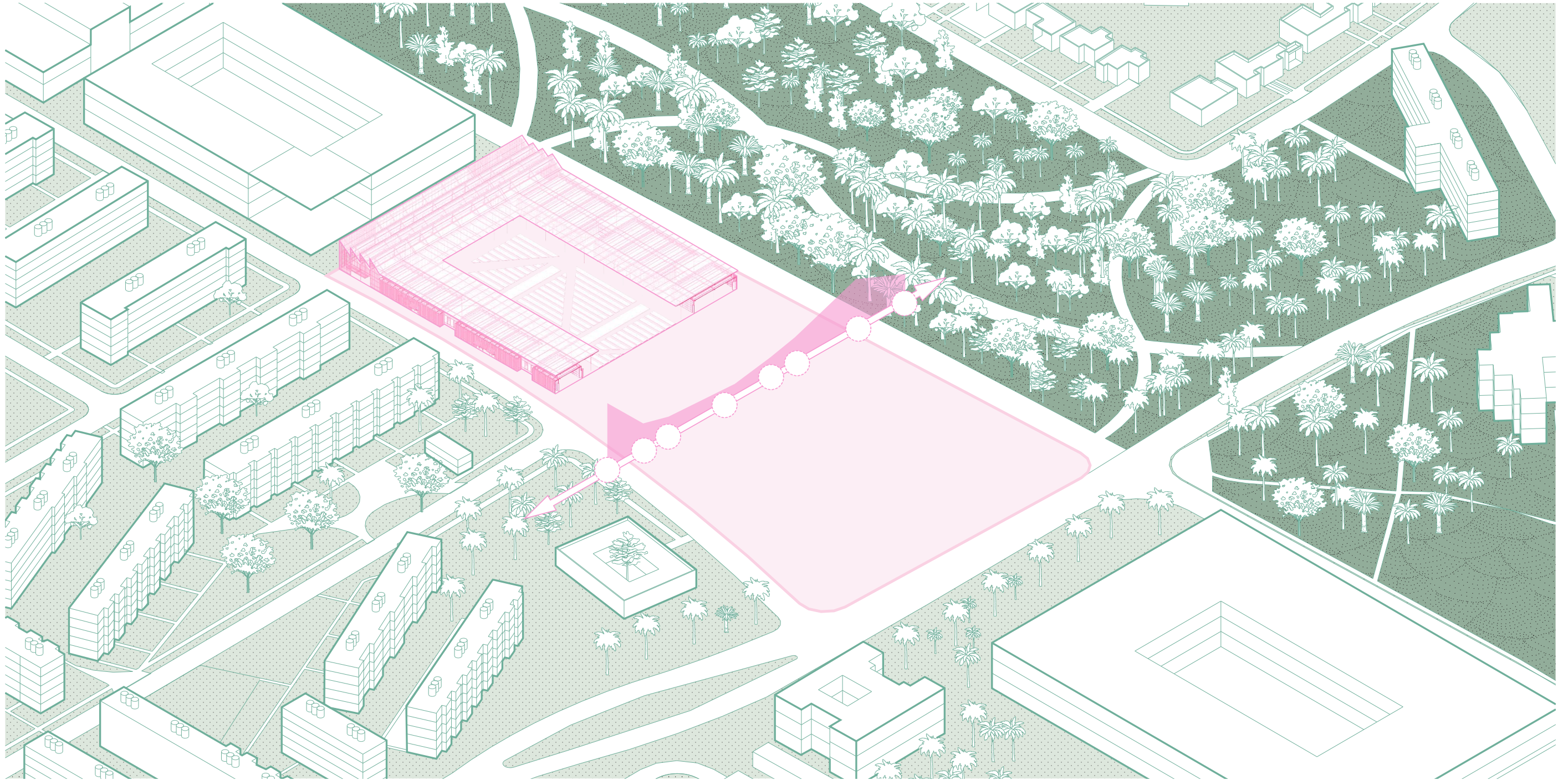


A MULTI-LAYER LOOP



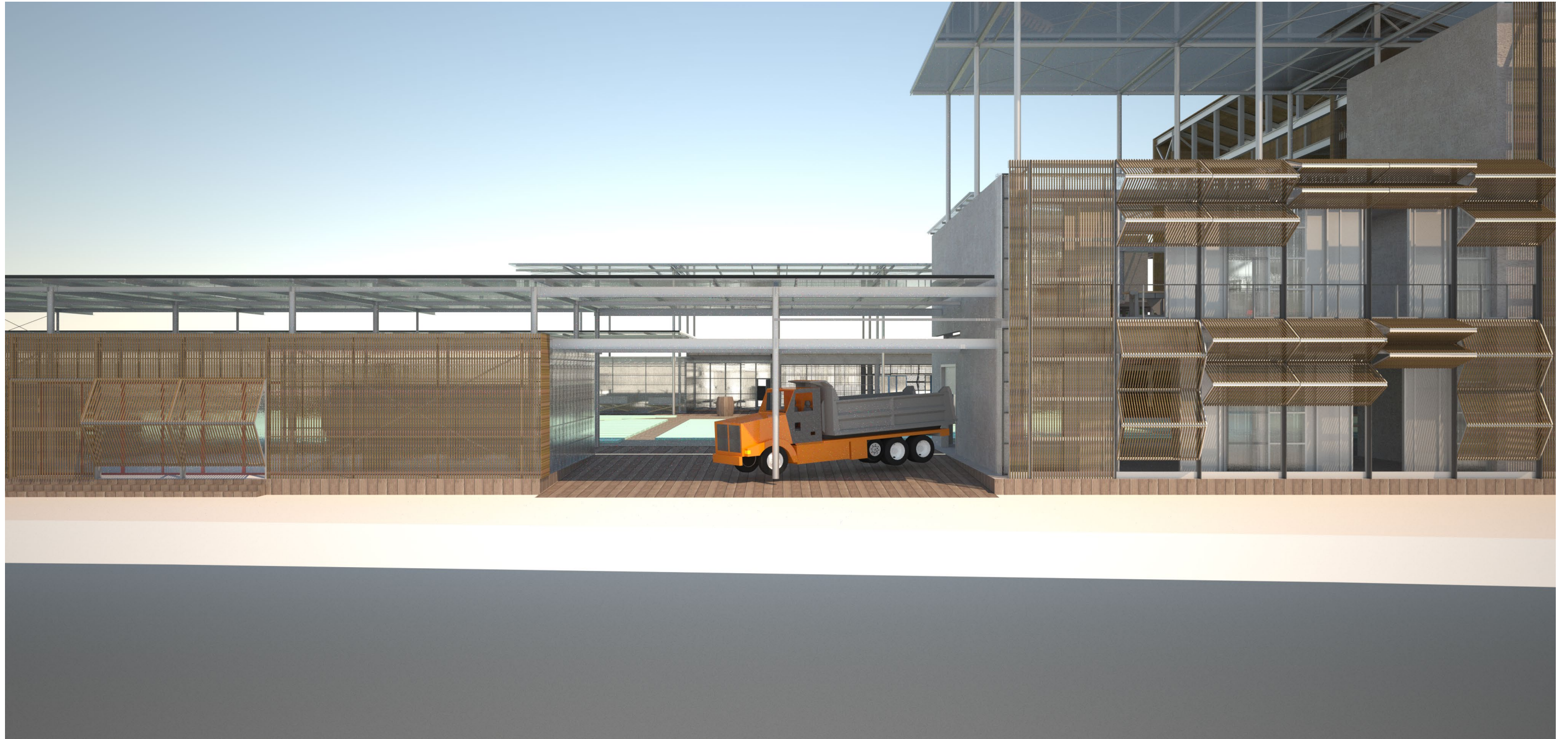
As to make the loop dynamic, it consists different layers.

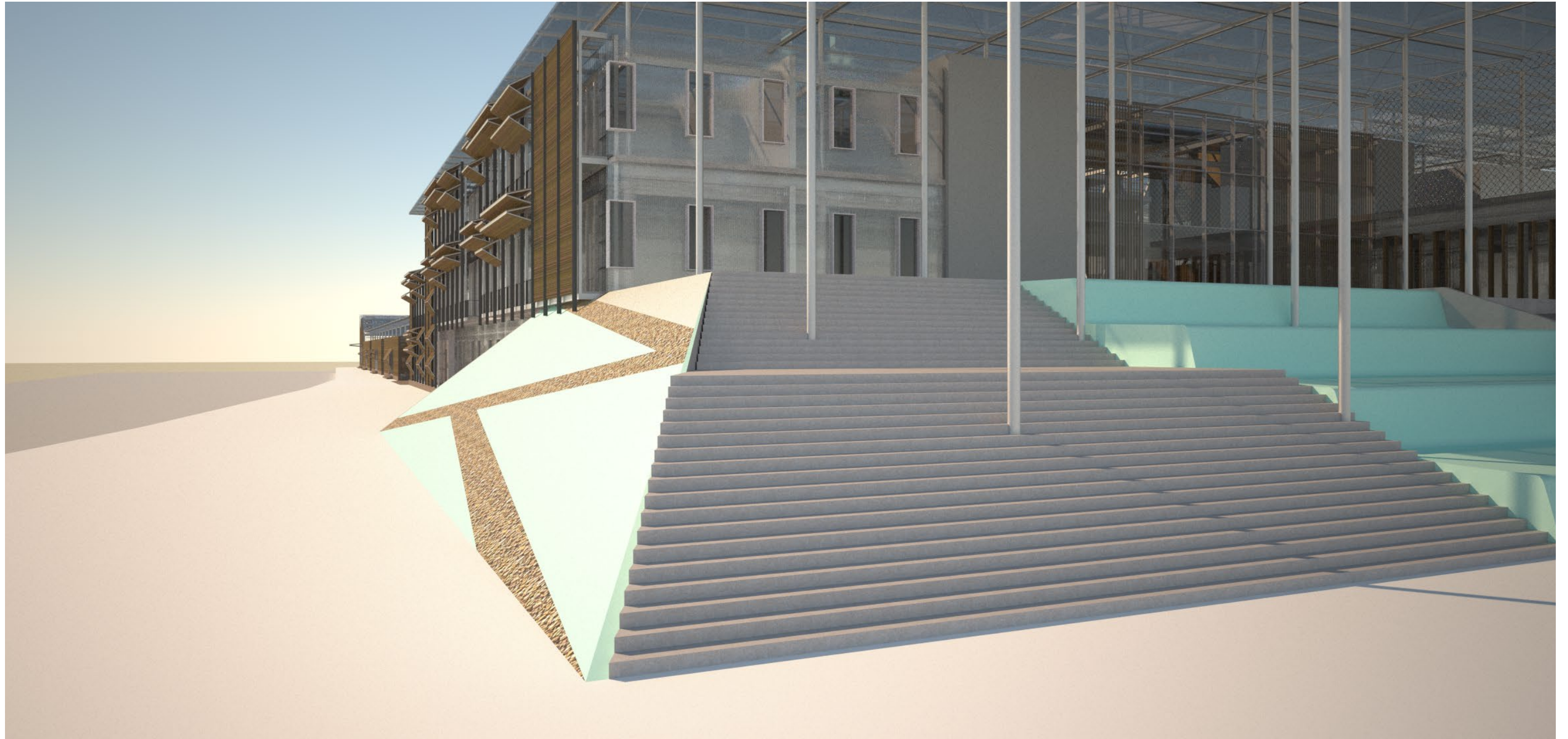
A MULTI-LAYER LOOP



As to make the loop dynamic, it consists different layers.









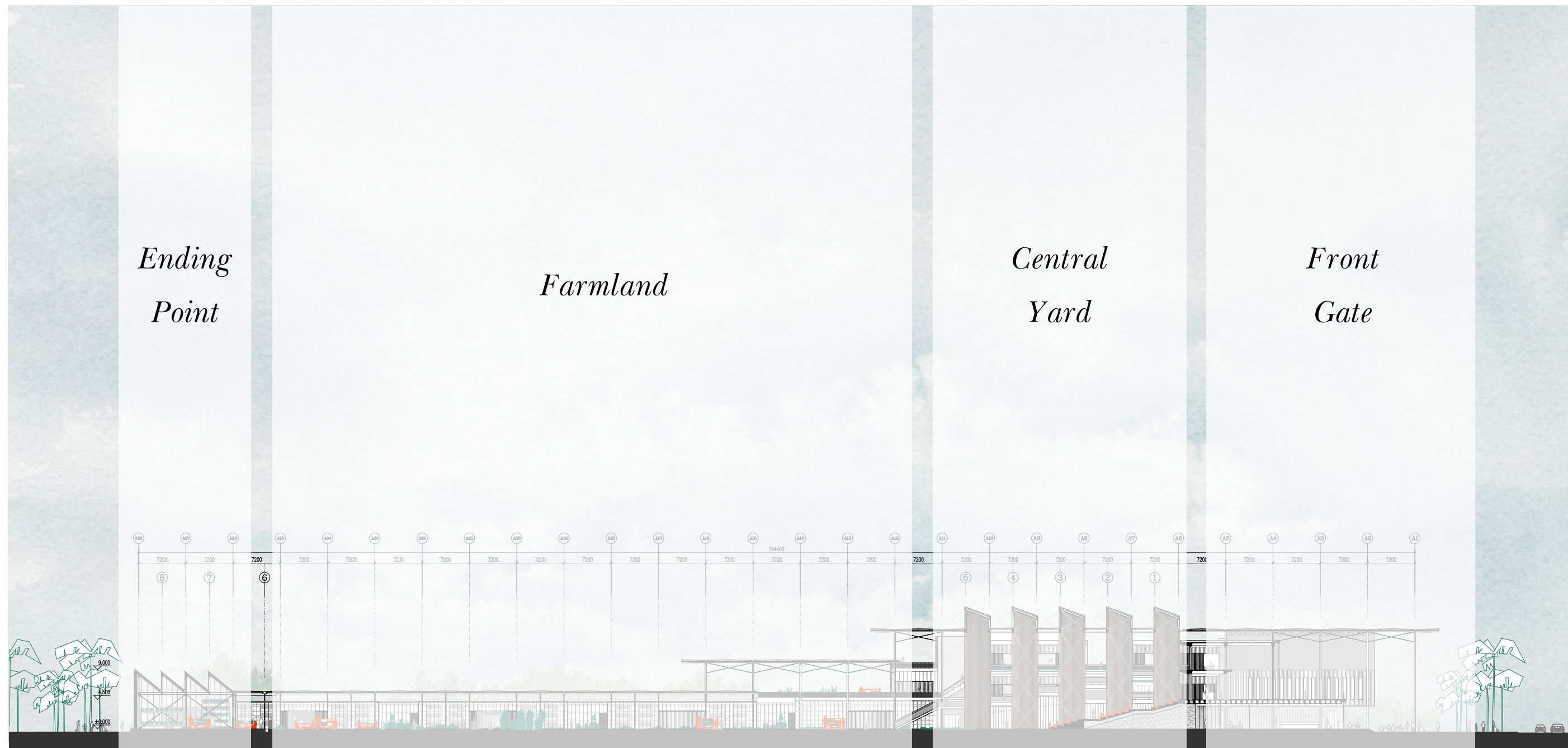




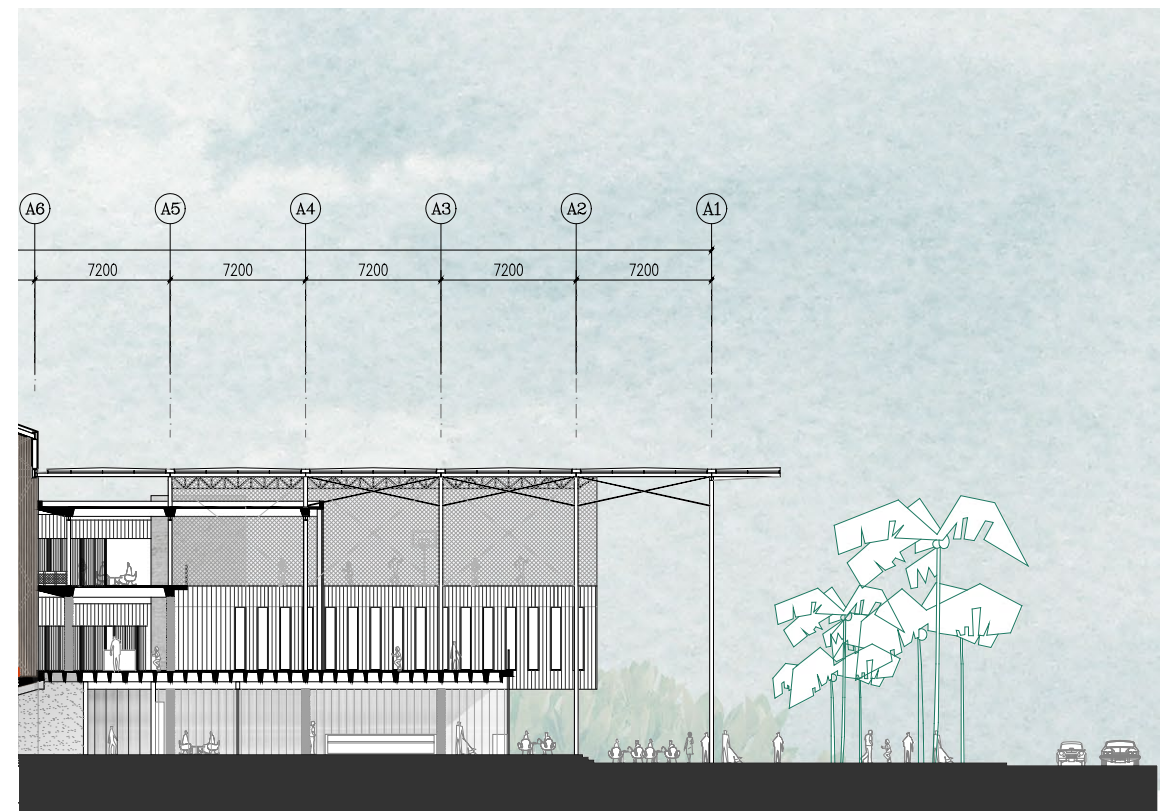


Along the tour, there are different activities organised and happening inside.

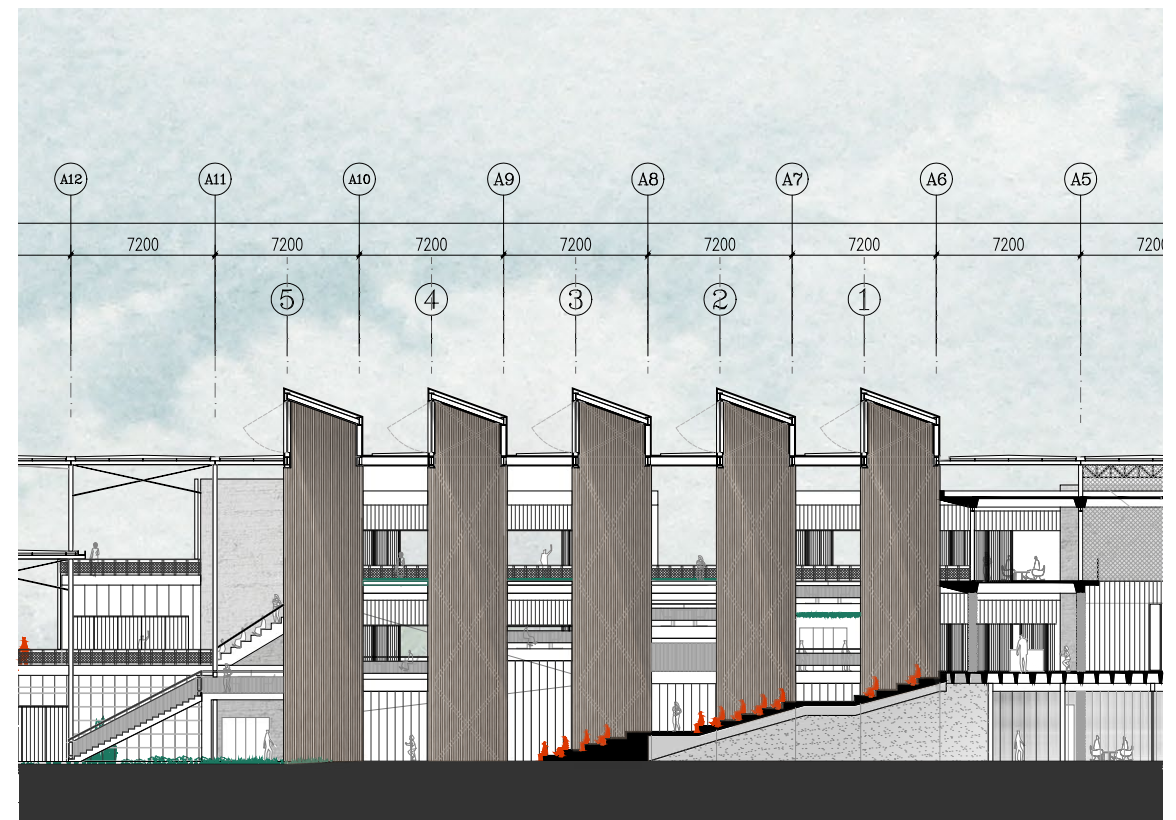
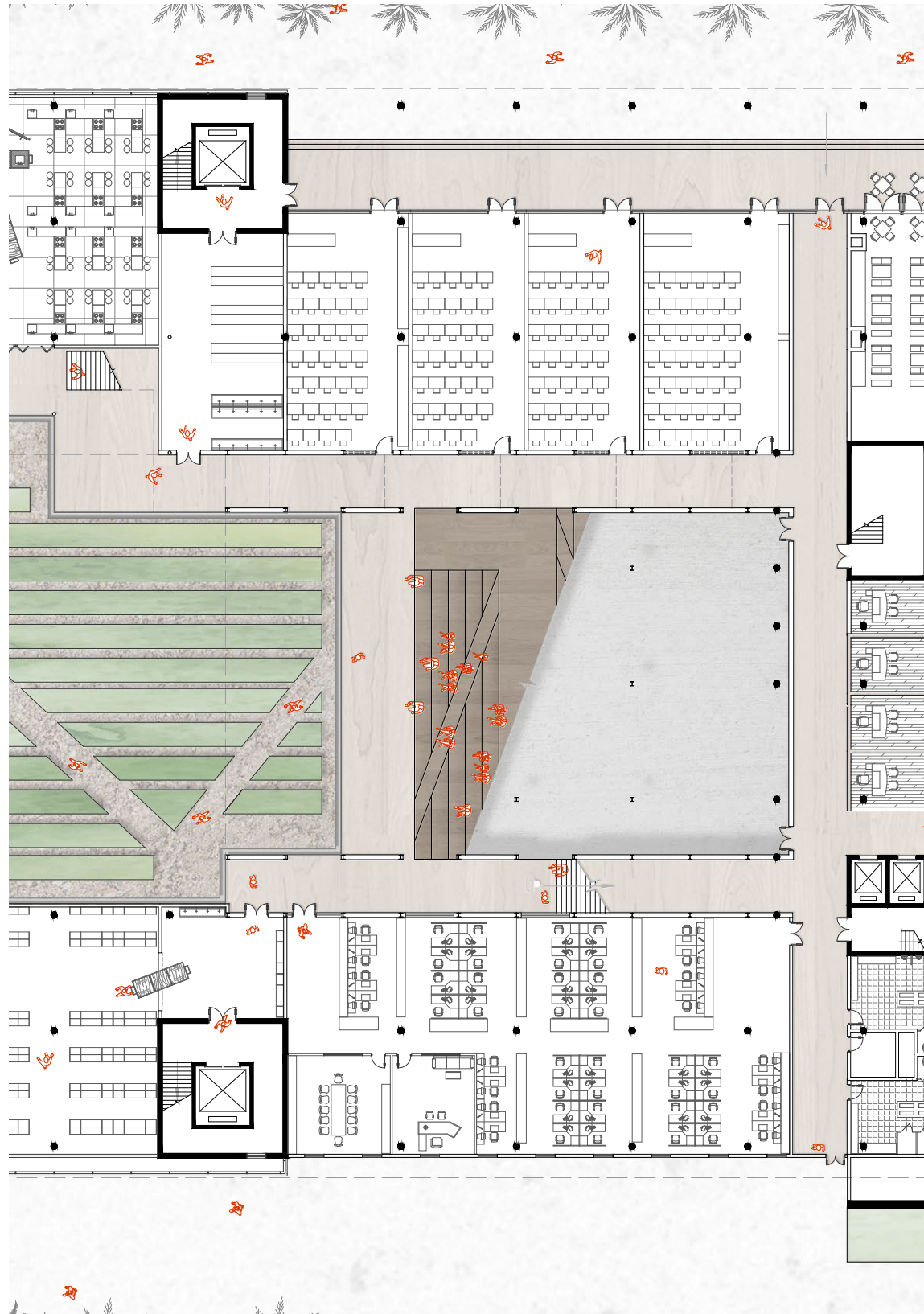
HORIZONTAL SECTIONS



FRONT GATE



CENTRAL YARD MULTI-FUNCTIONAL HEART



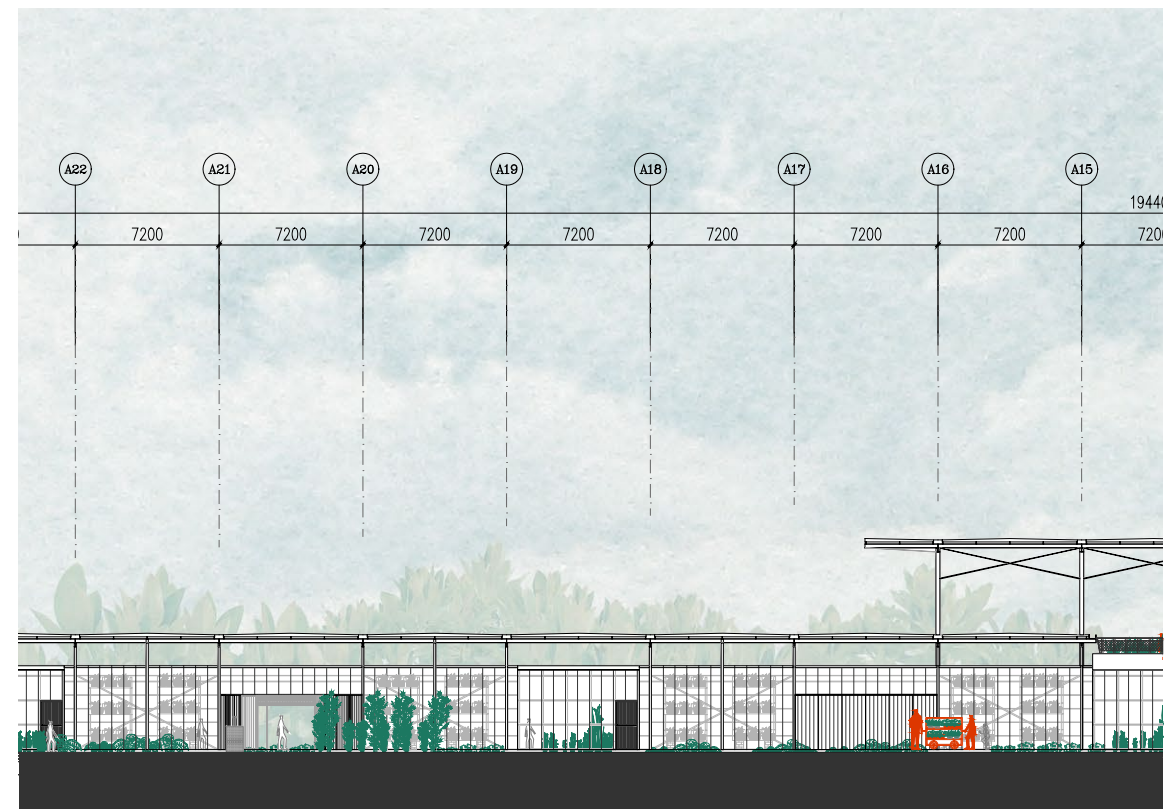
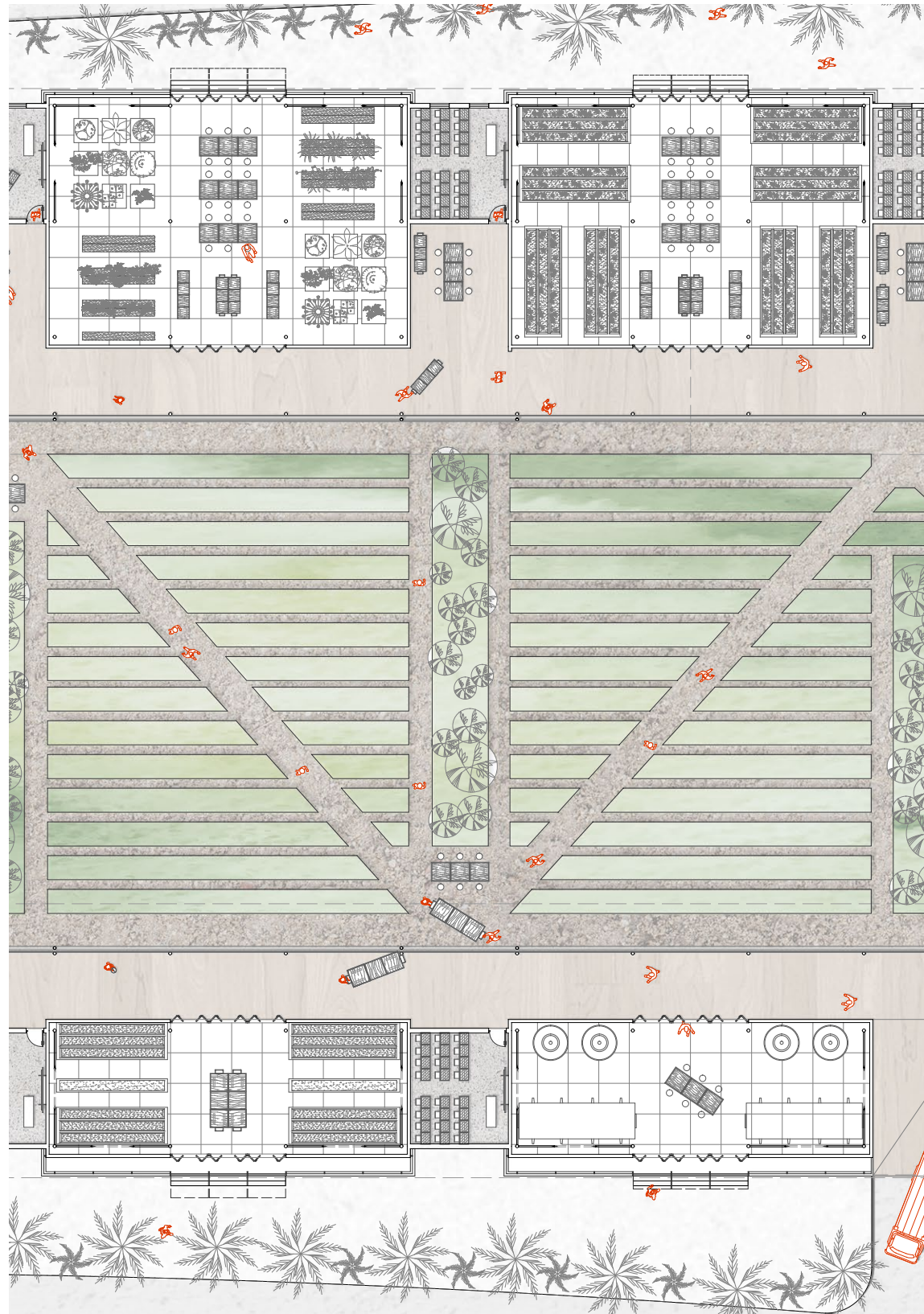
CENTRAL YARD
MULTI-FUNCTIONAL HEART



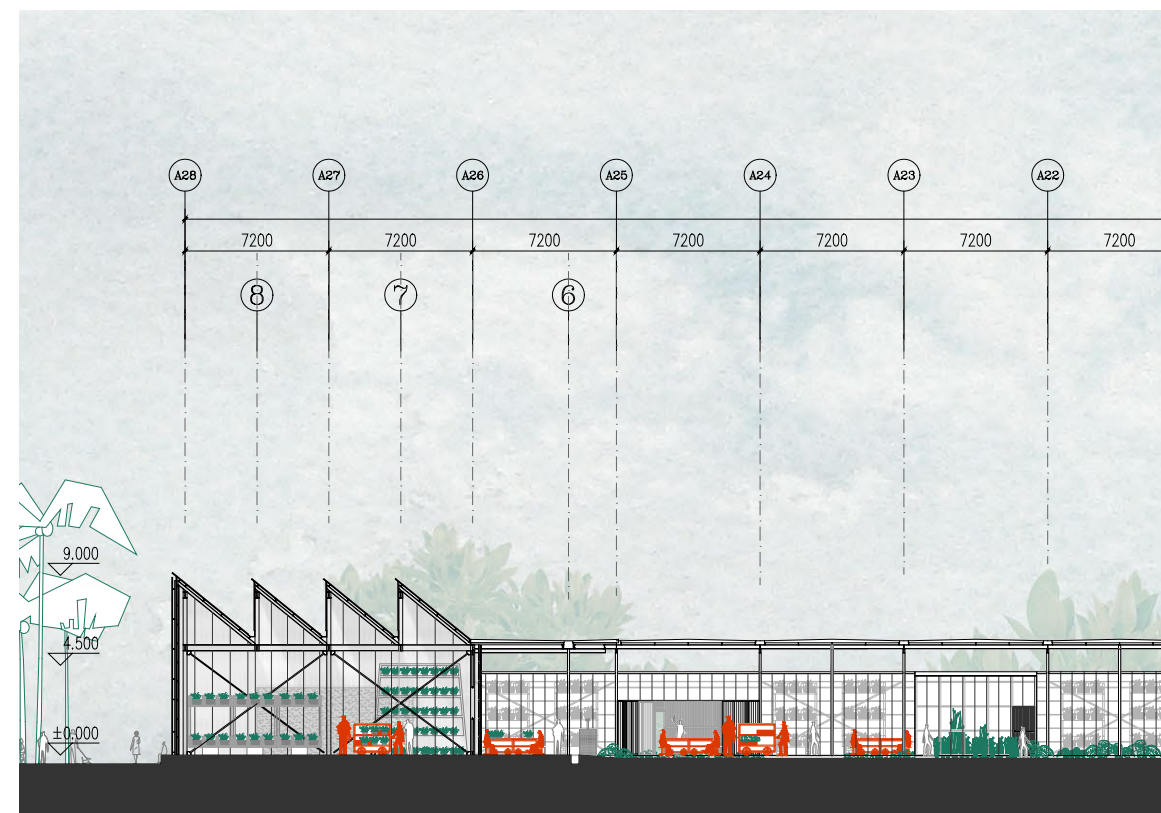
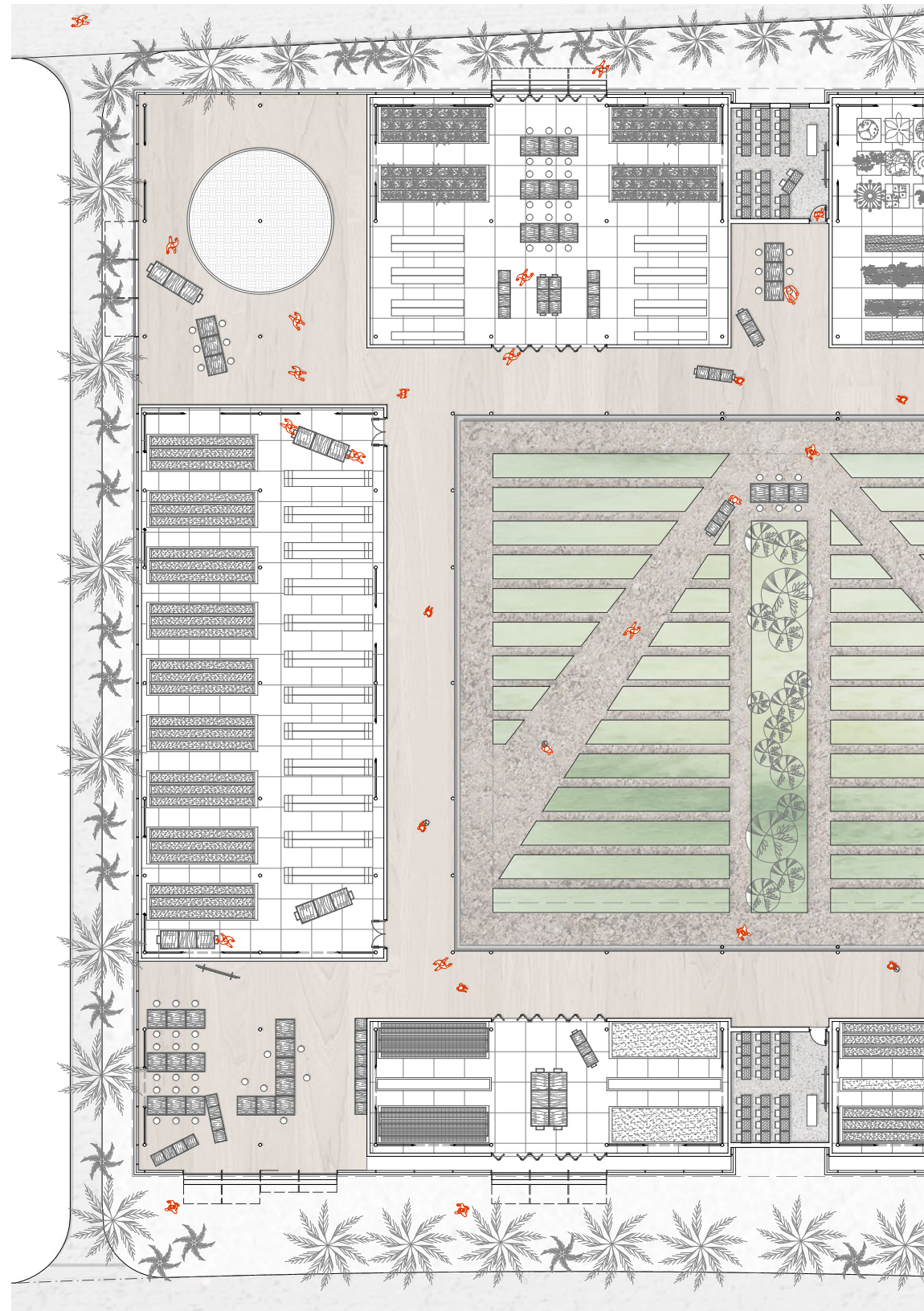
CENTRAL YARD
MULTI-FUNCTIONAL HEART



FARMLAND FLEXIBLE LEARNING LANDSCAPE



ENDING POINT COMMUNAL OPENNING

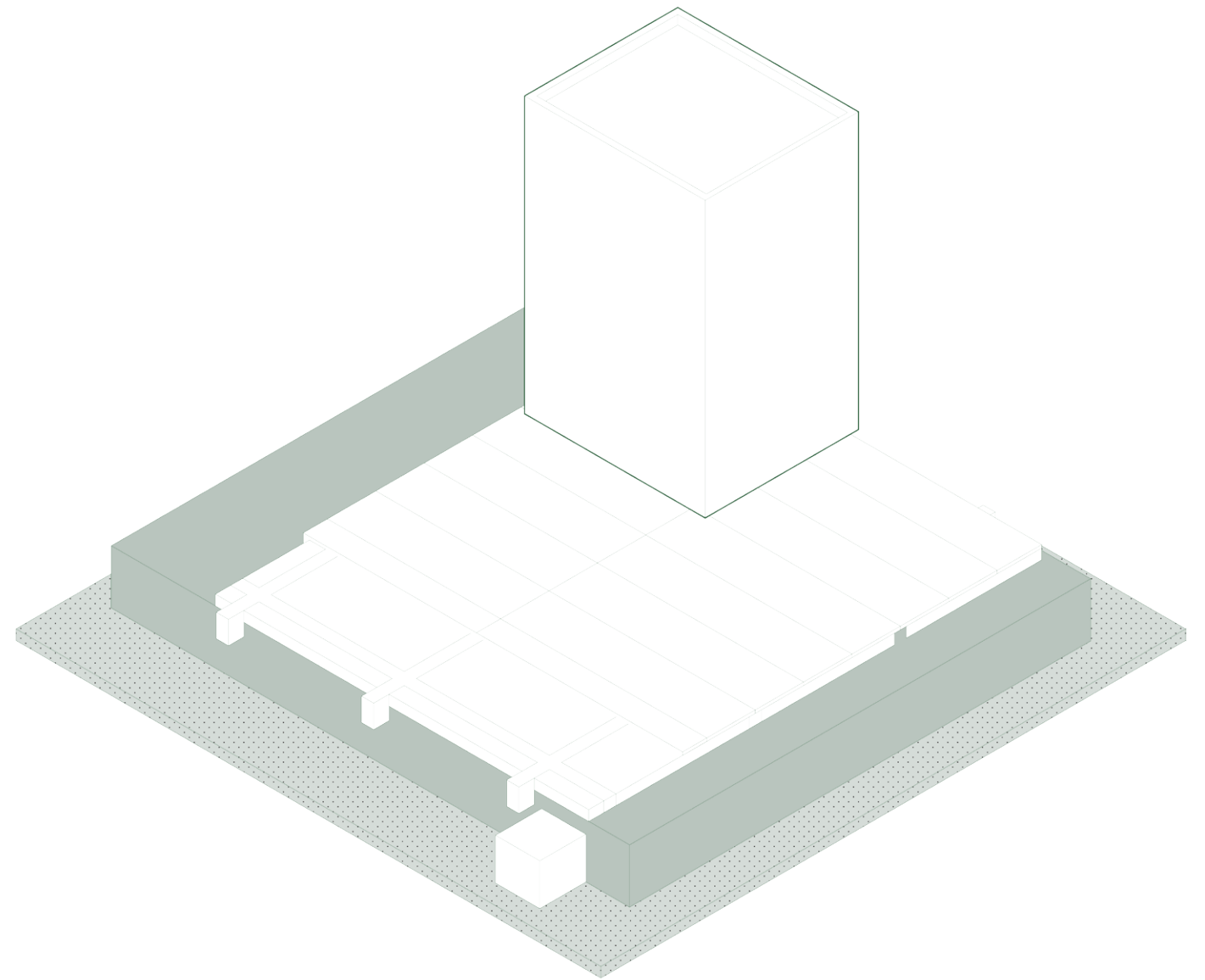
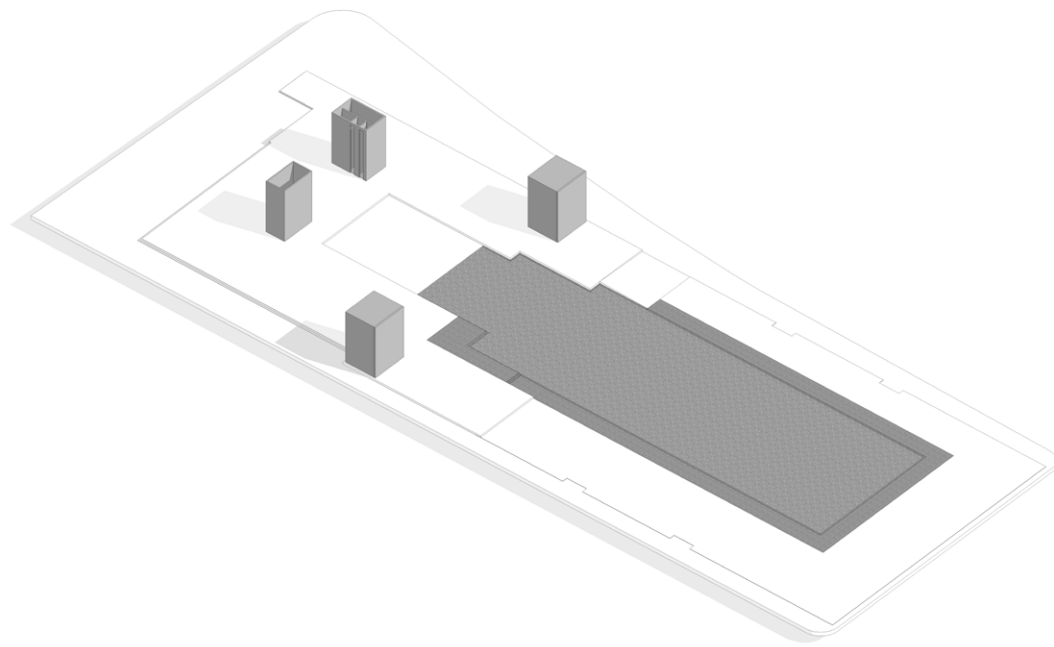


STRUCTURE PRINCIPLE HYBRID OF HEAVY CONCRETE AND LIGHT STEEL

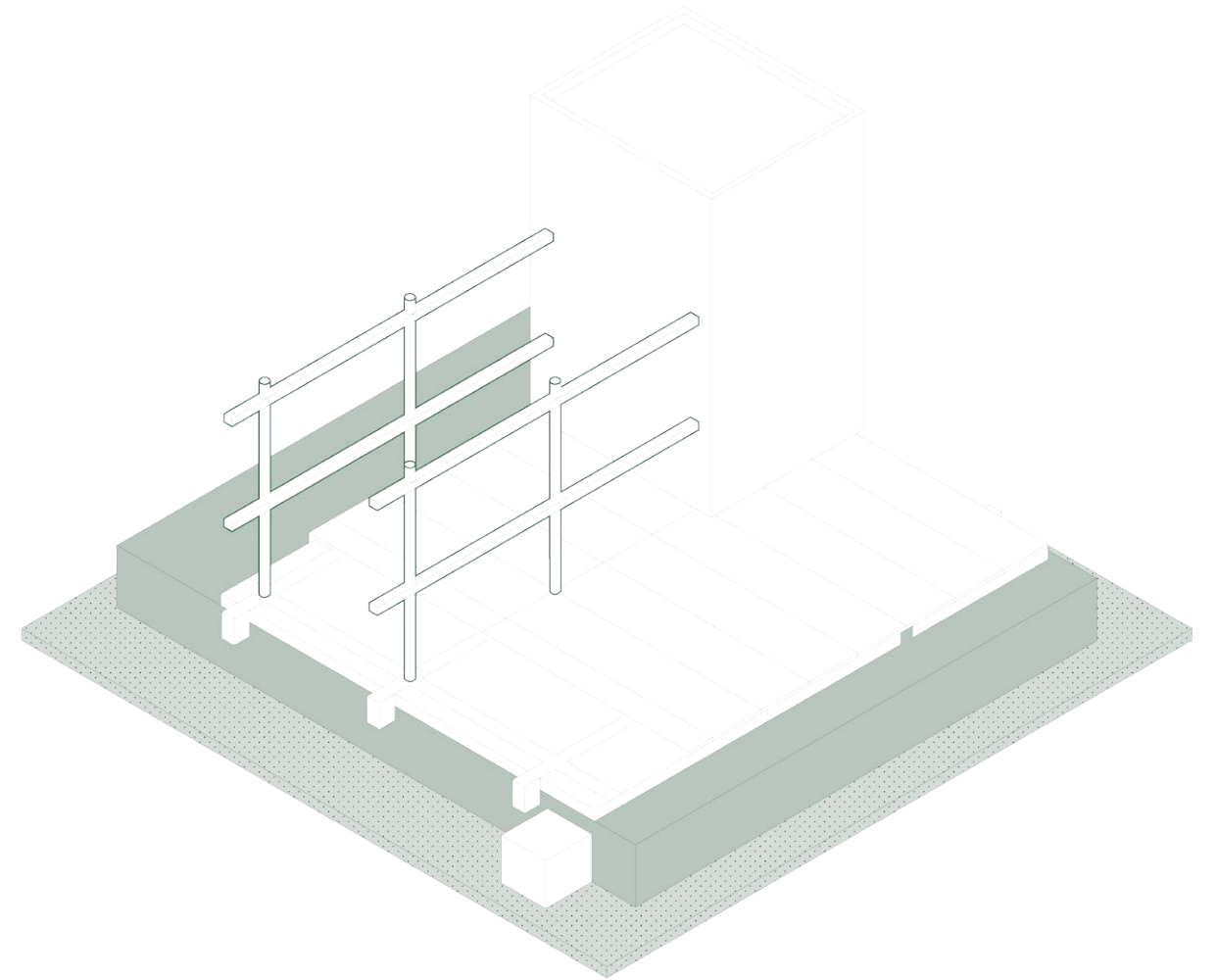
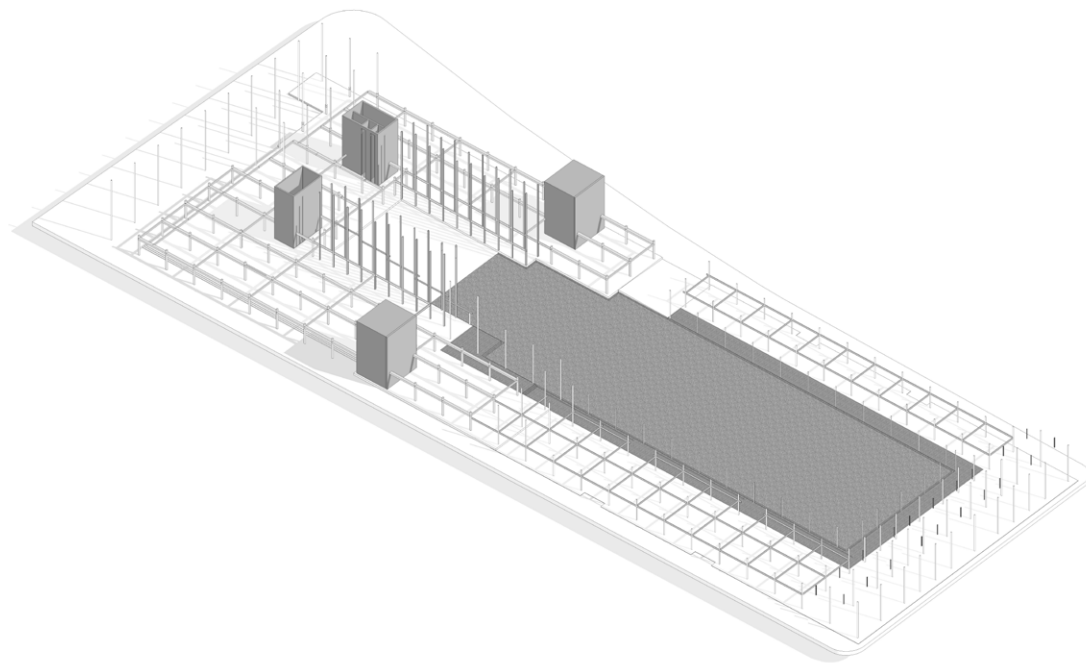


The loadbearing structure system consists of concrete structure and steel structure (including the canopy and long-span trusses). Two systems are combined with built-in fitting elements. Both materials are local in Alamar, representing the social housing and small sheds.

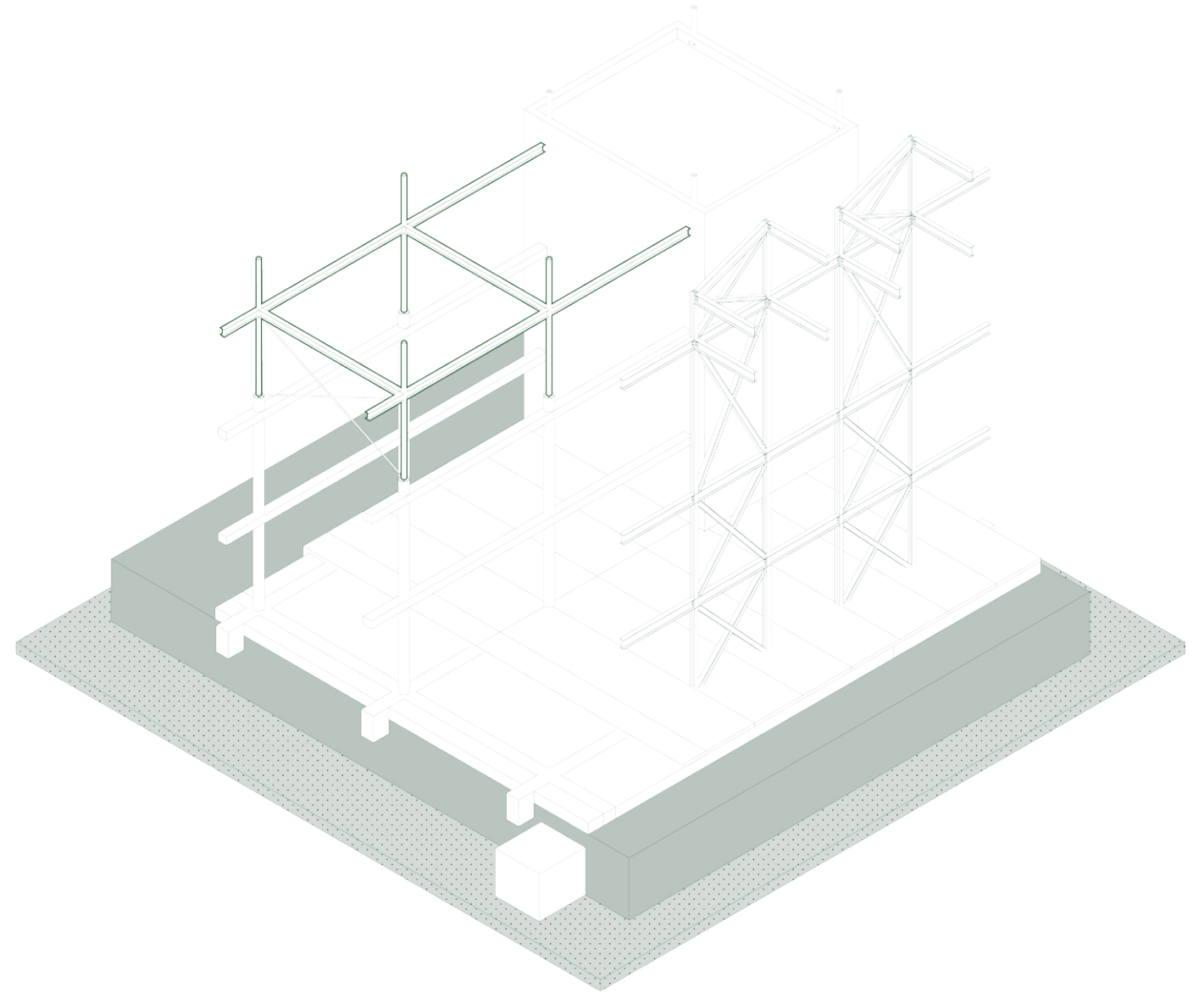
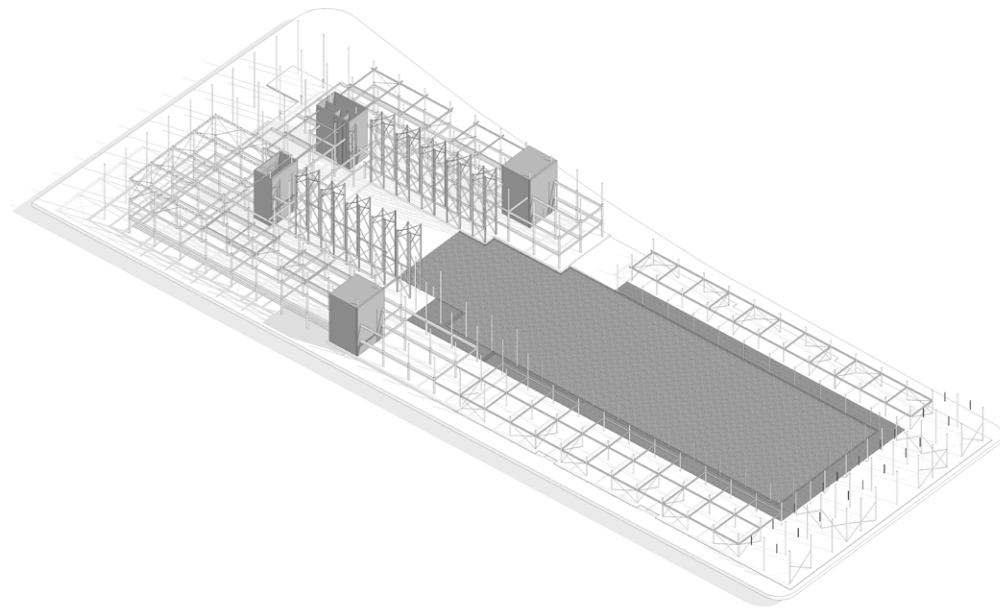
STRUCTURE PRINCIPLE CONCRETE CORES



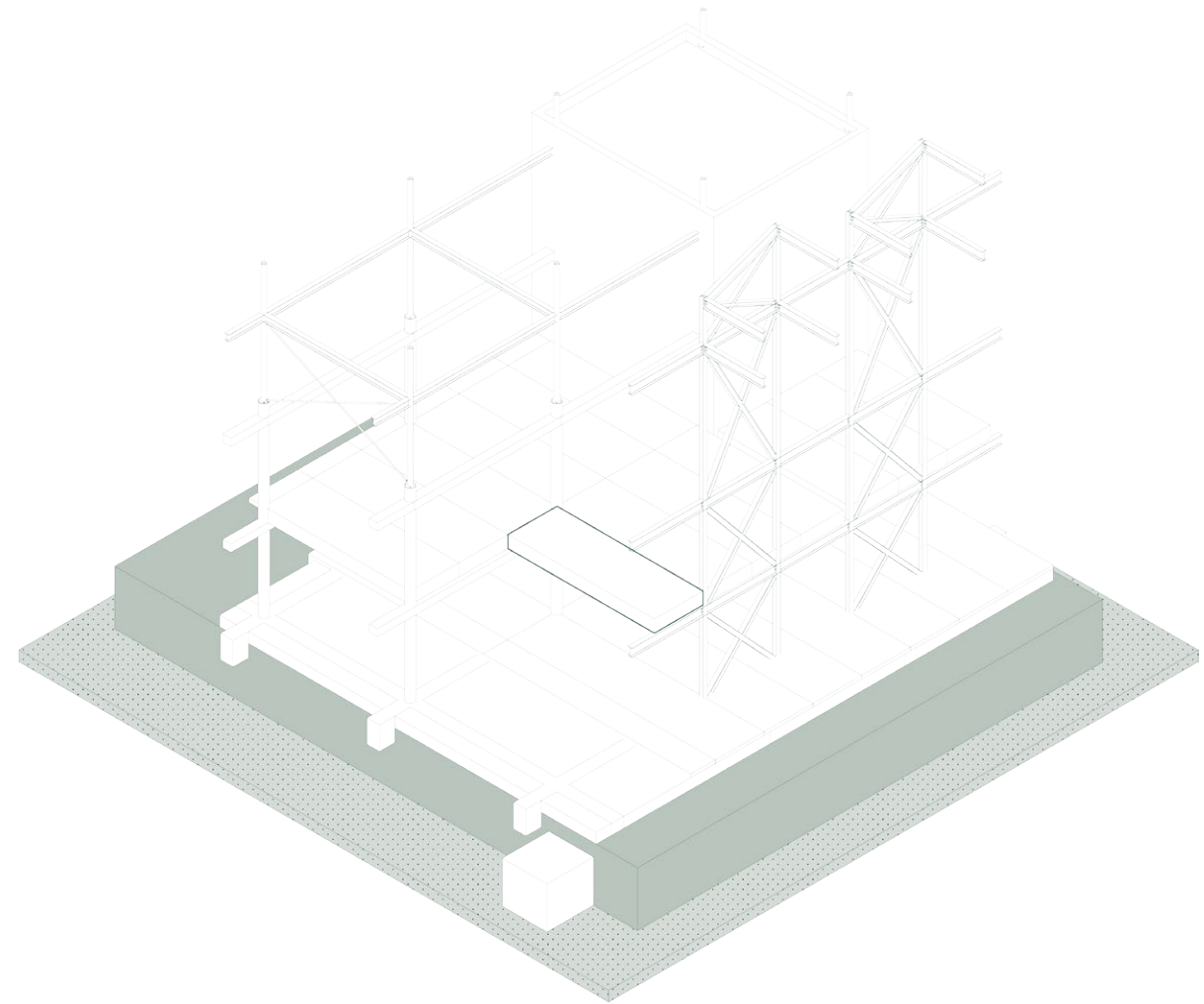
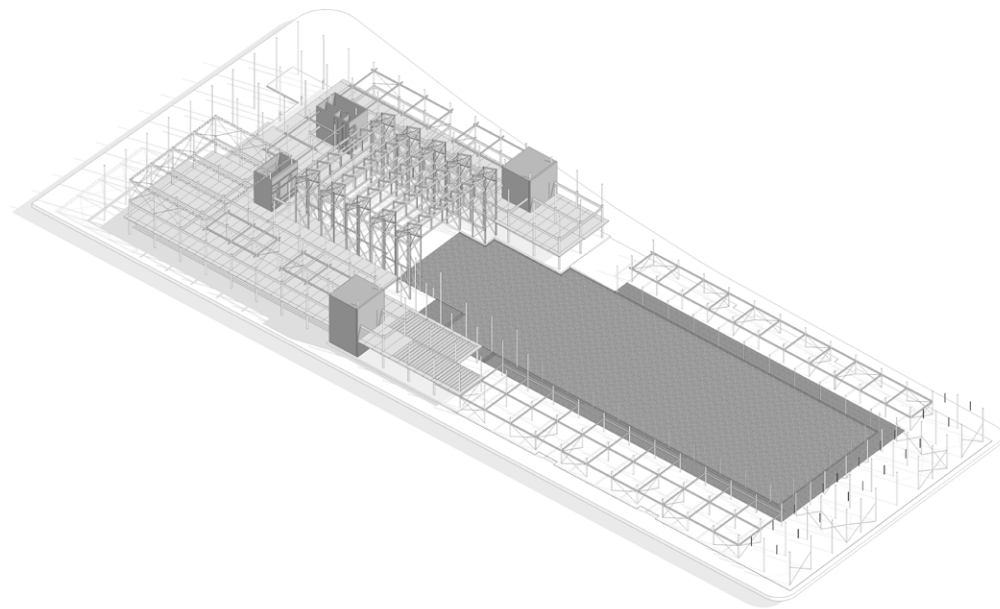
STRUCTURE PRINCIPLE
CAST IN-SITU CONCRETE FRAME | STEEL FRAME



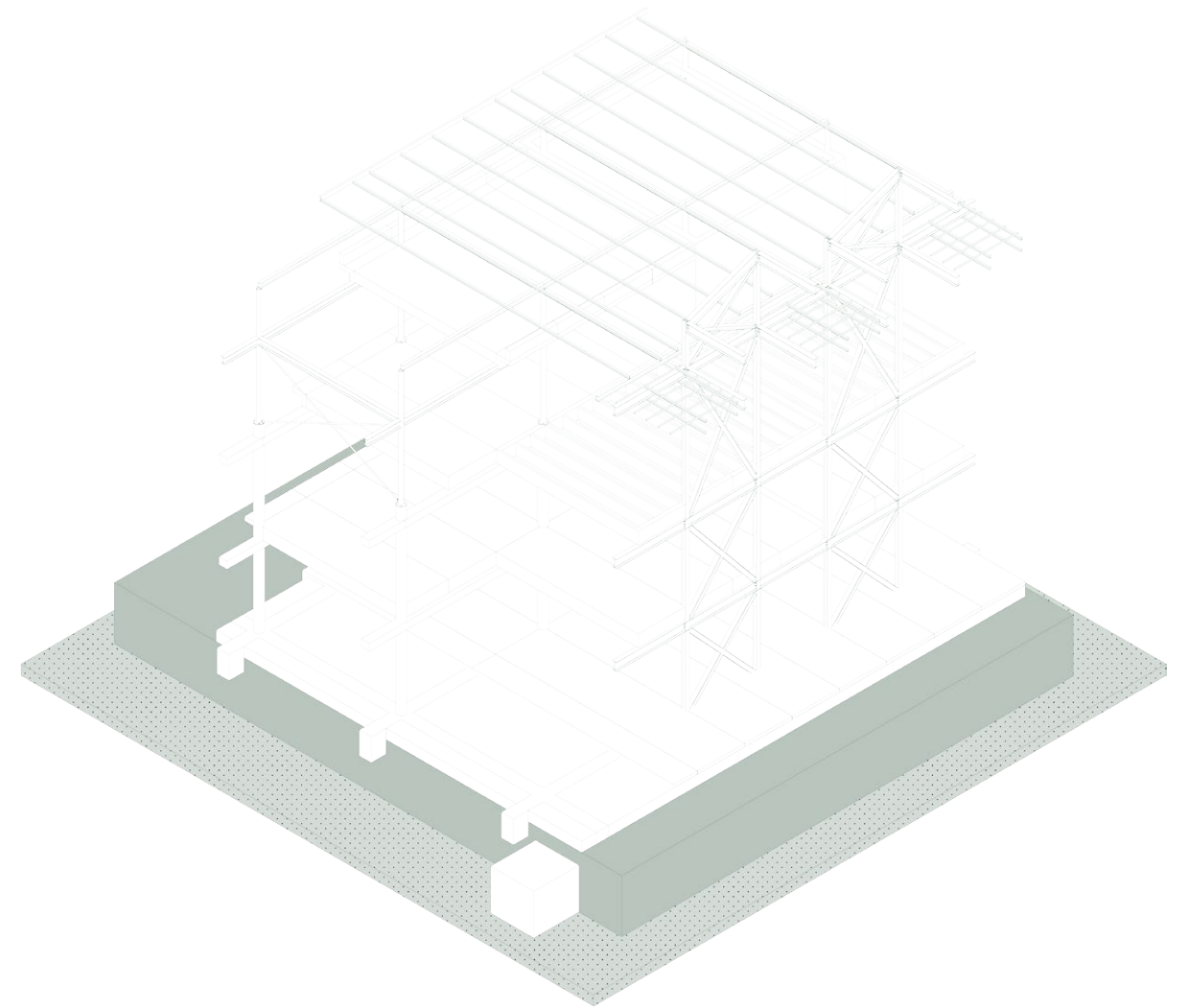
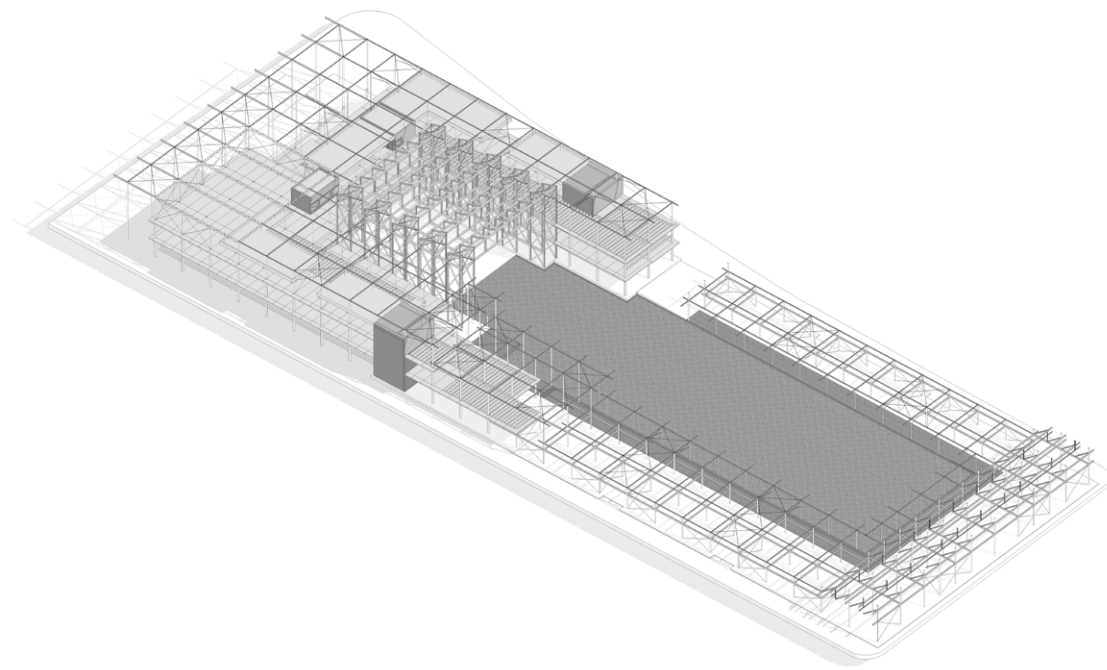
STRUCTURE PRINCIPLE CLIMBING STEEL STRUCTURE



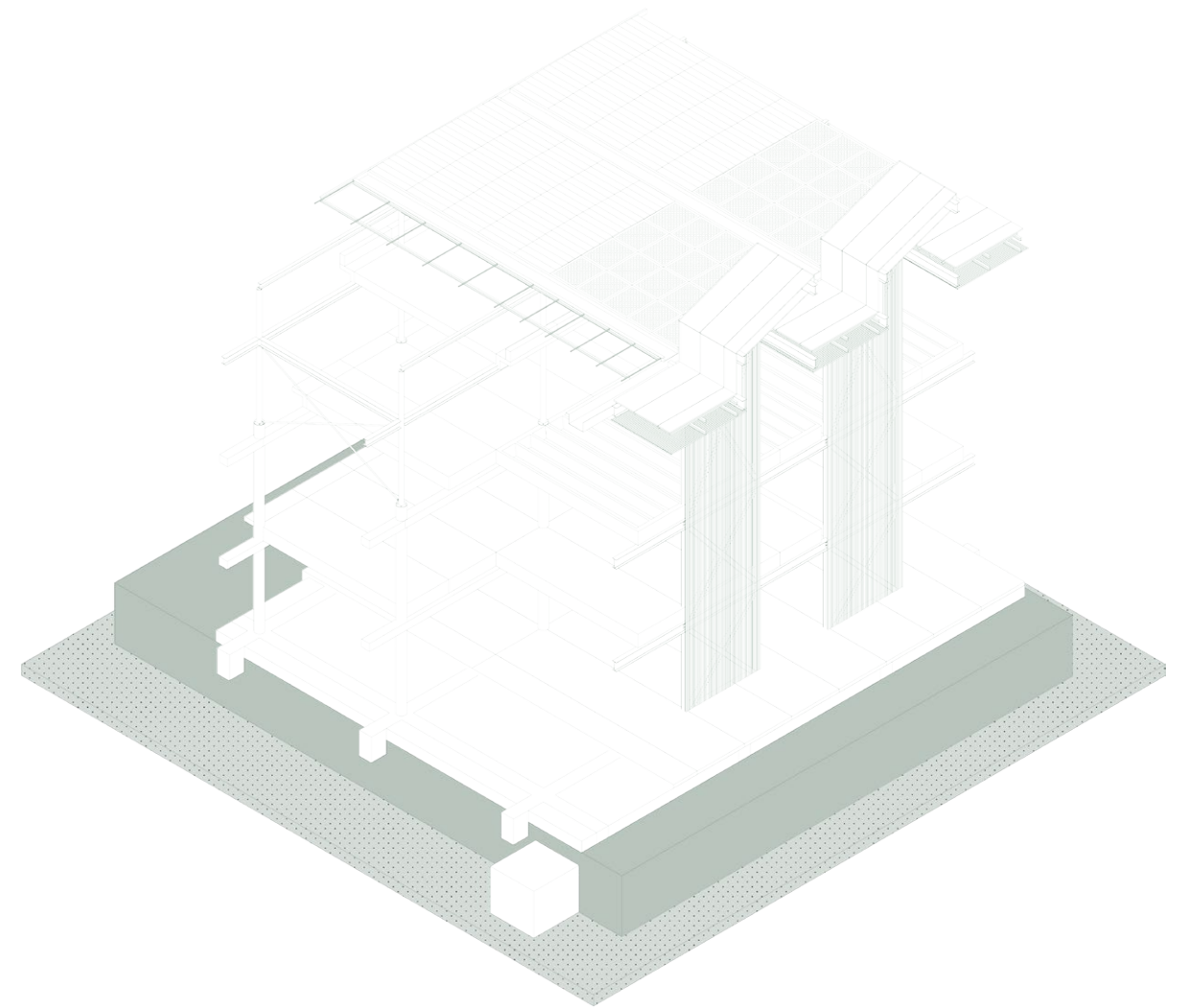
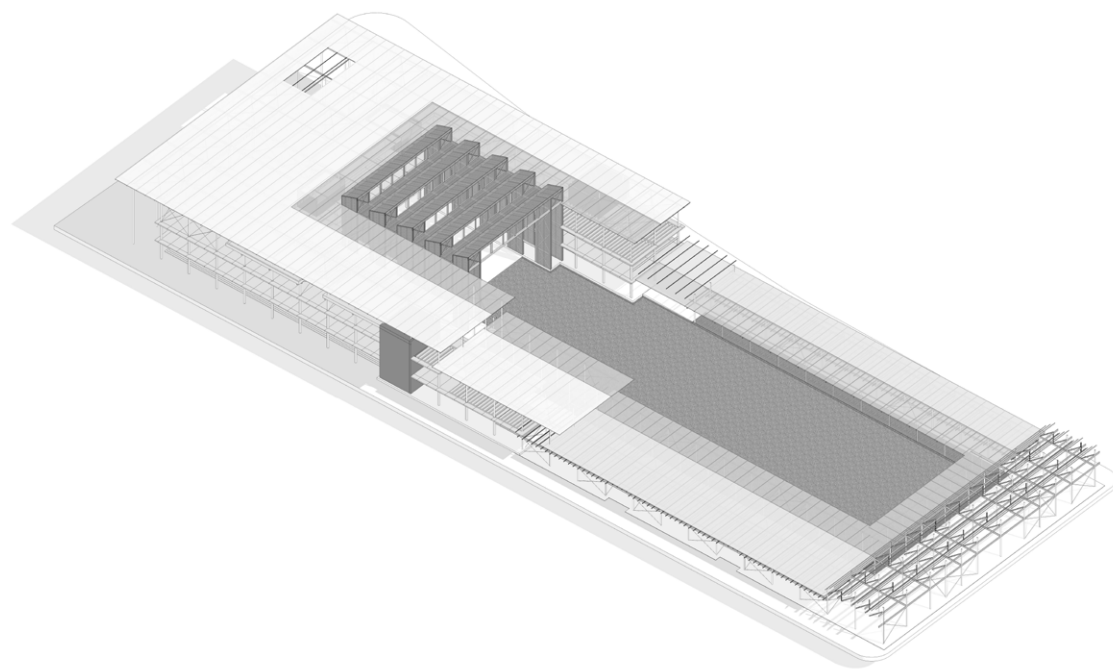
STRUCTURE PRINCIPLE PRE-CAST SLABS



STRUCTURE PRINCIPLE CANOPY STRUCTURE



STRUCTURE PRINCIPLE SKINS



The structure also response to the existing approach of using concrete element for plantation.

PRECAST CULTIVATABLE ELEMENTS
RIBBED CONCRETE SLAB



Depth, sound insulation and structural height reduction.

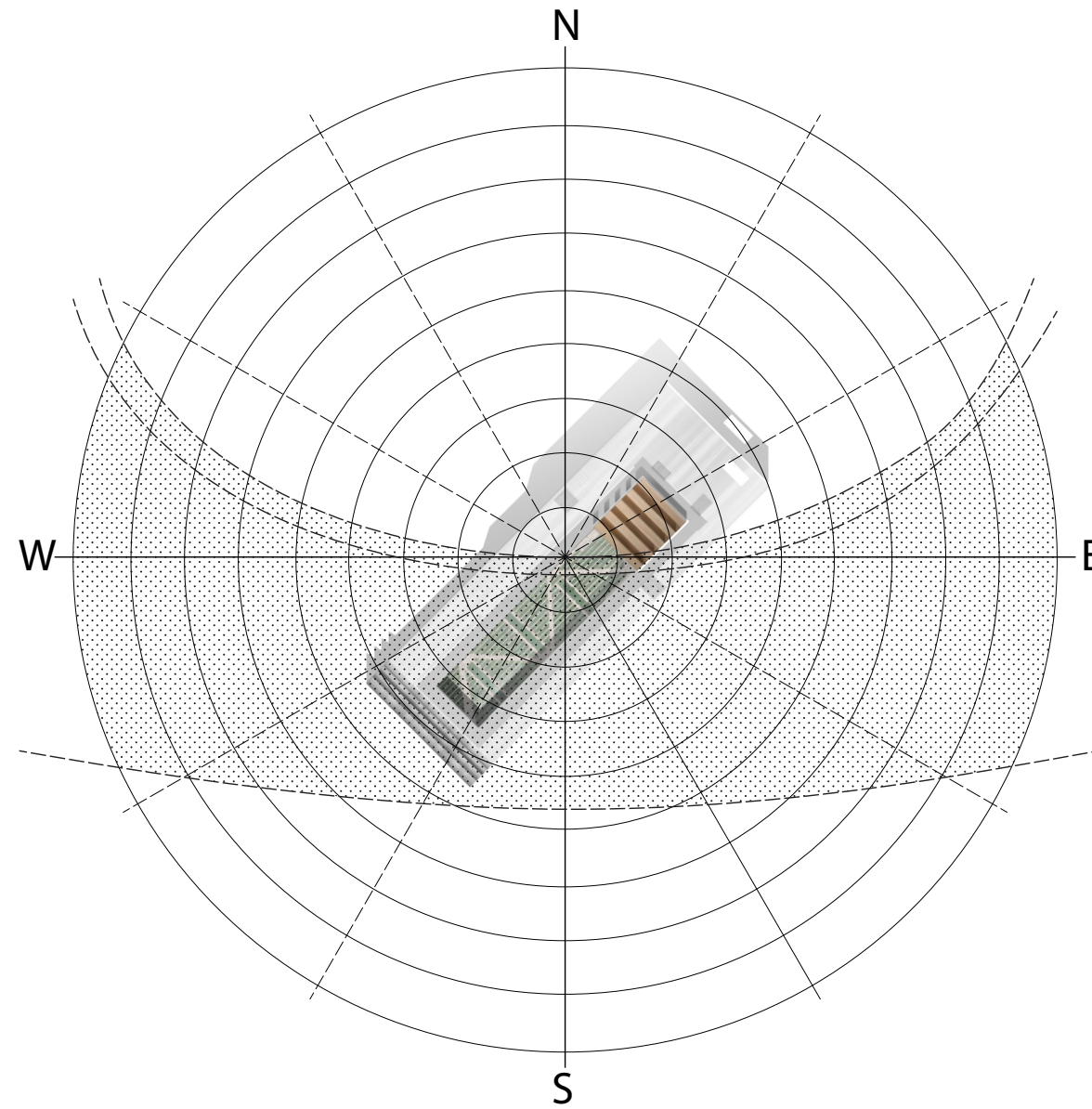
PRECAST CULTIVATABLE ELEMENTS
RIBBED CONCRETE SLAB



Depth, sound insulation and structural height reduction.

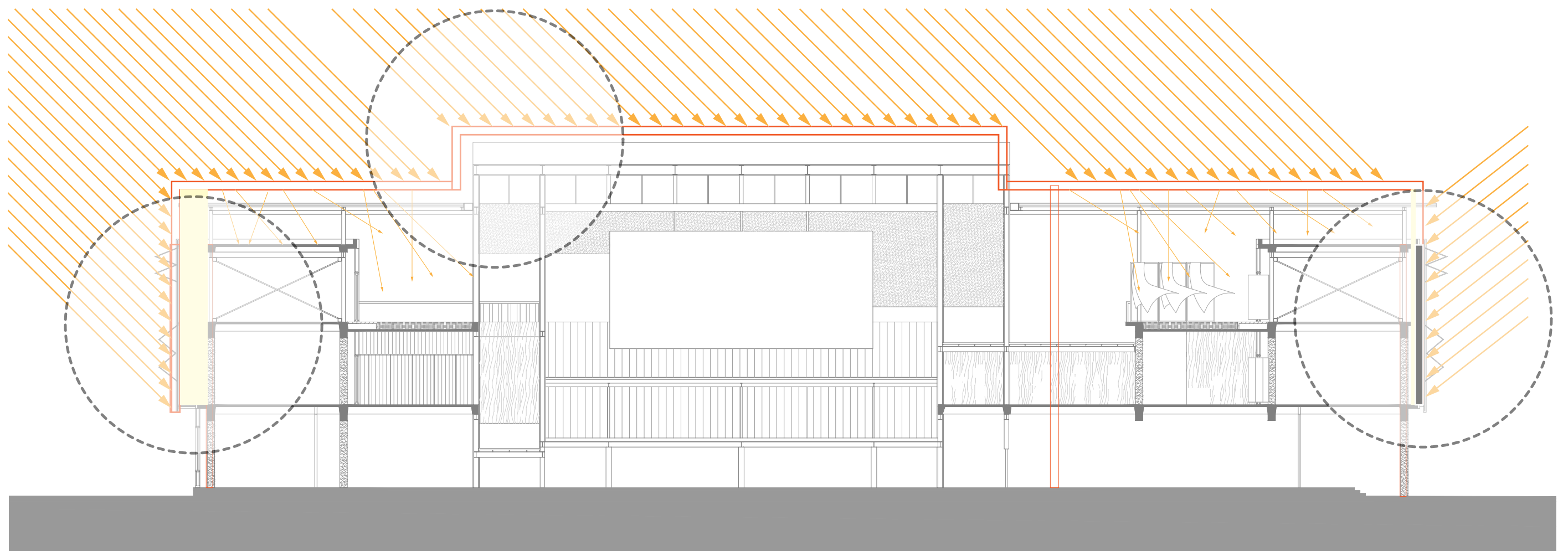
A school as sustainable pioneer

SOLAR RADIATION

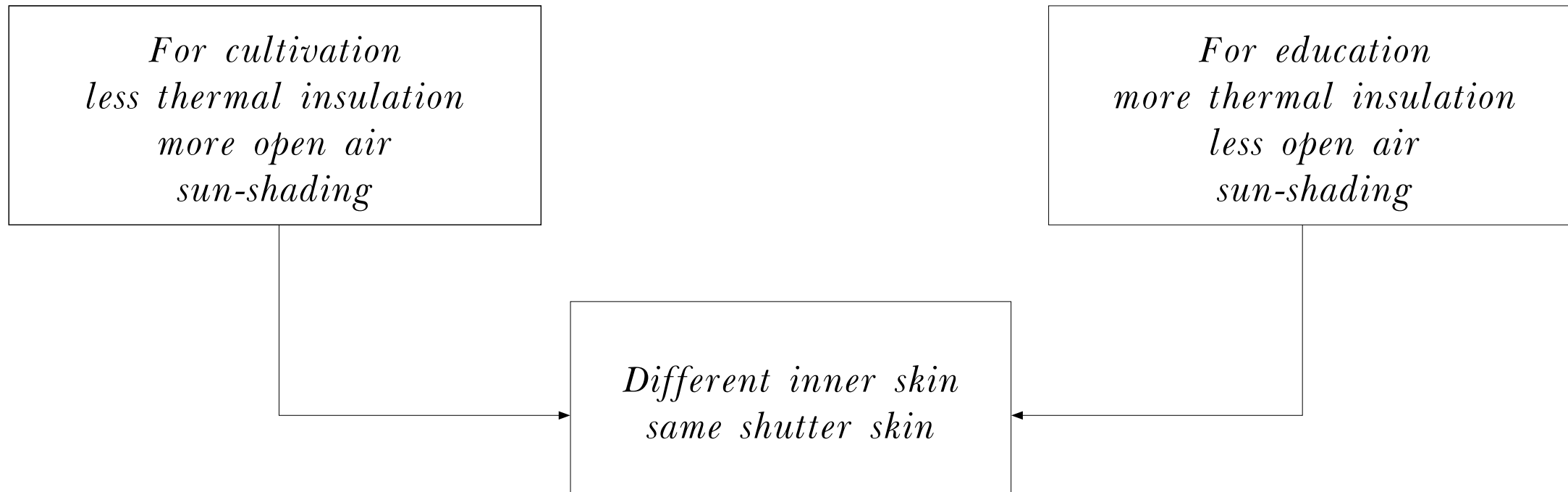


South facade | Horizontal sun-shading
West and east facades | Vertical sun-shading
Roof | Complete thermal insulation (not necessary with insulation materials)
Good natural (passive) ventilation

DIFFERENT APPROACHES



MATERIAL LANGUAGE



*Multi-wall polycarbonate sheet
Thermal insulation as high as
R1.42 for standard range
Reduction of sun ray heat by up to 60%
Completely recyclable*



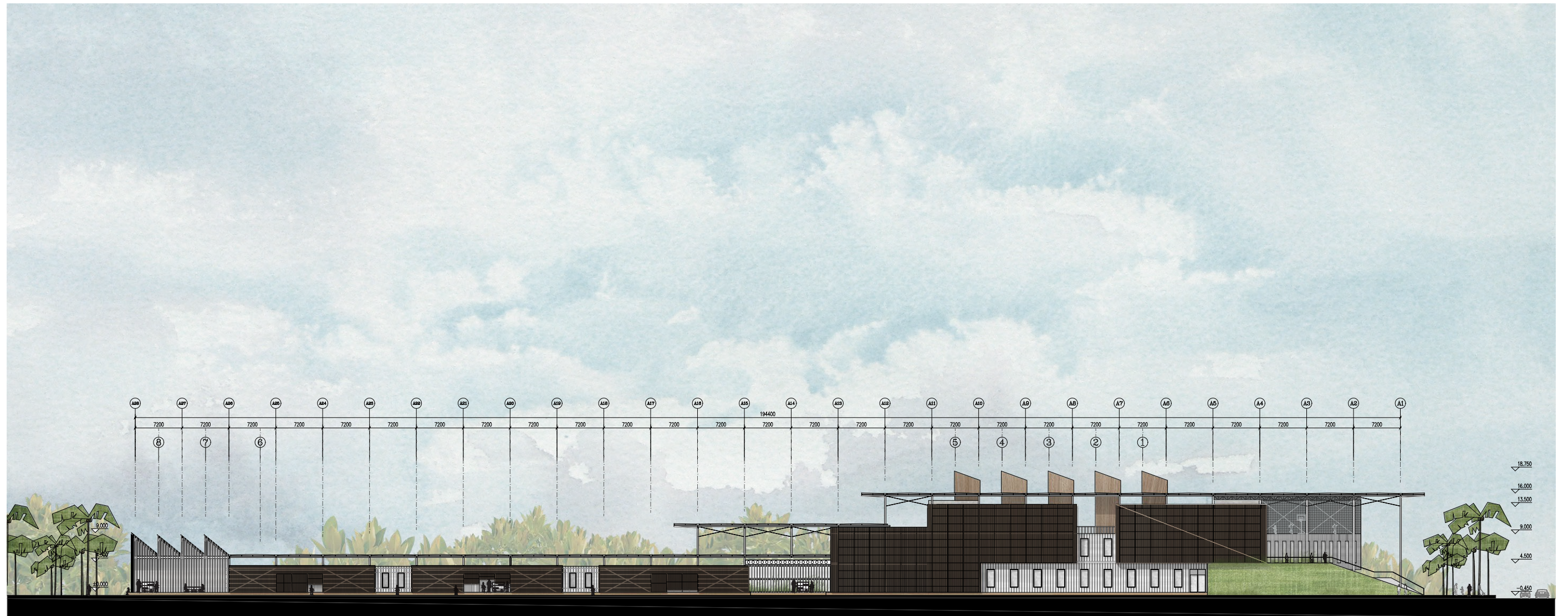
*Bamboo blinds
Appropriate sunshading
Let air go through
Renewable material
Demonstrative and lead in tendency*

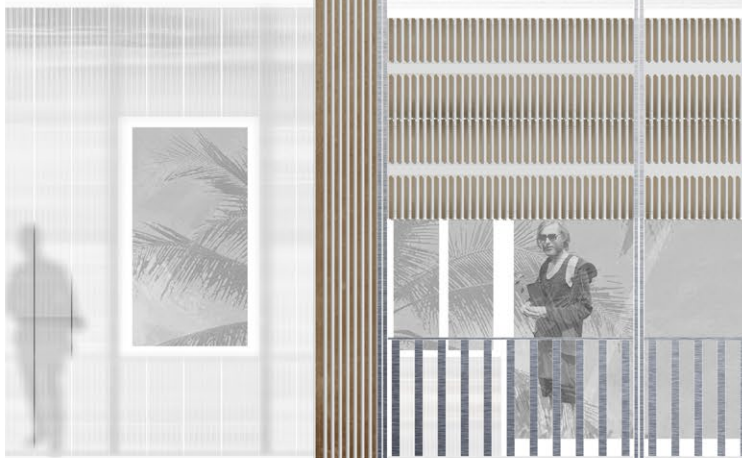
MATERIAL LANGUAGE ENVIRONMENTAL-FRIENDLY APPROACH



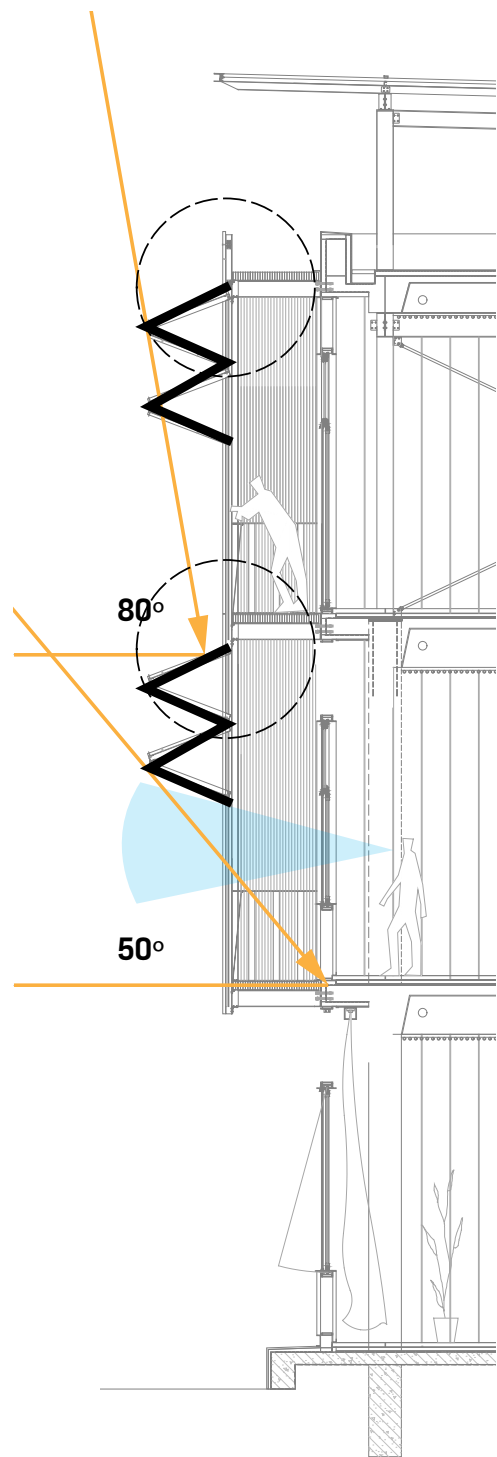
Cuba owns the richest species of bamboo in Caribbean area. Although the native species are not economically valuable because of the thickness, the Guadua bamboo has been introduced to the island for a long time. It grows fast and even on site.

CASCADE BAMBOO FACADE

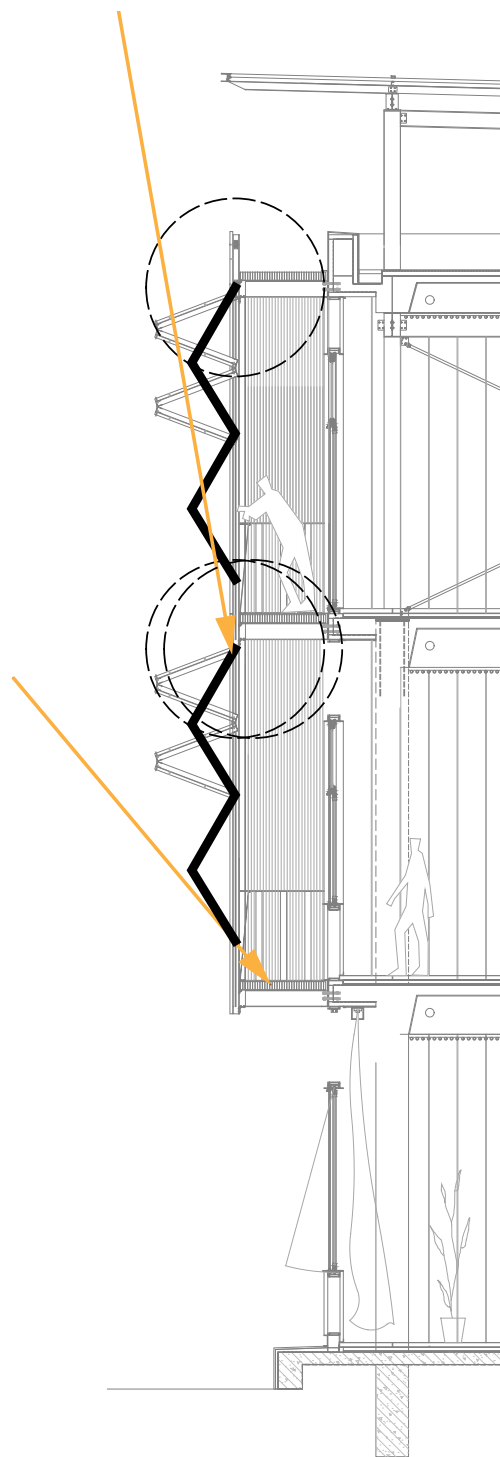




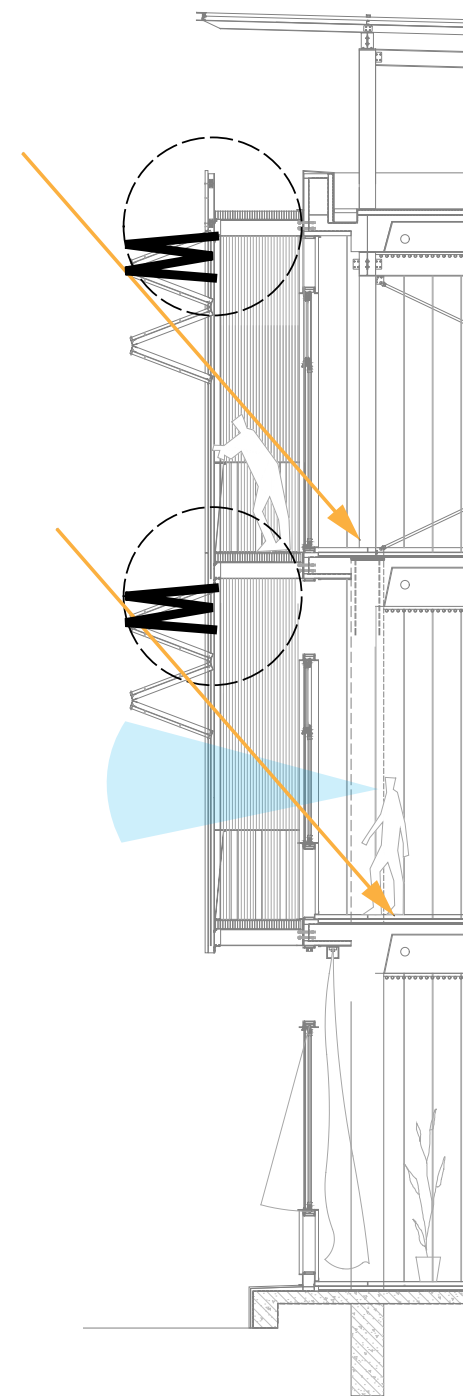
FOLDING FACADE | ALTERNATIVE SHADING



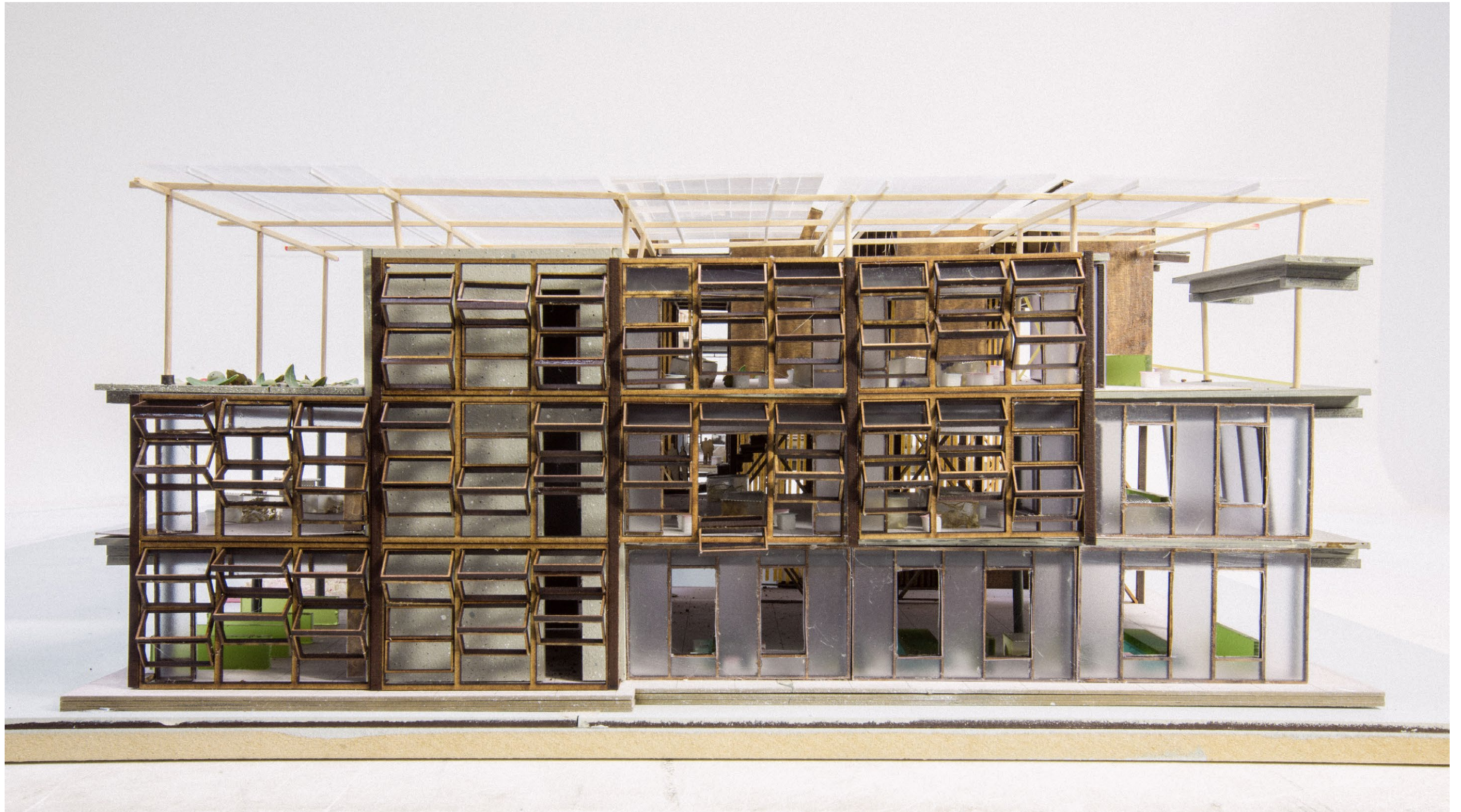
Hot Summer
Visual Connection

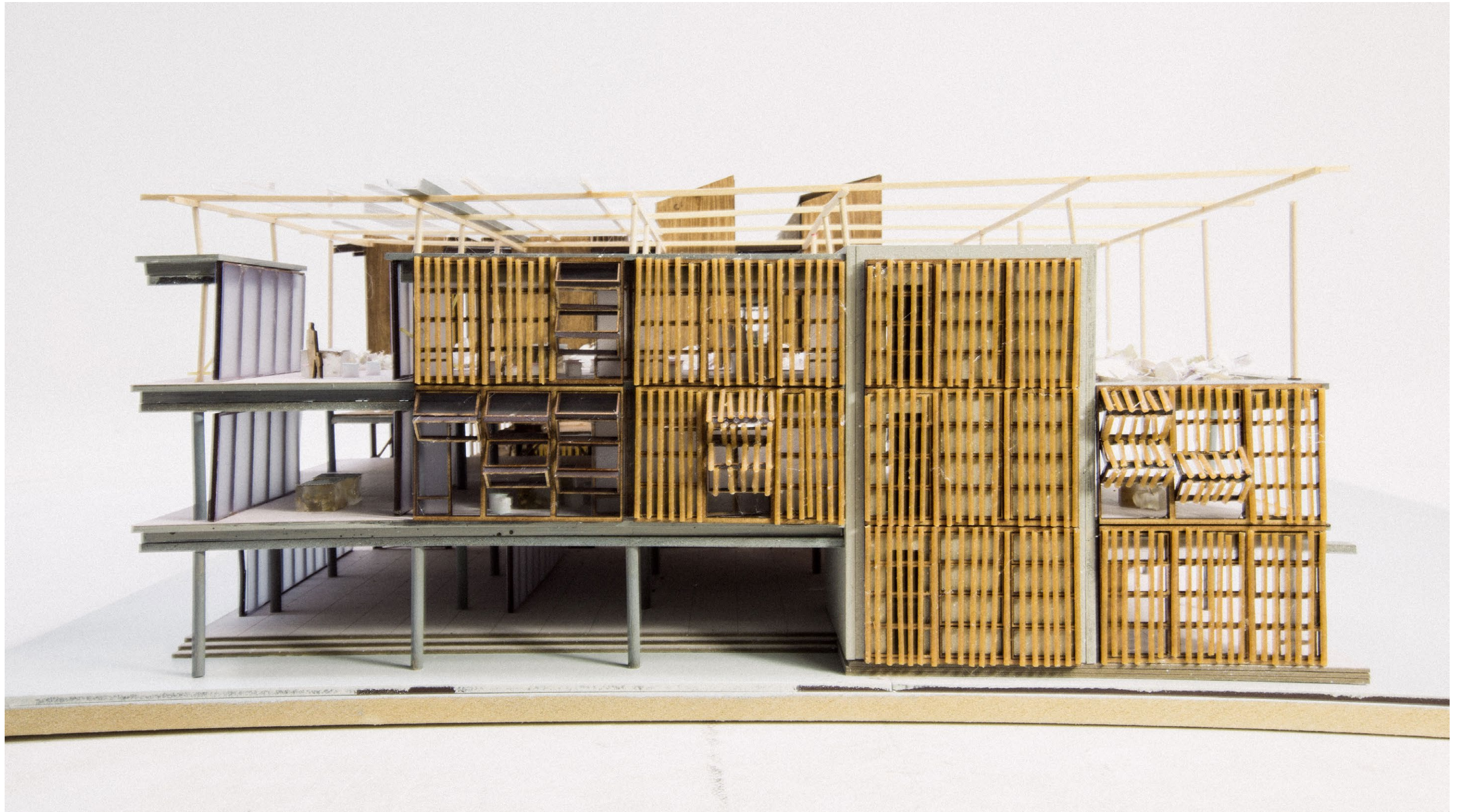


No Visual Connection



Warm 'Winter'
Visual connection

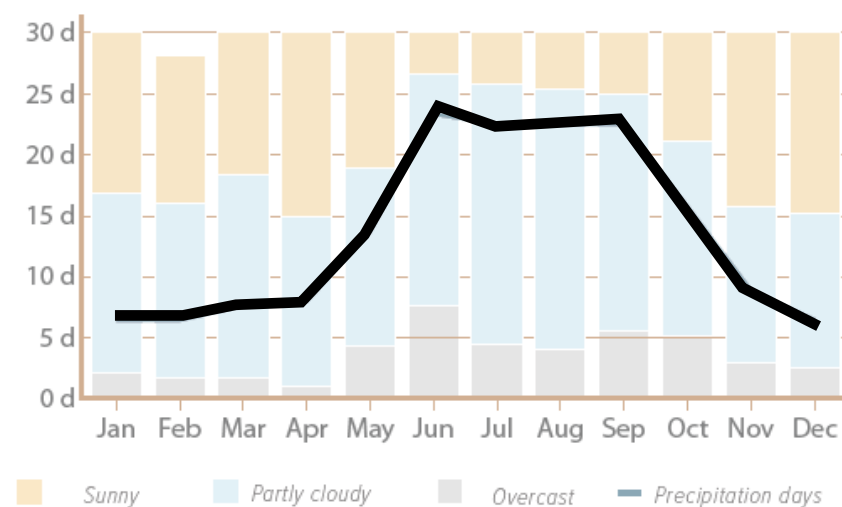
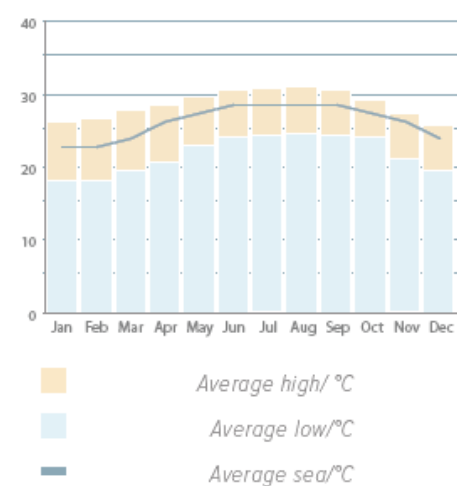




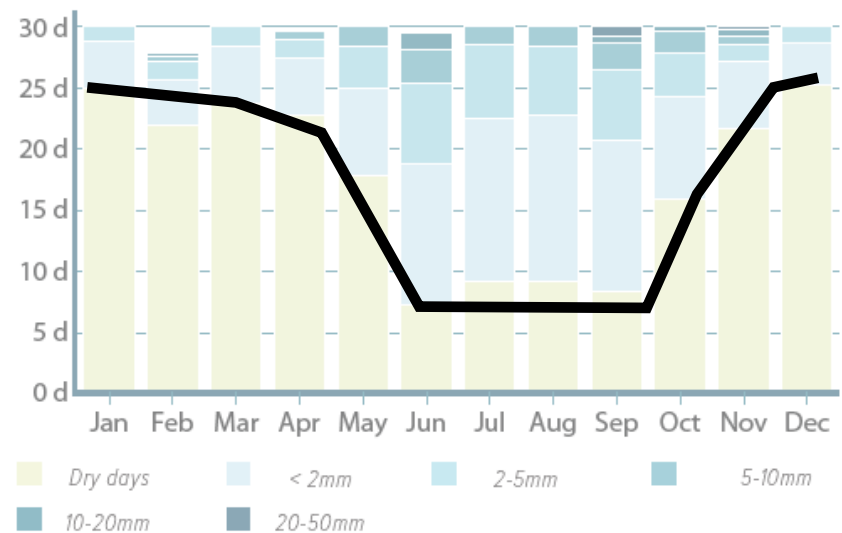
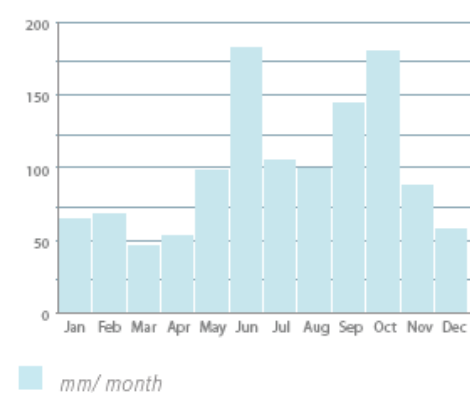


RAINFALL

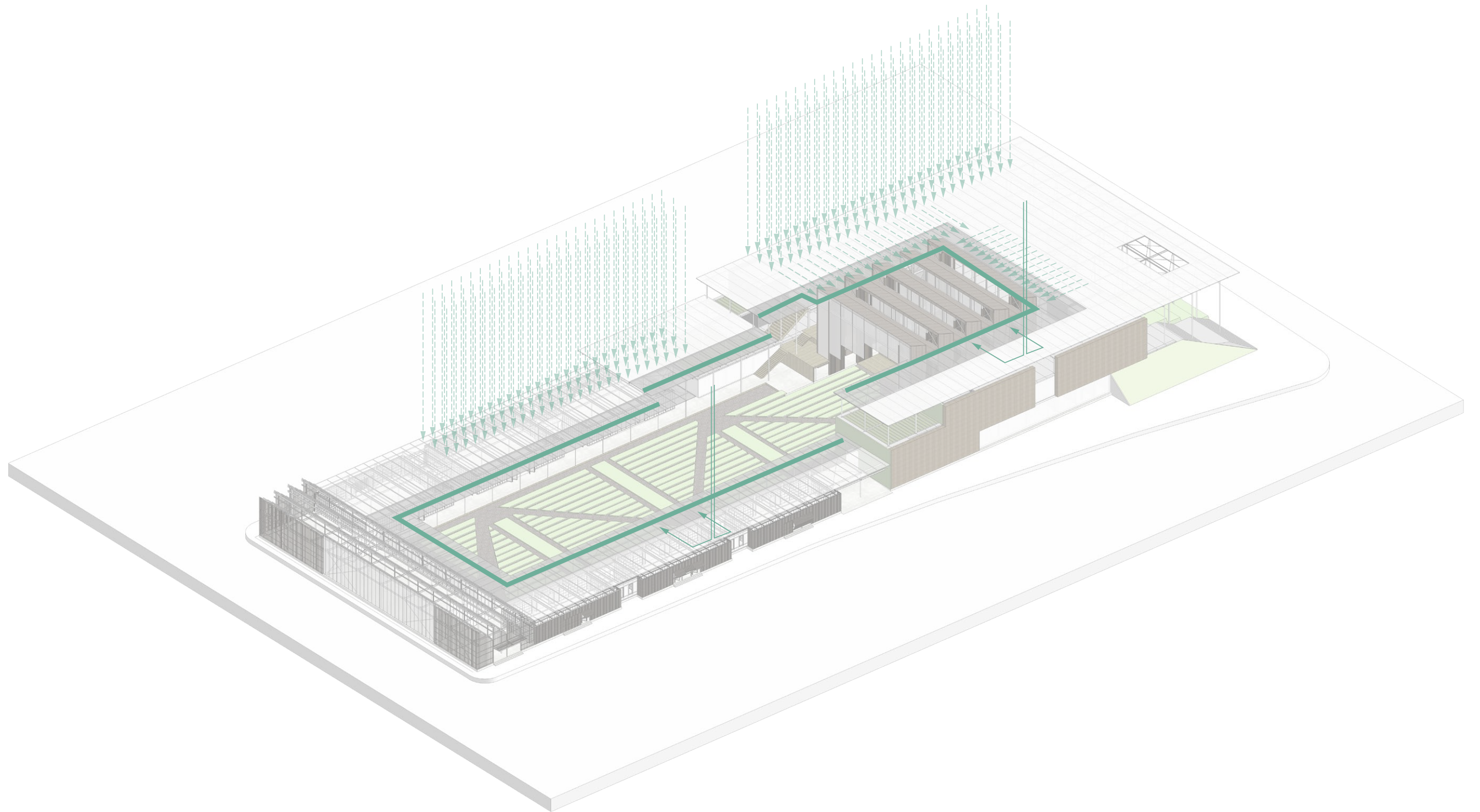
Average Temperature



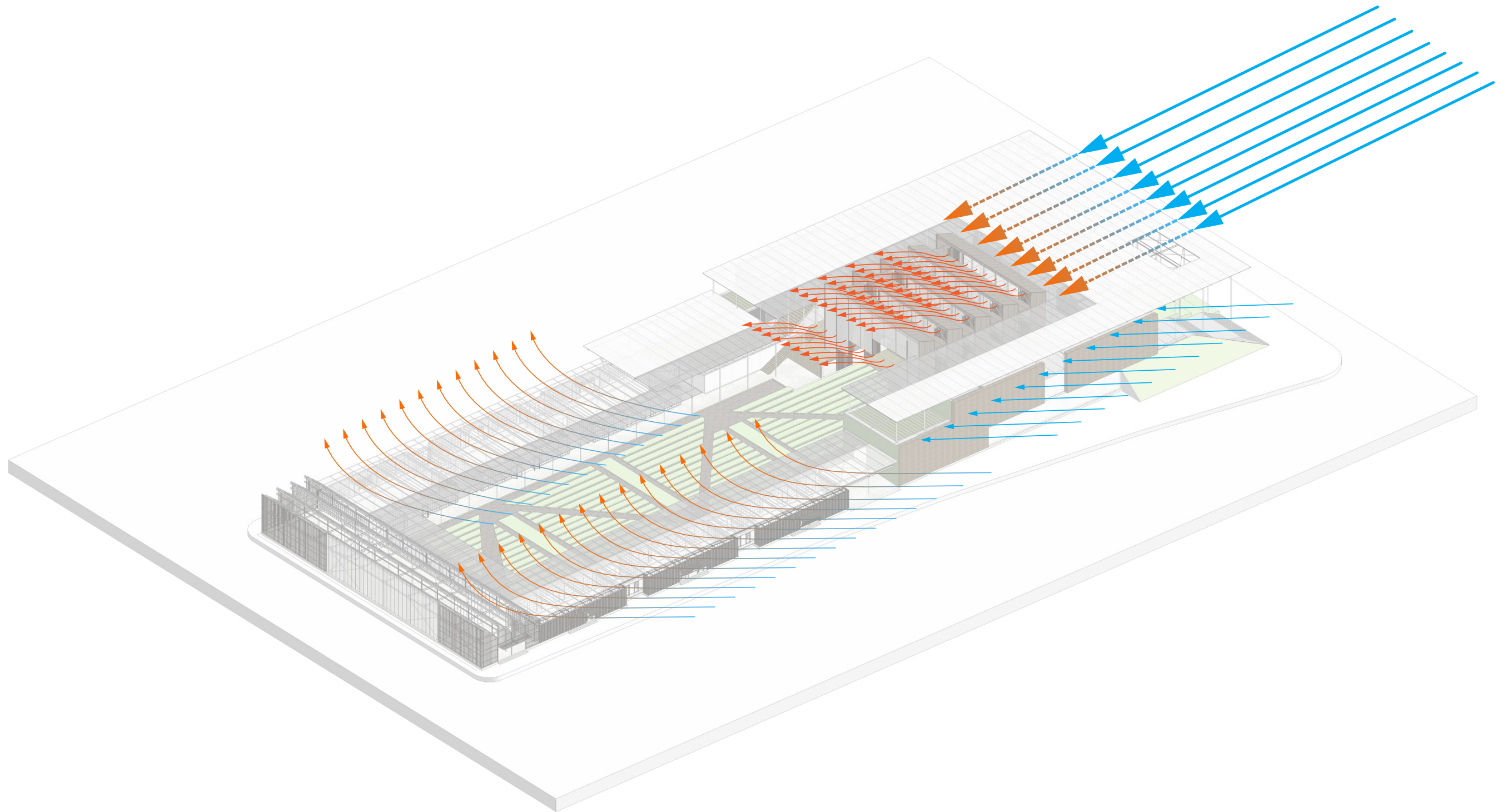
Precipitation



STORMWATER HARVEST | CANOPY

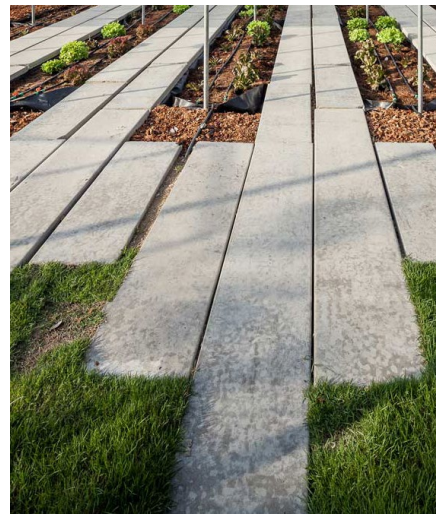
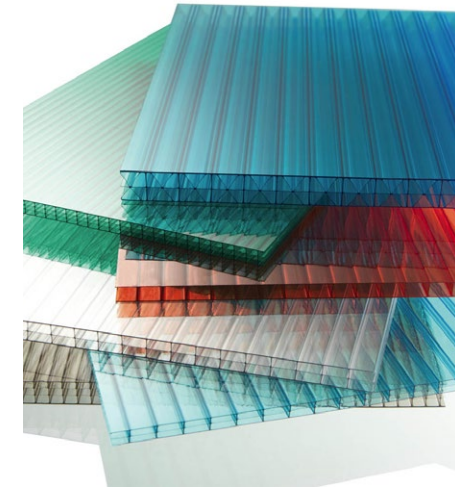
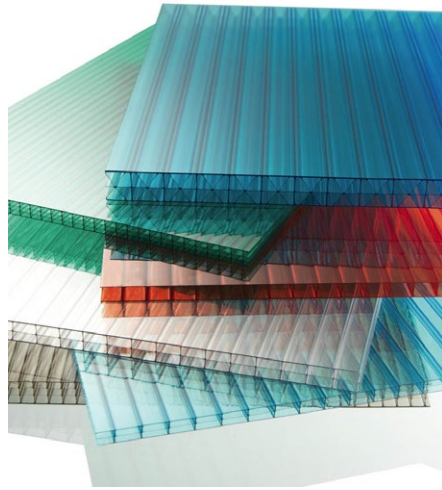


VENTILATION | ATRIUM



*How does the different combination of materials shape
different environment?*

MATERIALIZATION INNER SURFACES



MATERIALIZATION
INDOOR WORKSHOPS



MATERIALIZATION
INDOOR WORKSHOPS



MATERIALIZATION AGRONOMIC WORKSHOPS



MATERIALIZATION
AGRONOMIC WORKSHOPS



LANDSCAPE AND BUILDING

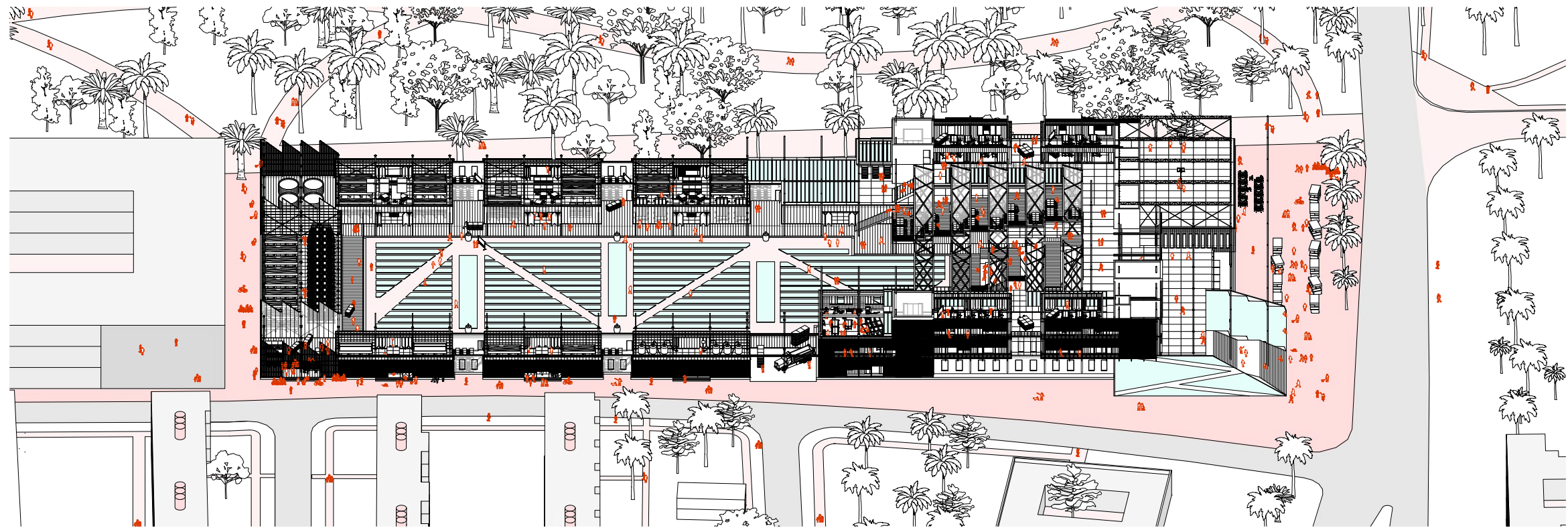


LANDSCAPE AND BUILDING



"One day we'll have to build a monument to the 'special period' because it has forced us to find truly sustainable ways to meet our food, energy and health care needs."

*– Rosa Elena Simeyn, Minister of the Cuban Ministry of Science,
Technology and the Environment, 1994 – 2004*



The school is like a toolbox to equip the younger generation with a creative mind of creating a valuable and sustainable business, as well as a catalyst to activate the surroundings to let green flow into daily life.