



শৈশব  
সরাসরি কলকাতা শাখায়  
২/৩ (২য়তলা) বড় বাজার

**URBAN GENDER JOURNEY**  
A GENDER-BASED APPROACH TO AFFORDABLE URBAN HOUSING DESIGN



<https://youtu.be/4UIGLbCtA98>

CLICK HERE





EXACTLY 49.7 PERCENT IN 2022 (WORLD BANK)

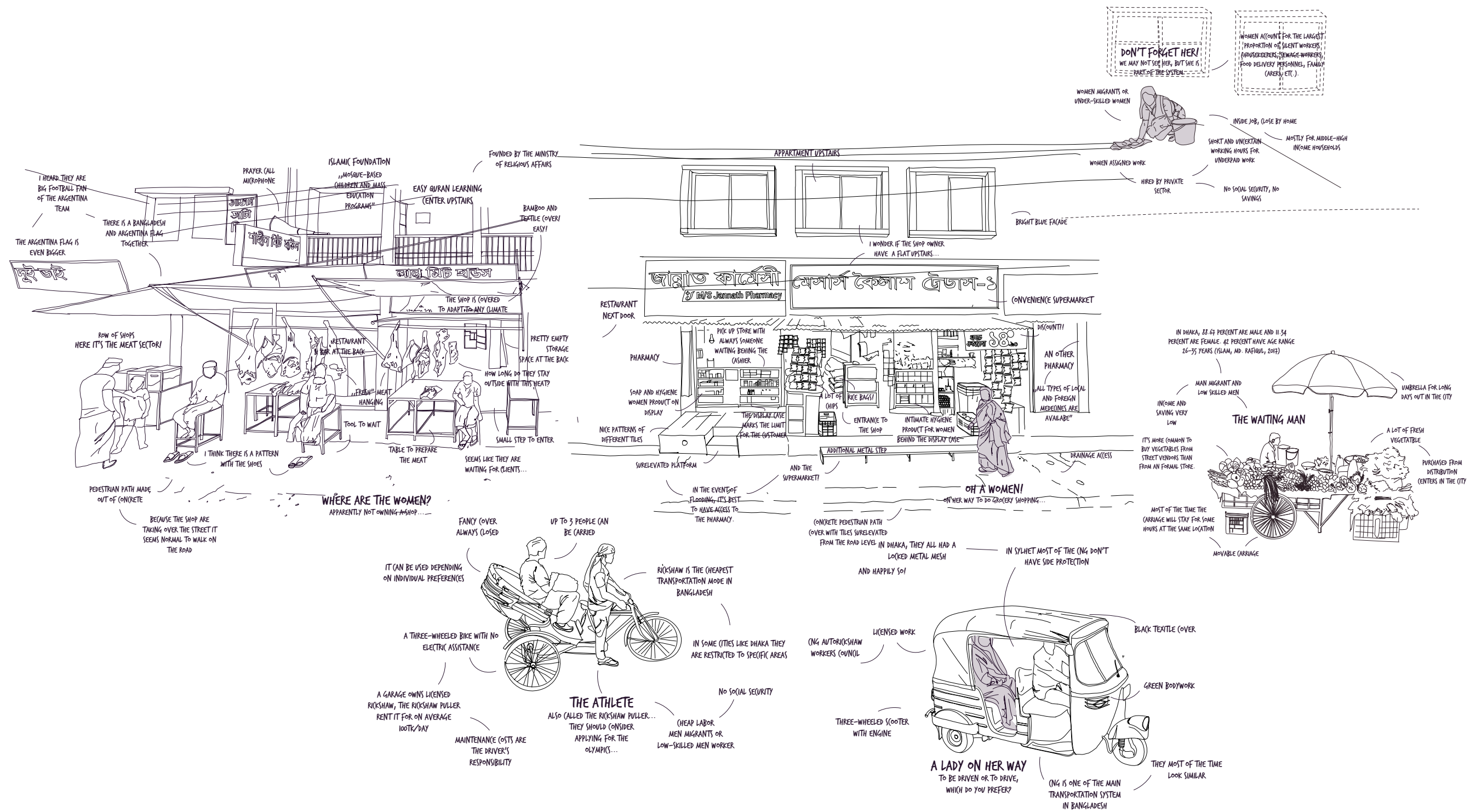
RESEARCH **HOW DOES THE OTHER HALF (LIVES)\***

GENDER DISPARITIES IN PRIVATE AND PUBLIC SPACES

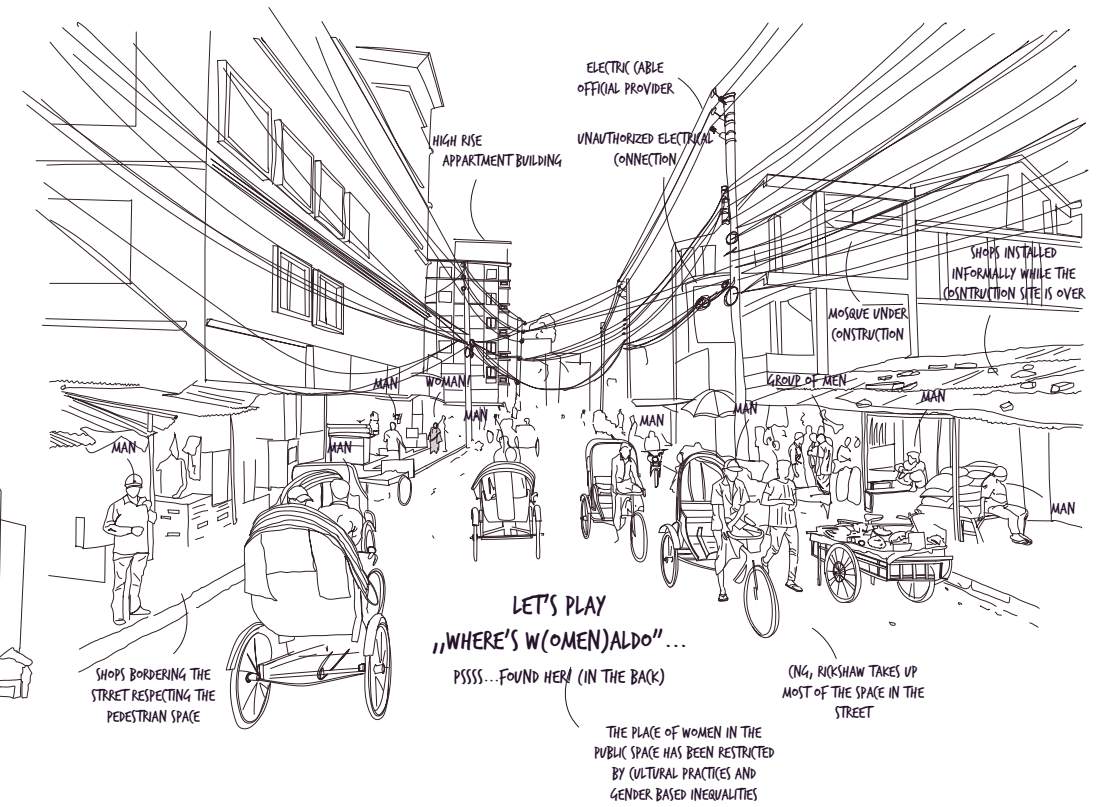
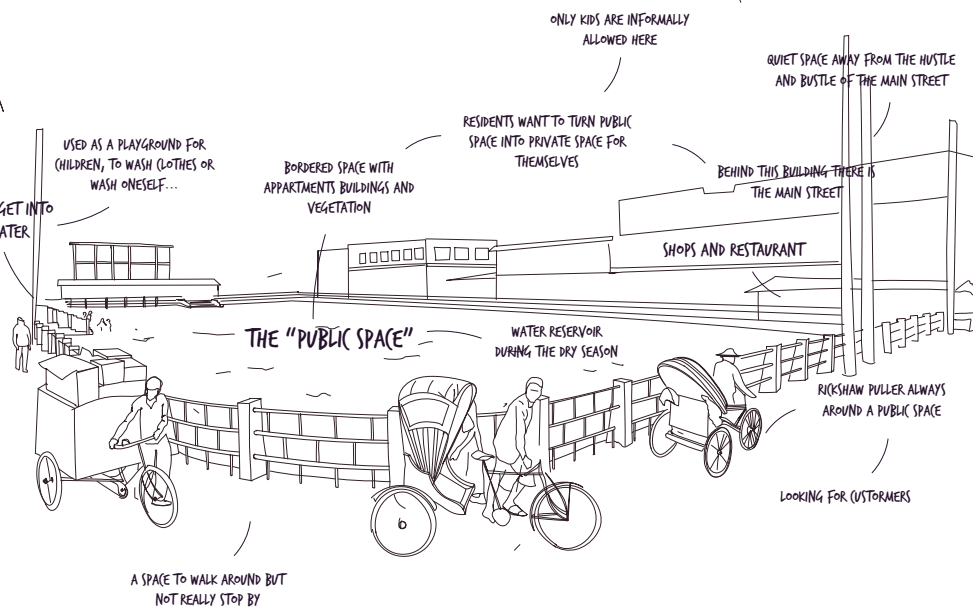
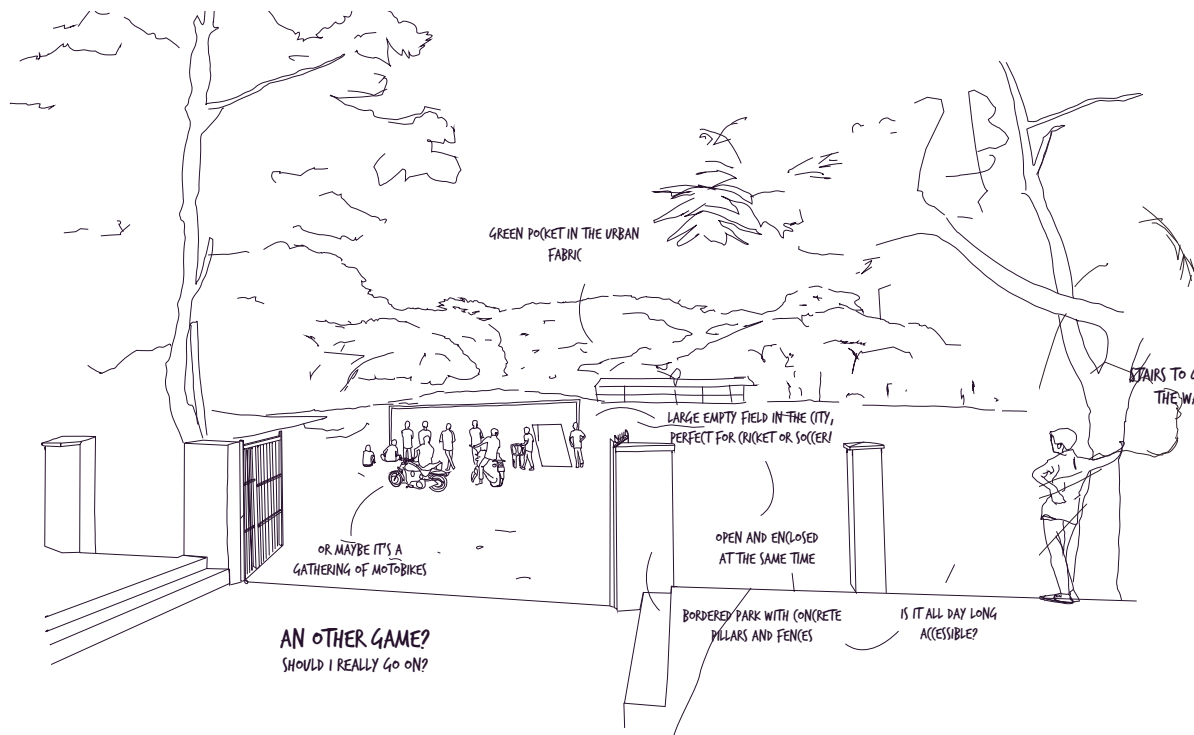
\*In reference to Balkrishna Doshi's research *How The Other Half Builds*, this section illustrates the site survey undertaken in Bangladesh for the research



RESEARCH  
PRODUCTIVE SPACE

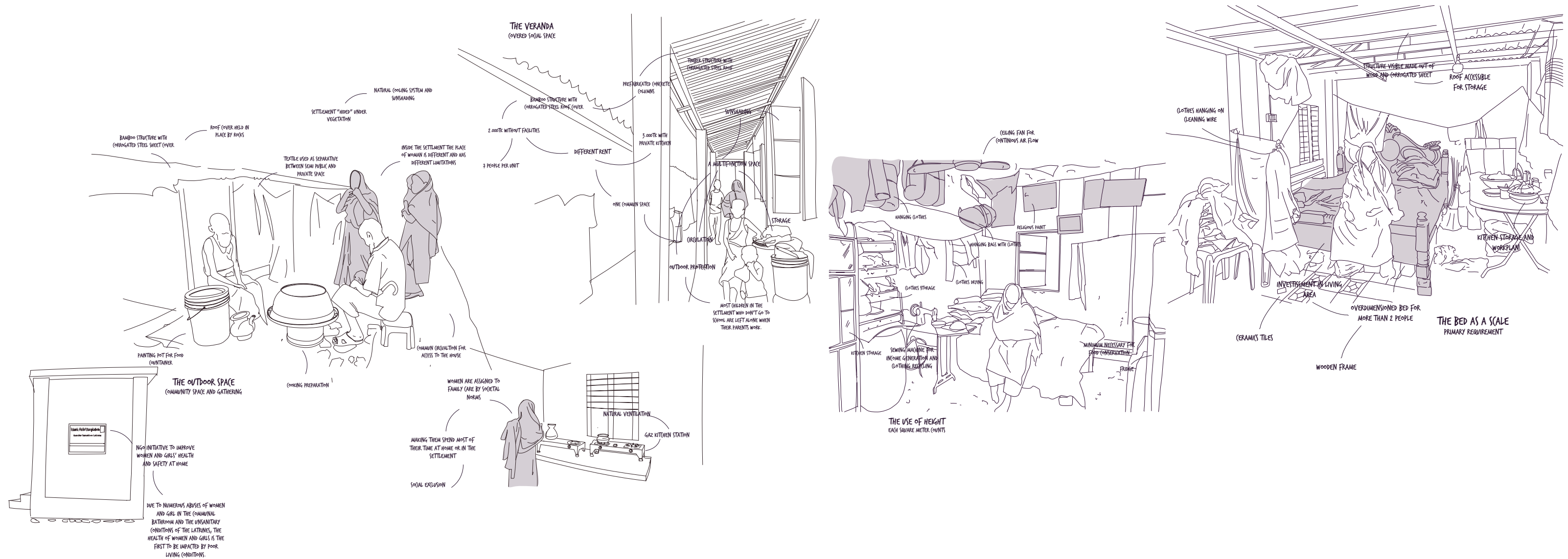






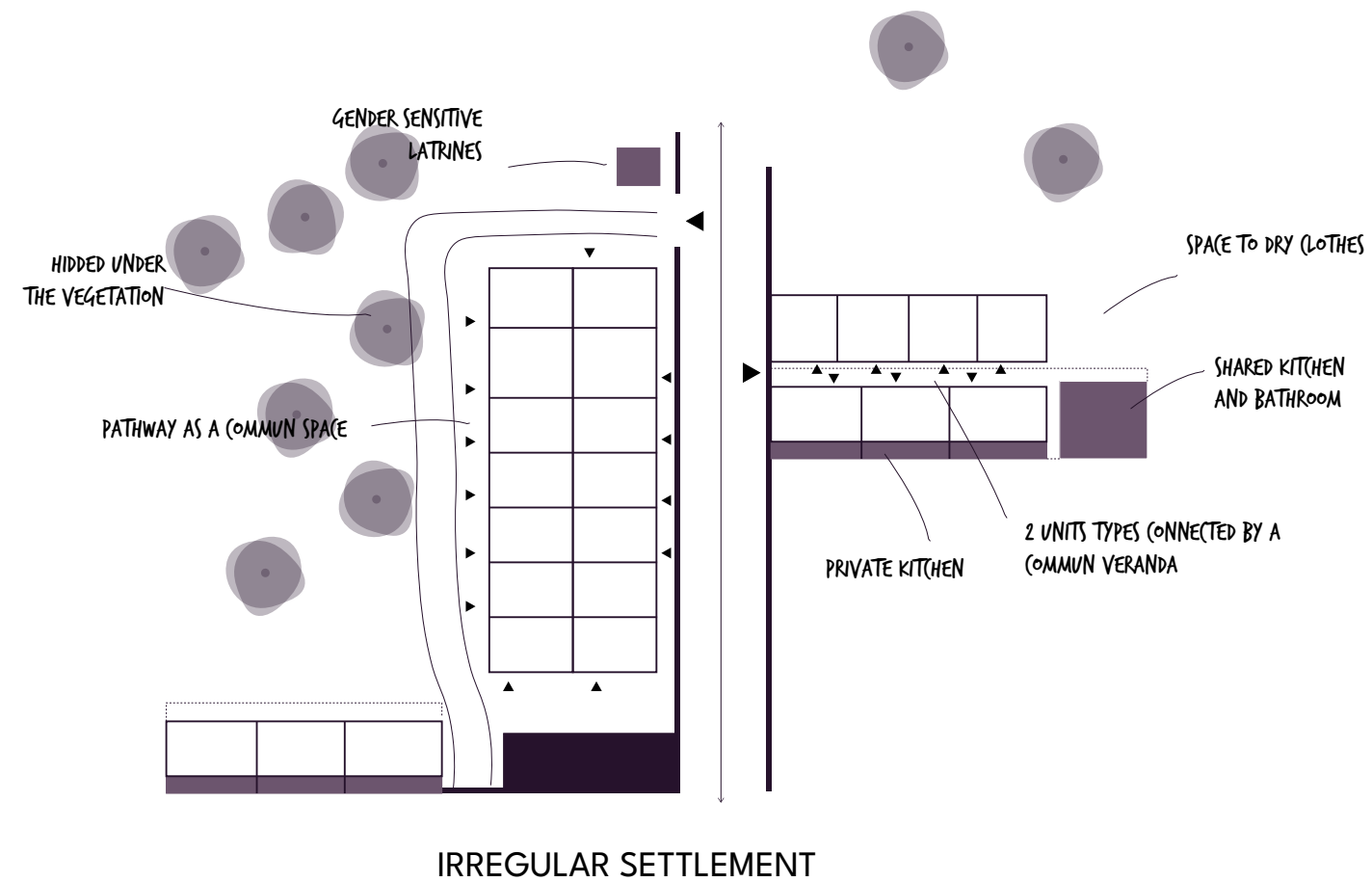
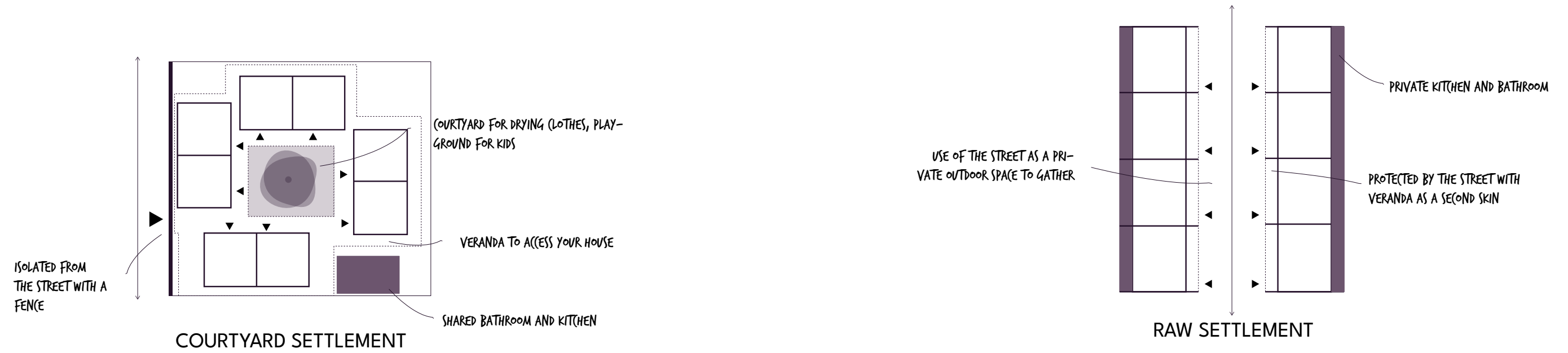


RESEARCH  
PRIVATE SPACE



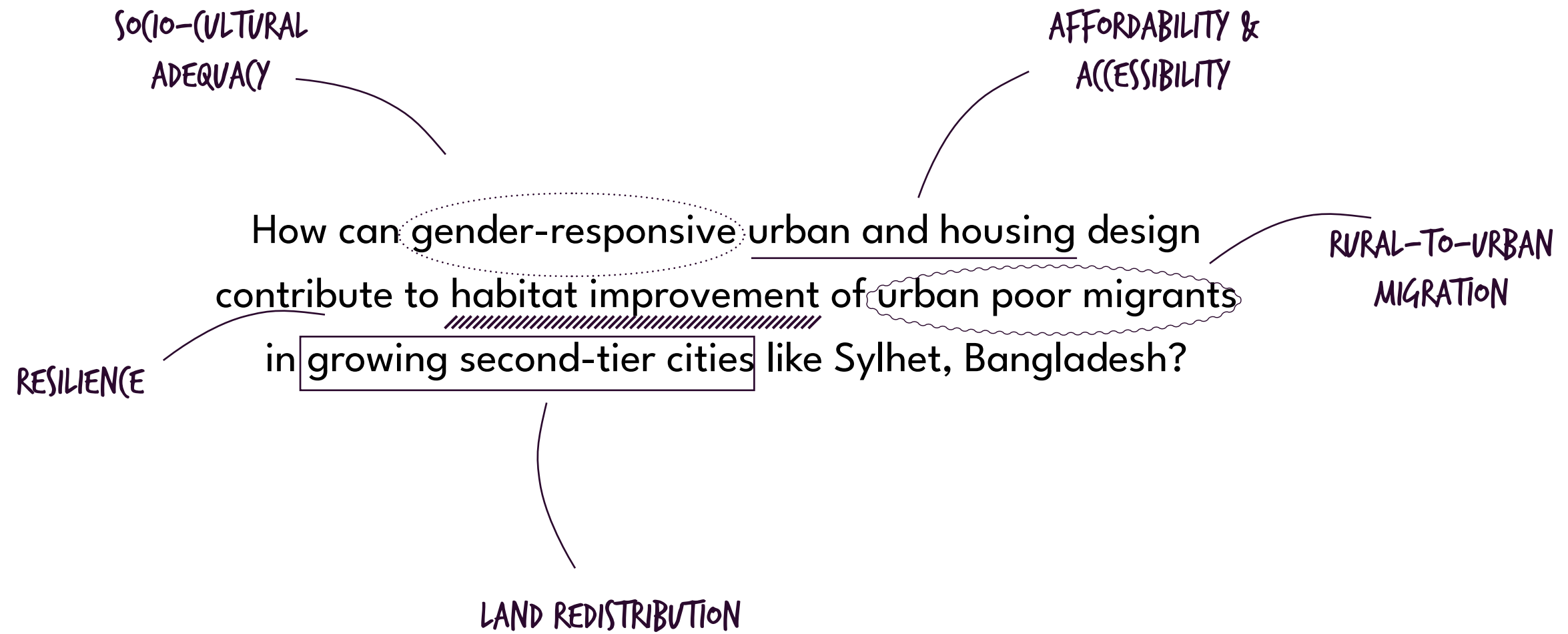


RESEARCH  
LAYERS OF PRIVACY



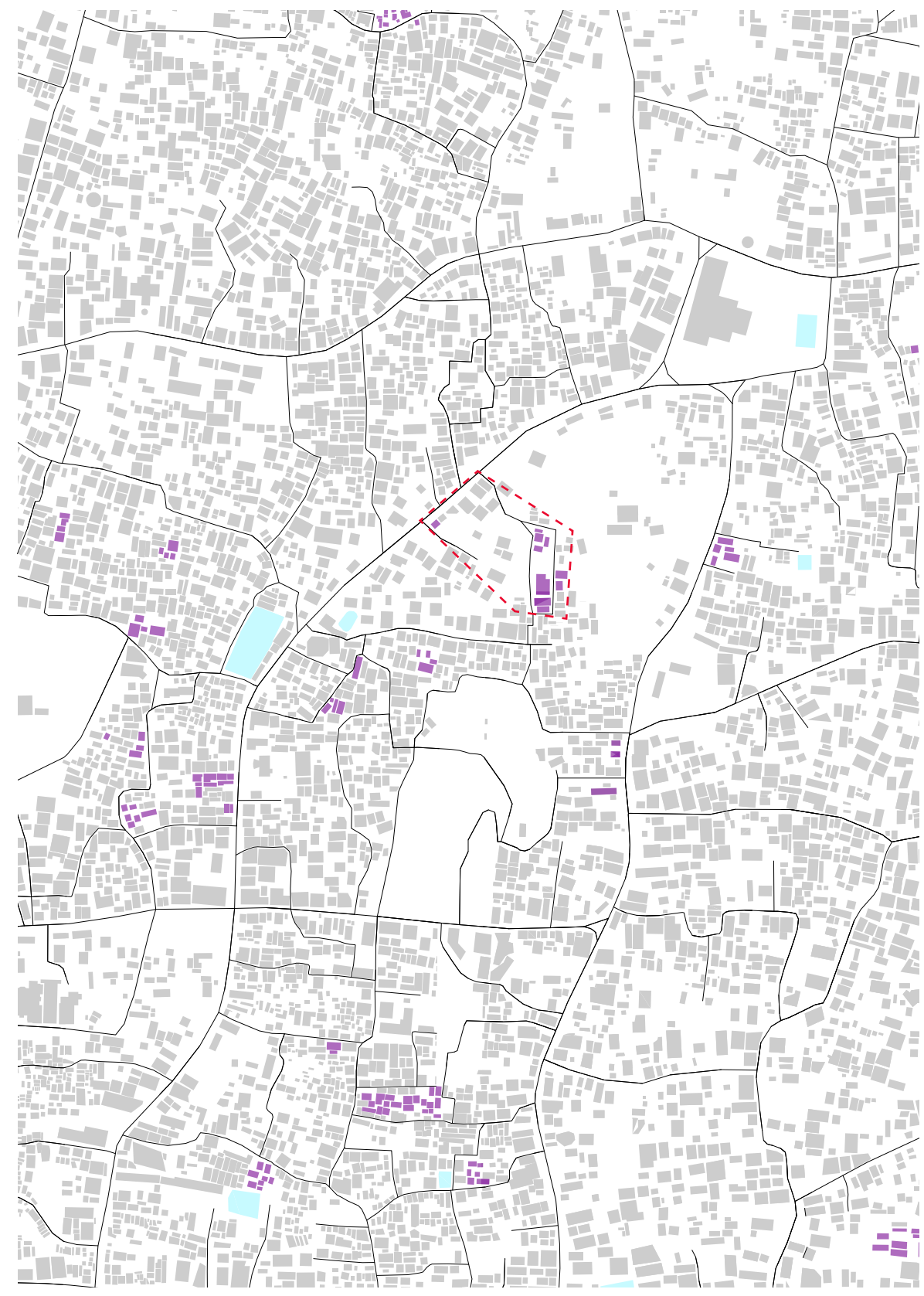


**FOSTERING URBAN DEVELOPMENT THROUGH WOMEN'S EMPOWERMENT IN MID-TIERS CITIES**





CONTEXT  
**APPLYING GENDER-INCLUSIVE DESIGN THEORIES**



CONTEXT  
THE URBAN FABRIC OF SYLHET

HERE IS THE SITE





CONTEXT  
THE 'URBAN POOR COLONY'

AREA (2024) : 22.129 m<sup>2</sup>  
RESIDENTS: 660 hab



SITE CHOICE  
**THE 'URBAN POOR COLONY'**



GREEN ISLAND

TOPOGRAPHY



SITE CHOICE  
**THE 'URBAN POOR COLONY'**



COMMUNITY-MADE  
GARDEN

LOW TECH  
DWELLING UNIT



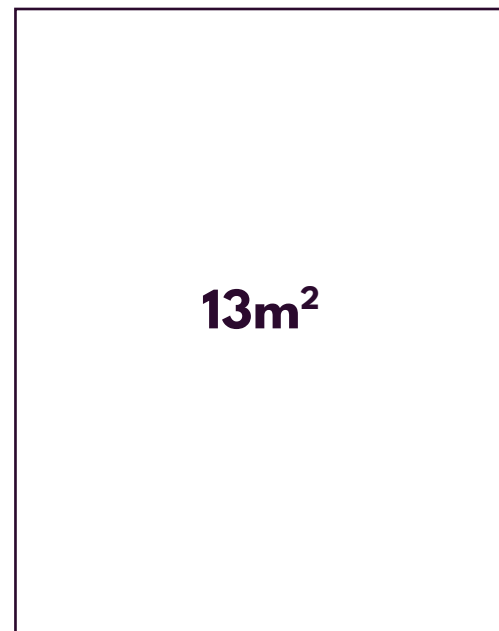
SITE CHOICE  
**THE 'URBAN POOR COLONY'**



ISLAMIC RELIEF  
BANGLADESH SCHOOL



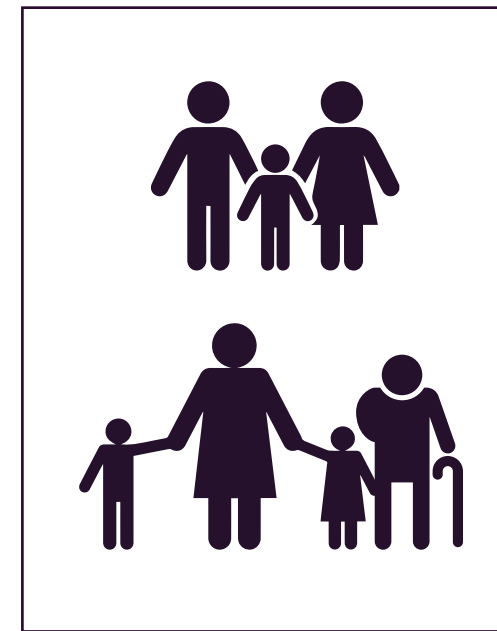
CURRENT SITUATION  
**INADEQUATE LIVING CONDITIONS**



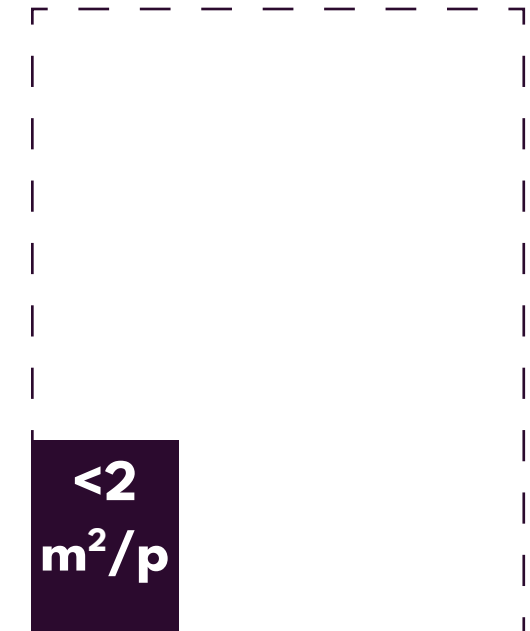
UNIT



OVERCROWDED



FAMILY STRUCTURE



INSUFFICIENT  
LIVING AREA

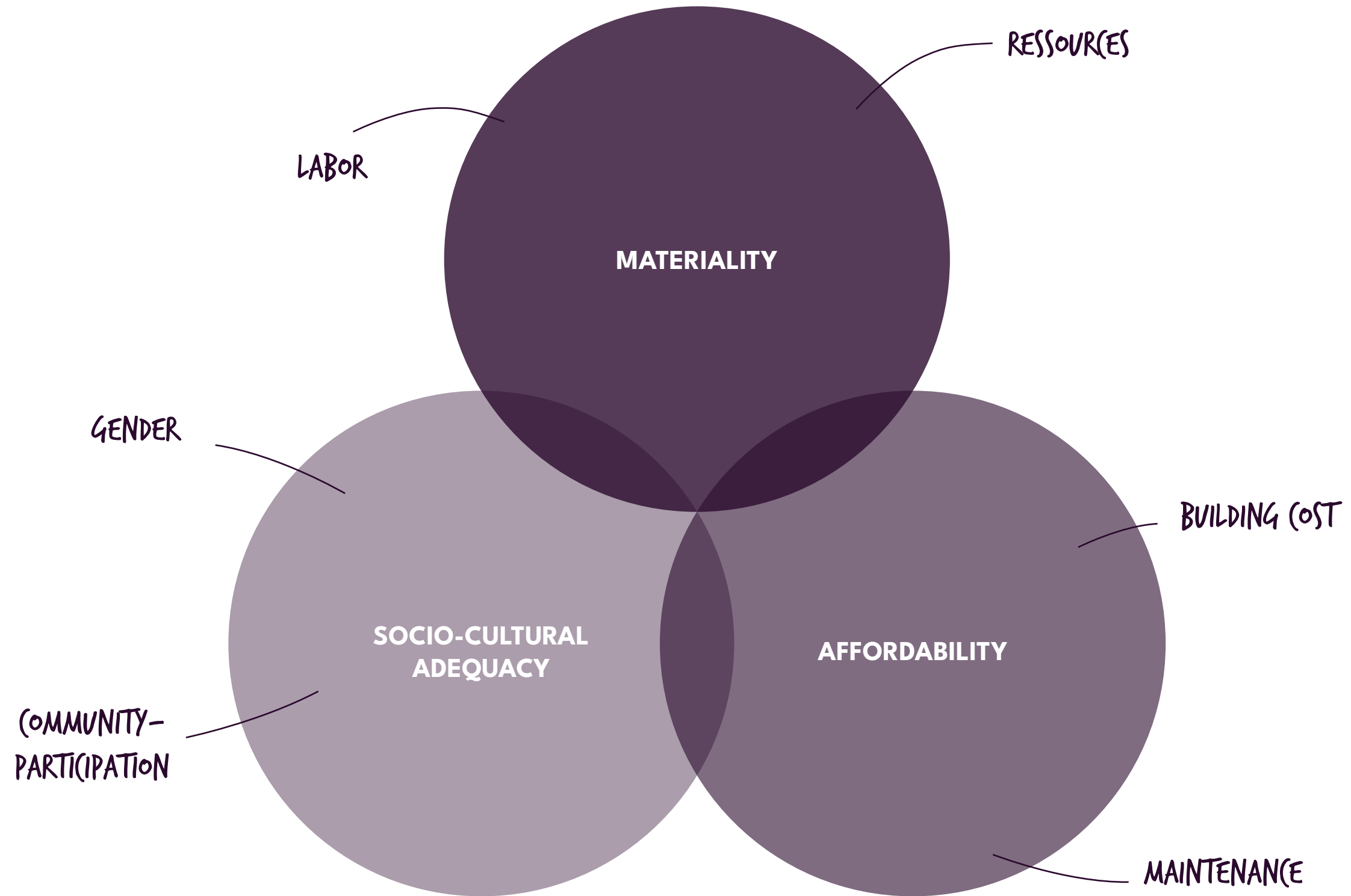
THE USE OF COST-SAVING MATERIALS, EFFICIENT SPACE  
PLANNING, AND THE OPTIMIZATION OF RESOURCES.

DESIGN STRATEGY **FINDING THE BALANCE BETWEEN EFFICIENCY  
AND RESILIENCE**

ADAPT AND RESPOND TO CHANGING CONDITIONS WHILE  
MAINTAINING FUNCTIONALITY





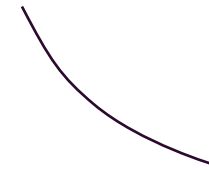




HOW TO EVALUATE THE NECESSARY SPACE PER PERSON?

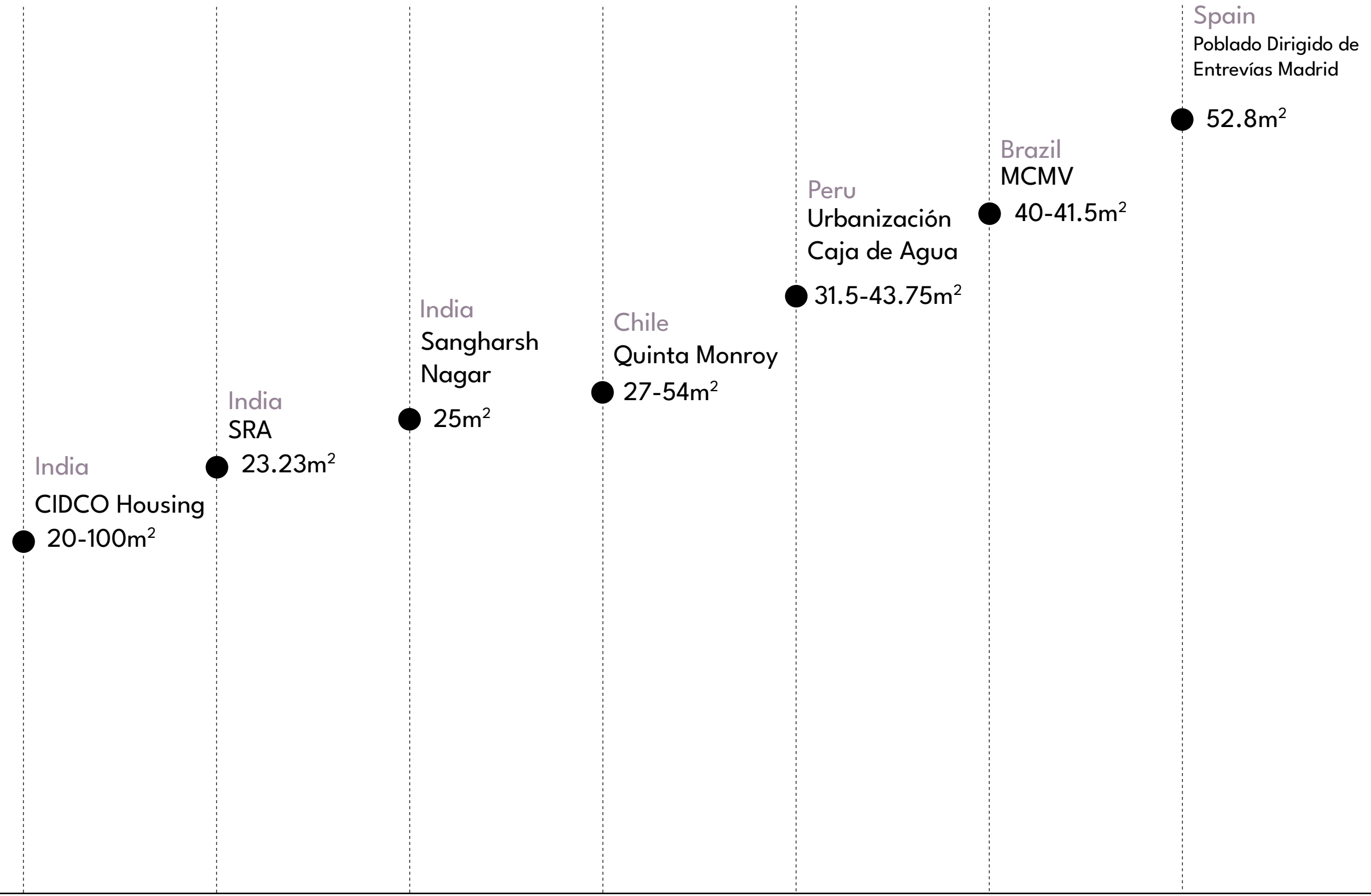


AFFORDABILITY **WHAT'S THE RECOMMENDED SPACE  
ALLOCATION PER PERSON?**



WHERE DO WE DRAW THE LINE BETWEEN OFFICIAL REQUIREMENTS  
AND PRACTICES?

GLOBAL PERSPECTIVES: SLUM REHABILITATION PROGRAM UNIT AVERAGE

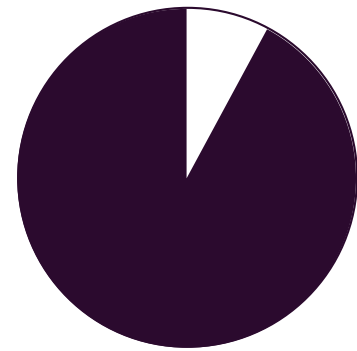




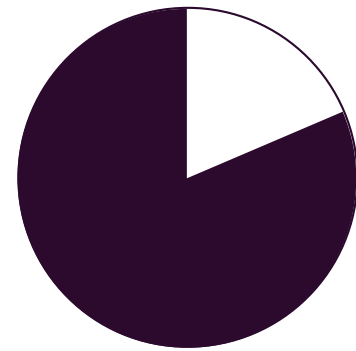
## AFFORDABILITY OF LIVING SPACE IN BANGLADESH

based on Md. Kamruzzaman and N. Ogura's study, Dhaka, 2008

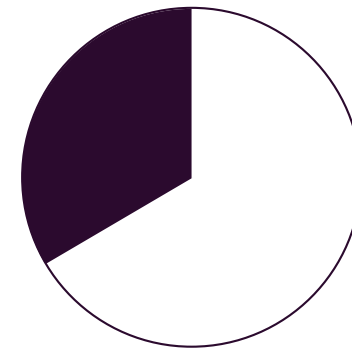
**93M<sup>2</sup>**  
OF LIVING  
SPACE



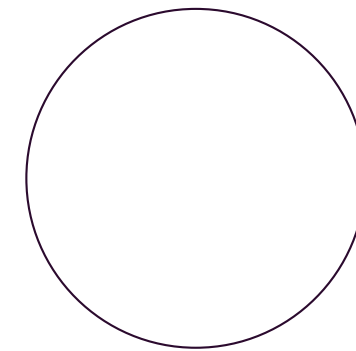
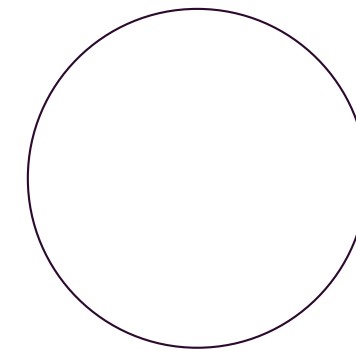
85%



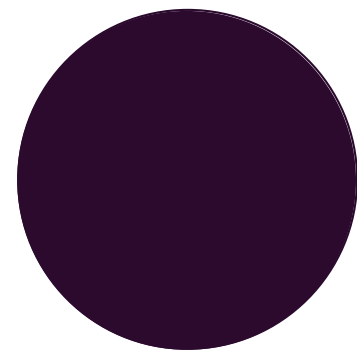
70%



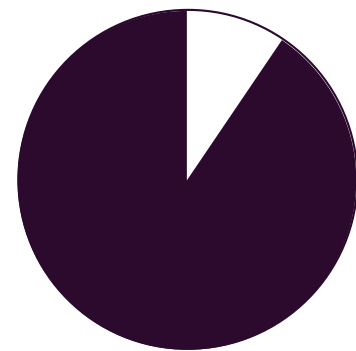
35%



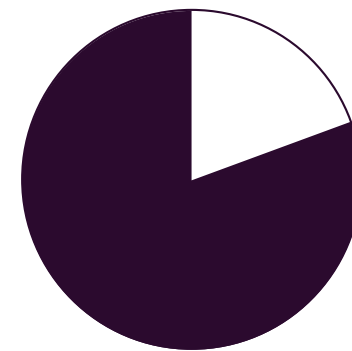
**30M<sup>2</sup>**  
OF LIVING  
SPACE



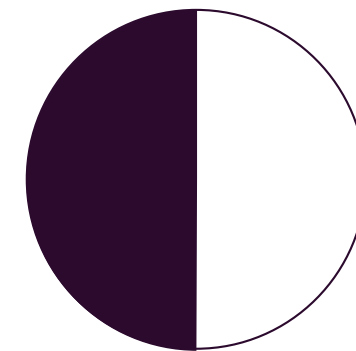
100%



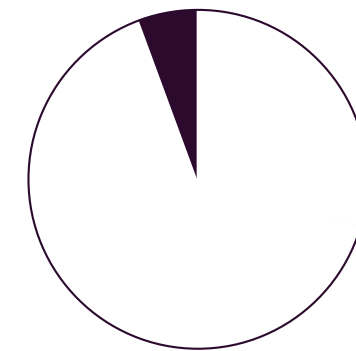
90%



80%



50%



5%

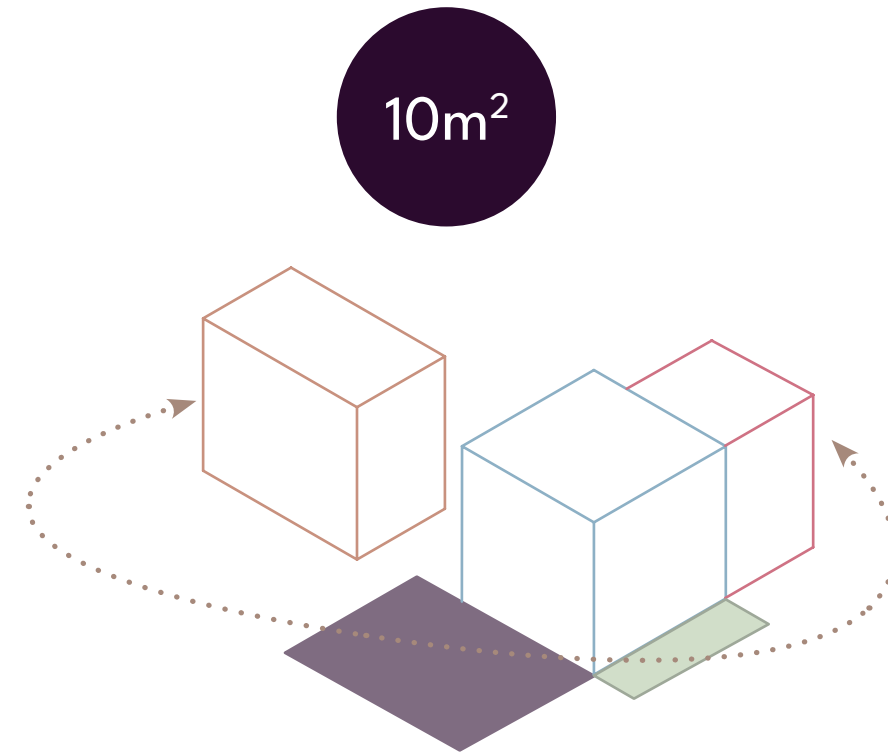
Lower-High Income

High-Middle Income

Middle Income

Low-Middle Income

Low Income



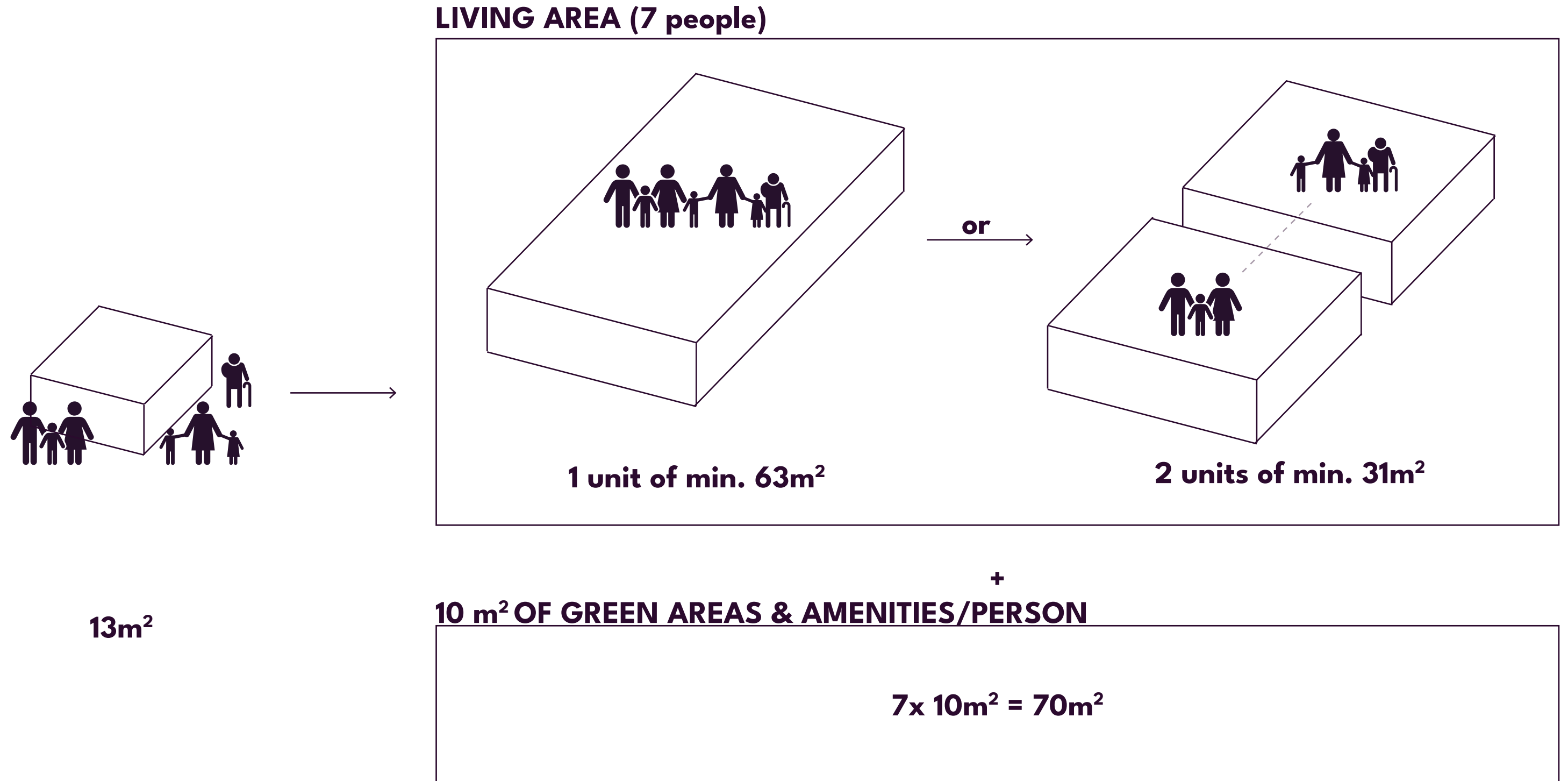
min. of amenities and  
green areas easy to  
reach/perons

CHARLES CORREA,  
INDIAN ARCHITECT &  
URBAN PLANNER



'NOT ENOUGH!'





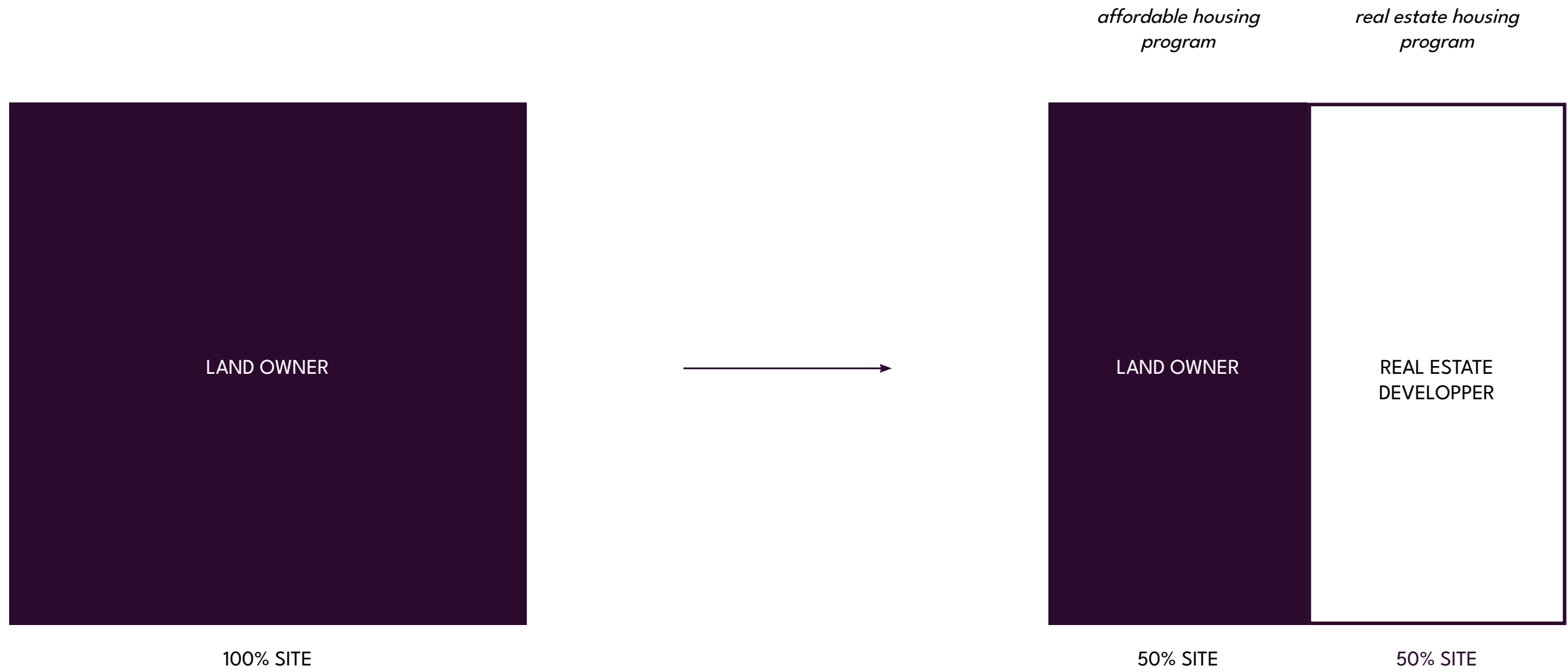
HOW TO OFFER RESIDENTS MORE SPACE WITHOUT  
INCREASING THEIR RENT?

MANAGERIAL STRATEGY **HOW CAN WE PROVIDE BETTER LIVING CONDITIONS  
WHILE BENEFITING ALL PROJECT STAKEHOLDERS?**

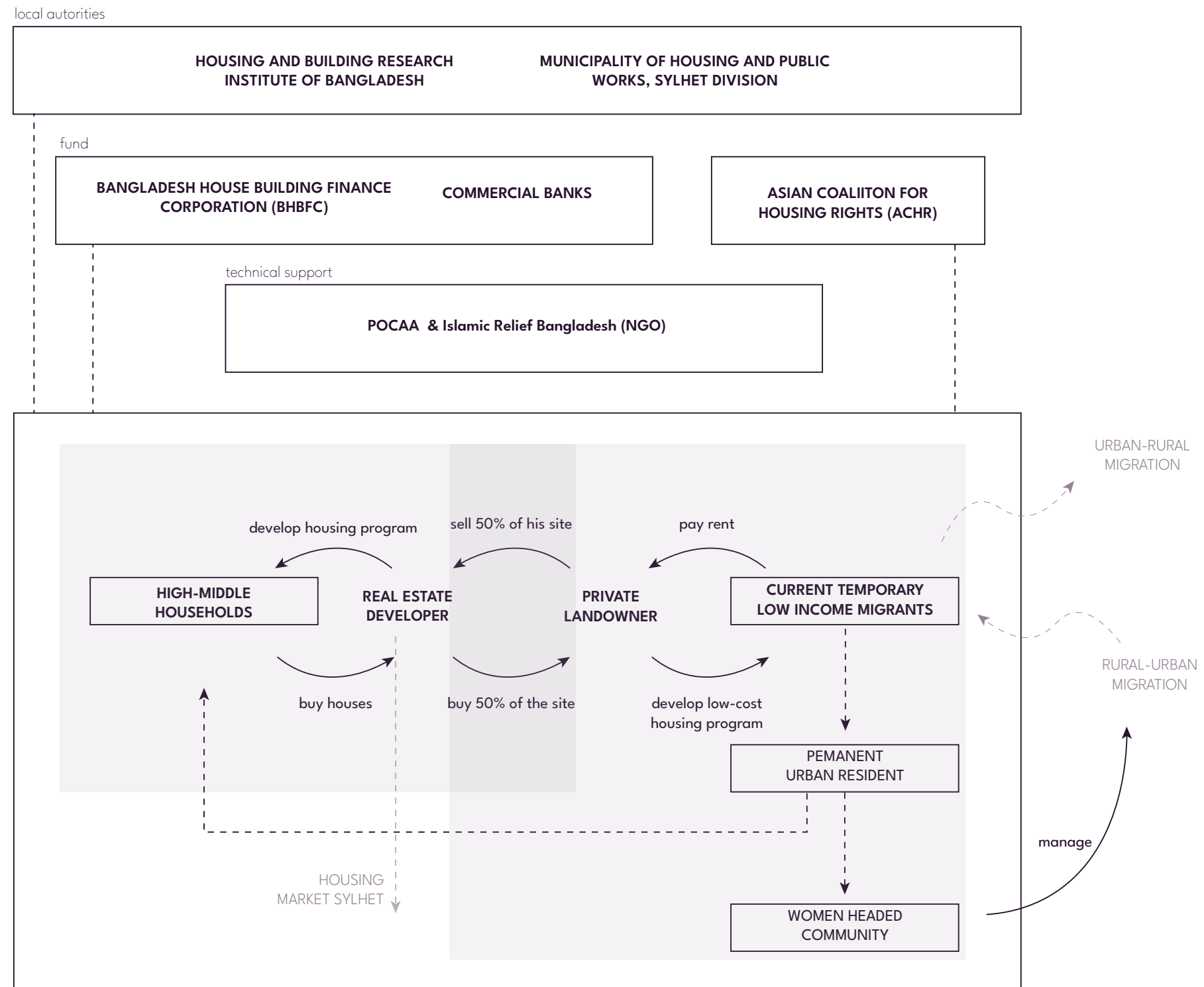
WHERE DOES THE LANDOWNER BENEFIT FROM  
INVESTING IN THE PROJECT?



**A SITE WITH MULTIPLE STAKEHOLDERS**



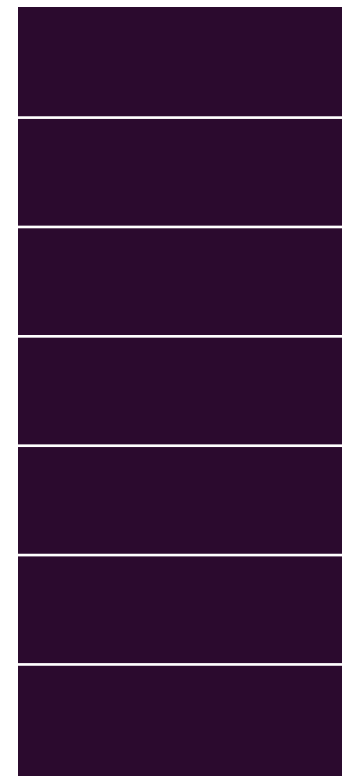
MANAGERIAL STRATEGY  
**STAKEHOLDER ANALYSIS**







affordable housing  
program



real estate housing  
program

AFFORDABLE HOUSING DESIGN

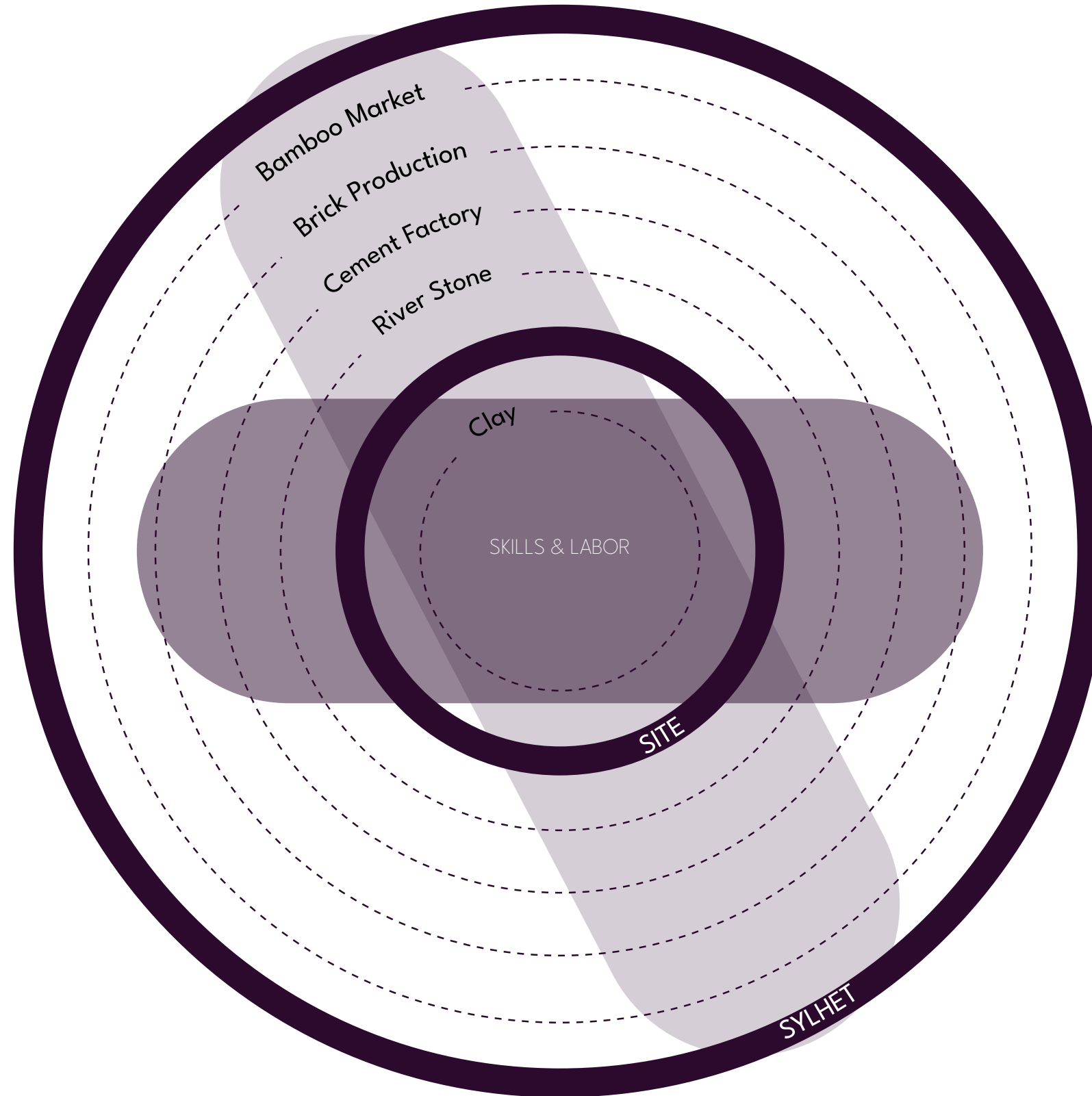
MIDDLE-HIGH HOUSING DESIGN

BUILDING  
TECHNOLOGY

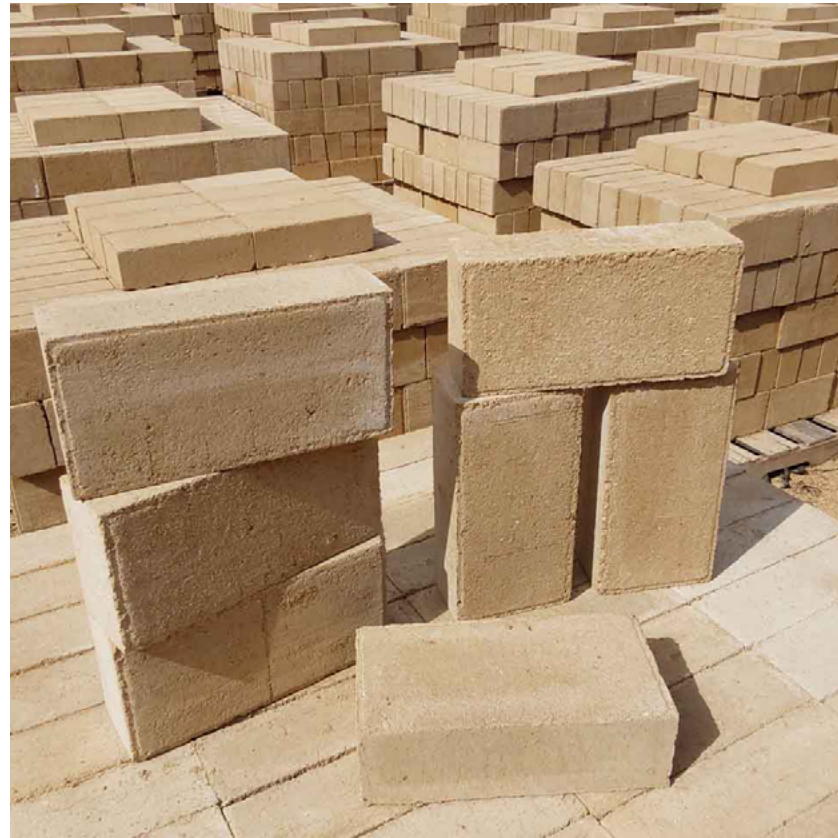
**TWO PURPOSES ONE SYSTEM**

COMBINATION OF A MORE SUSTAINABLE BUILDING  
SYSTEM WITH A MORE COMMONLY USED APPROACH





AFFORDABLE HOUSING PROGRAM

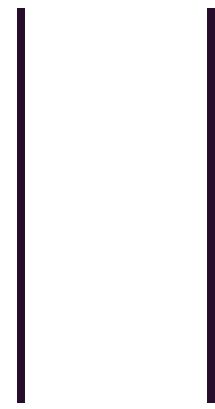


compressed stabilized earth block

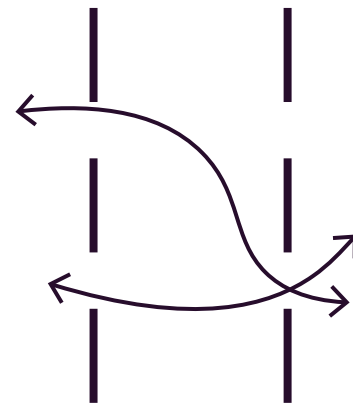


reinforced concrete

REAL ESTATE HOUSING PROGRAM



linear structure



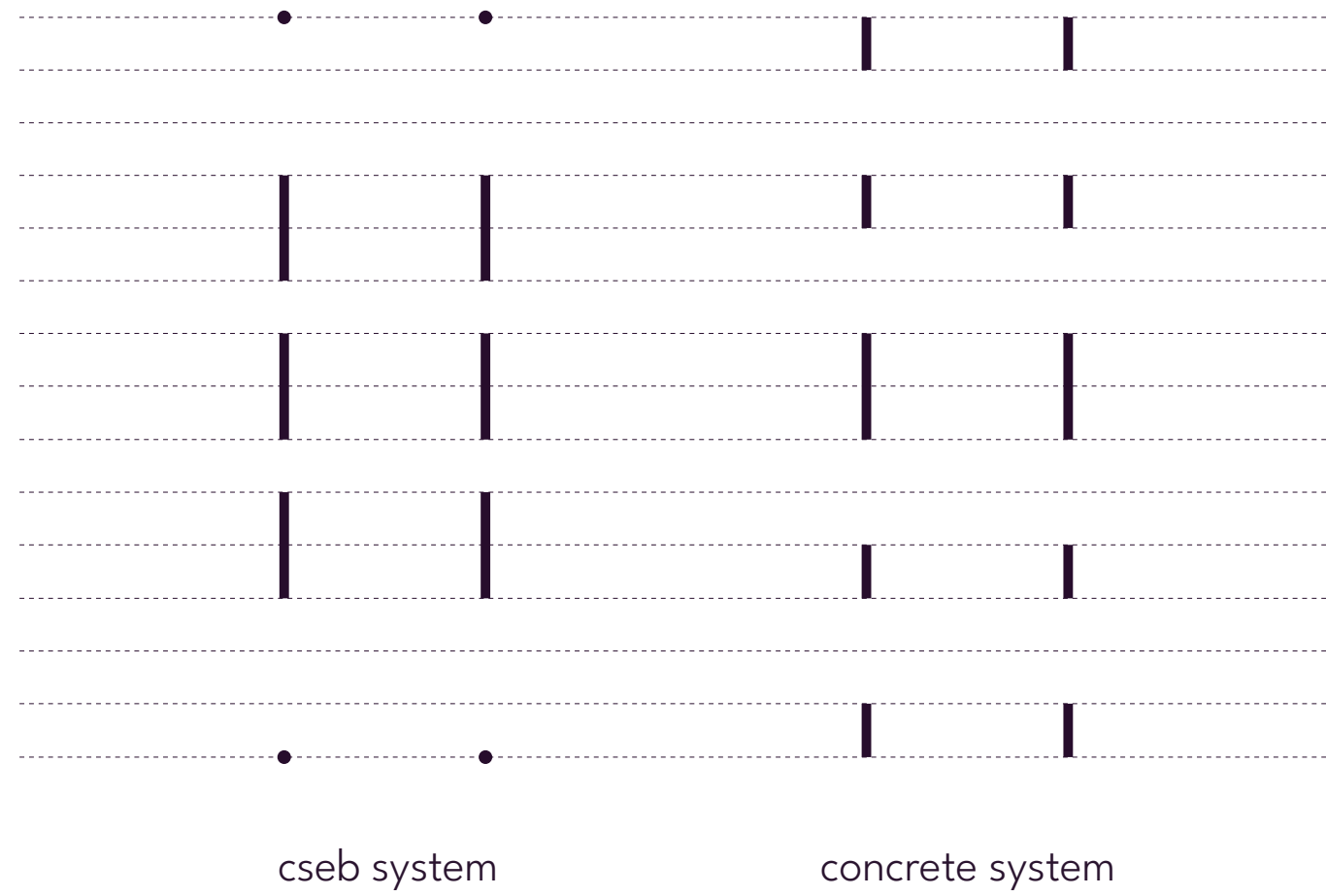
flexibility & connectivity



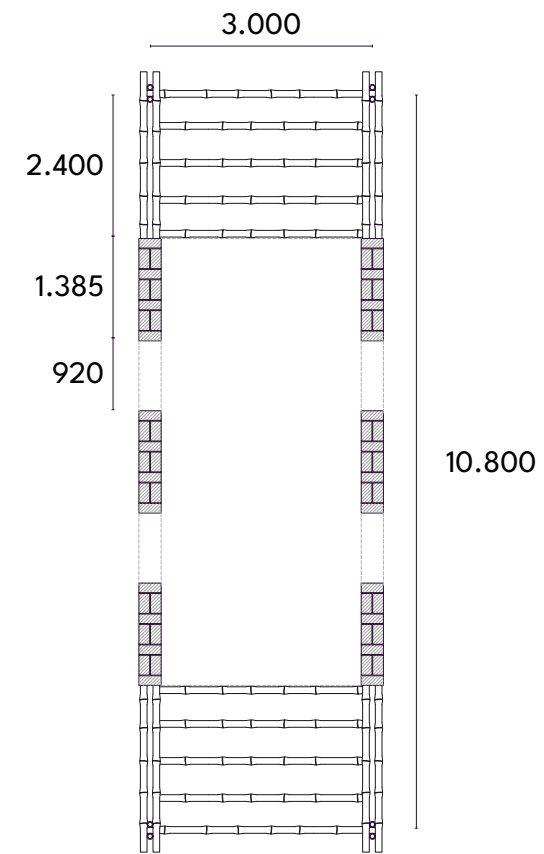
framework for  
incremental growth



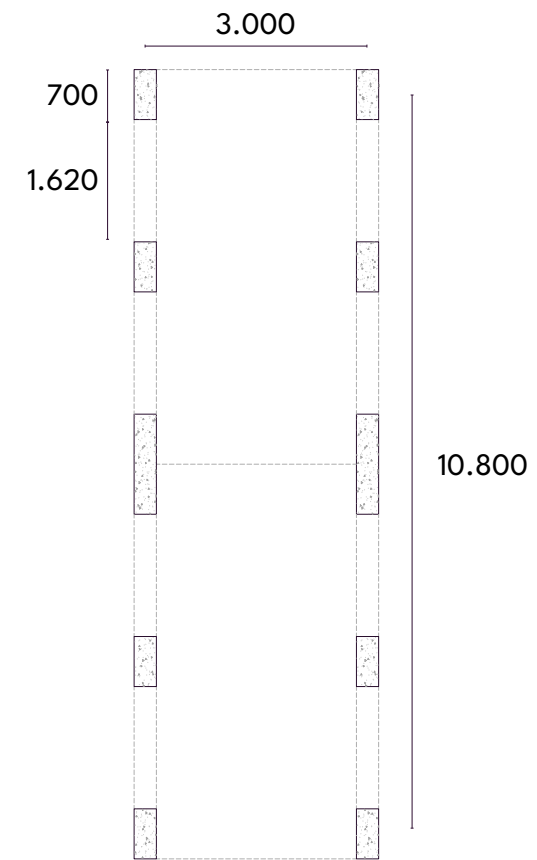
**FINDING A COMMON RHYTHM BETWEEN TWO CONSTRUCTION SYSTEMS**



**FINDING A COMMON RHYTHM BETWEEN TWO CONSTRUCTION SYSTEMS**



cseb system



concrete system





**CSEB SYSTEM: AFFORDABLE HOUSING PROGRAM**


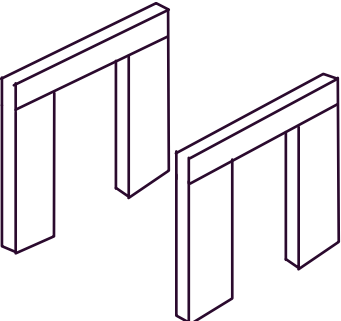


**CONCRETE SYSTEM: REAL ESTATE HOUSING PROGRAM**

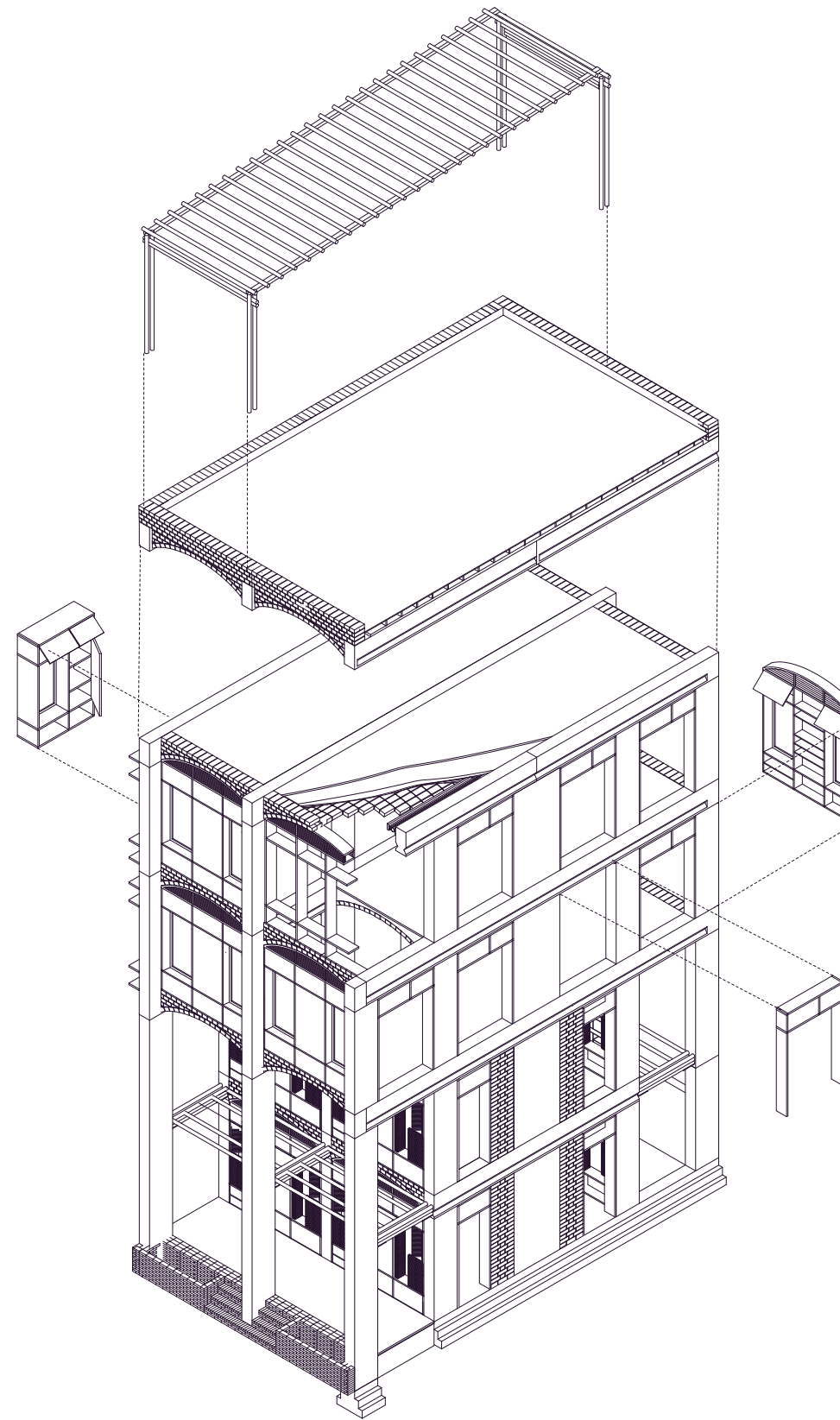
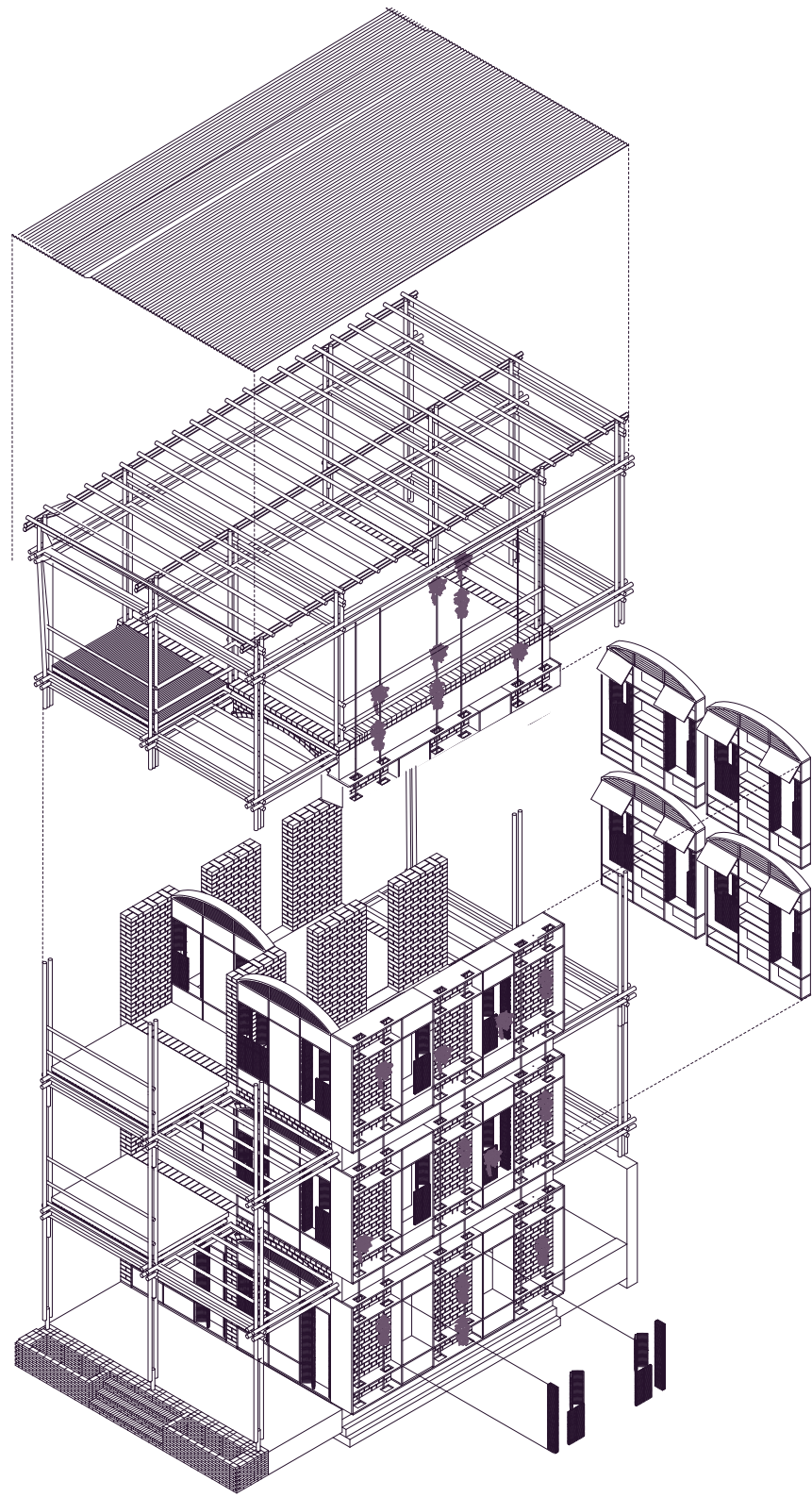


(SEB VAULT



	<b>CSEB SYSTEM</b>	<b>CONCRETE SYSTEM</b>
LOAD BEARING ELEMENTS	 <b>5%</b>	 <b>100%</b>
LINTEL & BEAMS	<b>100%</b>	<b>100%</b>
FLOORING	<b>5%</b>	<b>5%</b>
MANSONRY	<b>0%</b>	<b>5%</b>
<b>USE OF CEMENT</b>	<b>27%</b>	<b>52%</b>

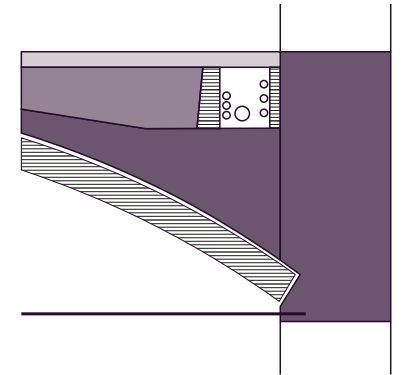
BUILDING TECHNOLOGY  
**A BRIEF OVERVIEW OF BUILDING SYSTEMS**



LEARNING FROM

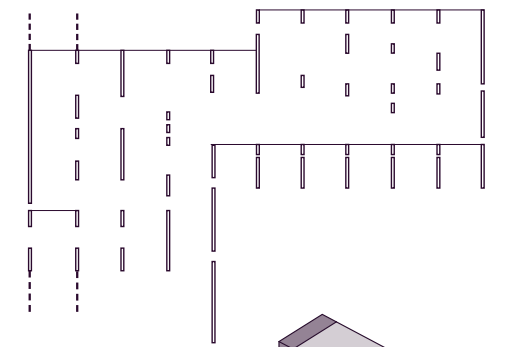
VILLA JAOU, 1953-1955

- Flooring
- Clinker Concrete
- Concrete
- ▨ Fired Brick
- Bracing



VILLA SARABHAI, 1951-55

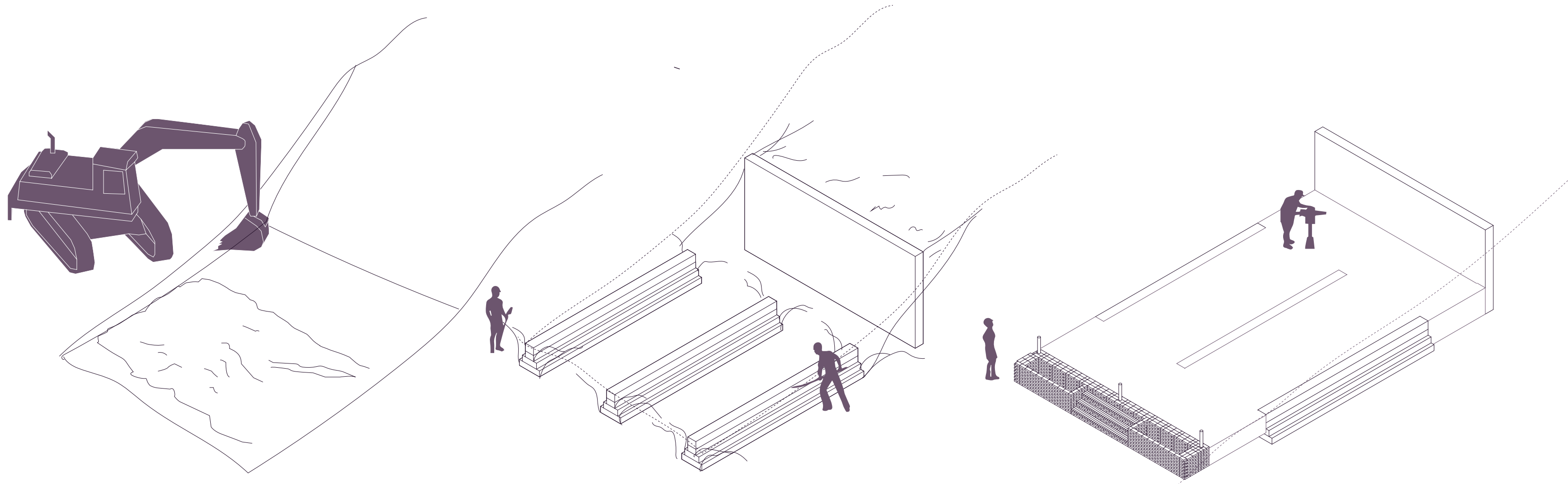
- Flooring
- Concrete Beam
- Loadbearing Masonry Wall
- ▨ Brick Vault



SYLHET POLYTECHNIC INSTITUTE (SPI), 1955

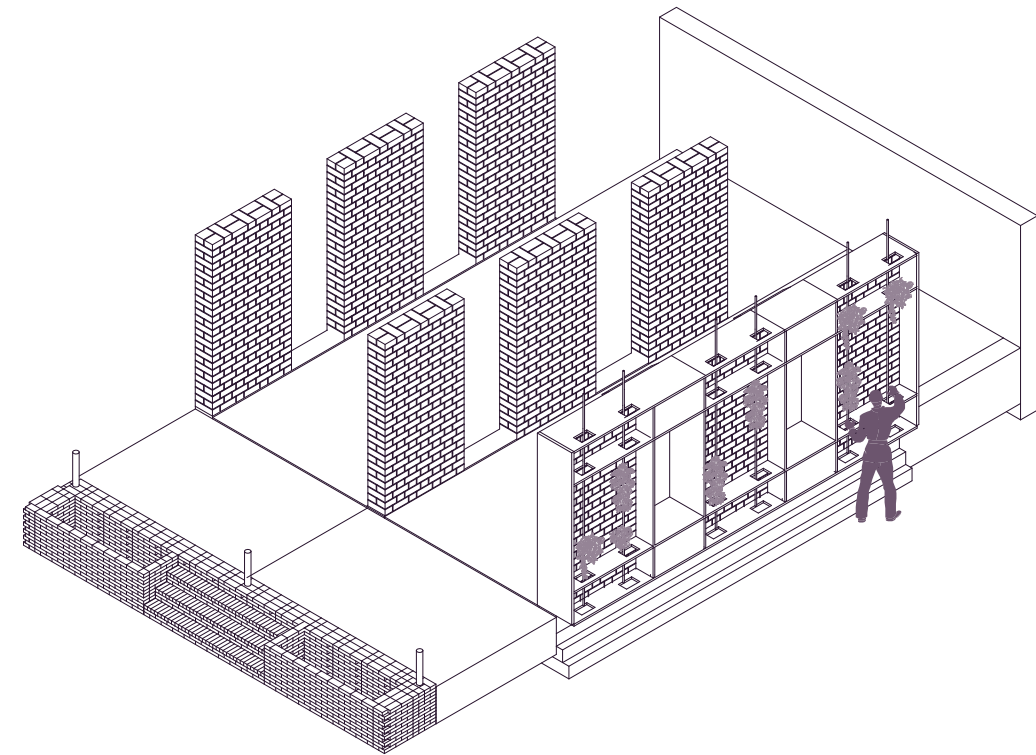
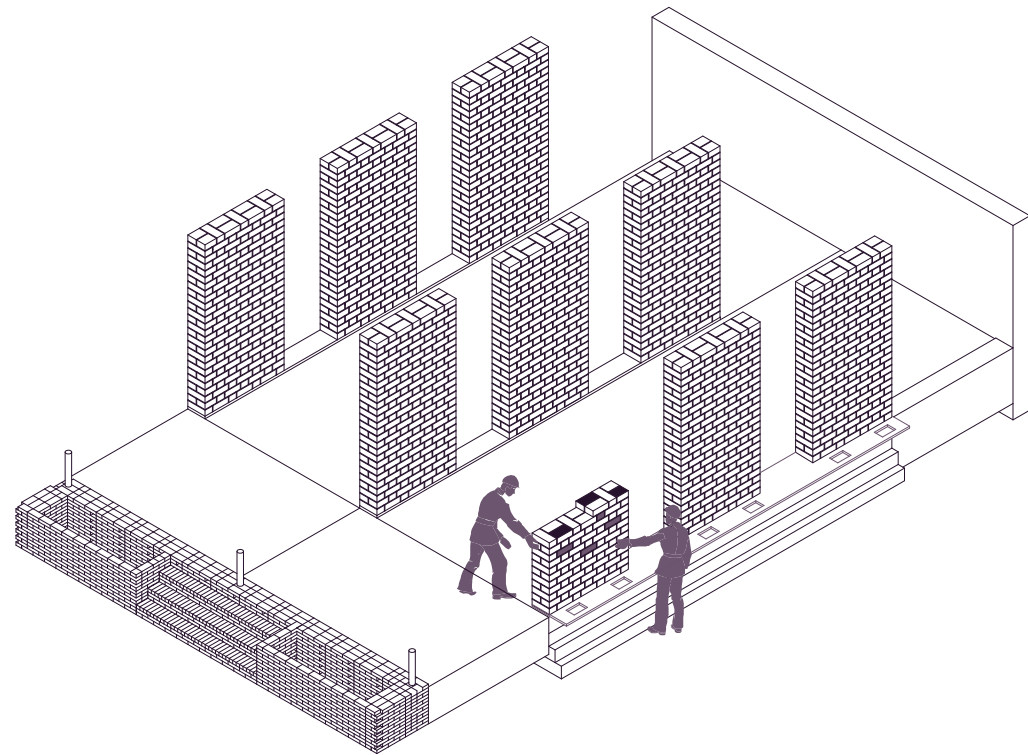


BUILDING TECHNOLOGY  
**CONSTRUCTION PHASING: FOUNDATION**

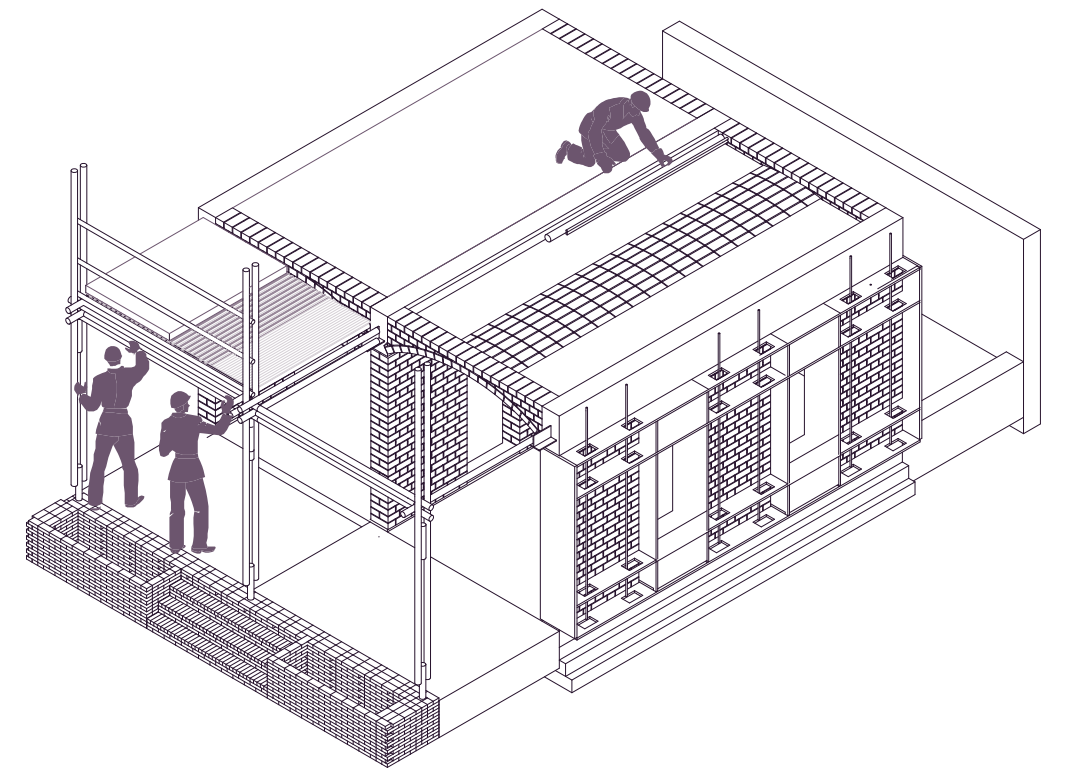
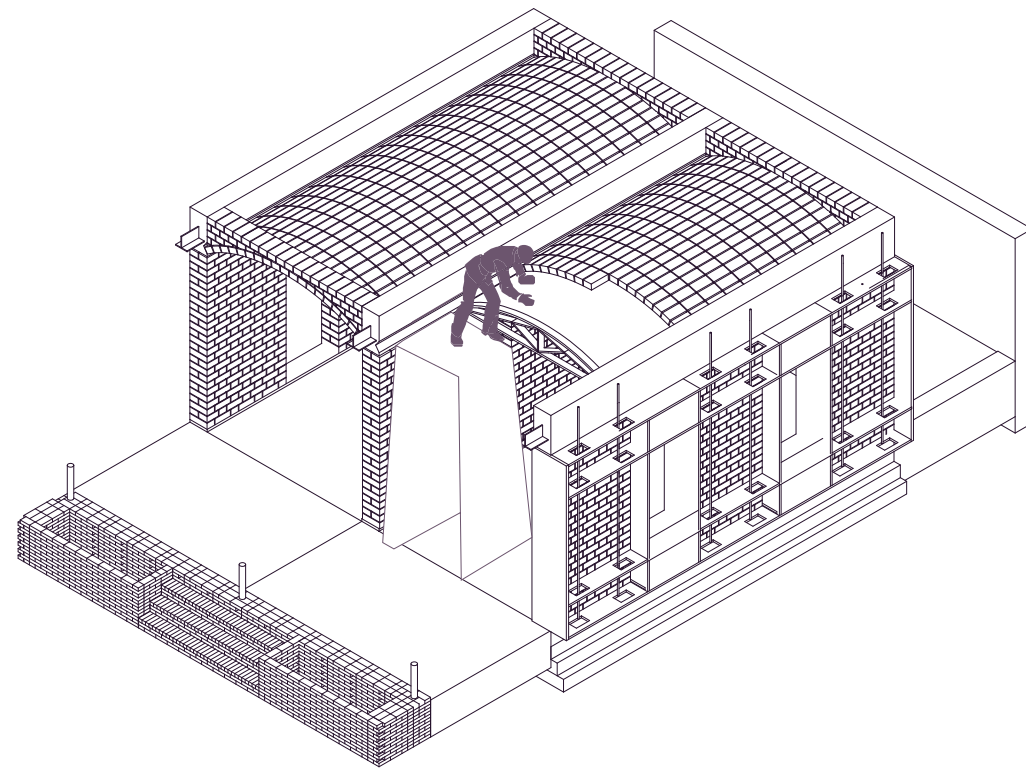
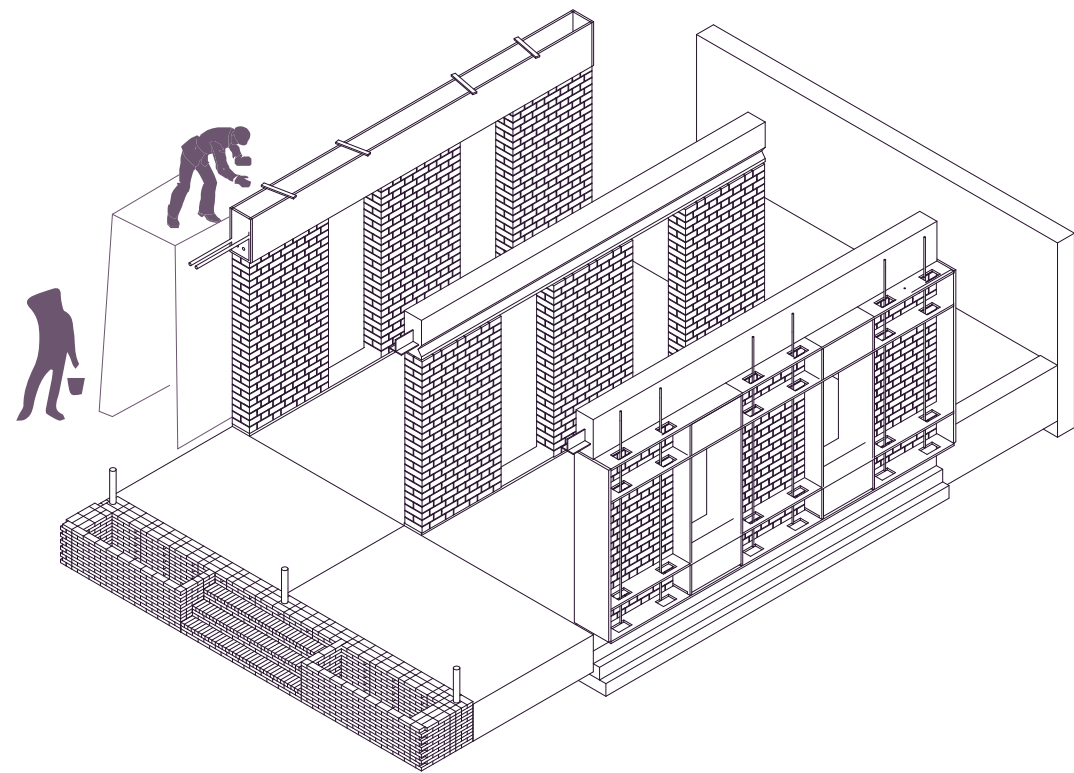




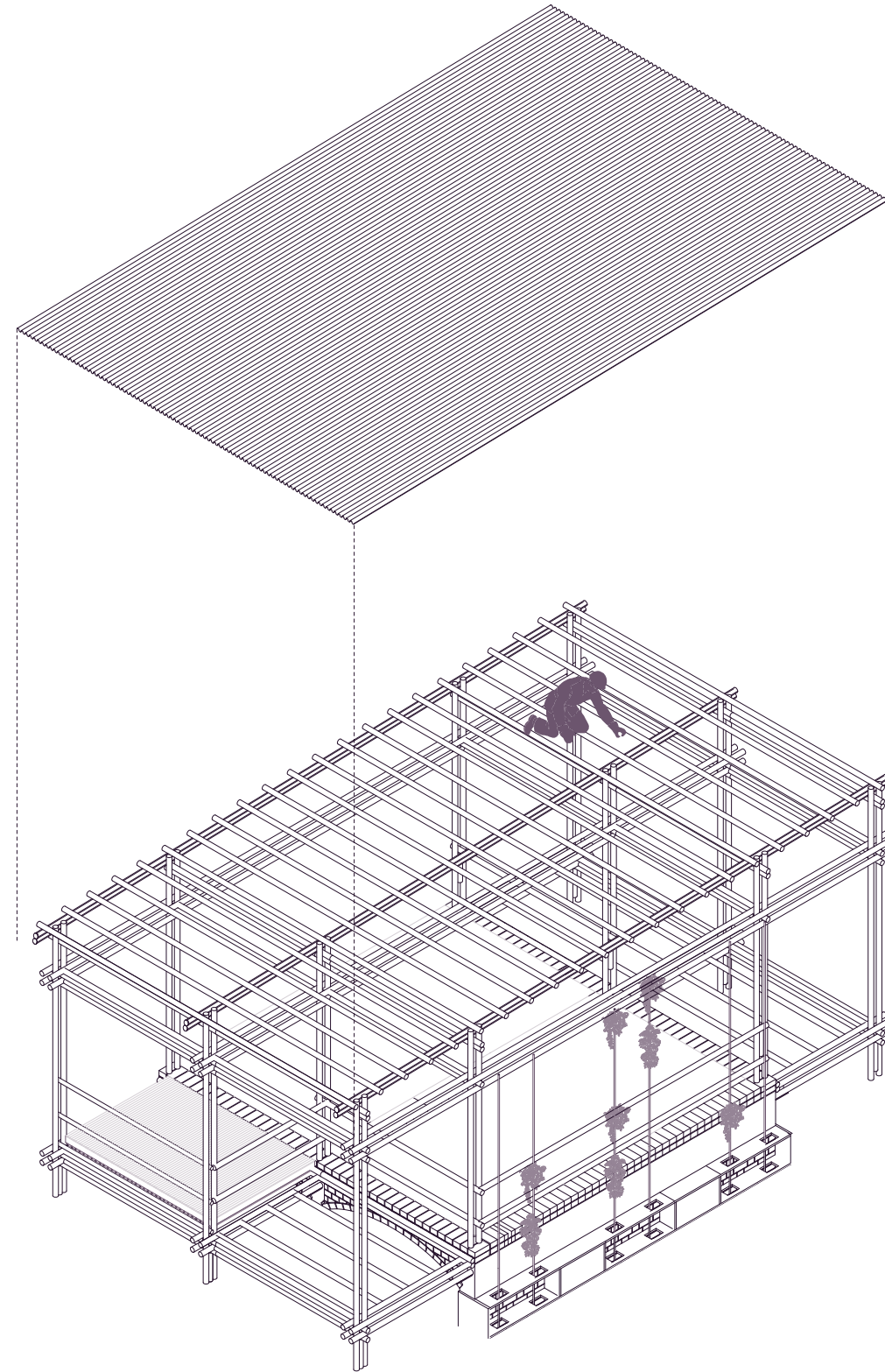
**CONSTRUCTION PHASING: LOAD BEARING WALLS**



**CONSTRUCTION PHASING: VAULTING & BAMBOO EXTENSION**

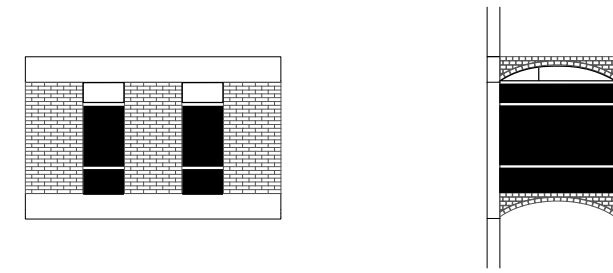
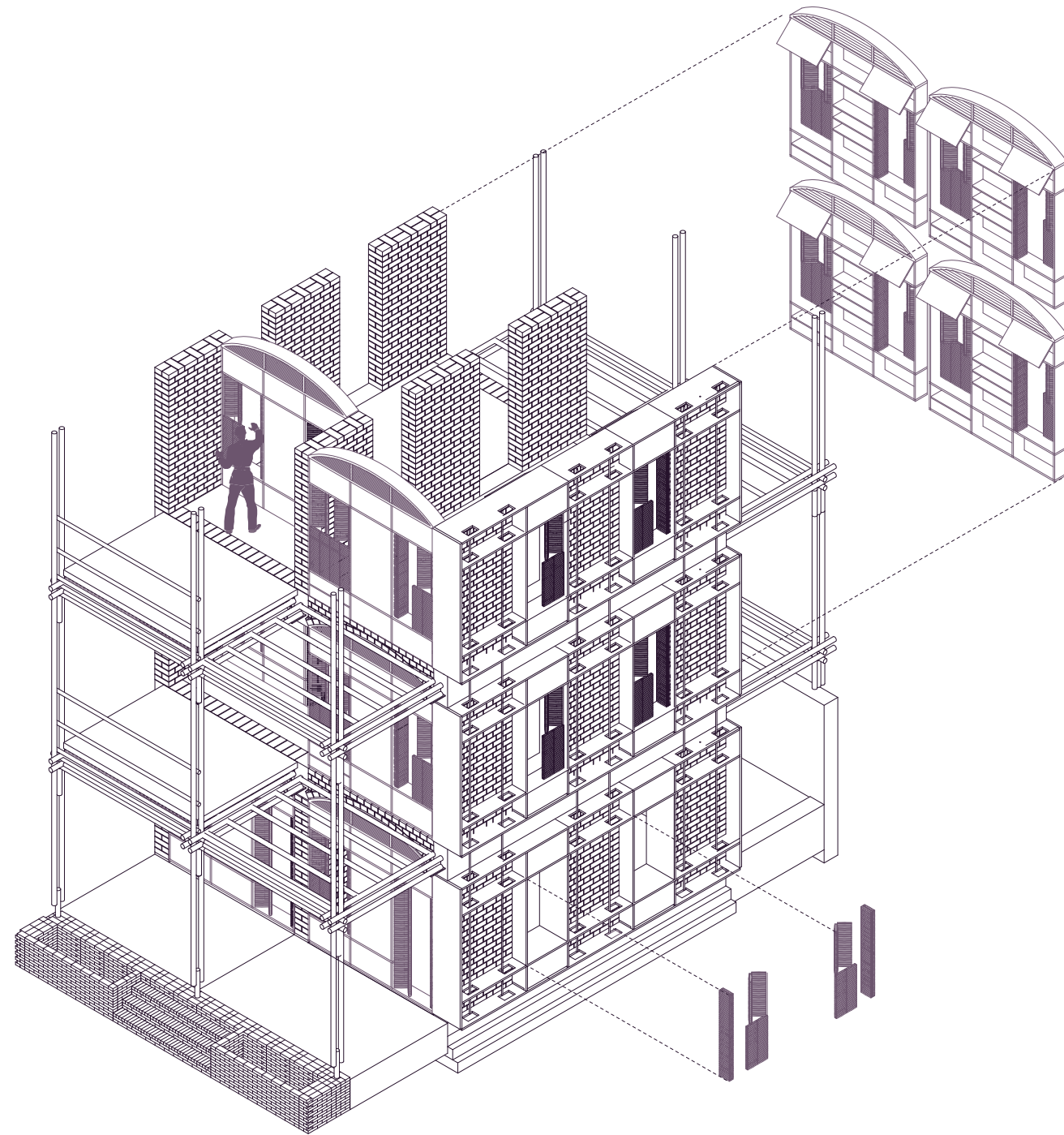


BUILDING TECHNOLOGY  
**CONSTRUCTION PHASING: FLOORING**

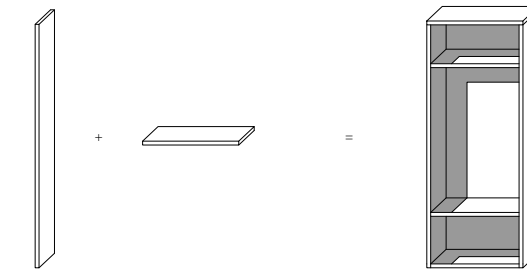




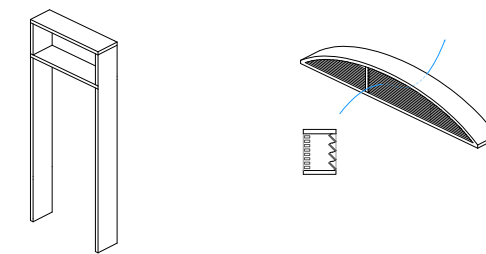
BUILDING TECHNOLOGY  
**CONSTRUCTION PHASING: INFILL**



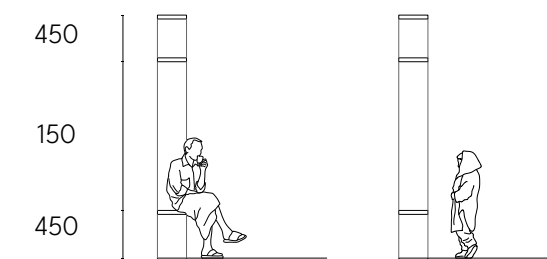
2 FACADES ELEMENTS BASED ON THE SAME MODULE



SUNSHADING DEVICE

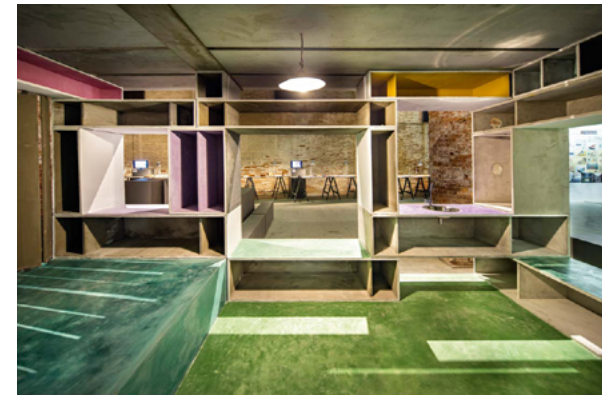
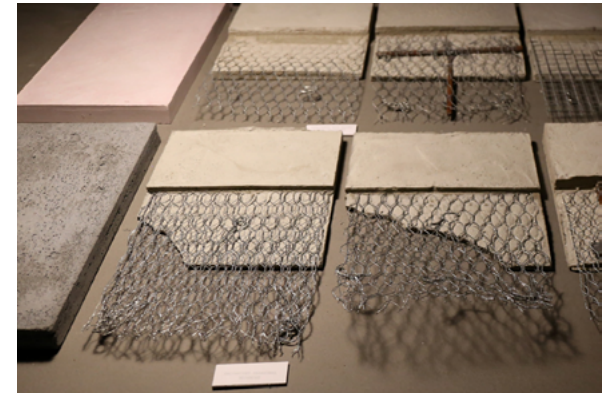


STORAGE & PERMANENT VENTILATION

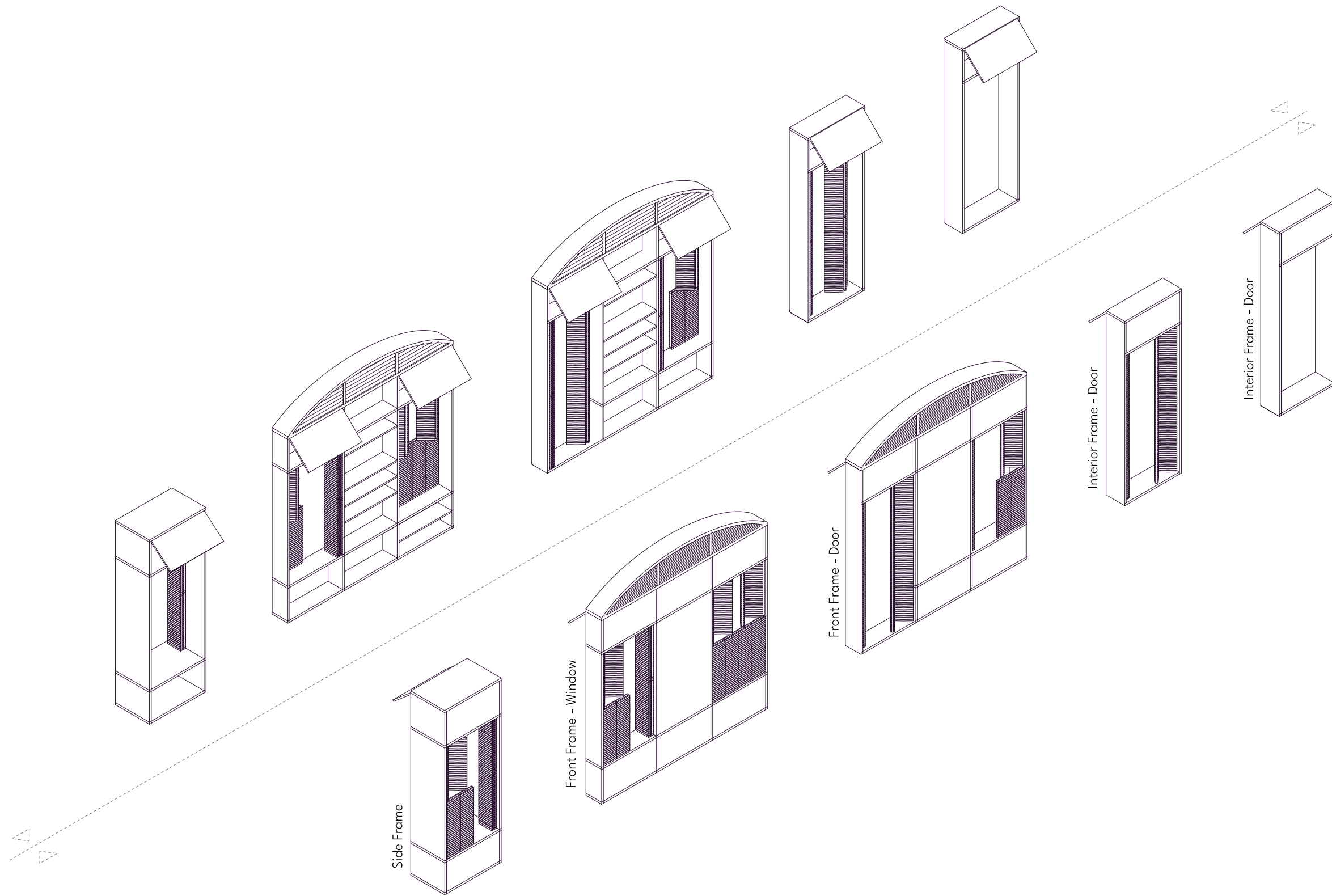


DIMENSIONS

ANUPAMA KUNDO RESEARCH, 2016

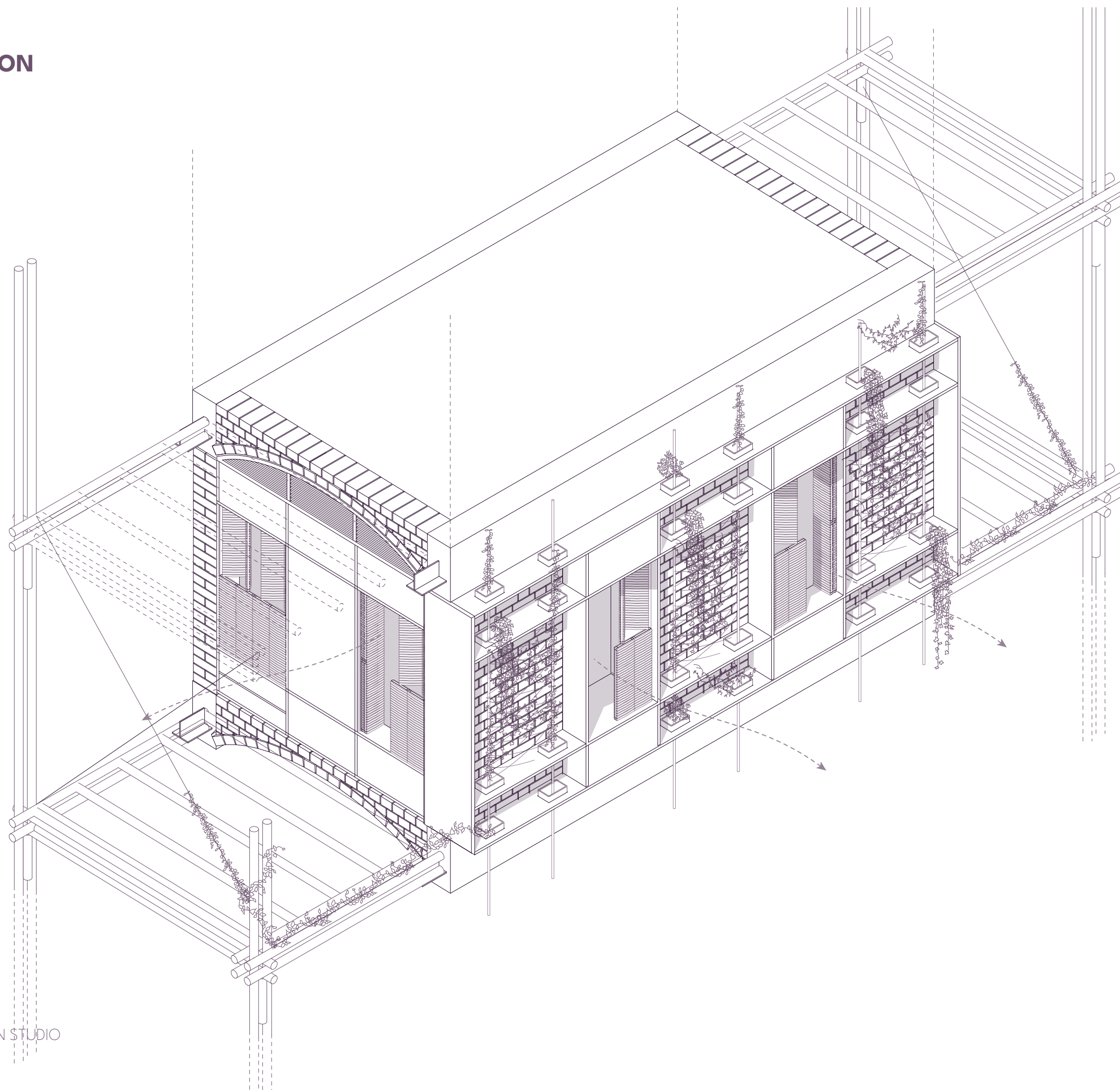


CONTAINER TEMPORARY HOUSING ONAGAWA, 2011



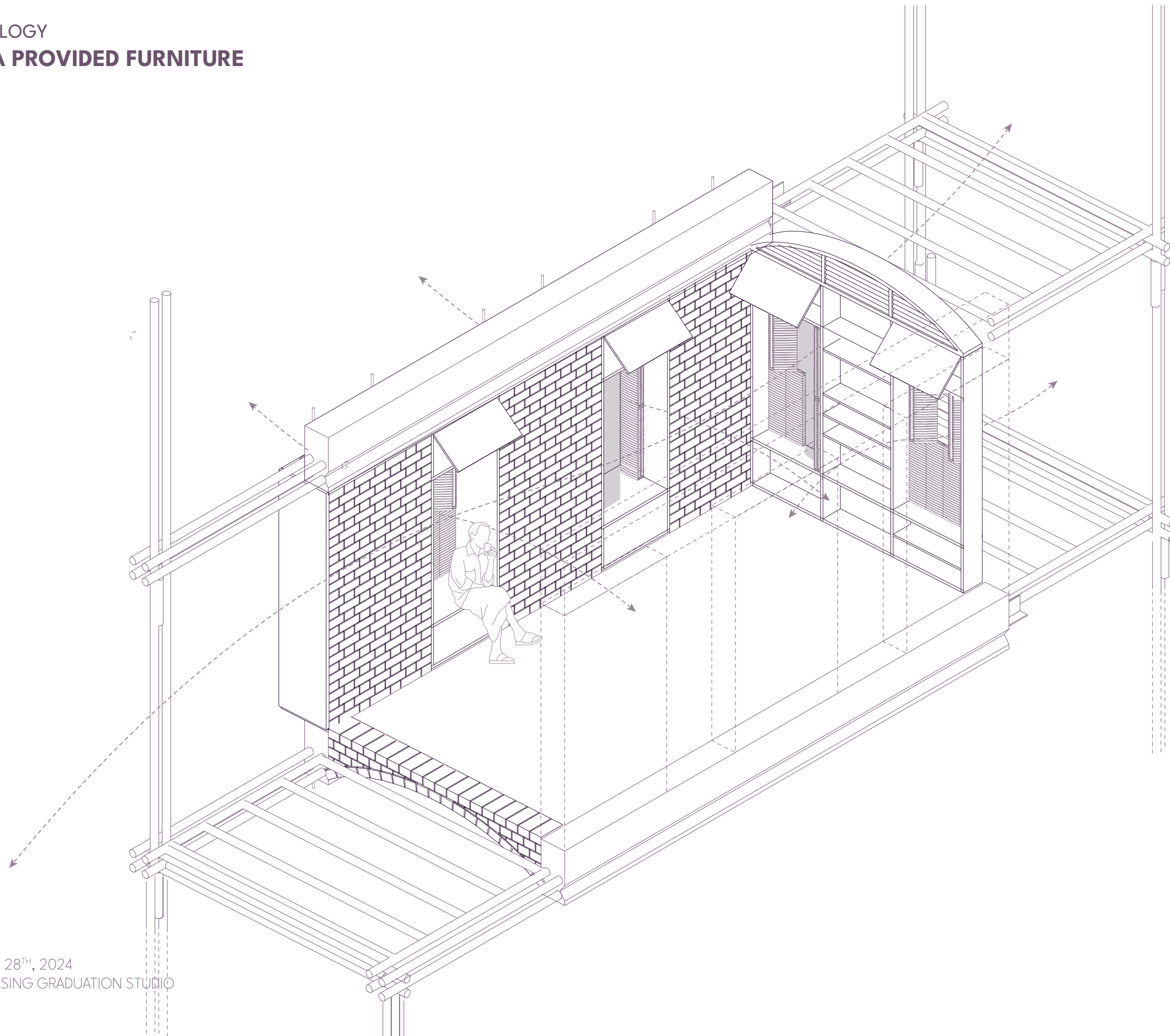


BUILDING TECHNOLOGY  
**A FACADE AS A PROTECTION**

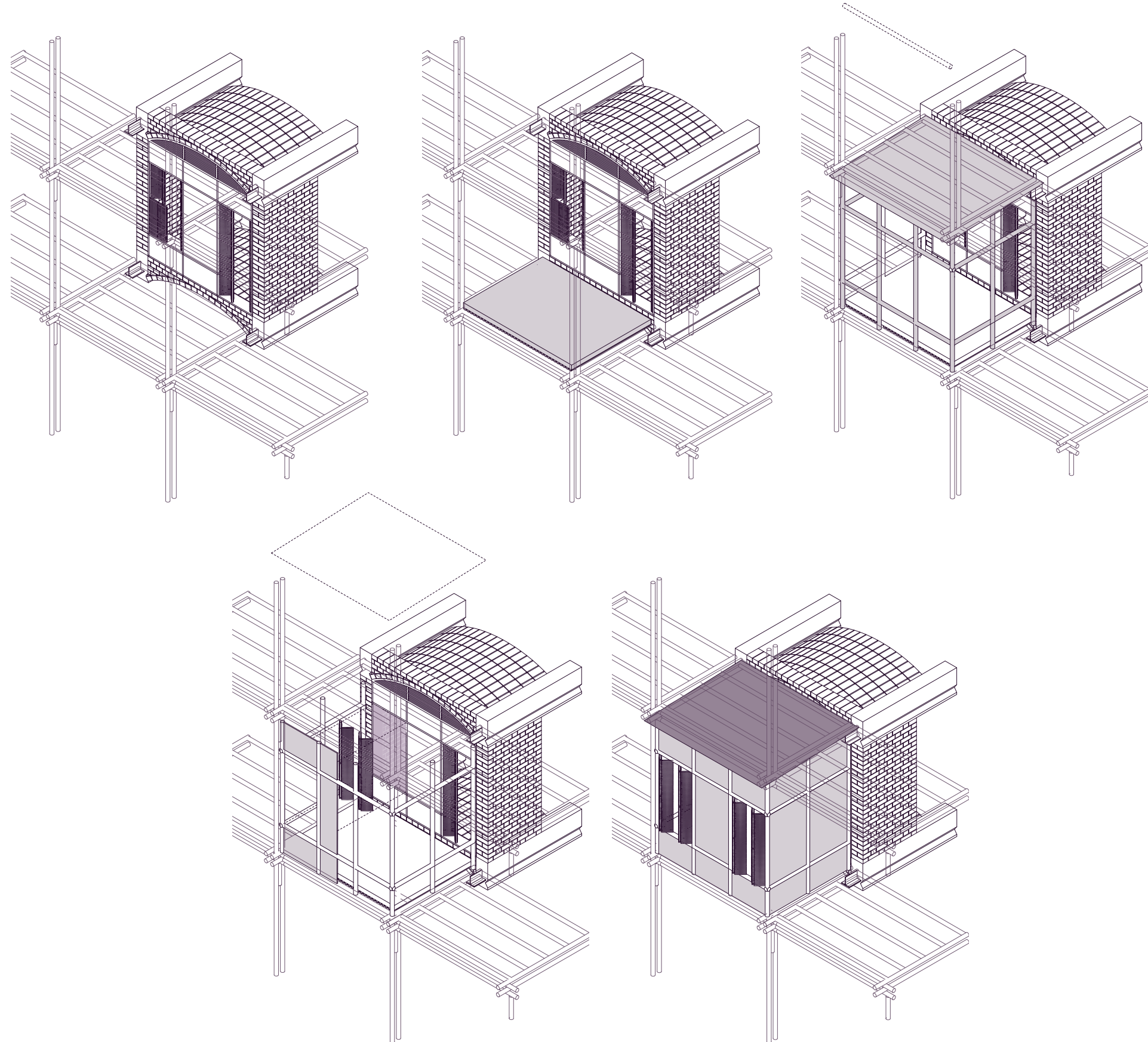




BUILDING TECHNOLOGY  
**A FACADE AS A PROVIDED FURNITURE**



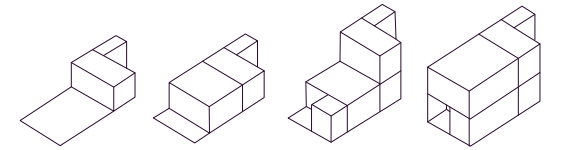
BUILDING TECHNOLOGY  
**INCREMENTAL GROWTH**



MARION ACHACH - JUNE 28<sup>TH</sup>, 2024  
TU DELFT - GLOBAL HOUSING GRADUATION STUDIO

LEARNING FROM

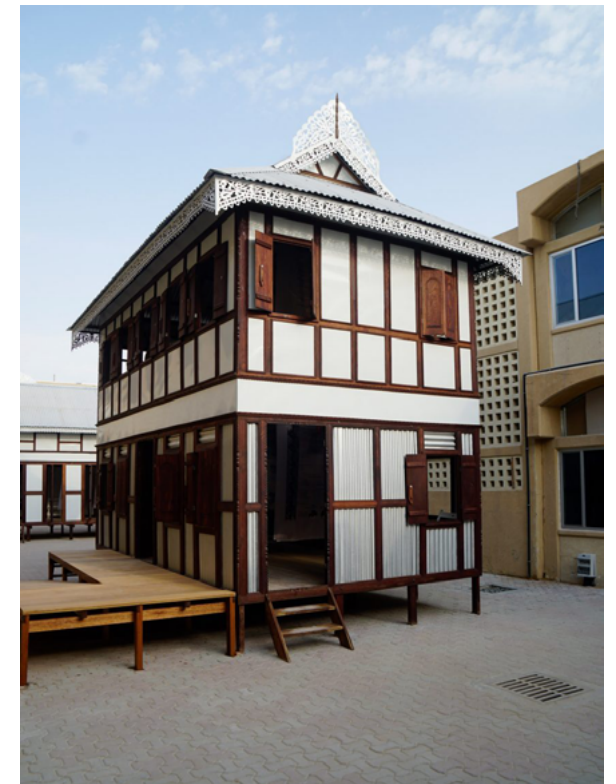
ARANYA LOW COST HOUSING, 1989



KHUDI BARI, 2020-ongoing



SHARJAH MODEL, 2019  
VERNACULAR ARCHITECTURE (CHAR)

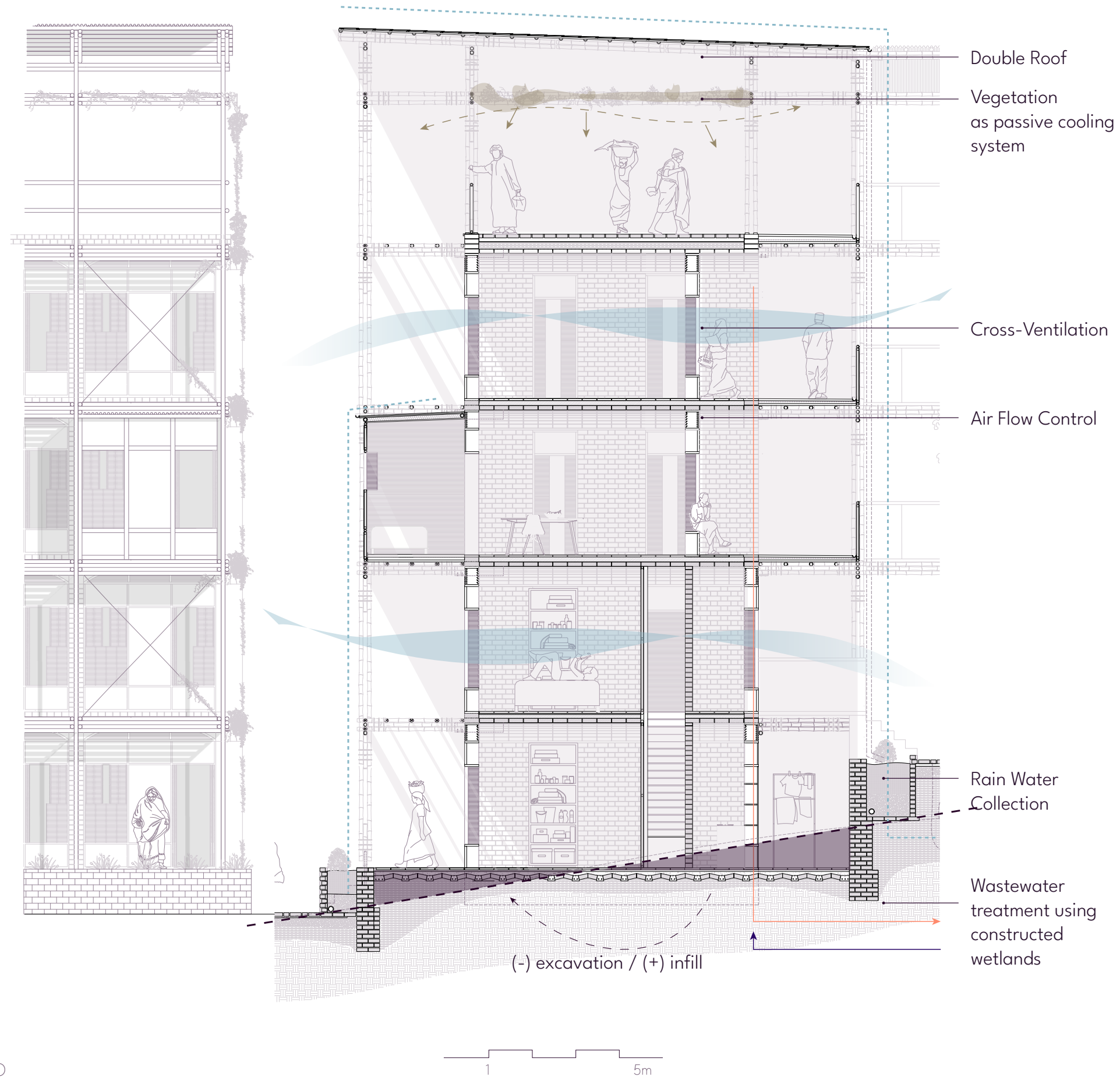




BUILDING TECHNOLOGY  
**INCREMENTAL GROWTH**











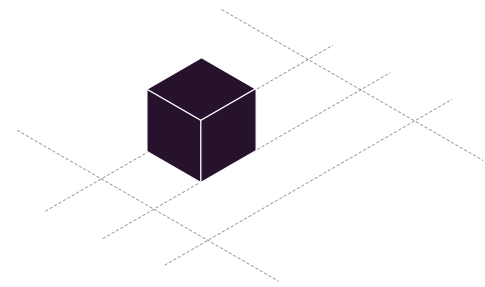
Socio-CULTURAL ADEQUACY

UNIT DESIGN **LIVING PATTERNS & VARIATIONS**

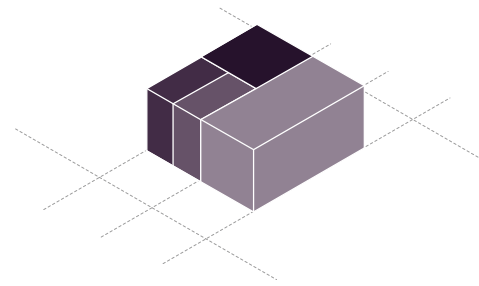
APPROPRIATION OF SPACE BASED ON THE  
FLEXIBILITY OF THE MODEL



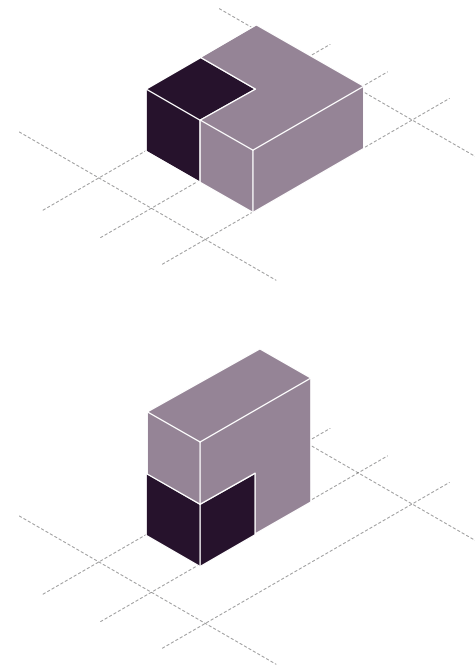
UNIT DESIGN  
UNIT SYSTEM



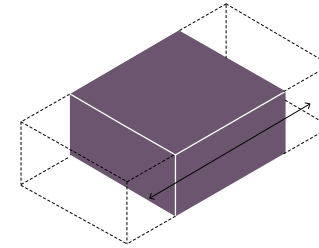
LINEAR RHYTHM



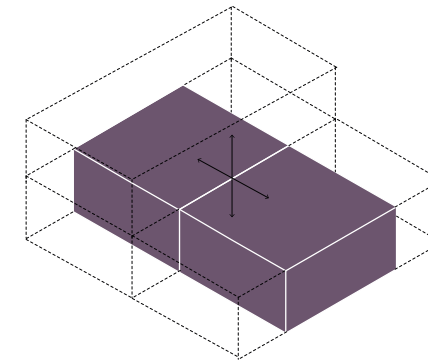
LAYER OF PRIVACY



VARIATIONS



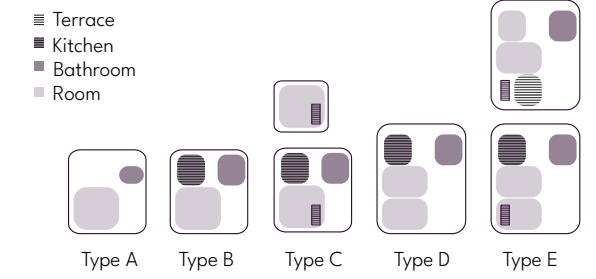
INCREMENTAL GROWTH



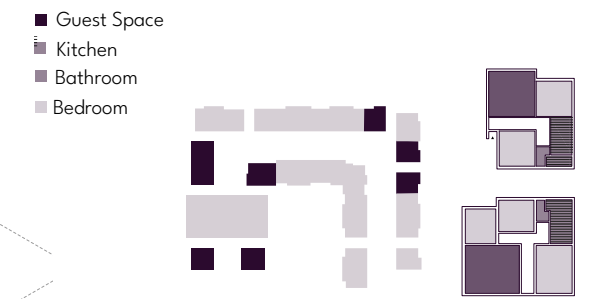
FLEXIBILITY

LEARNING FROM

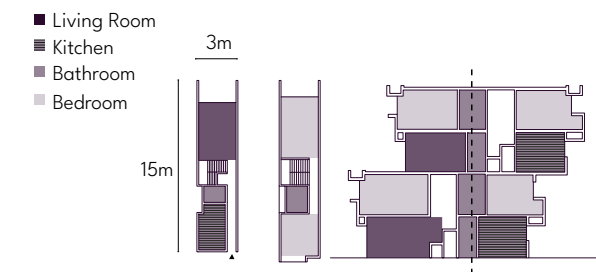
BELAPUR HOUSING, 1983



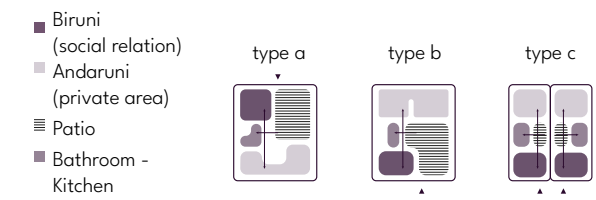
DAR LAMANE HOUSING COMMUNITY, 1983



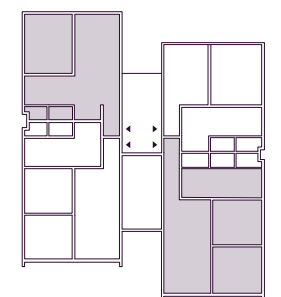
TARA APARTMENTS, 1975-78



SHUSHTAR NEW TOWN, 1975-78

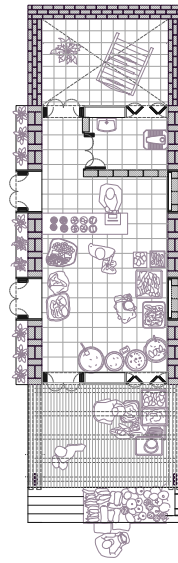


JEEVAN BIMA NAGAR, 1969-72

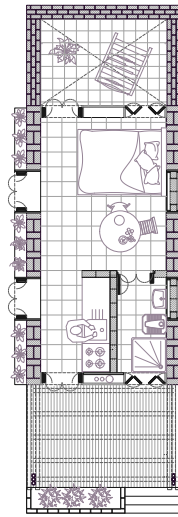


UNIT DESIGN  
**CSEB SYSTEM: UNIT LOW INCOME**

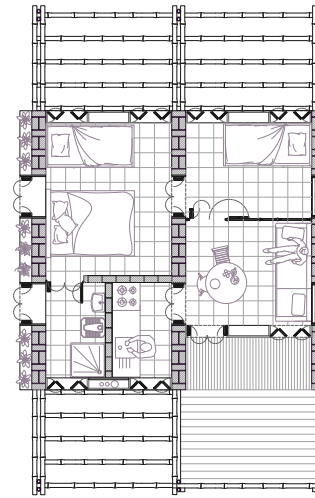
18m<sup>2</sup>  
shop



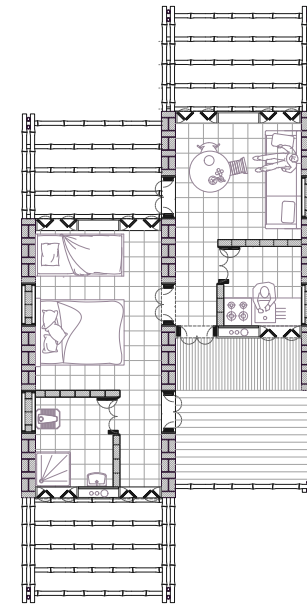
18m<sup>2</sup>  
studio



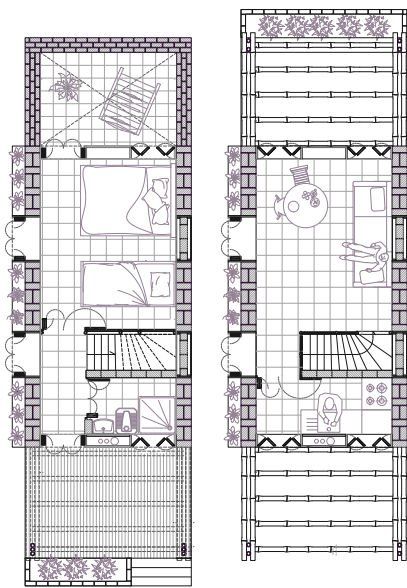
36m<sup>2</sup>  
flat



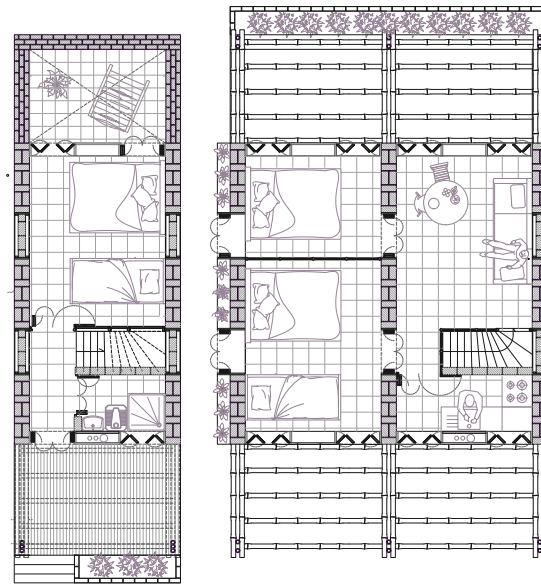
36m<sup>2</sup>  
flat



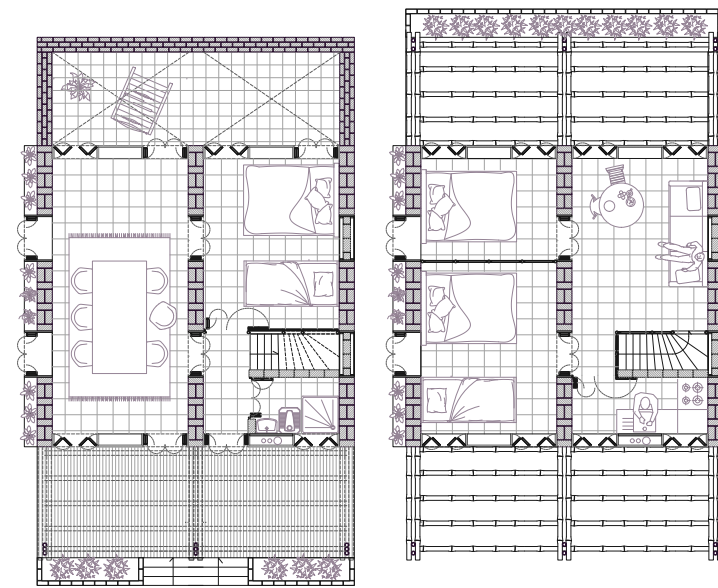
36m<sup>2</sup>  
maisonnette



54m<sup>2</sup>  
duplex

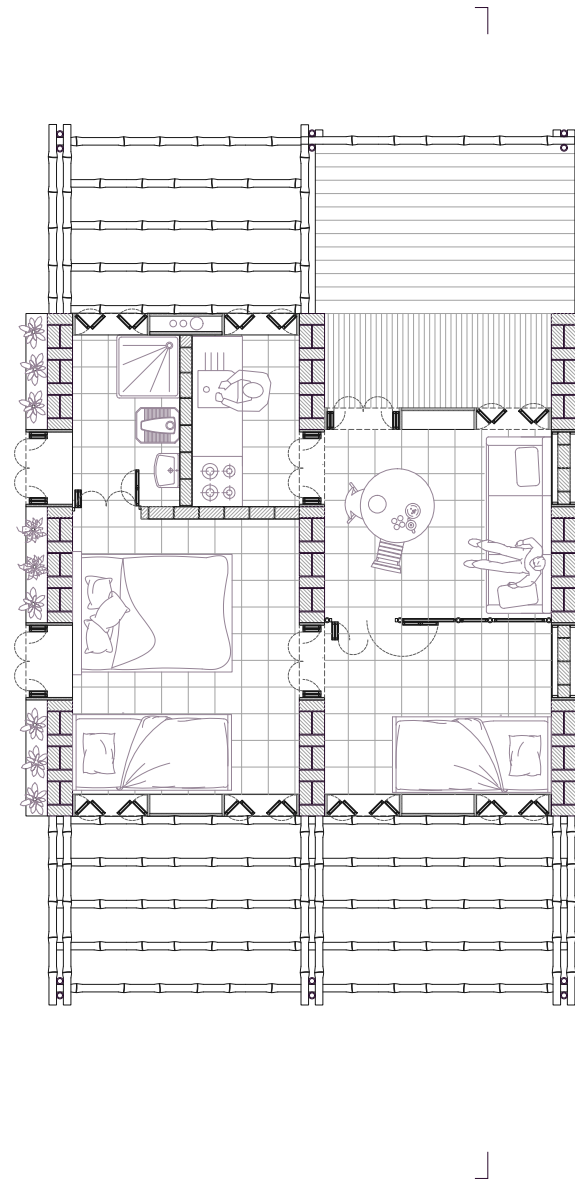
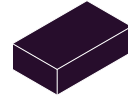


72m<sup>2</sup>  
duplex

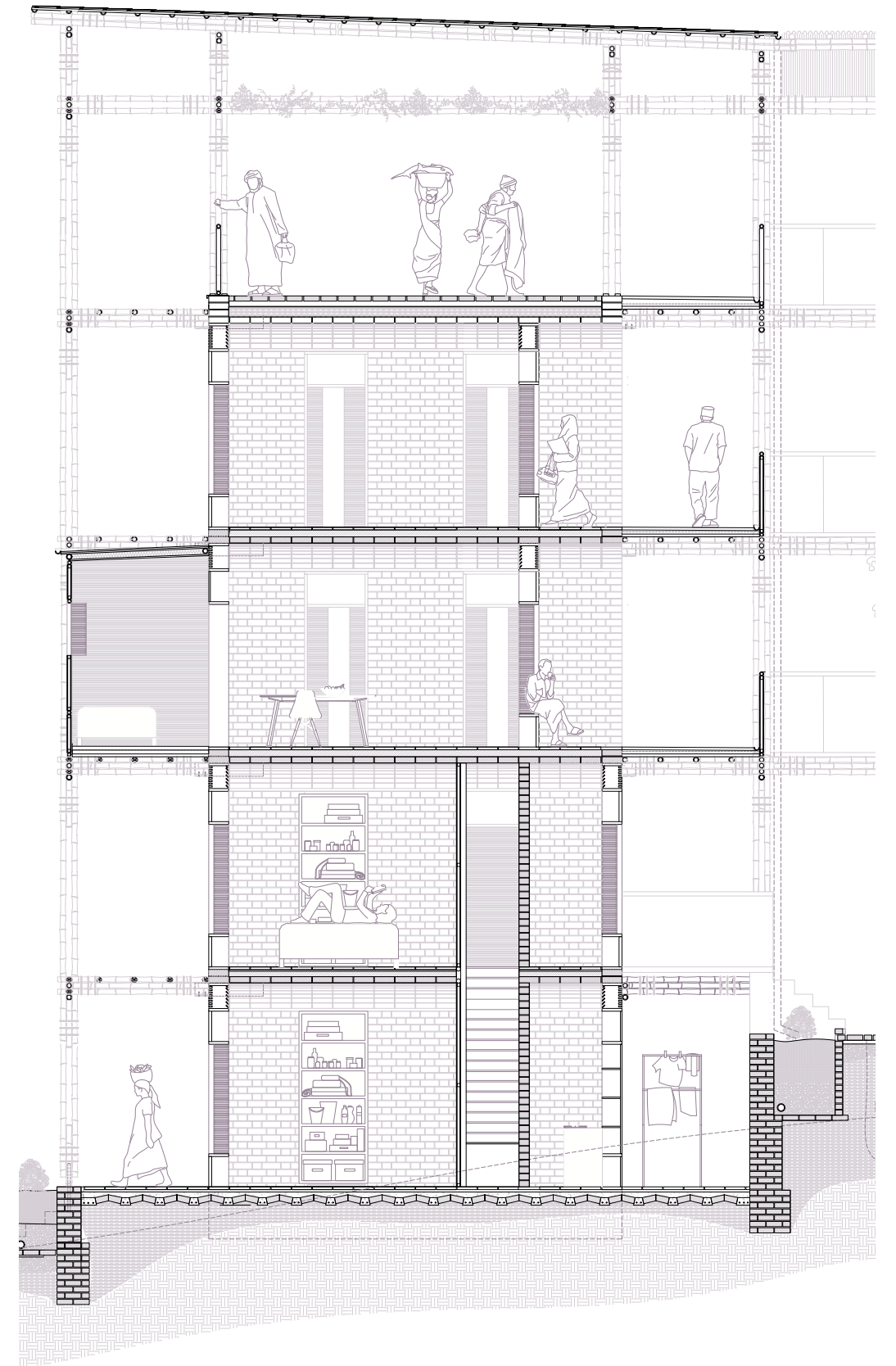
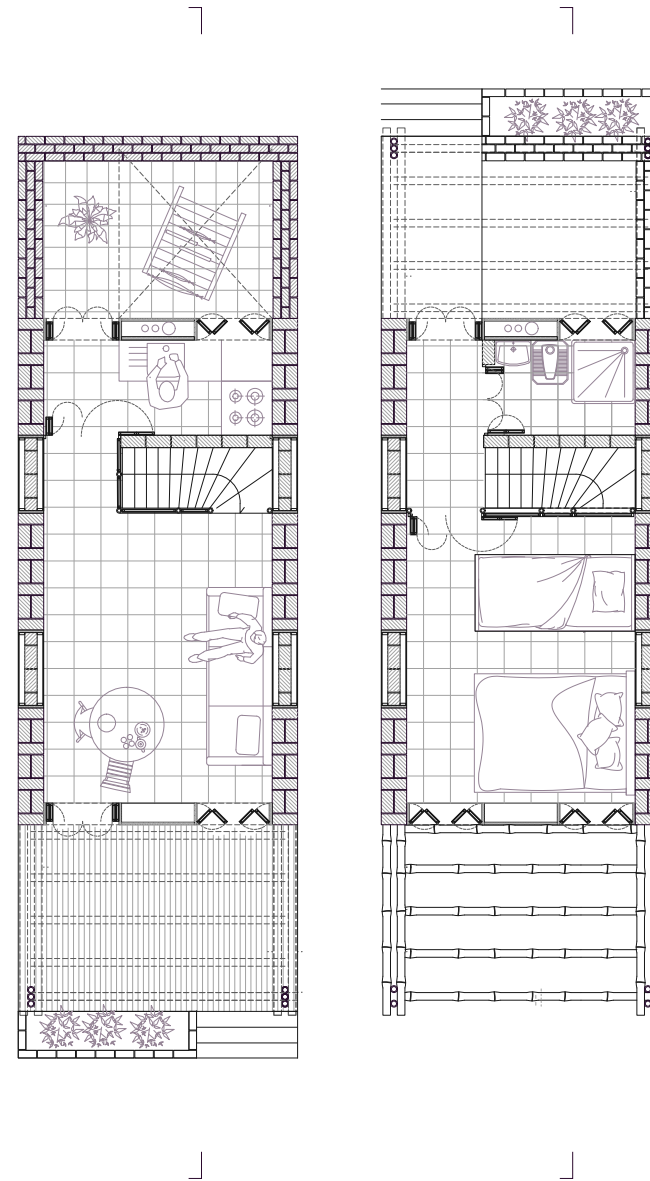


UNIT DESIGN  
**CSEB SYSTEM: UNIT LOW INCOME**

36m<sup>2</sup>  
flat



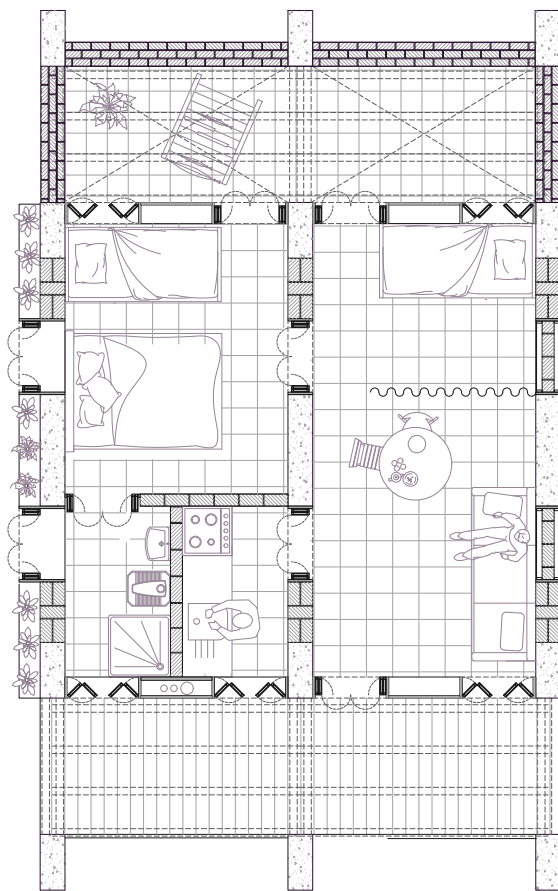
36m<sup>2</sup>  
maisonnette



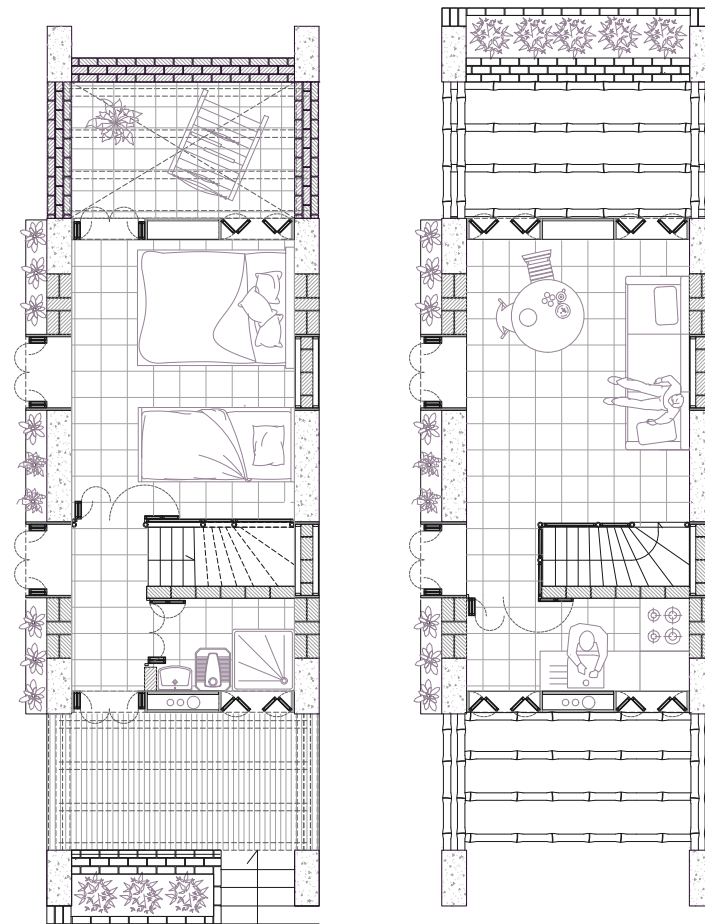


UNIT DESIGN  
**CONCRETE SYSTEM: LOW INCOME UNITS**

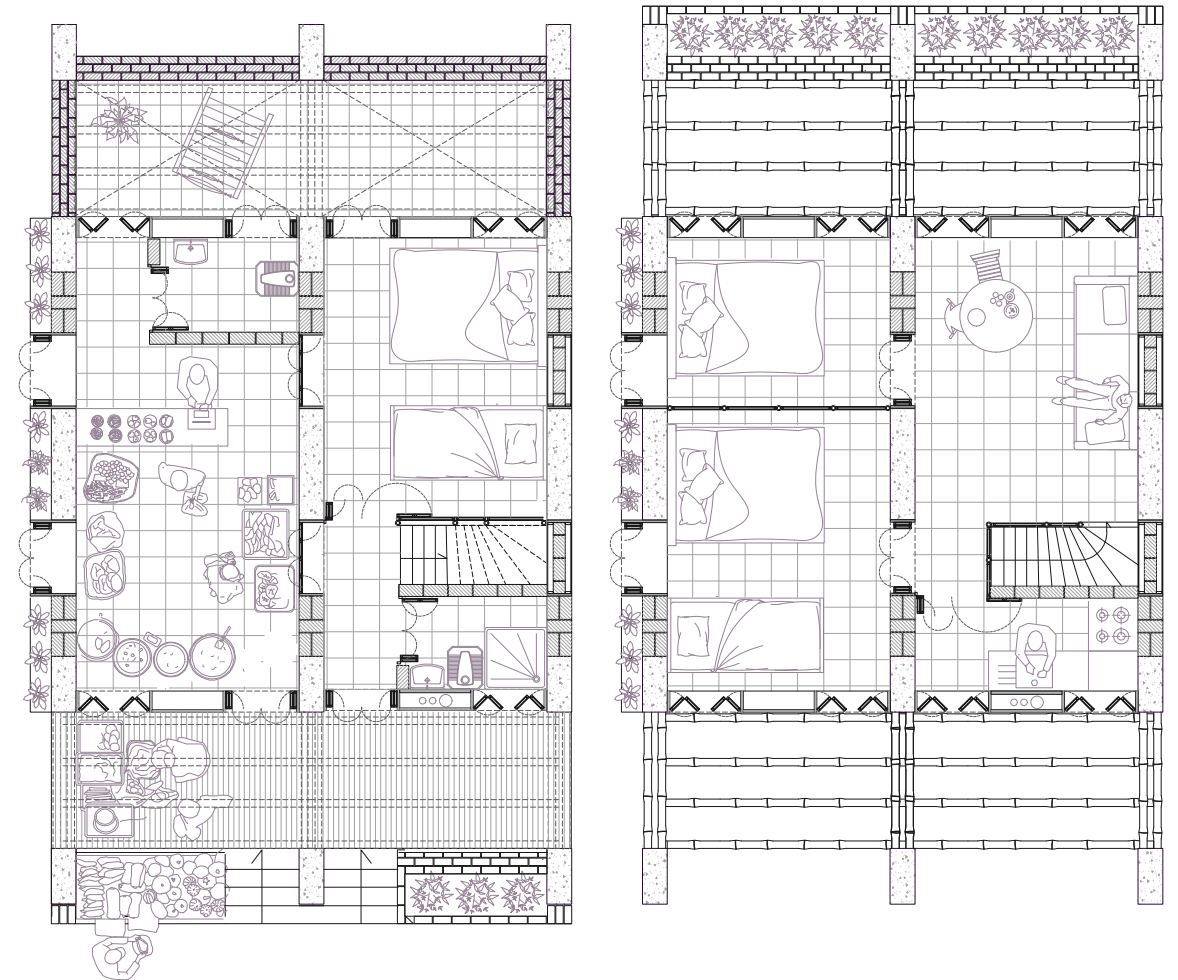
36m<sup>2</sup>



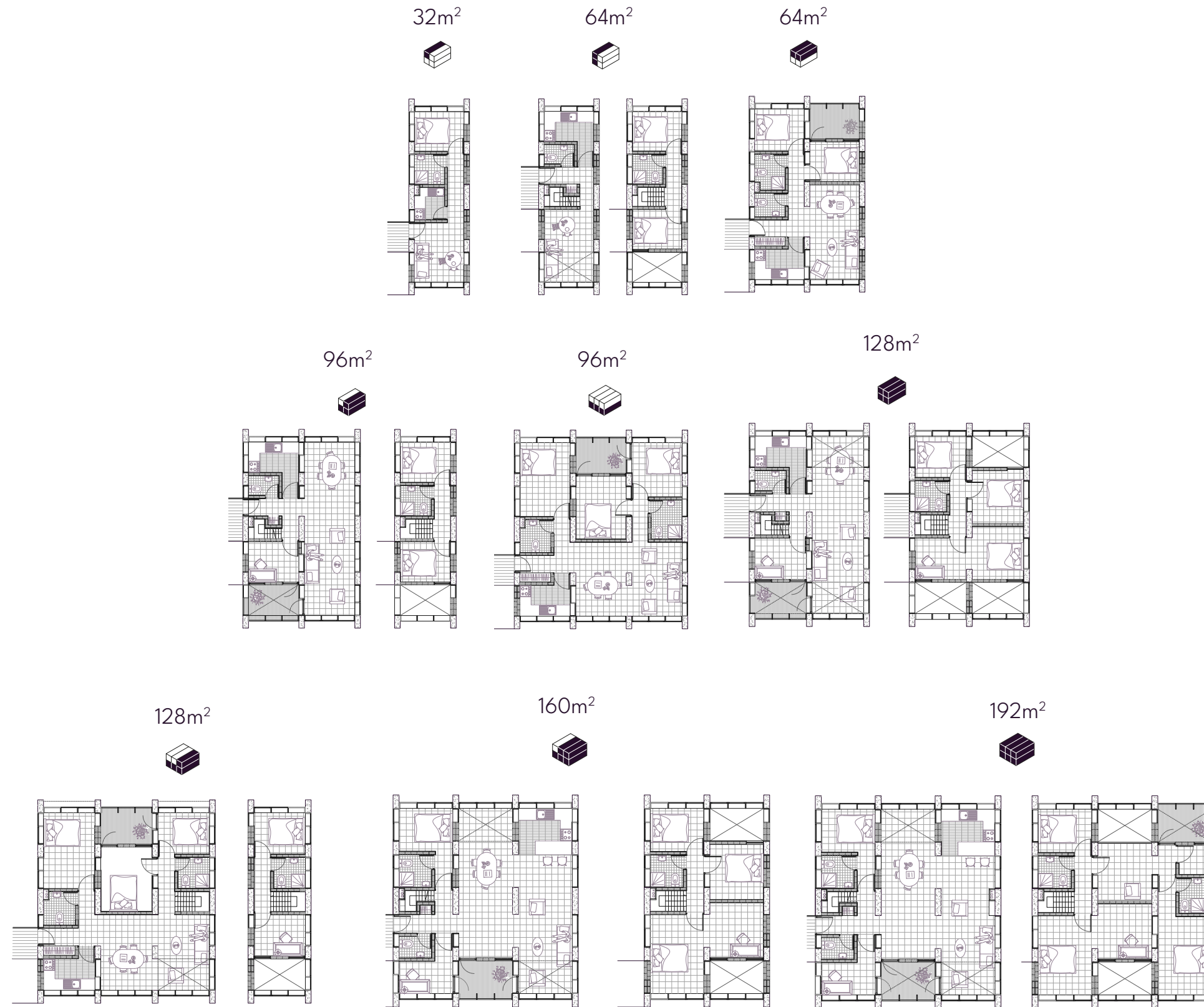
36m<sup>2</sup>  
 maisonnette



72m<sup>2</sup>  
 duplex

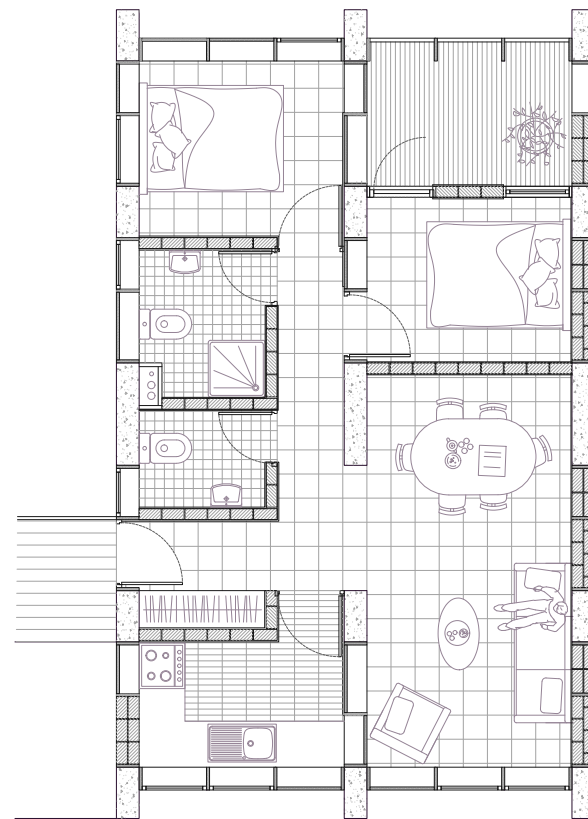
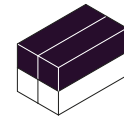


UNIT DESIGN  
CONCRETE SYSTEM: MIDDLE-HIGH INCOME UNITS

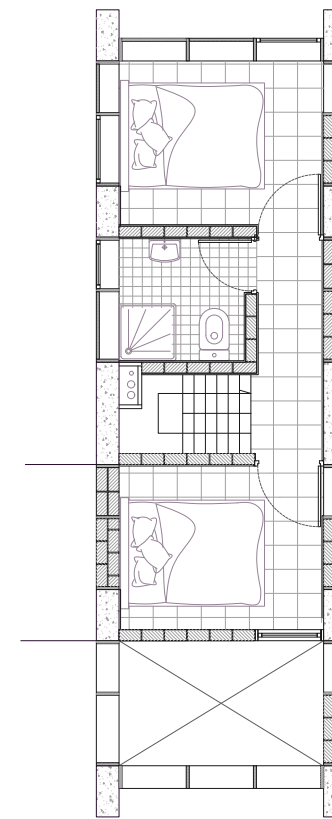
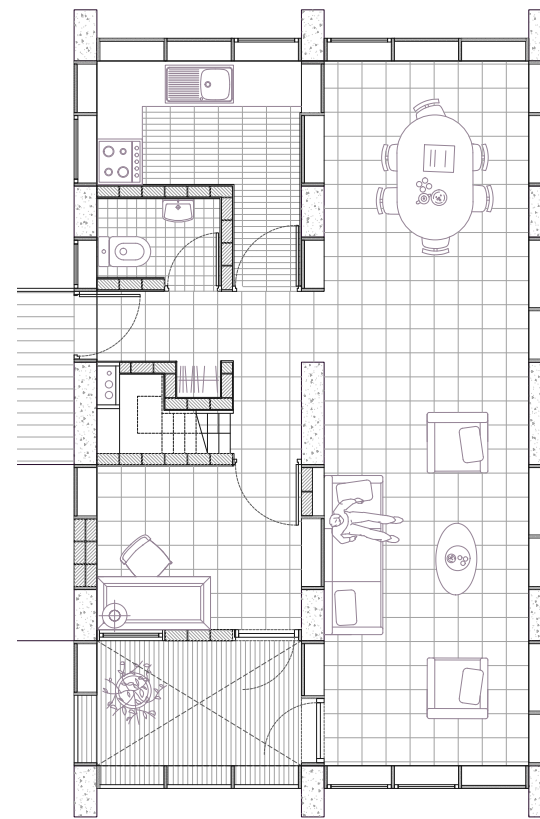
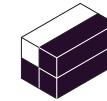


UNIT DESIGN  
**CONCRETE SYSTEM: MIDDLE-HIGH INCOME UNITS**

64m<sup>2</sup>  
flat



96m<sup>2</sup>  
duplex





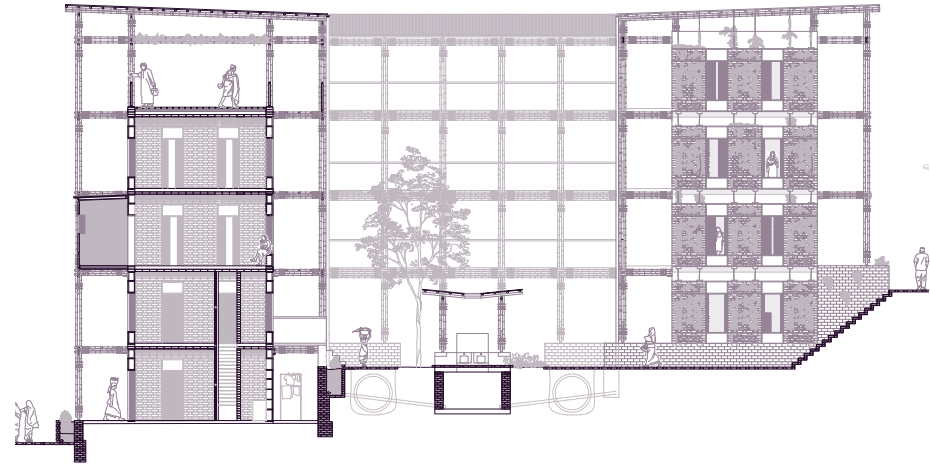
ONLY 3 CLUSTER TYPES!

CLUSTER DESIGN **REPLICABILITY AND VARIATIONS**

FOR A RANGE OF COMBINAISON!

CLUSTER DESIGN  
**ONE SYSTEM, 3 CLUSTER TYPE**

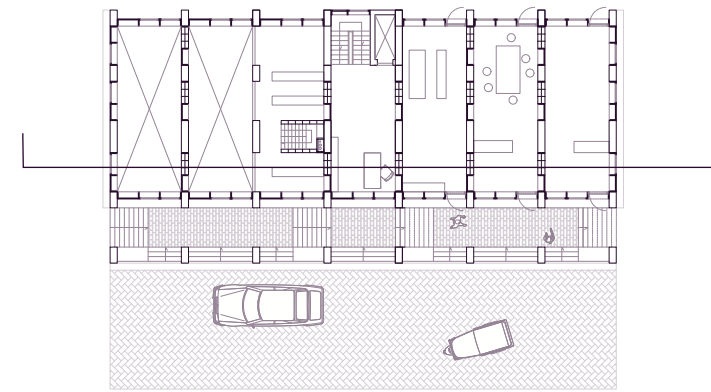
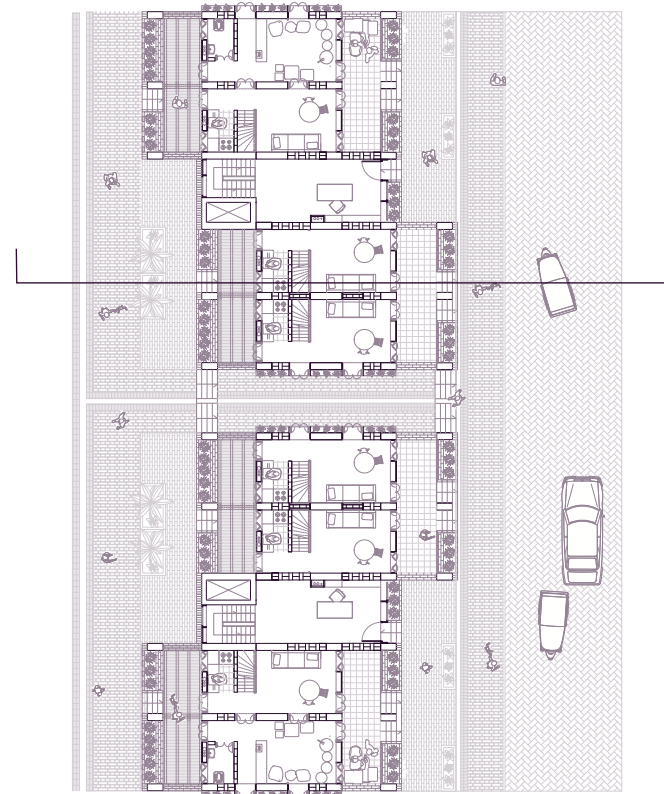
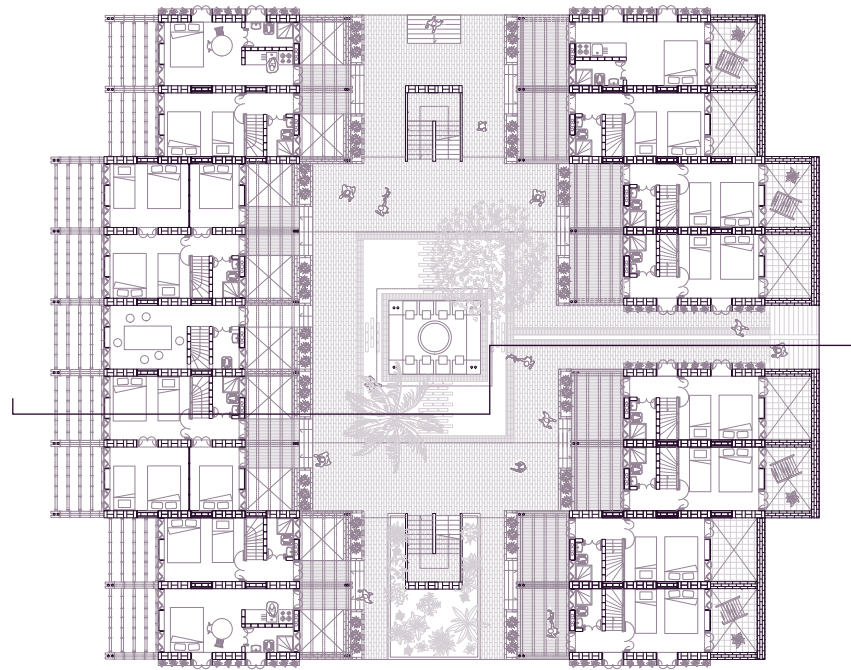
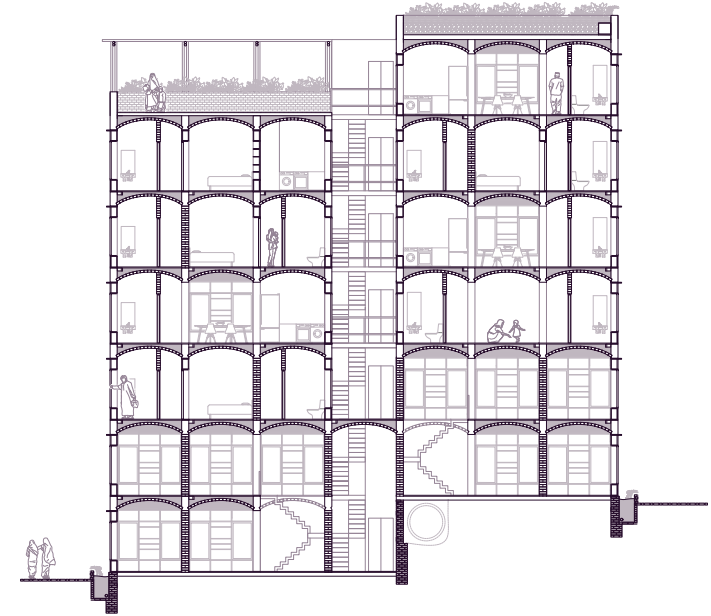
CLUSTER 1



CLUSTER 2

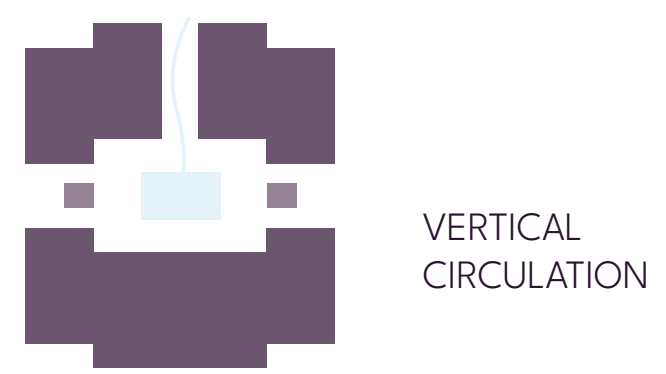
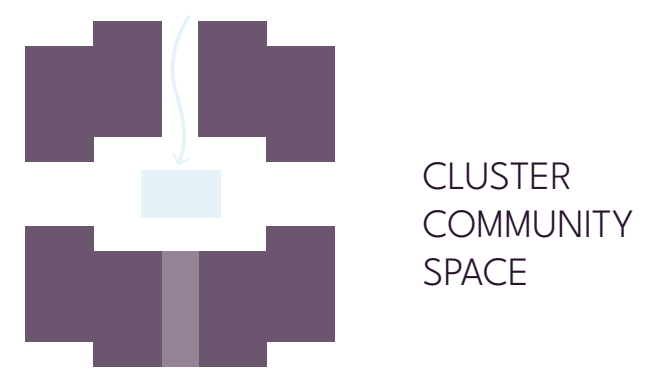
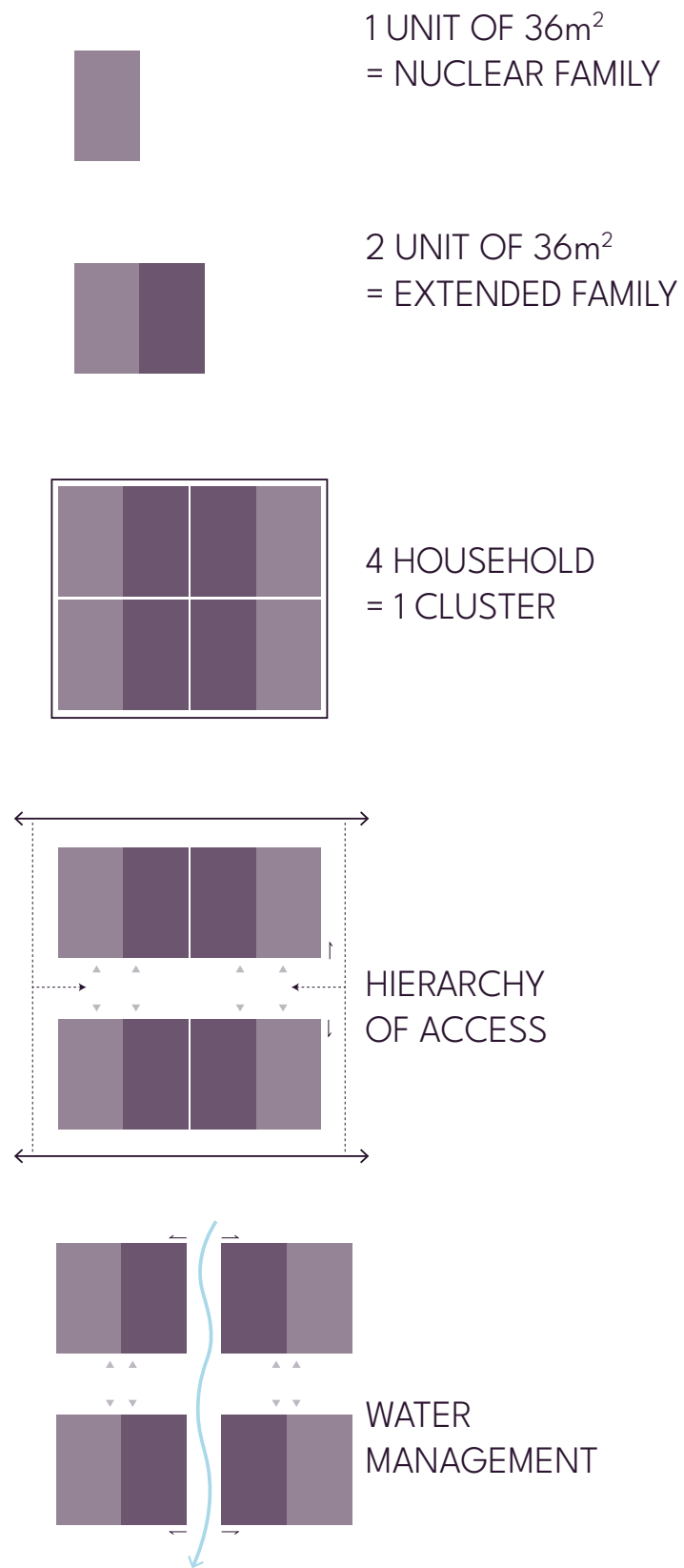


CLUSTER 3



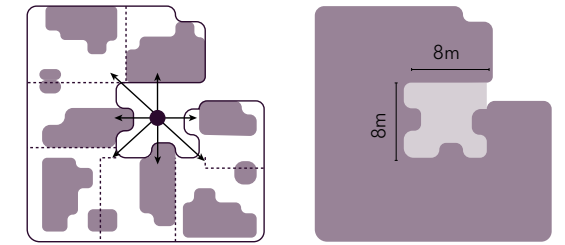
CLUSTER DESIGN

**CLUSTERING - LOW INCOME CLUSTER**

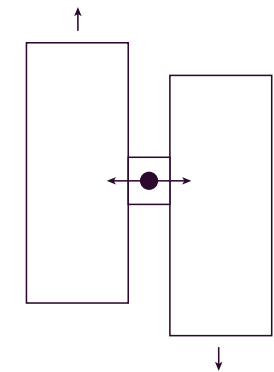


LEARNING FROM

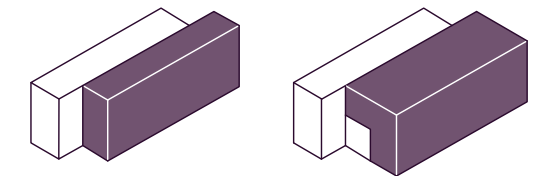
BELAPUR HOUSING, 1983



JEEVAN BIMA NAGAR, 1969-72

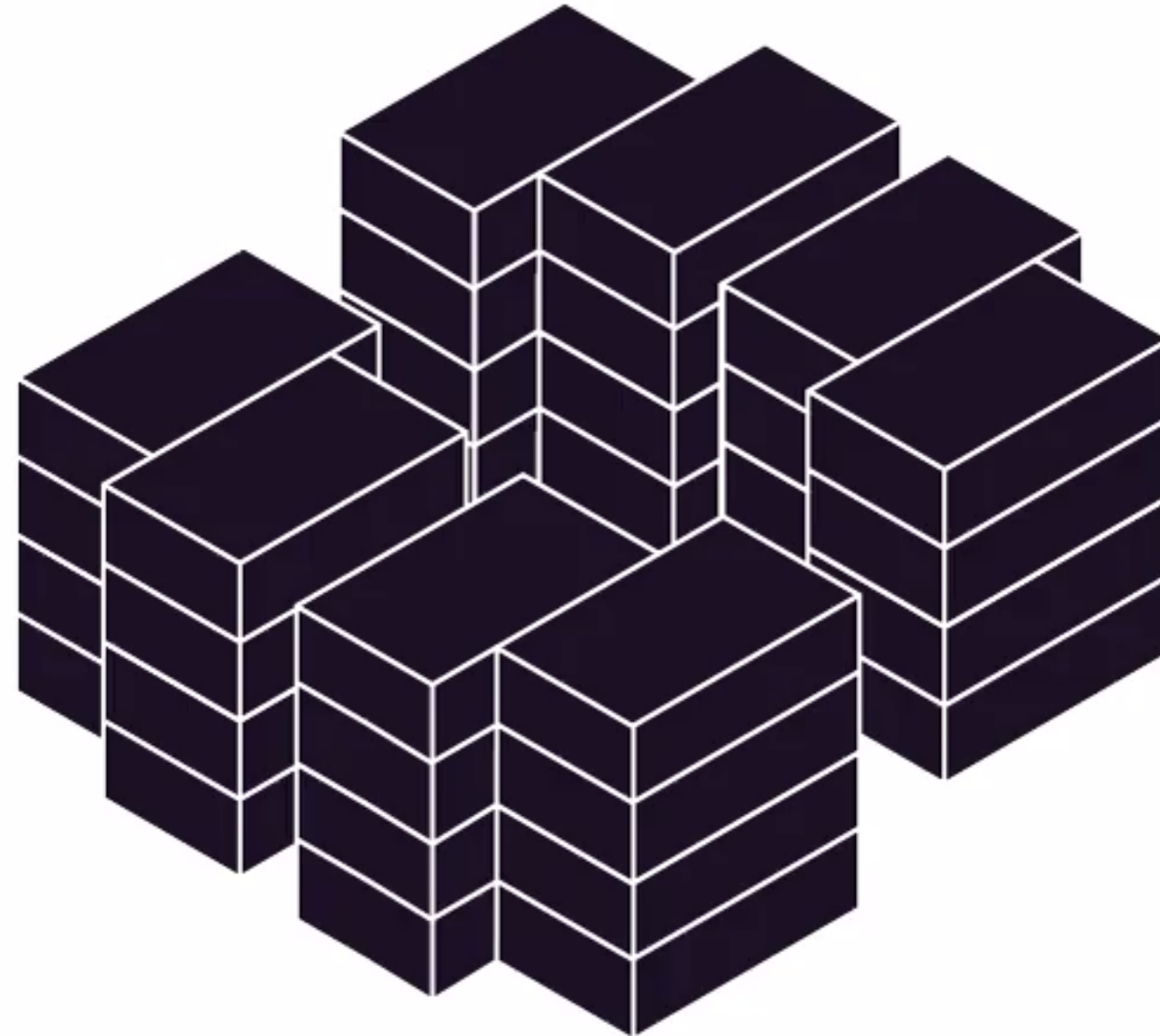


TARA APARTMENTS, 1975-78



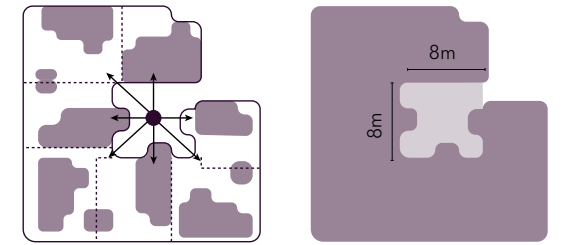


CLUSTER DESIGN  
**TYPOLGY MIX & VARIATIONS**

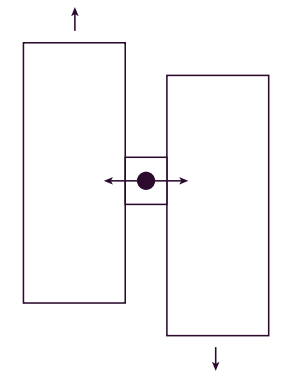


LEARNING FROM

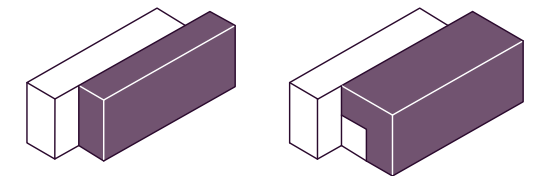
BELAPUR HOUSING, 1983



JEEVAN BIMA NAGAR, 1969-72



TARA APARTMENTS, 1975-78





CLUSTER DESIGN  
**PRIVACY**





LANDSCAPE DESIGN

EMBRACE THE TOPOGRAPHY

URBAN STRATEGY **LEVERAGING TOPOGRAPHY, WATER MANAGEMENT,  
AND URBAN MIX**

PHASING AND DEVELOPMENT TO AVOID DISPLACING  
EXISTING RESIDENTS



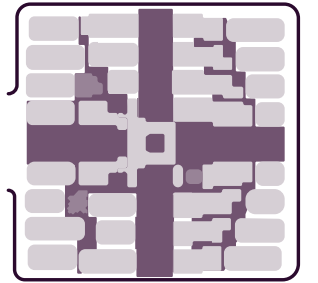
URBAN STRATEGY  
**EXISTING**





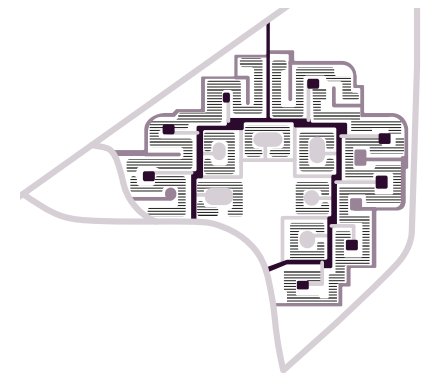
SHUSHTAR NEW TOWN, 1975-78

- Car Access
- Pedestrian Spine
- Amenities
- Housing Units



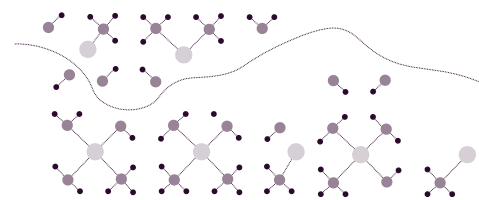
DAR LAMANE HOUSING COMMUNITY, 1983

- Main Road
- Service Road
- Additional Road (overtime)



BELAPUR HOUSING, 1983

- Courtyard
- Community
- Cluster



ARANYA LOW COST HOUSING, 1989

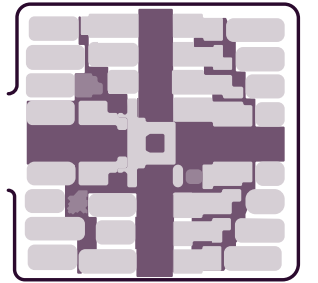
- Chowks (small public space)
- Narrow Continuous Strip





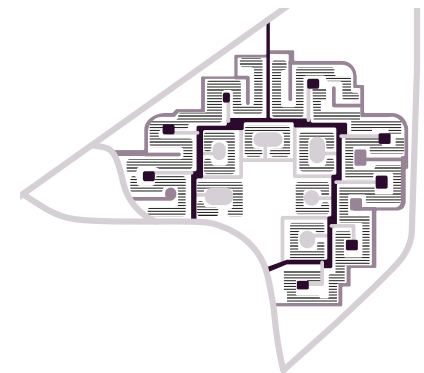
SHUSHTAR NEW TOWN, 1975-78

- Car Access
- Pedestrian Spine
- Amenities
- Housing Units



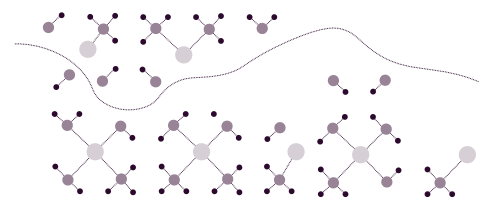
DAR LAMANE HOUSING COMMUNITY, 1983

- Main Road
- Service Road
- Additional Road (overtime)



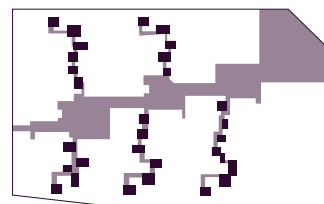
BELAPUR HOUSING, 1983

- Courtyard
- Community
- Cluster



ARANYA LOW COST HOUSING, 1989

- Chowks (small public space)
- Narrow Continuous Strip





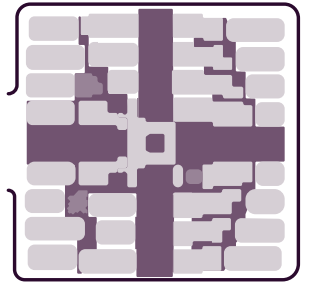
URBAN STRATEGY  
**HIERARCHY OF SPACE**



LEARNING FROM

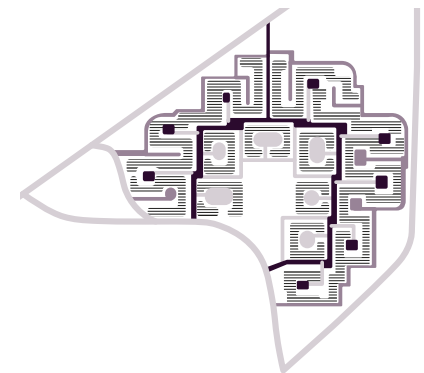
SHUSHTAR NEW TOWN, 1975-78

- Car Access
- Pedestrian Spine
- Amenities
- Housing Units



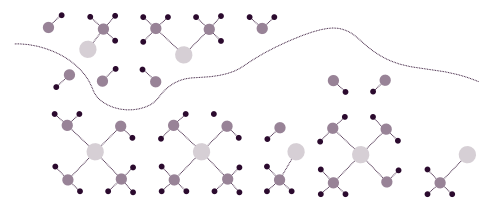
DAR LAMANE HOUSING COMMUNITY, 1983

- Main Road
- Service Road
- Additional Road (overtime)



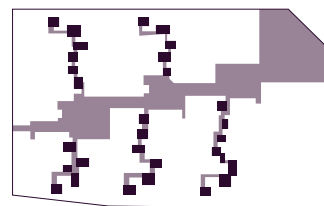
BELAPUR HOUSING, 1983

- Courtyard
- Community
- Cluster



ARANYA LOW COST HOUSING, 1989

- Chowks (small public space)
- Narrow Continuous Strip





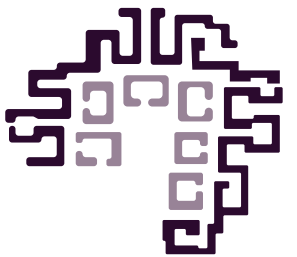
ARANYA LOW COST HOUSING, 1989

- Public Amenities
- High Income
- Middle Income
- Low Income



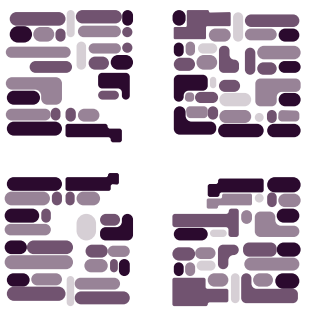
DAR LAMANE HOUSING COMMUNITY, 1983

- Apartment Buildings
- Dars (traditional Moroccan, houses)



SHUSHTAR NEW TOWN, 1975-78

- Patio House (type a)
- Patio House (type b)
- Patio House (type c)
- Apartment Building



PHASE 1: BUILDING THE VOID & HOUSING CURRENT RESIDENTS



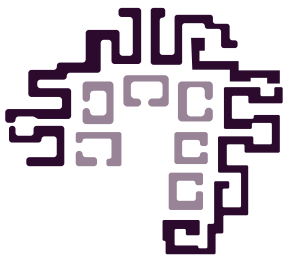
ARANYA LOW COST HOUSING, 1989

- Public Amenities
- High Income
- Middle Income
- Low Income



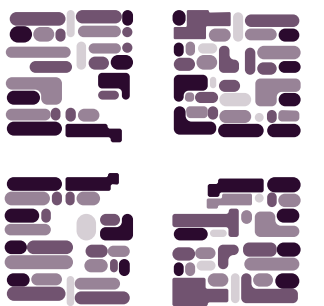
DAR LAMANE HOUSING COMMUNITY, 1983

- Apartment Buildings
- Dars (traditional Moroccan, houses)



SHUSHTAR NEW TOWN, 1975-78

- Patio House (type a)
- Patio House (type b)
- Patio House (type c)
- Apartment Building





**PHASE 2: HIGHER & LOWER INCOME CLUSTER WITH RELOCATION OF EXISTING AMENITIES**



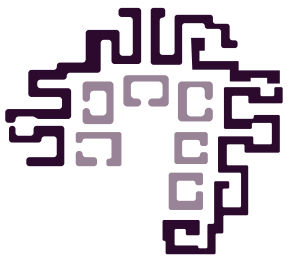
ARANYA LOW COST HOUSING, 1989

- Public Amenities
- High Income
- Middle Income
- Low Income



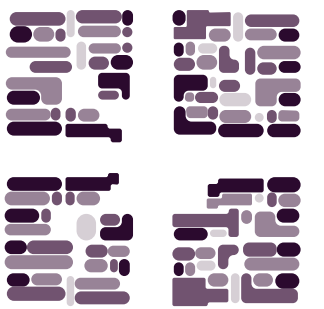
DAR LAMANE HOUSING COMMUNITY, 1983

- Apartment Buildings
- Dars (traditional Moroccan, houses)



SHUSHTAR NEW TOWN, 1975-78

- Patio House (type a)
- Patio House (type b)
- Patio House (type c)
- Apartment Building



URBAN STRATEGY  
**PHASE 3: CLOSING THE LOOP**



LEARNING FROM

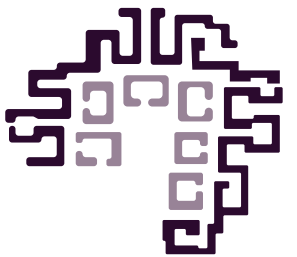
ARANYA LOW COST HOUSING, 1989

- Public Amenities
- High Income
- Middle Income
- Low Income



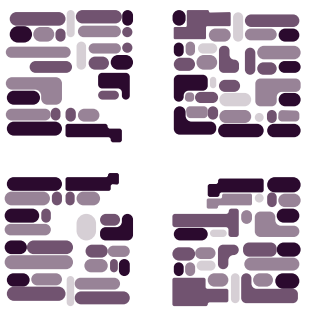
DAR LAMANE HOUSING COMMUNITY, 1983

- Apartment Buildings
- Dars (traditional Moroccan, houses)



SHUSHTAR NEW TOWN, 1975-78

- Patio House (type a)
- Patio House (type b)
- Patio House (type c)
- Apartment Building



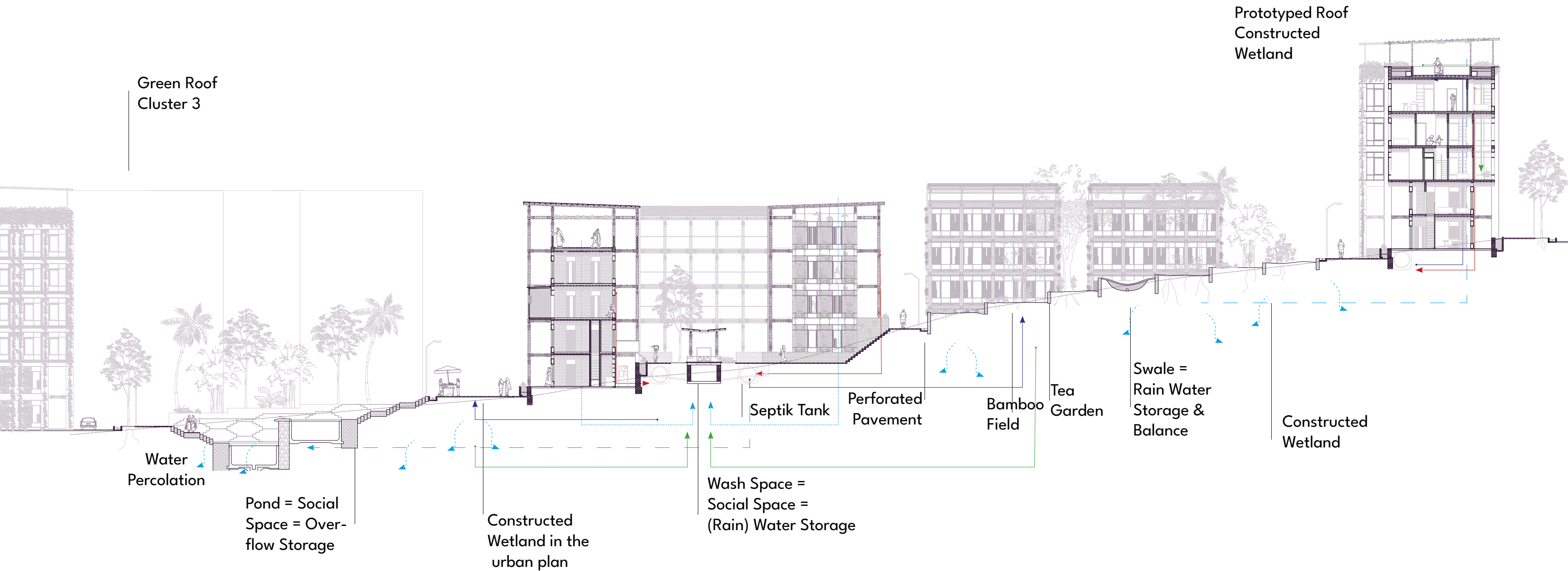








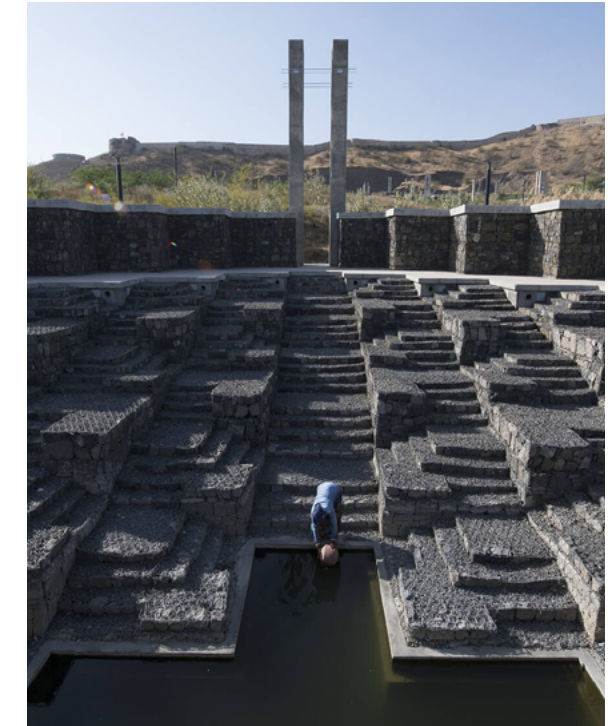
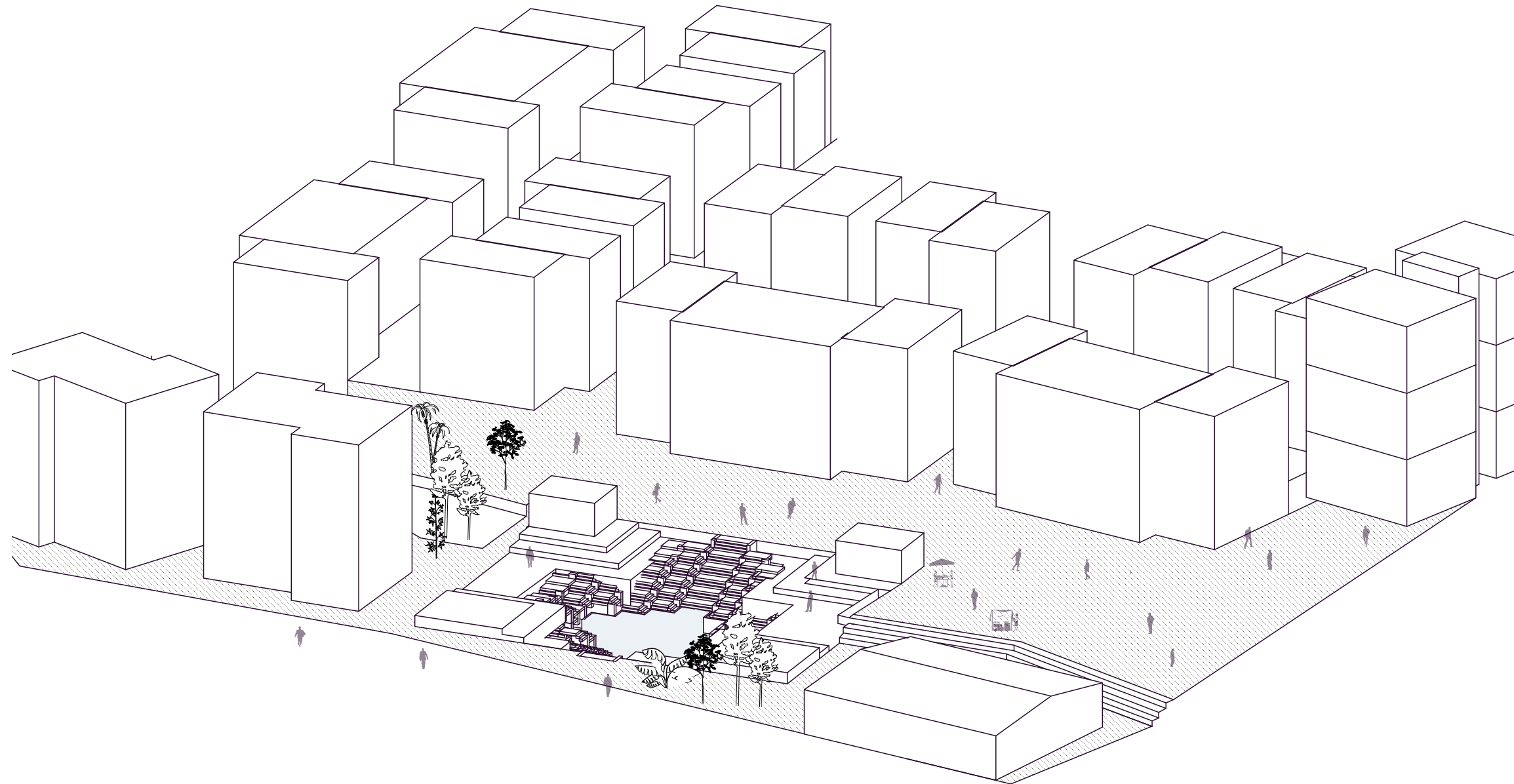
URBAN STRATEGY  
**TOPOGRAPHY & WATER MANAGEMENT**



URBAN STRATEGY  
**THE POND: A SOCIAL AND WATER OVERFLOW SYSTEM**

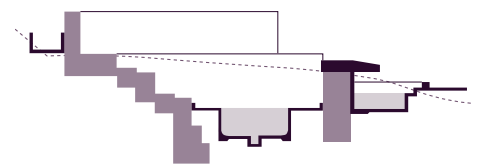
LEARNING FROM

SMRITIVAN EARTHQUAKE MEMORIAL, 2023

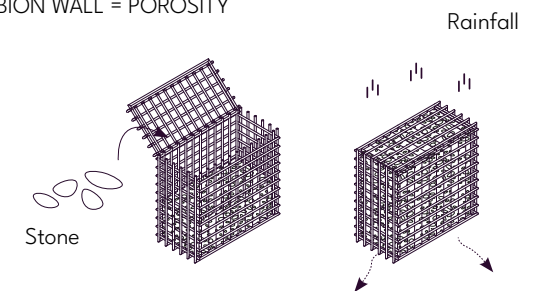


(RAIN)WATER STORAGE

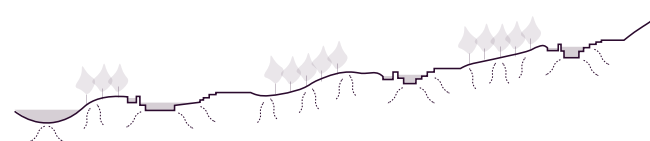
- Concrete
- Gabion Elements
- Rain Water Storage



GABION WALL = POROSITY



REGENERATION OF THE GROUND



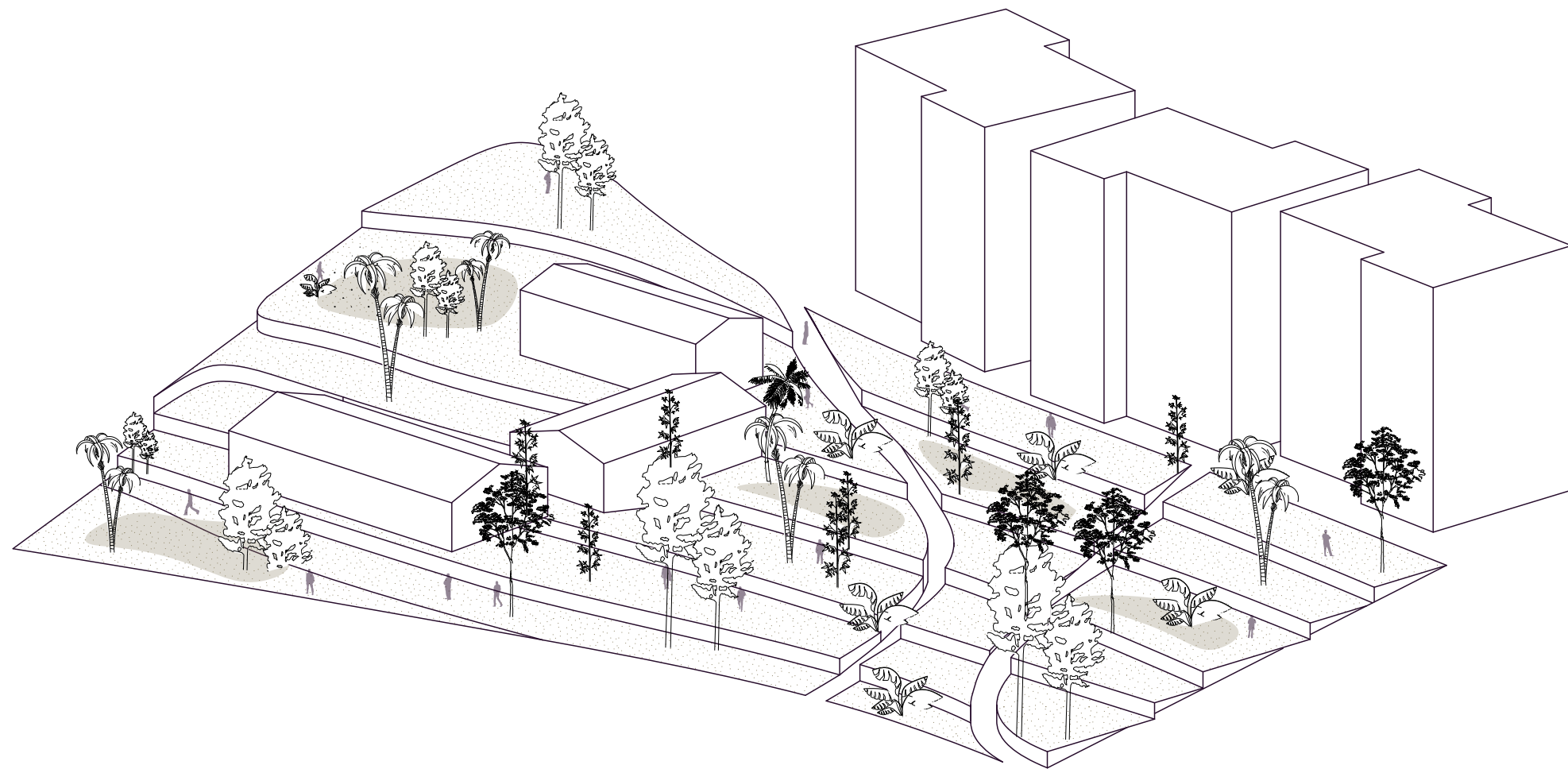


**THE STEPPED GARDEN: SCHOOL, SWALE, BUILDING MATERIALS & INCOME GENERATION**

TEA GARDEN, SYLHET

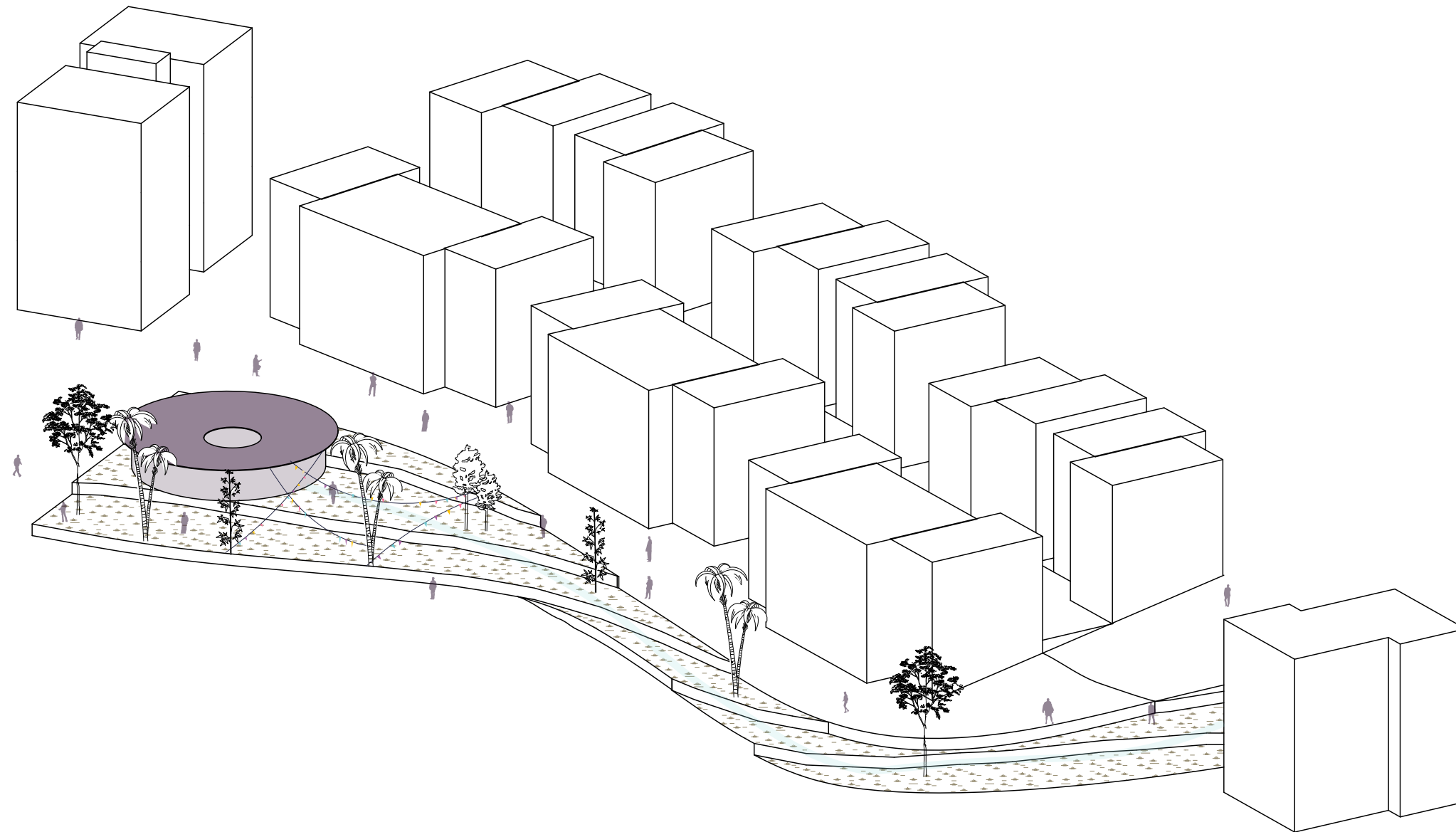


LALBAG FORT, DHAKA





URBAN STRATEGY  
**THE GREEN SPINE: COMMUNITY SPACE & SWALE**

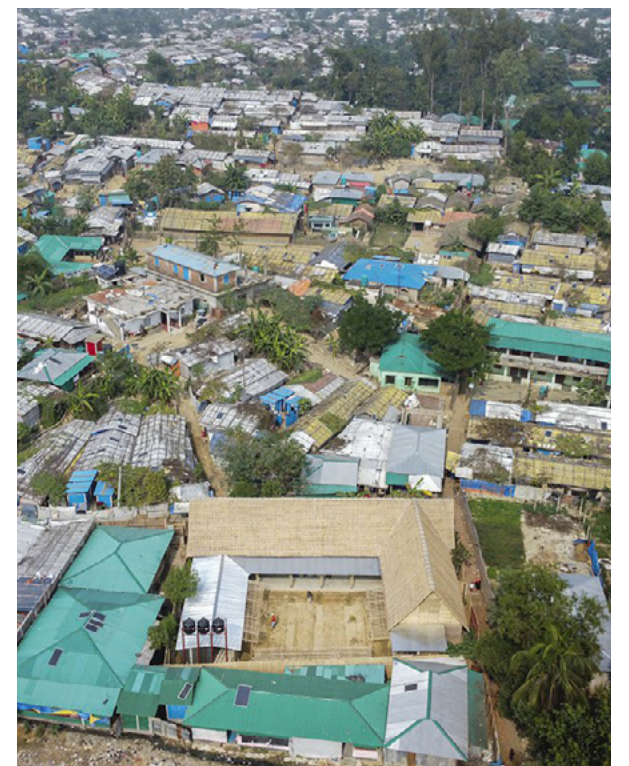


LEARNING FROM

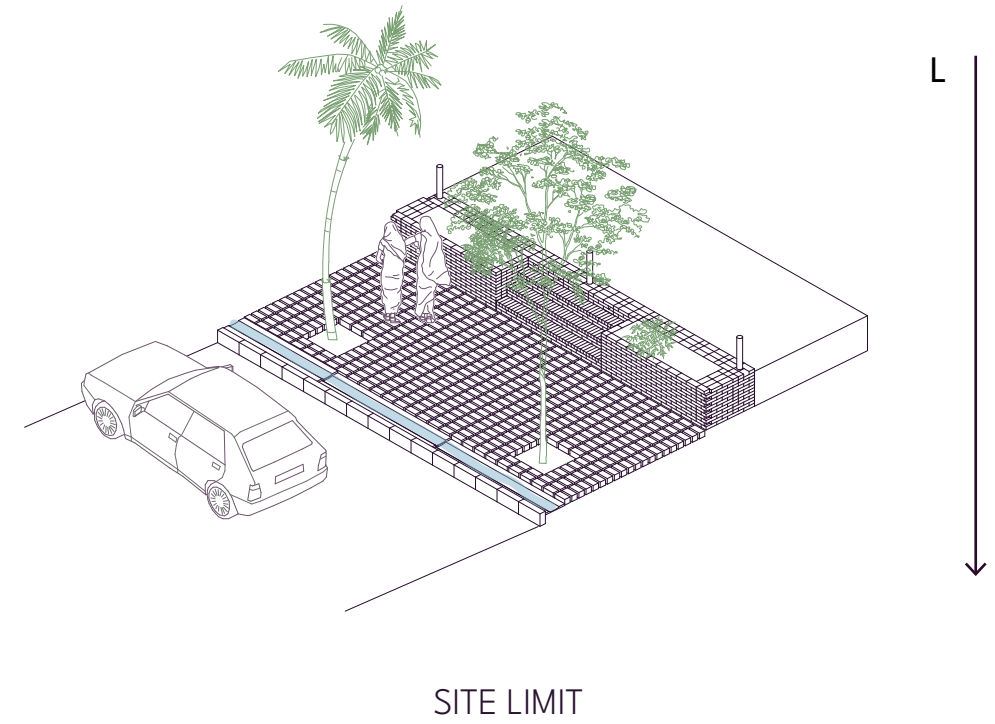
COMMUNITY SPACES IN ROHINGYA REFUGEE RESPONSE, 2019



WOMEN LED COMMUNITY CENTER, 2022

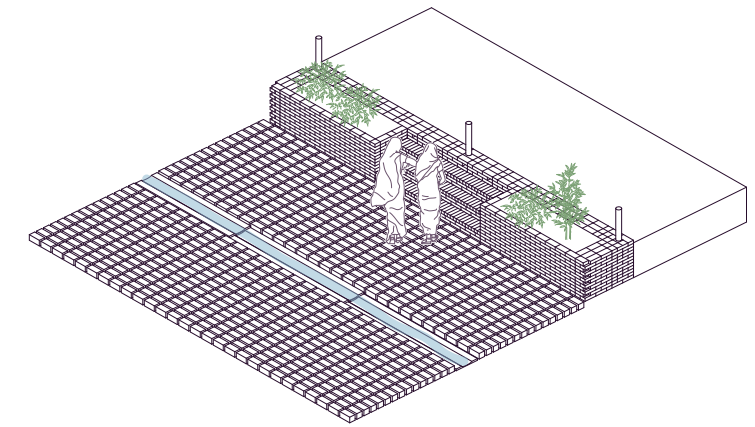
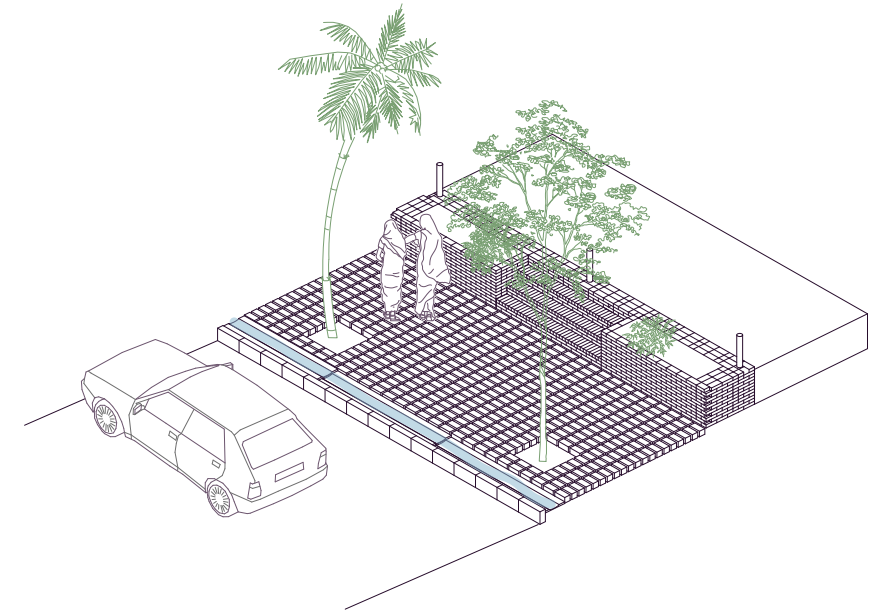


**STREET WATER MANAGEMENT - CAR STREET**





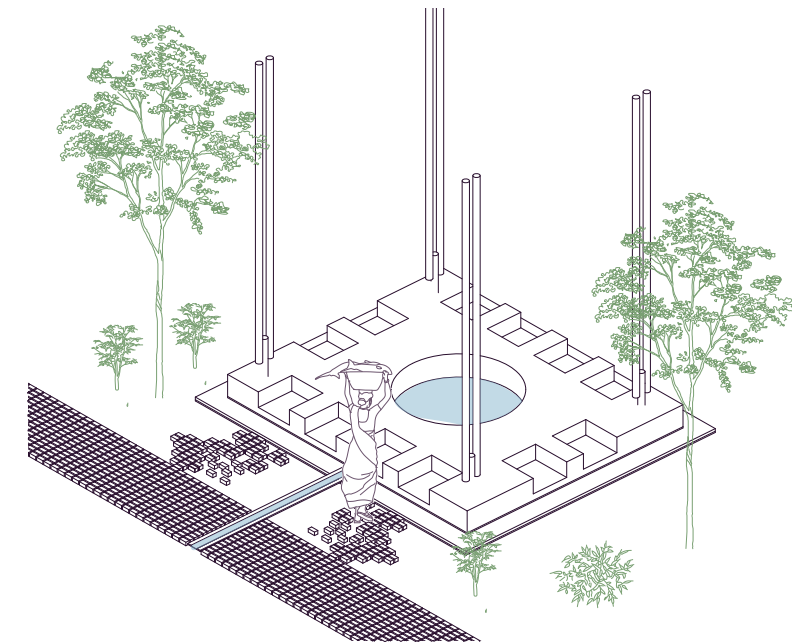
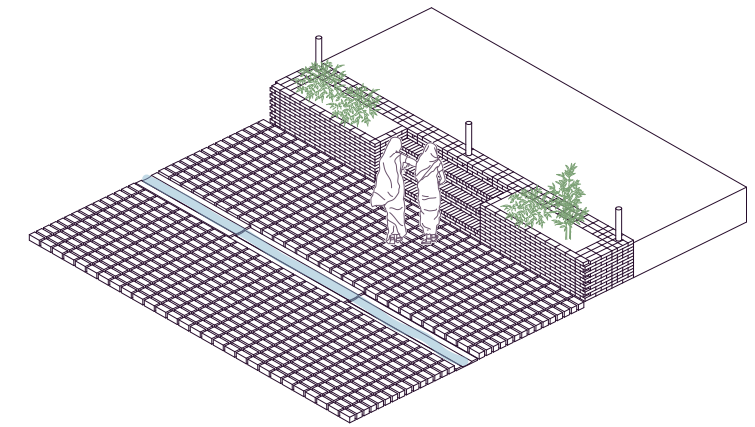
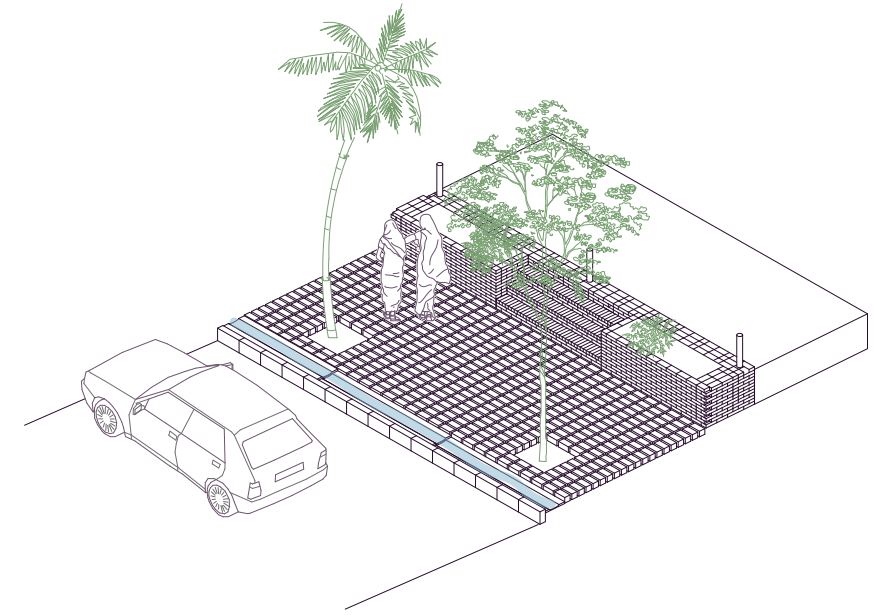
**STREET WATER MANAGEMENT - PEDESTRIAN SPINE**



LEAVES WATER VISIBLE

L

M



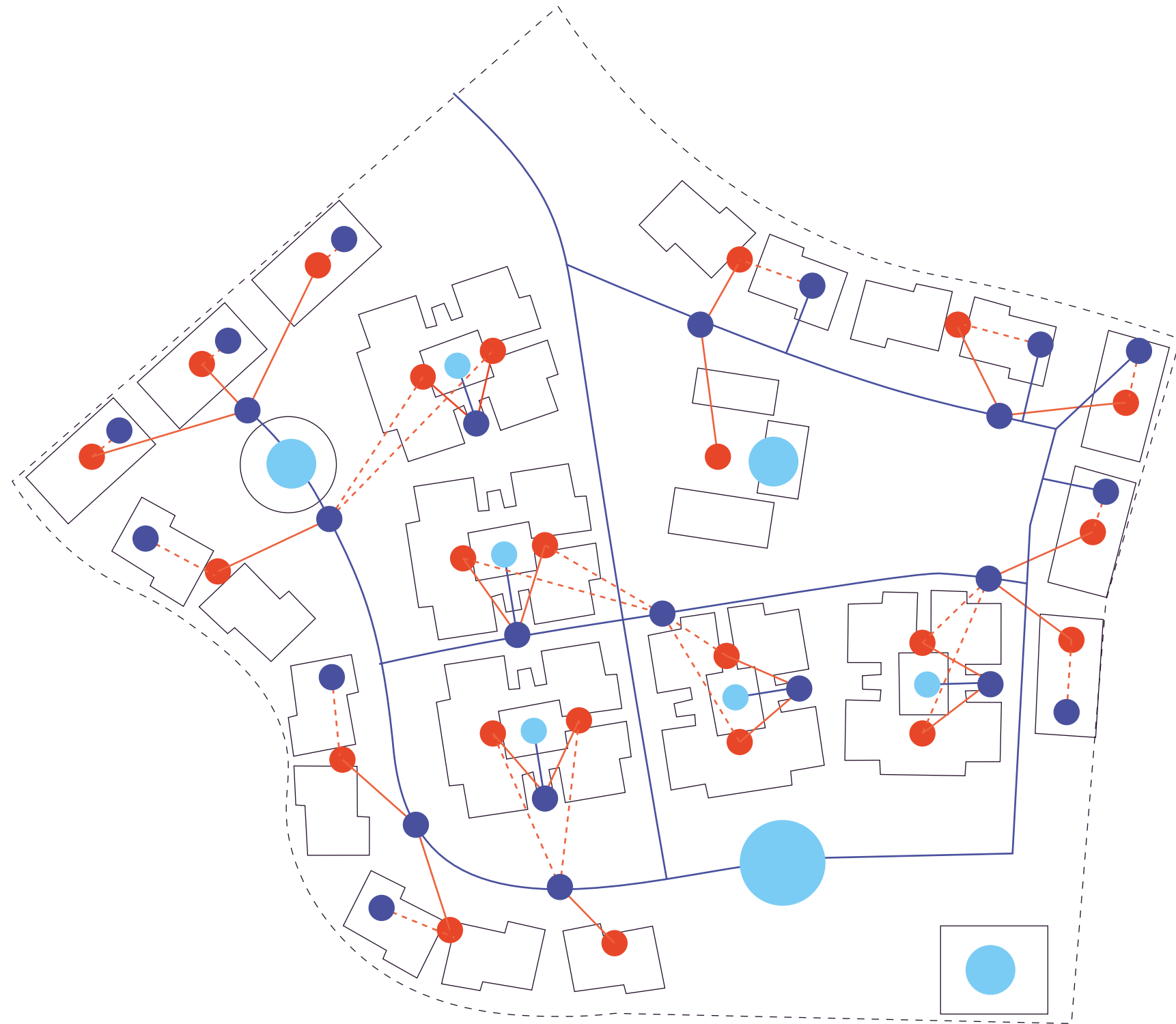
L

M

S

COMMUNITY SPACE

URBAN STRATEGY  
**THE CONSTRUCTED WETLAND - SEWAGE TREATMENT**



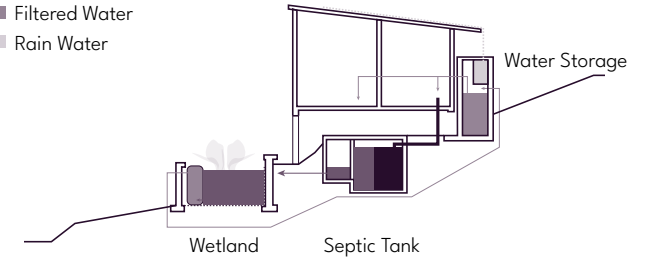
RAW SEWAGE  
 FILTERED WATER  
 WATER STORAGE

LEARNING FROM

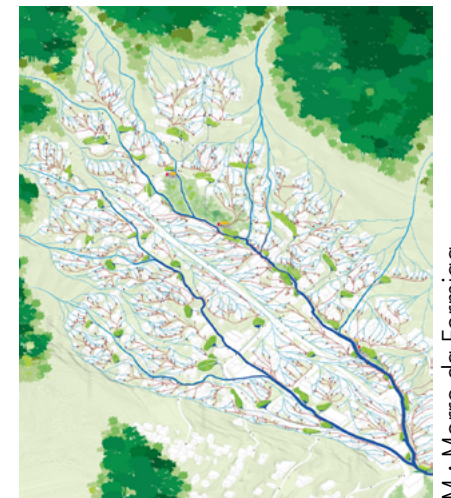
AGUA CARIOCA, 2012-2017

SEWAGE FILTRATION THROUGH CONSTRUCTED WETLAND

- Raw Sewage
- Primary Treatment
- Filtered Water
- Rain Water

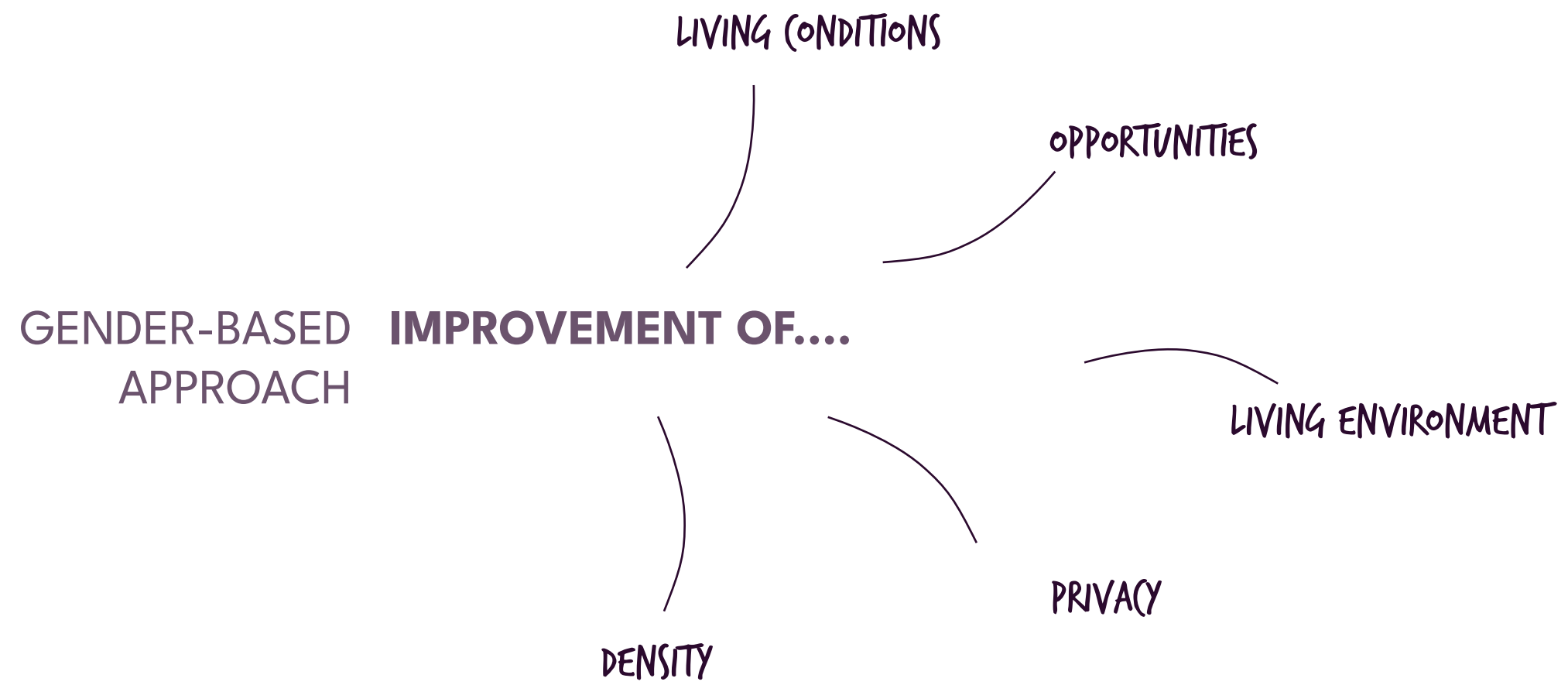


S : Salgueiro



M : Morro da Formiga





GENDER-BASED APPROACH  
**CURRENT VS PROPOSAL**



	<b>M<sup>2</sup>/PERSON</b>	<b>INCOME MIX</b>	<b>RESIDENTIAL DENSITY</b>	<b>POPULATION DENSITY</b>	<b>FSI</b>	<b>GSI</b>
<b>EXISTING</b>	2	0%	133 units/ha	298 hab/ha	0,36	0,26
<b>PROPOSAL</b>	15	50%	181 units/ha	672 hab/ha	1,72	0,38







THANK YOU!

ANY QUESTIONS?

