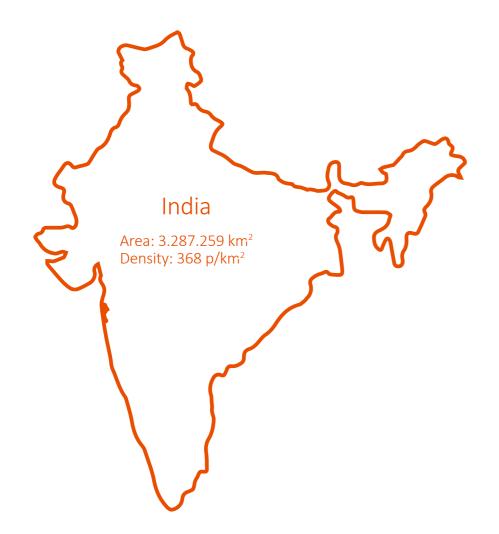
P5 10.31.2019

ORGANIZING THE UNORGANIZED

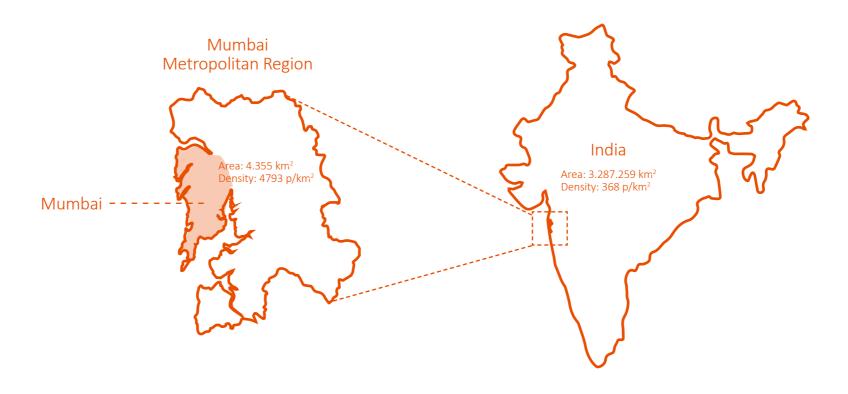
TOWARDS EMPOWERMENT OF THE INFORMAL SECTOR



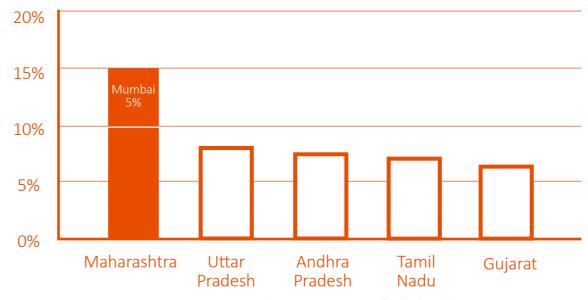


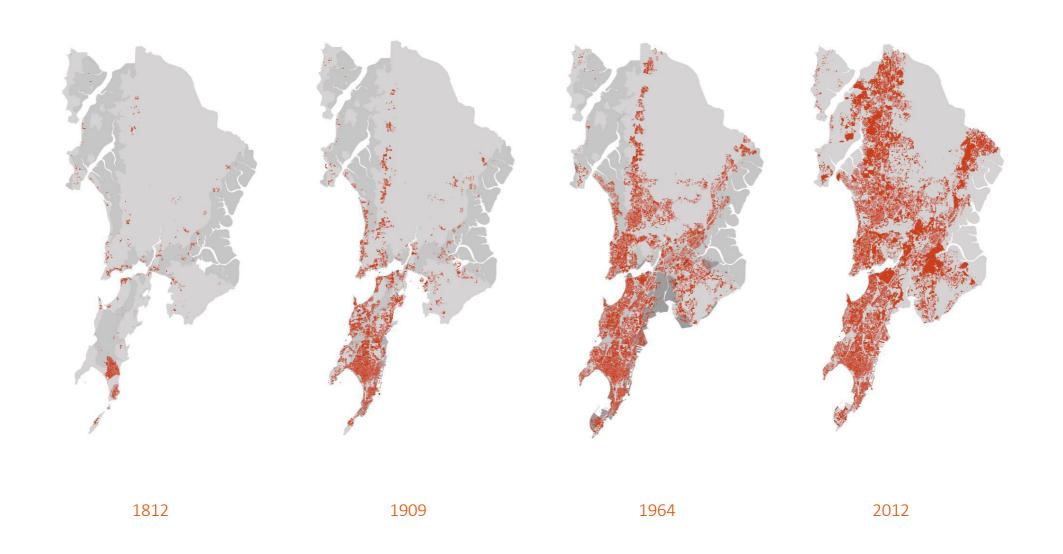
HOME OF 1.339 BILLION PEOPLE TODAY

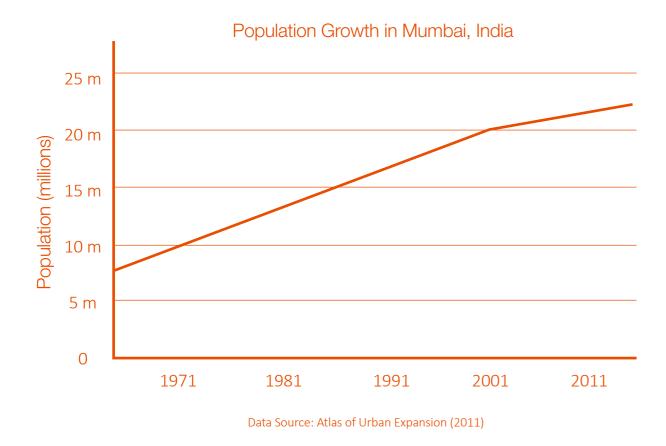
1 6 BILLION PEOPLE



Top Five Economies of India

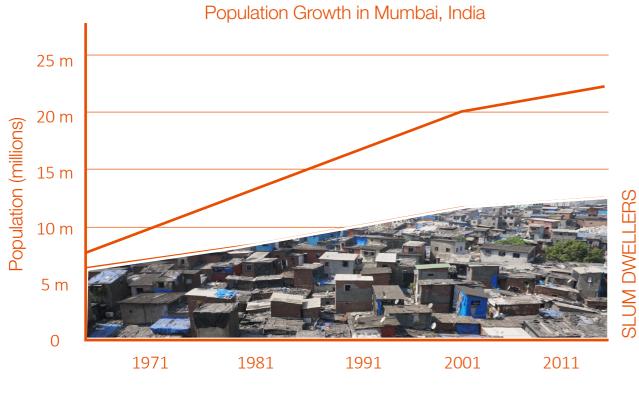






POPULATION GROWTH 3% EMPLOYMENT GROWTH 1%





Data Source: Atlas of Urban Expansion (2011)

POPULATION GROWTH 3% EMPLOYMENT GROWTH 1%



68% OF MUMBAI'S TOTAL WORKFORCE IS ENGAGED IN INFORMAL EMPLOYMENT

>400M

WORKERS IN INDIA IS EMPLOYED IN THE INFORMAL SECTOR

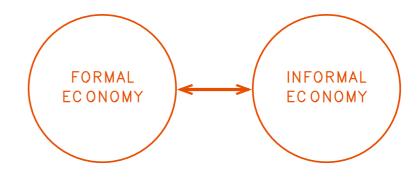
BACKGROUND

INFORMAL SECTOR

It is only marginally productive?

Informal sector is the traditional and temporary economy that will fade away with modern, industrial growth?

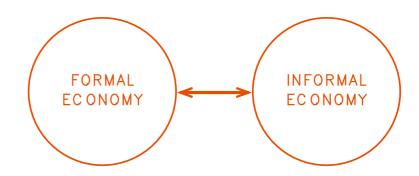
Informal sector is disorganized and illegal?



MYTHS OF INFORMAL SECTOR It is only **marginal**ly productive?

Informal sector is the traditional and **temporary** economy that will fade away with modern, industrial growth?

Informal sector is disorganized and **illegal**?



DOMINANT NARRATIVES OF
"ILLEGALITY"

"POVERTY"

"TEMPORALITY"





ECONOMIC HARDSHIPS



STANDARDIZED DWELLINGS

RESEARCH problem statement

It contributes a siginifant share of the economy, proudcing up to TWO-THIRDS of the country's GDP

REALITY OF

INFORMAL SECTOR

It contributes a siginifant share of the economy, proudcing up to TWO-THIRDS of the country's GDP

The informal economy is a PERMANENT phenomenon. It is a feature of modern capitalist development, associated with both growth and global integration.

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The informal economy is a PERMANENT phenomenon. It is a feature of modern capitalist development, associated with both growth and global integration.

Majority of the informal sector is UNORGANIZED due to lack of laws and regulations protecting the workers.

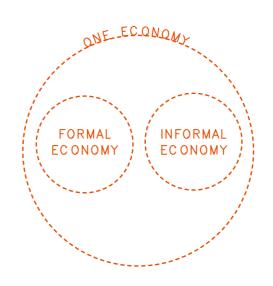
REALITY OF

INFORMAL SECTOR It contributes a siginifant share of the economy, proudcing up to TWO-THIRDS of the country's GDP

The informal economy is a PERMANENT phenomenon. It is a feature of modern capitalist development, associated with both growth and global integration.

Majority of the informal sector is UNORGANIZED due to lack of laws and regulations protecting the workers.

The informal economy is as a BASIC COMPONENT of the total economy.





16

MR. TANAJI

TEA STALL OWNER

AVG. HOUSEHOLD INCOME

00,000

CURRENT RESIDENCE



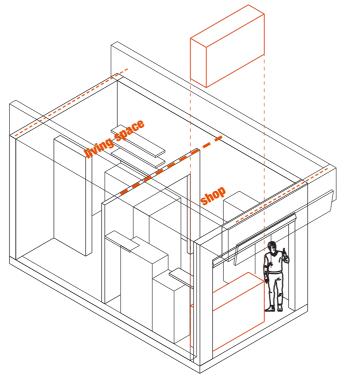
NUMBER OF OCCUPANT IN DWELLING



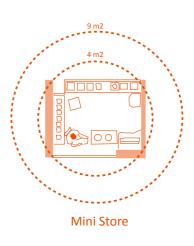
2







WORKSPACE: FRONT ROOM



ETHNOGRAPHICAL RESEARCH stories of informal workers

MR. AMARNATH

CONVENIENT STORE OWNER

AVG. HOUSEHOLD INCOME



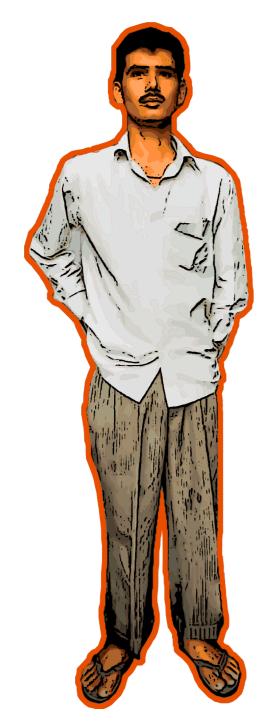
NUMBER OF OCCUPANT IN DWELLING



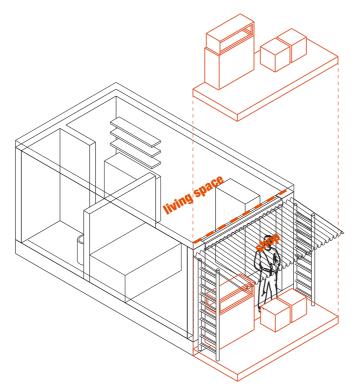
E AS RK



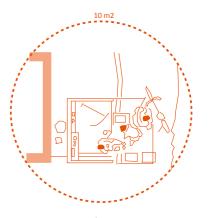








WORKSPACE: EXTENSION (EX. STOOP)



Bicycle Repair

MRS. AMITA

HOME-BASED WORKER

AVG. HOUSEHOLD INCOME

CURRENT RESIDENCE

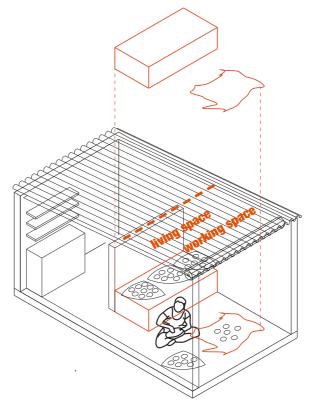
NUMBER OF OCCUPANT IN DWELLING



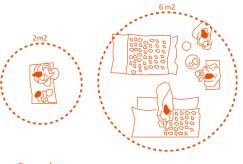








WORKSPACE: FLOOR OR FUNITURE



Bracelet

Bread

MR. BADRI

BARBER

AVG. HOUSEHOLD INCOME



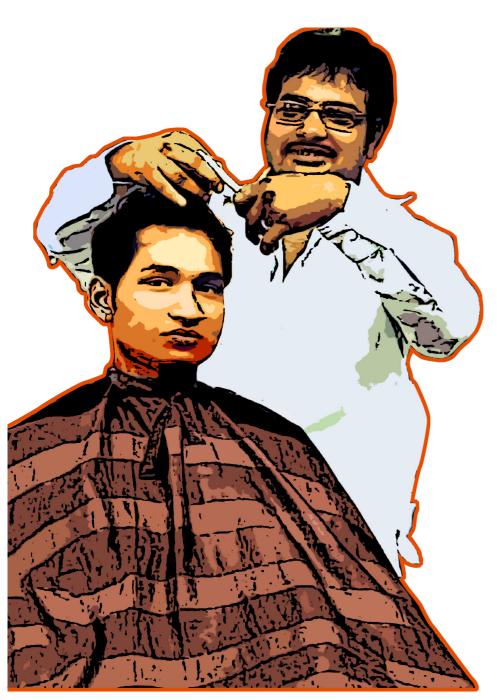
NUMBER OF OCCUPANT IN DWELLING



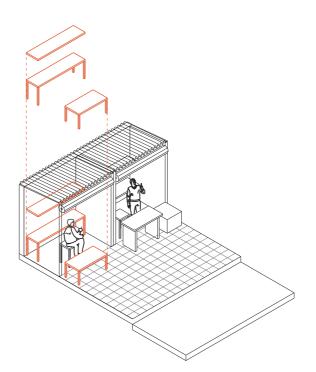




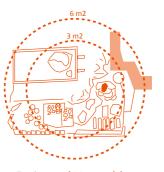
5







WORKSPACE: SMALL STALL



Fruits and Vegetables

MR. JALINDER

NEWSPAPER MAN

AVG. HOUSEHOLD INCOME

CURRENT RESIDENCE

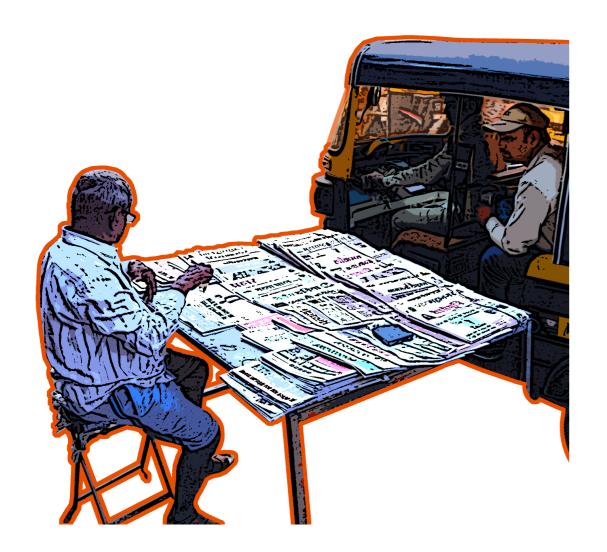
NUMBER OF OCCUPANT IN DWELLING



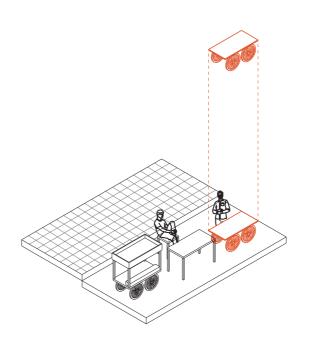
1 HOUR DISTANCE



6







WORKSPACE: VENDOR CART OR FUNITURE



Hawkers

ETHNOGRAPHICAL RESEARCH stories of informal workers























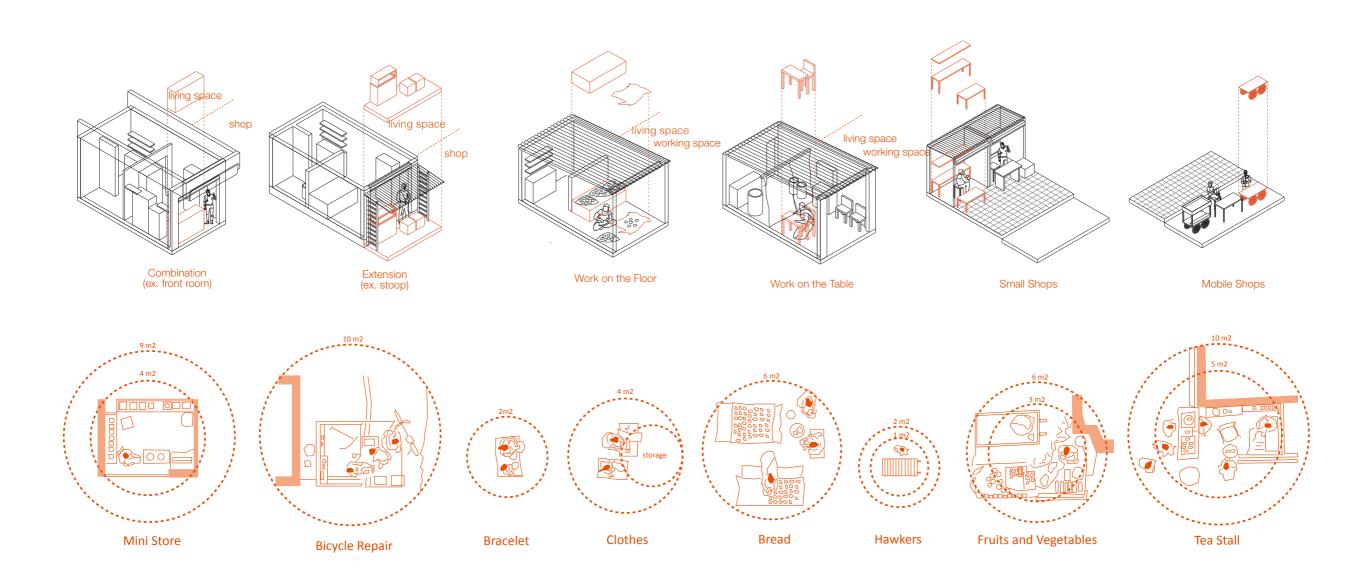


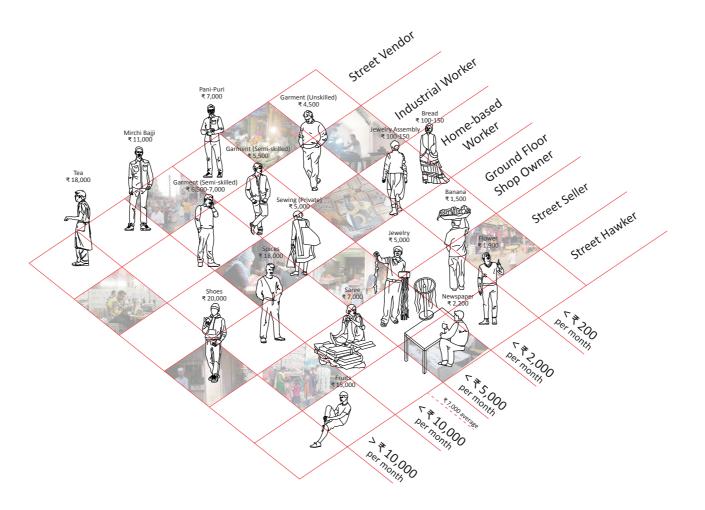






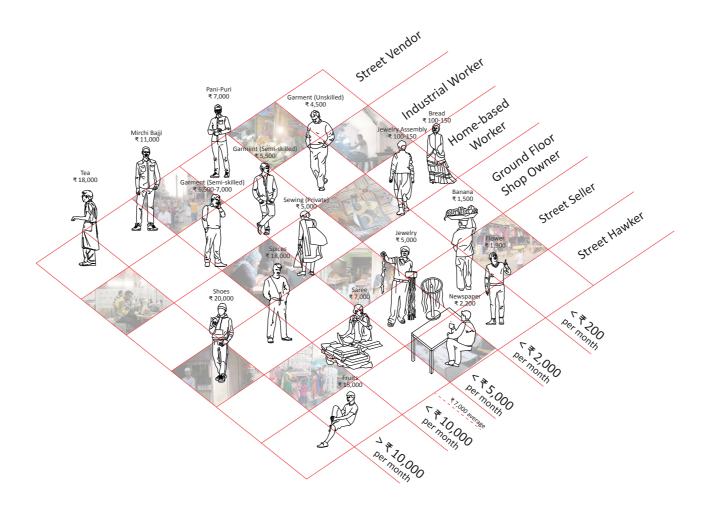
"Unlike conventional housing, the housing of the poor almost always combine living and working activities"





How can the informal workers' diverse socio-economic pursuits be achieved by affordable housing which incoporates controlled participation and efficient construction to improve both density and quality?

RESEARCH research question



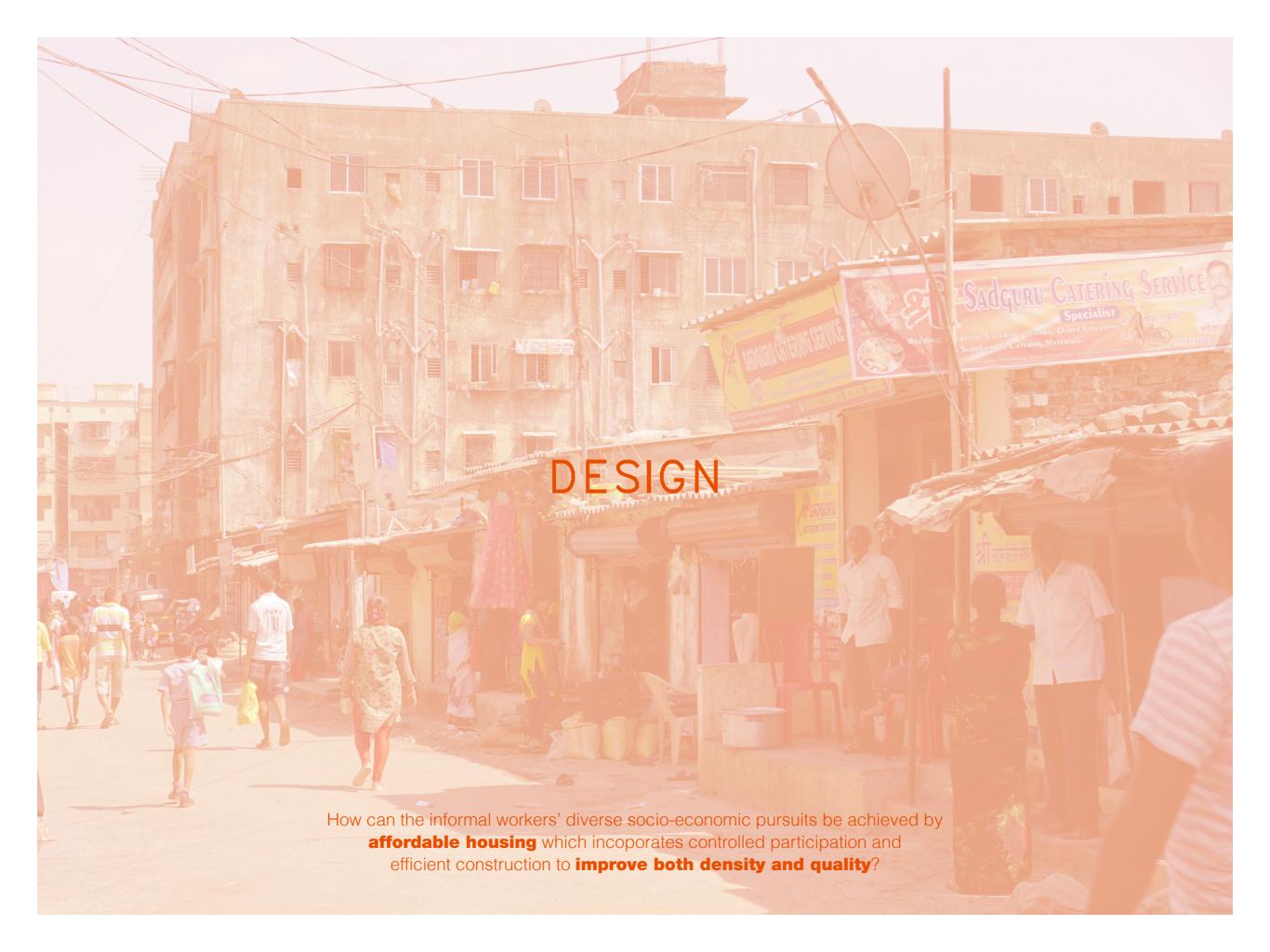
How can the informal workers' diverse socio-economic pursuits be achieved by **affordable housing** which incoporates **controlled participation** and **efficient construction** to improve both **density** and **quality**?

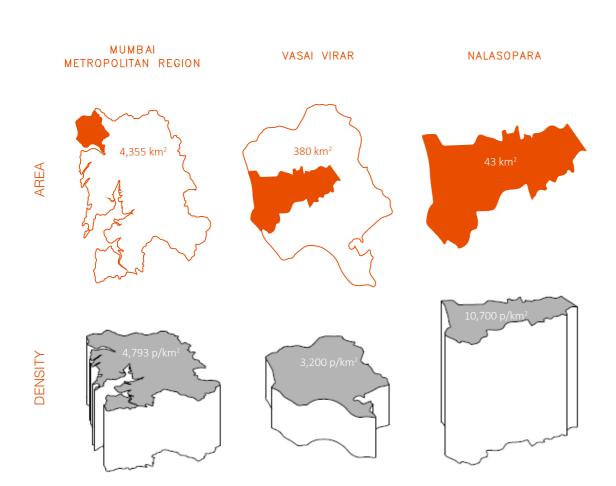
subquestions:

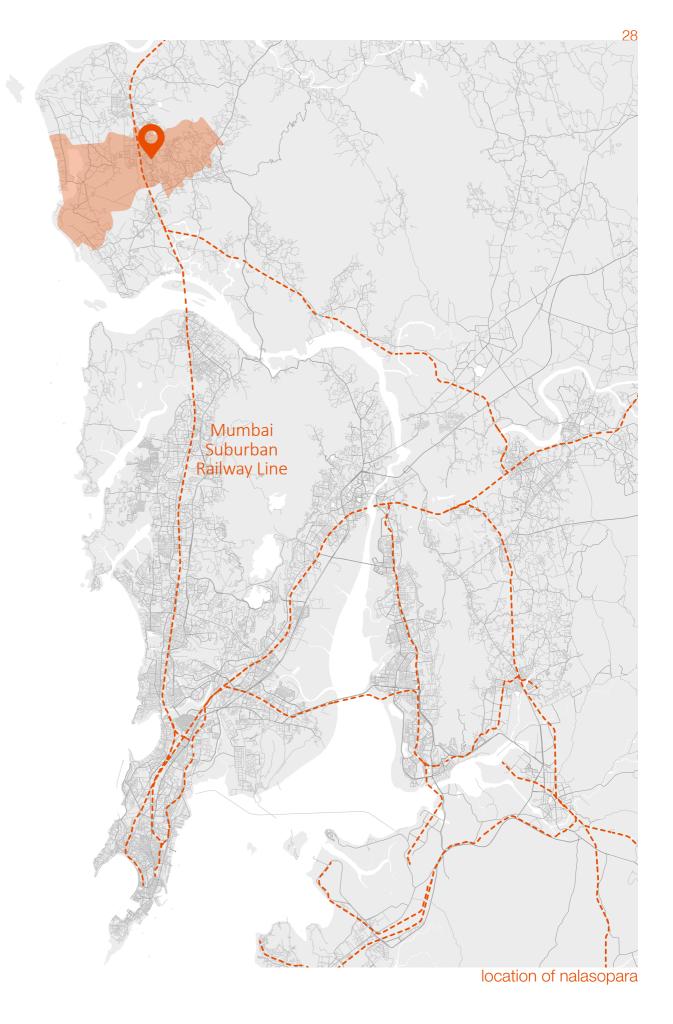
How can income-generating space and habitable space coexist in low-income housing?

What are the qualities of communal space that can encourage a sense of community and empowerment among the informal workers?

RESEARCH research question









WEST EAST







middle class apartments



mid-rise handshake chawls



low-rise baithi chawls









2002 2004 2006 2009





BAITHI CHAWLS



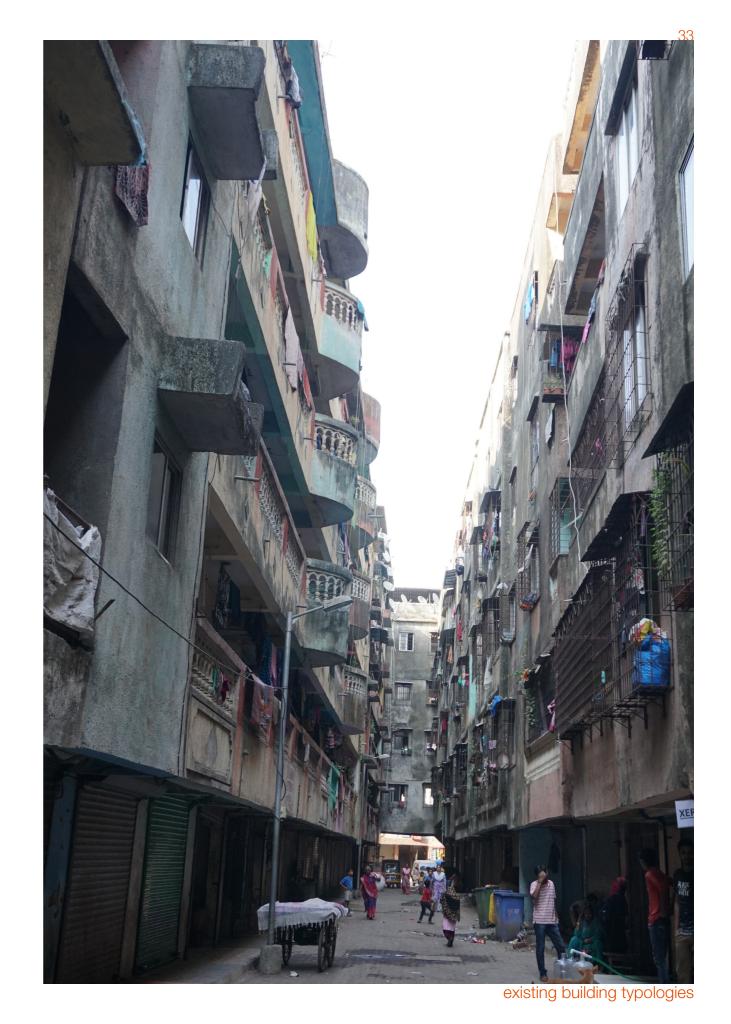
FSI: 0.75 Units per hectare: 325 People per hectare: 1300

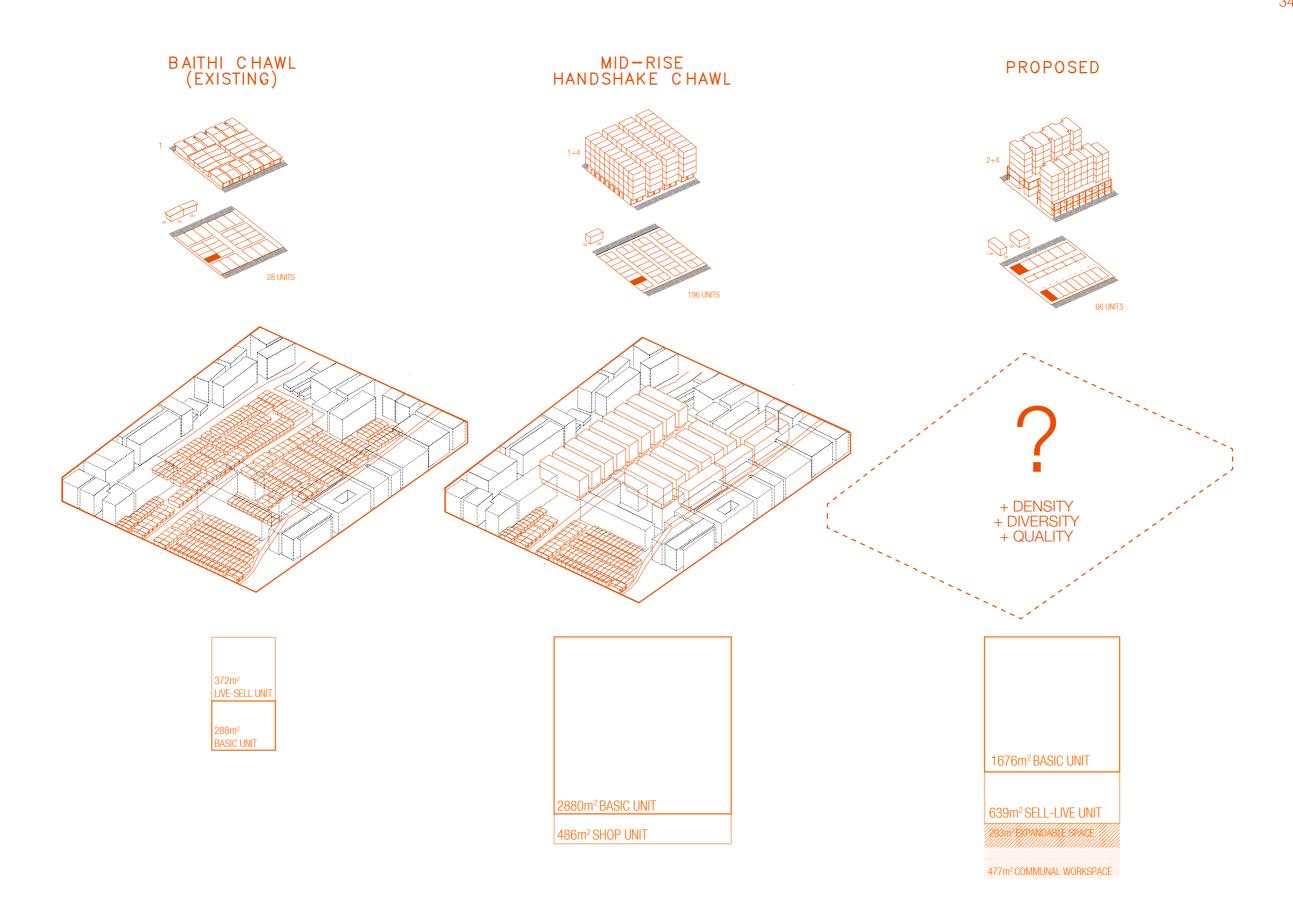






FSI: 3-4 Units per hectare: 1325 People per hectare: 5300





SITE CONTEXT



market street in nalasopara

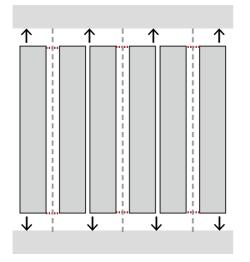
HIERARCHY OF STREET

=
HIERARCHY OF COMMERCIAL ACTIVITIES

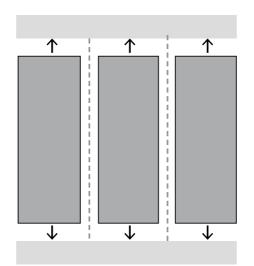


DESIGN CONCEPT

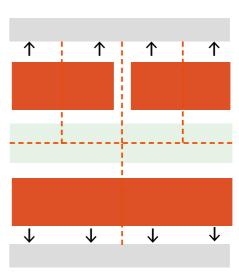
BAITHI CHAWLS



MID-RISE CHAWLS



INTERVENTION

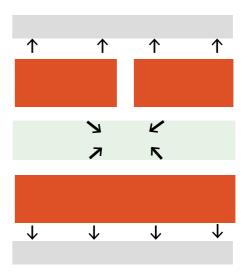








INTERVENTION



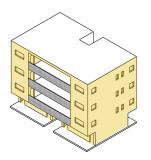
DESIGN CONCEPT creating the commercial front

APPROACH I:

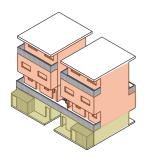
Pavilion-like typologies dedicated to each worker groups

APPROACH II:

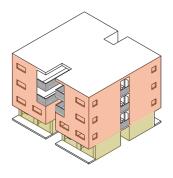
Building typology in different forms that accommodates all worker groups



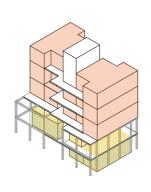
Housing for Home-based Production



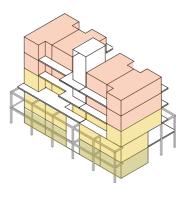
Housing for Mixed-Occupancy (shopowners and tenants)



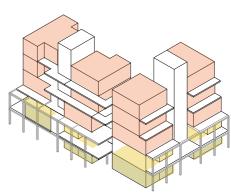
Housing for Mixed-income groups



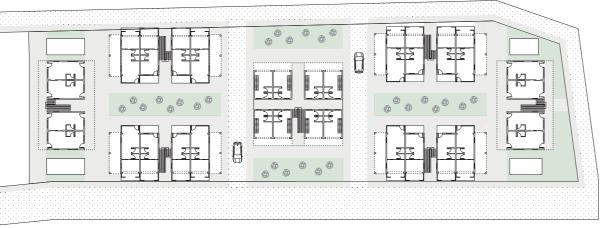
3M MODULE



4.5M MODULE



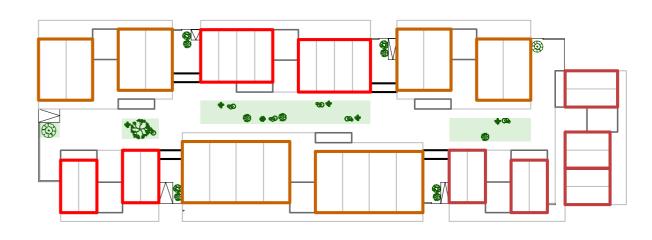
CORNER MODULE





key improvement criterias:

residential space yes commercial space no communal space yes appropriate density no



key improvement criterias:

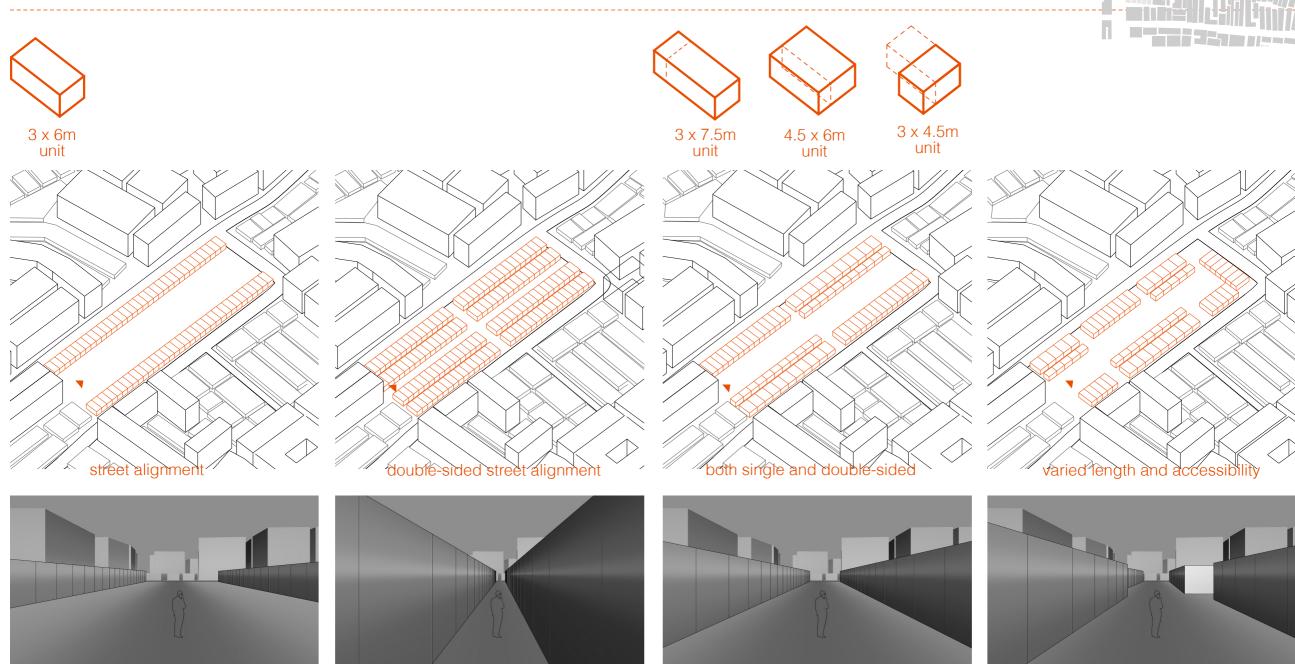
residential space commercial space communal space appropriate density yes

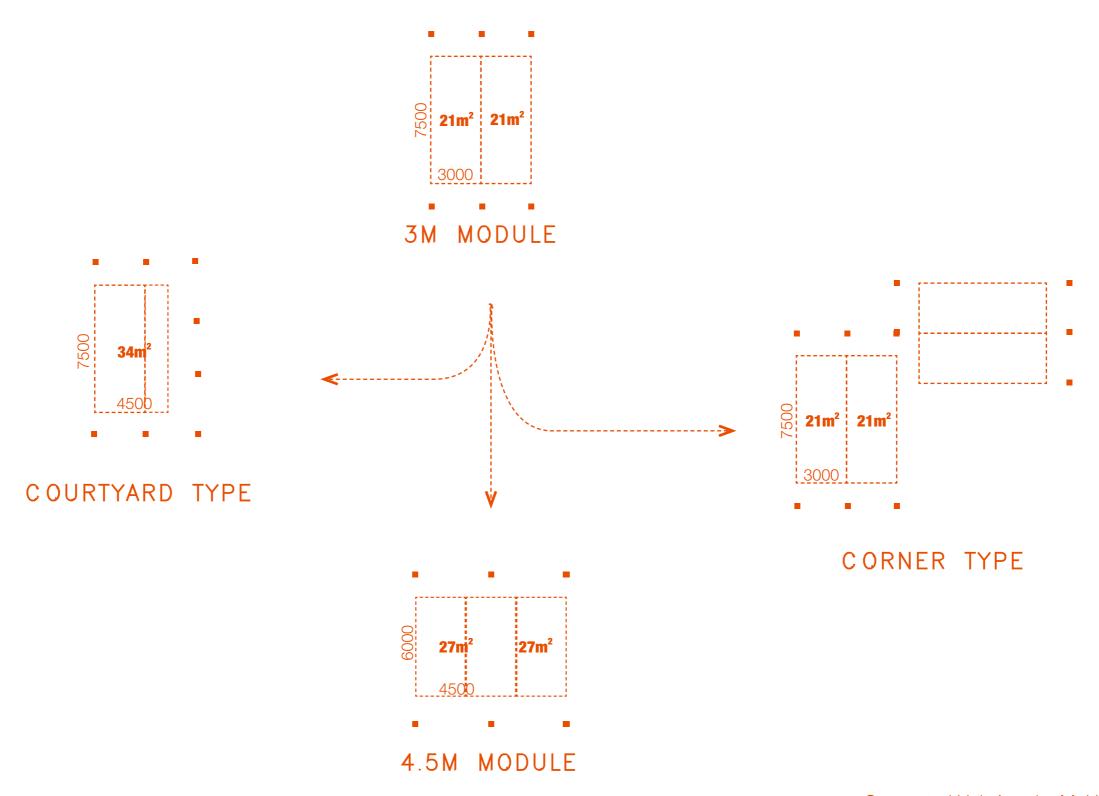
yes - **street exposure**

yes yes

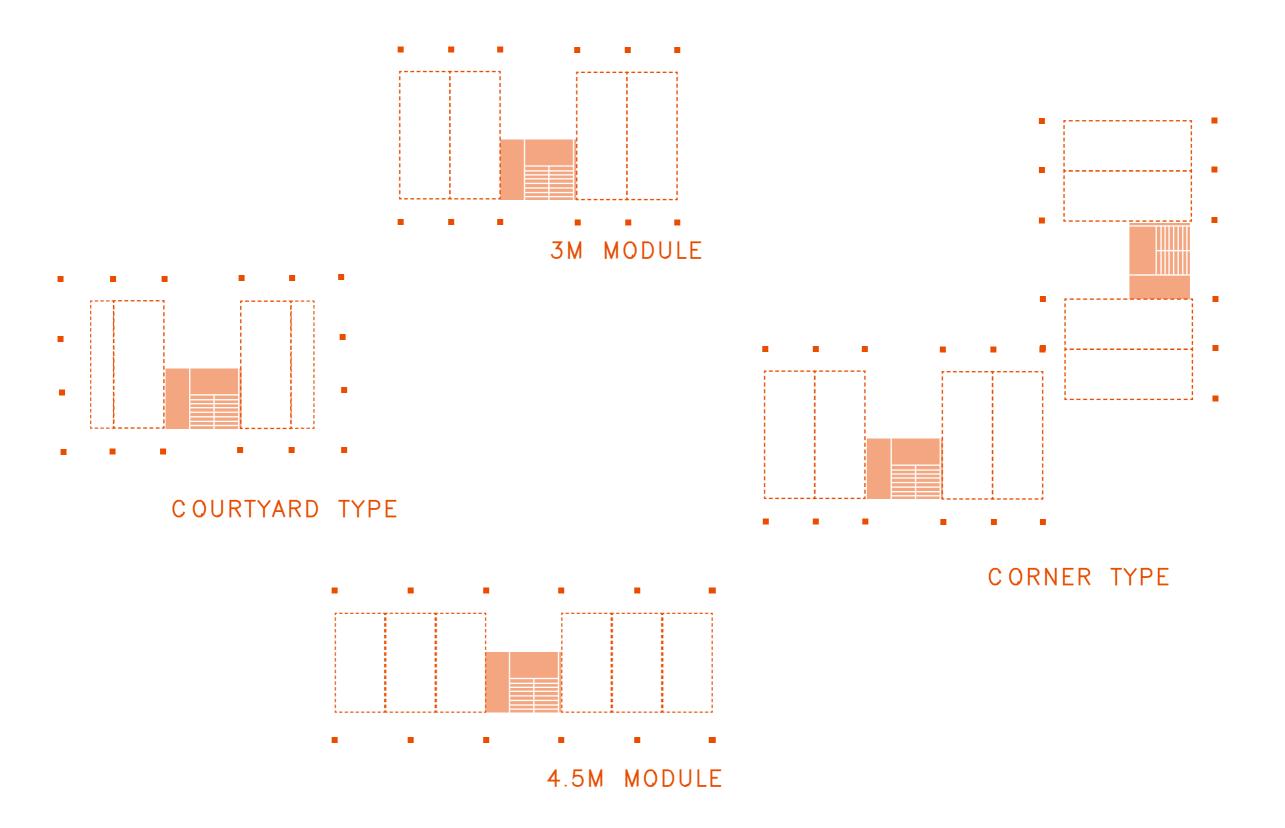
existing baithi chawl unit

new unit type

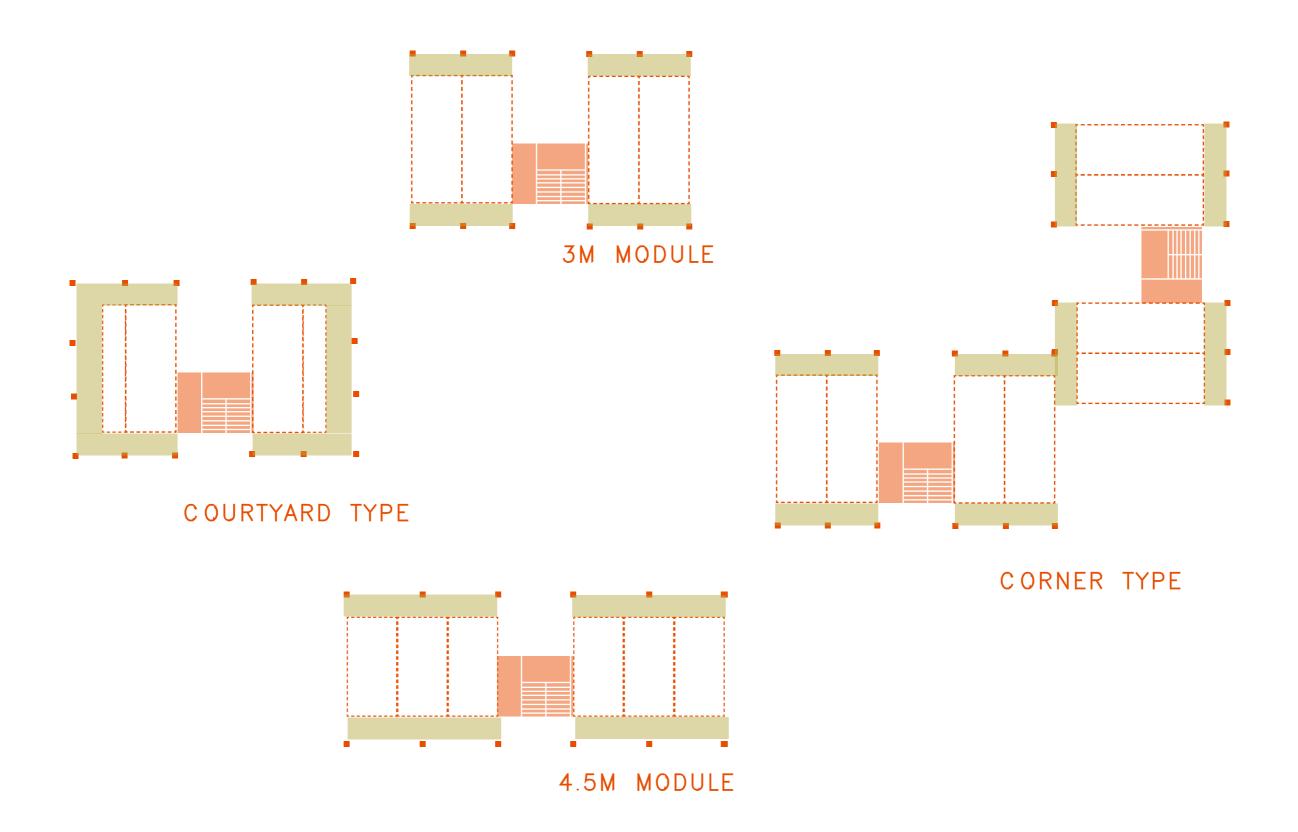




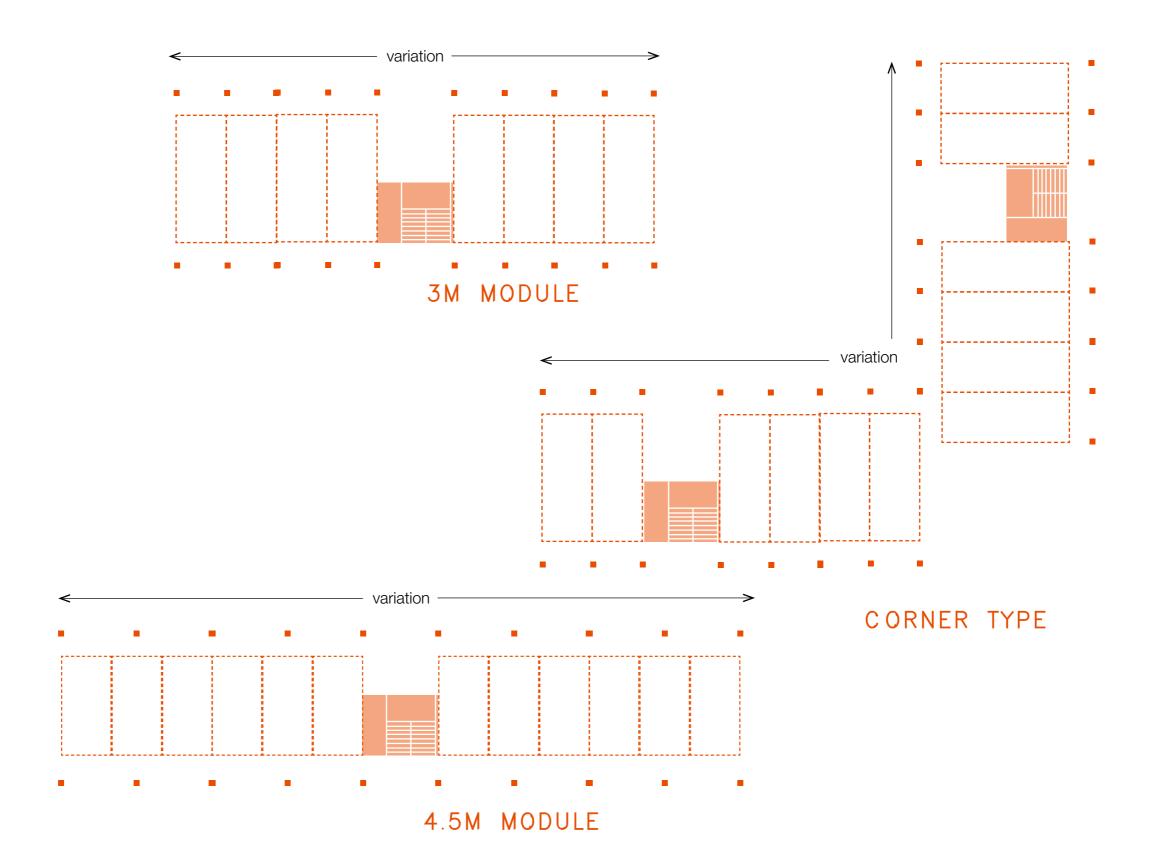
Suggested Unit Area by MoHUPA EWS: 21-27 m² LIG 28-60 m²



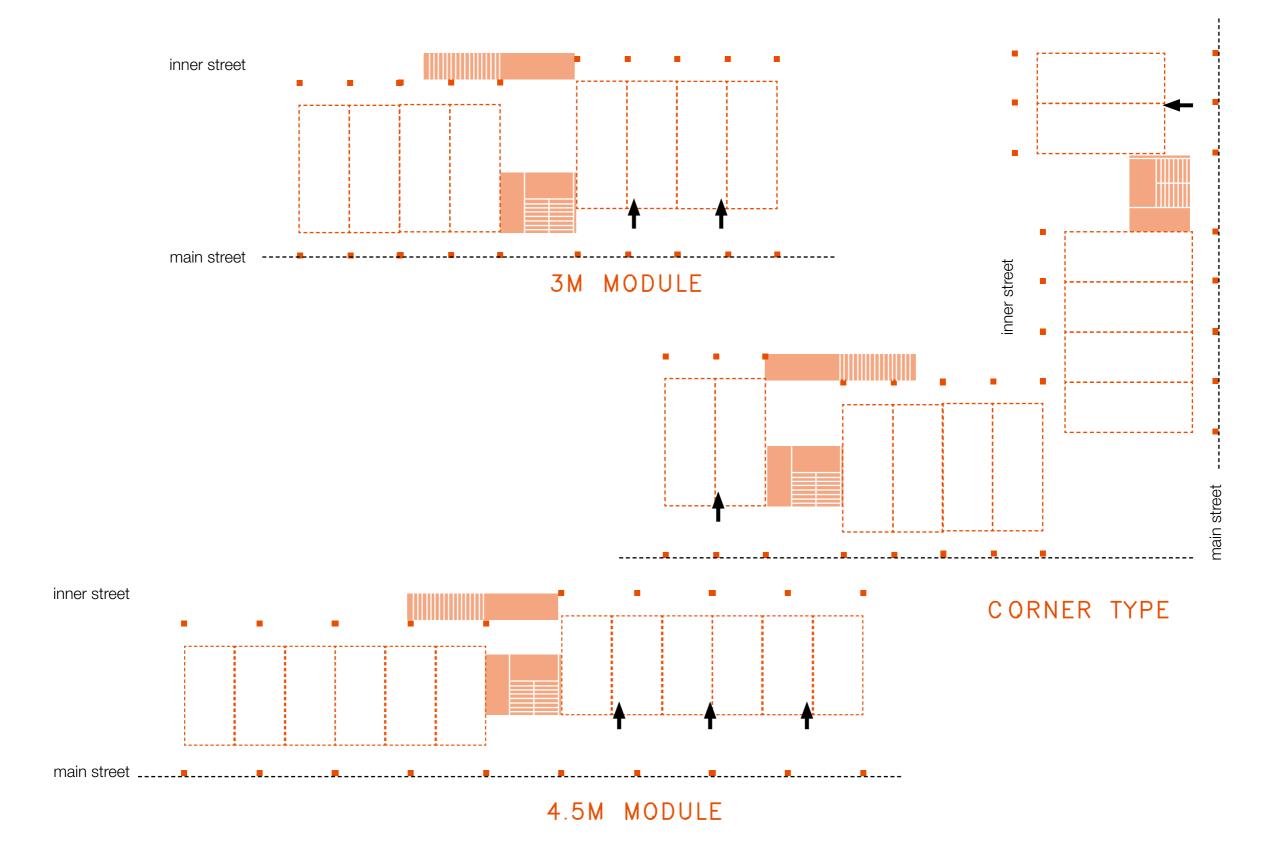
DESIGN CONCEPT



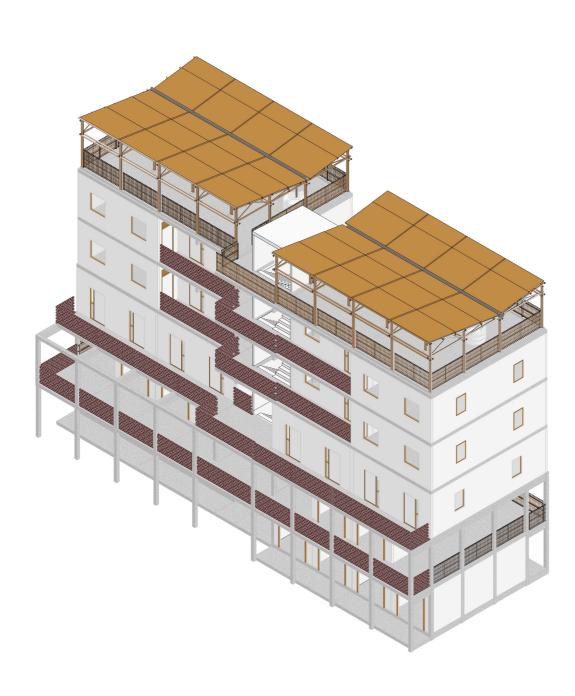
DESIGN CONCEPT

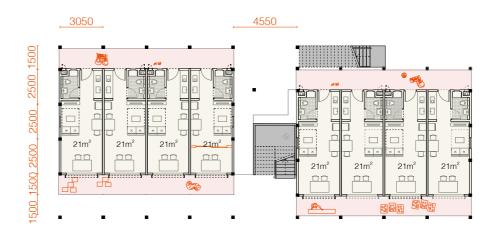


DESIGN CONCEPT typology variations

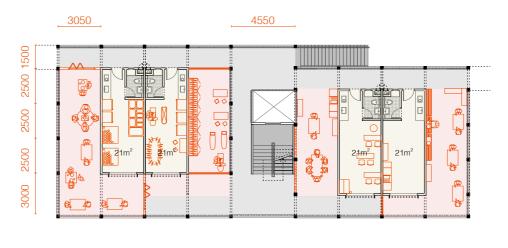


3M MODULE 4.5M MODULE CORNER MODULE FRONT BACK

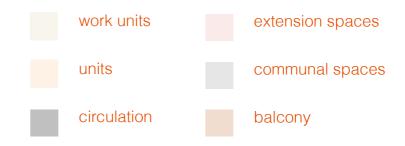


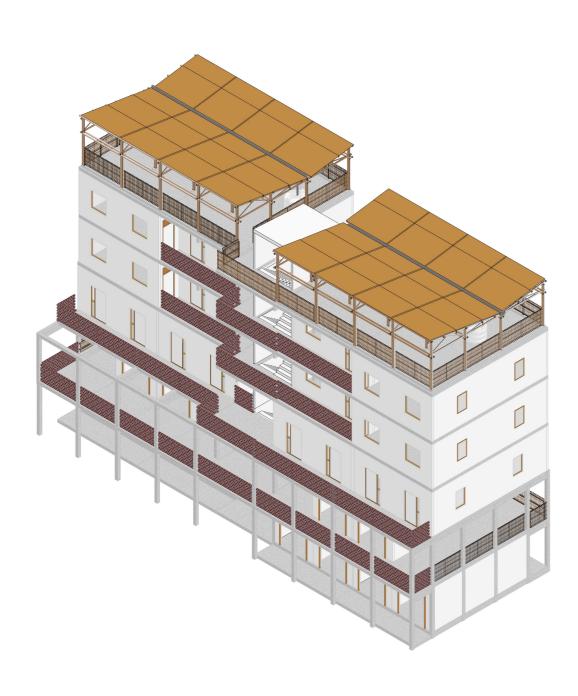


G/F PLAN



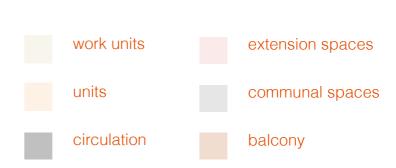
1/FPLAN



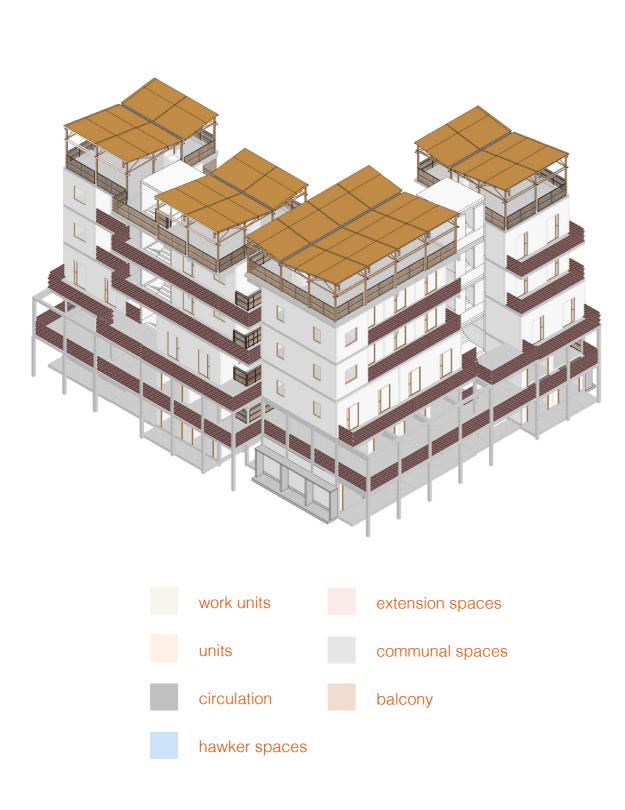




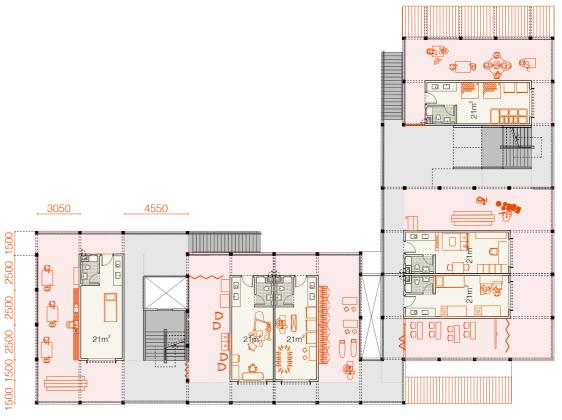




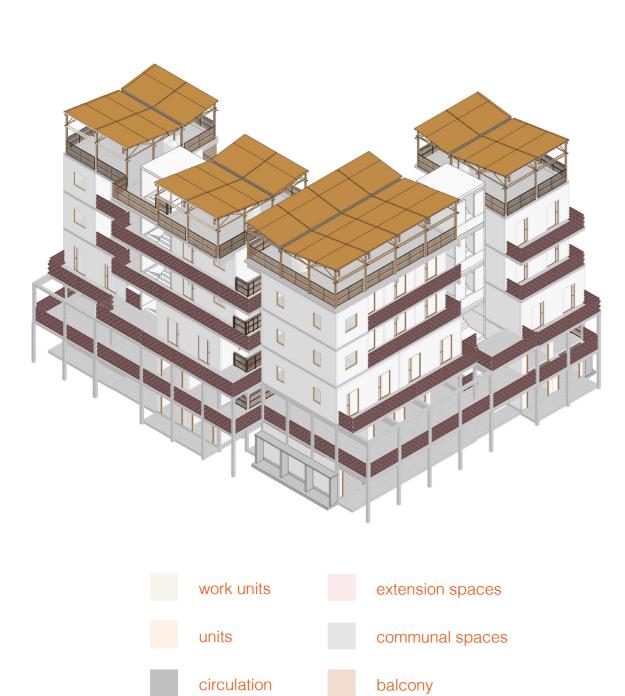
3-4/F PLAN



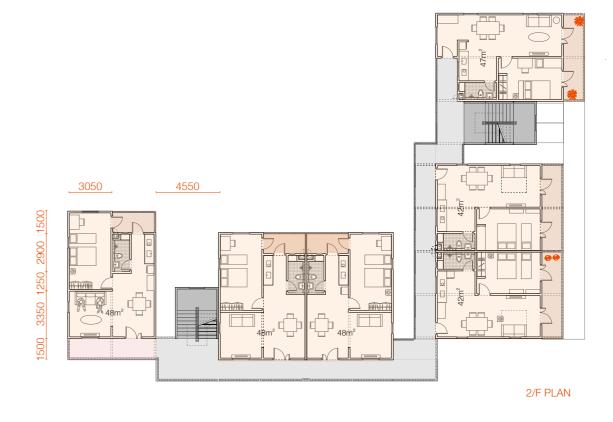




1/F PLAN

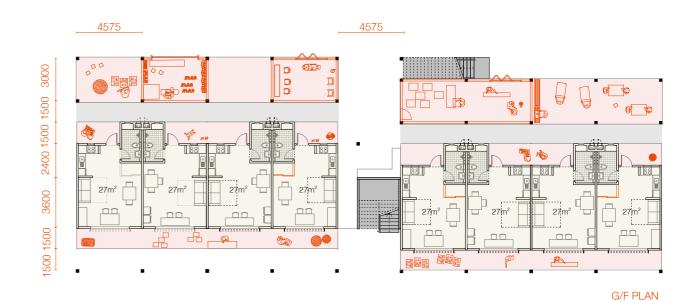


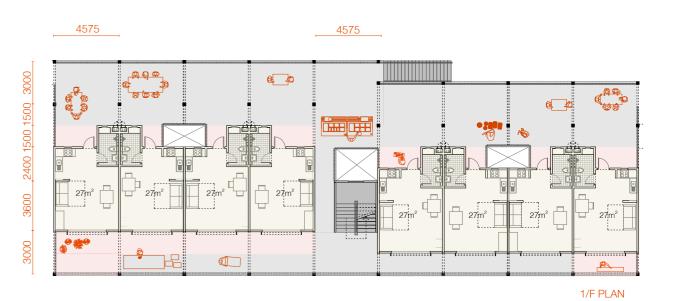
hawker spaces



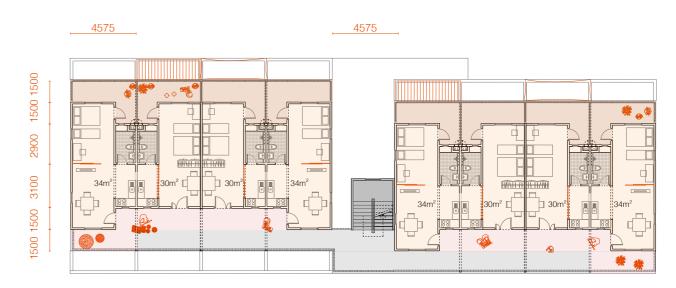




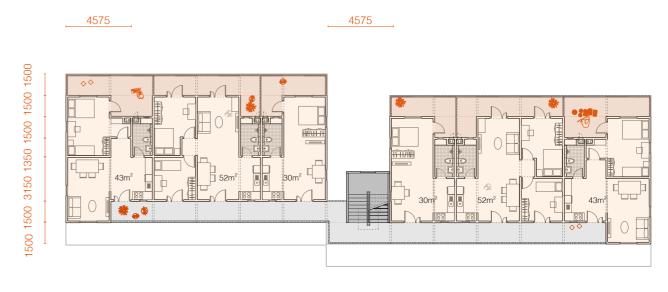




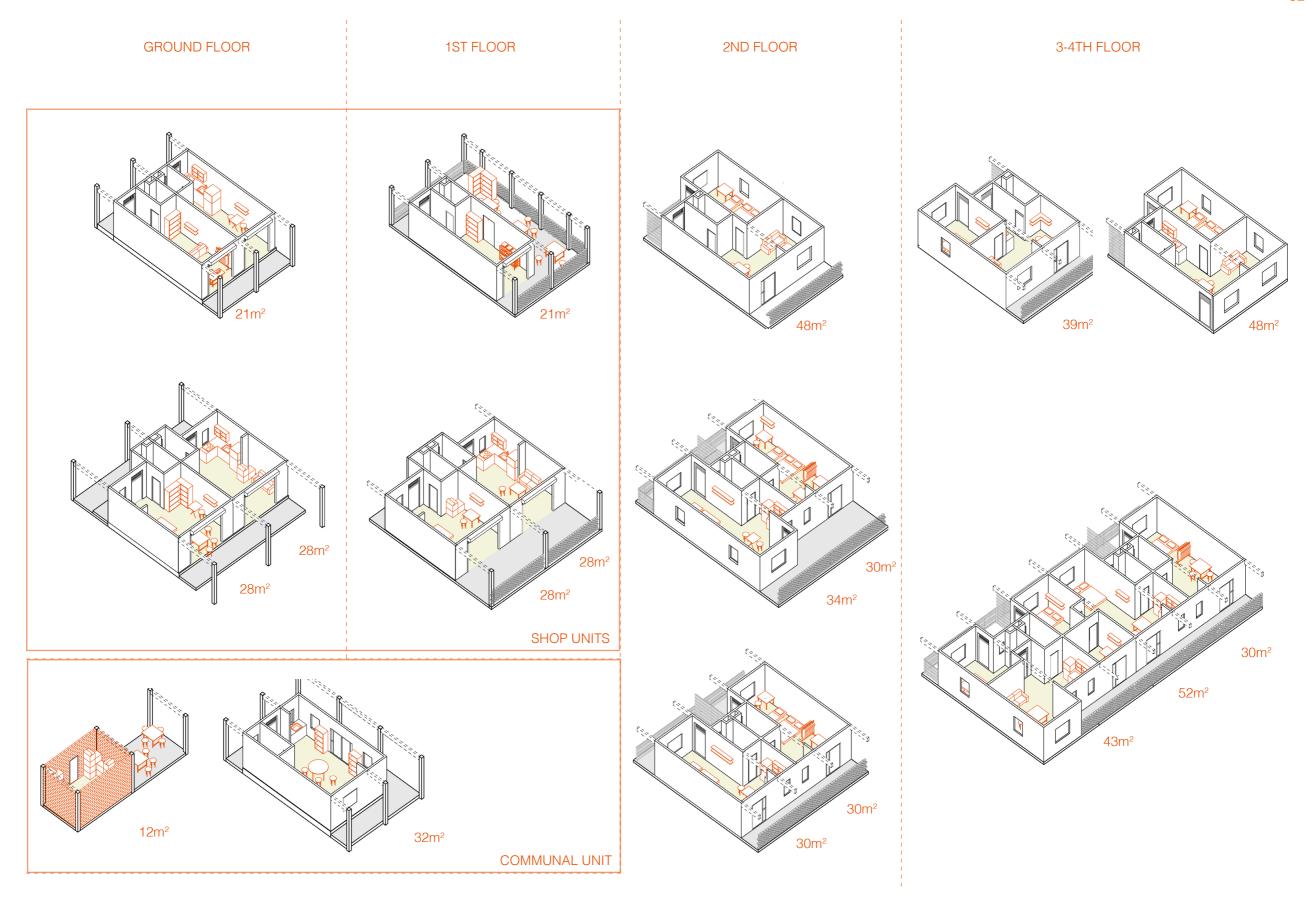




2/F PLAN

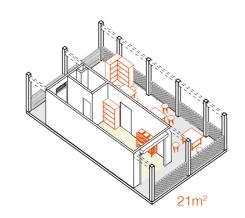


3-4/F PLAN



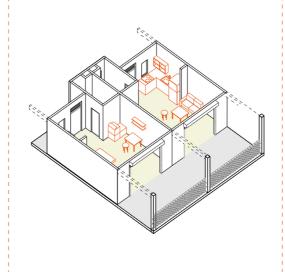
GROUND FLOOR 1ST FLOOR 2ND FLOOR 3-4TH FLOOR 28m² 28m²

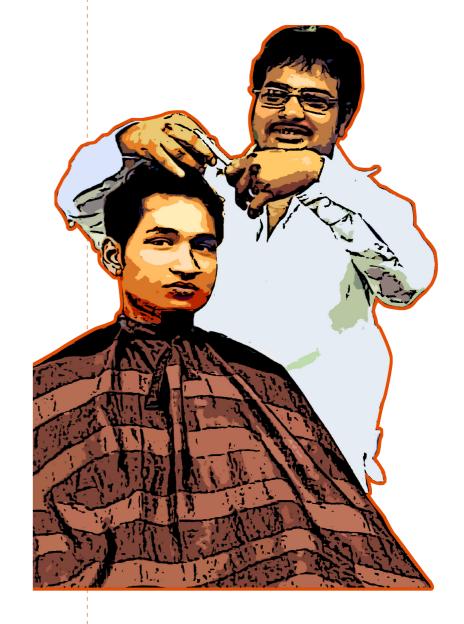
GROUND FLOOR 1ST FLOOR 2ND FLOOR 3-4TH FLOOR

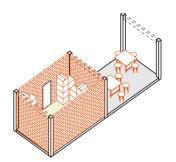




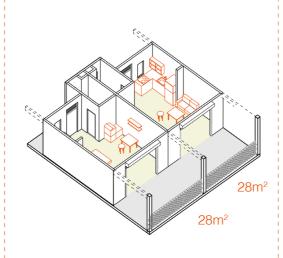
GROUND FLOOR 1ST FLOOR 2ND FLOOR 3-4TH FLOOR

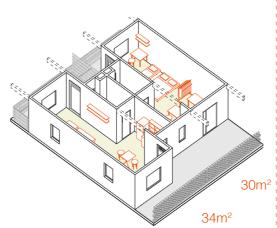


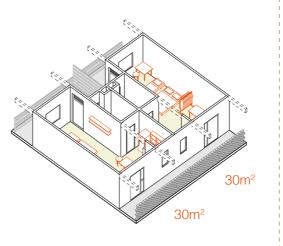




GROUND FLOOR 1ST FLOOR 2ND FLOOR 3-4TH FLOOR

















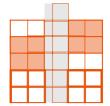




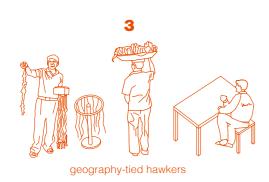
3M MODULE 4.5M MODULE CORNER MODULE STAIRCASE 1/F BRIDGE

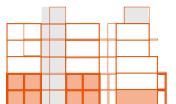


social-tied families



creates 12 units 8 existing families (+4 units)



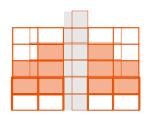


creates 42 units 35 existing families (+7 units)

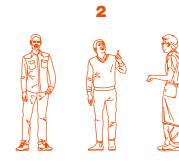




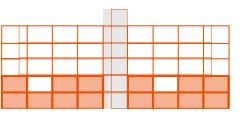
social-tied home-based workers



creates 32 units 19 existing families (+13 units)



family-tied shopowners (shoe seller, sari seller, tailor)



creates 52 units 30 existing families (+22 units)

URBAN STRATEGY

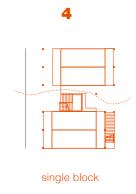
development scenario

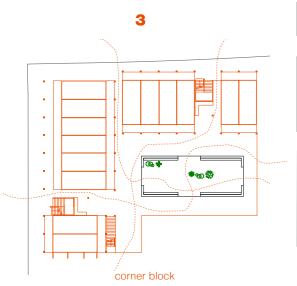
SCENARIO I: ACUPUNTURAL DEVELOPMENT

3M MODULE 4.5M MODULE CORNER MODULE STAIRCASE

1/F BRIDGE

LEGEND

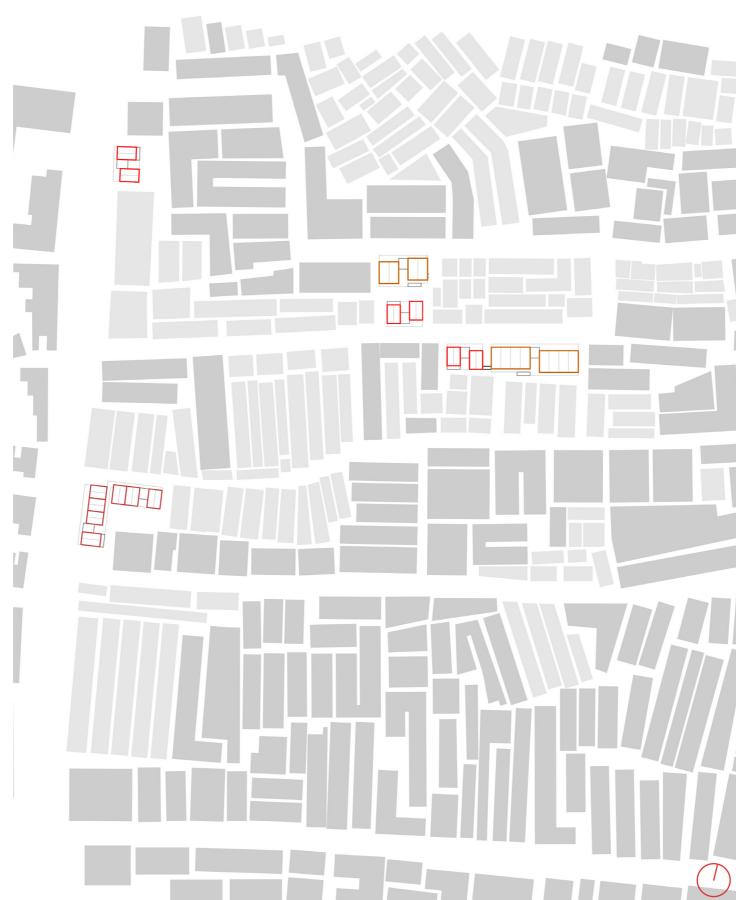






STAIRCASE

1/F BRIDGE



URBAN STRATEGY development scenario

STAIRCASE

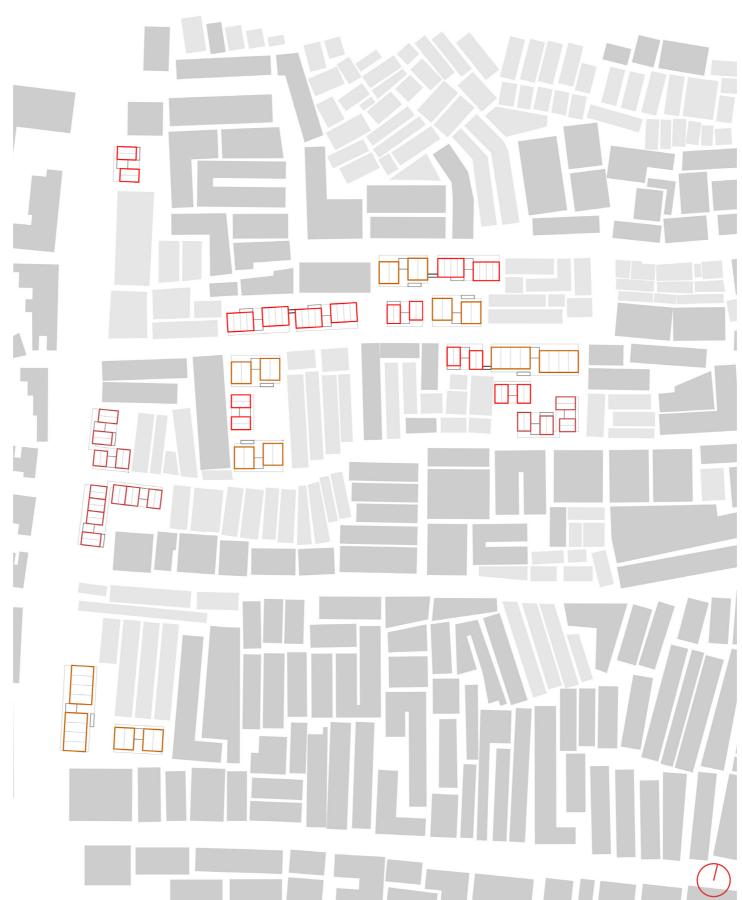
1/F BRIDGE



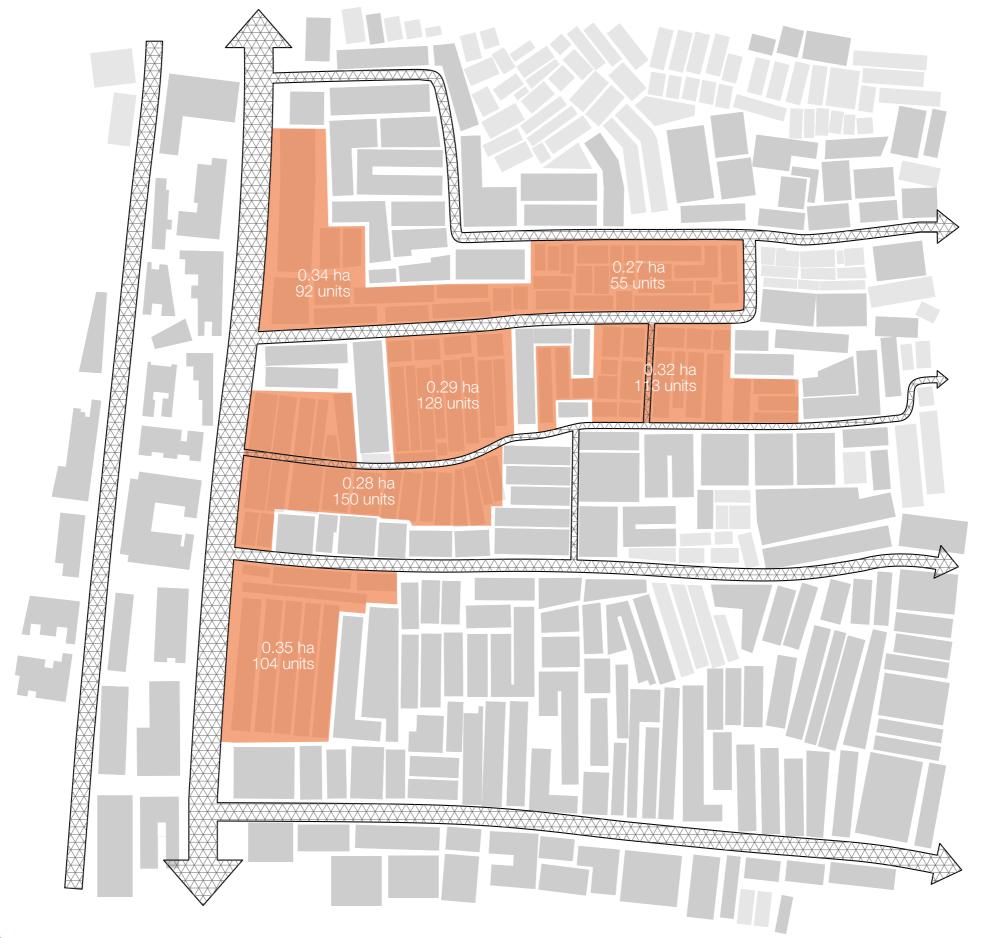
URBAN STRATEGY development scenario

STAIRCASE

1/F BRIDGE



URBAN STRATEGY development scenario



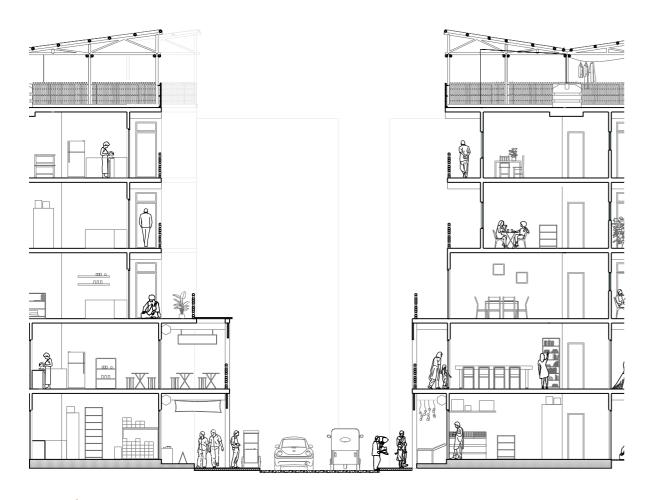


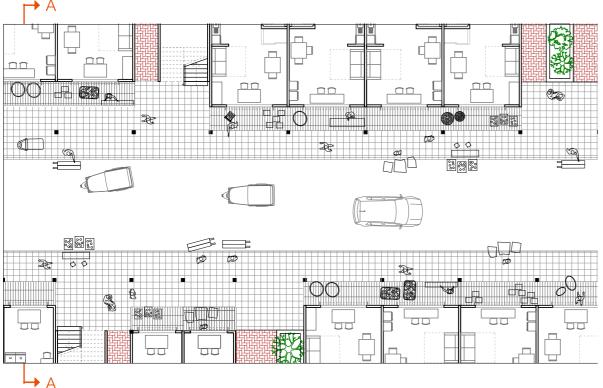


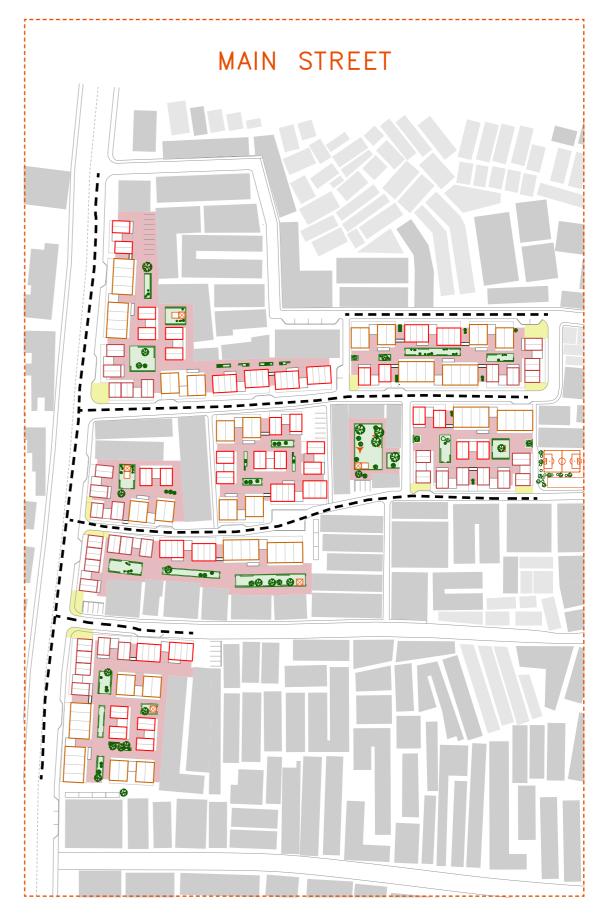


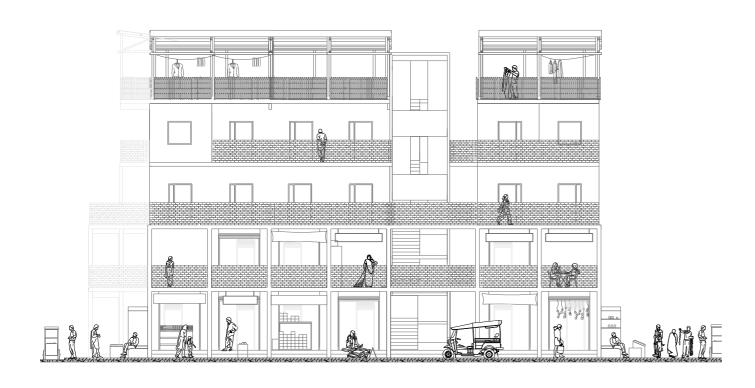


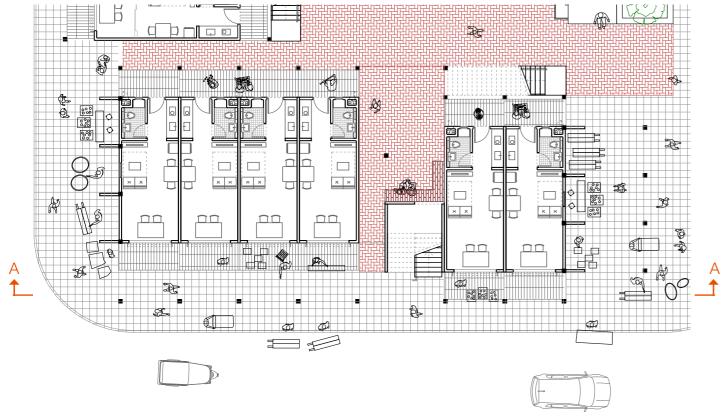


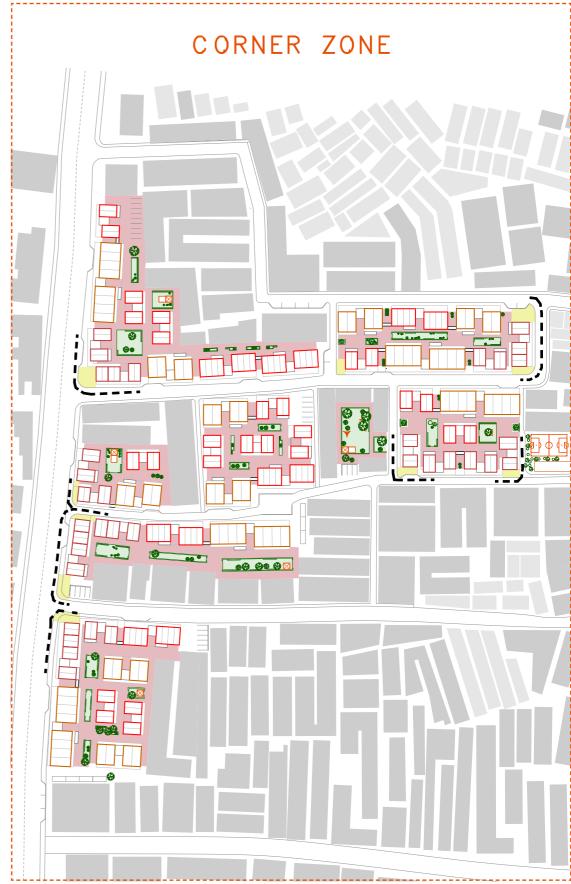


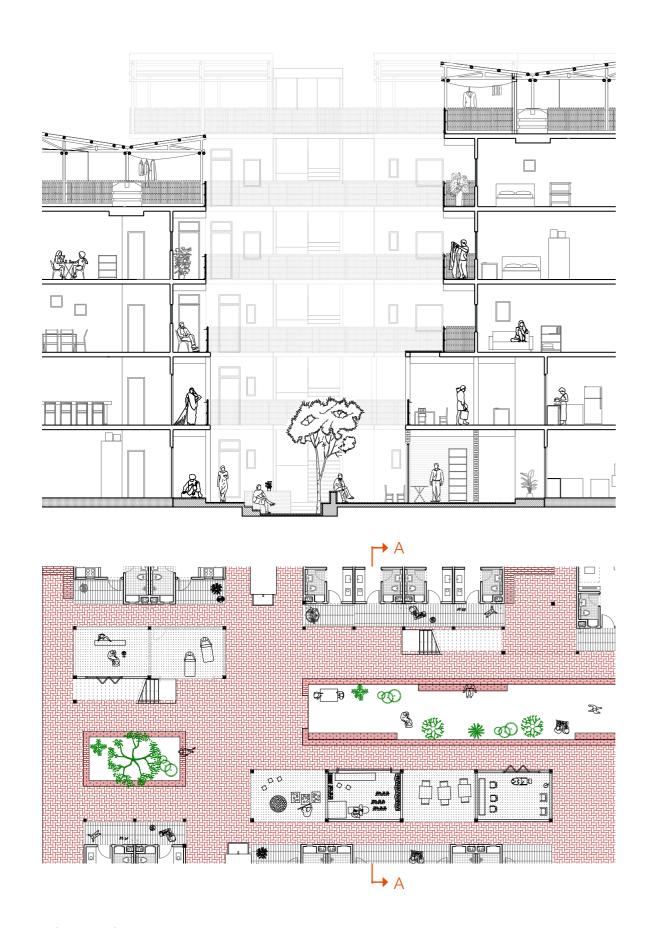


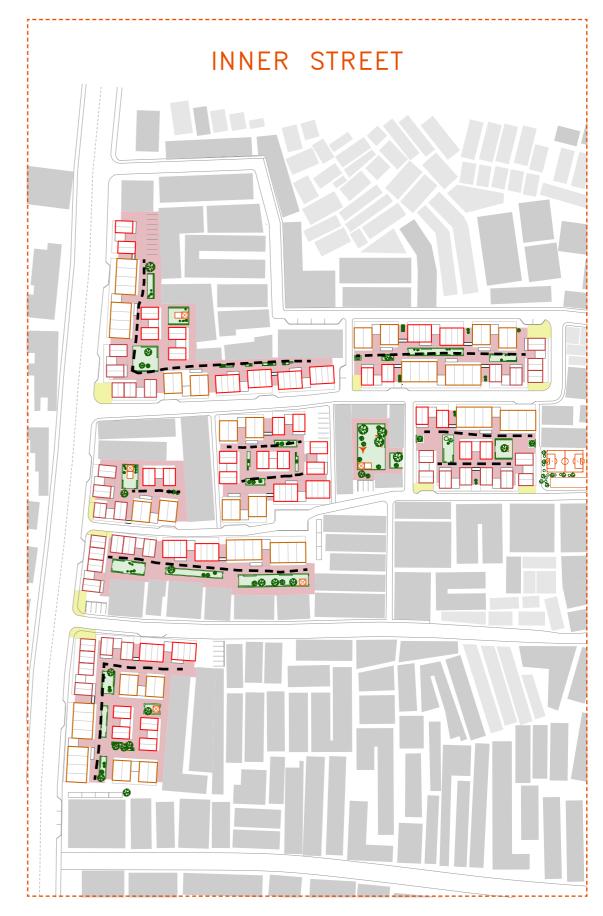




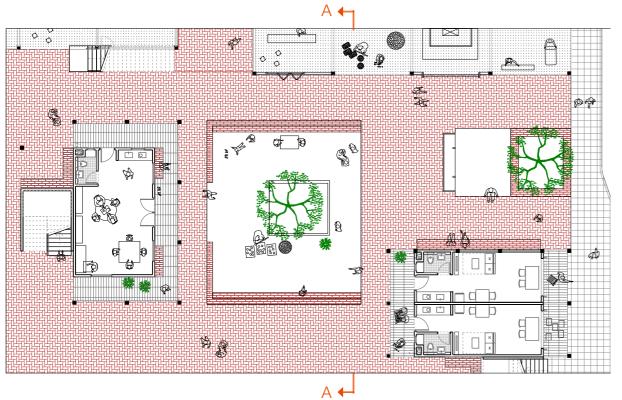


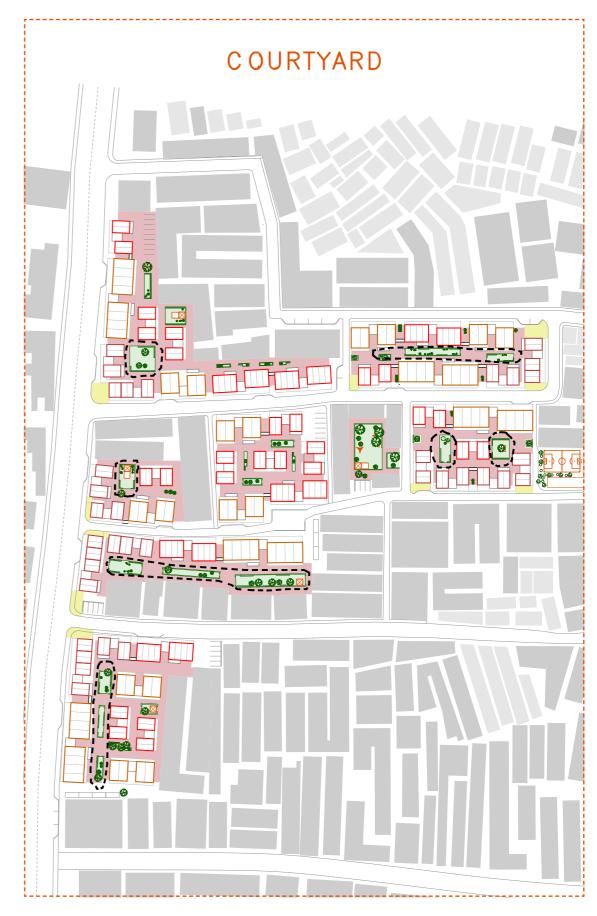




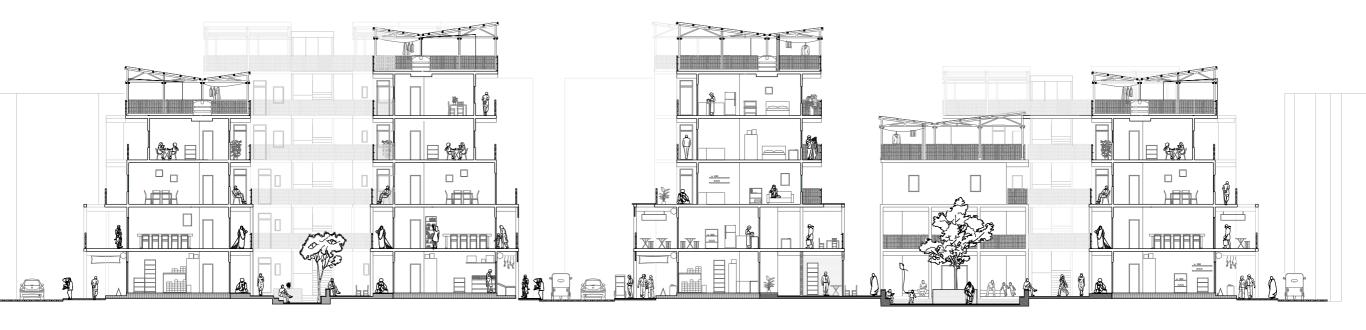








URBAN STRATEGY street conditions



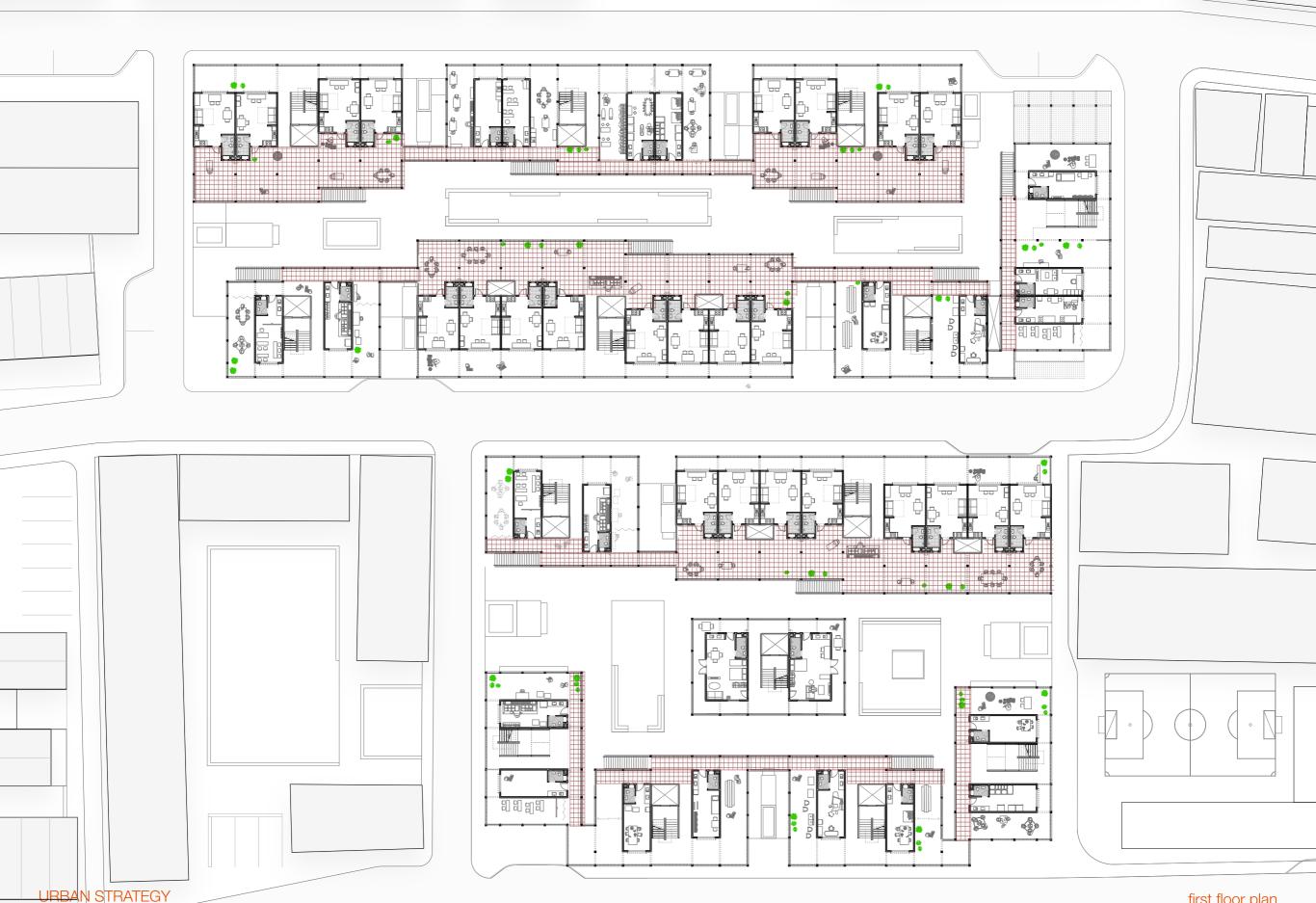
URBAN STRATEGY urban section



URBAN STRATEGY urban section







first floor plan communal plinth





second floor plan residential floors

+24 dwellings units (+12%)

> Increased dwelling space per person (from 4.5m² to 8.4m²~11m²)

PLOT 1	EXISTING	NEW
Area	0.27 ha	0.27 ha
Number of Dwellings	85 units	114
Total Dwelling Area	1530m²	3812m²
Expandable space		826m ²
Communal area		664 m²
Gross Floor Area	1853 m²	8920 m ²
FSI	0.69	3.3

Creation of designated personal expandable spaces for living & work purposes

Creation of communal space to work together

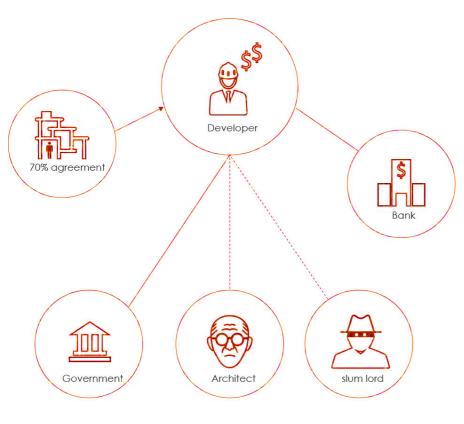
PLOT 2	EXISTING	NEW
Area	0.29 ha	0.29 ha
Number of Dwellings	91 units	86 units
Total Dwelling Area	1638 m²	3812m²
Designated expandable space		592m²
Designated communal area		388 m²
Gross Floor Area	1984 m²	6639m2 ²
FSI	0.68	2.3

URBAN STRATEGY

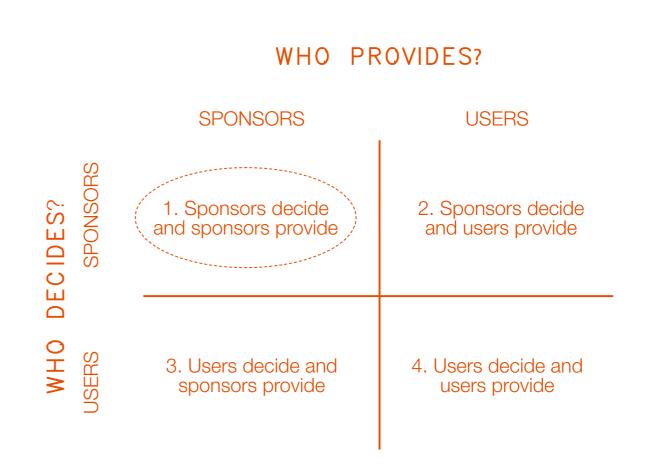
density calculation



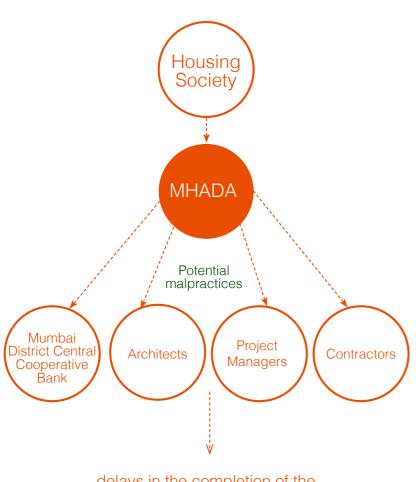
AFFORDABILITY EFFICIENCY PARTICIPATION



private housing supply



AFFORDABILITY **EFFICIENCY** PARTICIPATION



delays in the completion of the project and cost escalations

SPONSORS USERS 1. Sponsors decide and sponsors provide 3. Users decide and sponsors provide 4. Users decide and users provide

AFFORDABILITY EFFICIENCY & PARTICIPATION



ELEMENTAL's "Recommendations for a Participatory Design"

- 1. Communicate the constraints
- 2. Open the decision making process to families
 - 3. Transfer technical knowledge and criteria

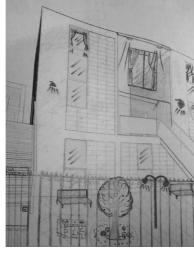
SPONSORS USERS 1. Sponsors decide and sponsors provide 3. Users decide and sponsors provide 3. Users decide and sponsors provide Balance of Top-down and Bottom-up Approach

AFFORDABILITY EFFICIENCY & PARTICIPATION





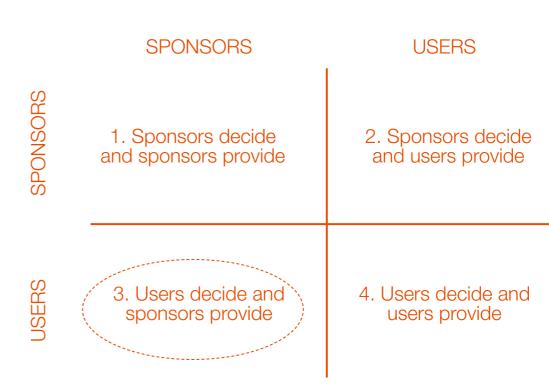




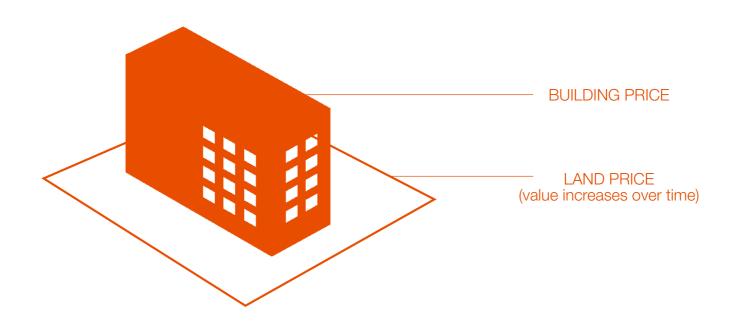
WHO DECIDES?

controlled participation process

WHO PROVIDES?



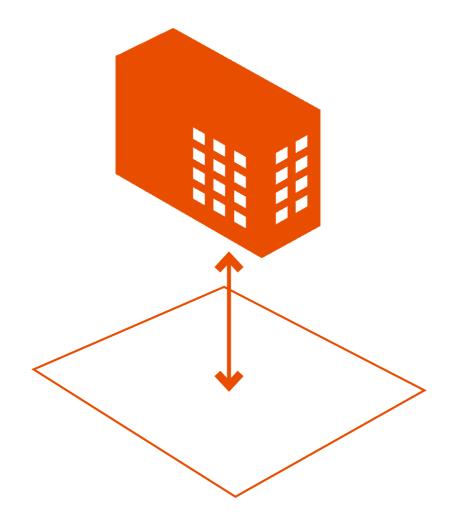
AFFORDABILITY EFFICIENCY PARTICIPATION



AFFORDABILITY EFFICIENCY PARTICIPATION

RESIDENT BUYS THE PROPERTY AT BELOW MARKET PRICE

LAND IS TAKEN OFF THE PRIVATE REAL ESTATE MARKET, PERMANENTLY OWNED BY COMMUNITY LAND TRUST

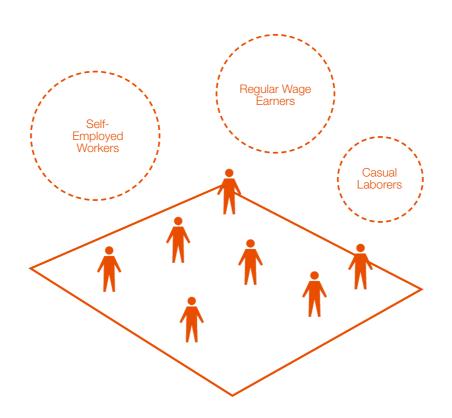


BUILDING PRICE

LAND PRICE

AFFORDABILITY EFFICIENCY PARTICIPATION

COMMUNITY LAND TRUST

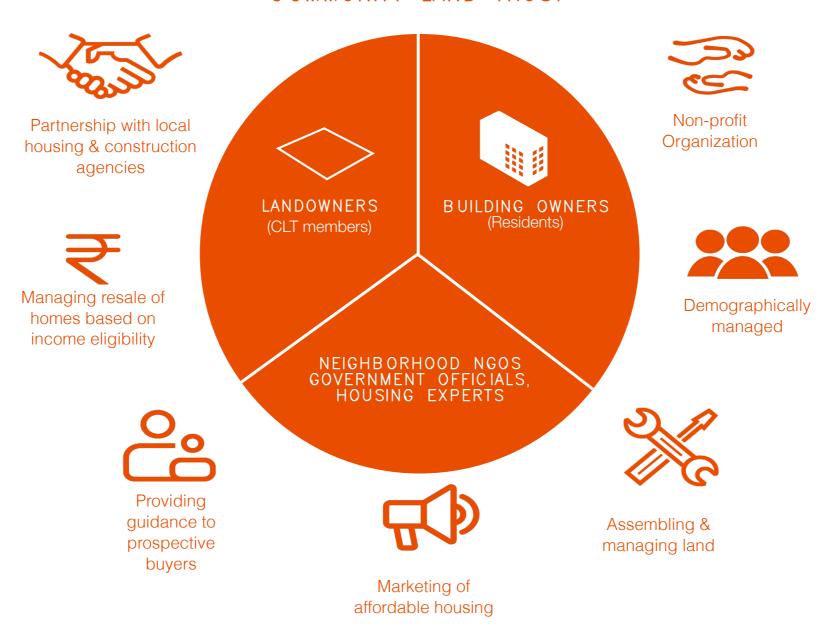


Membership is open to people who LIVE or WORK within their geographically defined areas

PRESERVES LOCALITY

AFFORDABILITY EFFICIENCY PARTICIPATION

COMMUNITY LAND TRUST

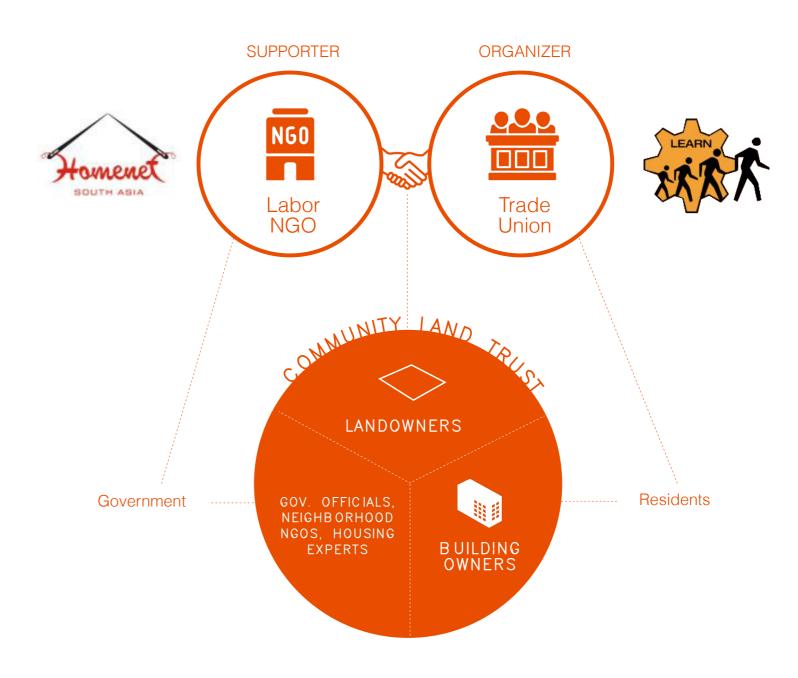


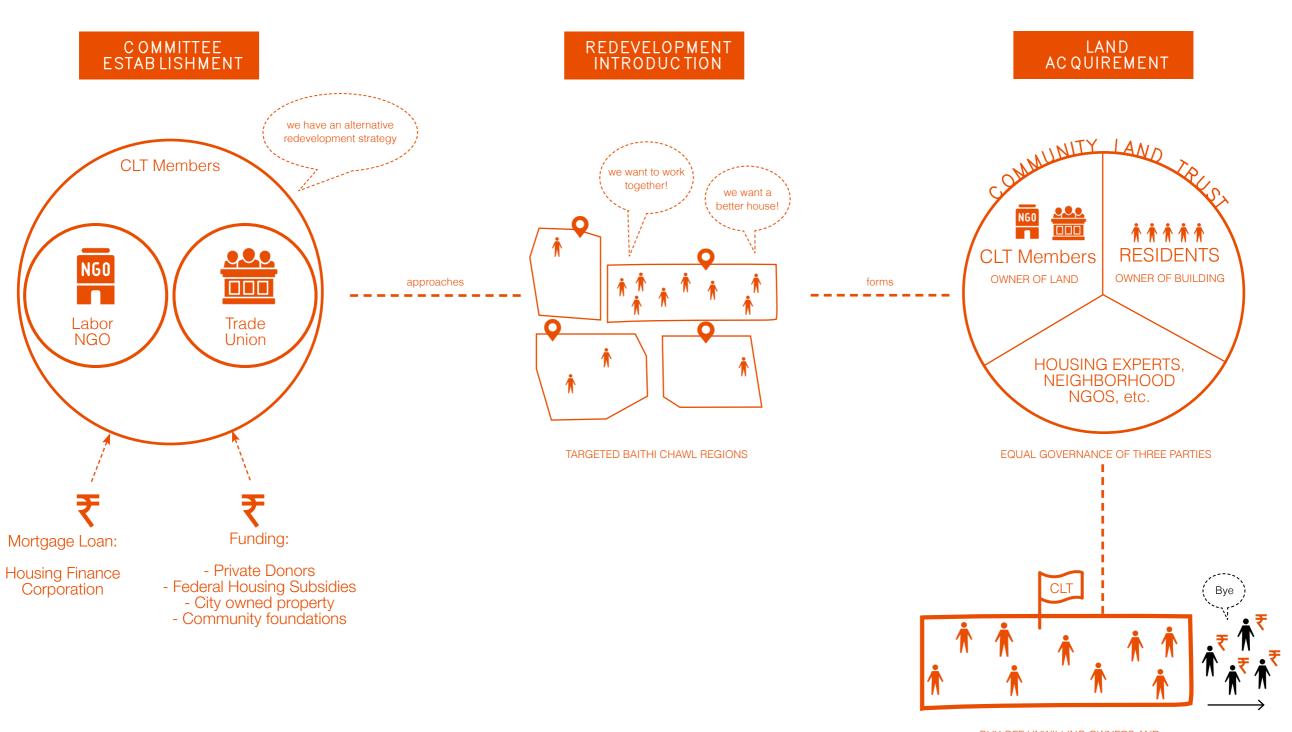




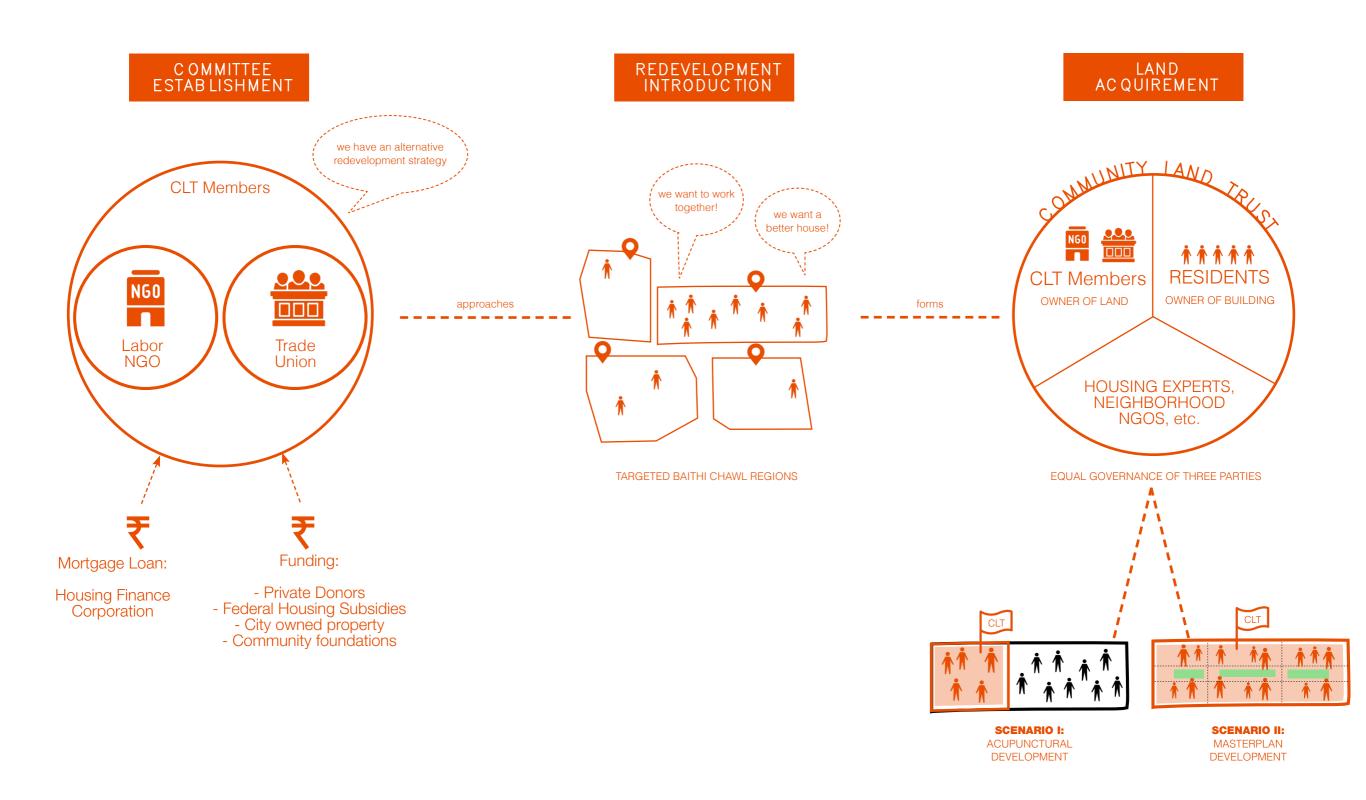


educational activities at LEARN Mahila Kamgar Sangathana (LMKS)

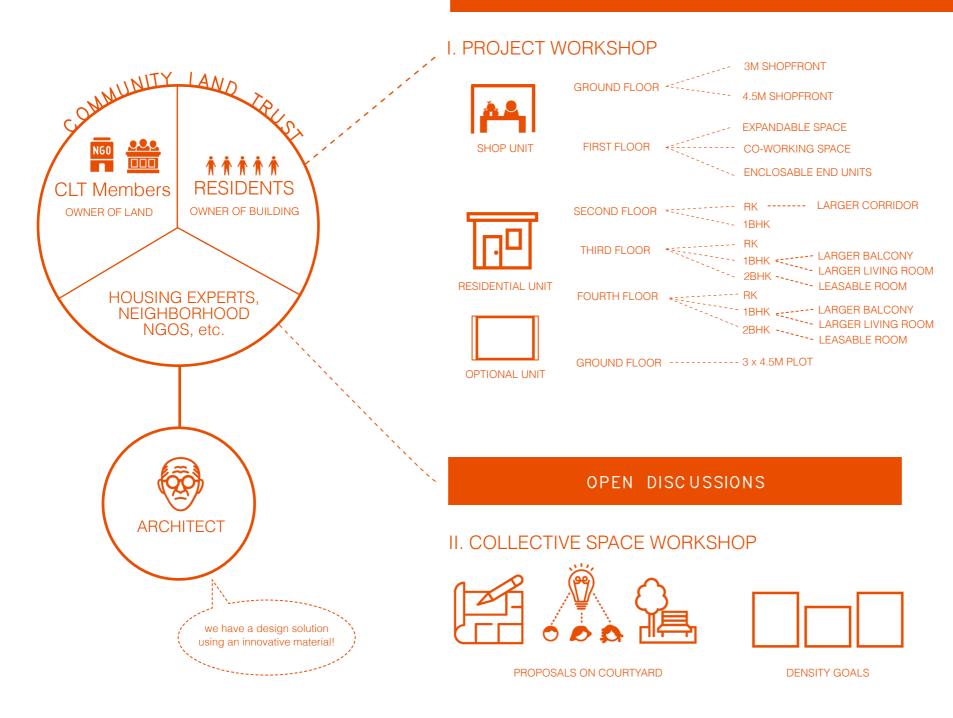




BUY OFF UNWILLING OWNERS AND ESTABLISH COMMUNITY OWNED LAND



COMMUNICATION OF CONSTRAINTS



III. ADAPTATION WORKSHOP



UNDERSTANDING THE LEGAL TOOLS



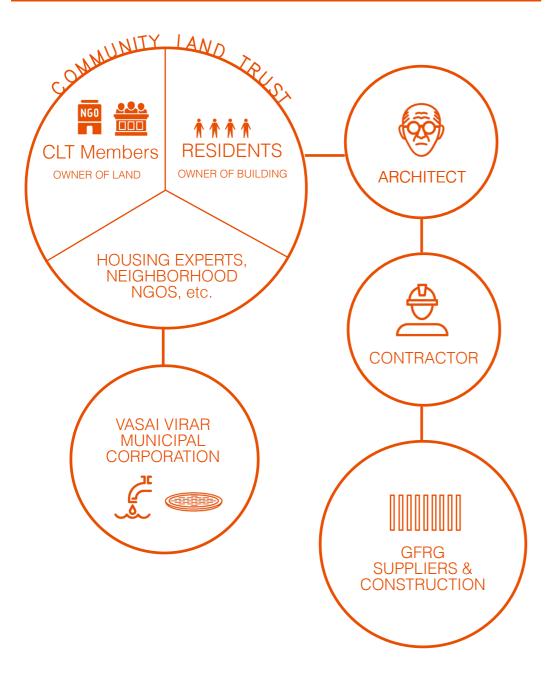
APPROPRIATE MATERIALS & CONSTRUCTION



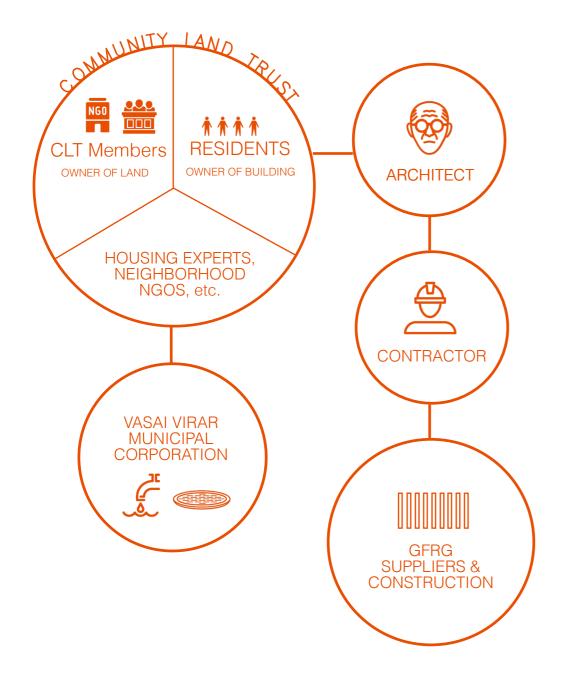
DECORATION KNOW-HOW

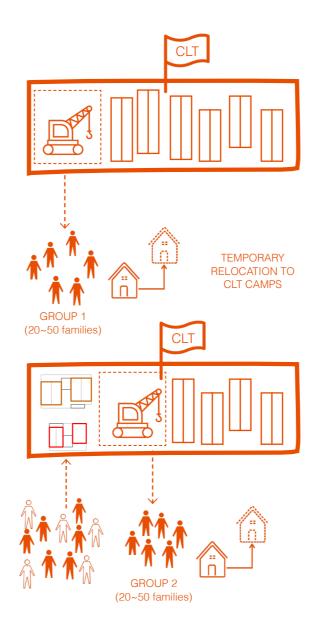
DESIGN PROPOSAL





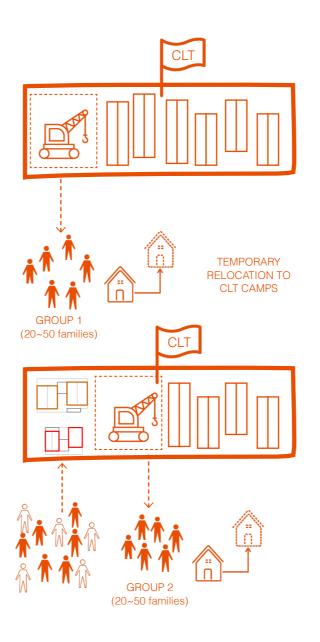
CONSTRUCTION



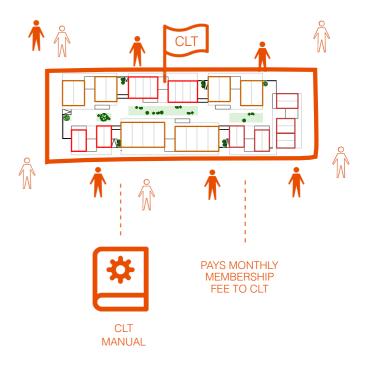


S. SMMUNITY LAND NGO **RESIDENTS CLT Members** OWNER OF BUILDING OWNER OF LAND **ARCHITECT** HOUSING EXPERTS, NEIGHBORHOOD NGOS, etc. CONTRACTOR VASAI VIRAR MUNICIPAL CORPORATION GFRG SUPPLIERS & CONSTRUCTION

CONSTRUCTION

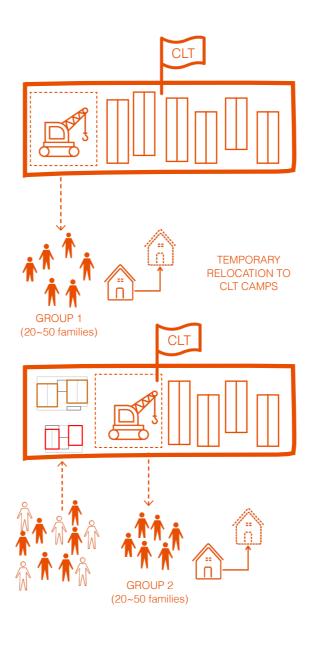


HABITATION & ADAPTATION

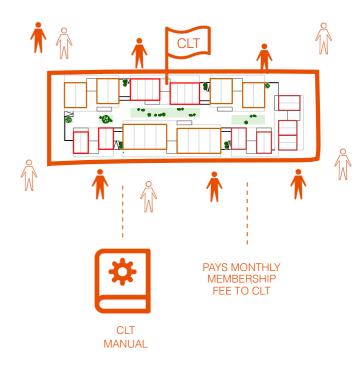


S. SMMUNITY LAND NGO **RESIDENTS CLT Members** OWNER OF BUILDING OWNER OF LAND **ARCHITECT** HOUSING EXPERTS, NEIGHBORHOOD NGOS, etc. CONTRACTOR VASAI VIRAR MUNICIPAL CORPORATION GFRG SUPPLIERS & CONSTRUCTION

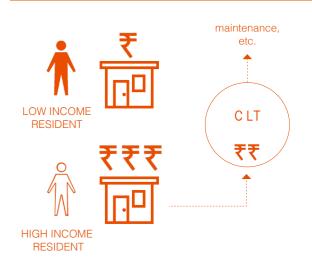
CONSTRUCTION



HABITATION & ADAPTATION



RECRUITMENT OF NEW RESIDENTS



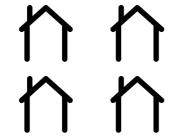
CONSTRUCTION & CLIMATE How can the informal workers' diverse socio-economic pursuits be achieved by affordable housing which incoporates controlled participation and efficient construction to improve both density and quality?





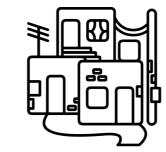
KEY GOALS

EFFICIENT CONSTRUCTION



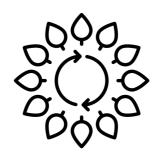
Urban Housing Shortage in India: 18.78 million units

AFFORDABLE DESIGN

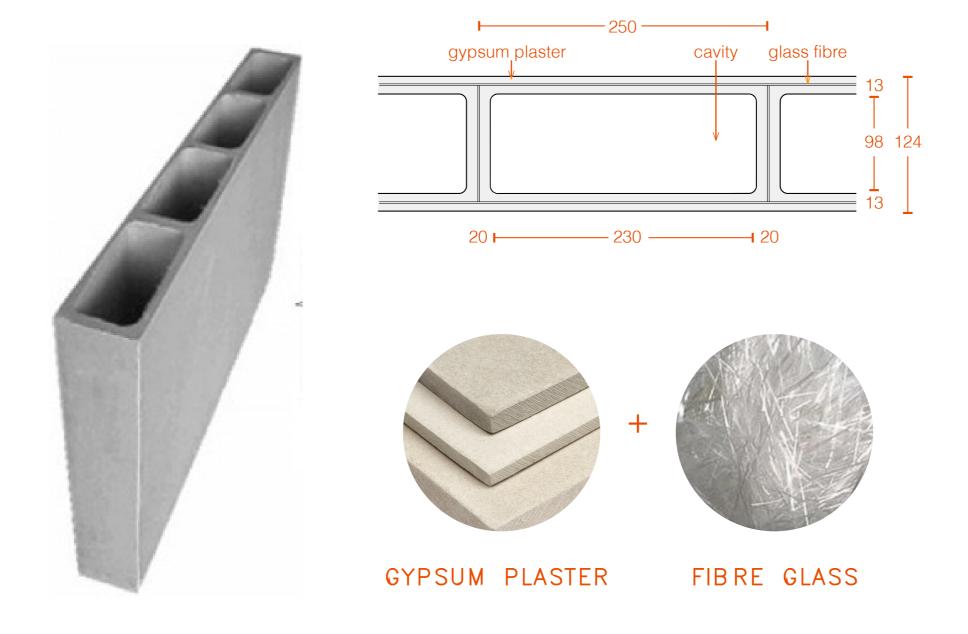


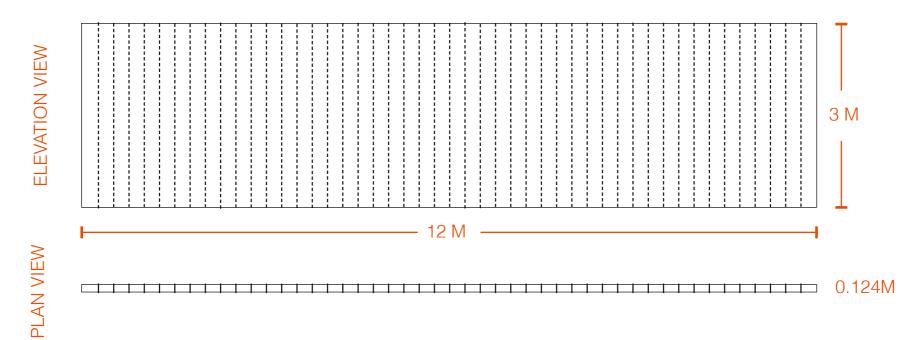
96% of housing shortage pertains to EWS and LIG

SUSTAINABLE MATERIAL



Conventional construction materials are energy intensive





Standard prefabricated panel dimensions

GFRG as building material







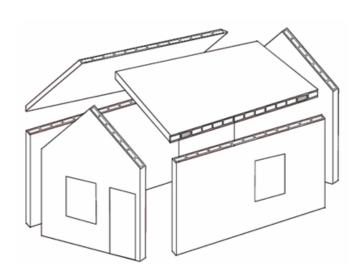


External Walls (with R.C. filling)

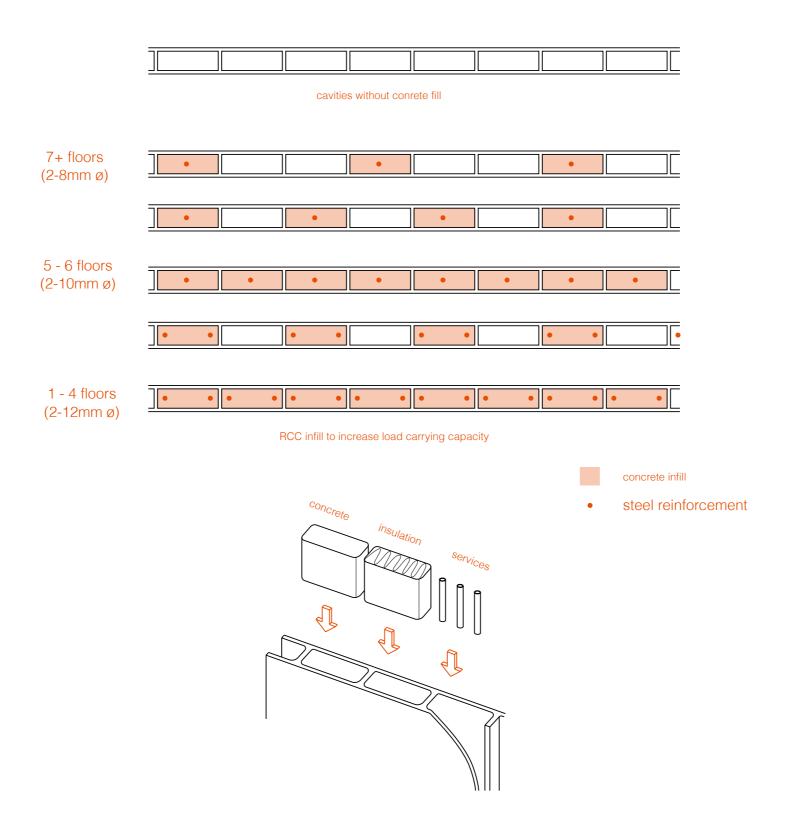
Floors

Waist Slab for Staircases

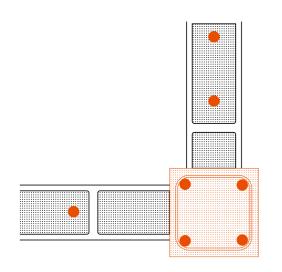
Roof Slab (unfilled)

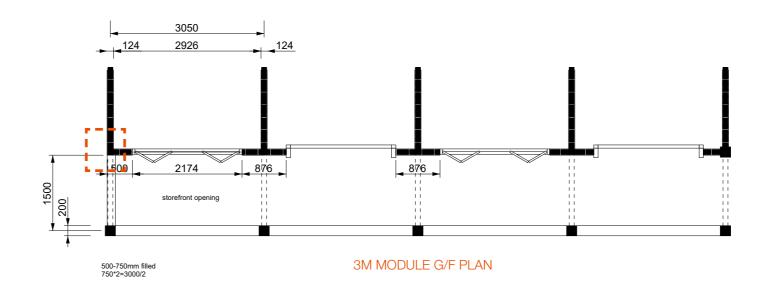


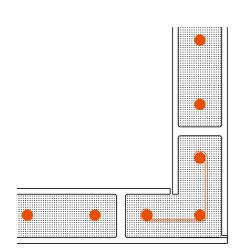
GFRG as building material



GFRG wall application

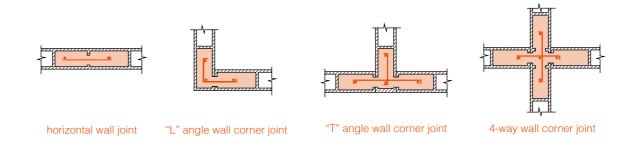




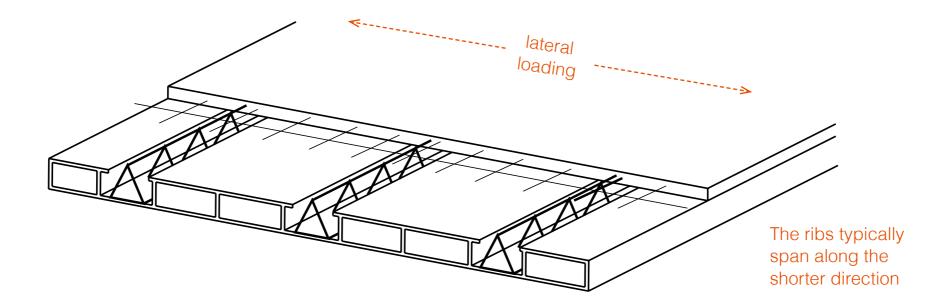


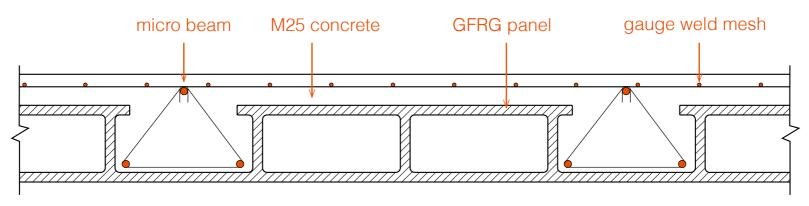
3M MODULE 2/F PLAN

TYPICAL WALL CORNER JOINTS



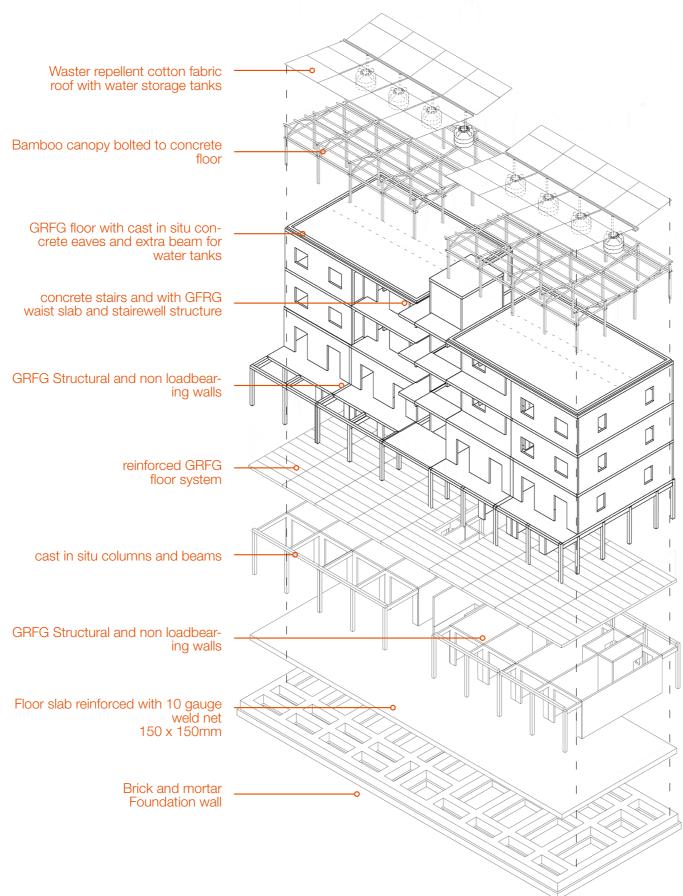
GFRG wall application



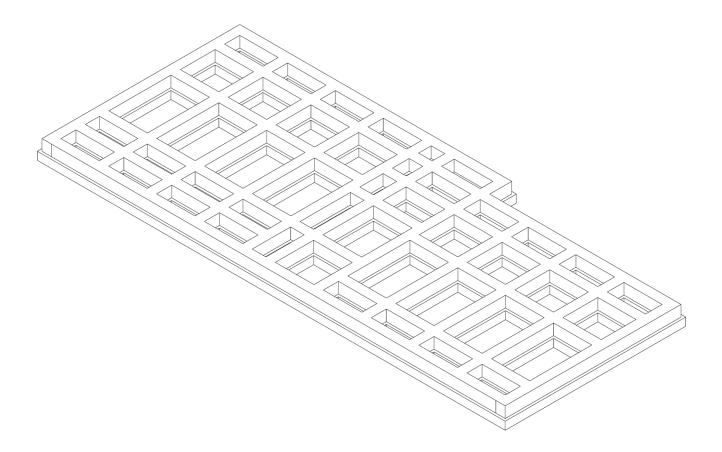


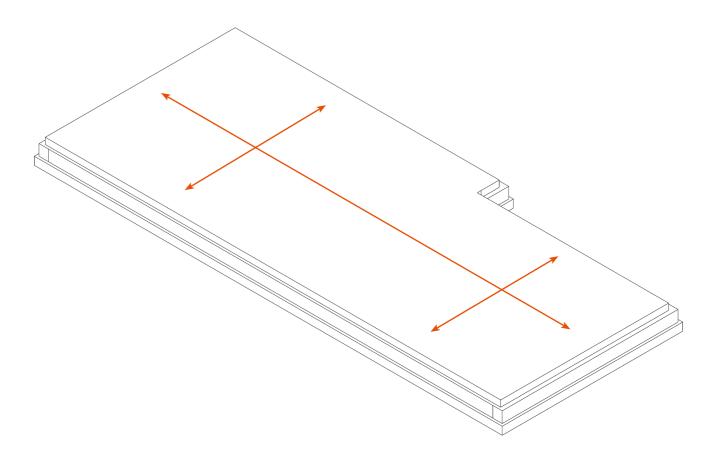
reinforced gfrg floor panel section

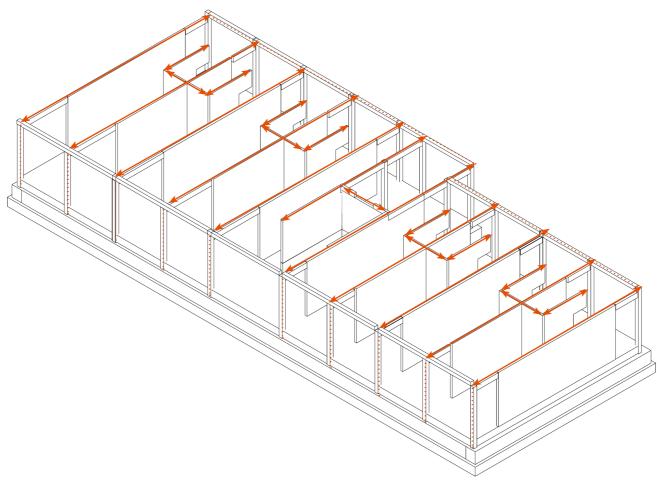
GFRG floor application

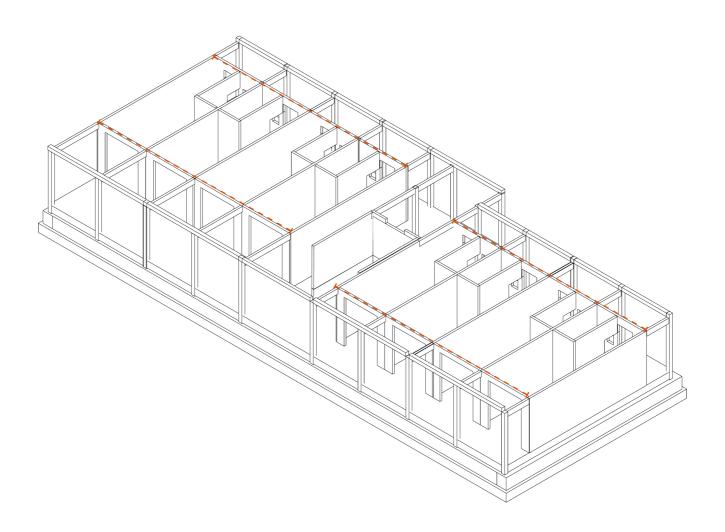


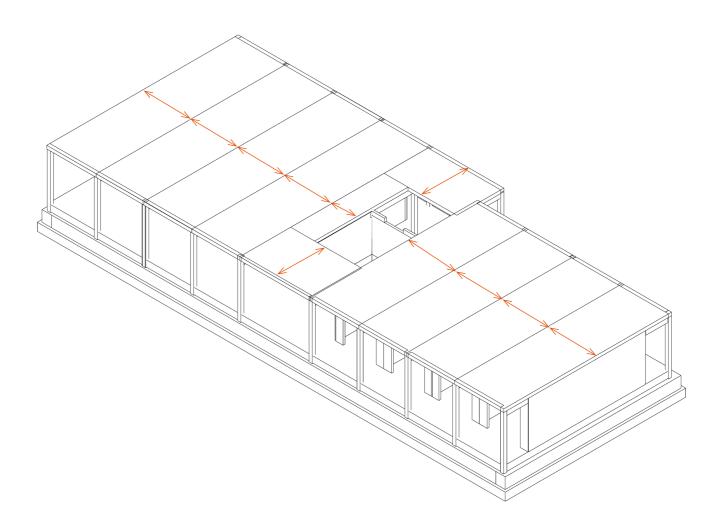
GFRG building system

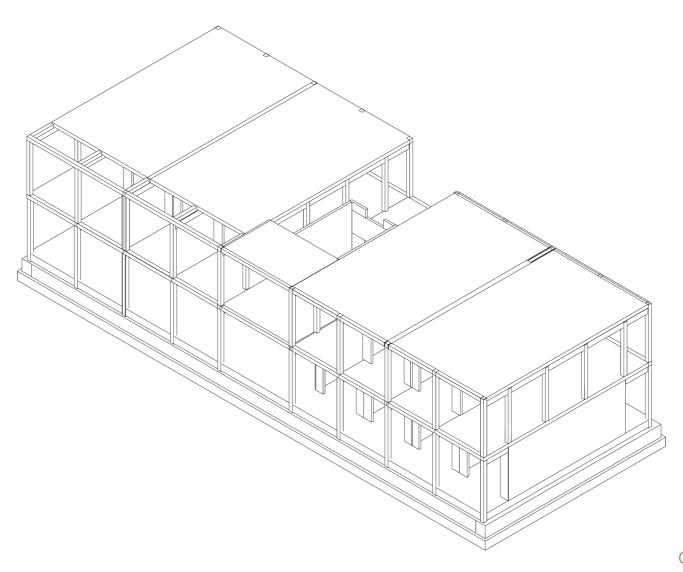


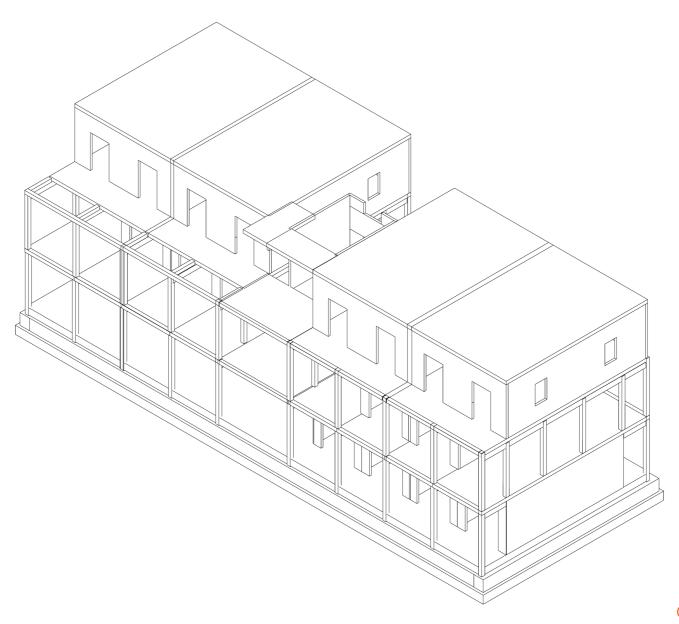


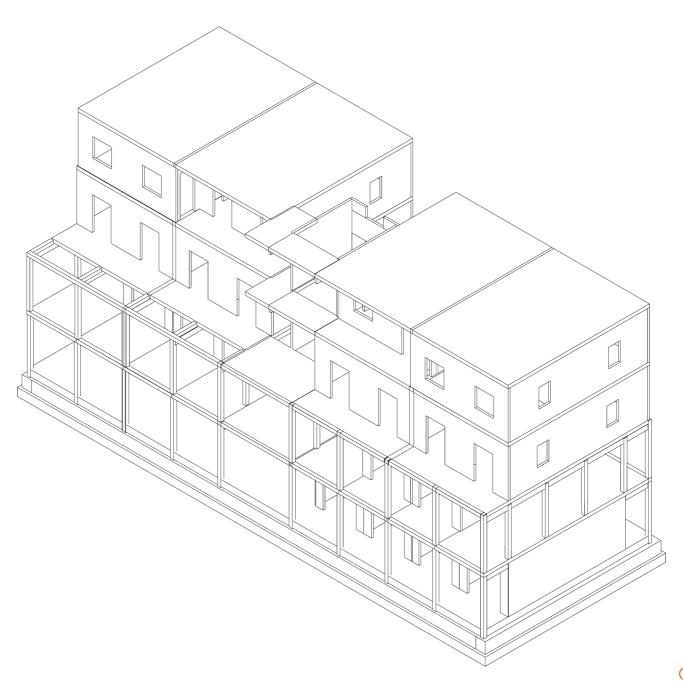


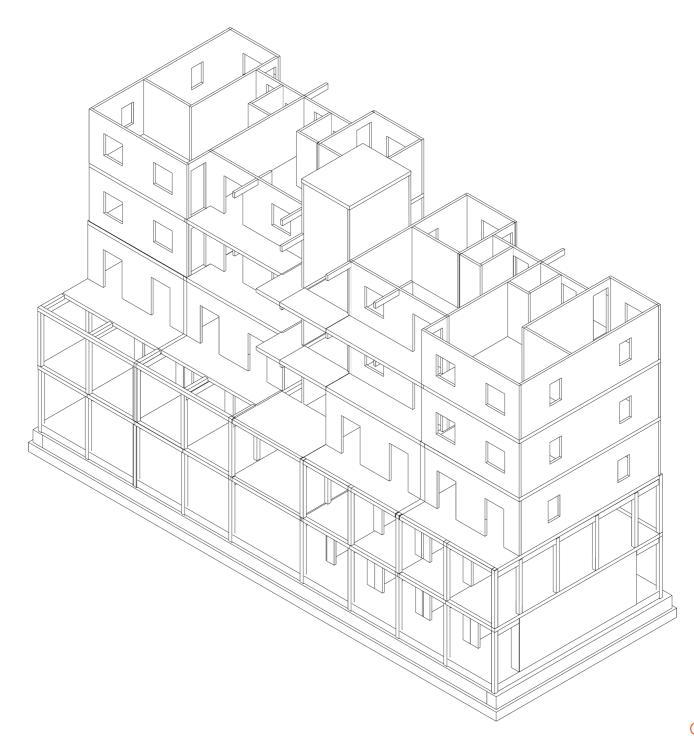


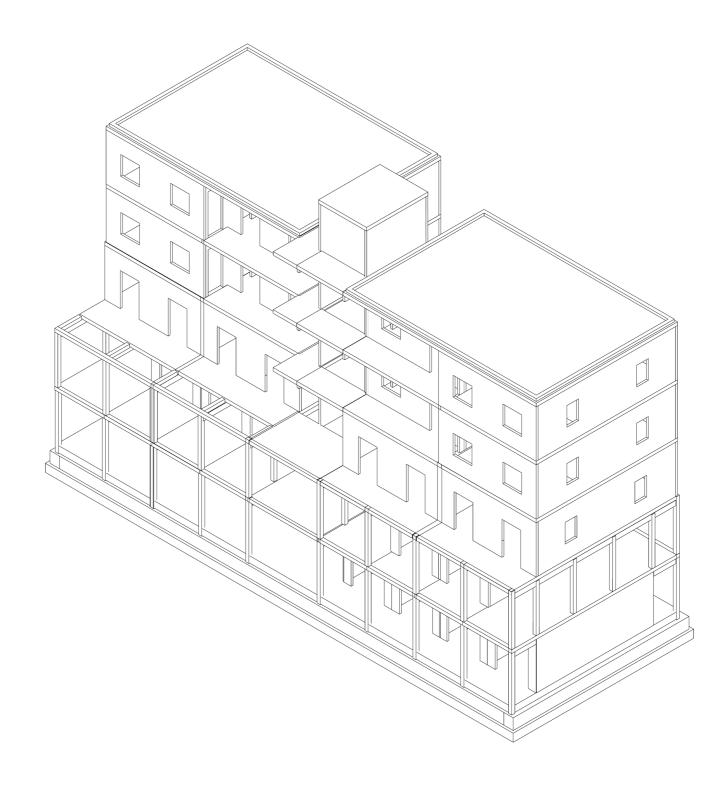


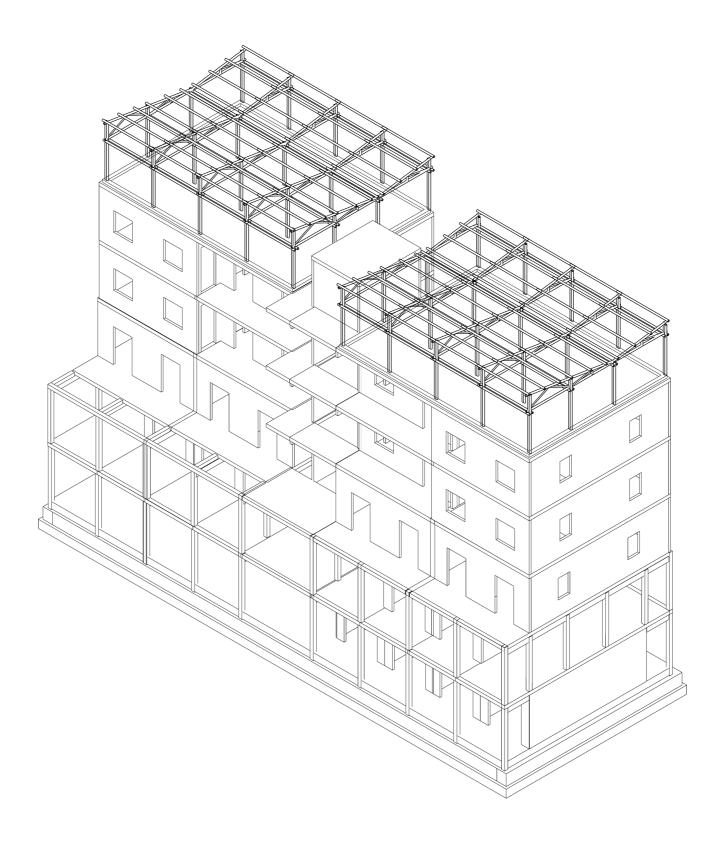


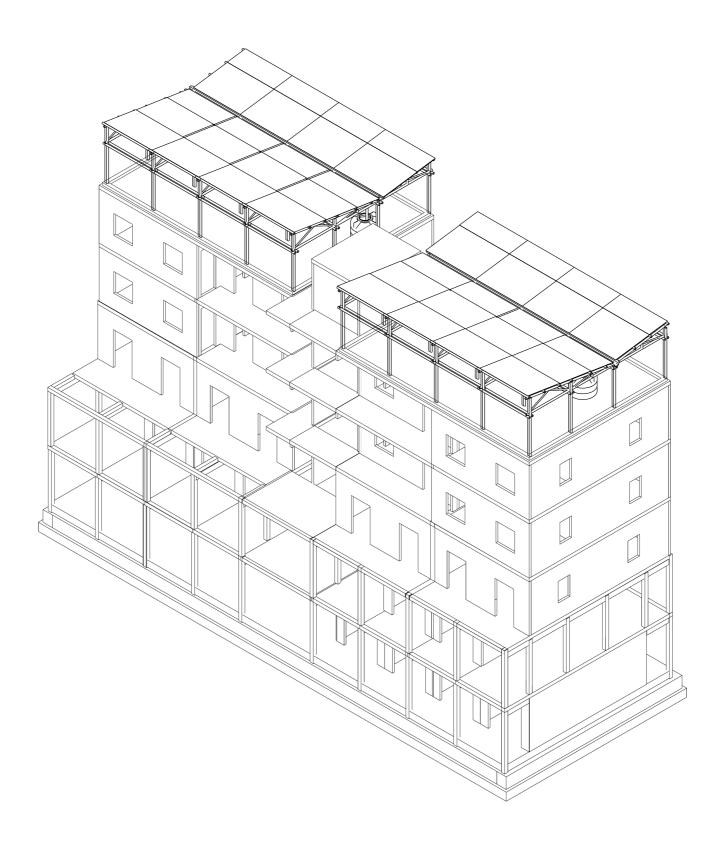


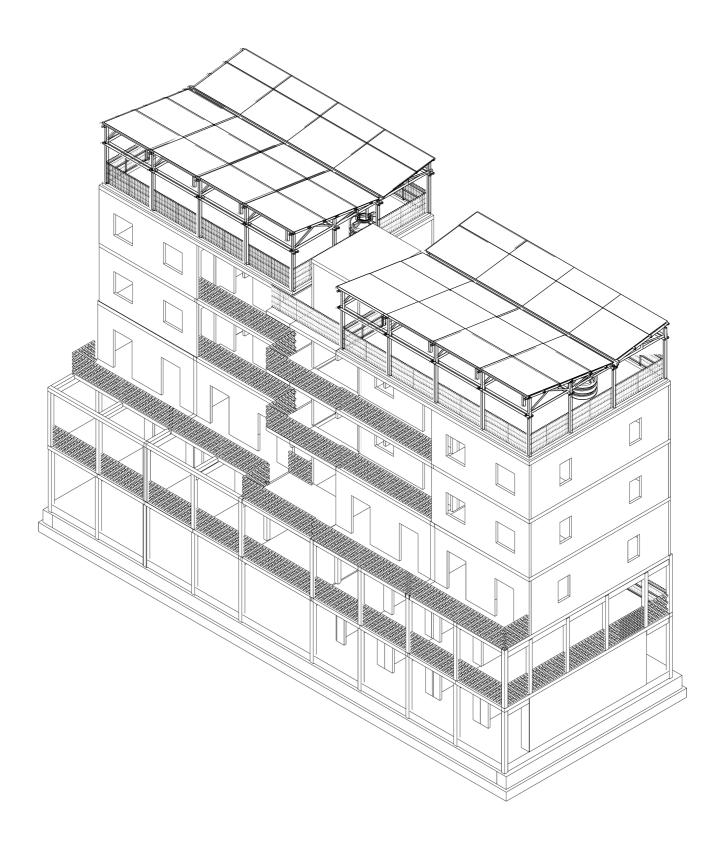


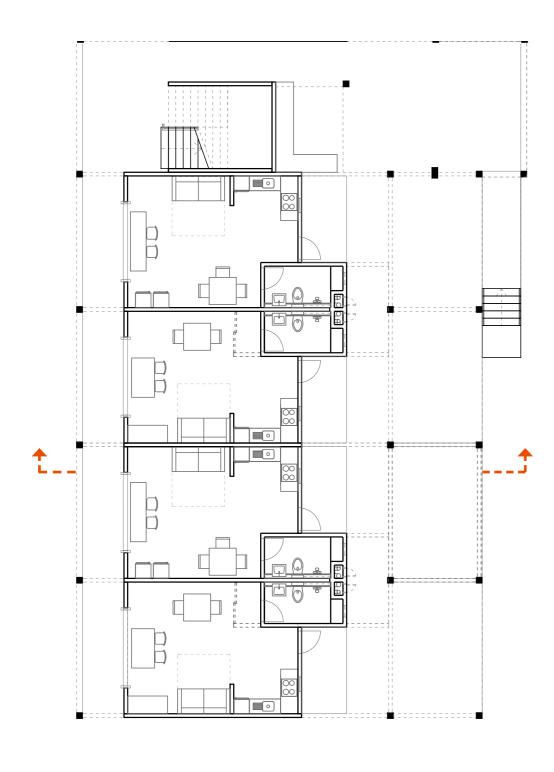




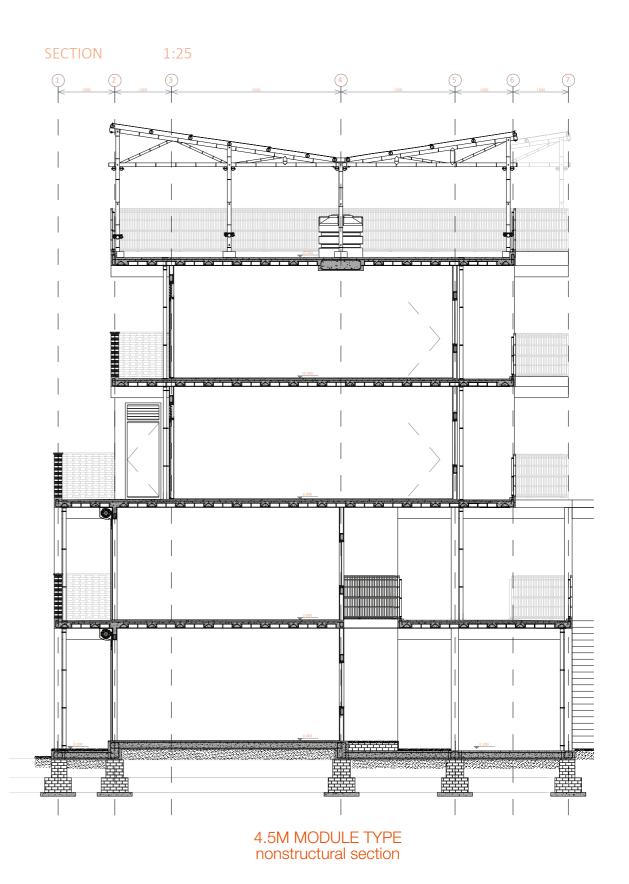




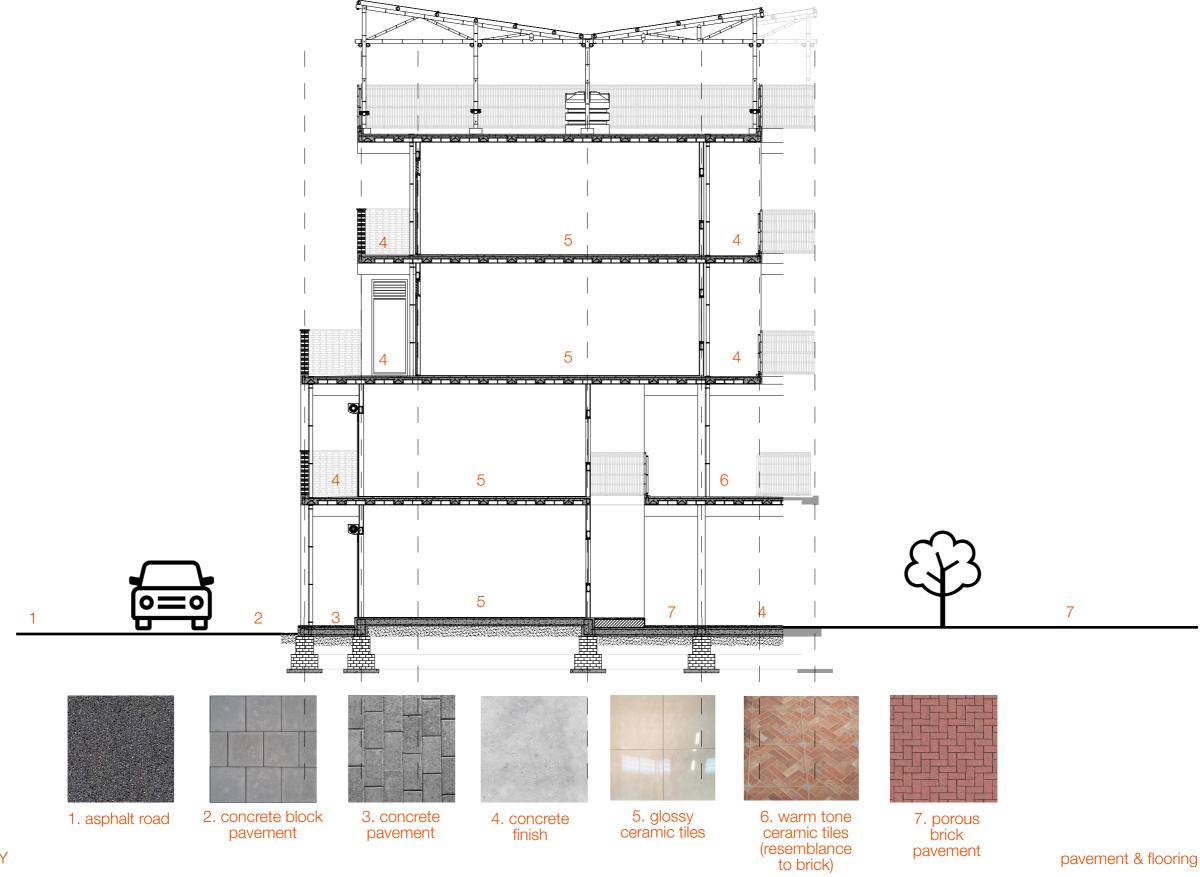




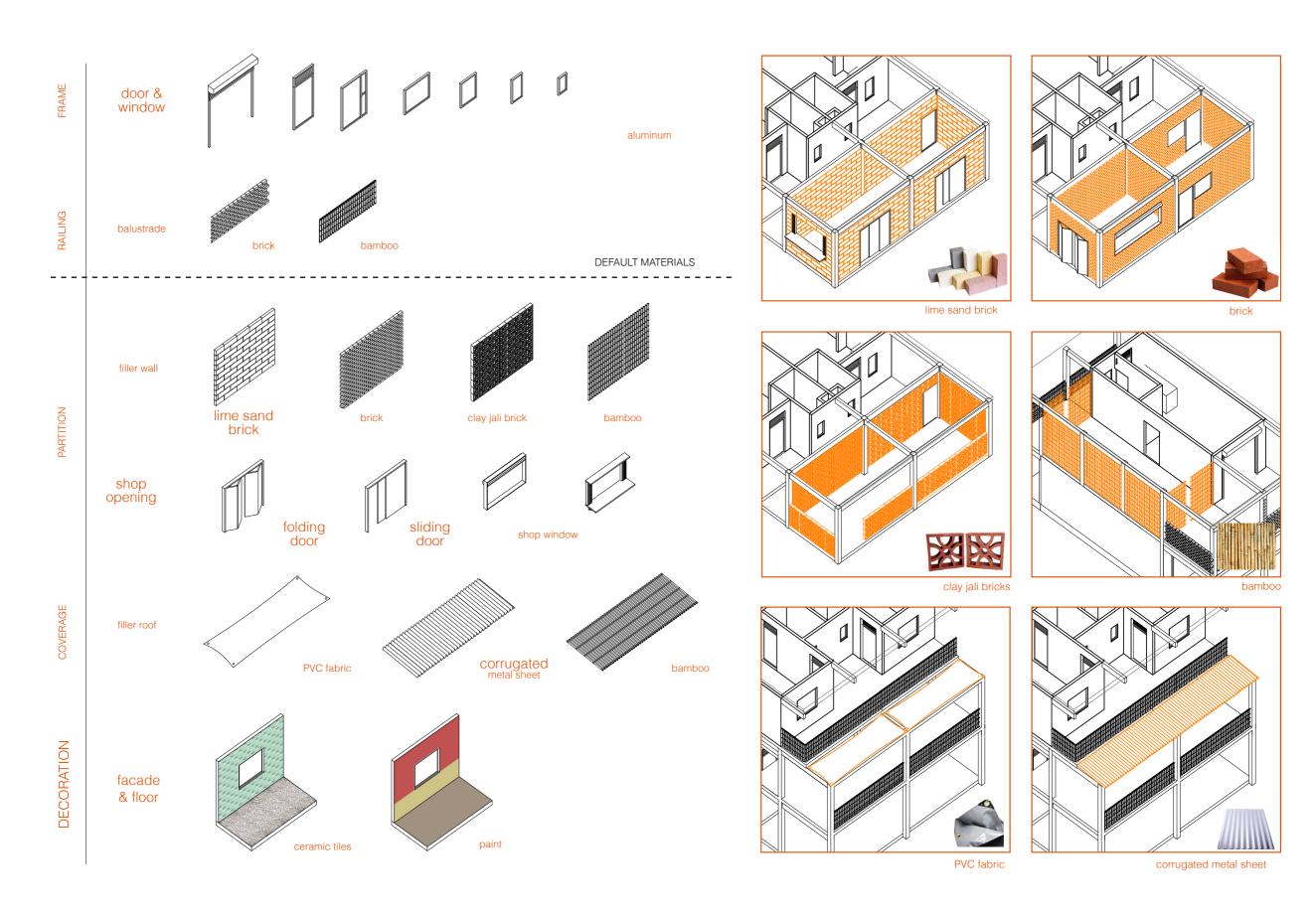
4.5M MODULE TYPE ground floor plan



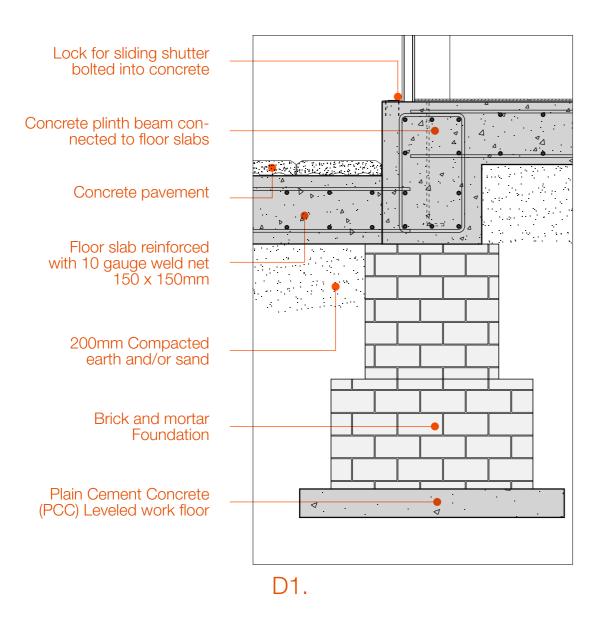
DETAILS

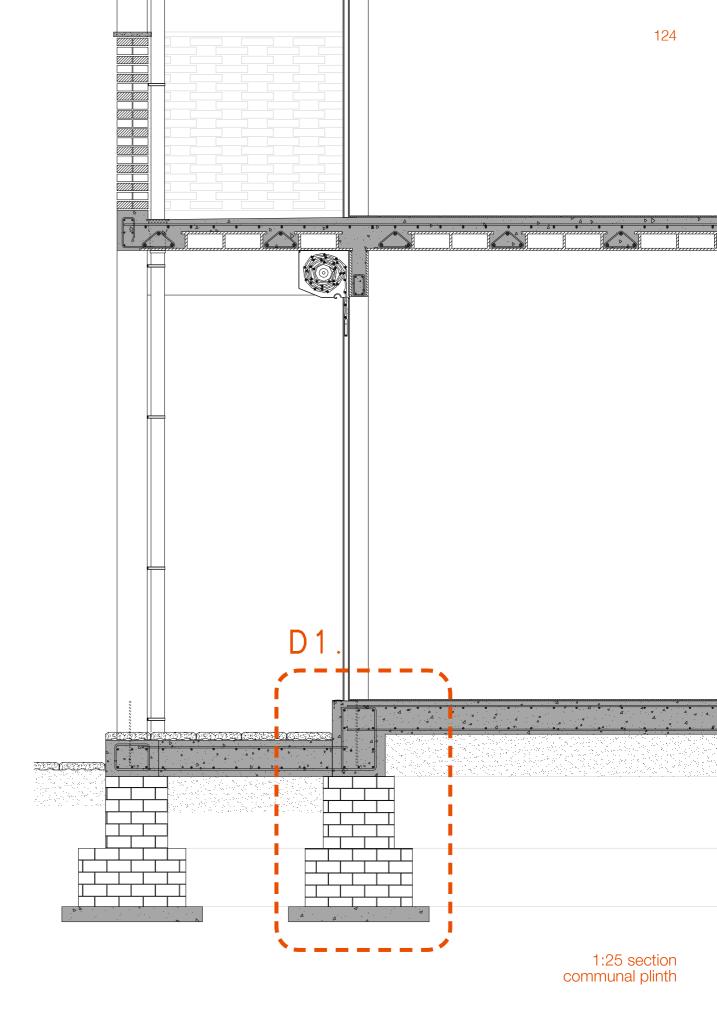


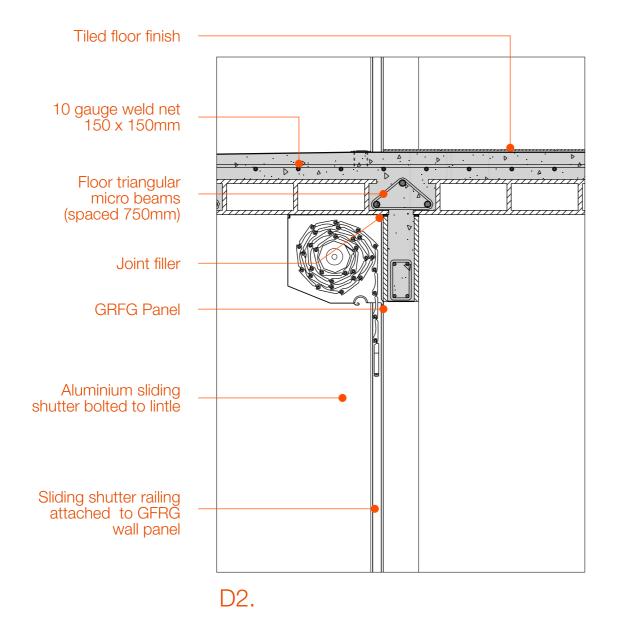
MATERIALITY

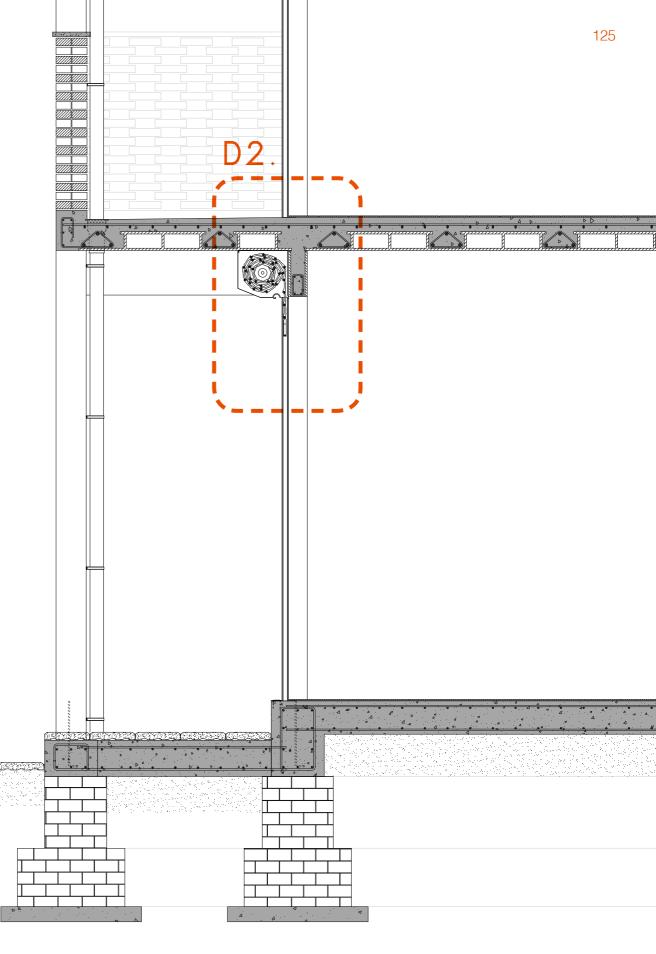


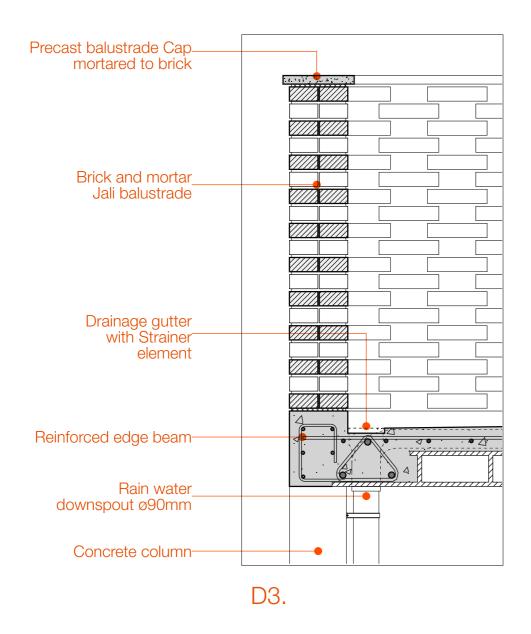
MATERIALITY infill possibilities

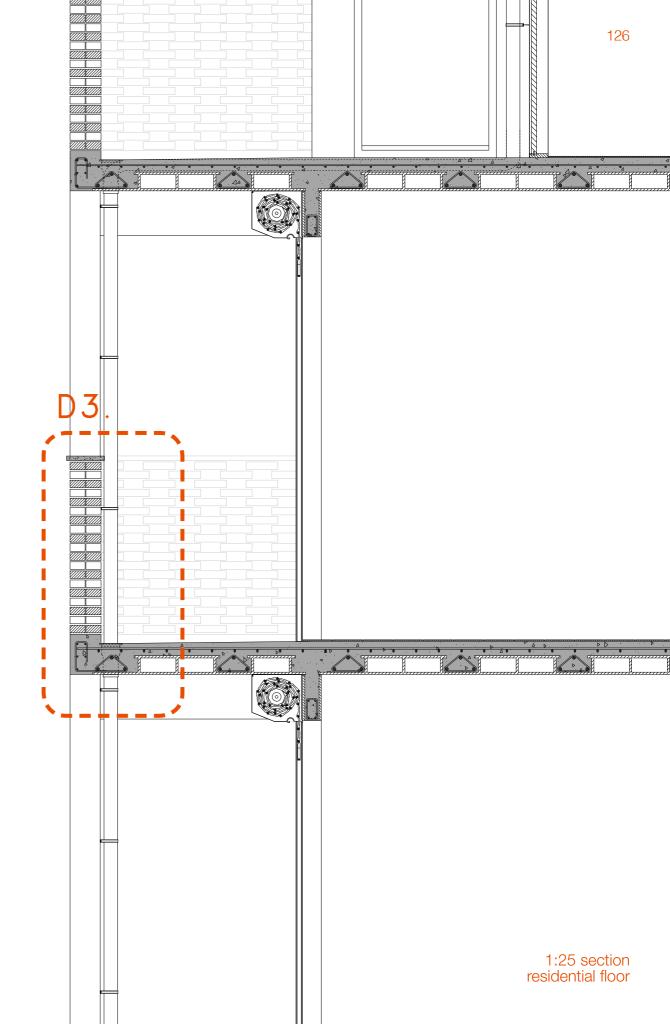


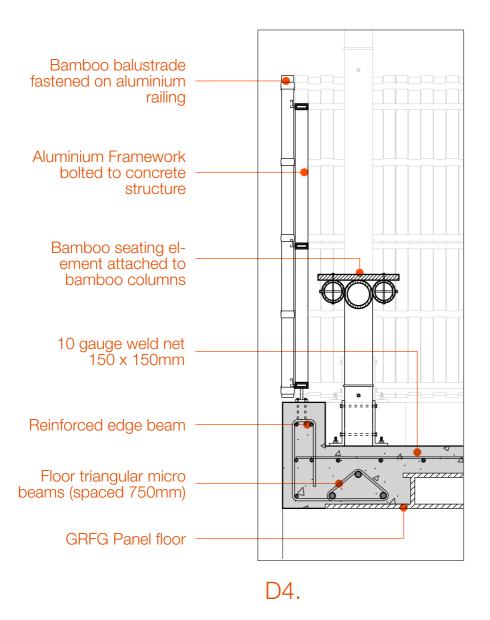


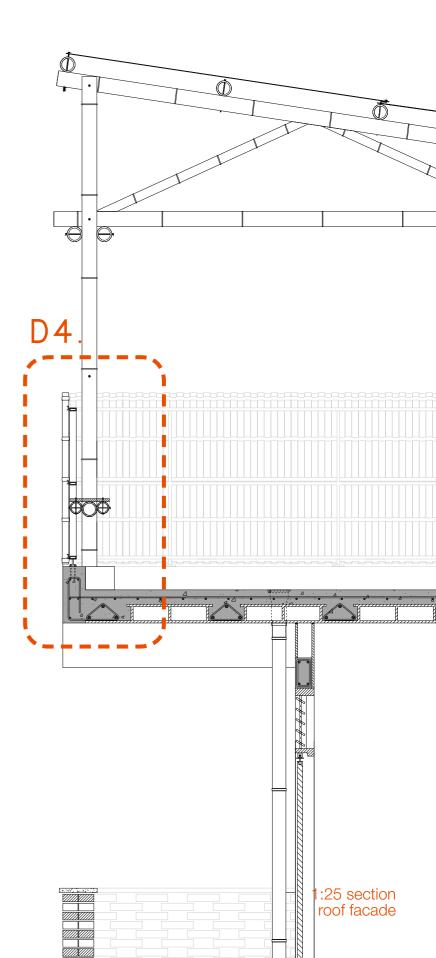




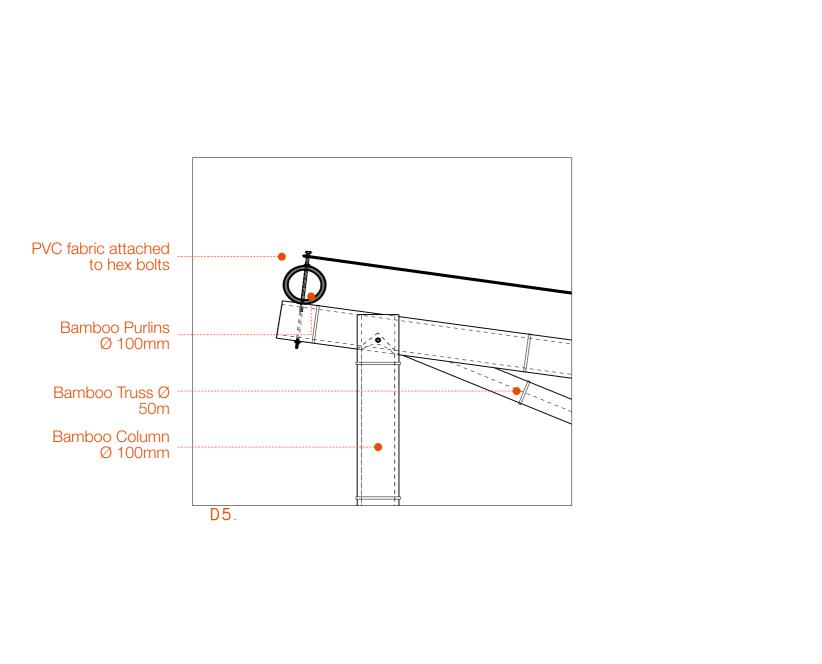


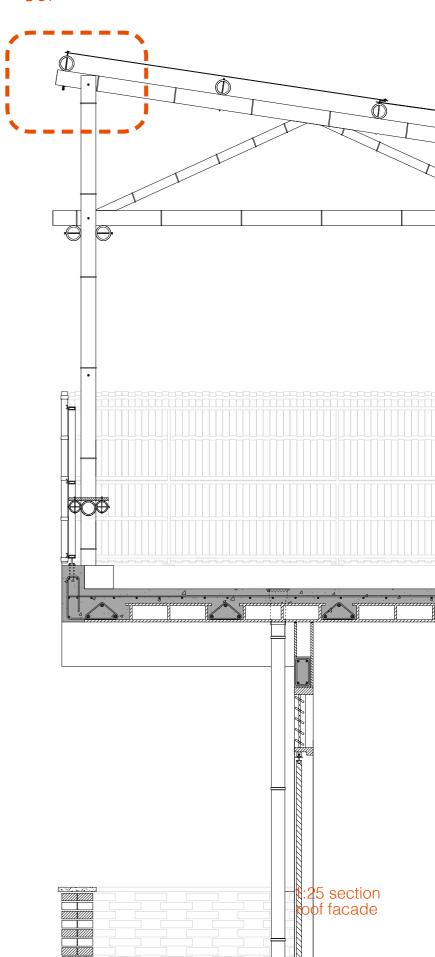


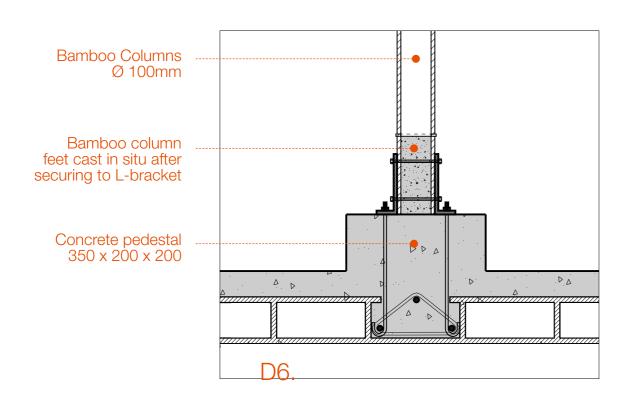


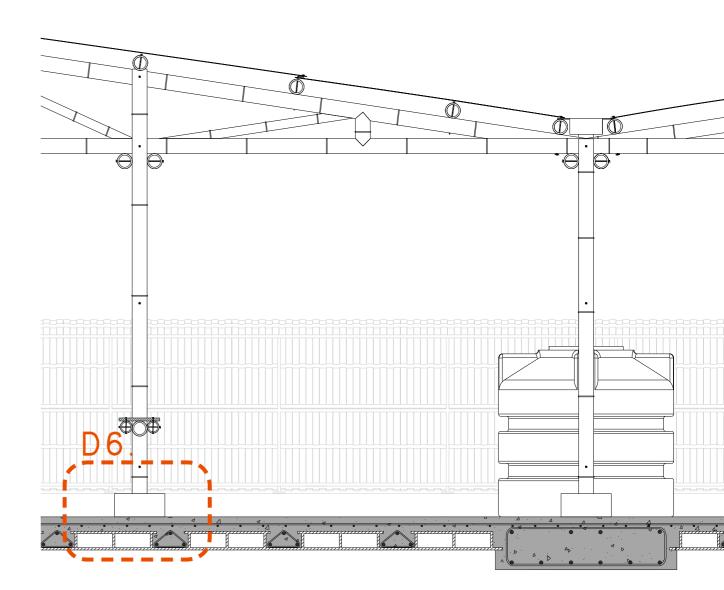


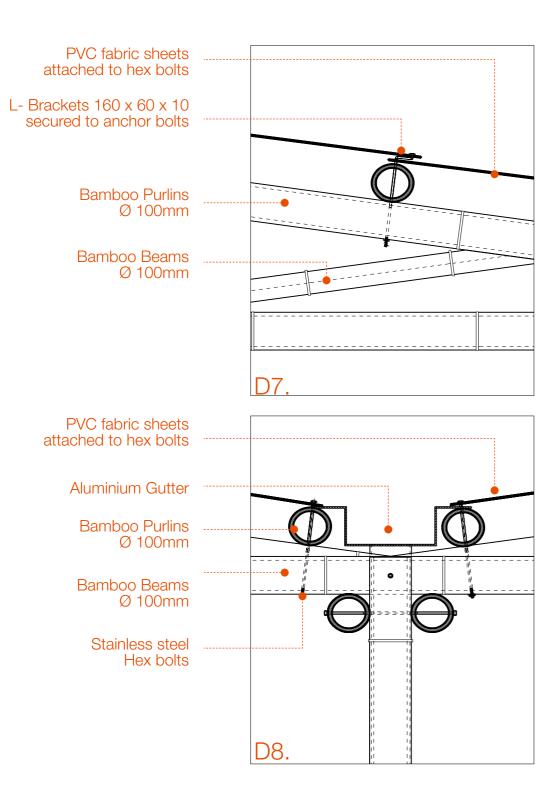
D5.

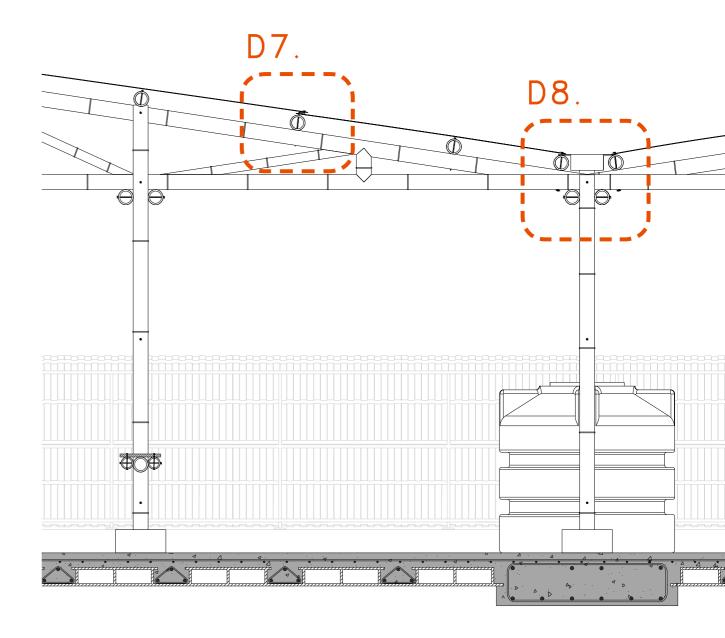


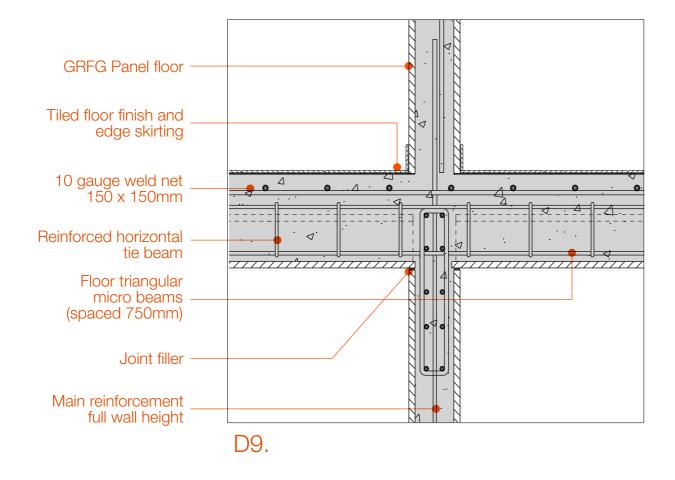


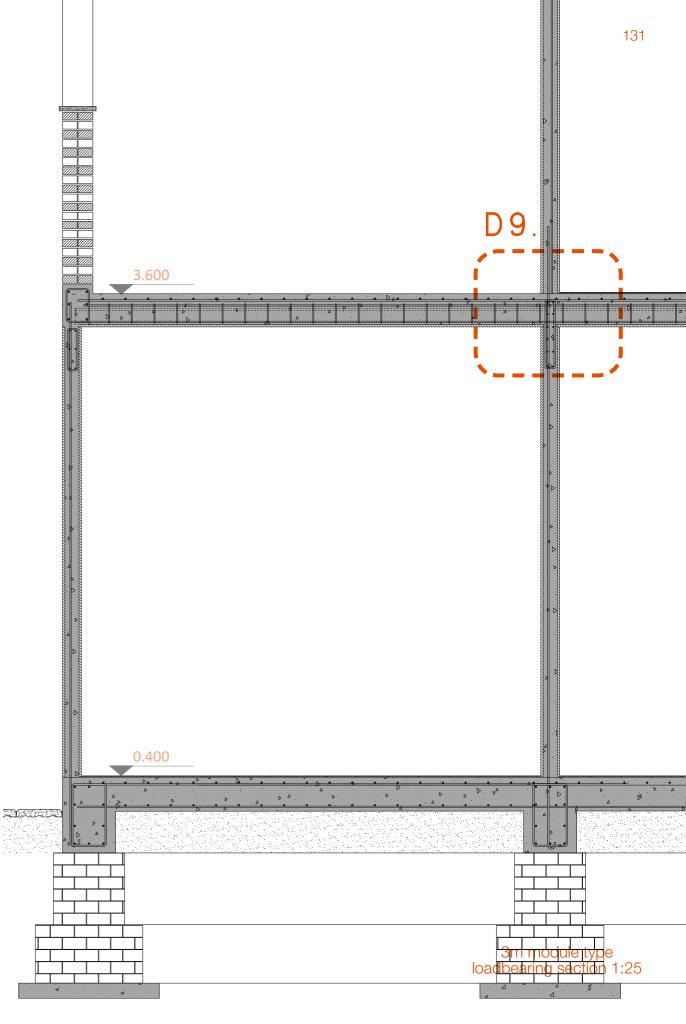


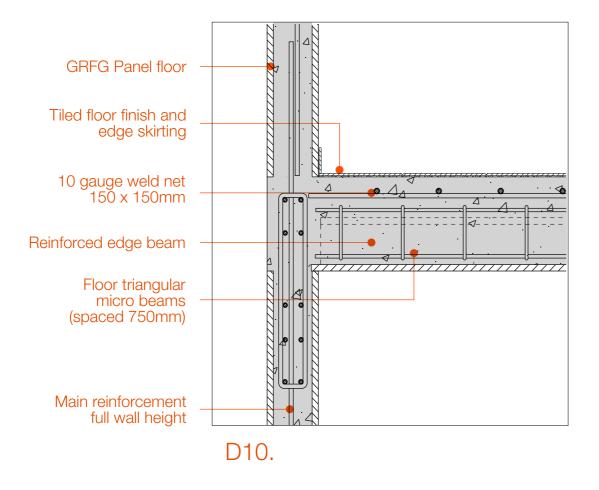


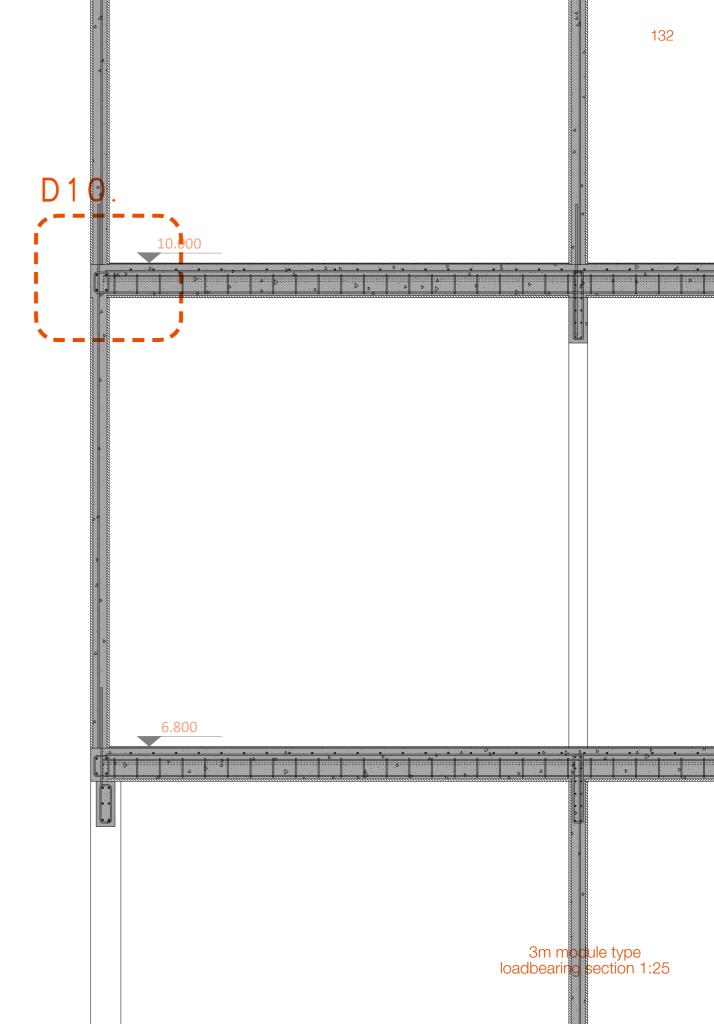


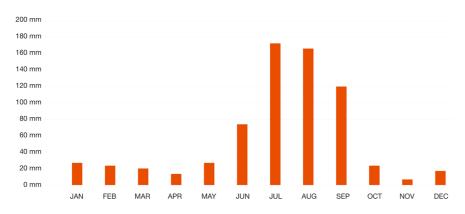




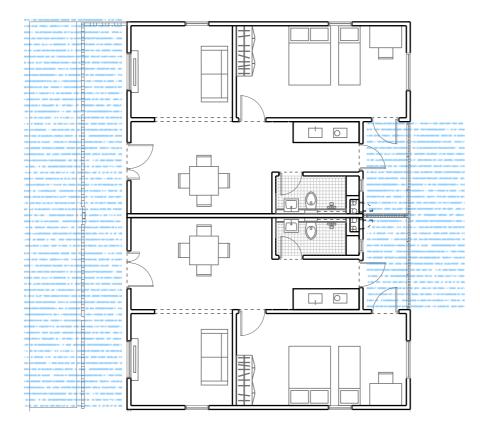






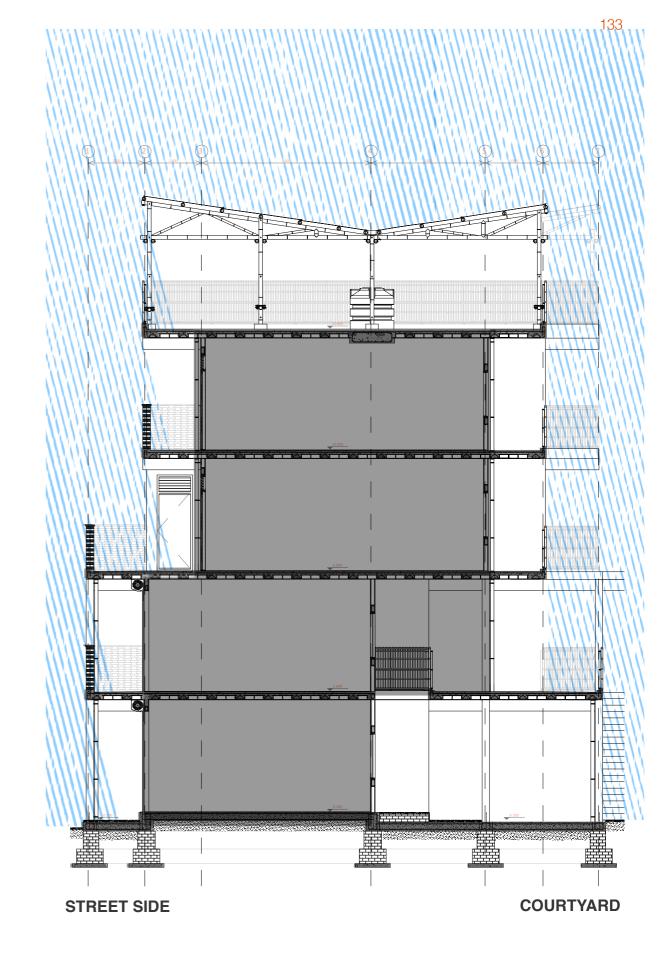


Average Precipitation Per Month (2016)

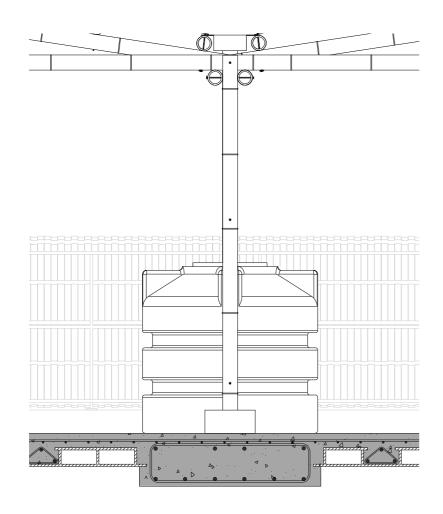


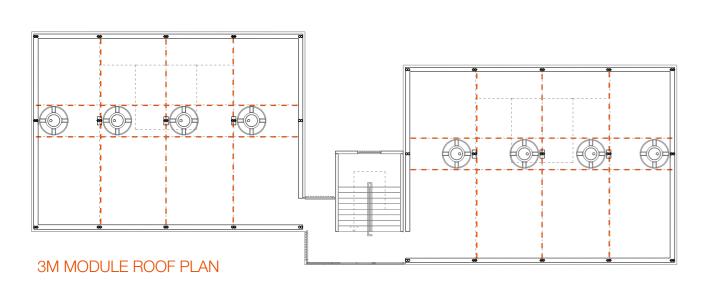
3M MODULE 3/F PLAN

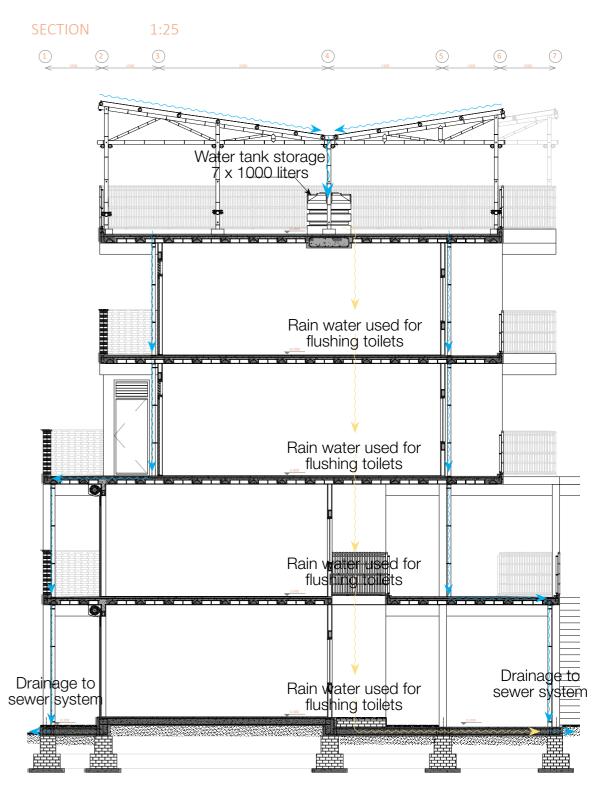
precipitation



CLIMATE water management



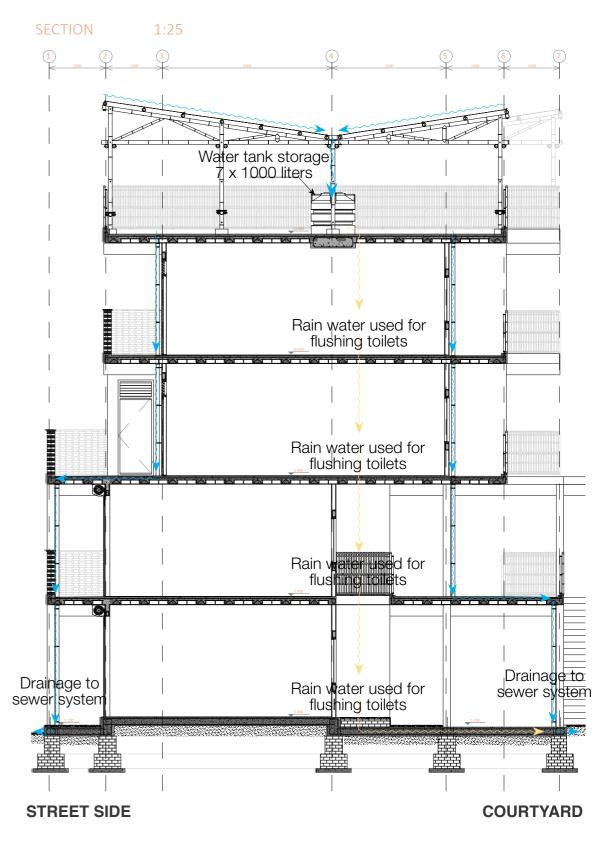




STREET SIDE COURTYARD

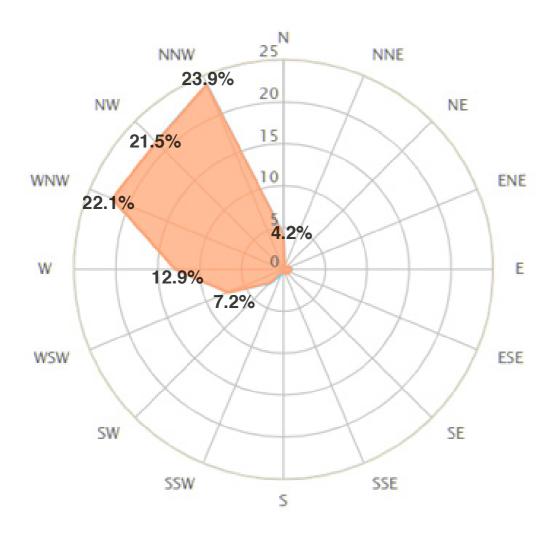
CLIMATE





CLIMATE water management

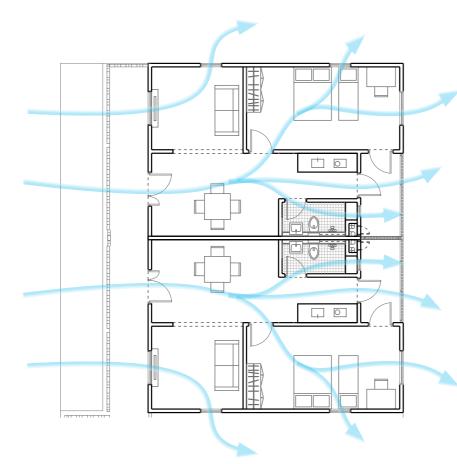
WIND DIRECTION DISTRIBUTION IN %



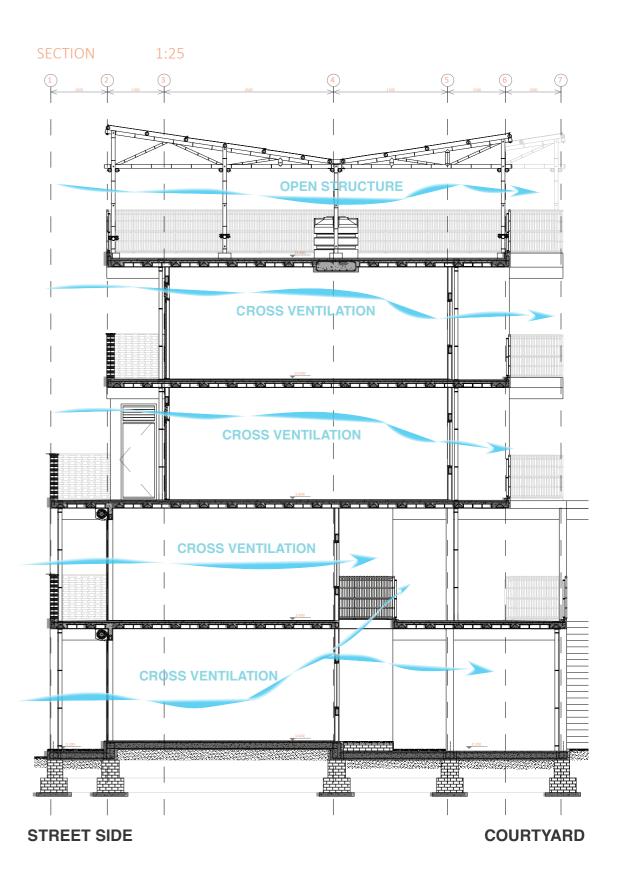
Most prevailing wind direction annual comes from North West

Wind passes between the buildings and through the stairwells

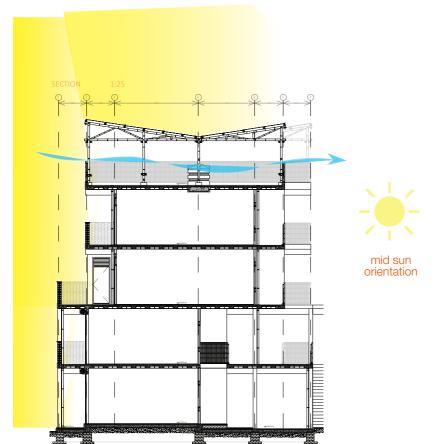
CROSS VENTILATION IN UNITS

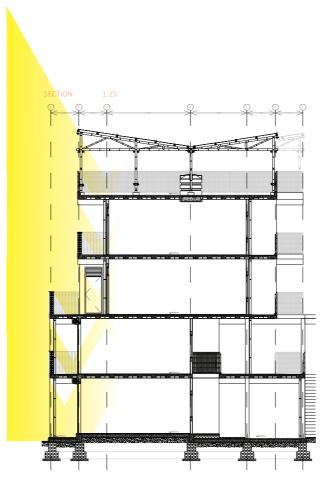


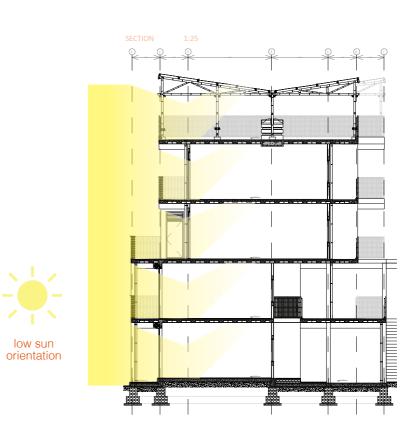
All rooms have atleast one window opening



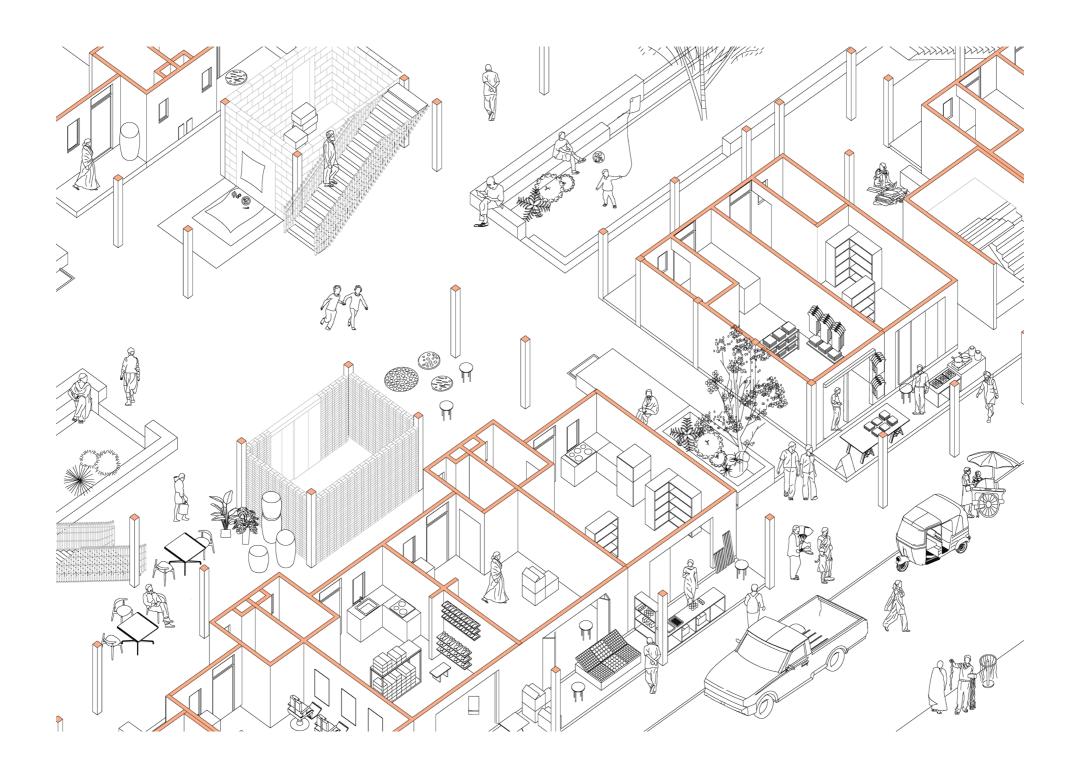




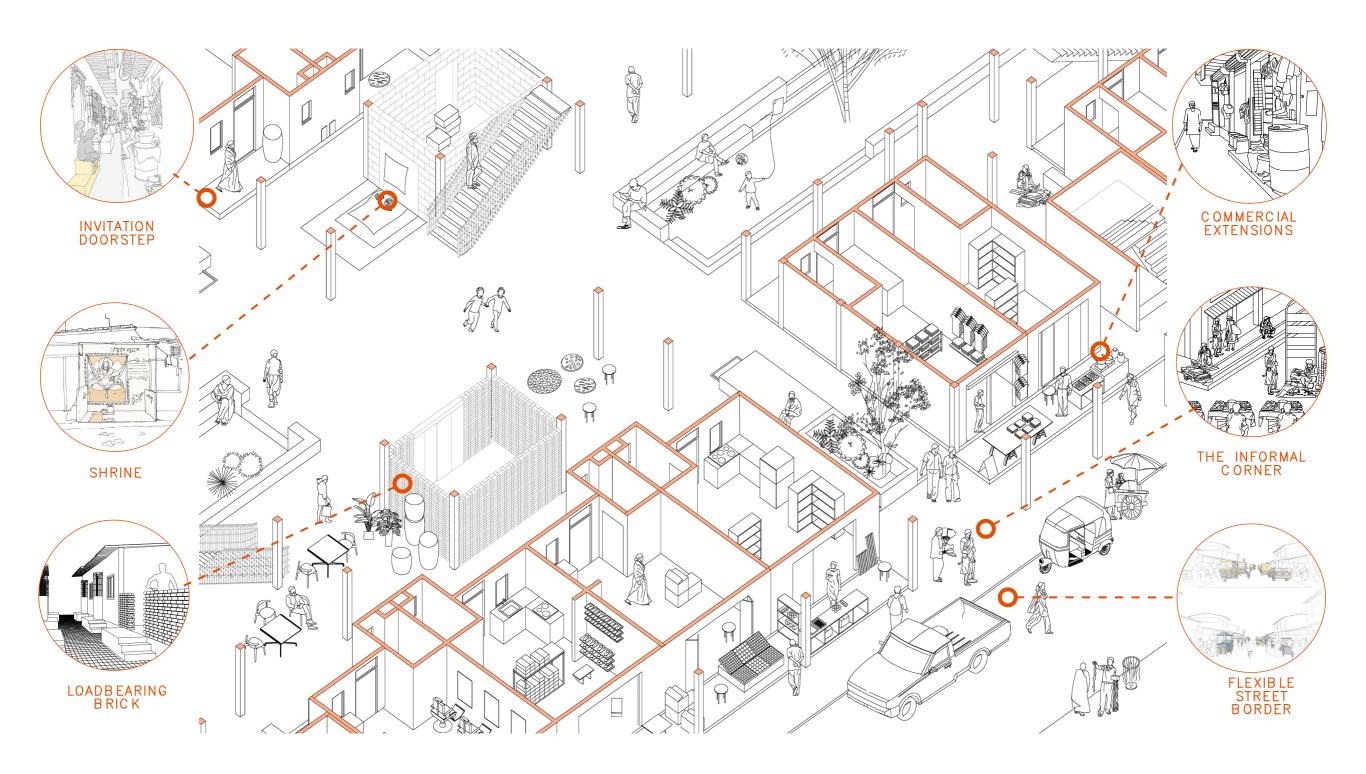




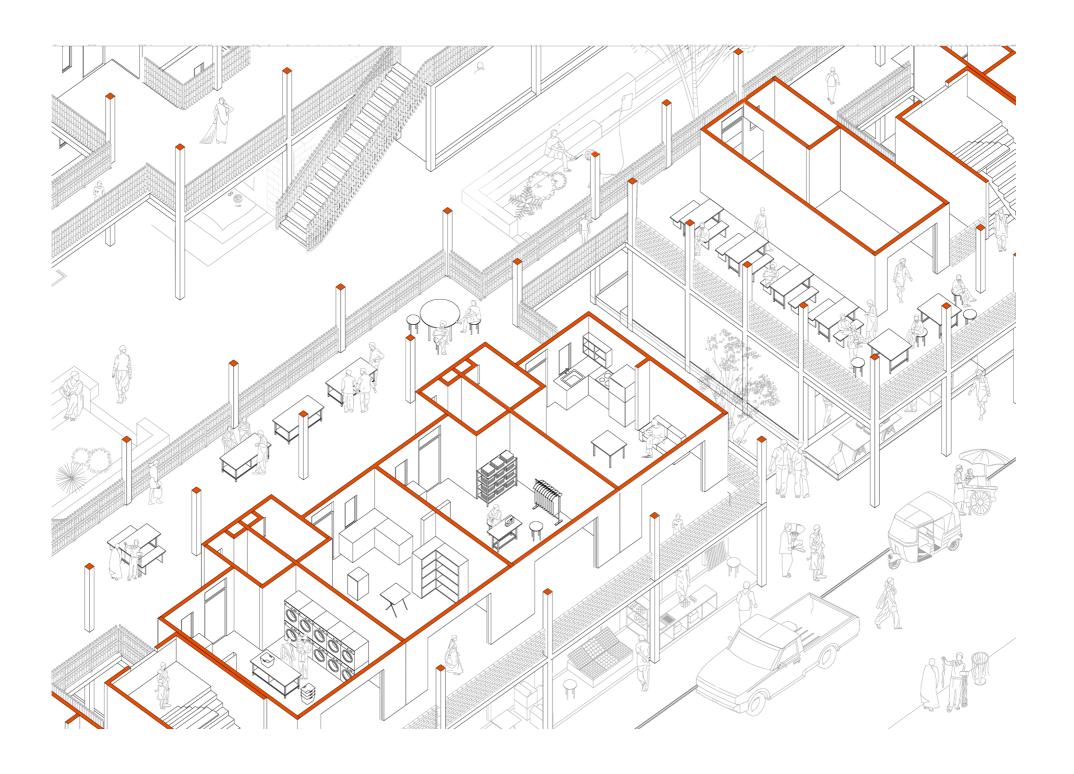


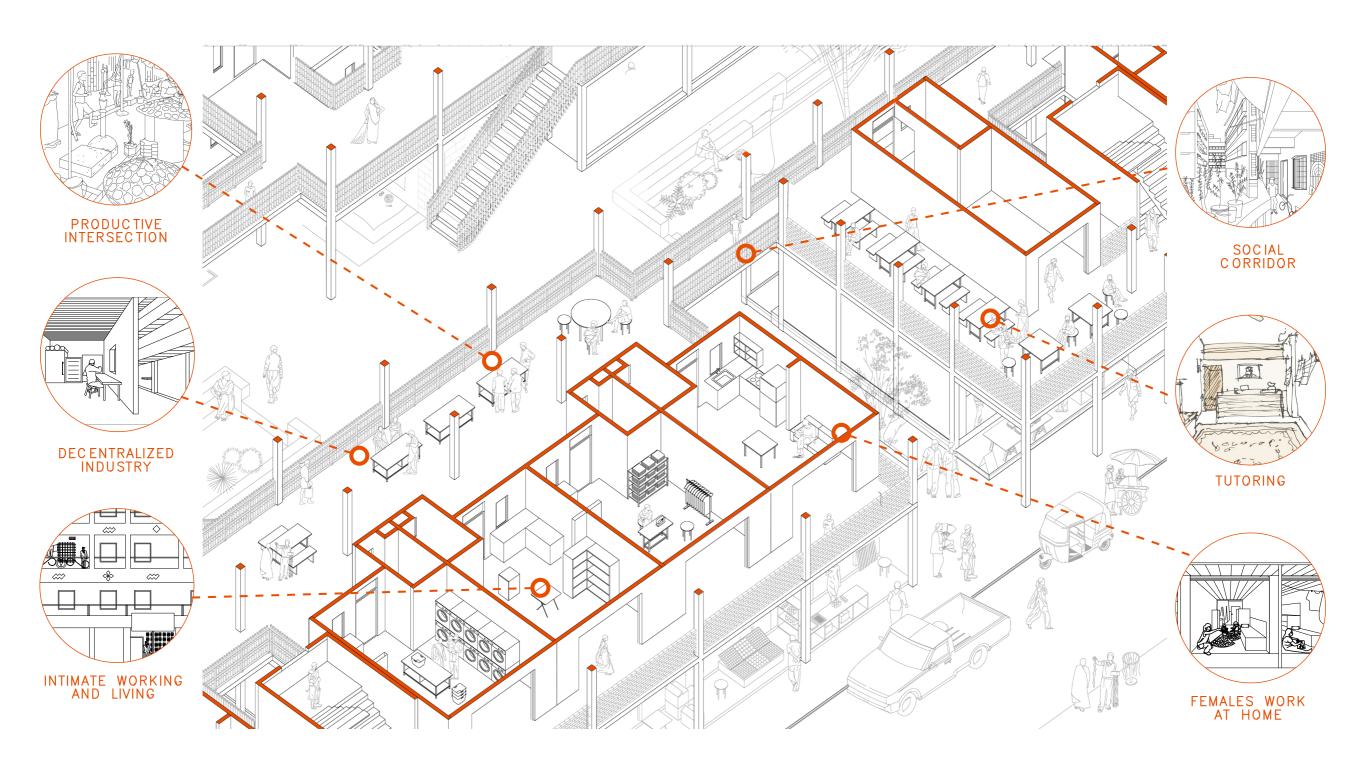


SPACES & PLACES market street activity



SPACES & PLACES market street activity





SPACES & PLACES communal plinth activity

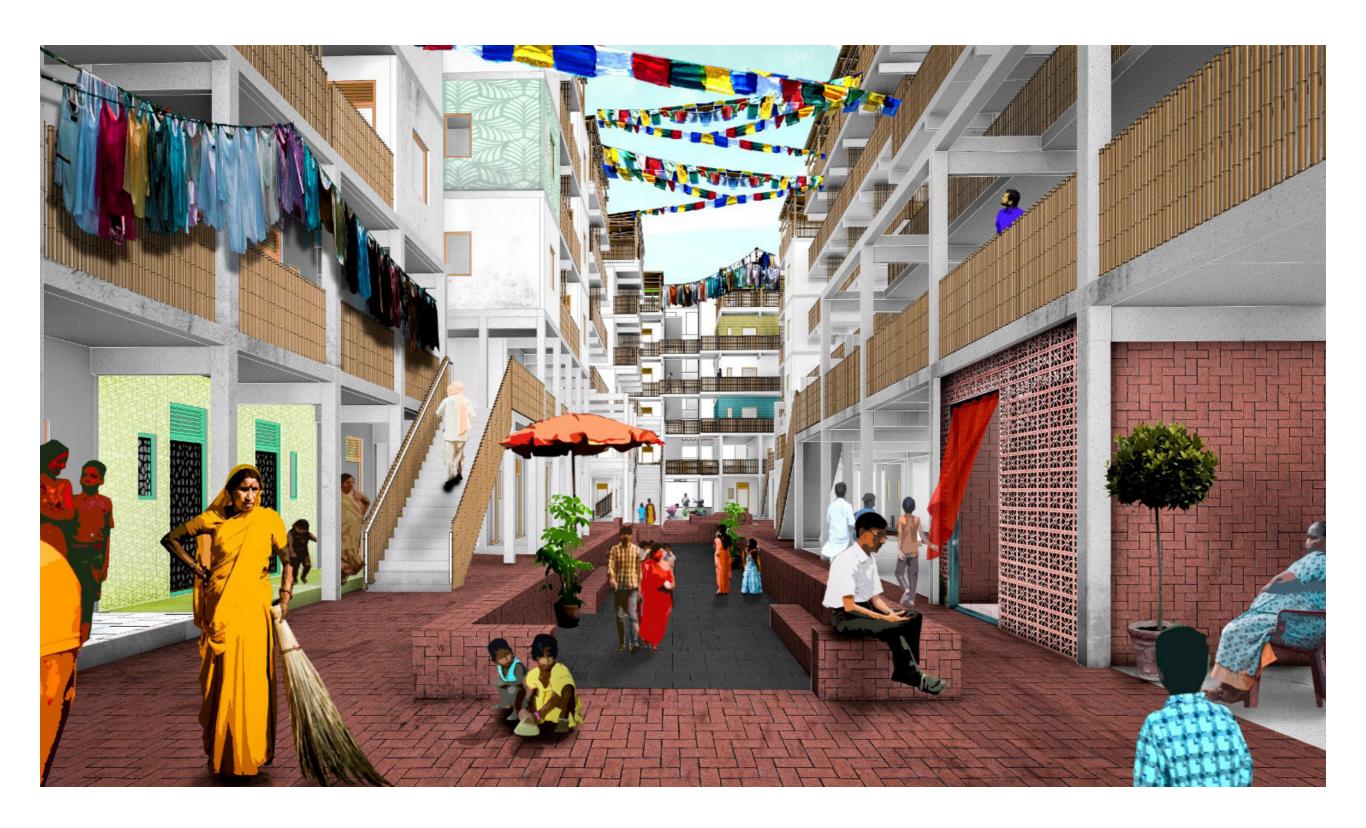








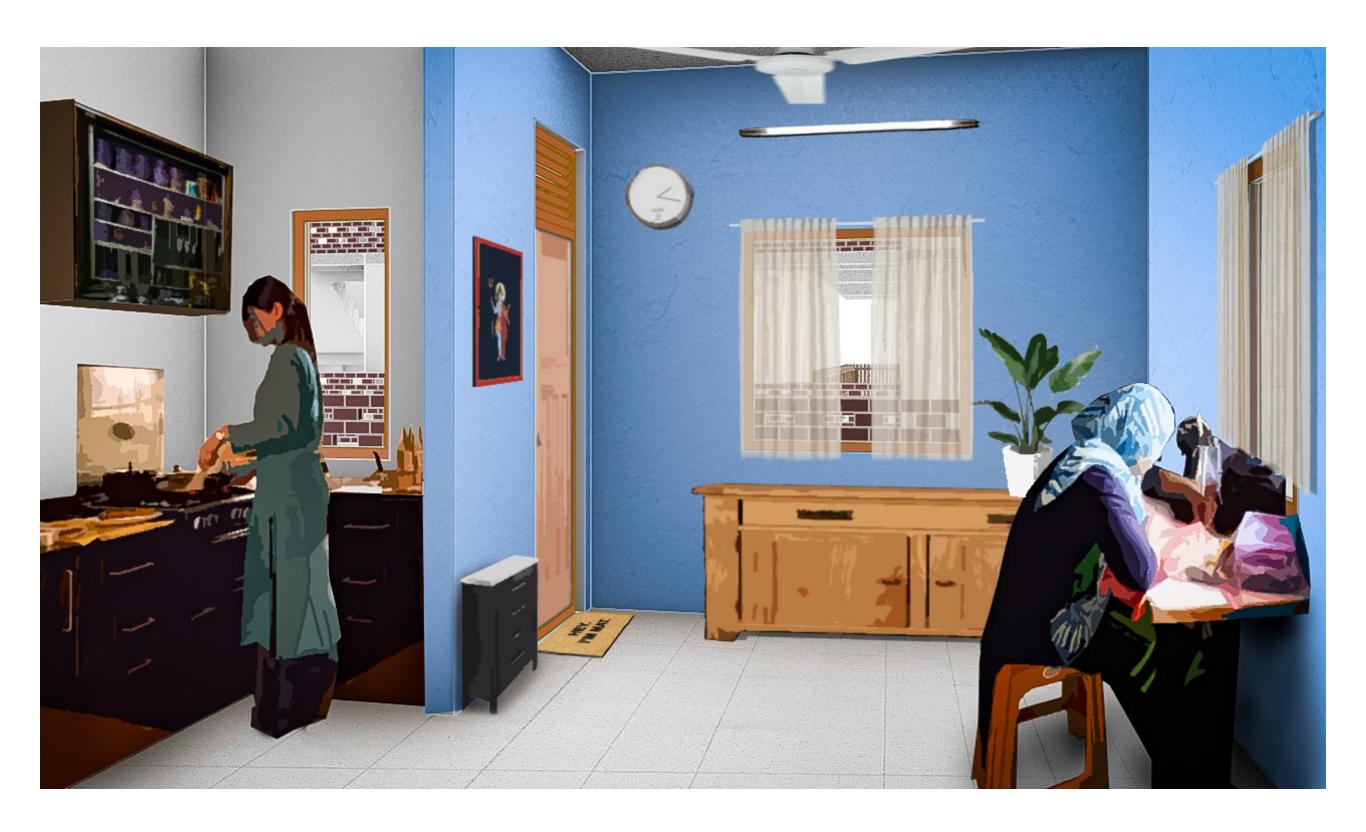
















"building homes is about creating a sense of belonging, about participatory involvement and about expression of aspirations, relationships and desires"

- Balkrishna Doshi

