

# كسب

A FACTORY, RE-IMAGINED

MUNIBA DODHY

T10 | MSc. Advanced Architecture

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# **01 Project Research**

# 1.1 Project Ideation

Developing the Project



Thaap, an NGO based in Lahore offers residency to Artisans from across the country to curate their crafts at the factory

Artisans innovate and advance their crafts at the factory

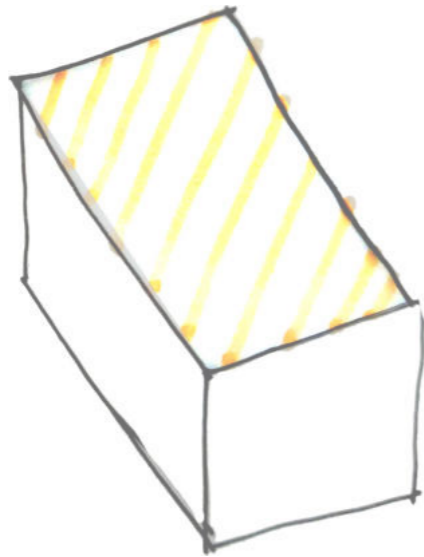
The Factory offers the public an opportunity for the public to partake in crafts as well

The crafts designed by the Artisans are sold at the Bazaar, generating revenue for the factory and to curate more Artisans

## A Place to **Work**

### Factory

Spaces designed catering to artisanal craftsmen, allowing them the opportunity to nurture their talents and develop centuries old techniques



## A Place to **Live**

### Residencies

Living units designed to maximize communal living and to promote interdisciplinary exchange of knowledge



## A Place to **Exhibit**

### Exhibit & Shops

Provide opportunities for Artisans and the NGO to organize exhibits and generate revenue for running the facility.



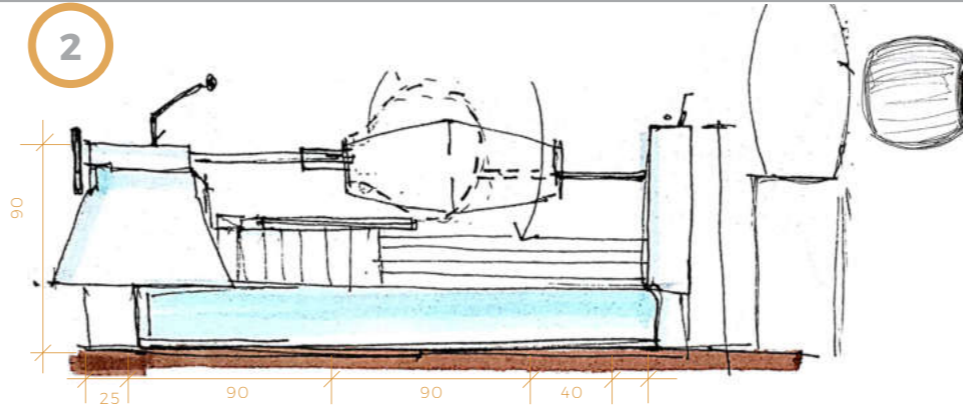
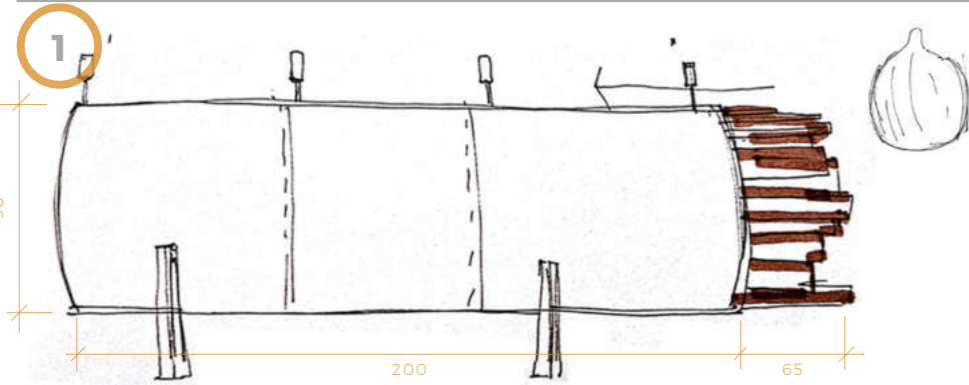
# 1.2.1 Project Research

## Musical Instruments

### Process

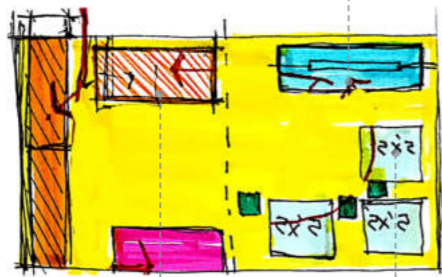
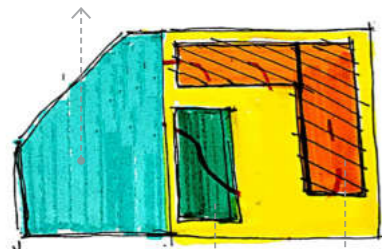
#### Instrument Making

### Crafted Products



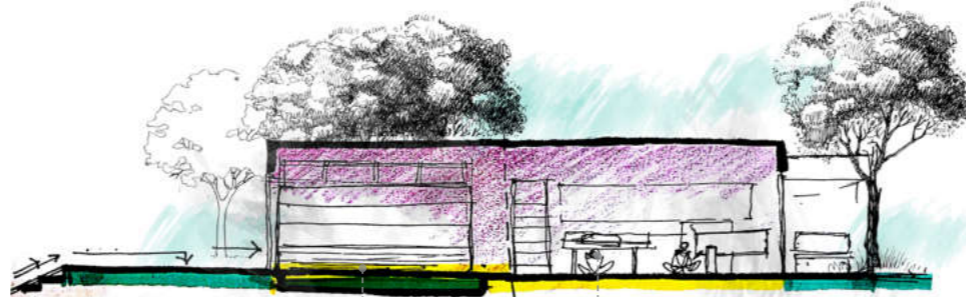
6 artisans work together on an instrument

Hollowing machine



Recessed area for water  
Storage for seasoned wood

Kiln  
Workstations

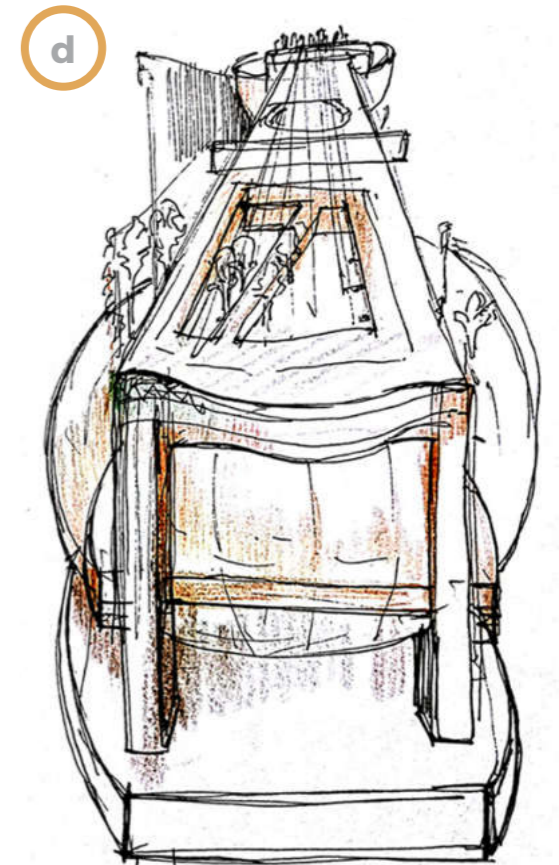
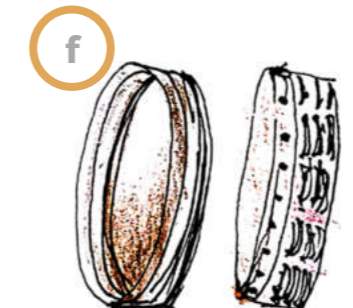
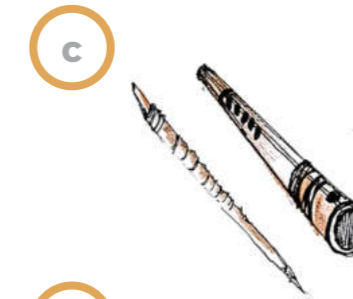
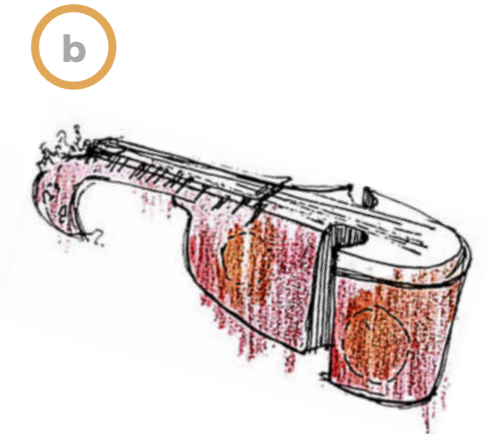


Space will generate olfactory experience as the wood seasons; ventilation can be designed to use that to an advantage

Artisans require well-lit and acoustic isolated when it comes to tuning musical instruments

1. Timber is squared as logs that are seasoned by submerging in water and drying in a kiln to remove moisture. Gourd shell is dried.
2. Gourd is fixed on the rotating axis of hollowing machine and the inside is emptied.
3. Depending on the instrument, the hollowed gourds cut accordingly i.e halved for sitar and broken into multiple pieces and reassembled sagar

4. The inside of the gourd is chiseled to obtain evenness in texture. The neck of the instruments is carved out of timber to be joined to the drum
5. Instruments that don't require further work are polished and dried mule/goat skin is stretched over the vessel.
6. Instruments are strung and tuned as desired

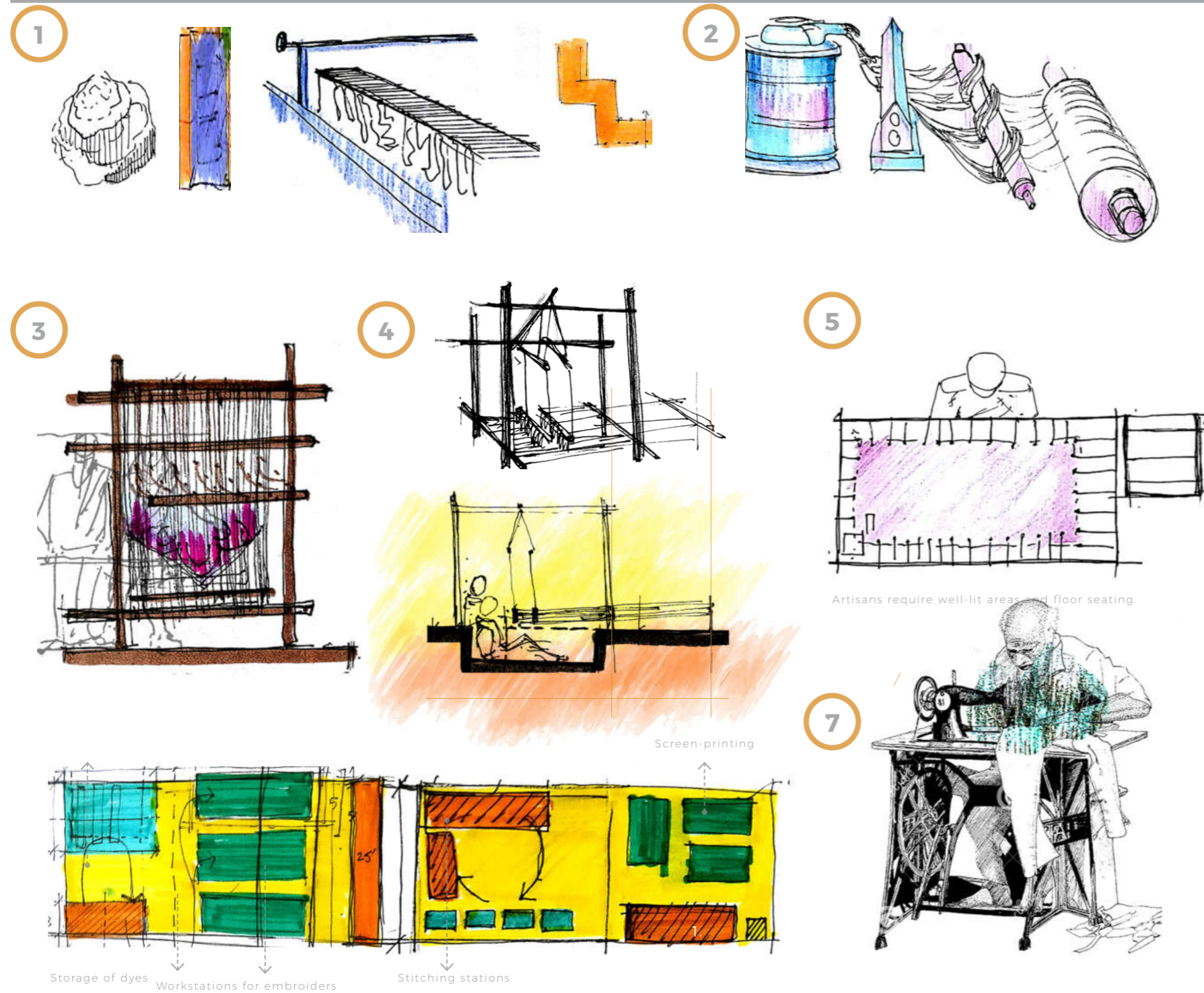


- A. Sitar
- B. Rhubab
- C. Bansuri
- D. Sagar Veena
- E. Tabla
- F. Duff

# 1.2.2 Project Research

## Traditional Textiles

Process  
Weaving Fabric



Crafted Products



1. After procurement, bulk of cotton is 'scoured' on rough wired conveyor belt
2. Scoured cotton is fed to scander that propels strings on to a presser. brush make slivers out and a rolling spin wraps the threads
3. Thread is then dyed before it is spun for the final time on bobbins

4. Fabric is weaved on pit looms following patterns drawn on cardboard
5. Instruments that don't require further work are polished and dried mule/goat skin is stretched over the vessel.
6. Fabric is taken to further embellishments on adda, an adjustable device where fabric is stretched and embroidered upon

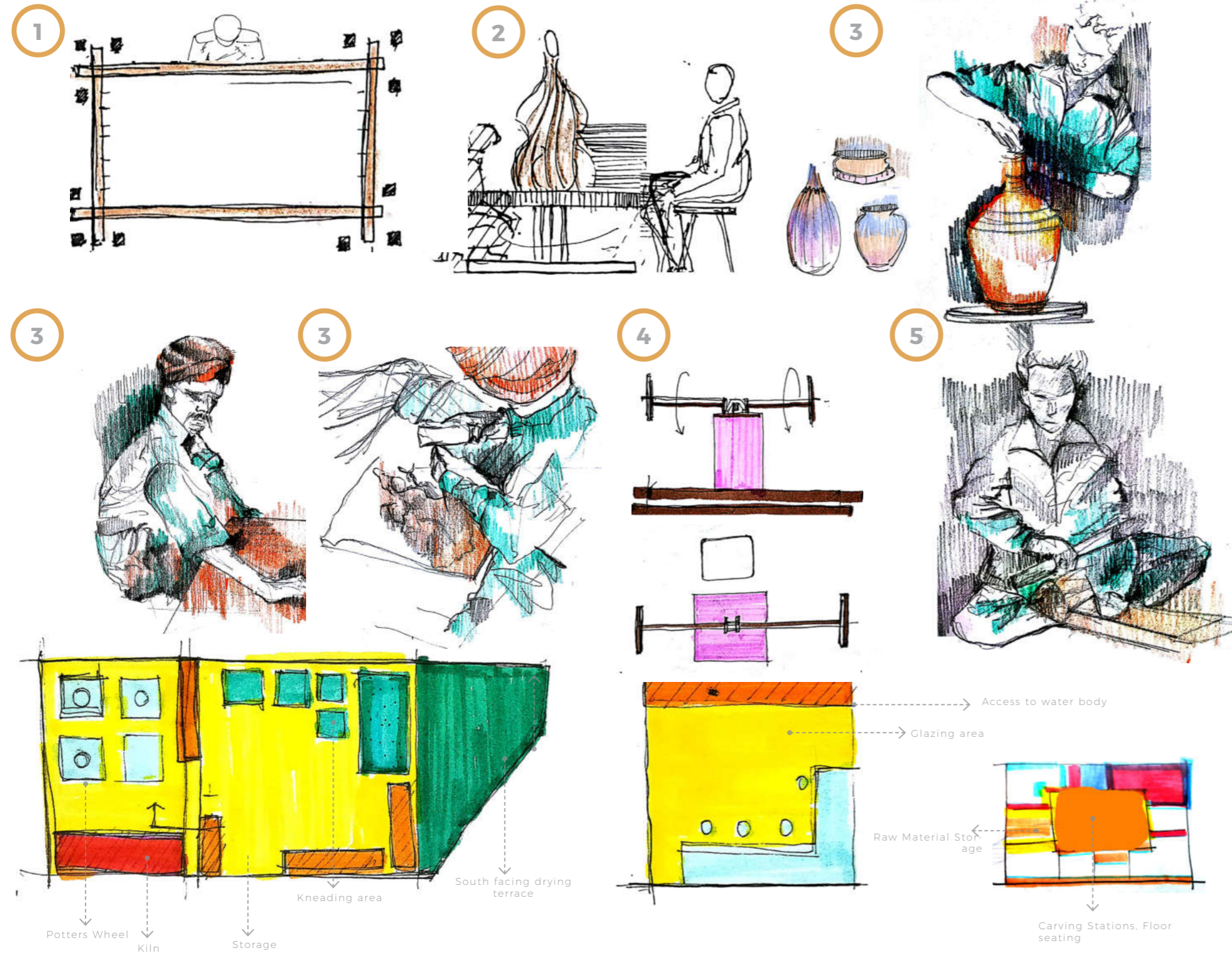
- A. Embroidered Fabric
- B. Traditional Caps
- C. Ralli
- D. Dari
- E. Tapestry
- F. Quilting

# 1.2.3 Project Research

## Clay & Stone Crafts

### Process

#### Pottery and Lapidary



1. Clay is mixed with water and left to settle so a slurry of pure clay forms
2. Blob of clay is propped on the wheel and sculpting begins
3. Molded pieces are fired in the furnace at 800 for 4 to 6 hours. After cooling they are glazed and baked again in the kiln for 2 hours.
4. Tiles fired in the Kiln are left to cool, wiped with water, kharand powdered stone and flour (Cobalt and copper Oxide) and Fired at 1200

### Crafted Products



- A. Multani Kaashikaari
- B. Tilework
- C. Pottery
- D. Vase
- E. Crockery
- F. Mosaic



# 1.2.4 Project Research

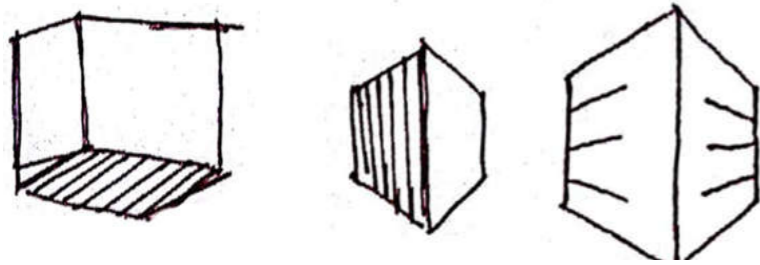
## Metal & Glass Crafts

### Process

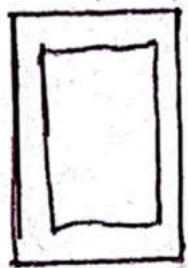
#### Metalwork and Glasswork

### Crafted Products

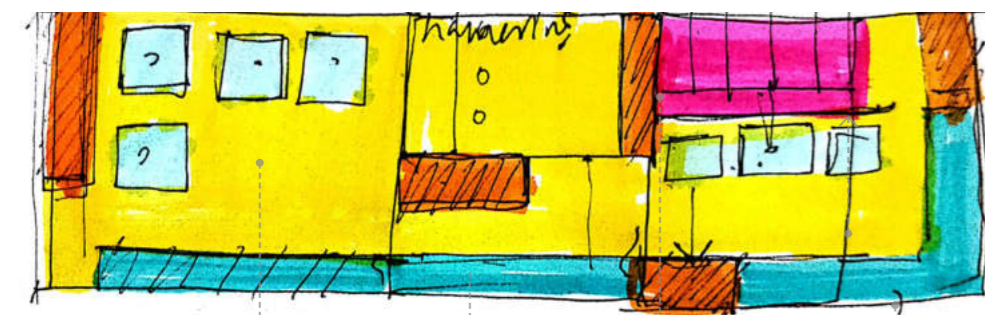
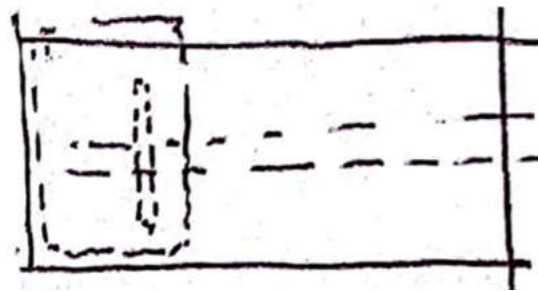
1



3



4



Cutting area, workstations for craftsmen and table tops to shape individual pieces from cardboard stencils

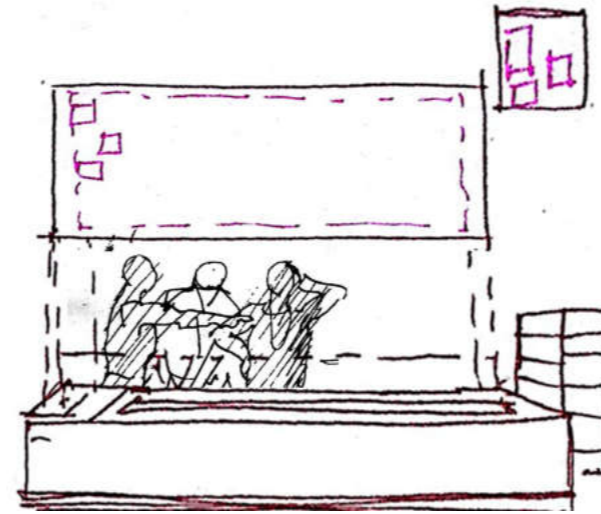
Areas for hammering

Furnace and Recessed area To sit while holding the object.

Access to Water Body

1. Volumes to be produced are cut out in the form of individual shapes
2. Sheets are beaten to obtain even thickness
3. Sheets are beaten out to even the thickness. If the object is hollow, the pieces are soldered on a soft bed made of clay.

2



5



4. If the object is hollow, lac in molten state is poured inside the vessel to smooth the shape of the pieces joined
5. If the object is hollow, lac in molten state is poured inside the vessel to smooth the shape of the pieces joined.
6. If the object is hollow, lac in molten state is poured inside the vessel to

a



b



c



d



e



f



- A. Surma
- B. Laltan
- C. Hookah
- D. Glass Bangles
- E. Crockery
- F. Cutlery

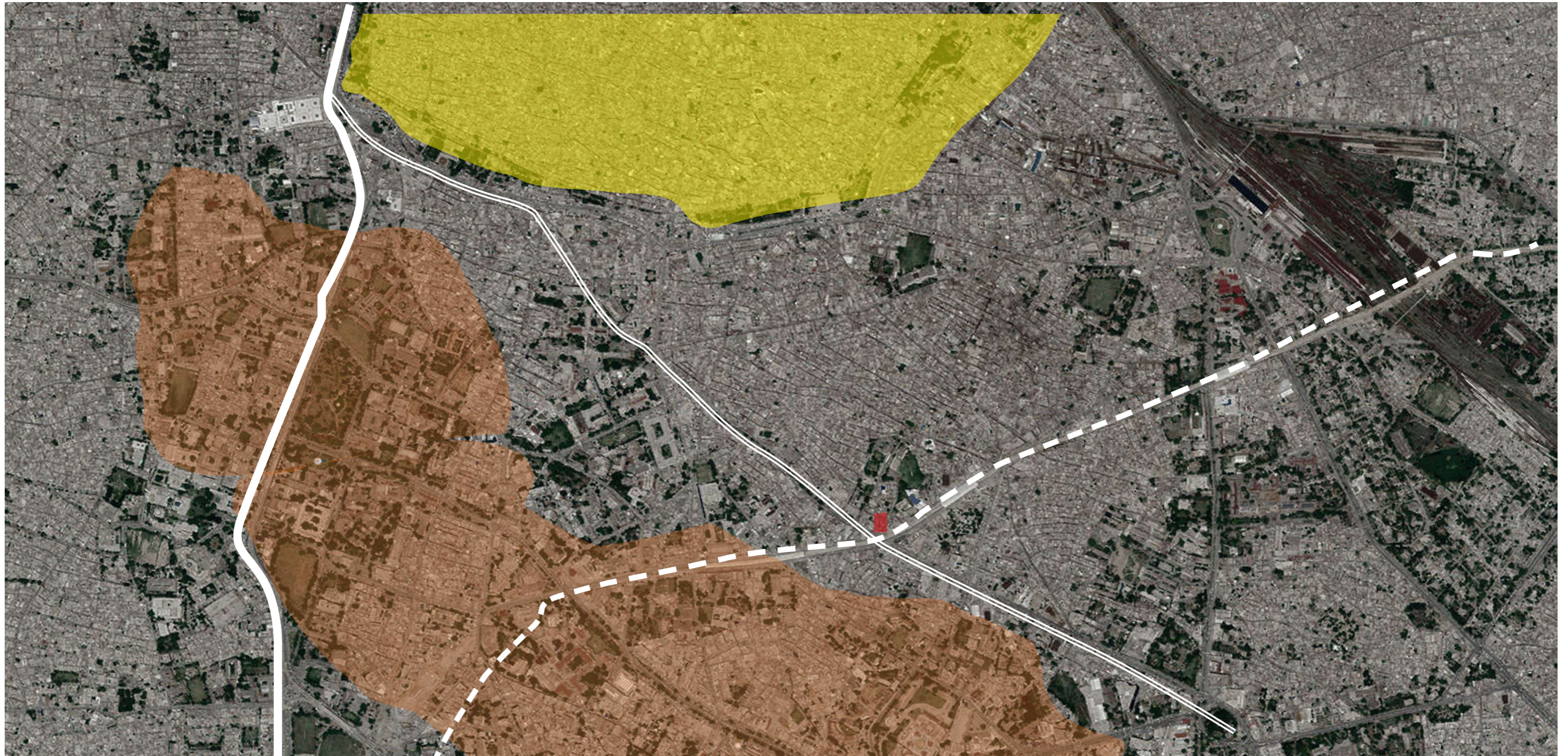
# 1.3 Project Research

## Program Analysis

Program Type	Activity	Areas	Special Functional Requirements				
							
Workshops	<b>Clay:</b> Tile Work, Pottery	150sqm 180sqm	█	█	█		
	<b>Thread:</b> Carpentry, Textile Manufacturing, Print Making	250sqm 200sqm 200sqm	█			█	█
	<b>Wood:</b> Musical Instruments Manufacturing, Acoustics Testing, Rattan Furniture, Jharoka Balcony, Puppet Making	200sqm 50sqm 250sqm 200sqm 60sqm	█	█	█	█	█
	<b>Metal:</b> Jewellery Making, Jandri Work	60sqm 40sqm	█	█		█	
	<b>Stone:</b> Lapidary Inlay, Naqashi	40sqm 40sqm	█	█			
	<b>Glass:</b> Glass Blowing, Staining Glass	60sqm 40sqm	█	█	█		█
	<b>Outdoor Space:</b> Sundrying crafted elements	200sqm					█
			<b>2,220sqm</b>				
Commercial	<b>Bazaar:</b> Selling Crafts to the Public	100sqm					
		<b>100sqm</b>					
Exhibition Space	<b>Gallery Indoor:</b> Storage, Exhibition Area	70sqm 100sqm		█			█
	<b>Outdoor Exhibitions/ Garden</b>	100sqm		█			█
		<b>270sqm</b>					
Administration	<b>Offices for Managerial Admin</b>	70sqm		█			█
	<b>Storage &amp; Archive</b>	100sqm		█			█
	<b>Utilities</b>	70sqm		█			█
		<b>240sqm</b>					
Residential	<b>Residencies for Masters x 6</b>	300sqm					█
	<b>Residencies for Disciples x 6</b>	300sqm					█
		<b>600sqm</b>					

# 1.4 Project Research

## Site Analysis



- Lakshmi Building Lahore: Proposed Site
- Walled City of Lahore: Heart of Artisans
- City Center District

### Site Selection Parameters

1. Proximity to the City Center in Lahore
2. Proximity to the Walled City: Heart of Artisans
3. Connection to History

- The Mall Road
- Orange Train
- Rapid Bus Transit

### Context

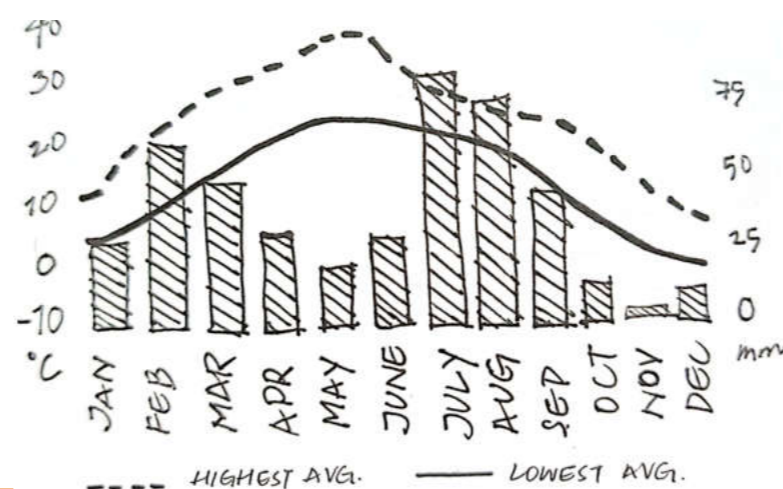
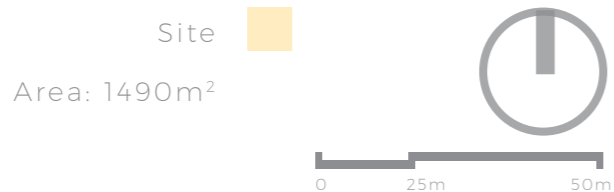
1. Post 1947, overlooked because of Hindu origins.
2. Surrounded by theaters, cinemas and famous food joints.
3. Famous intellectuals of the 60s set up shop here.

### Development

1. Under protection from the Government since 2011
2. Construction of Orange Train Line
3. Under no current use.

# 1.4.1 Project Research

## Site Selection

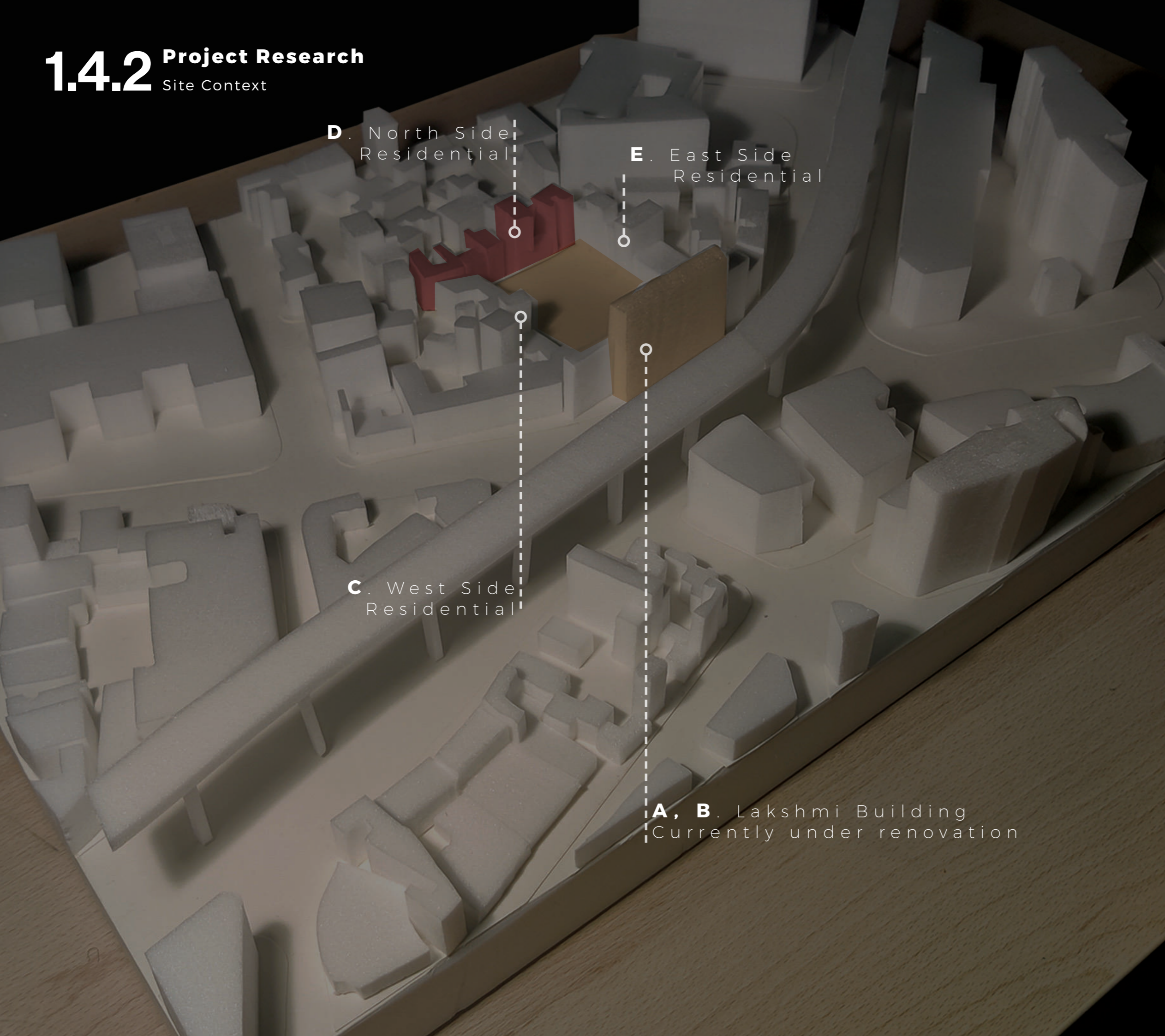


### Context

1. Post 1947, overlooked because of Hindu origins.
2. Surrounded by theaters, cinemas and famous food joints.
3. Famous intellectuals of the 60s set up shop here.

# 1.4.2 Project Research

Site Context



D. North Side Residential

E. East Side Residential

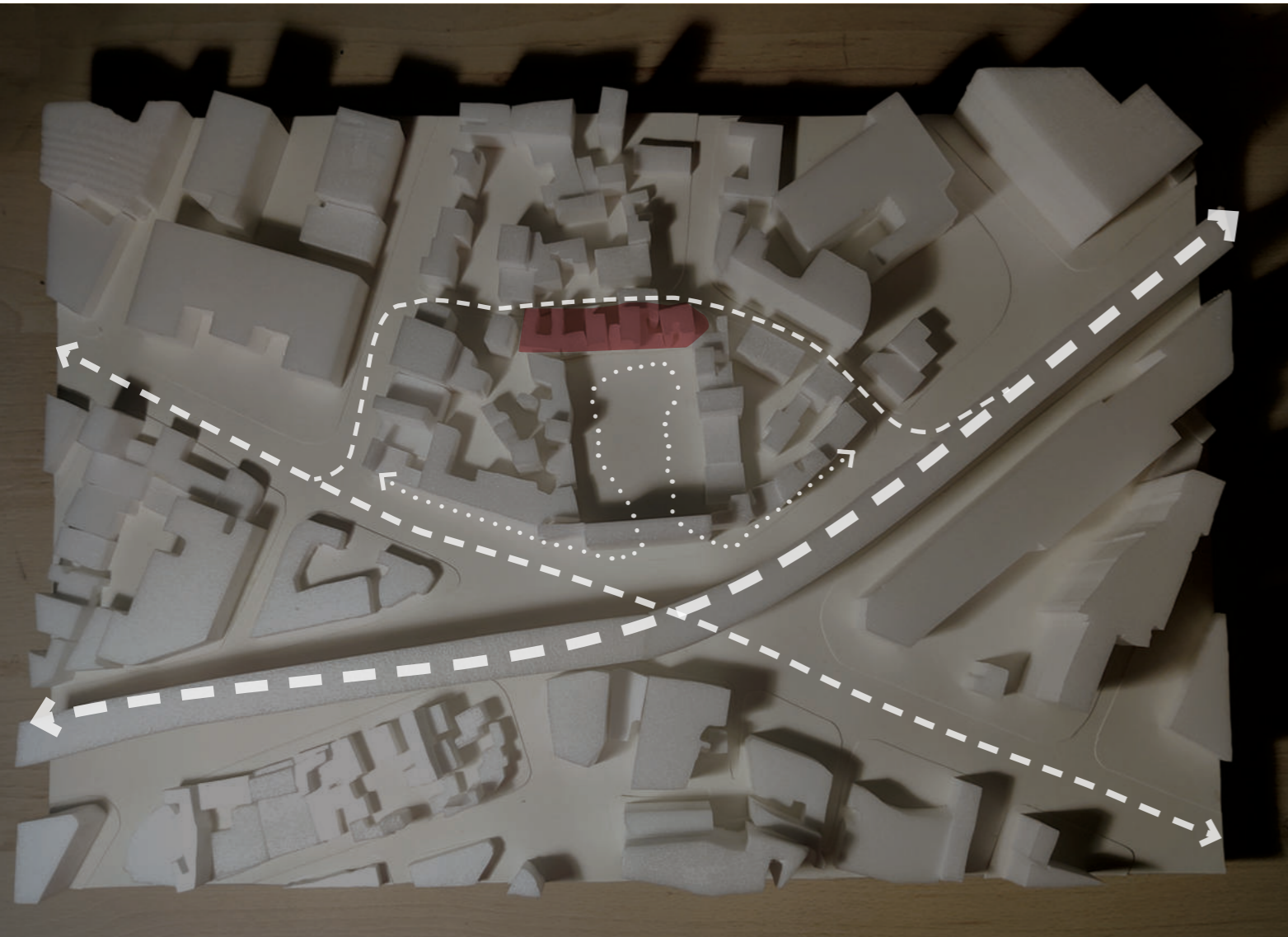
C. West Side Residential

A, B. Lakshmi Building  
Currently under renovation



# 1.4.3 Project Research

## Site Situation



Existing Urban Situation

Site is an island

Minimal, unidirectional Pedestrian Access

Cultural Landmark

Proximity to Orange Train Line



Train



Nisbat Road



Vehicular Access around Site



Pedestrian Flow

Urban Proposal

1. Acquiring illegal residential construction Northside

2. Creating secondary, more private entrance

# 1.4.4 Project Research

## Site History



### 1930s

- 1930 Film making reaches Lahore, Regal Cinema Created
- 1935 Lakshmi Building constructed as a residence
- 1945 Used as Offices for Political Parties
- 1947 Post-partition disarray

### 1970s

- 1975 Posterior ruins demolished
- 1980 Sculptures of Lakshmi destroyed.

### 2000s

- 2003 Punjab Special Premises Ordinance Act of 1985 applied
- 2009 Facade saved from demolition
- 2016 Excavation for Orange Train Line Begins

# 1.4.5 Project Research

## Site Elevations

South Facade: Challenges and Opportunities

1. Entrance is dark and uninviting
2. Train line impedes visual access
2. Reintegration of Heritage



South Elevation

North Facade: Challenges and Opportunities

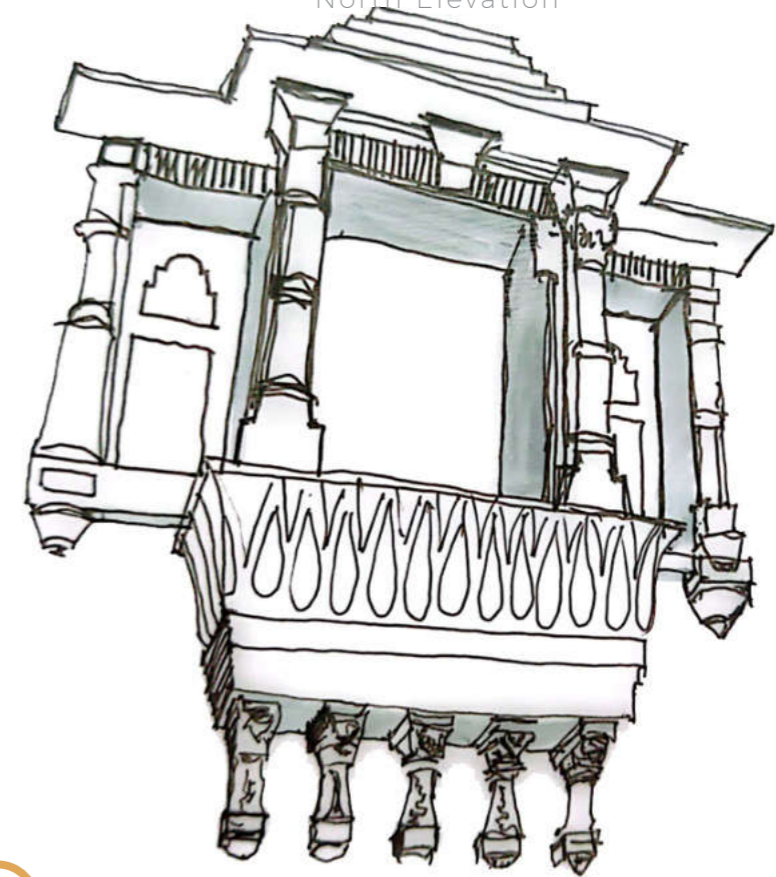
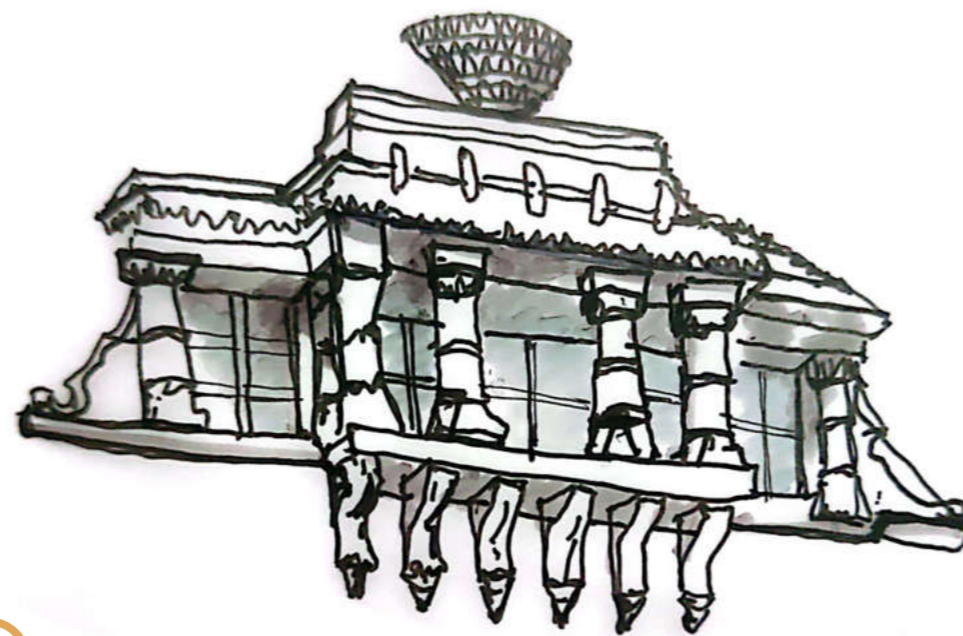
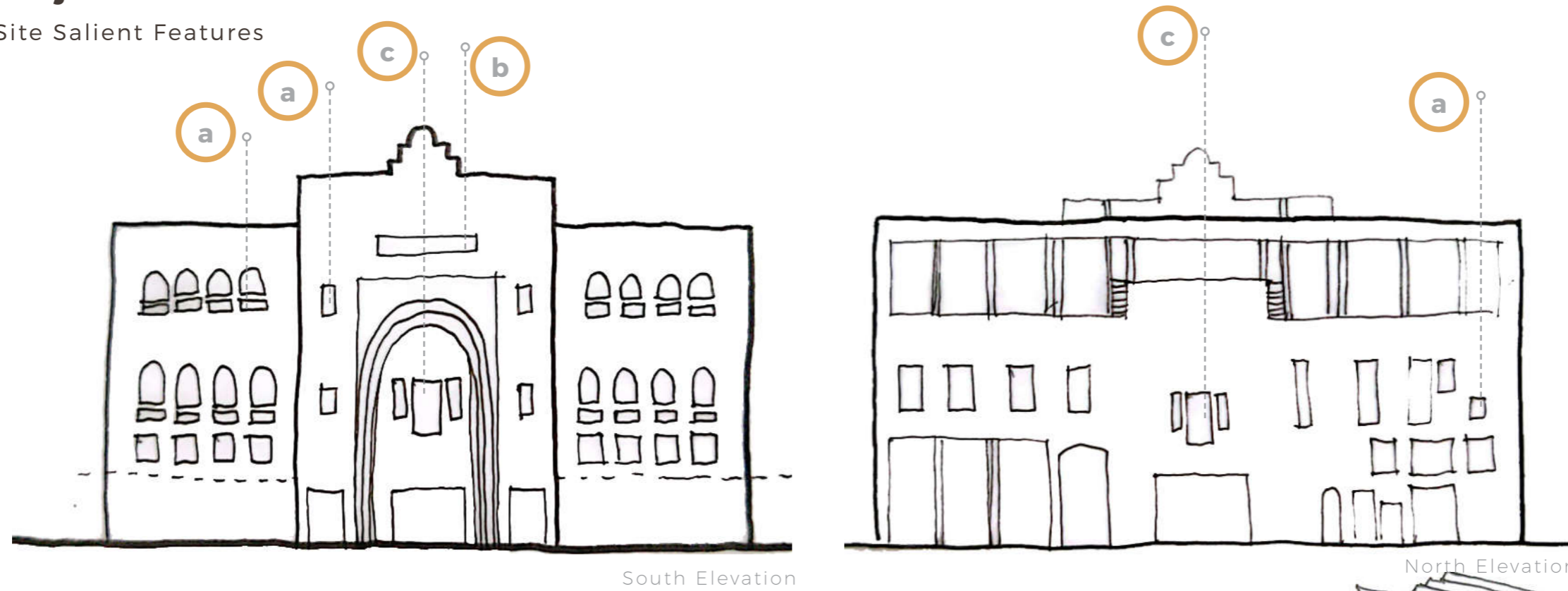
1. Disintegrating wall
2. No vertical Access
2. Interesting resting place
3. Floor Levels





# 1.4.6 Project Research

## Site Salient Features



a

Use of **jalis** to cool blowing winds and to provide **privacy**

b

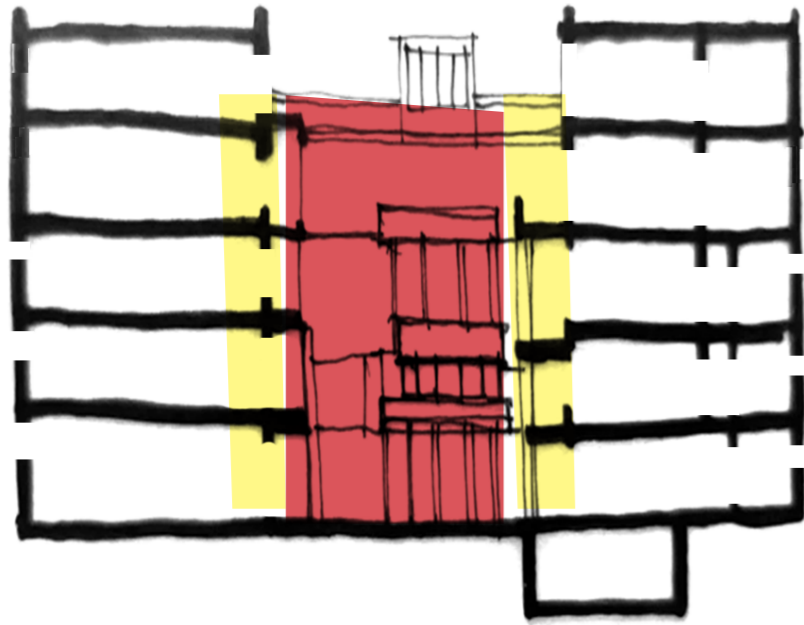
**Ornamentation** of central windows on the top floor - elephant motif, Lakshmi Sculpture

c

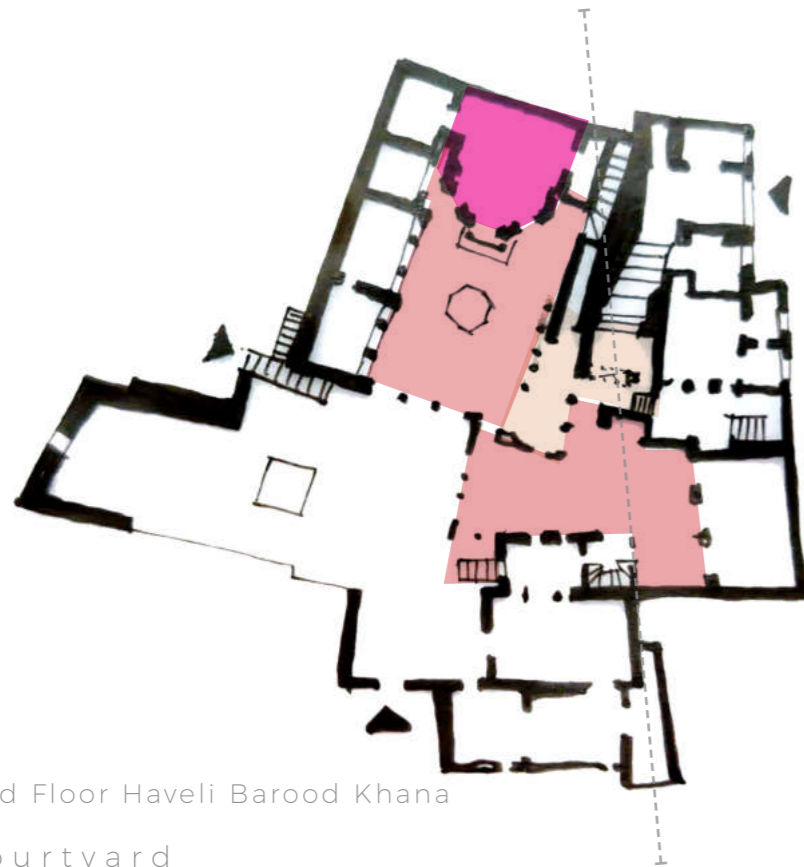
Traditional **Jheroka**. Balcony protruding to the street for views.

# 1.5 Project Research

## Understanding the Vernacular

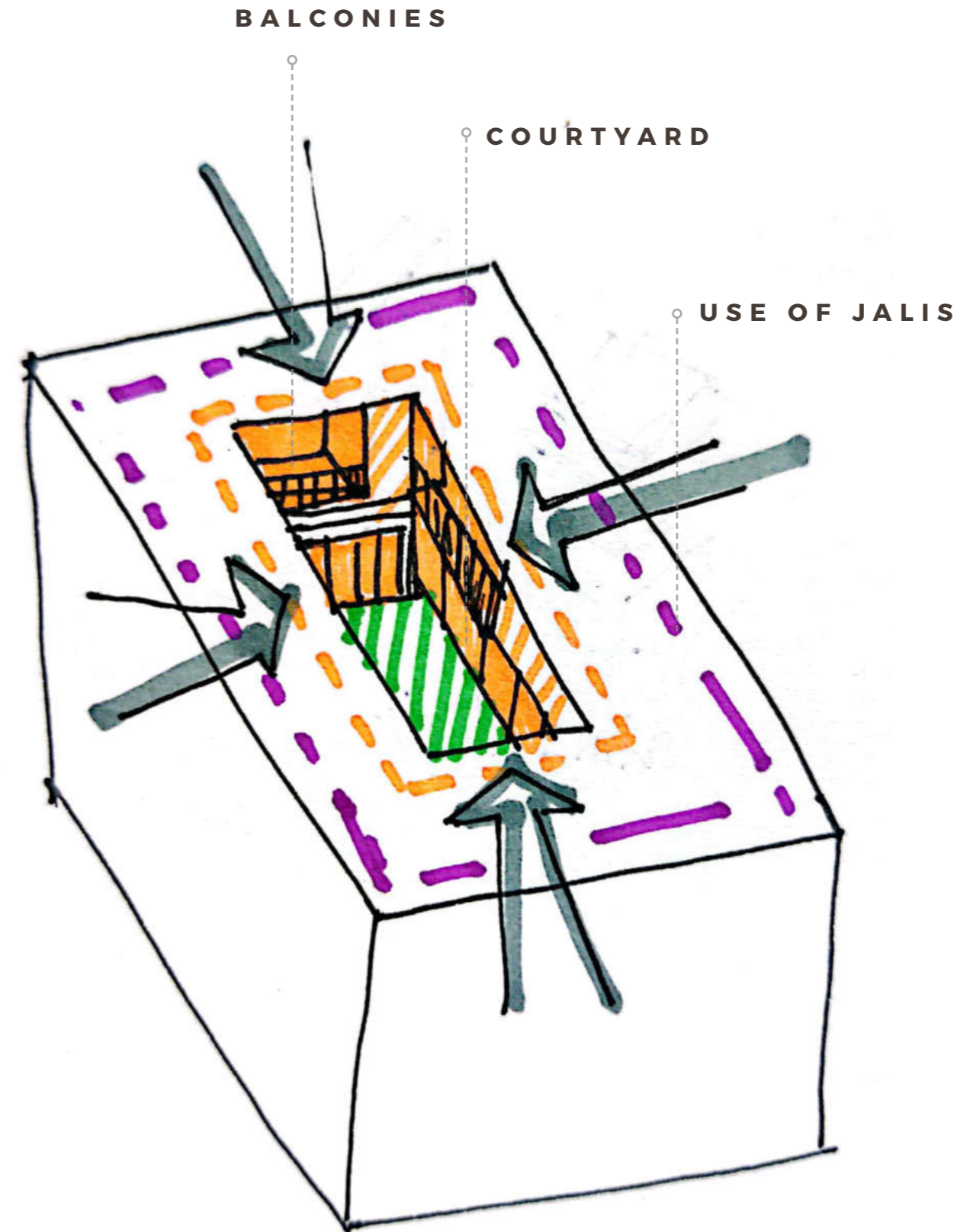


Section Haveli Pirzada



Ground Floor Haveli Barood Khana

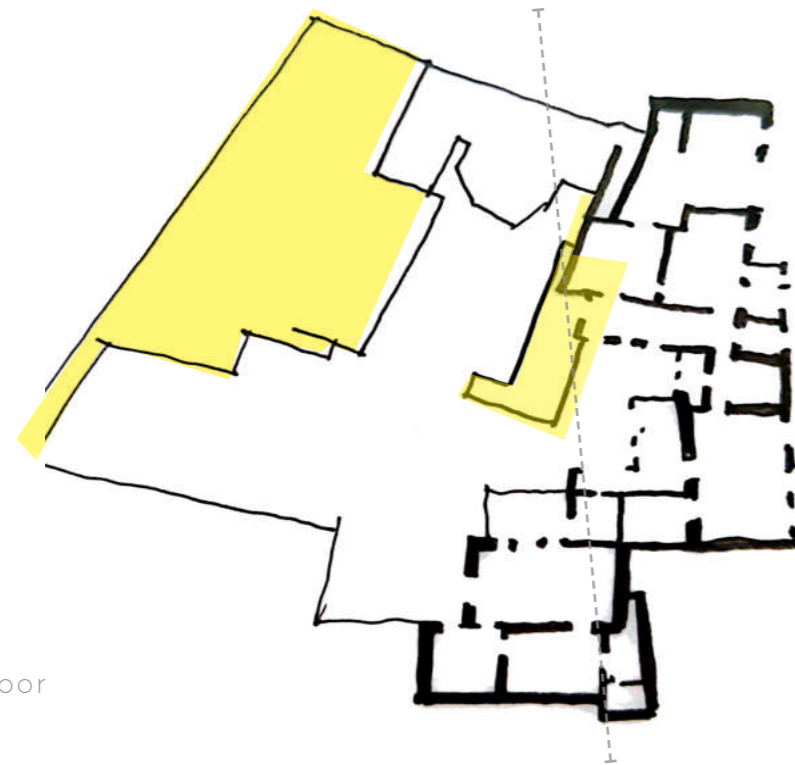
- Courtyard
- Veranda
- Terrace
- Balcony



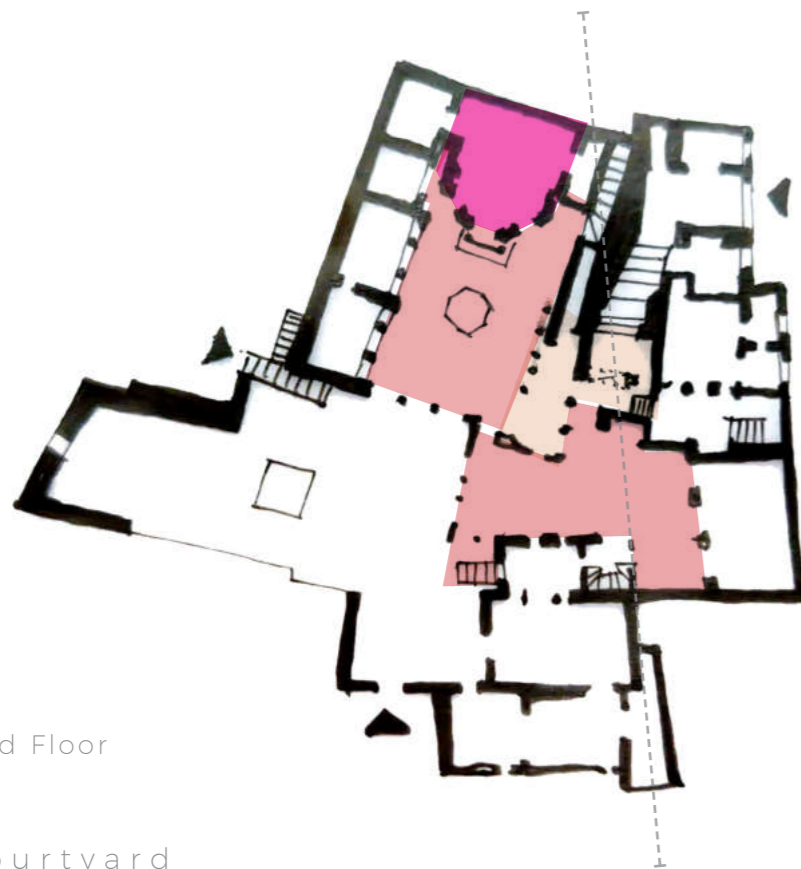
- Courtyard
- Veranda
- Terrace
- Balcony

# 1.5.1 Project Research

Historical Context: The Case of Haveli Barood Khana



First Floor

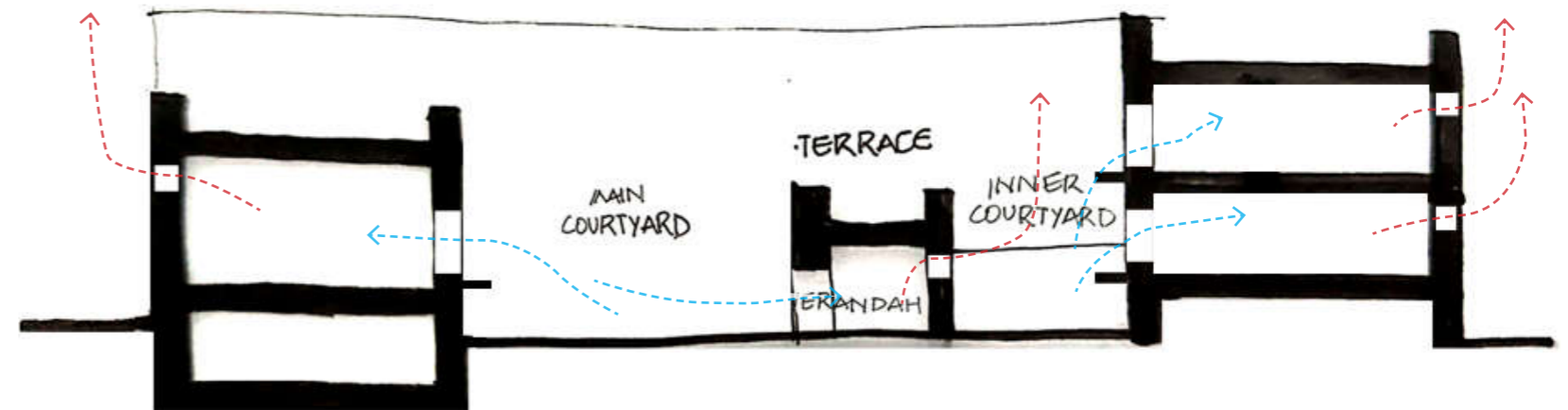


Ground Floor

- Courtyard
- Veranda
- Terrace
- Balcony



Constructed in 1875, Lahore



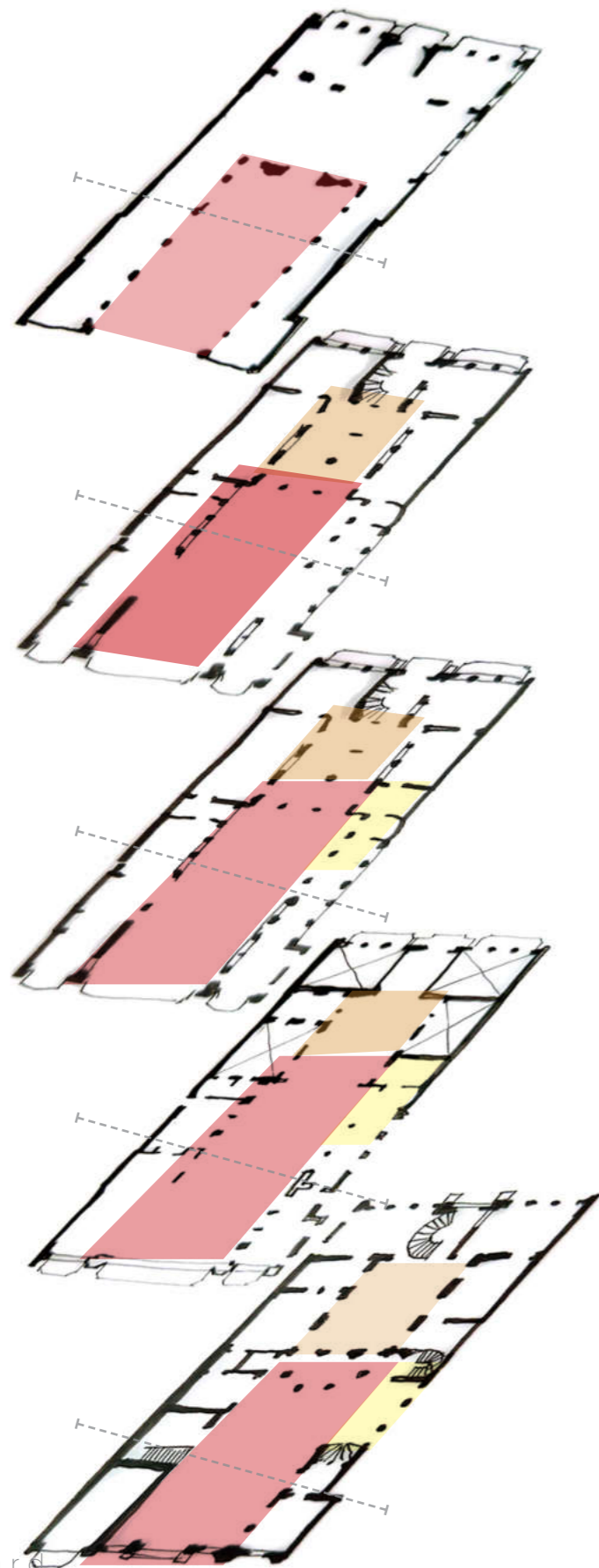
Section

During the summer season, the basement and the courtyards of the haveli are cool at daytime and at night the terrace and roof tops allow the cool breeze to help remove heat from the building.

In the winter season, the roof and the courtyards have maximum exposure to the sun during the day and at night the first floor is occupied because of the warmth it had occupied from the sun

# 1.5.2 Project Research

Historical Context: The Case of Haveli Pirzada



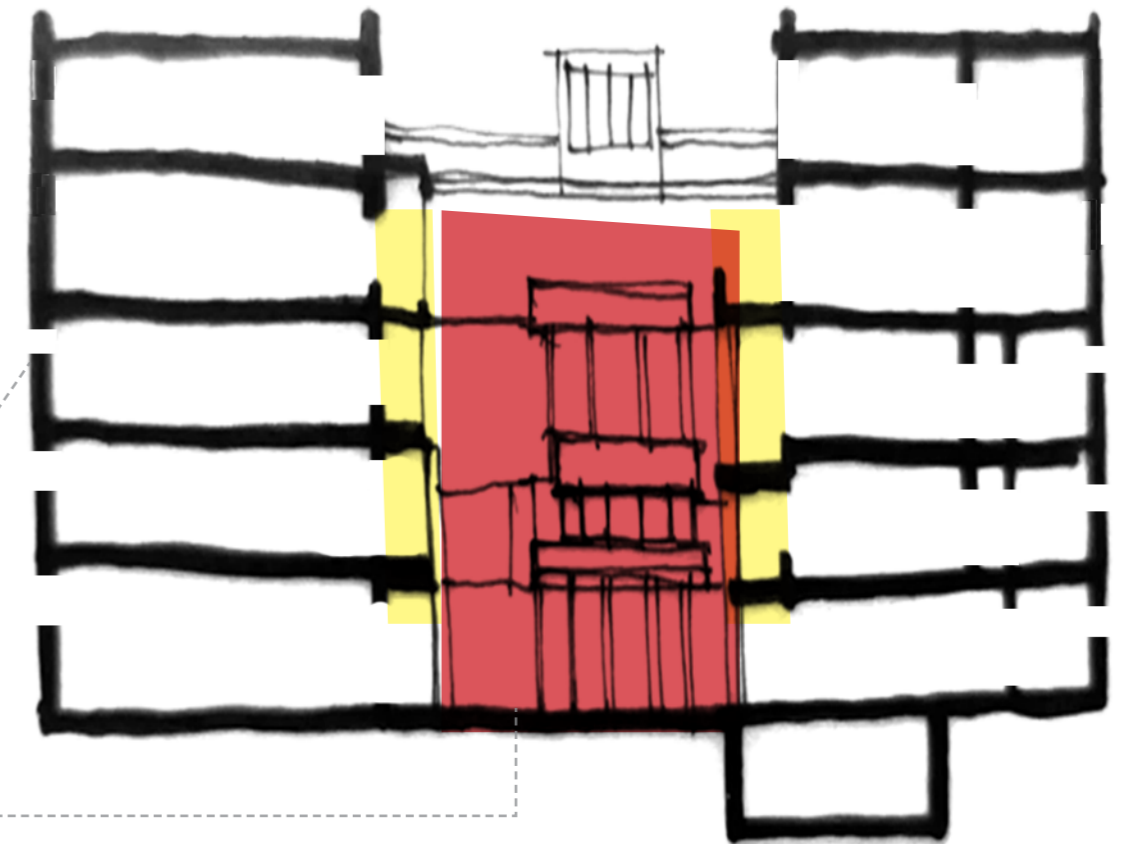
- Courtyard
- Baithak
- Verandah



Constructed in 1937, Lahore

Use of cross Ventilation for passive cooling

Courtyard is shaded by tall volumes on the sides, cool air rushes into living rooms via stack affect



Section

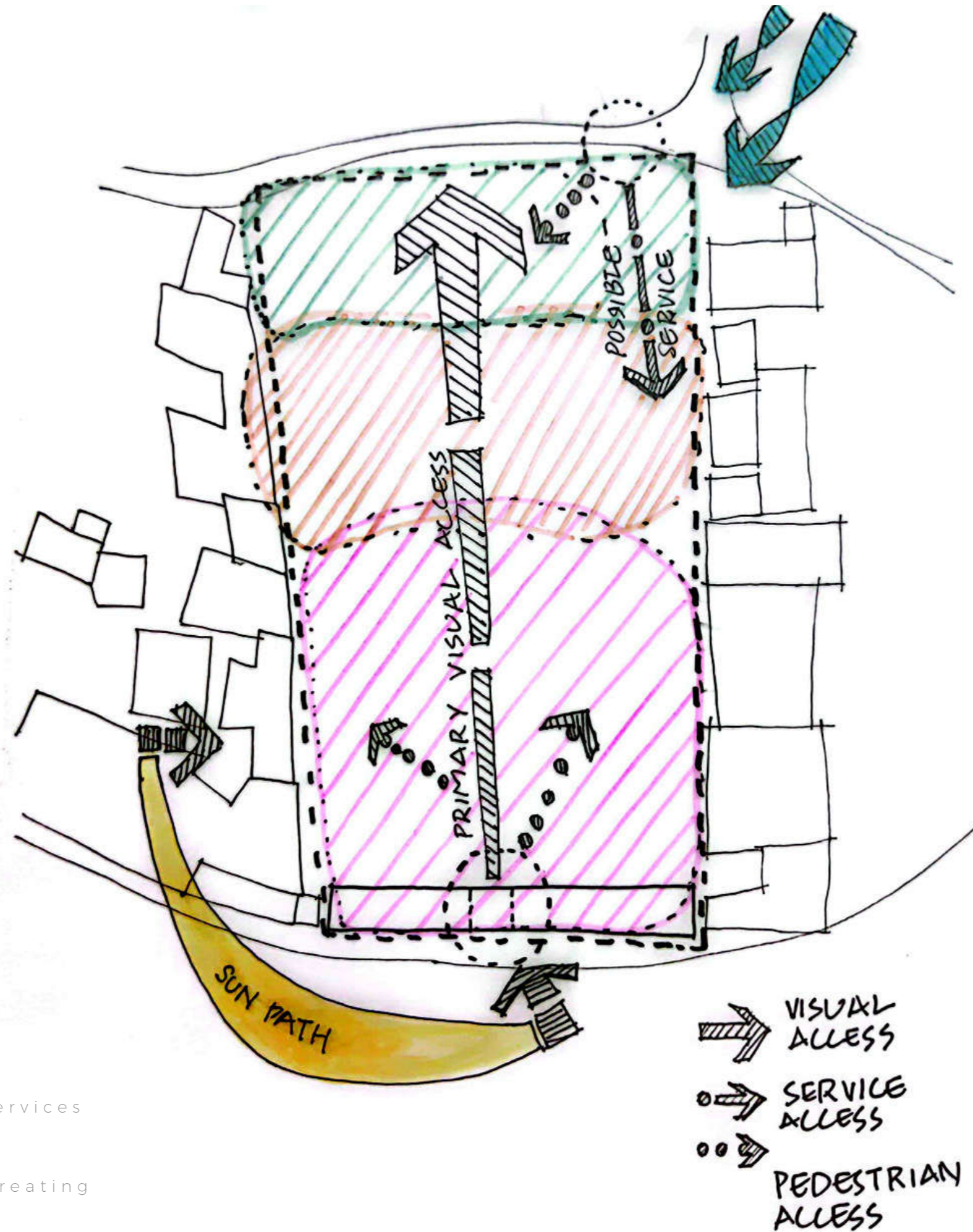


## **02 Project Design**



# 2.1 Project Design

Zoning



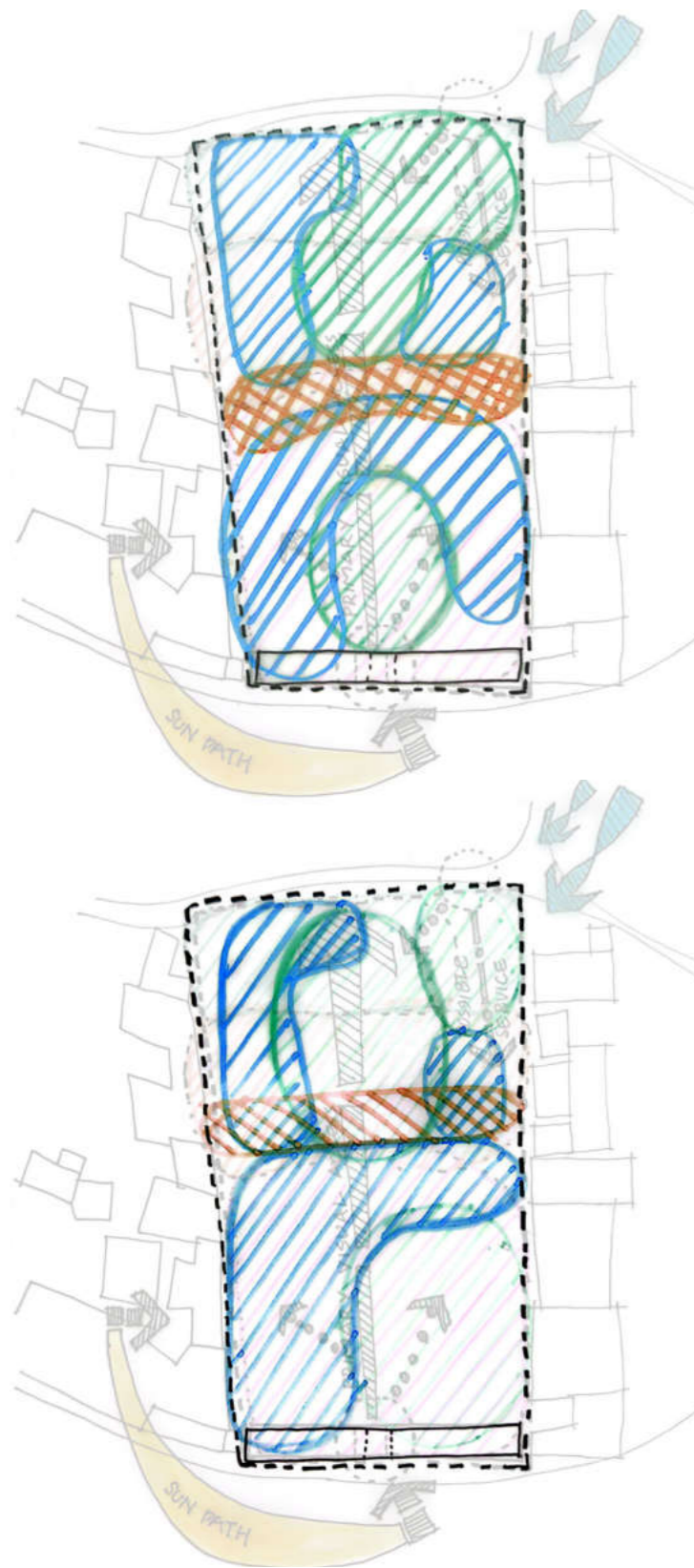
## Site Analysis

1. Creating dedicated path for Services
2. Public-Private Zones
3. Visual Axis
4. Massing towards South-West: Creating Climatically usable open spaces:

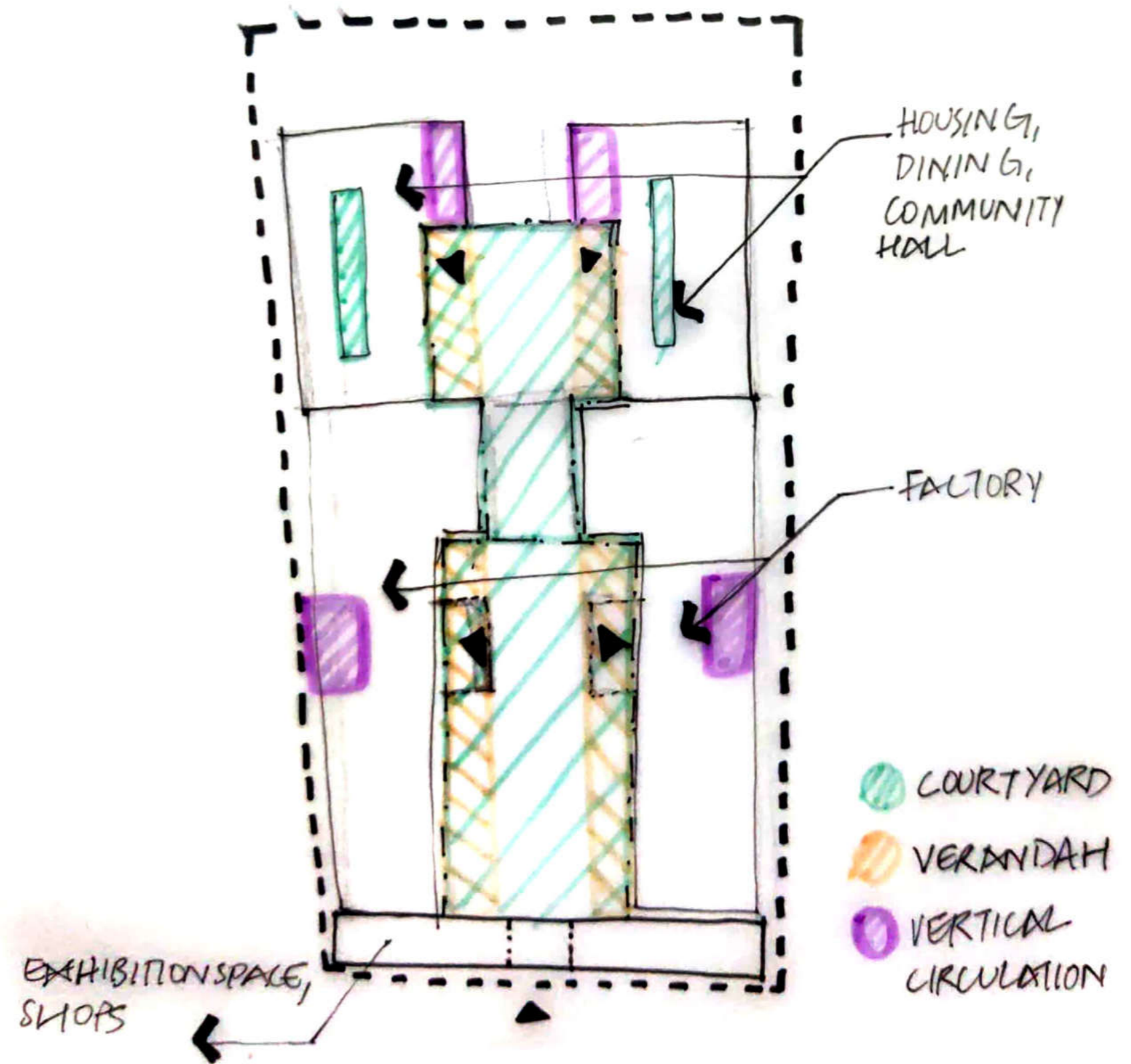
# 2.1.1

## Project Design

### Programmatic Zoning & Circulation Concept

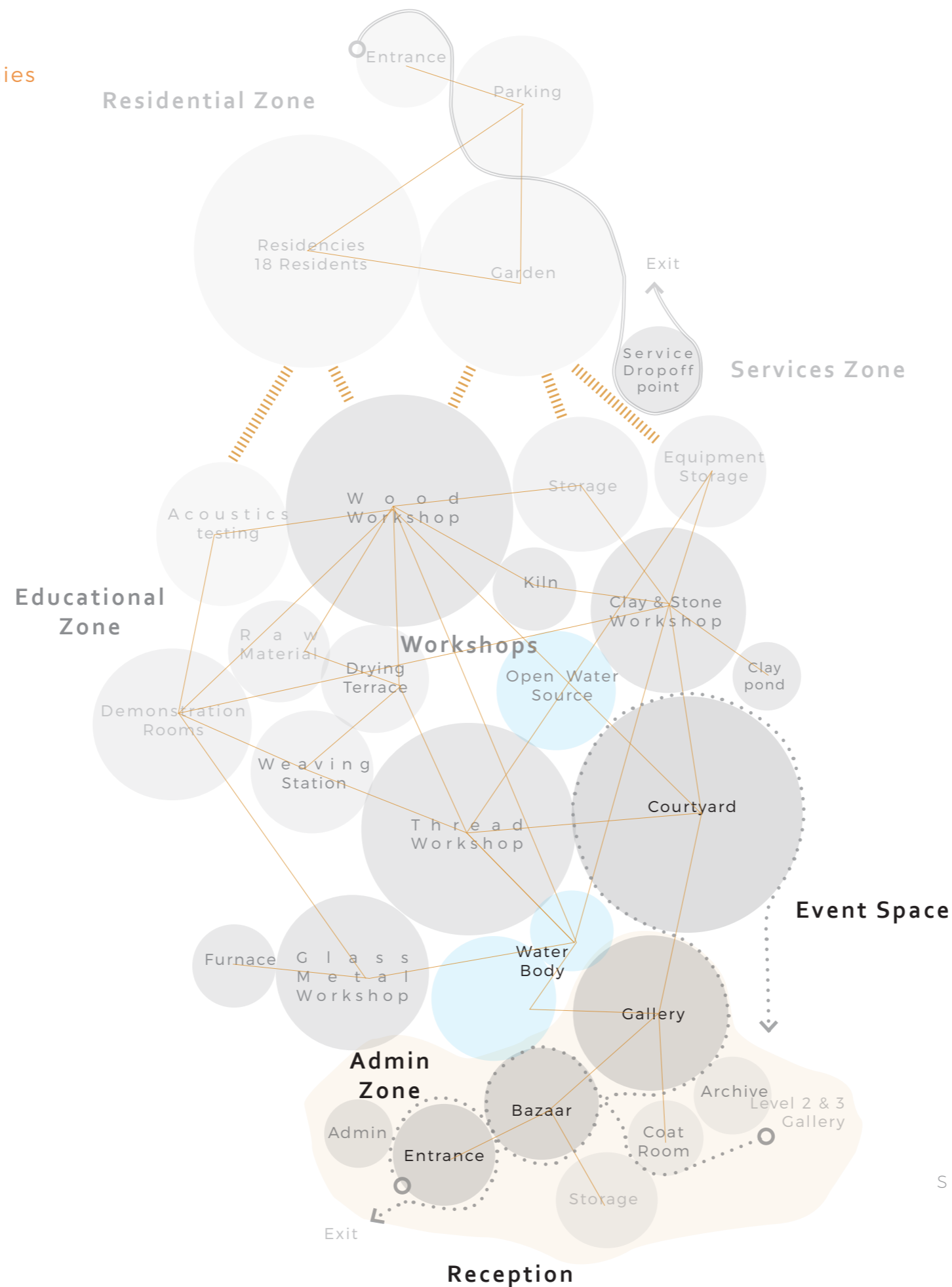


- Transition Space
- Possible Built Area
- Possible Open Area



# 21.2 Project Design

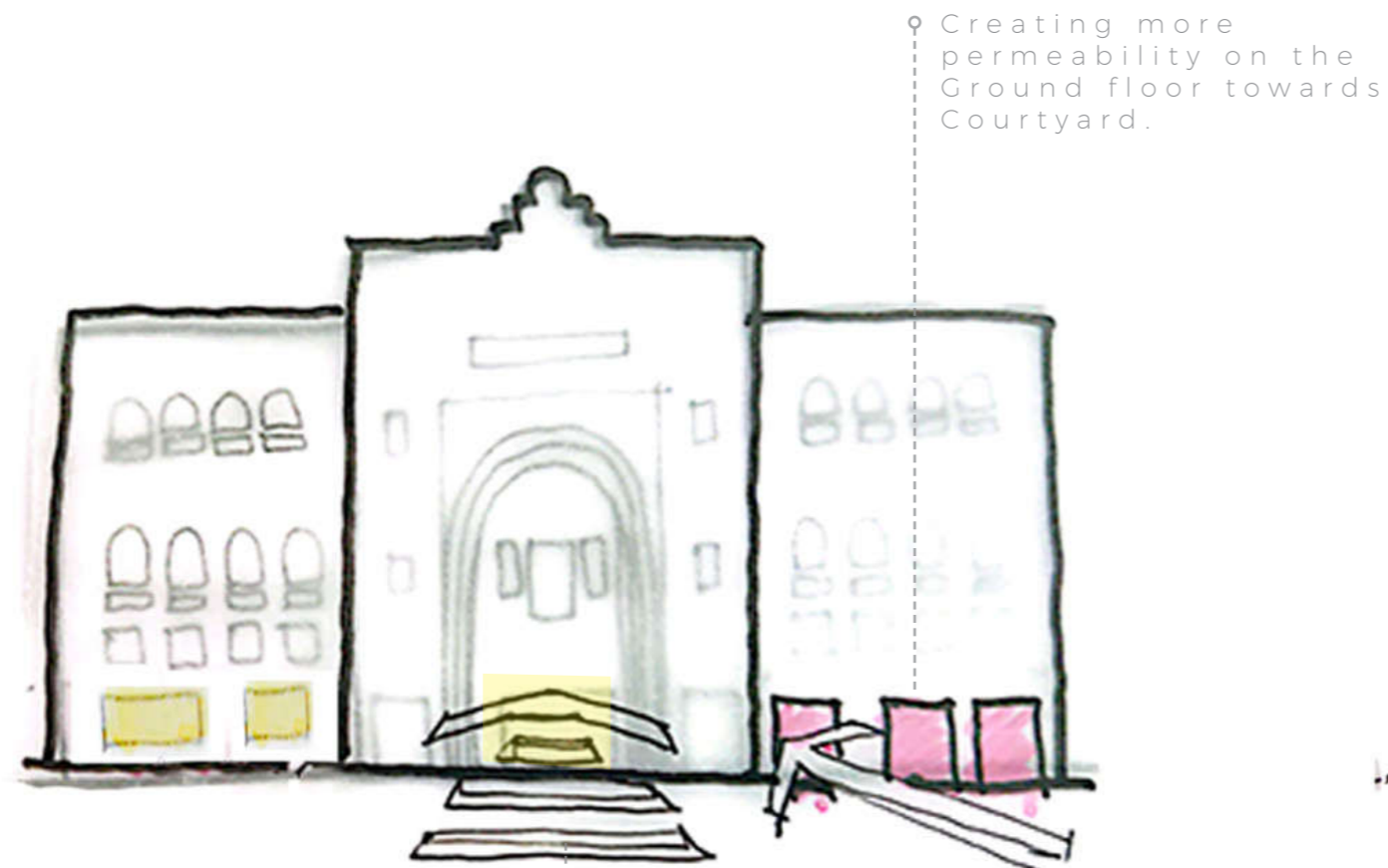
Programmatic Hierarchies





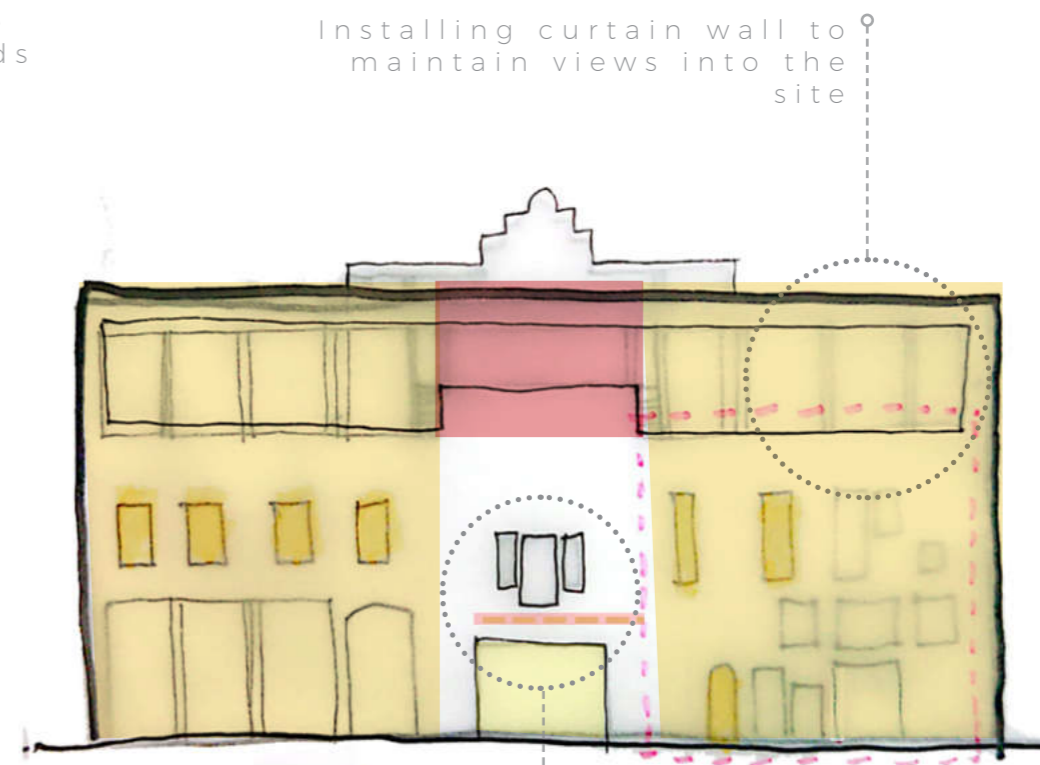
# 21.3 Project Design

Re-using the Existing



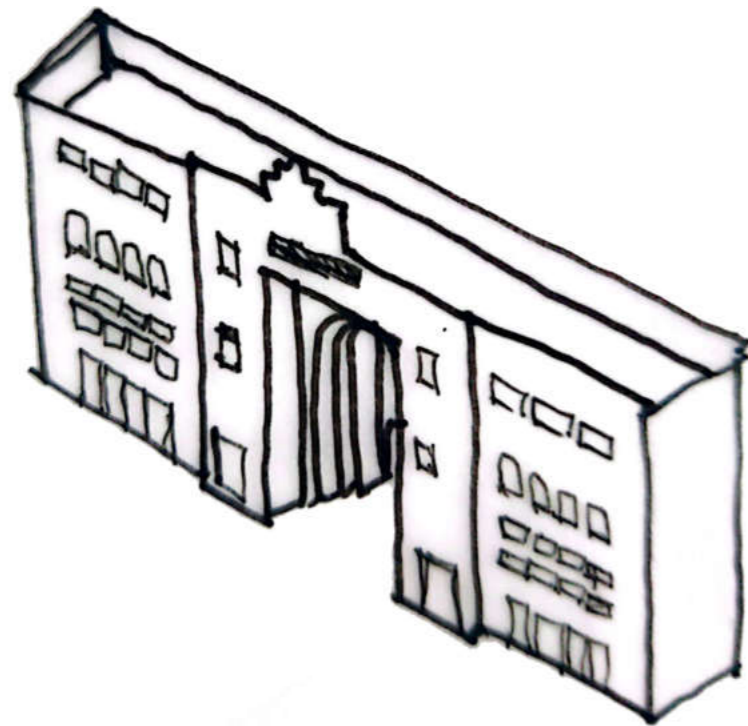
**South Elevation**

Creating strong Visual axis



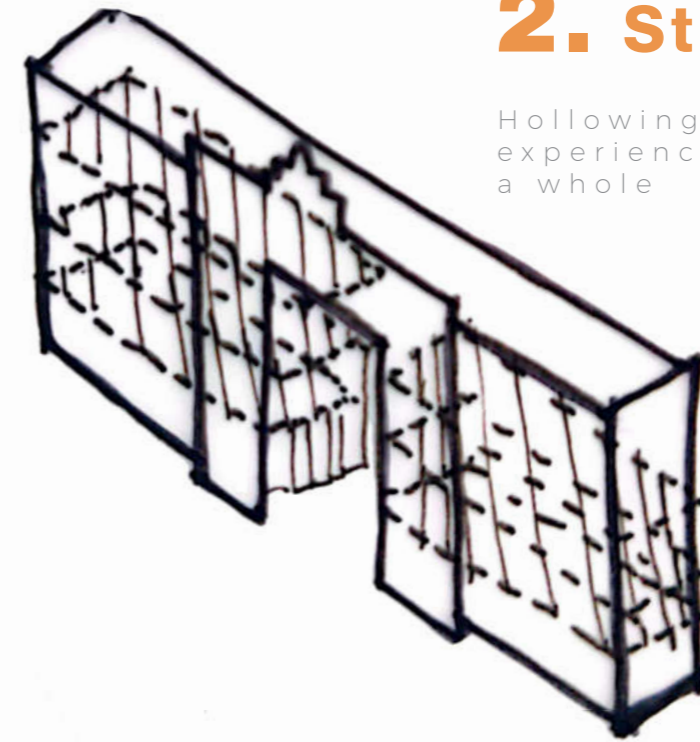
**North Elevation**

Establishing a platform to enjoy views from Jheroka



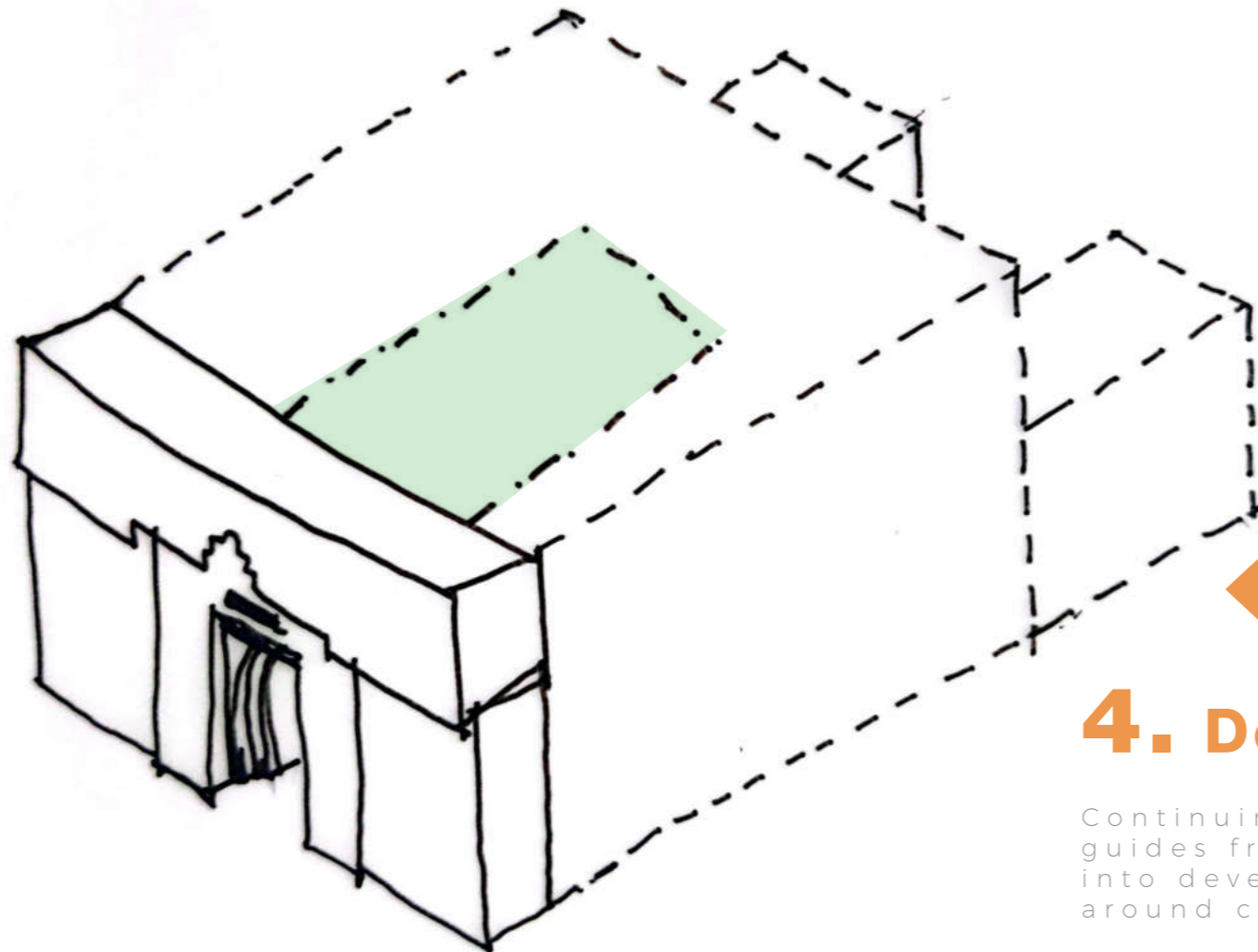
## 1. Existing Facade

Existing Facade provides opportunity for an interesting juxtaposition



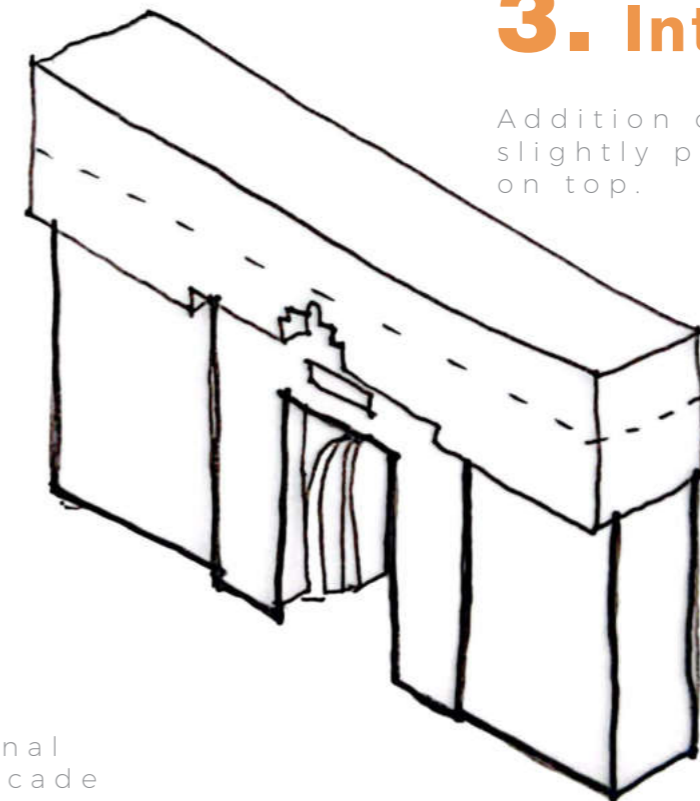
## 2. Strategy

Following the structure to experience the volume as a whole



## 4. Design

Continuing divisional guides from the facade into developing design around courtyards

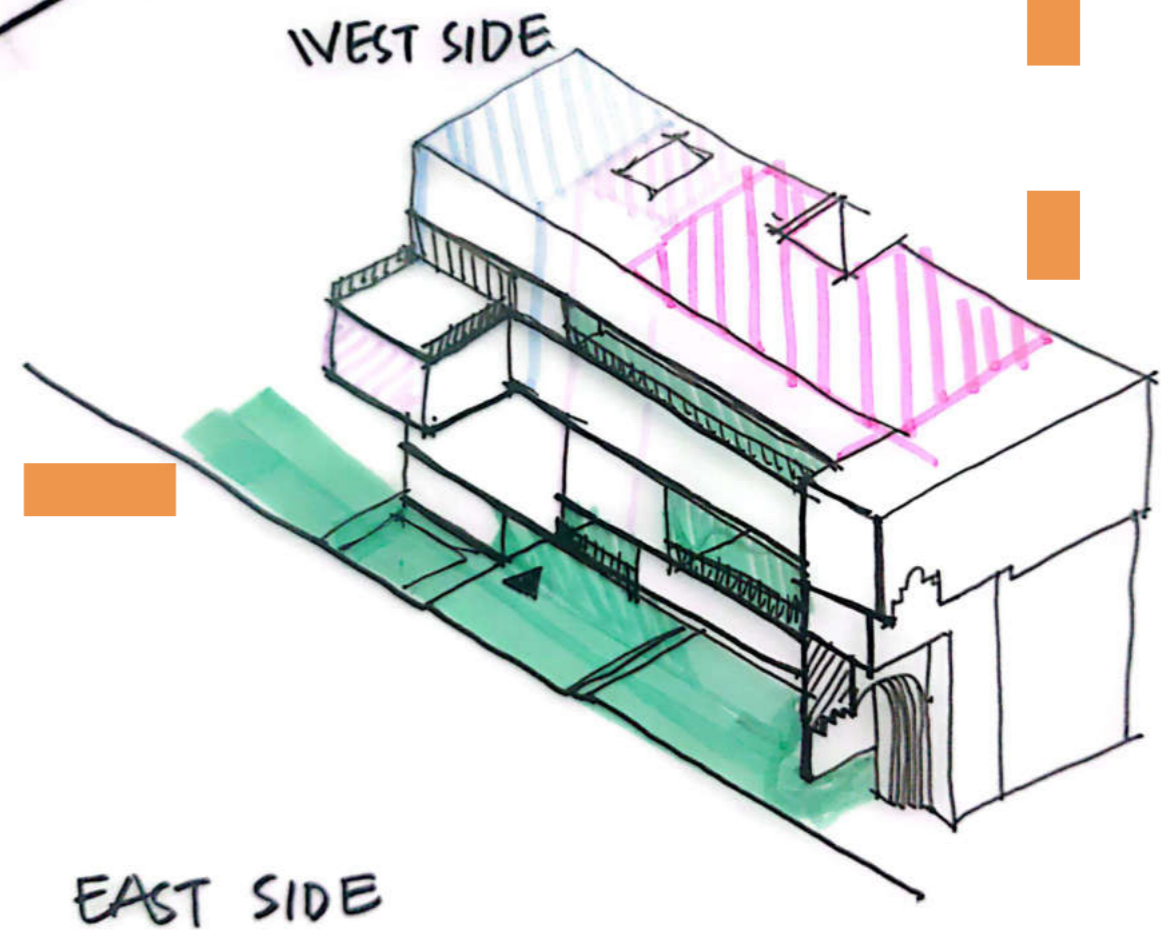
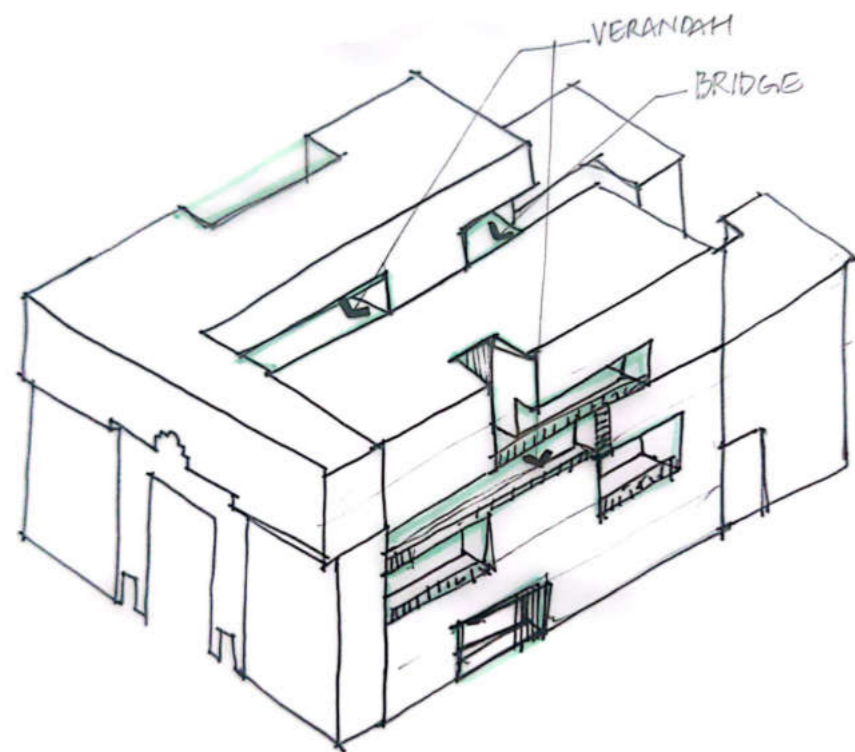
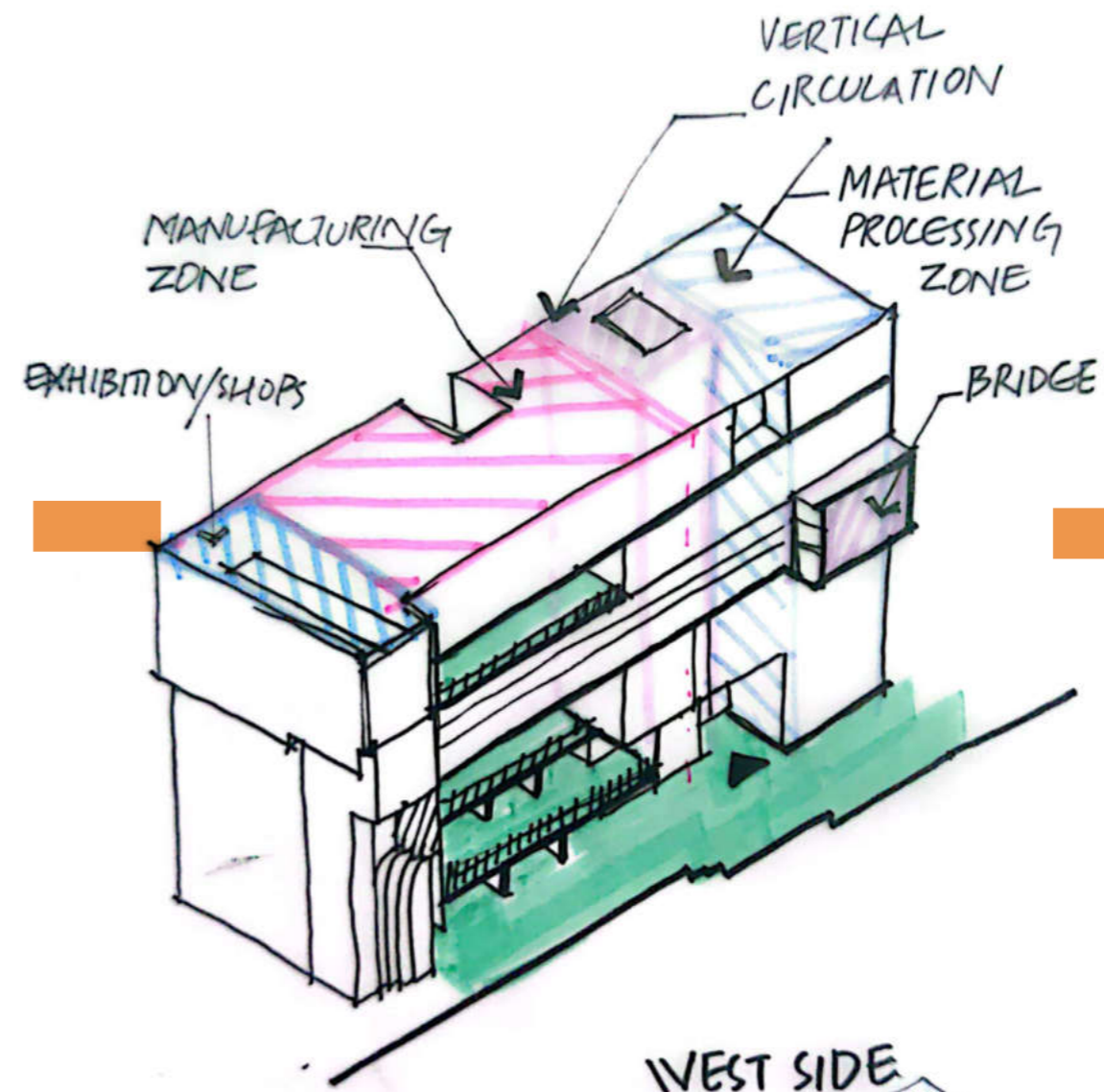
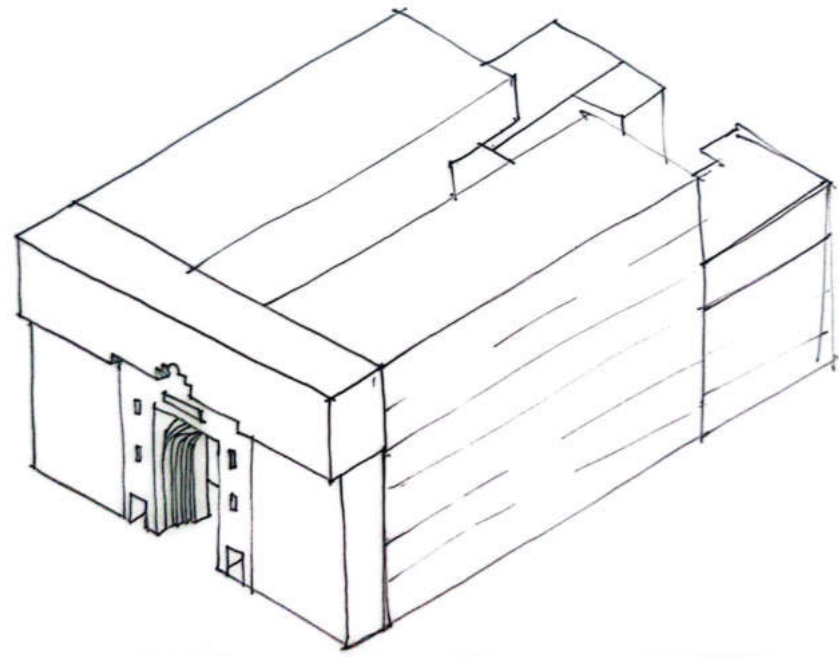


## 3. Integration

Addition of a clean, slightly protruding mass on top.

# 2.2 Project Development

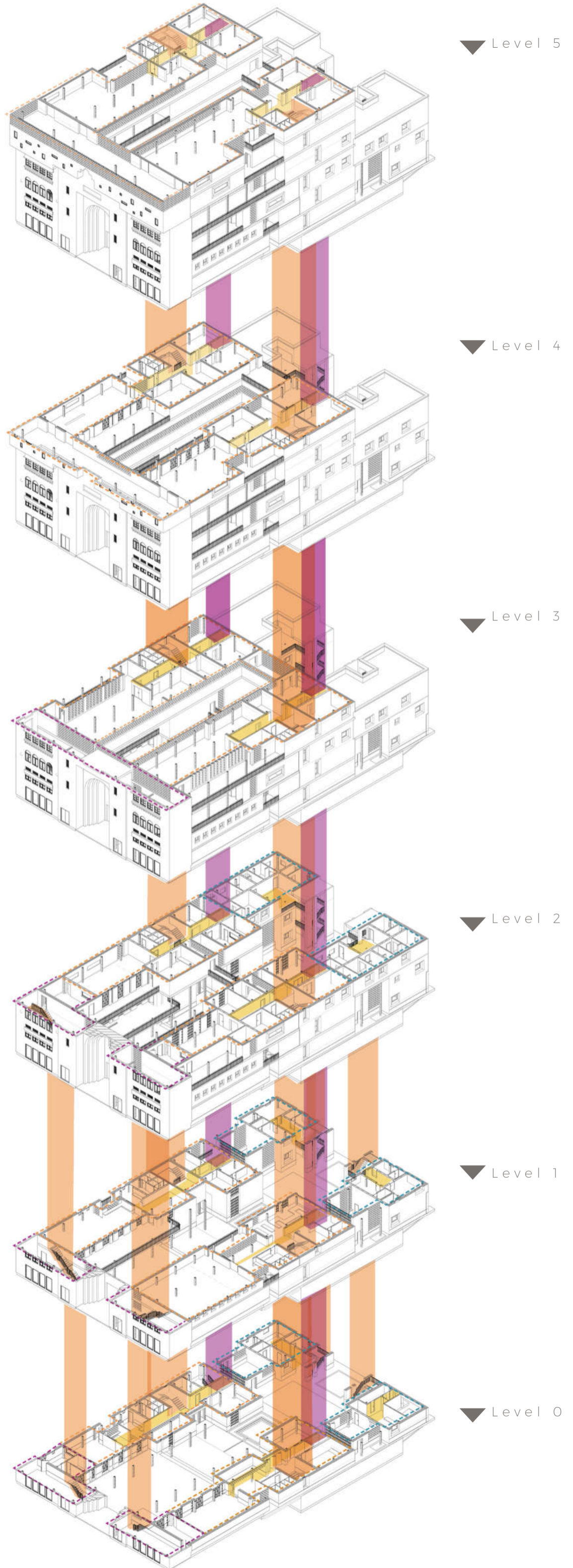
Massing & Developing Volumes





# 2.3 Project Development

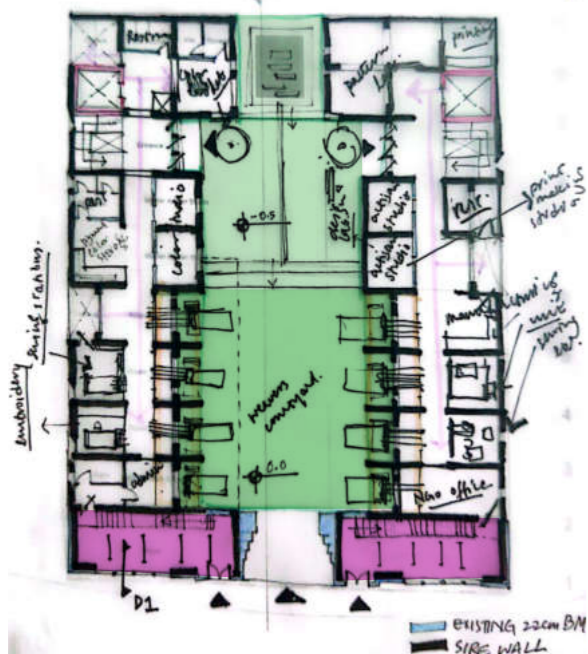
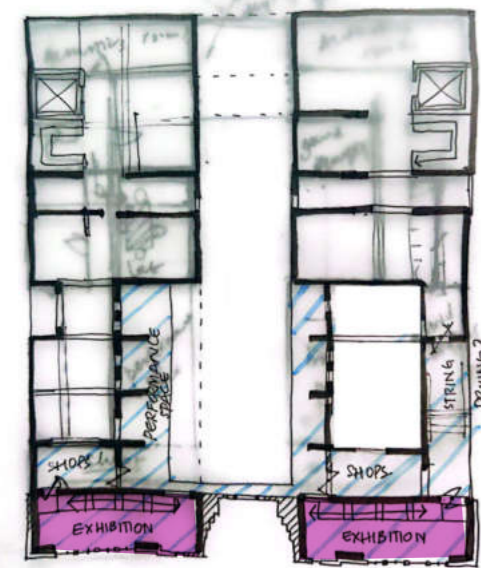
## Circulation & Layout



-  Residencies
-  Exhibition, Shops & Admin
-  Factory
-  Vertical Circulation
-  Elevator Shafts
-  Circulation Artery

# 2.3.1 Project Design

Plans



## PUBLIC ZONE

- 0.06 Exhibition Area
- 0.07 NGO Offices
- 0.18 Sales Shop

## OPEN SPACES

- 0.01 Weavers Courtyard
- 0.02 Colorists Courtyard
- 0.03 Residential Gardens
- 0.04 Drop-off Point
- 0.05 Entrances

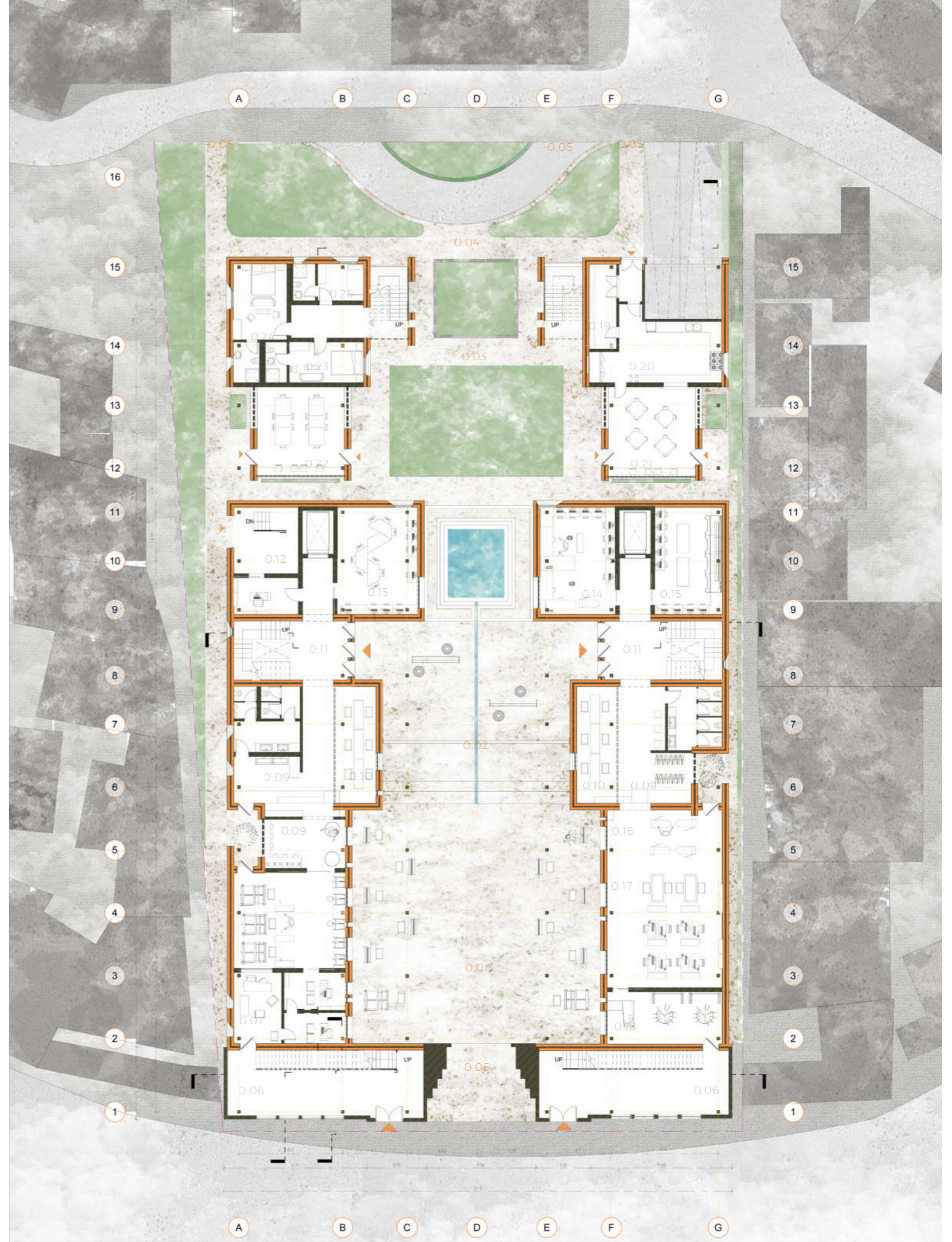
## FACTORY Thread

- 0.08 Weaving Unit
- 0.09 Processing Zone
- 0.10 Meeting Zone
- 0.11 Entrance Lobby
- 0.12 Archive. Drying Zone
- 0.13 Pattern Labs
- 0.14 Fashion Lab
- 0.15 Digital Printing Lab
- 0.16 Embroidery Zone
- 0.17 Sewing Zone

## RESIDENTIAL ZONE

- 0.19 Pantry
- 0.20 Kitchen
- 0.21 Dining Hall
- 0.22 Community Room
- 0.23 Living Units
- 0.24 Living Units
- 0.25 Living Units

Level 0  
1:200





Weavers Courtyard



Exhibition Area



# 2.3.1 Project Design

Plans

## FACTORY Clay, Printmaking

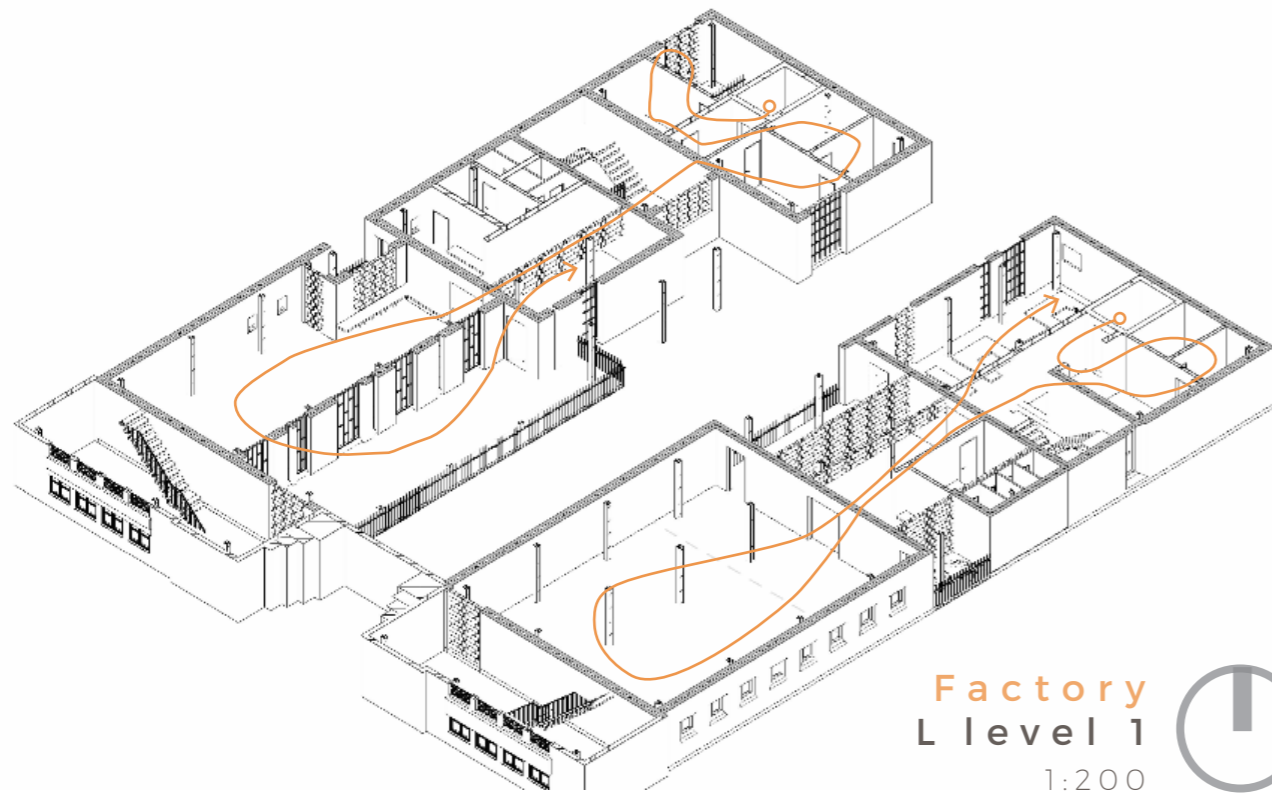
- 1.01 Clay Pool
- 1.02 Sundrying Terrace
- 1.03 Residential Gardens
- 1.04 Kneading, Kiln & Storage
- 1.05 Kneading Zone
- 1.06 Meeting Zone
- 1.07 Processing Zone
- 1.08 Sculpting Zone
- 1.09 Painting Zone
- 1.10 Screen Printing Units
- 1.11 Glazing Zone
- 1.12 Clay Storage
- 1.13 Kiln

## RESIDENTIAL ZONE

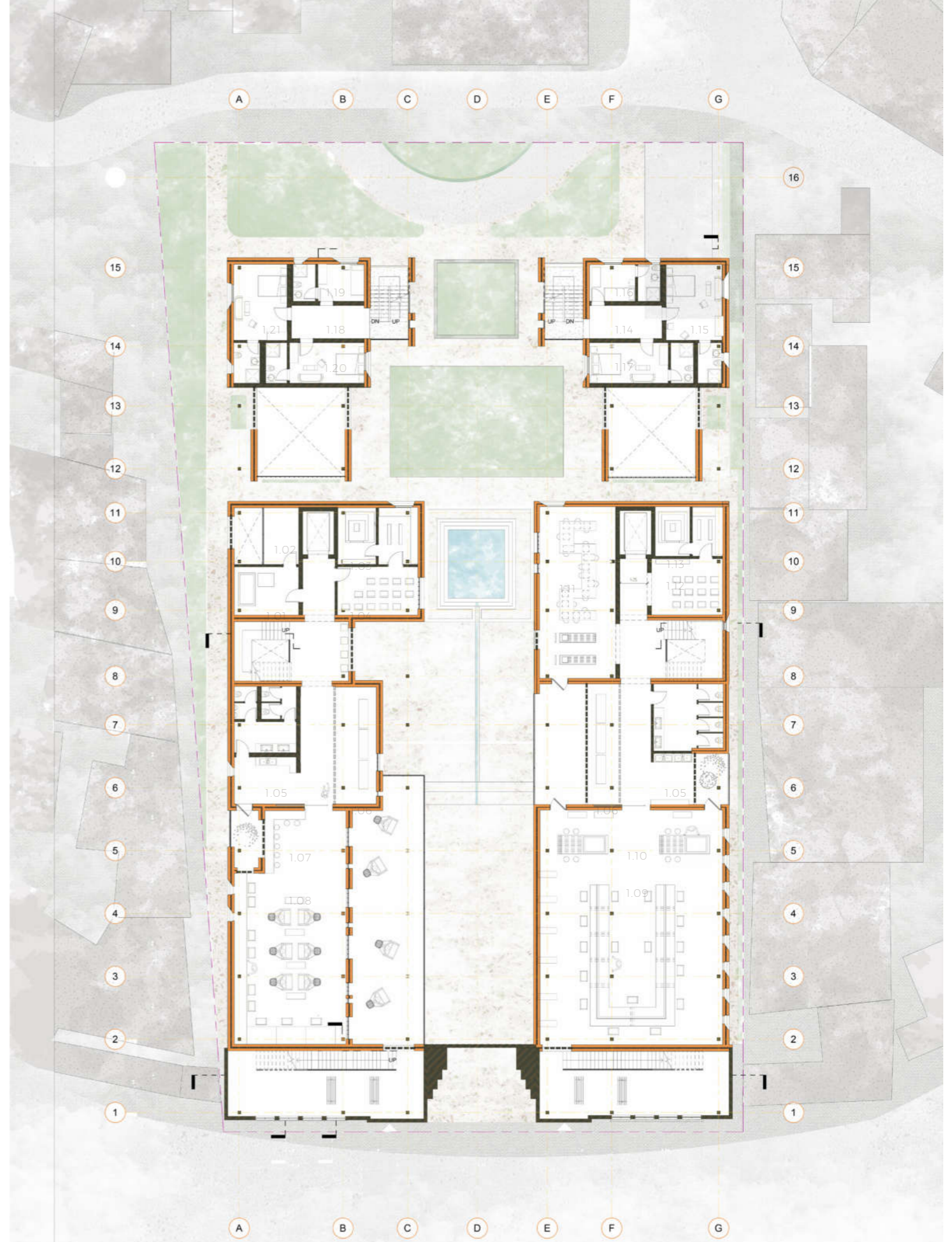
- 1.14 Loggia
- 1.15 - 1.17 Living Units
- 1.18 Loggia
- 1.19 - 1.21 Living Units

### DESIGN CONSIDERATIONS

1. Material Flow
2. Veranda: Outdoor Working Spaces



→ Flow of Product





Dining Hall

# 2.3.1 Project Design

Plans

## FACTORY Musical Instruments

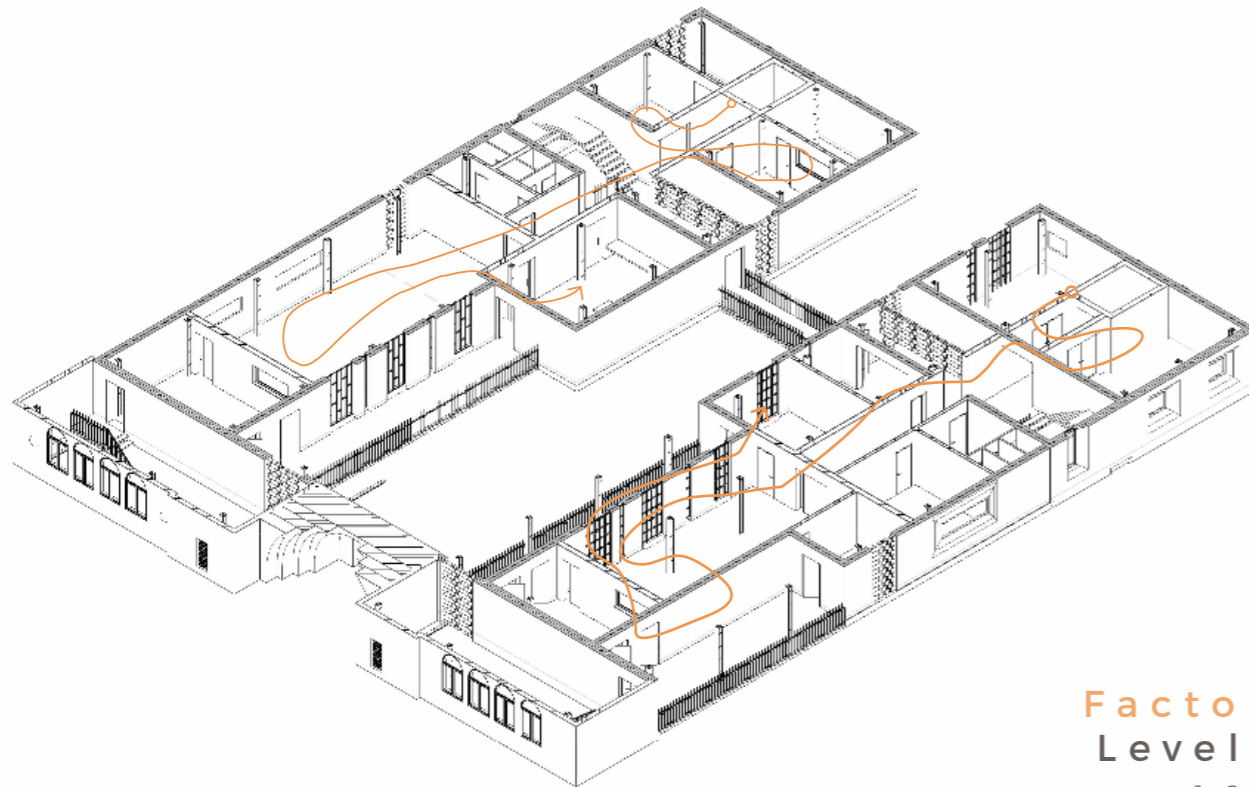
- 2.01 Exhibition Area
- 2.02 Manufacture Workshop
- 2.03 Bridgemadeing Workshop
- 2.04 Meeting Zone
- 2.05 Mixing Studio
- 2.06 Seasoning Kiln
- 2.07 Sun Drying Terrace
- 2.08 Recording Room
- 2.09 Manufacture Workshop
- 2.10 String & Gourd Drying
- 2.11 Ornamentation Studio
- 2.12 Storage
- 2.13 Performance Stage
- 2.14 - 2.15 Sound & Fabrication Labs

## RESIDENTIAL ZONE

- 2.16 Loggia
- 2.17 - 2.20 Living Units
- 2.21 Loggia
- 2.22 - 2.23 Living Units

### DESIGN CONSIDERATIONS

1. Material Flow
2. Connecting Bridges
3. Controlled Light: Bridge Making
4. Well-lit Workshop

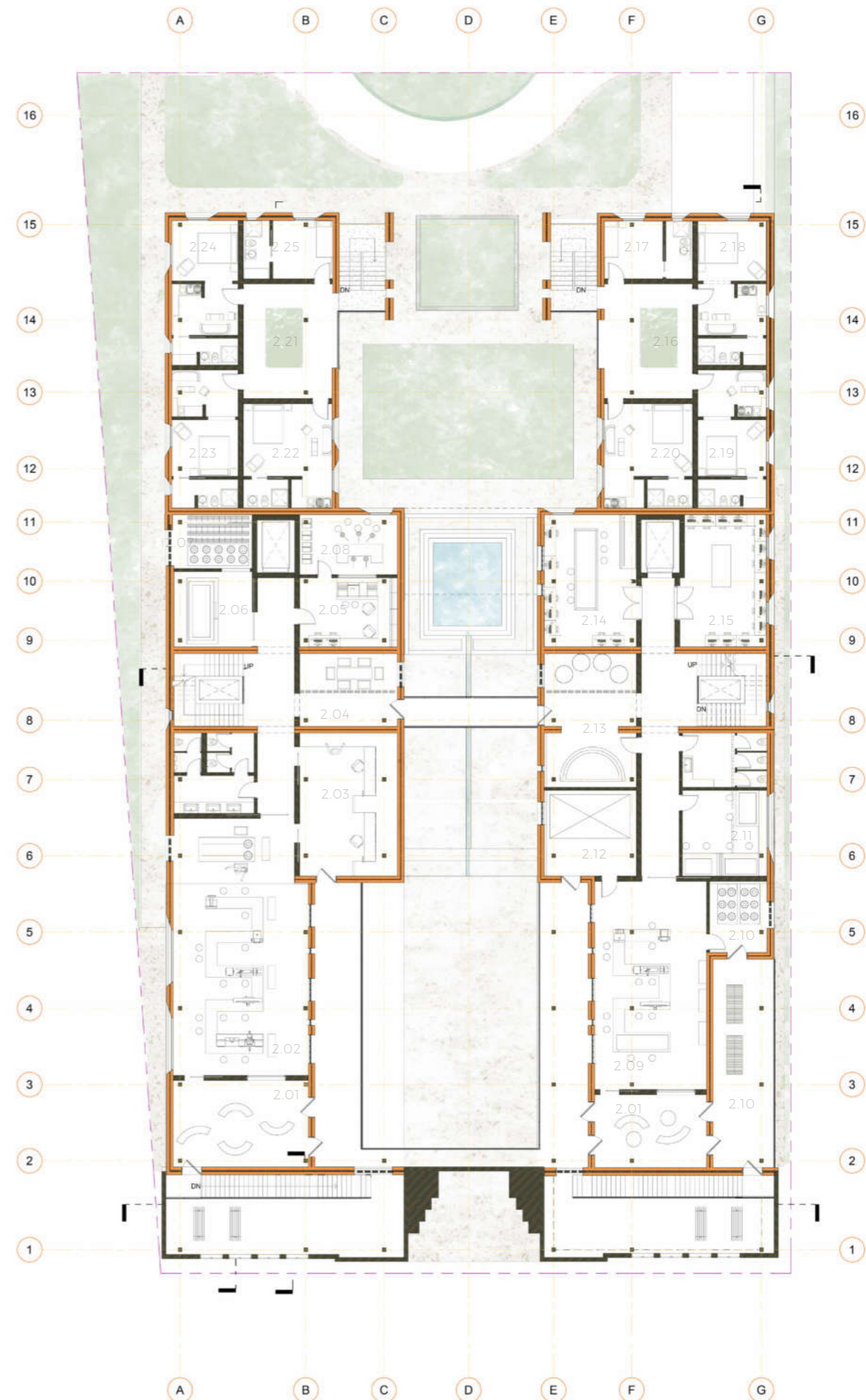


Factory  
Level 2

1:200



→ Flow of Product





Wood Workshop

# 2.3.1 Project Design

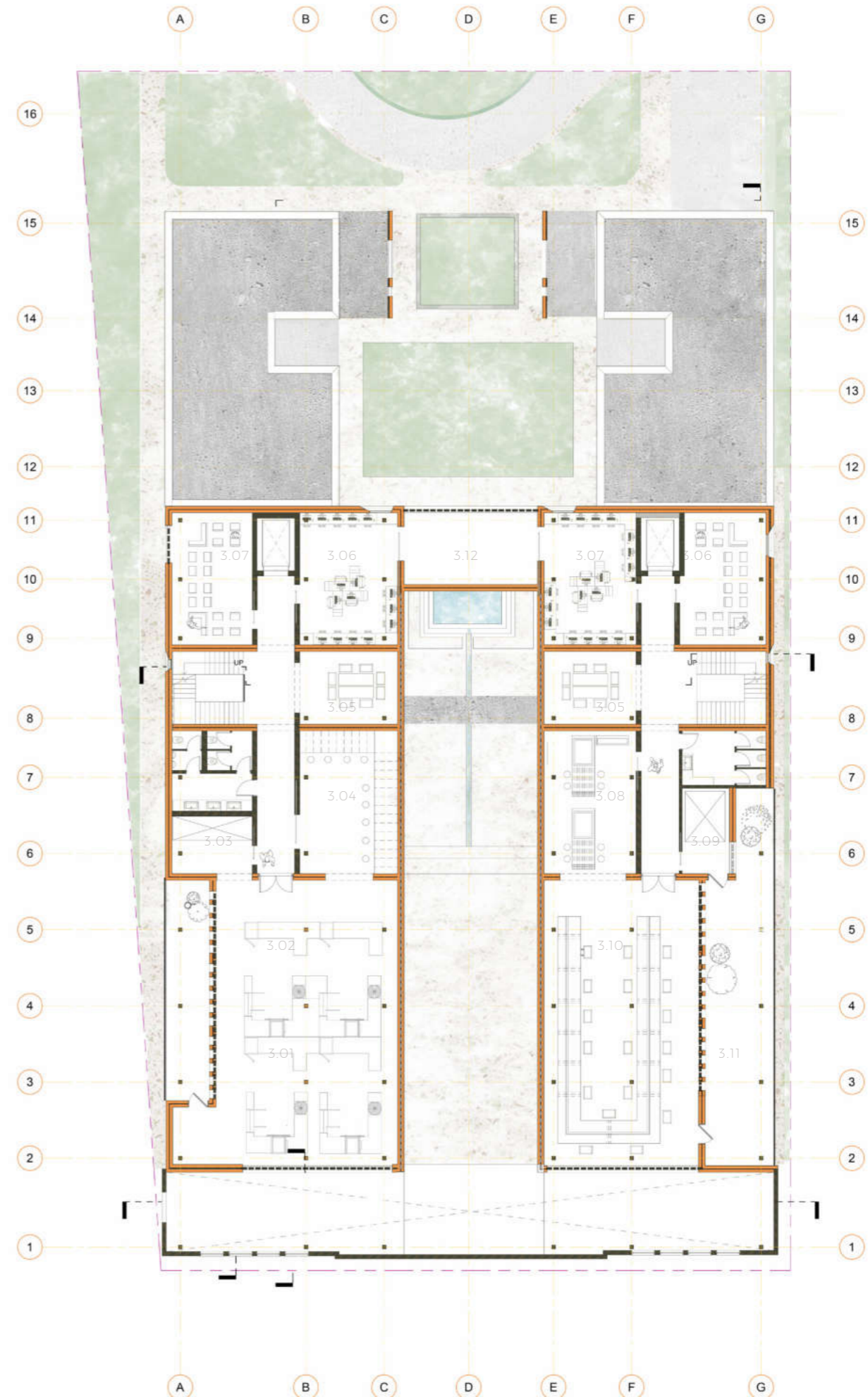
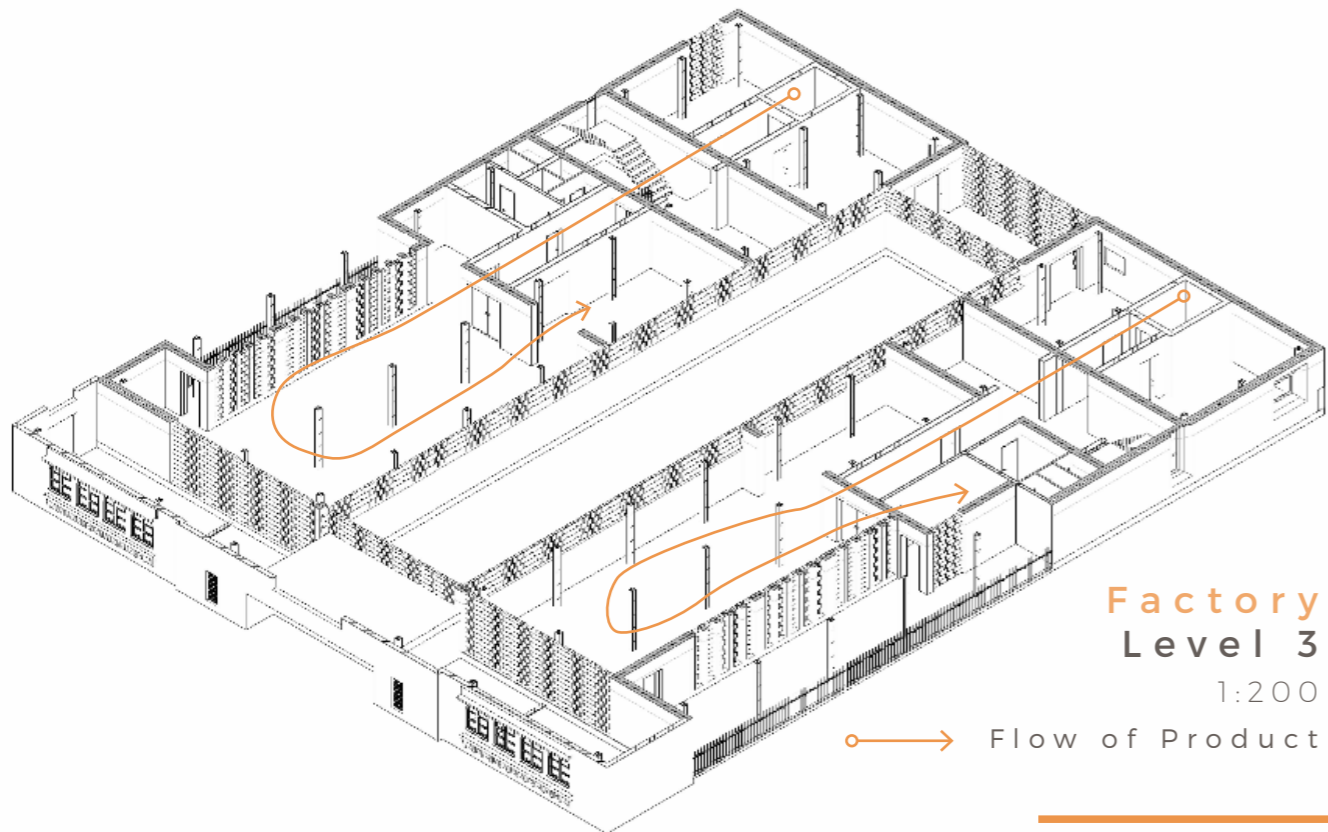
Plans

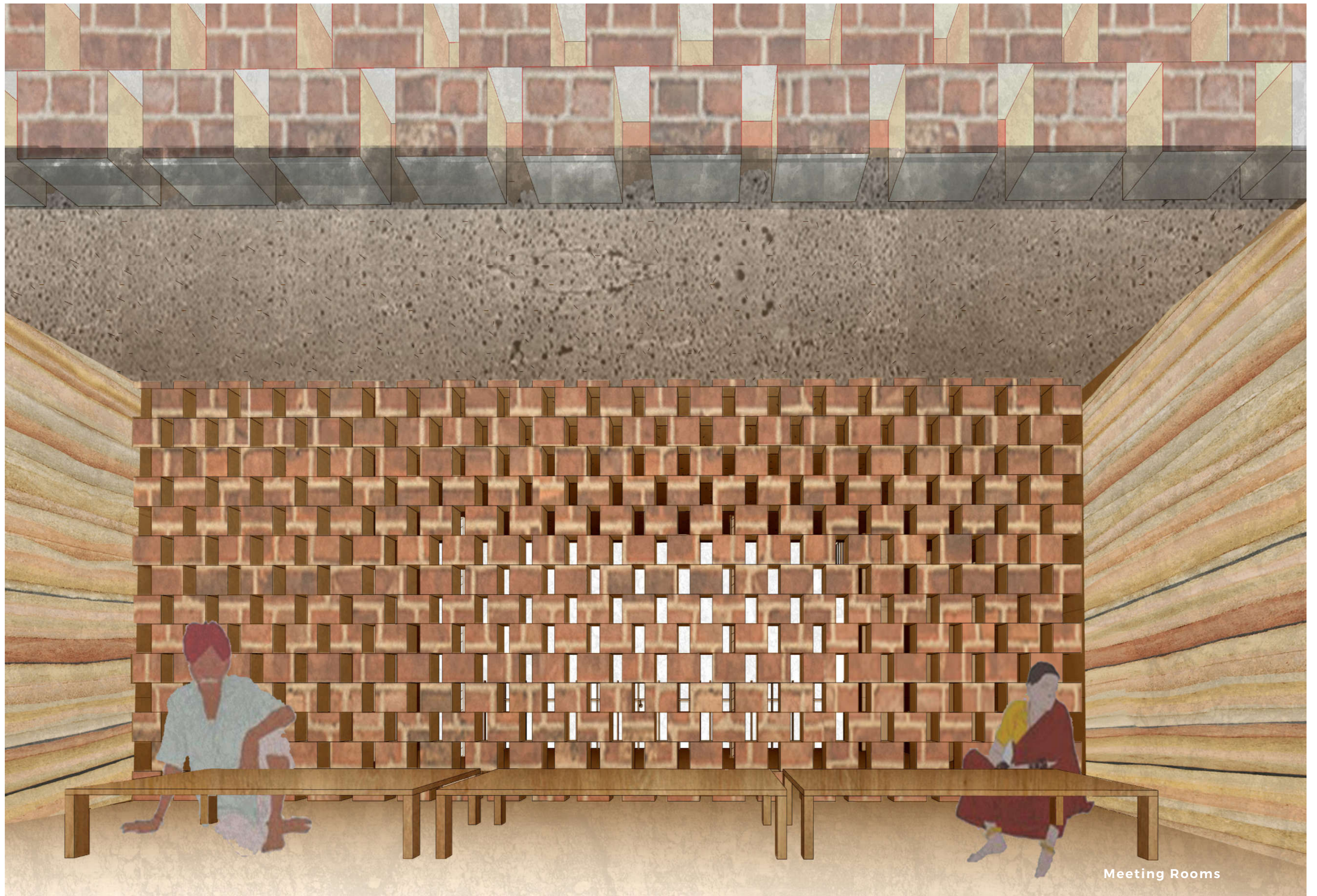
## FACTORY Glass Jewellery

- 3.08 Ornamentation Studio
- 3.09 Product Storage
- 3.10 Painting Zone
- 3.11 Terrace
- 3.12 Bridge

- 3.01 Blowing Workstations
- 3.02 Rolling Zone
- 3.03 Storage
- 3.04 Painting Studio
- 3.05 Meeting Zone
- 3.06 Experimental Lab
- 3.07 Demonstration Rooms

**DESIGN CONSIDERATIONS**  
 1. Material Flow  
 2. Natural Cross Ventilation





Meeting Rooms

# 2.3.1 Project Design

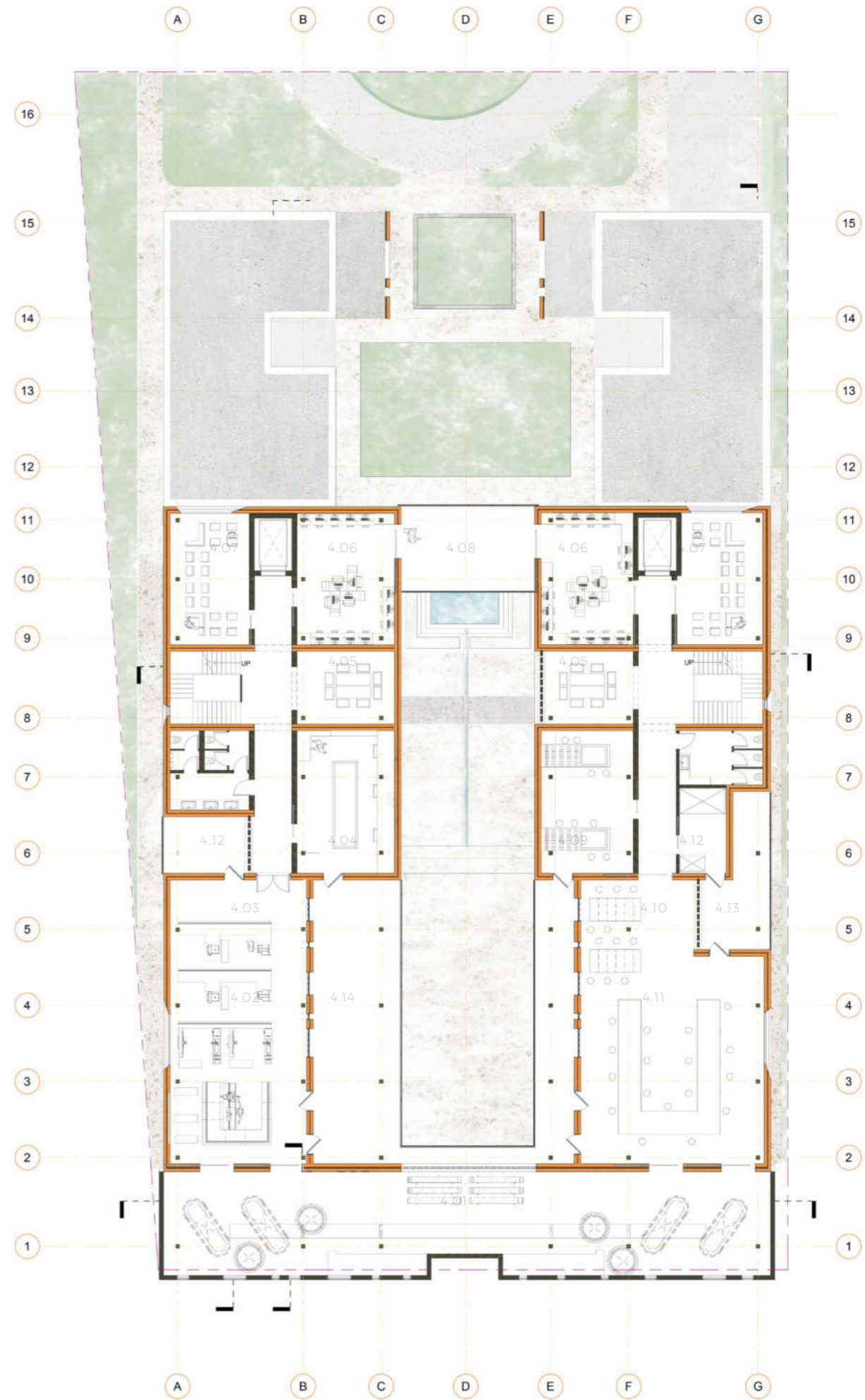
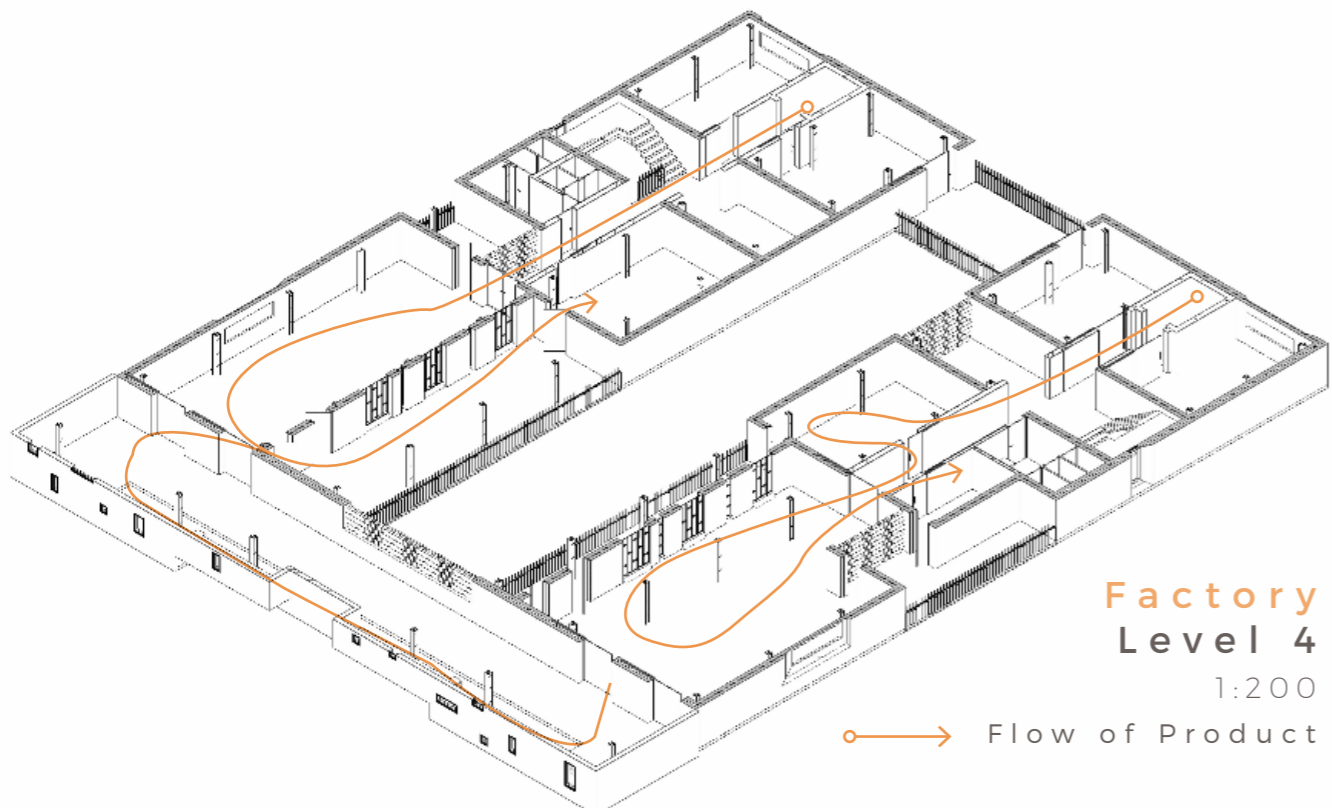
Plans

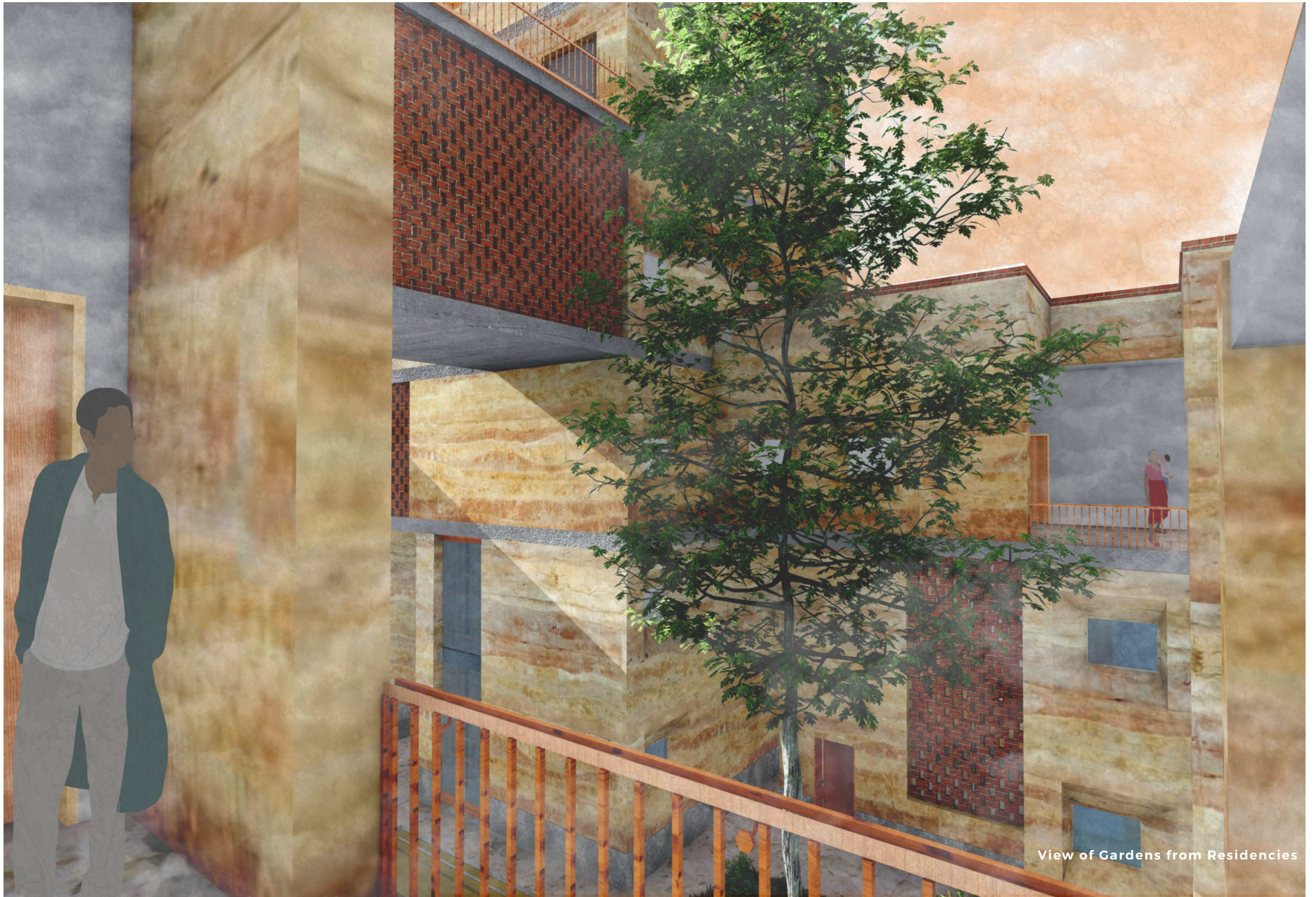
## FACTORY Furniture Wood & Cane

- 4.01 Quality Control Line
- 4.02 Woodwork Shop
- 4.03 Gluing Line
- 4.04 Ornamentation Studio
- 4.05 Meeting Room
- 4.06 Experimental Lab
- 4.07 Demonstration Lab
- 4.08 Bridge
- 4.09 Painting Zone
- 4.10 Polishing Zone
- 4.11 Weaving Zone
- 4.12 Product Storage
- 4.13 Terrace
- 4.14 Balcony

### DESIGN CONSIDERATIONS

1. Material Flow
2. Quality Check Line
3. Veranda: Outdoor Working Spaces





View of Gardens from Residencies



# 2.3.1 Project Design

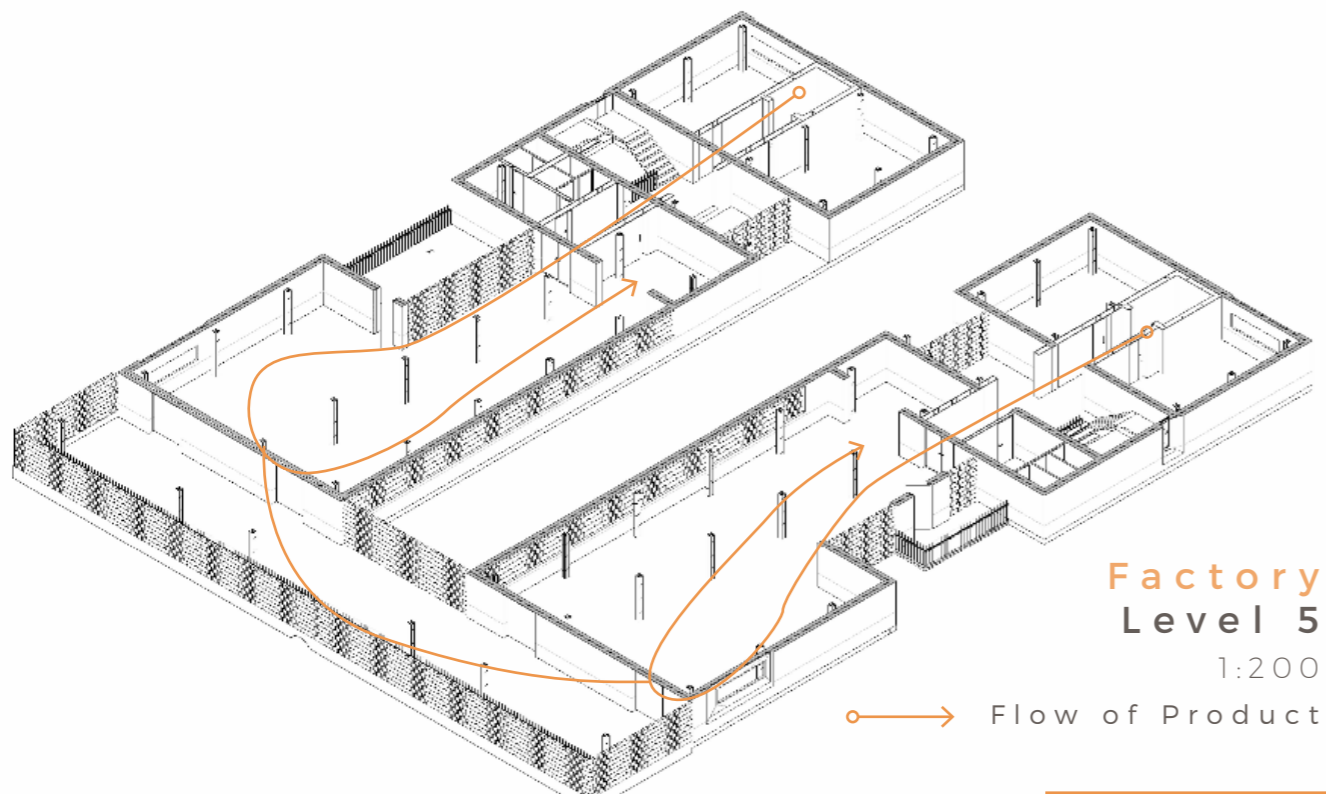
Plans

## FACTORY Metal Jewellery

- 5.01 Molding Stations
- 5.02 Sheet Rollings
- 5.03 Terrace
- 5.04 Product Storage
- 5.05 Meeting Zone
- 5.06 Design Lab
- 5.07 Demonstration Room
  
- 5.08 Polishing Zone
- 5.09 Gemification Zone

### DESIGN CONSIDERATIONS

1. Material Flow
2. Natural Cross Ventilation





Connecting Bridges

# 2.3.1 Project Design

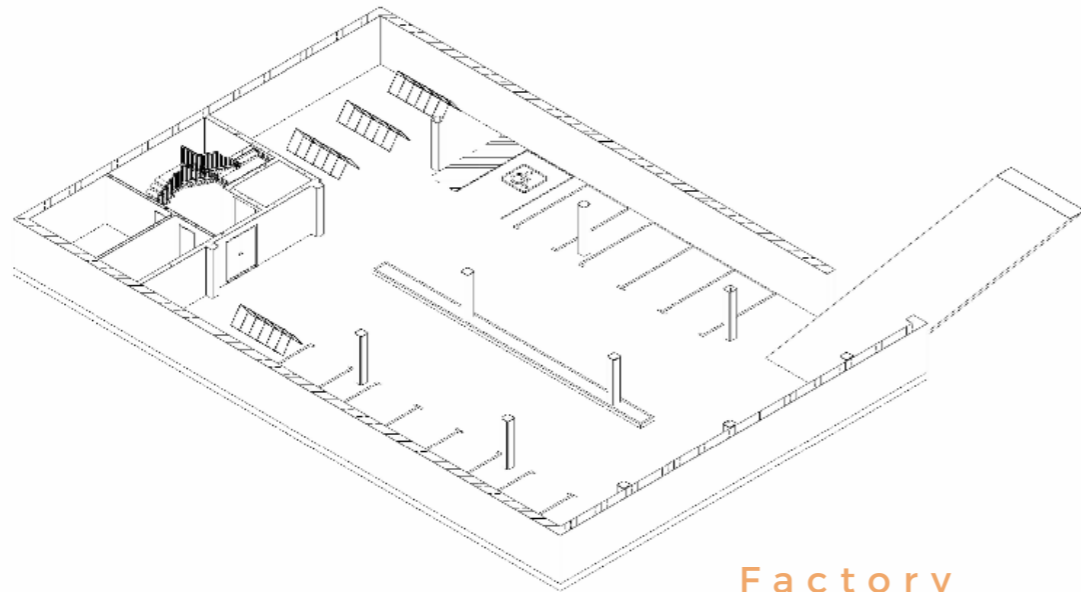
Plans

## PARKING

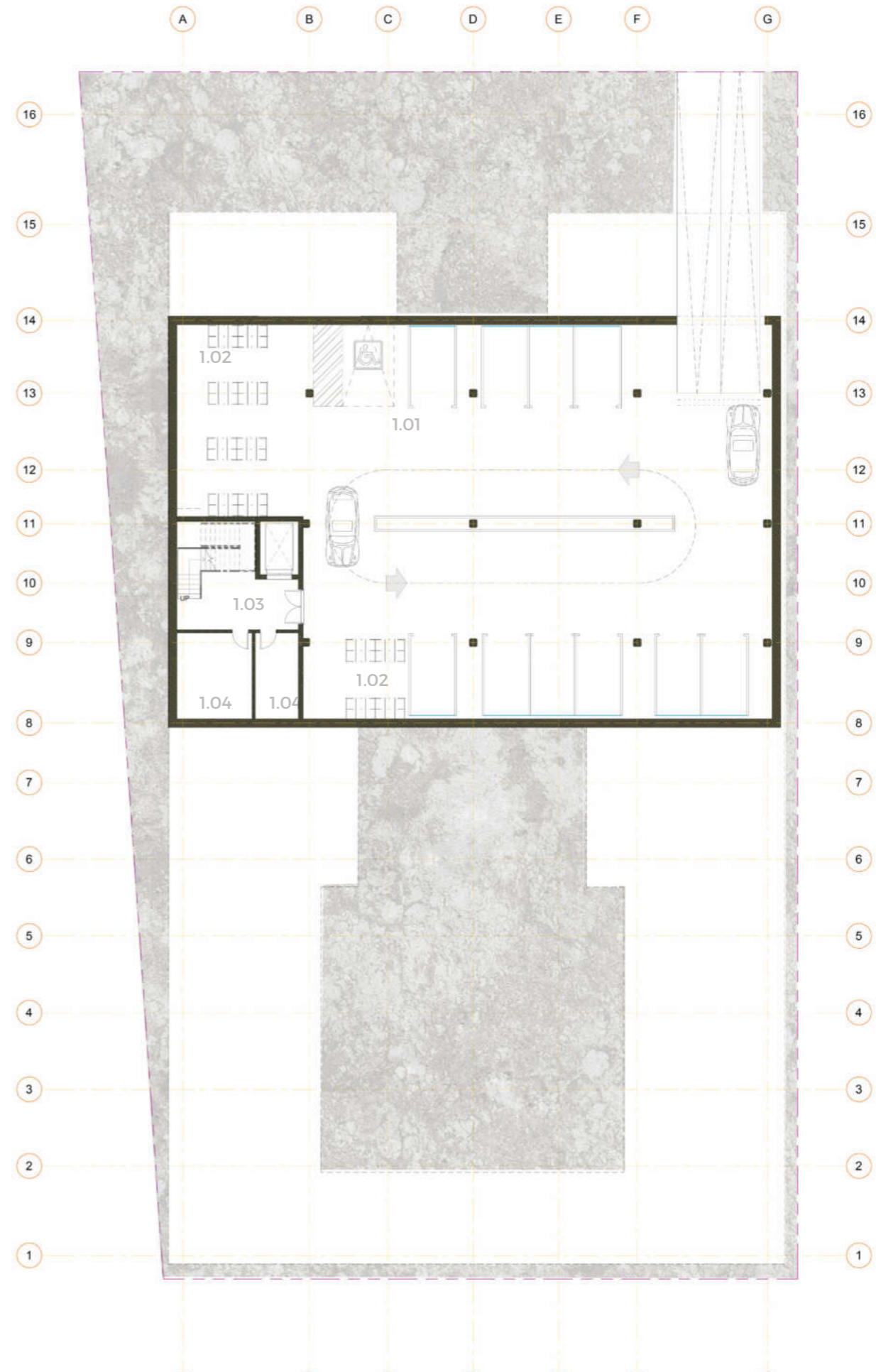
- 1.01 Car Parking
- 1.02 Bike Parking
- 1.03 Lobby
- 1.04 Storage
- 1.05 Entrances

## DESIGN CONSIDERATIONS

1. Access to Factory and Residencies
2. Vehicular Access from the North



Factory  
Level -1  
1:200





Residential Gardens

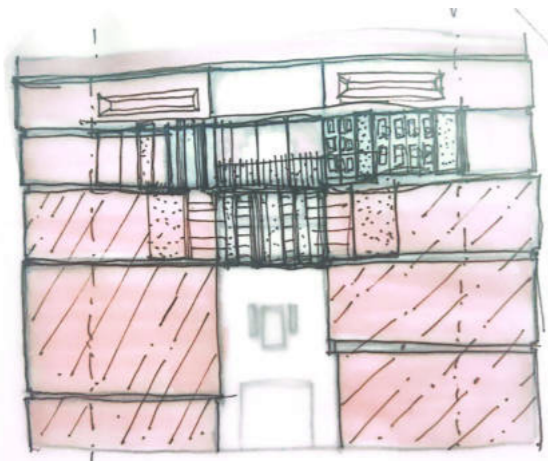
# 2.3.2 Project Design

## Elevations



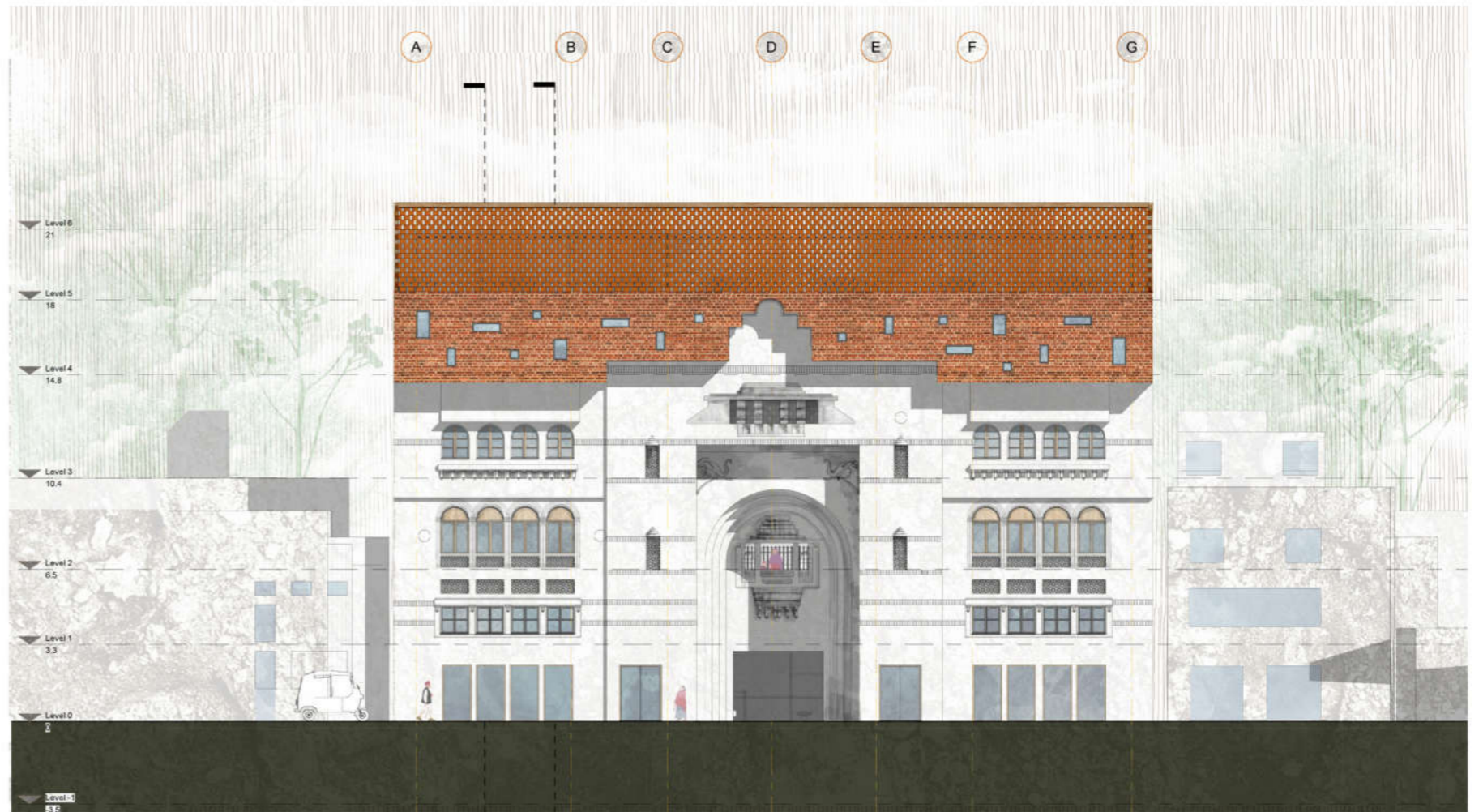
**South Elevation**

1. Modern, mass with clean lines
2. Complement the Symmetry of the existing building

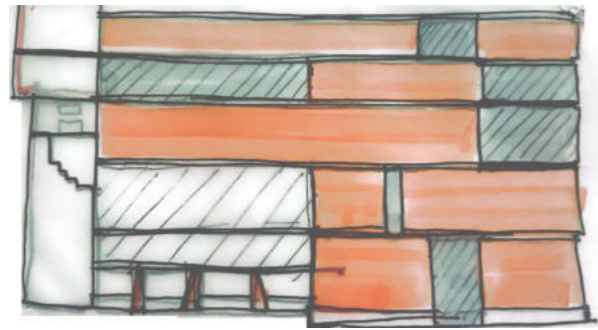


**North Elevation**

1. Longer Apertures to let in diffused Light

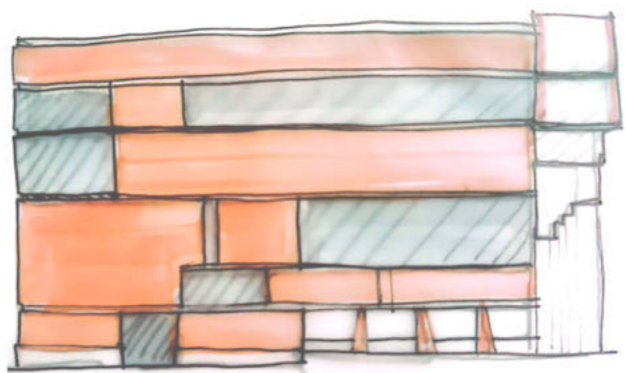


# 2.3.2 Project Design Elevations



**Courtyard-West Elevation**

- 1. Balconies to accommodate outdoor activities



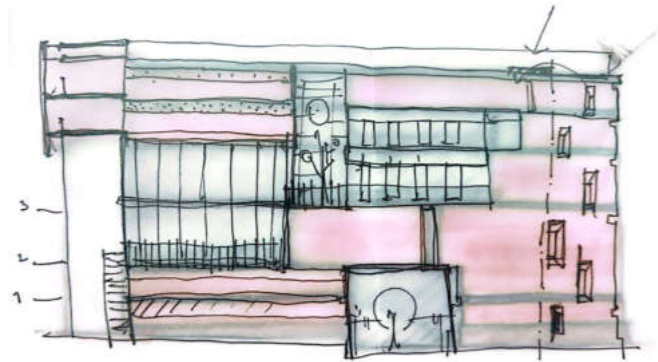
**Courtyard-East Elevation**

- 1. Balconies to accommodate outdoor activities



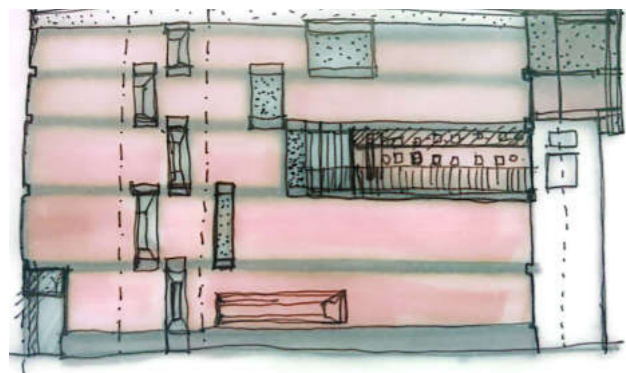
# 2.3.2 Project Design

## Elevations



**West Elevation**

1. Balconies to accommodate drying spaces
2. Apertures to create Natural Ventilation

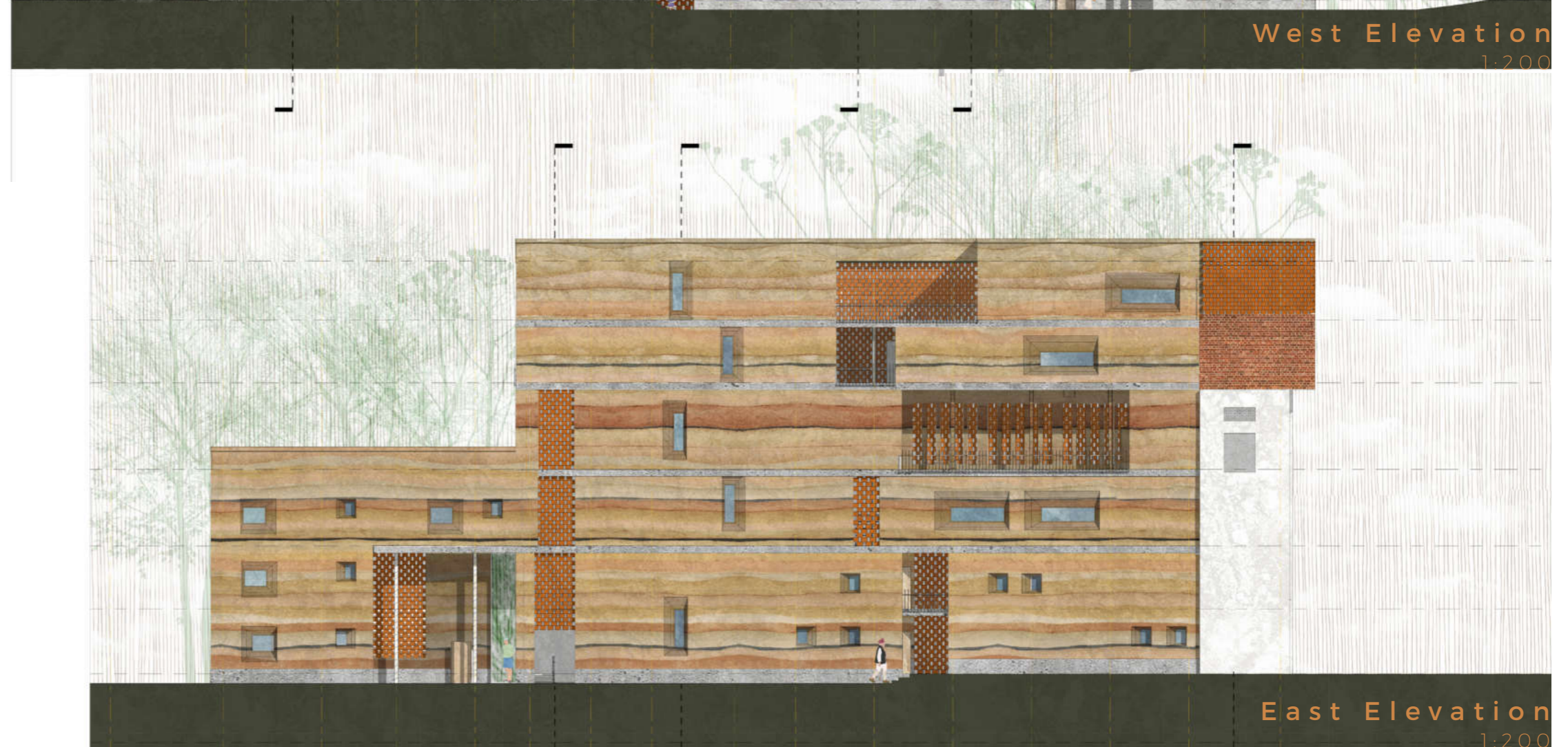


**East Elevation**

1. Balconies to accommodate drying spaces
2. Apertures to create Natural Ventilation



**West Elevation**  
1:200



**East Elevation**  
1:200





# 2.3.3 Project Design

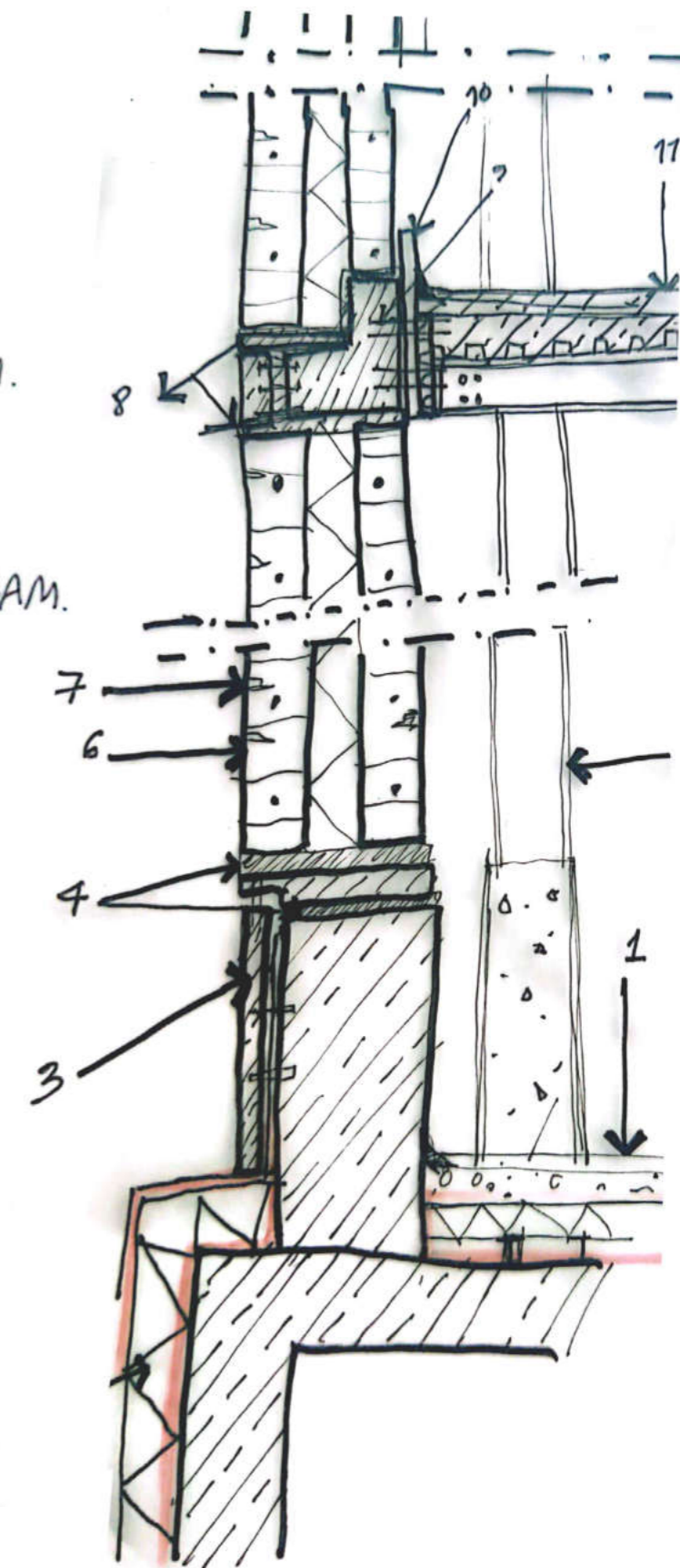
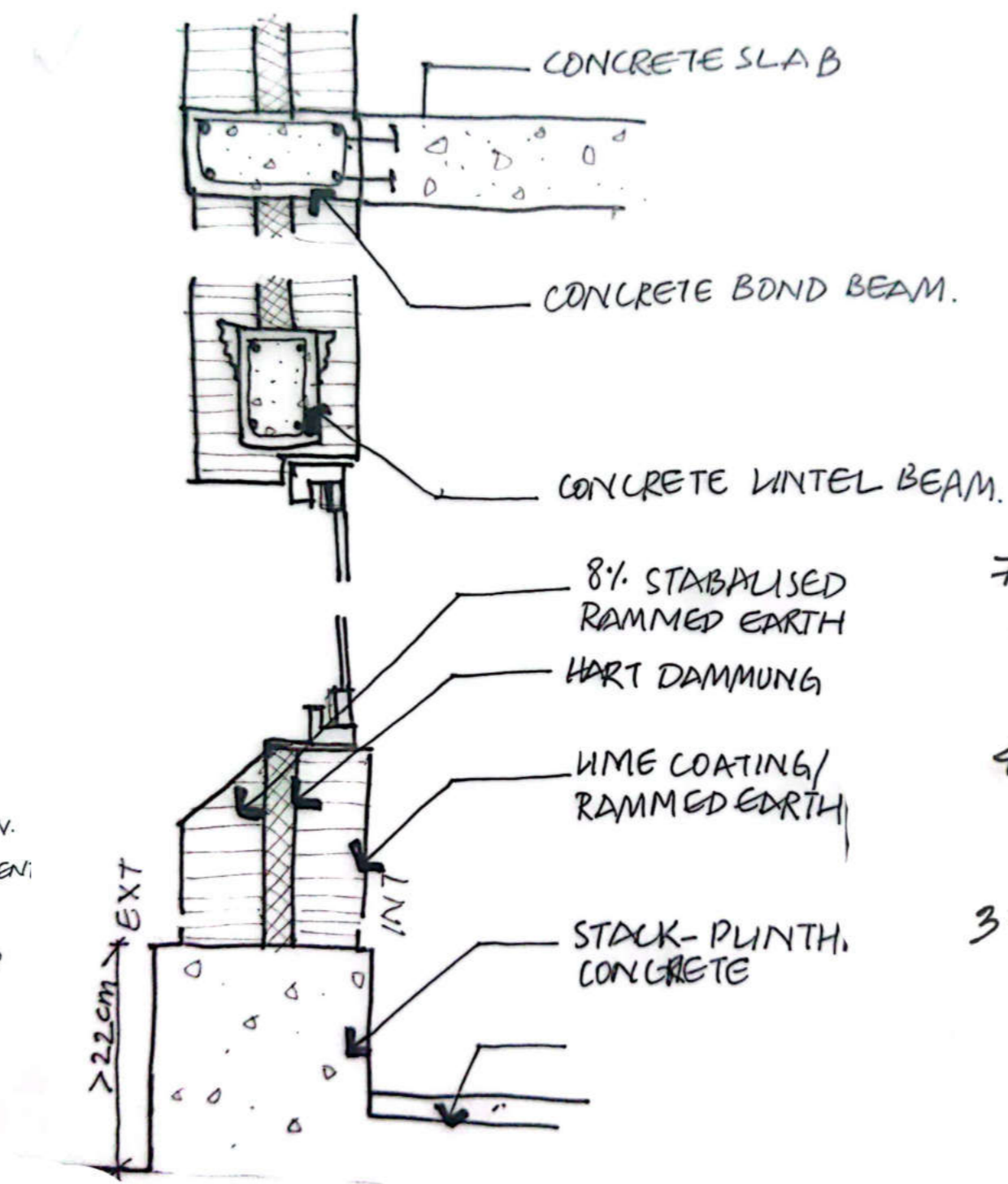
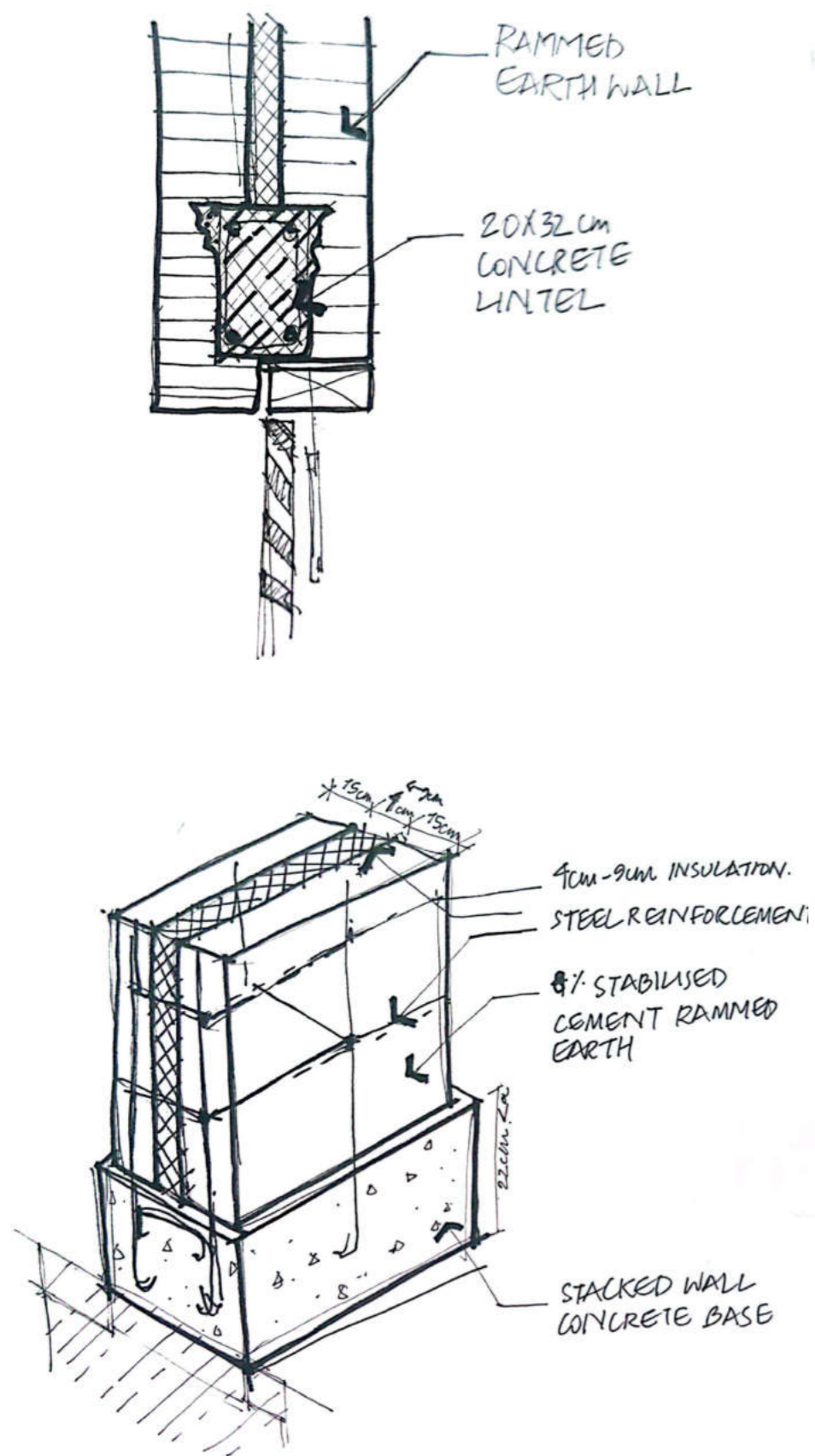
## Sections



Section A-A  
1:200

# 2.4 Project Design

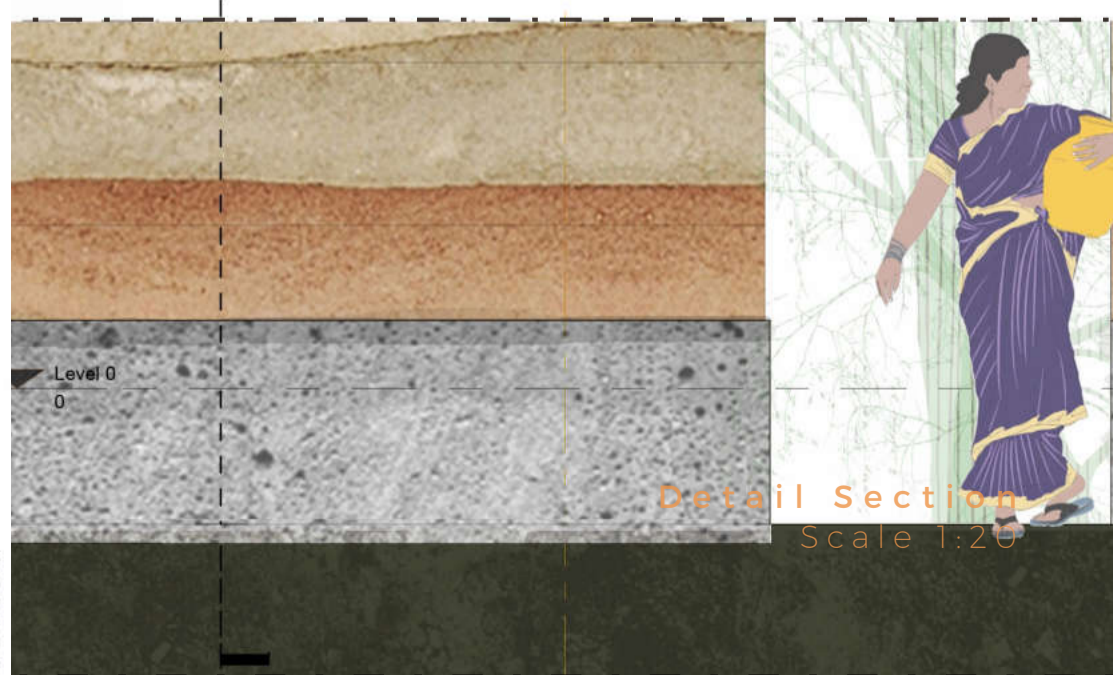
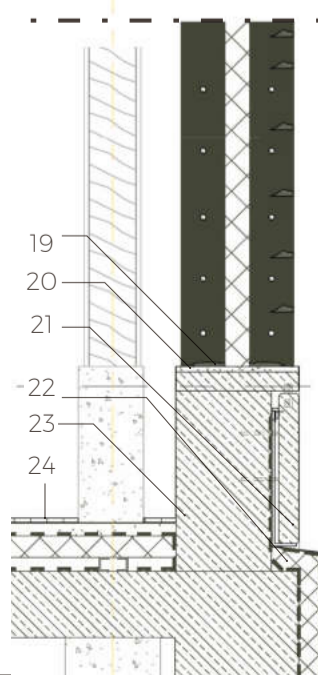
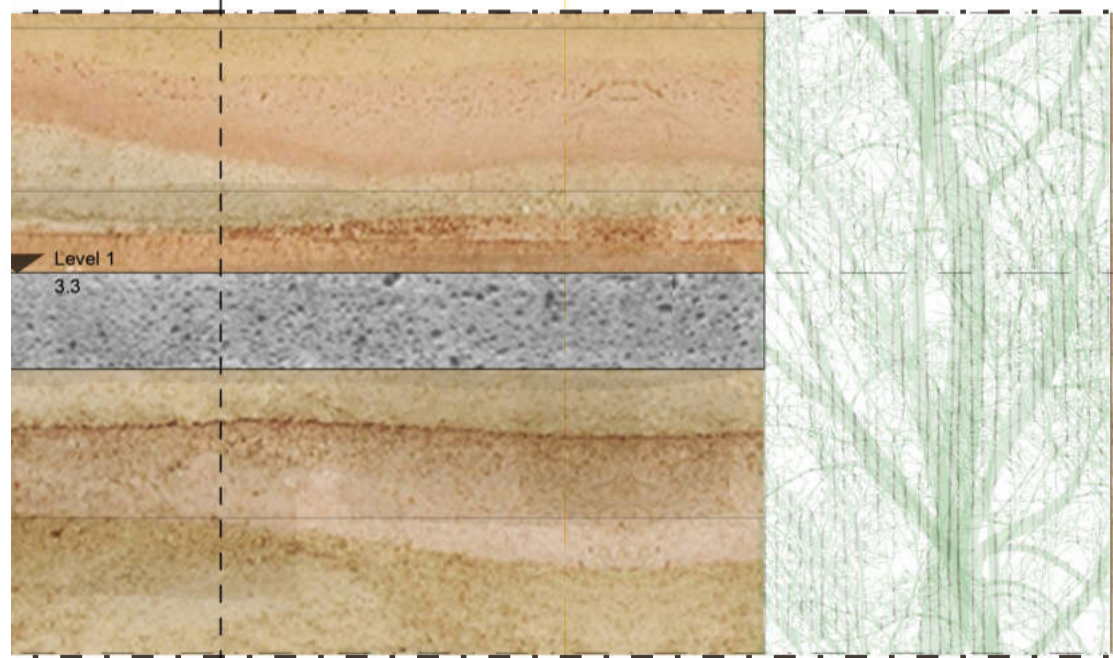
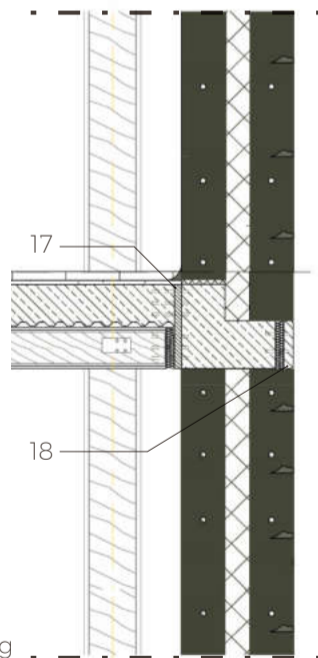
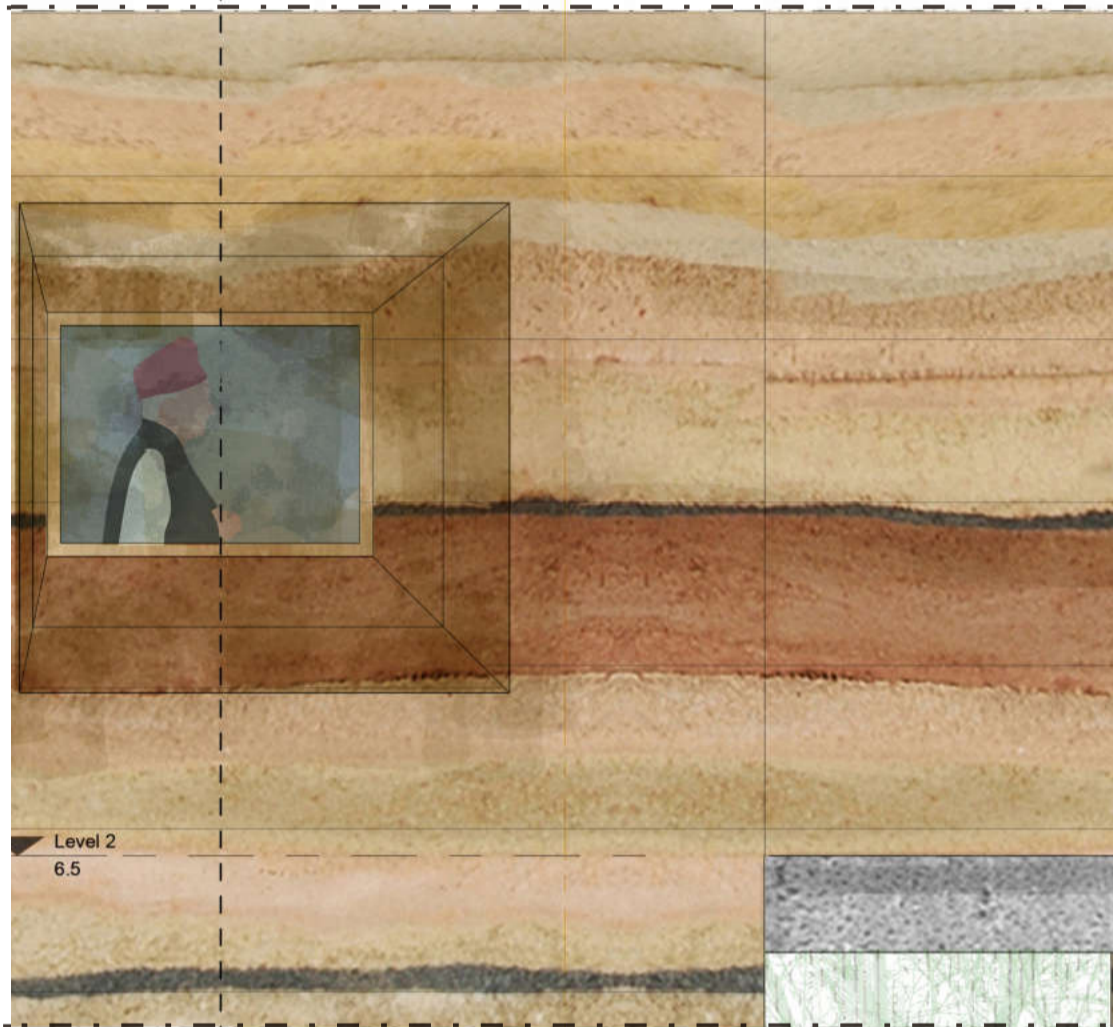
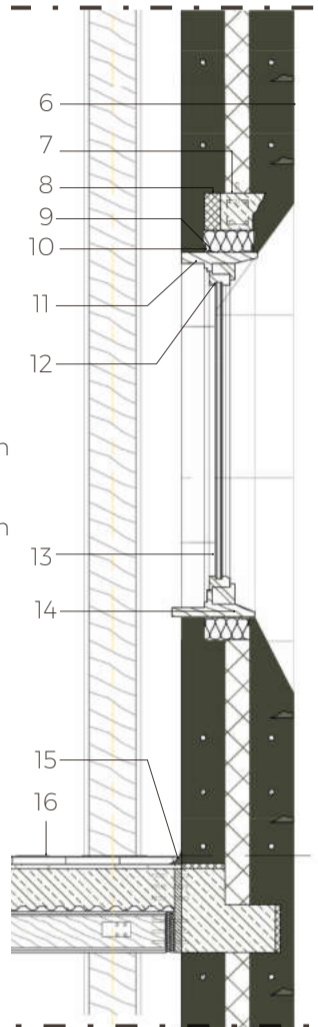
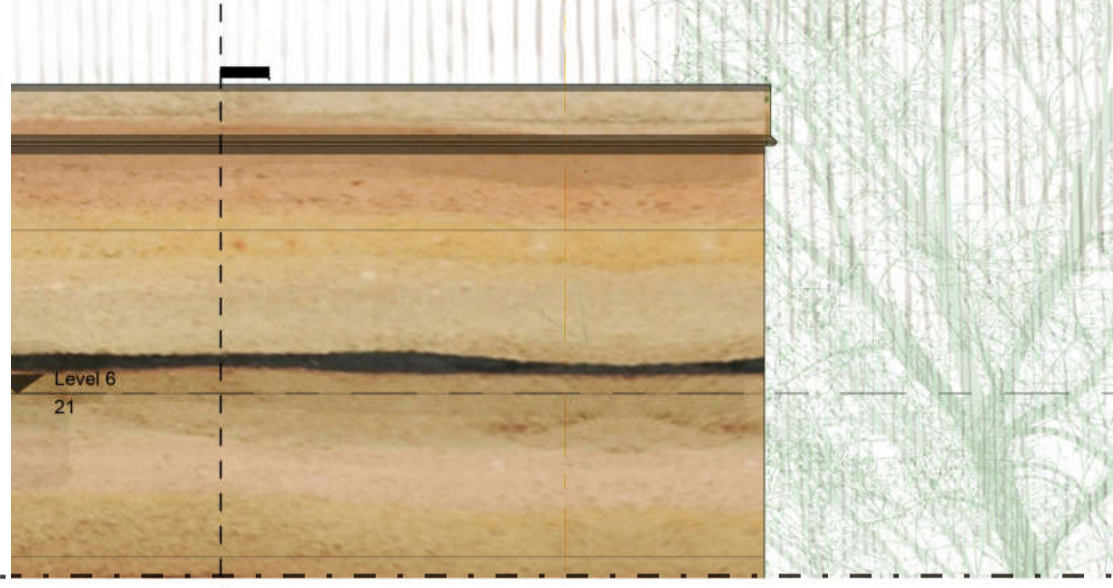
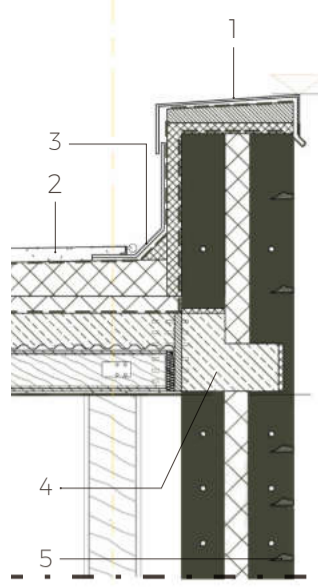
## Structural Conception



# 2.4.1 Project Design

## Exterior Wall Section

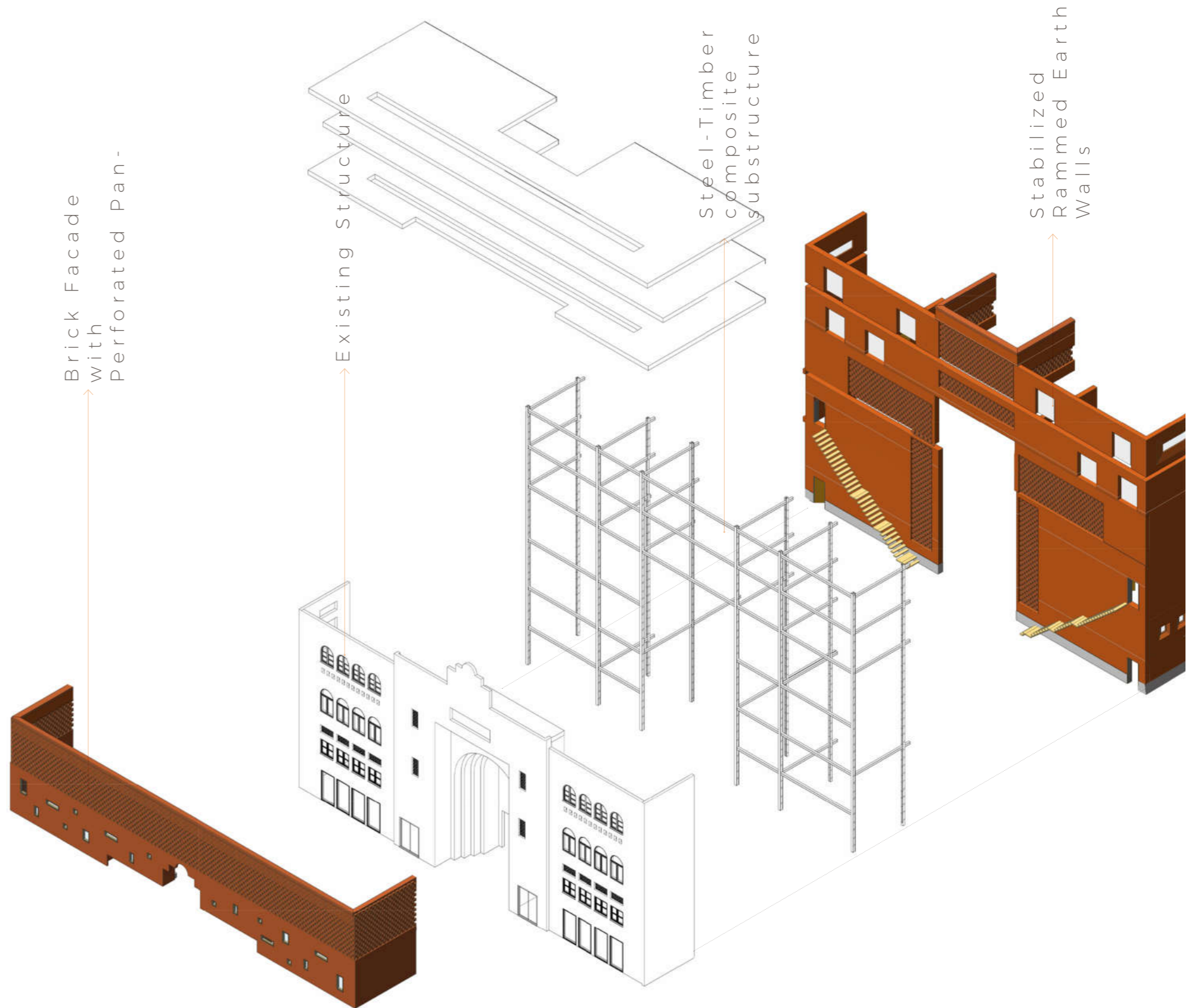
1. **Parapet:**
  - 35 mm Trapezoidal Parapet Cap over
  - 25 mm Geotextile membrane
  - OSB Capping
  - Hard Perimeter Insulation over
  - 2 ply Bitumen water proofing
2. **380 mm Roofing:**
  - 35 mm Tiles grouted with cement-sand mortar
  - Geotextile membrane
  - 180 mm Glass wool insulation
  - 2 ply Bitumen water proofing
  - 145 mm Steel Reinforced Concrete floor
  - Metal corrugated sheet panels
  - 178 / 102 mm Timber-Steel Composite Beams
3. Metal Skirting
4. **350 / 300 mm Steel Reinforced Ring Beam**
5. Trass Lime Layers
6. **410mm Stabilized Rammed Earth Wall:**
  - 160 mm 8 % Cement-stabilized, Reinforced Rammed Earth
  - 90 mm Foam Glass Gravel Insulation with
  - 160 mm 8 % Cement-stabilized, Reinforced Rammed Earth
7. **Lintel:**
  - 120 / 140 mm Steel Reinforced Concrete Beam
8. Hard Insulation
9. **60 mm** Glass foam insulation around Window perimeter
- 75 mm** Mineral Sealant
10. Timber Trim
11. Timber Sash
12. Double Insulated Glass
14. Timber Finish Sill
15. Corner Sealant
16. **360mm Intermediate Floor:**
  - 30 mm Terrazzo Glass Chips Finish
  - 15 mm Cement Sand mortar Underbed
  - 145 mm Steel Reinforced Concrete floor
  - Metal corrugated sheet panels
  - 178 / 102 mm Timber-Steel Composite Beams
17. **60 mm** Timber connecting ledge screwed on Concrete ring beam
18. **80 mm** Exterior facing precast concrete element
19. **10 mm** Mineral Based Slurry
20. Mineral Sealant
21. **Plinth Facing:**
  - 120 mm Insulating concrete unit;
  - Substructure:
  - Aluminum sheet angles; stainless steel profile aluminum sheet cladding.
22. **450 mm** Geotextile, dimpled membrane drainage surface; bitumen membrane waterproofing  
Geotextile, dimpled membrane drainage surface; Foam Glass Thermal insulation;  
Bitumen damp-proof coating; Reinforced concrete exterior wall
23. **365/650mm** Precast Concrete Plinth element
24. **360 mm Base Floor:**
  - 30 mm Terrazzo Glass Chips Finish
  - 40 mm Cement Screed Underbed
  - Geotextile membrane
  - 60 mm Glass wool Insulation
  - Steel Profiles
  - 2 ply Bitumen Coat
  - 240 mm Reinforced Concrete Slab



Detail Section  
Scale 1:20

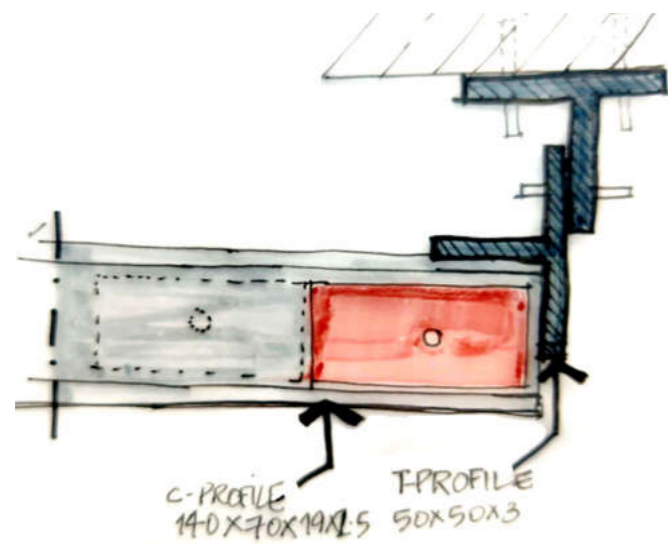
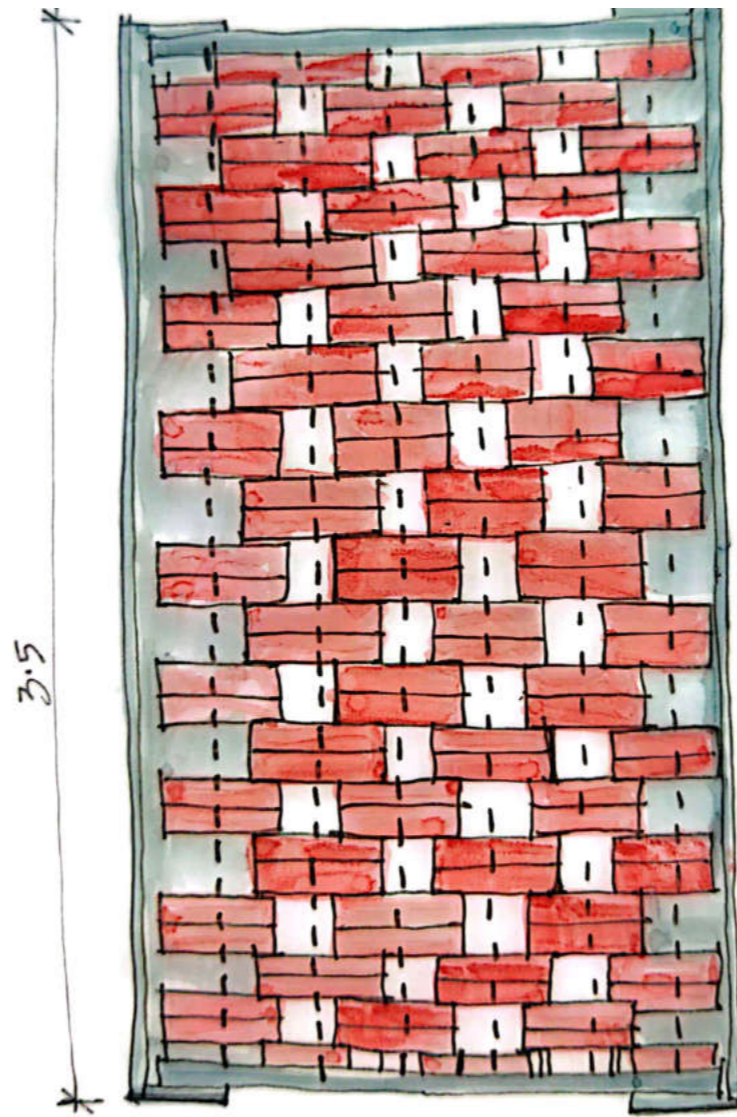
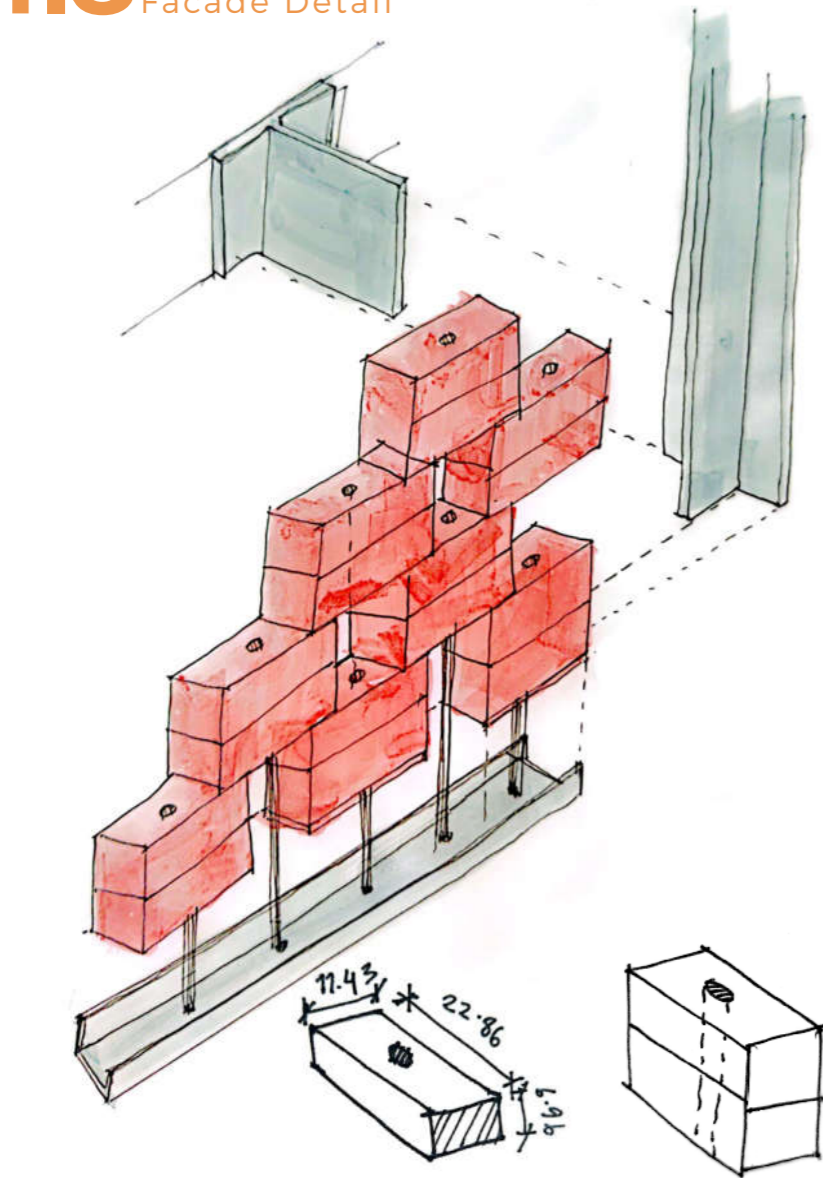
# 2.4.2 Project Design

## Facade Concept

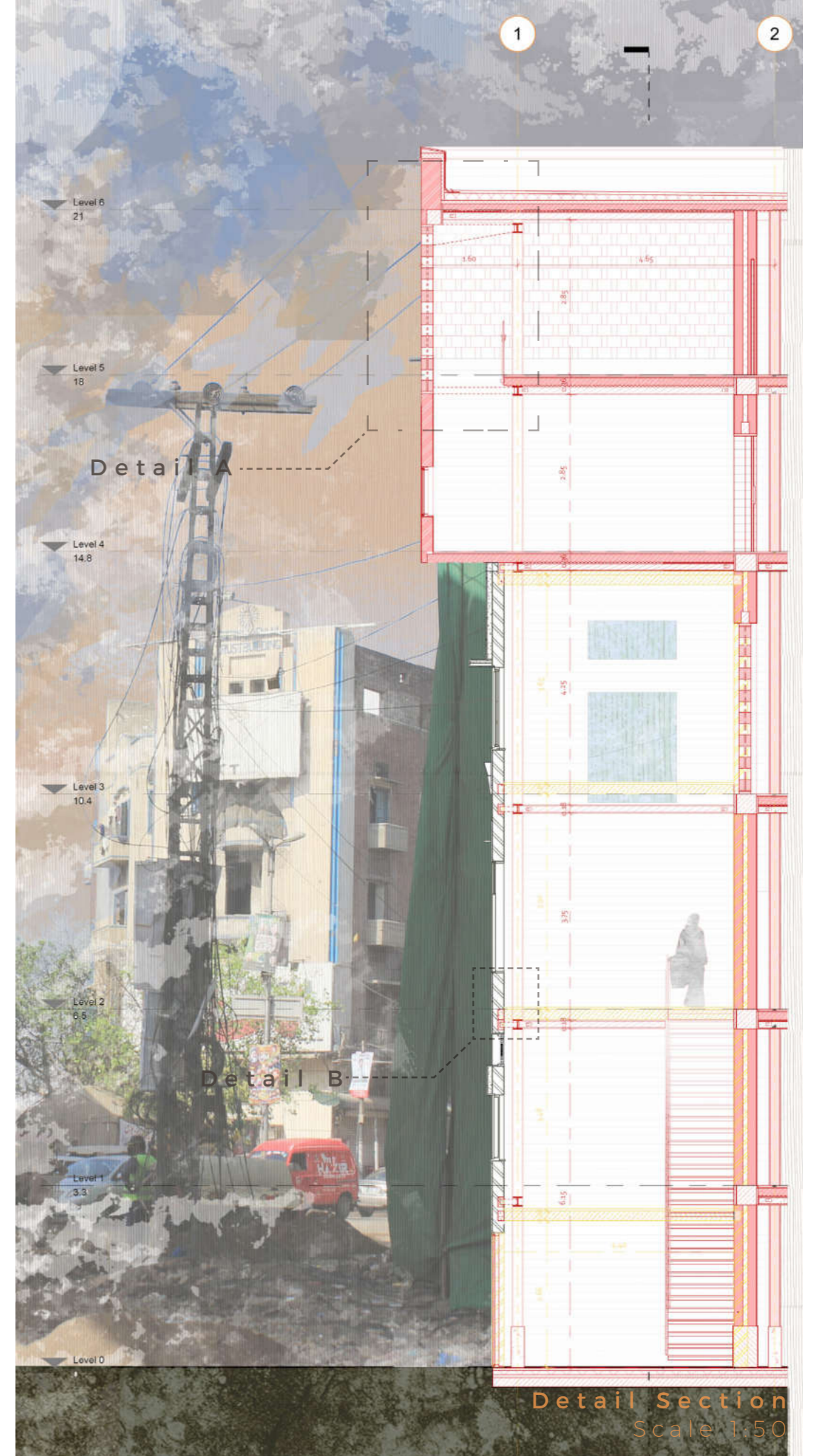
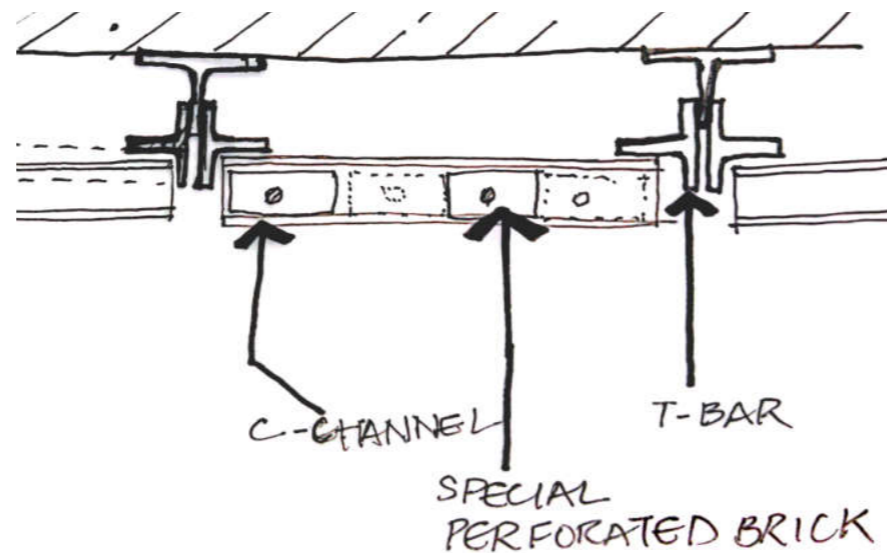


# 2.4.3 Project Design

## Facade Detail



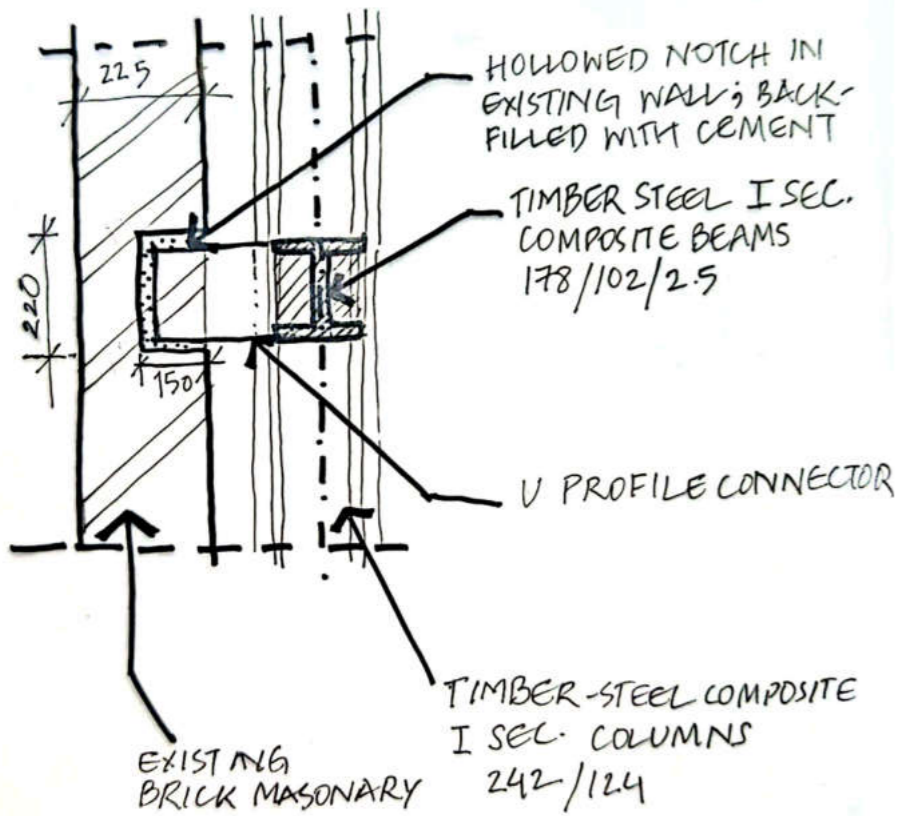
Detail A



Demolished New Construction

# 2.4.4 Project Design

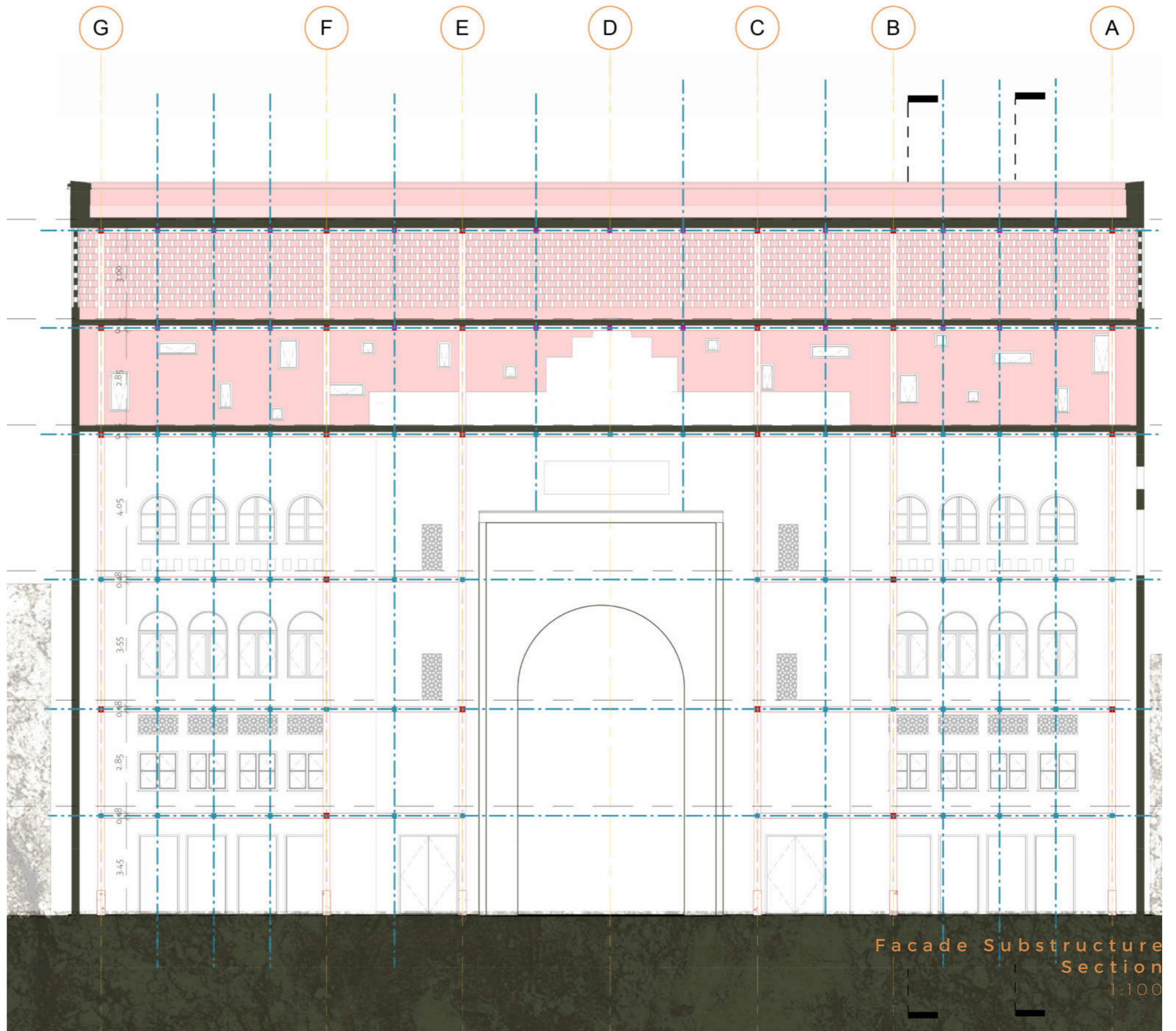
## Connections Detail



Detail B

DET A: Perforated Panel to Beam

DET B: Existing to New Column



**2.4.5** Project Design  
Physical Models 1:500



**2.4.5** Project Design  
Physical Models 1:500





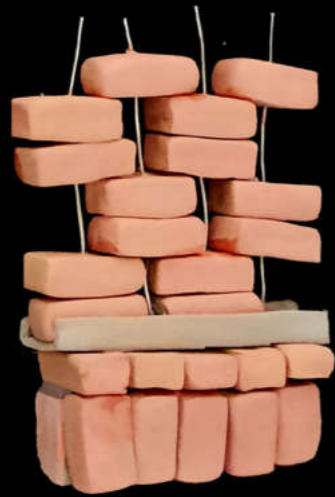
# 2.4.5 Project Design

Physical Models 1:500

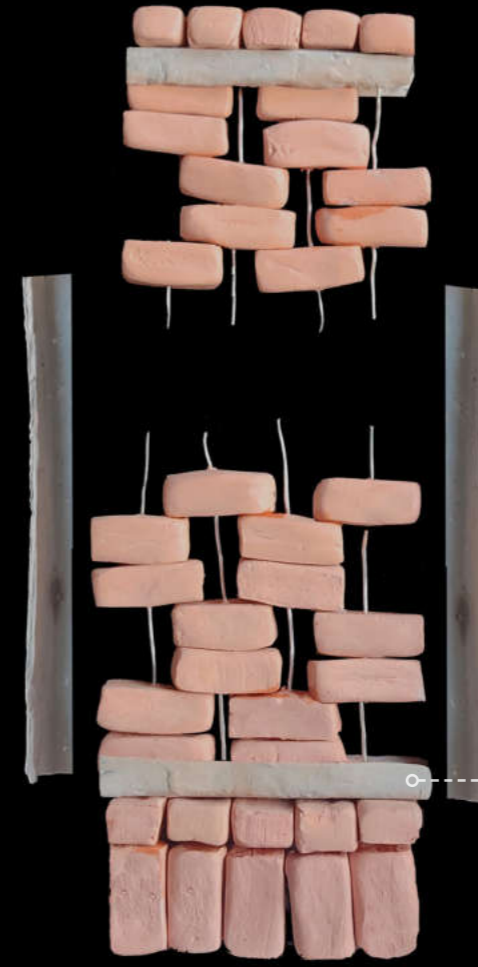


# 2.4.5 Project Design

Physical Models 1:10



**D. New Facade**  
Fairfaced Brick Masonry Parapet Wall with Metal Coping



**C. New Facade**  
Pre-fabricated Perforated Brick Panels



**B. New Facade**  
Fair-faced Brick Masonry Wall with cement sand mortar

**A. Existing Facade**  
Plastered Brick Masonry with mud mortar



Colorists Courtyard

