

A BRIEF DESCRIPTION OF STAGE I :

LOCATION: North Gujarat, Mehsana district

The township of Sidhpur lies 27 km from Patan towards the northeast, on the west bank of th Saraswati River and 133 km north of Ahmedabad. Sidhpur gets its name from its ruler Siddhr: Jaysinh.

CLIMATE: Extreme hot and dry characterized by low humidity and high radiation. Temp rises u to 46 degrees in summers and 6 degrees in winter. Annual rainfall is 74 cm. Distinguished b their unique way of life, preserving their culture and traditional identity in tandem with alie boroughs, the Dawoodi Bohras of Sidhpur are an enticing commune.

TOWN PLANNING: Town planning typify axial grid pattern.

Primary Street with commercial character is traversed by perpendicular Secondary Street oriented north-south. The secondary lanes are interconnected with the tertiary lanes running i east-west direction.

SPATIAL ORGANIZATION

Privacy factor becomes the most important aspect in Bohra dwelling and they are ver particular of the visitors entering the house. The privacy level increases from the otlā to th ordo, where otlā becomes a **transitional space** between the street and the house.

-OTLĀ: The entrance zone comprises a high plinth called the otlā- the **interaction platform** where social activities introduce themselves. It is a three bay space where the central bay houses the plinth steps and the other two bays serve as sitting spaces.

-DEHLI: It houses the common services for the entire floor and is a **transition space** unique to Bohra dwellings.

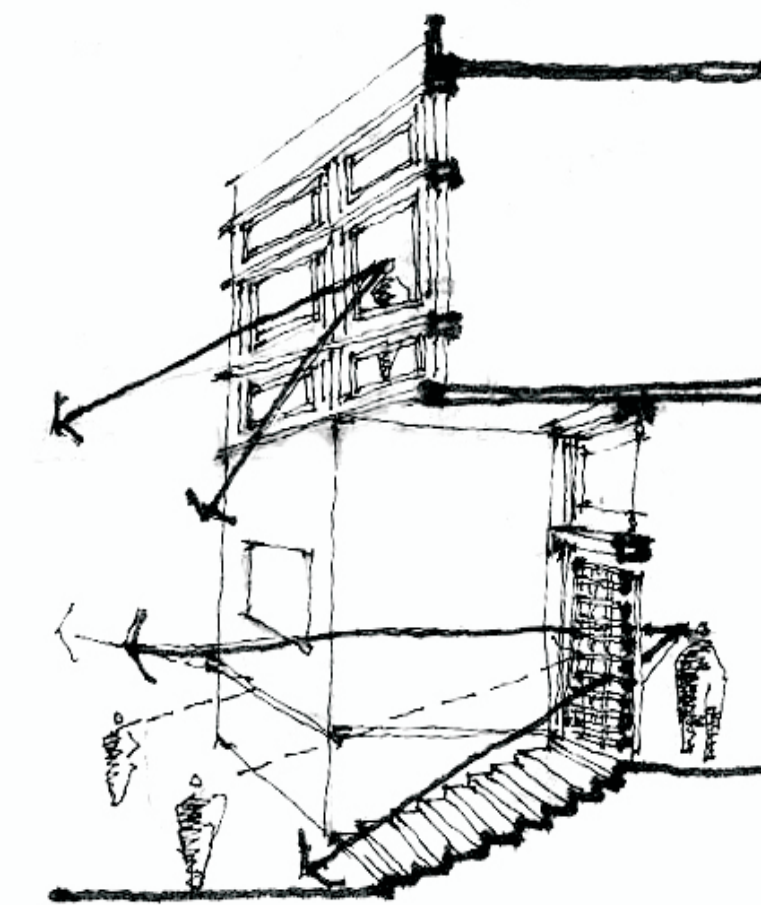
Separating the Dehli from the chowk is the symbolic purdah which brings light and ventilation from the front part of the house.

-CHOWK: The space following dehli has a court for **stack ventilation** and light. The court creates a microclimate owing to convection currents and promotes inter-level interaction.

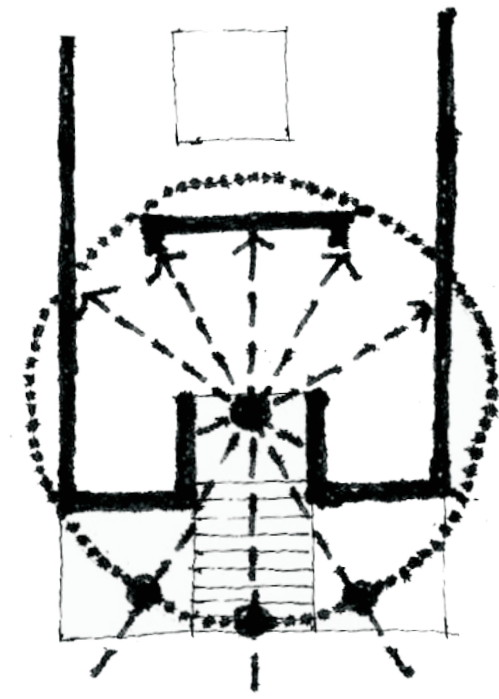
-BAHARNI PARSAL AND ANDARNI PARSAL: The baharni parsal is an extension of the chowk and is a **semi enclosed space**. Andarni parsal is a private space for sleeping and resting area for the women of the house. This space is dark and the openings are only for ventilation.

-ORDO: The ordo is a personal space which is a showcase of cultural beliefs and economic status. Hence the room has ornate **storage elements**.

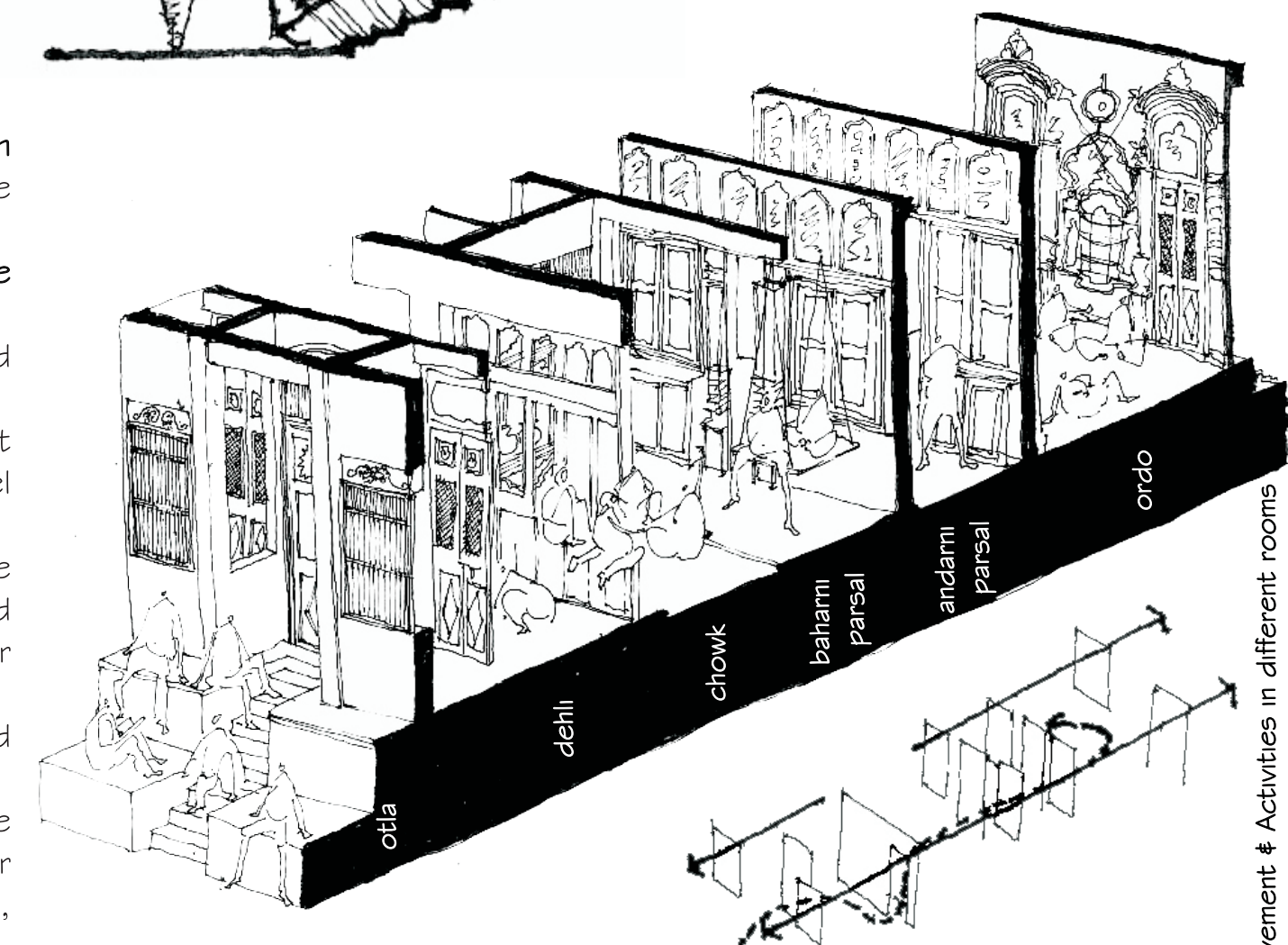
-UPPER FLOOR: The staircase from the deli always leads to the upper floors followed by the chowk called the rawas. On either sides of the chowks are the ordas (sleeping units for married couples and their children). All walls are combination of various size of openings, divided into two or three parts.



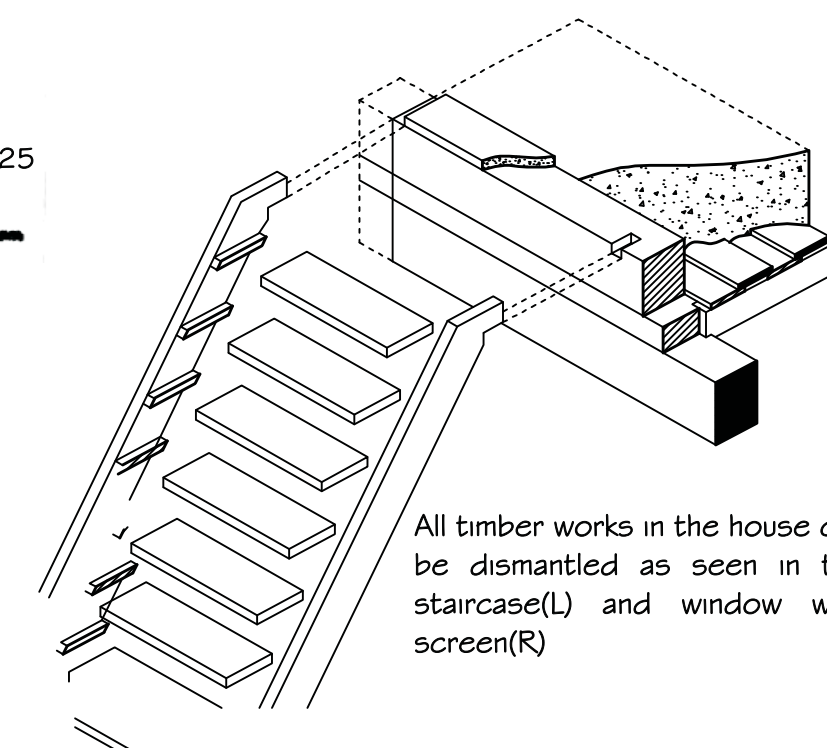
View of the otlā- key interaction space



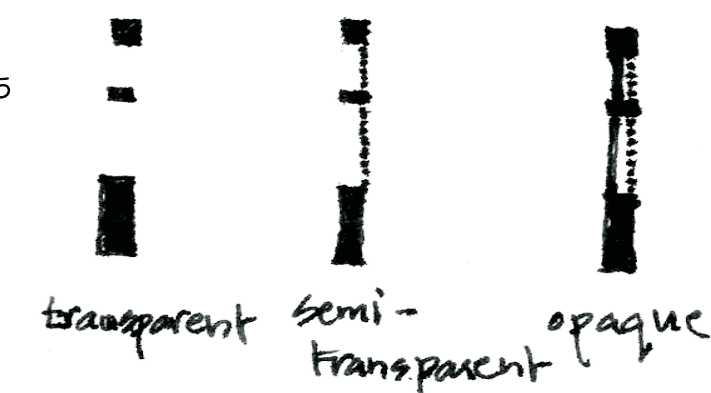
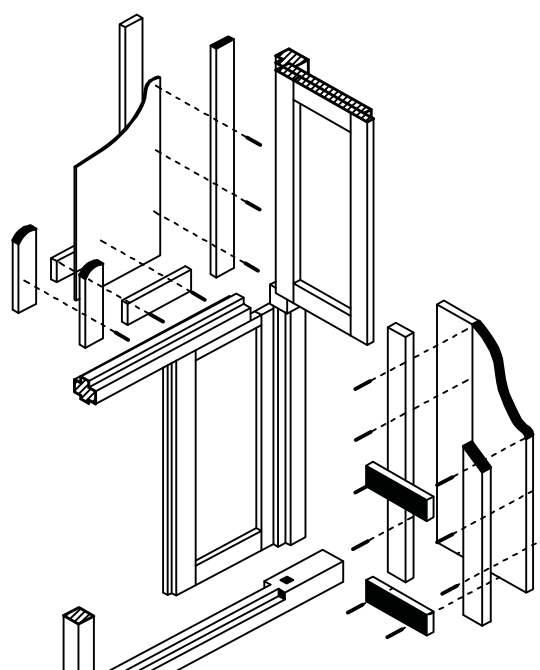
Cone of vision in dehli



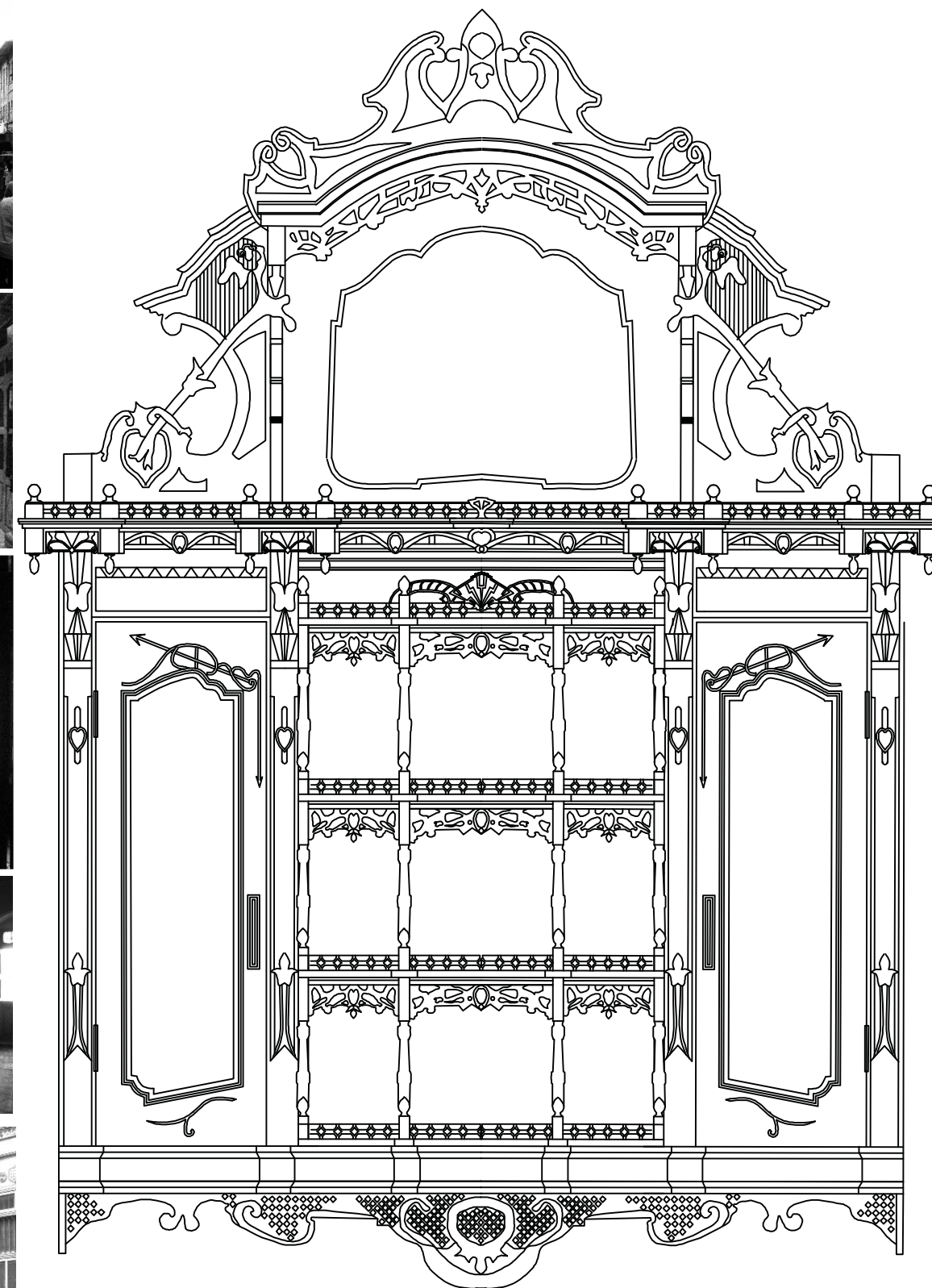
Movement & Activities in different rooms



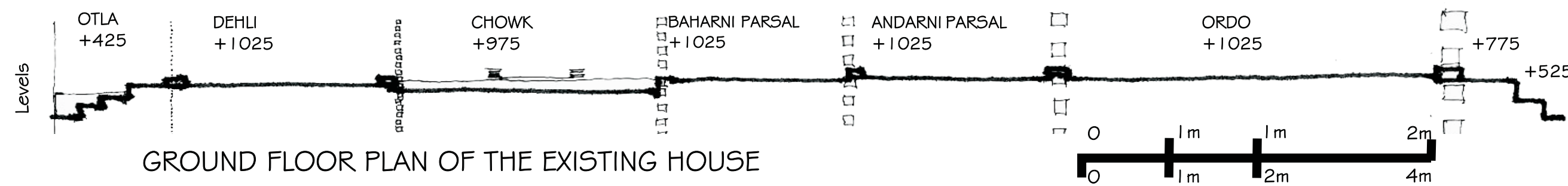
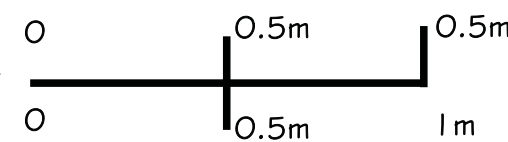
All timber works in the house can be dismantled as seen in the staircase(L) and window with screen(R)



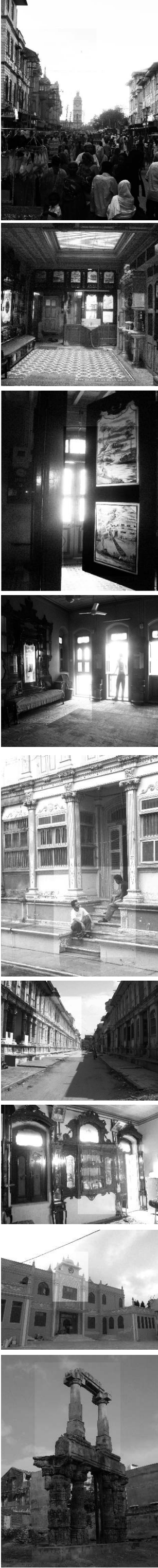
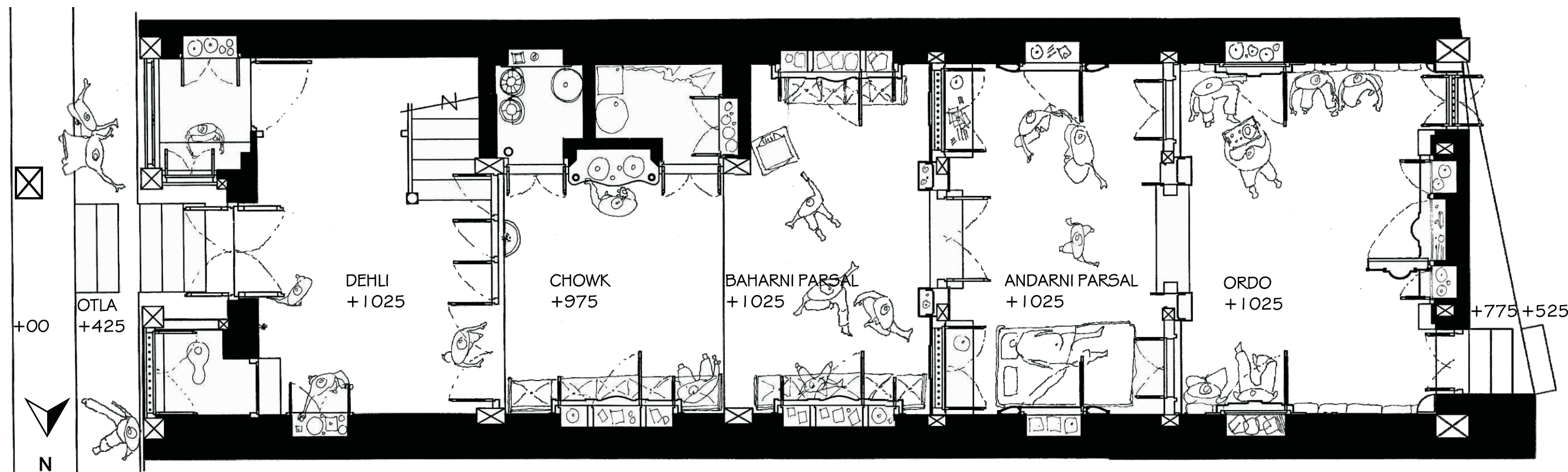
configurations of screen



ELEVATION OF THE NAVKHANA



GROUND FLOOR PLAN OF THE EXISTING HOUSE

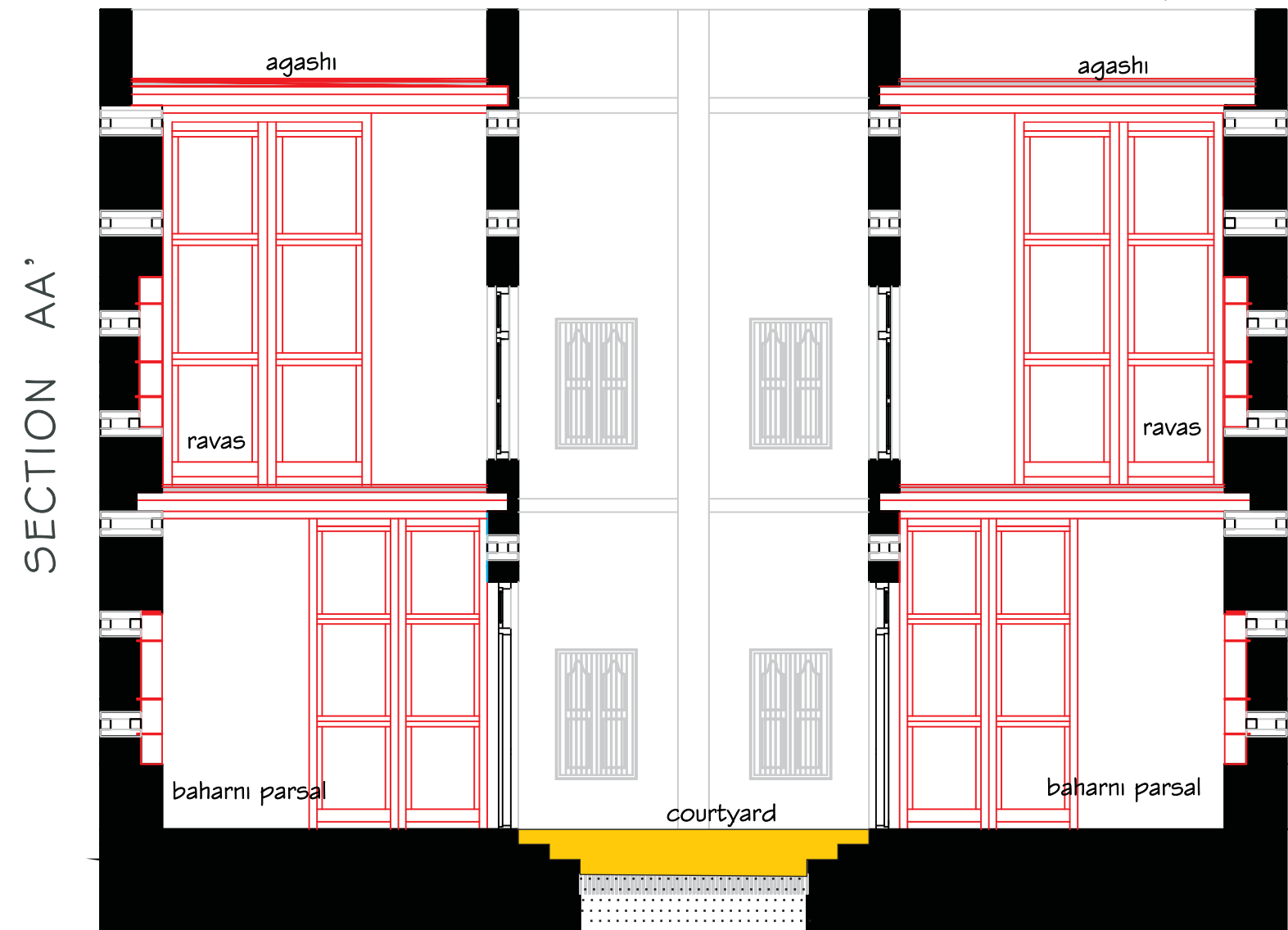


TRANSLATION : Old structures are knowledge pools; be it their planning, structure or construction technique. It is the application of this knowledge to present day architecture which is 'true translation'.

The intention is to prove that real heritage is not in the product but the process. It is the anonymity of the architect, and the common sense of the craftsmen, which needs to be conserved more than their products.

The proposal of 'translating these traditions' can be examined at two levels; the first are **existing features and characteristics that have been retained** & the second are **additions to the housing typology** that are the result of modern needs and space requirements.

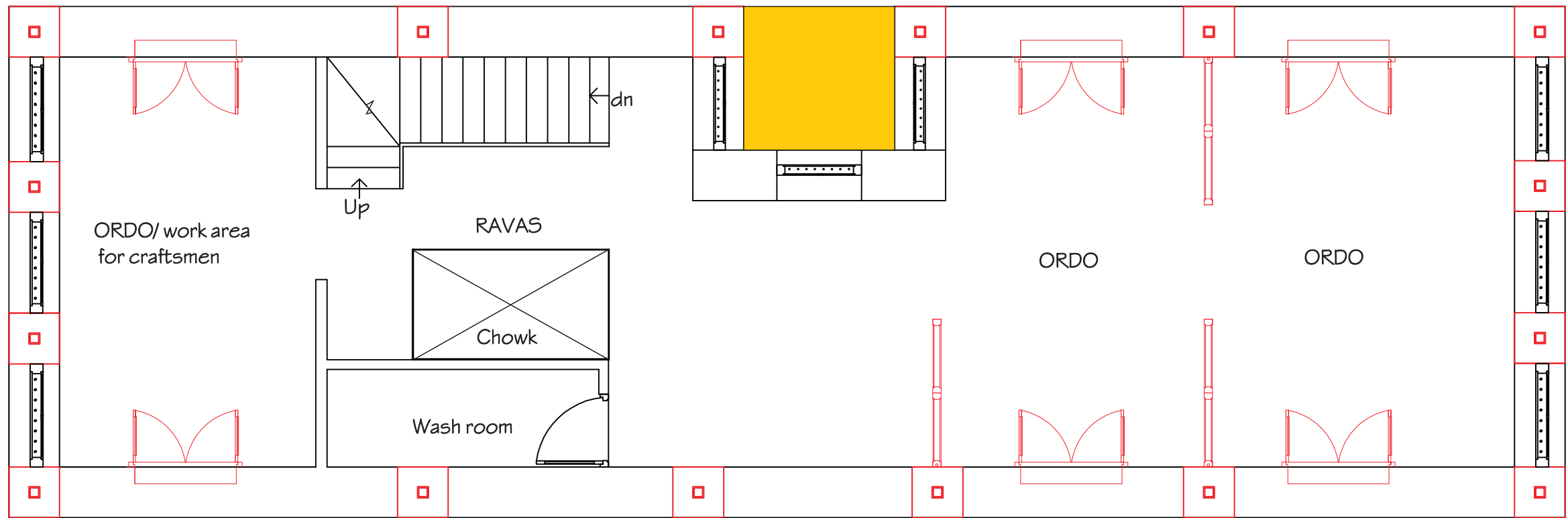
RED IN DRAWINGS INDICATES CHANGES



(SECTION AA' AND FIRST FLOOR PLAN ARE AT THE SAME SCALE)



FIRST FLOOR PLAN



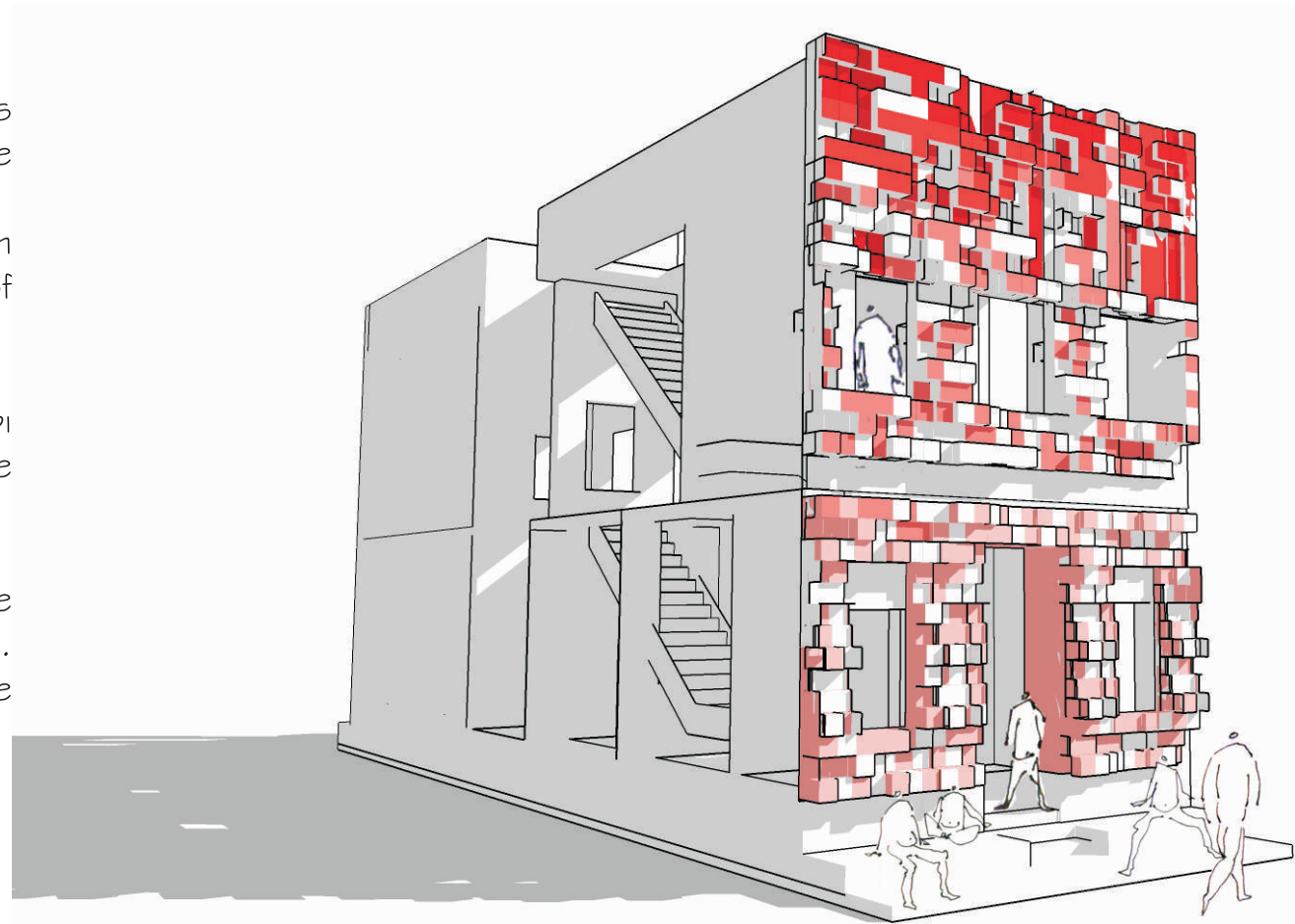
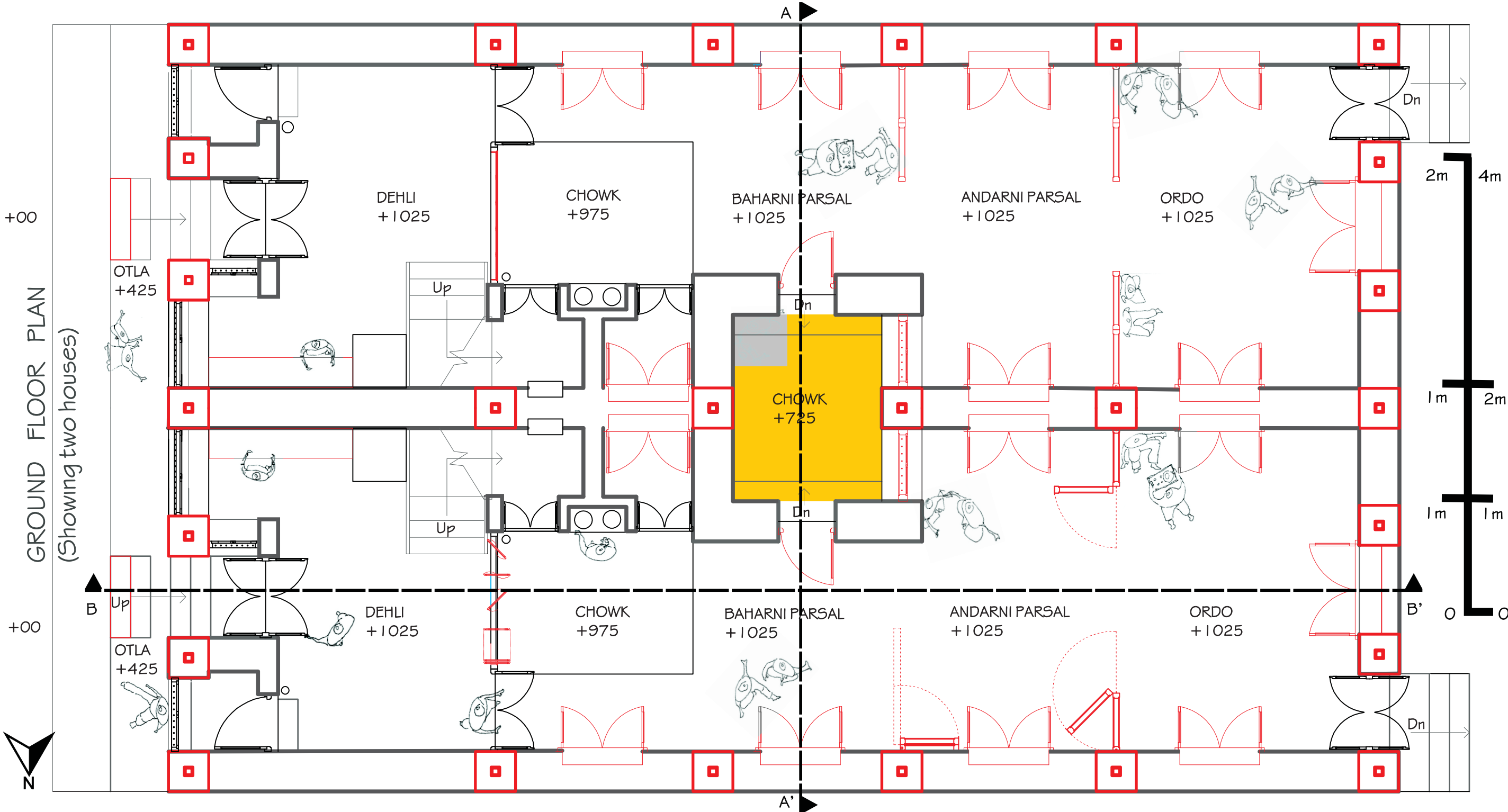
EXISTING FEATURES AND CHARACTERISTICS RETAINED FROM SIDHPUR HOUSES:

-The existing houses epitomize **space utilization**. Features like built-in storages, porous screens , modular furniture and wide lofts allow maximum space utilization. These elements create more usable space in the house and **decongest** rooms.

- In modern times, flexibility in room sizes as well as ensuring adequate privacy between different rooms/users of the house is a quintessential. **Screens** are an efficient way of providing **privacy** between two rooms along with **ensuring light and ventilation**.

-Some houses have rooms accommodating handicraft activities such as zari and topi making. These need to be retained to **ensure survival of these dying crafts** which outline the traditional model for Sidhpur.

-The semi-public spaces in these houses were more women-centric. As the men were engaged with the trading business, they would remain out of home for most of the day. Spaces such as **otlas** and **backyard** became a **platform for interaction** amongst the women of the community, thus elevating the functional value of these spaces.



Ornamentation- Front view of the house

- Ornaments, moldings and cornices were placed on buildings at critical locations, to pull water off the building. They also play an active role in hiding joineries and provide zenith facet. These factors prove why ornamentation should be retained, not for its aesthetic purpose alone but also for its **functionality in design**.

- Earthquake hazard zoning in India places Sidhpur in zone 3 which classifies it as Moderate Damage Risk Zone. Hence, planning **earthquake sensitive houses** was critical. This led to planning of houses in **load bearing techniques and symmetrical planning**. Modern building innovations and construction techniques can further ensure safety of these structures.

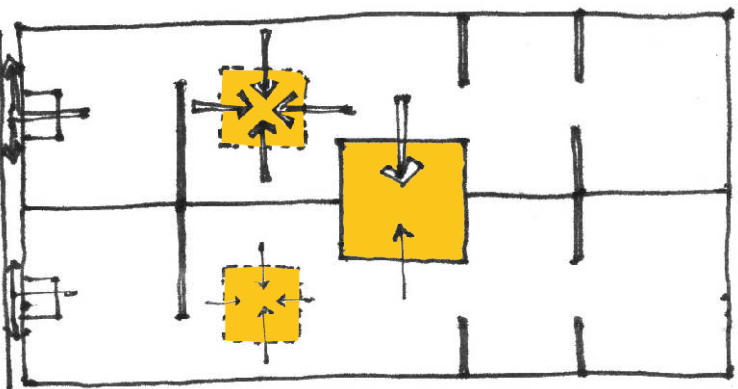


View of the street with proposed house module/s

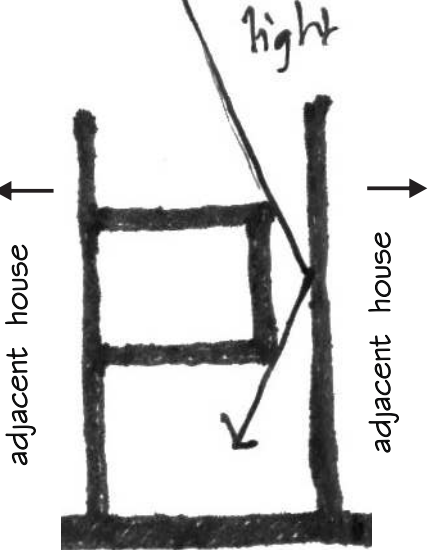
-The hierarchy of spaces in the house ensured a **fixed function to each room**. It was because of this order, that these functions and hence these rooms were able to sustain the onslaught of time. The modern house requires such discipline in **spatial hierarchy**.

PROPOSALS AND OPTIONS IN PLANNING OF THE HOUSE MODULE

-Introduction of multiple courts in the linear planned house provided another source of light and ventilation. Altering microclimate by inducing convection currents and stack effect the court is effective in making habitable areas cooler.

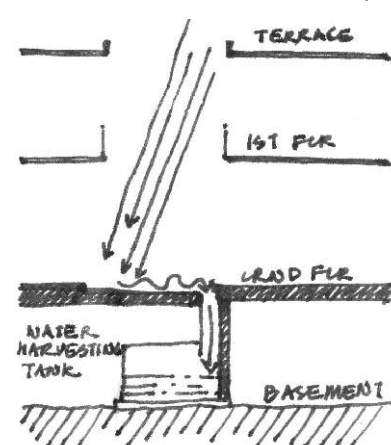


different levels for interaction

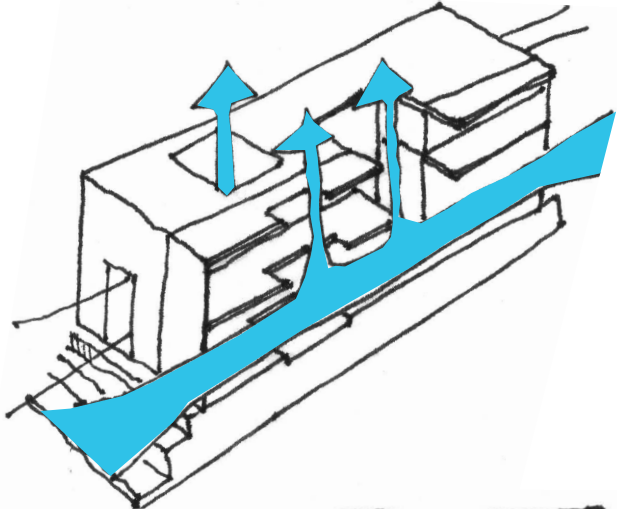


-Slit along the wall lengths is a resourceful scheme filtering light into inner rooms.

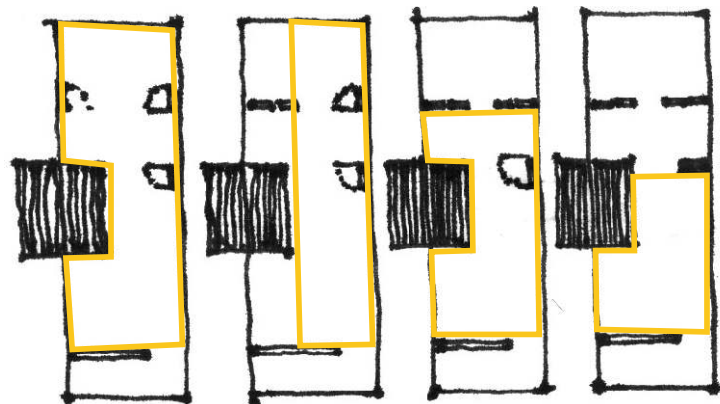
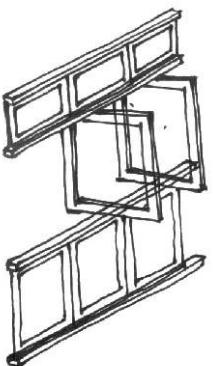
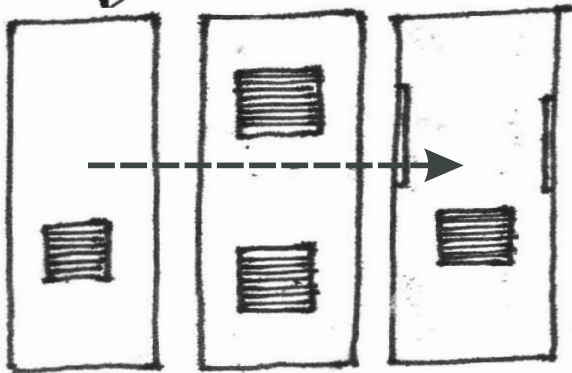
-Wells and tanks (tanka) have always been an integral part of Sidhpur house planning. In the proposed model, the tank will collect water from the roof via courtyards.



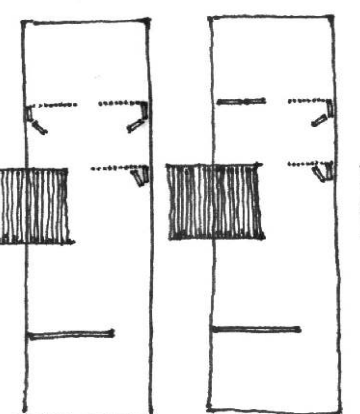
Thus, this water harvesting method, addresses the problem of water scarcity. The central court between two houses have percolation pits with sand in it which filters the water and refills the ground water table.



-An advance for the model of optimum space utilization includes foldable walls. These walls allow space for flexible use and result in expandable rooms. Walls can be adjusted according to the scale of congregation and function. These walls help in controlling temperature as they are insulated. Furthermore, these walls are divided into panels, which can be removed in so as to act as screens.

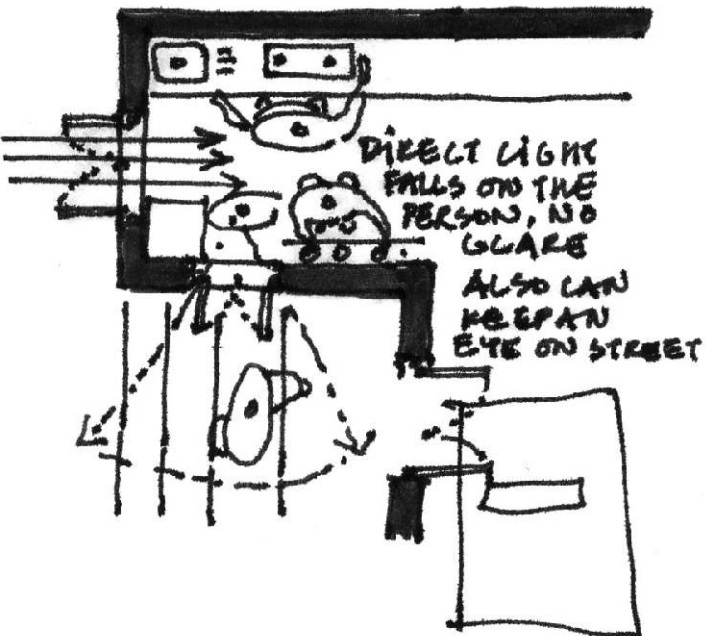


ground floor



first floor

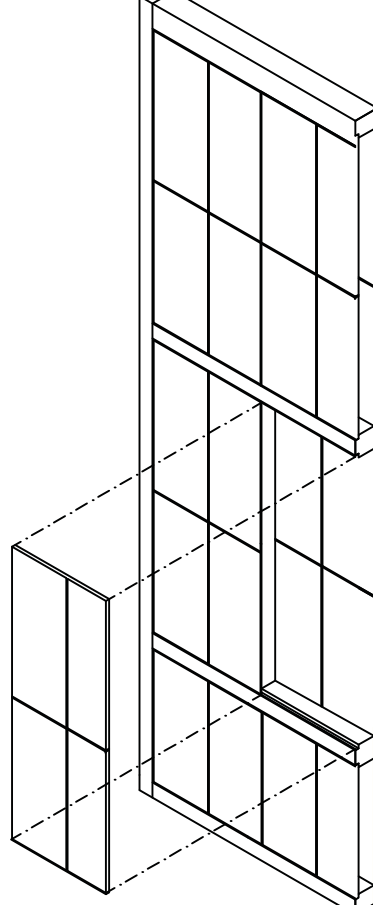
-The modern house negates the idea of isolated wash areas. Having such spaces on upper floors and attached to private rooms is a necessity.



- The kitchen location has been retained and the room size has been increased.

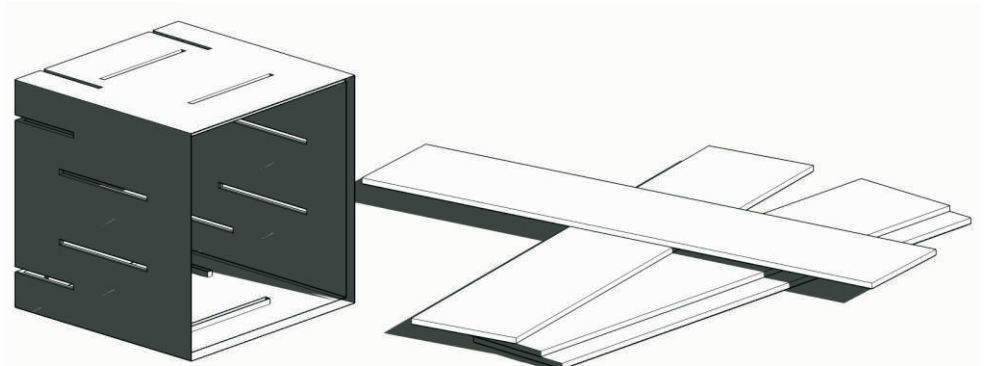
-The kitchen along with the ota space become an important point for interaction

- The existing houses do not incorporate storm water drains. In the proposed model, a storm water drain is proposed at ota level. This drain connects the neighboring houses, as the ota spaces are interconnected.

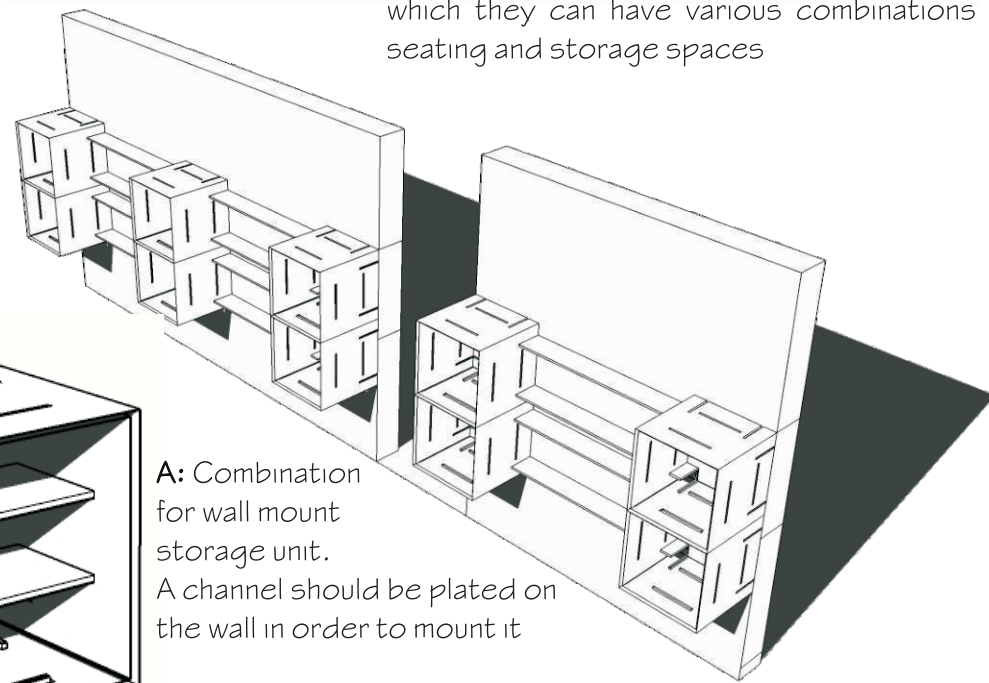


screen

-Modular furniture is used extensively in these houses. Not only do they have inbuilt storage but they also allow flexibility in orientation since they are transformable. This feature is more than welcome in houses today, as they have an aesthetic as well as functional appeal to them.



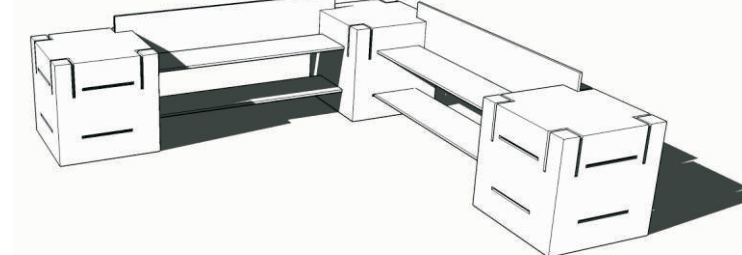
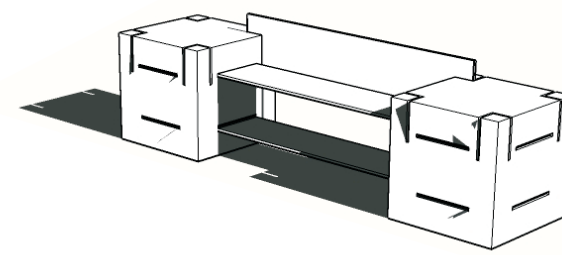
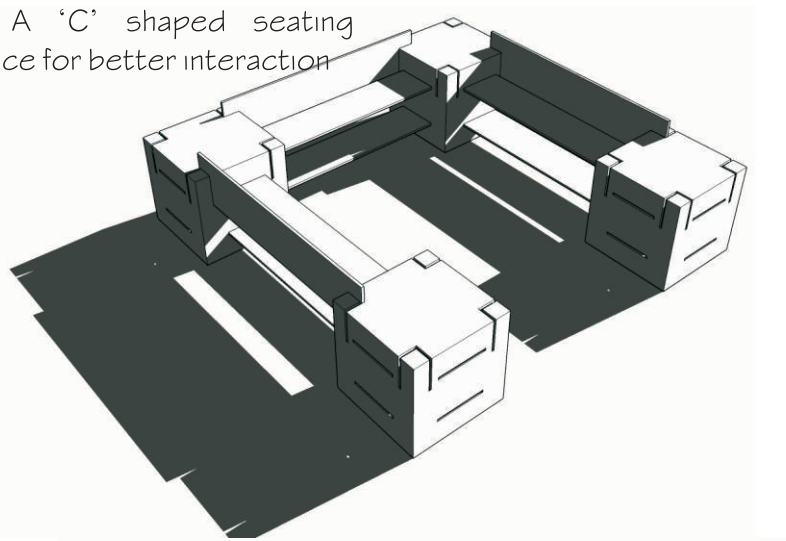
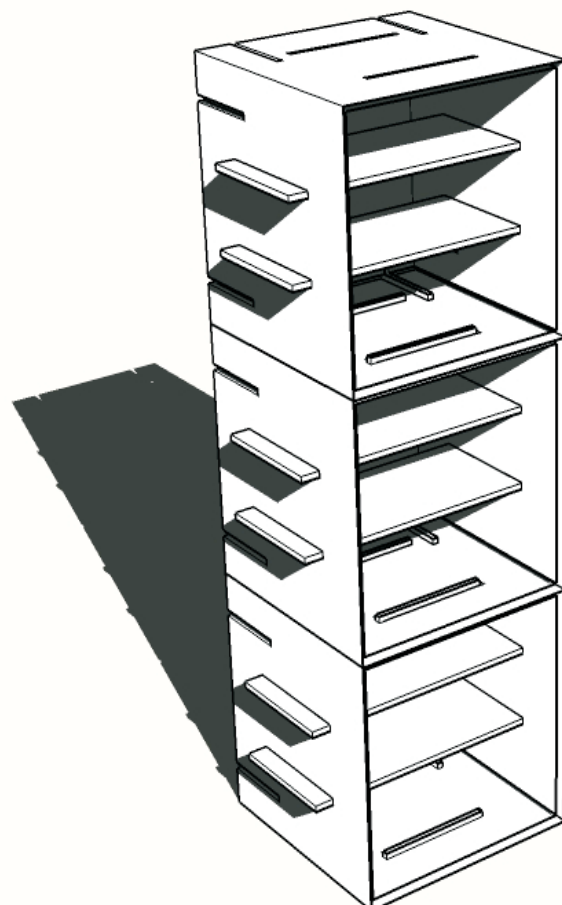
Each house will have 6 cubes & 12 planks with which they can have various combinations of seating and storage spaces



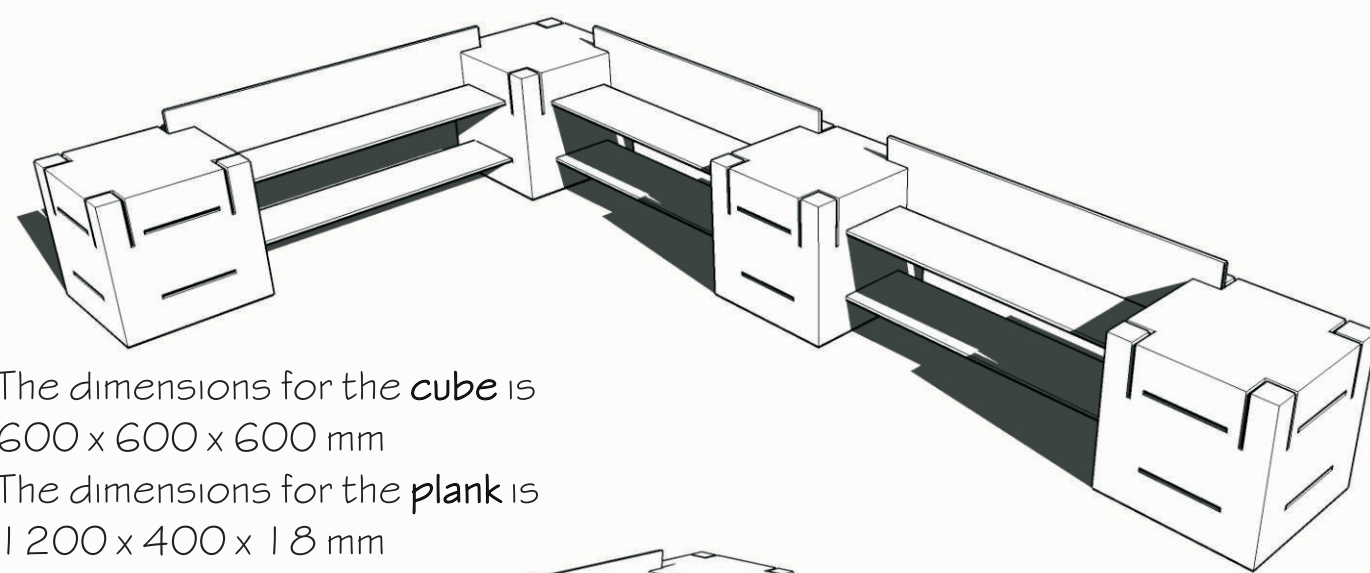
A: Combination for wall mount storage unit. A channel should be plated on the wall in order to mount it

B: Stacked storage unit

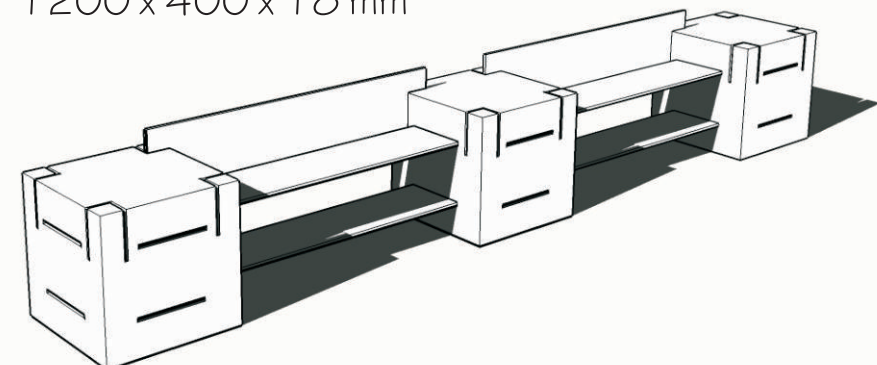
C: A 'C' shaped seating space for better interaction



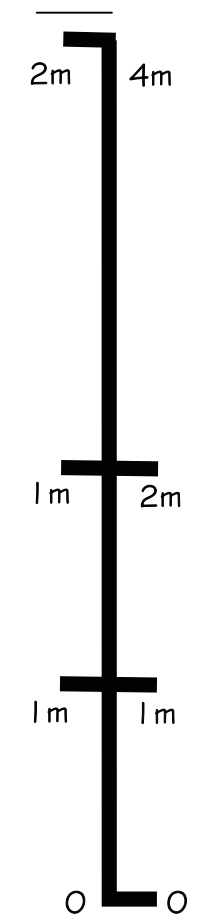
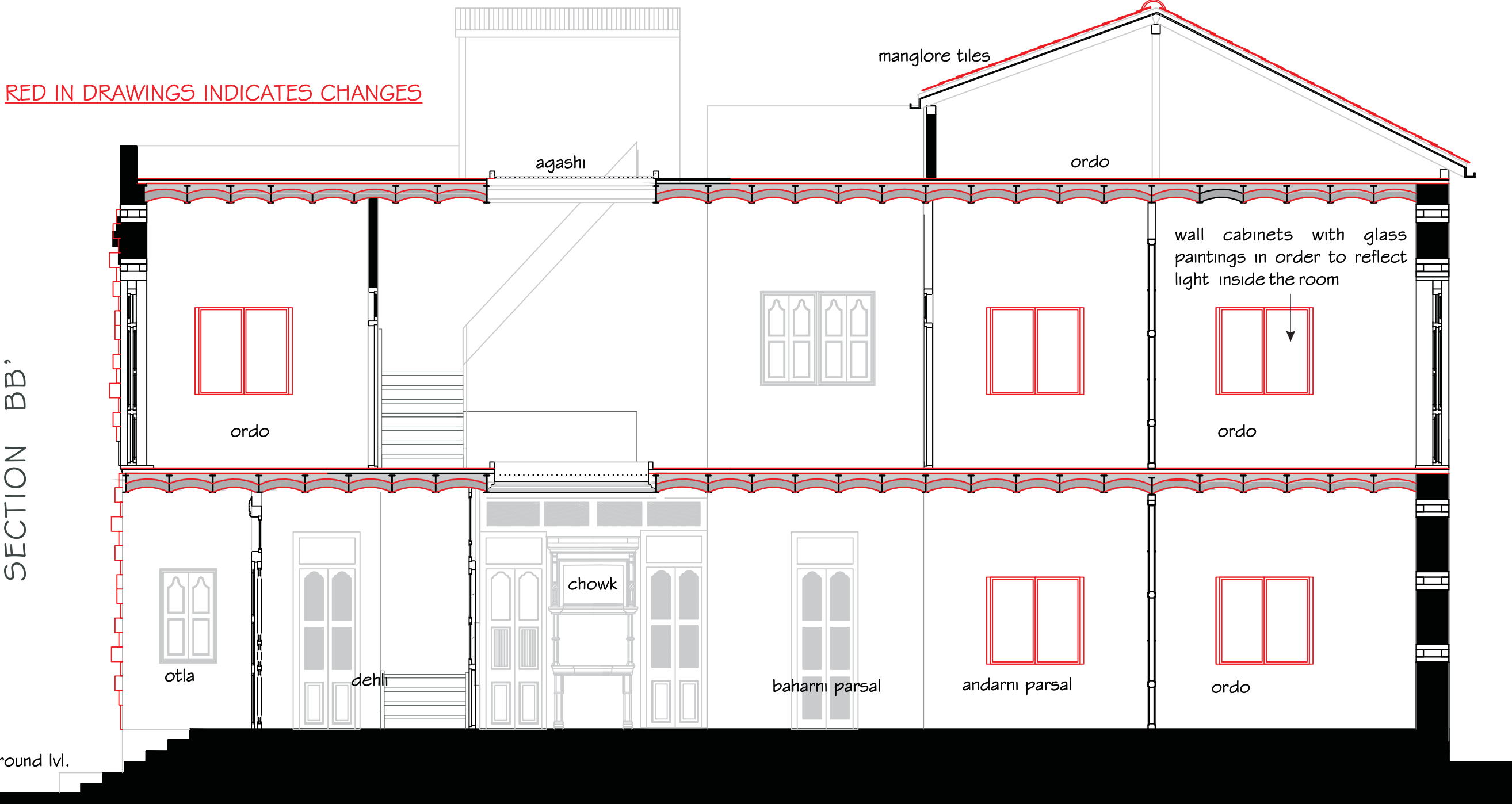
Other options for seating spaces



The dimensions for the cube is 600 x 600 x 600 mm
The dimensions for the plank is 1200 x 400 x 18 mm



RED IN DRAWINGS INDICATES CHANGES

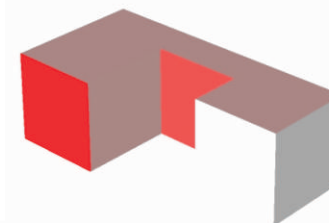
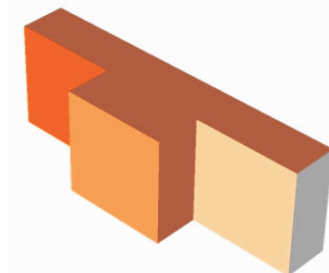
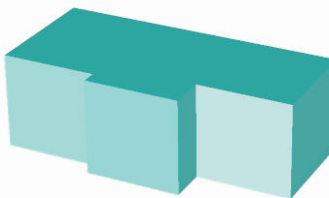
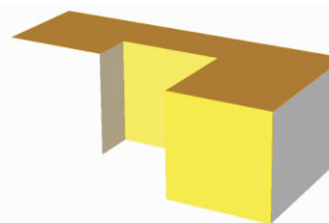
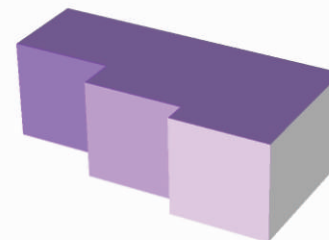
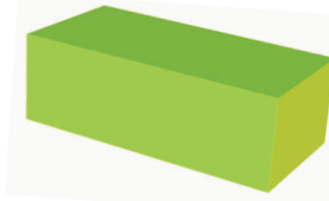


FRONT ELEVATION OF THE HOUSE



ALTERNATE OPTIONS FOR SANDSTONE BLOCK ON FACADE

SANDSTONE BLOCKS
MEASURING
200 x 300 x 600 mm



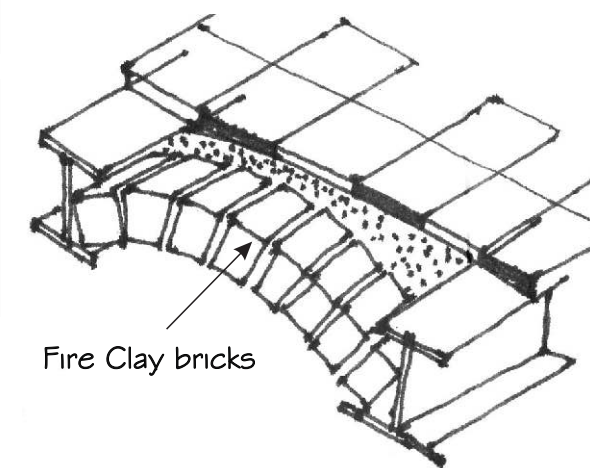
-Earthquake hazard zoning in India places Sidhpur in zone 3 which classifies it as Moderate Damage Risk Zone. To ensure **earthquake-resistance** in unreinforced stone masonry walls, connecting-"through" stones are provided.

Mortar is used for construction, filling all the voids between the stones particularly the inner rubble infill portion of the wall. Dimensioned cut stones are provided at corners and wall intersections to ensure better **interlocking**. Masonry course is leveled every 1.0 m of wall height and Vertical joints are staggered from course to course.

Satisfactory seismic behavior can be guaranteed by following **regular and uniform layout** both in plan and elevation, interconnectivity between structural members and strength of materials. Openings are vertically aligned (in the case of a two-storey house) and located **symmetrically** in the plan of the building so that not to get in the way of the uniform distribution of strength and stiffness in two orthogonal directions. In the case of a timber joist floor the floor joists are tied to the walls by means of steel ties. Below is a detail for anchoring the timber floor joists to stone walls by means of steel ties.

- The **jack-arch roof system** has very good heat insulation properties and good resistance to rainwater penetration owing to its unique construction technique. This type of roof is very durable and can last for over 30 years with minimal maintenance work. Thus this type of roofing method is apt for modern building systems as well.

The roof is constructed in the following way:

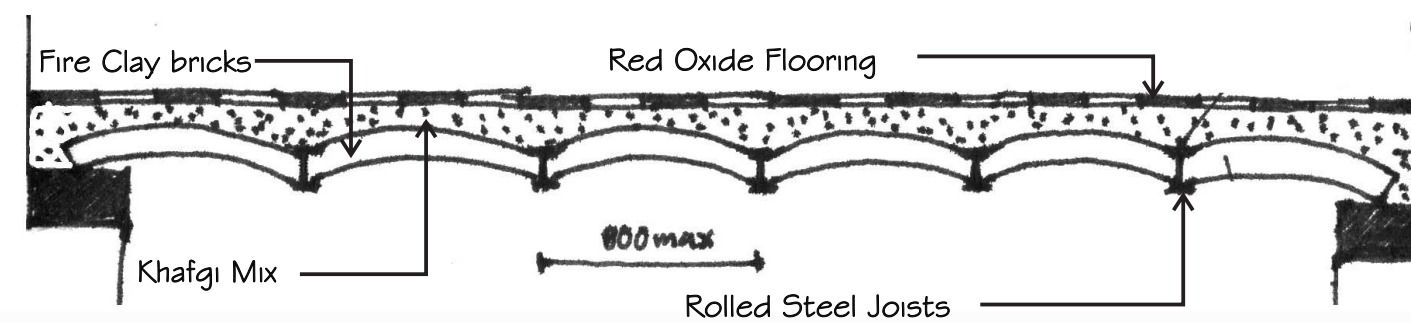


improve the structural and heat insulation properties of the roof.

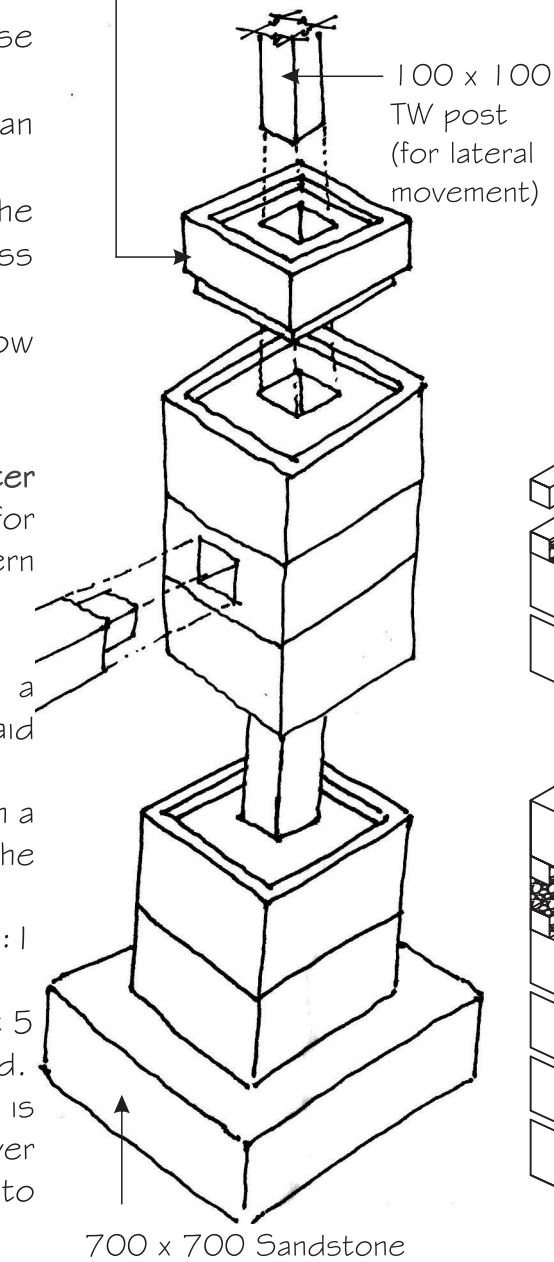
The **khafgi** mix is prepared as follows:

- 3 parts of hydrated lime,
- 4 parts of course sand,
- 8 parts of fired clay brick crushed into particles of approximately 20 mm diameter.

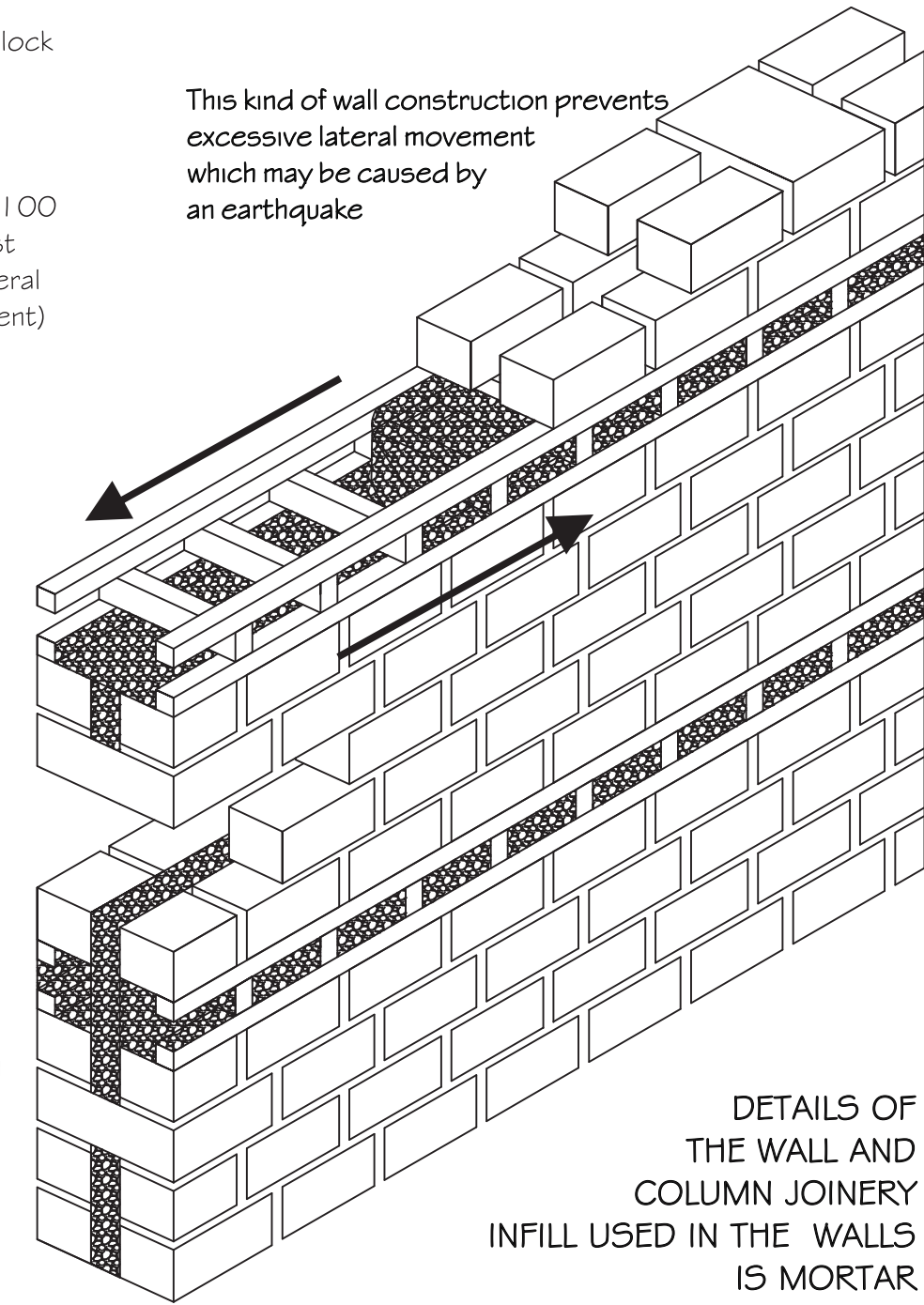
A special kind of plastering method called **khirk** or **ziki** work which makes use of shankhju (shell powder) is used. It imparts shine to the wall which reflects light and keeps the internal environment cool.



600 x 600 SandStone block
(for compressional loads)



This kind of wall construction prevents excessive lateral movement which may be caused by an earthquake



DETAILS OF THE WALL AND COLUMN JOINERY INFILL USED IN THE WALLS IS MORTAR

CONCLUSION :

A design if rigid can only be used for specific purpose and for a specific period of time. **Needs** keep changing with time and **adaptability** is a feature which upcoming designers should acclimatize to. **History** answers how; why; what; where and also questions the same, it's a **tool** we designers need to use to carve our future and this can be done by **reverse analysis**. Language is a medium to understand one another i.e. **one needs to design as a local** of that time and that place, because that is a designer's language.

STREET ELEVATION

