

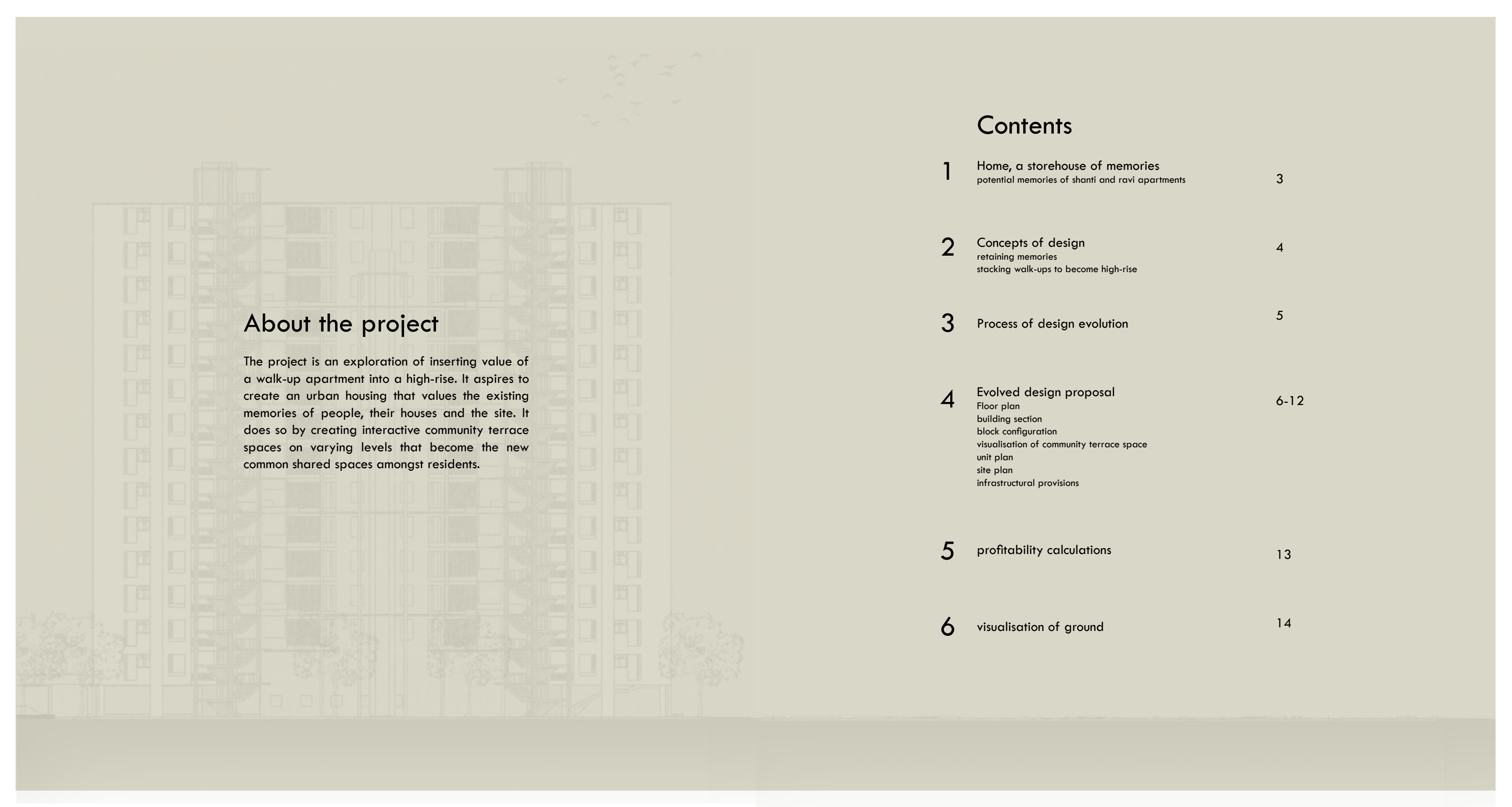


portfolio

oikopolis: rise of cooperatives

Redevelopment project of Shanti and Ravi apartments

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About the project

The project is an exploration of inserting value of a walk-up apartment into a high-rise. It aspires to create an urban housing that values the existing memories of people, their houses and the site. It does so by creating interactive community terrace spaces on varying levels that become the new common shared spaces amongst residents.

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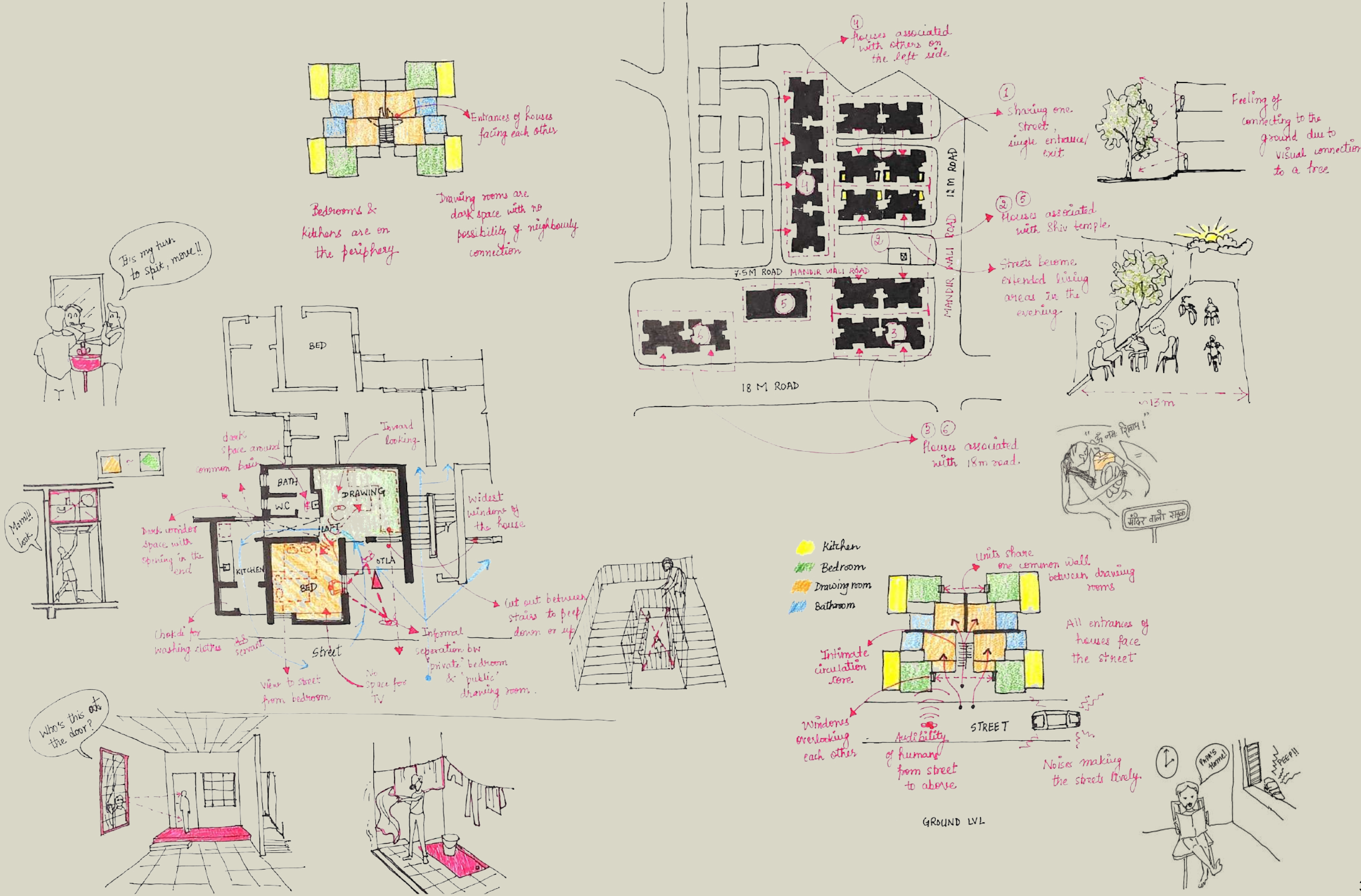
Home

A storehouse of memories

a piece of poetry in literature is a play of words and rhythms that provoke certain feelings, likewise, poetry in architecture is a play of motion and time that creates memories associated with a space which on experiencing provokes emotions.

These memories help people generate a sense of placeability and celebrate the act of dwelling.

Here are some identified memories of existing homes of Shanti and Ravi apartments and their relations with each other and the site. Knowing fully well that the possibility of finding right memories is negligible, the attempt was to understand basic regular relations between people and their homes on site by studying drawings.

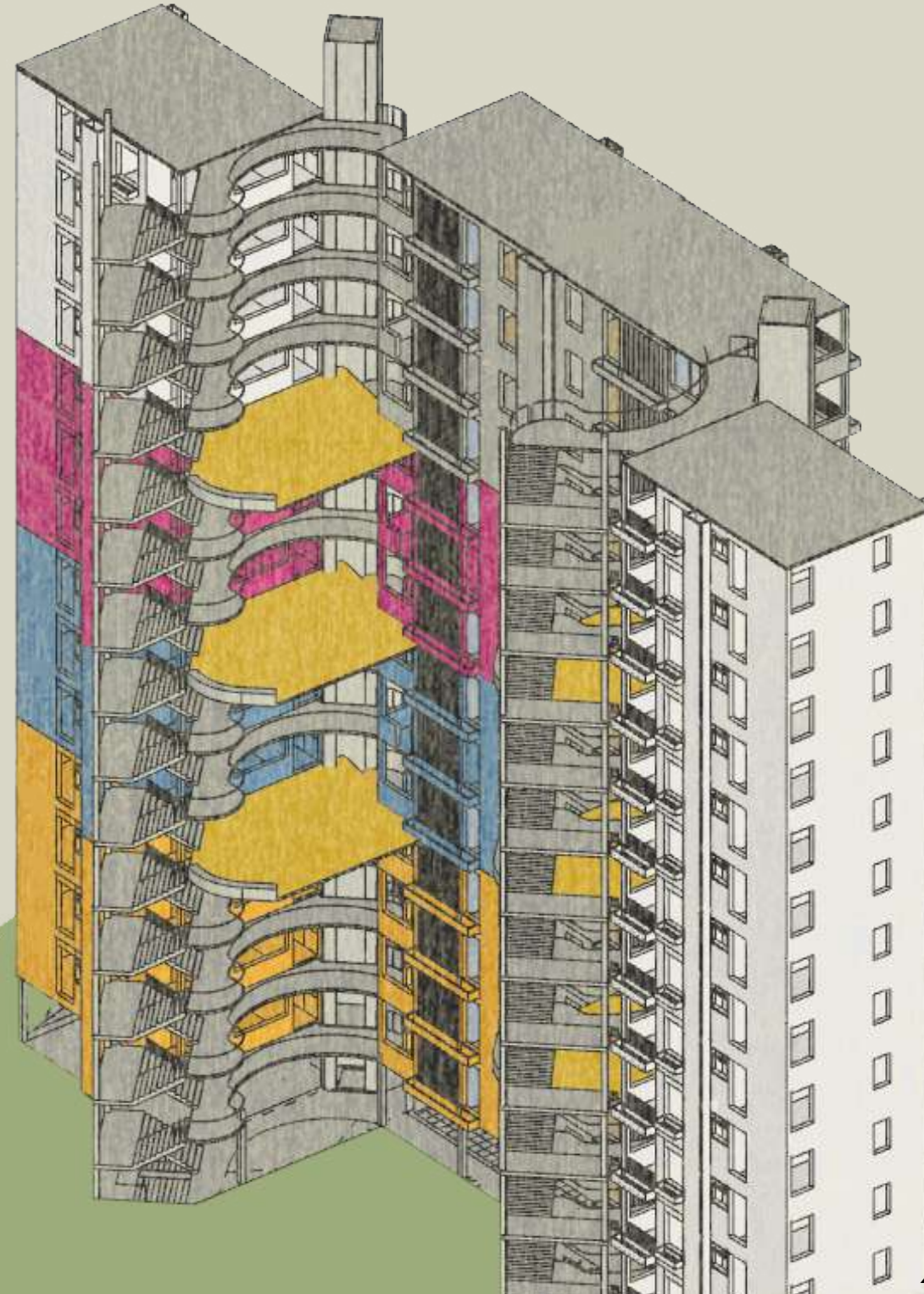
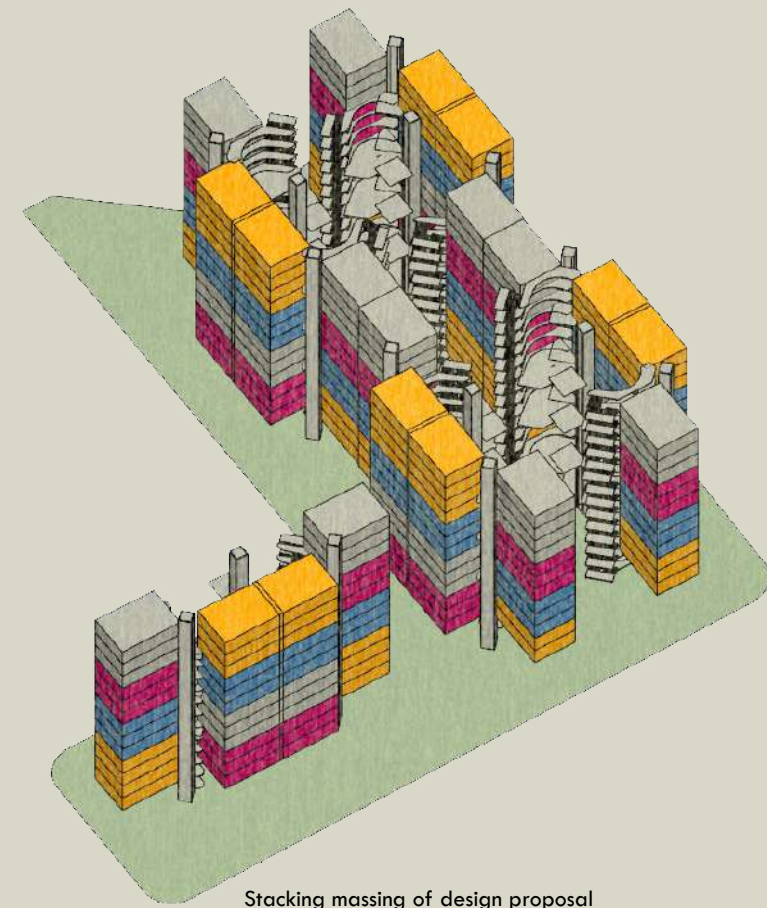
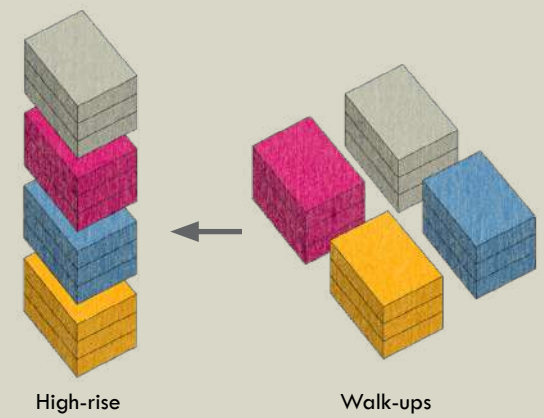


Some of these memories are translated into the new houses at unit, block and site level addressing the significance of memories in a redevelopment project.

Emerging concepts

- Retain memories of a home
- Stacking walk-ups to form high-rises

Walk-up	vs	High-rise
Accessible terrace for Karwa chauth, drying snacks & uttrayan		Terraces not visited often except for water tank maintenances
Circulation through stairs		Circulation through lifts primarily
No security gaurds hence more neighbourly dependencies		Doormen & security gaurds to keep a check all the time
Interation with ground		Best views but sometimes blocked due to other buildings
No modern amenities		Has modern amenities mostly



Side Study :
How do people decide which floor they want to live in?

Speech bubbles containing resident preferences:

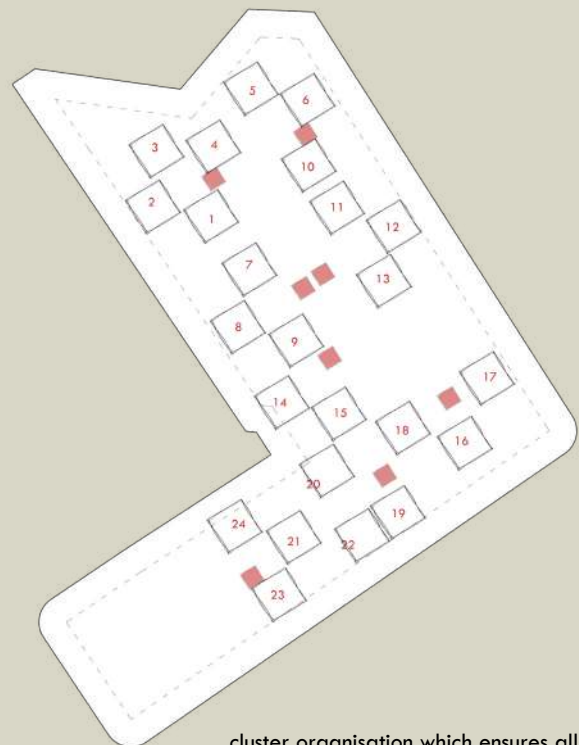
- I prefer top floor because no noises from above
- middle floor because no insect issues and psychologically safer
- I can stay till 4th floor max otherwise on days when lifts won't work I'll be dead
- middle floors are best suitable for walking down especially during earthquakes
- wind and fog issues are very common in higher floors
- lowest floor because don't have to climb stairs
- lower floors lack light & ventilation and so it's a no

project involves such **80** walk-ups stacked in groups of **four** which become one high-rise apartment (G+14). each of these walk-ups have their own ground that becomes a shared **community terrace space**.

Process of design evolution

Exploring massing

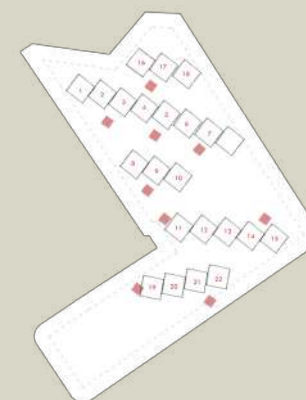
- challenges faced while designing
1. Parking grid
 2. Light and ventilation
 3. Fitting in required number
 4. Following GDCR margin regulations



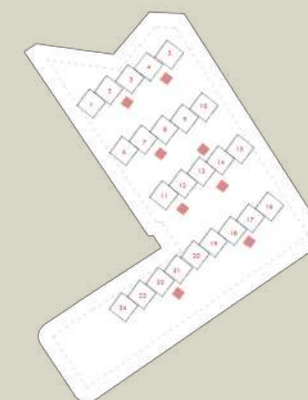
cluster organisation which ensures all four challenges are overcome



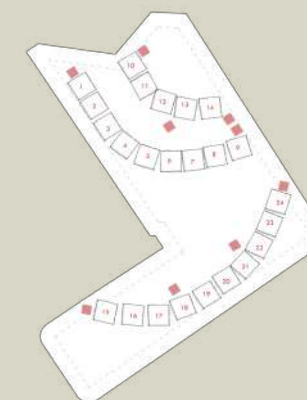
linear organisation which leads to building margin issue in the compact side of the L shaped plot



linear organisation which ends up becoming a basement parking issue while units need to fit within regulatory plot margin



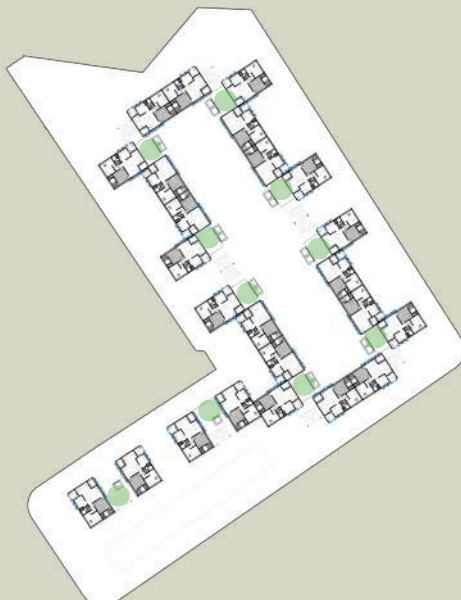
linear organisation with units staggered in plan for mutual shading from east and west sun but block each other's view



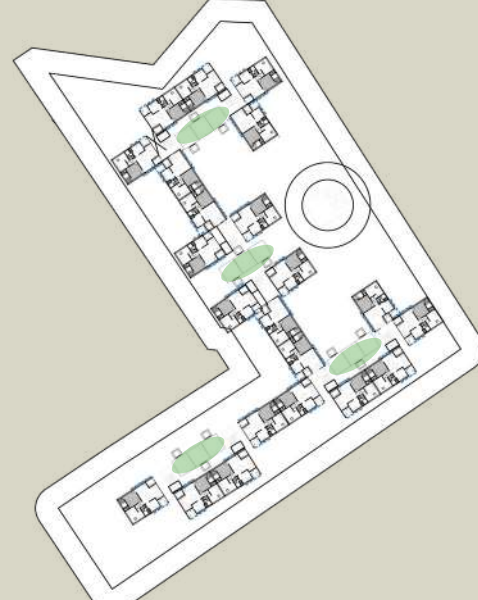
linear arching configuration where unit shares two sides and leads to chargeable FSI long corridor spaces for accessibility. It also creates basement parking issues

Exploring desired terrace to units configuration

- 4 points of consideration while working on the configuration with a fixed unit plan
1. **Light and ventilation** for lower floors
 2. Residents being able to **look into community space** from their homes.
 3. The community terrace space to **feel connected to outside** as much as inside and hence feel open.
 4. Community space to be as **free of fsi** as much as possible



1. Terrace as a full free of FSI space but very secluded from one house unit out of the two which are accessibility of terrace. It also leads to extra number of lifts that would increase the maintenance cost



2. Terrace becomes an undesirable, huge corridor like space that is shared amongst a large number of houses (18). It also creates an enclosed terrace space in the middle of the configuration



3. Terrace does not feel enclosed anymore and are shared amongst smaller number of houses (9) but one out of the three houses on one floor doesn't get visually connected to the terrace. It also has margin issues



4. Though fully free of FSI, terraces become compact for being shared amongst 6 houses. Terraces in the middle of the configuration become the undesirable corridor-like spaces



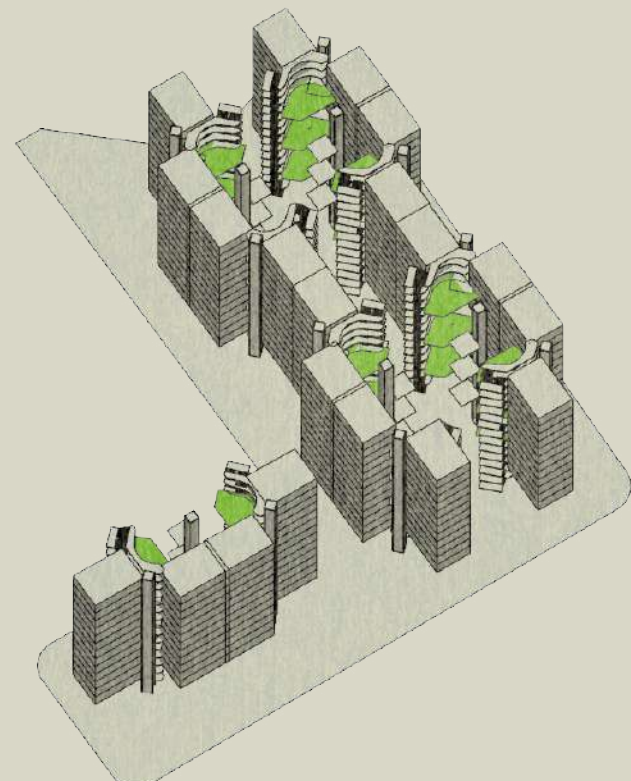
5. Terraces are sized good, are free of FSI and look onto each other allowing for more interaction but they do not allow for interaction outside and hence do not feel open enough

Evolved design proposal

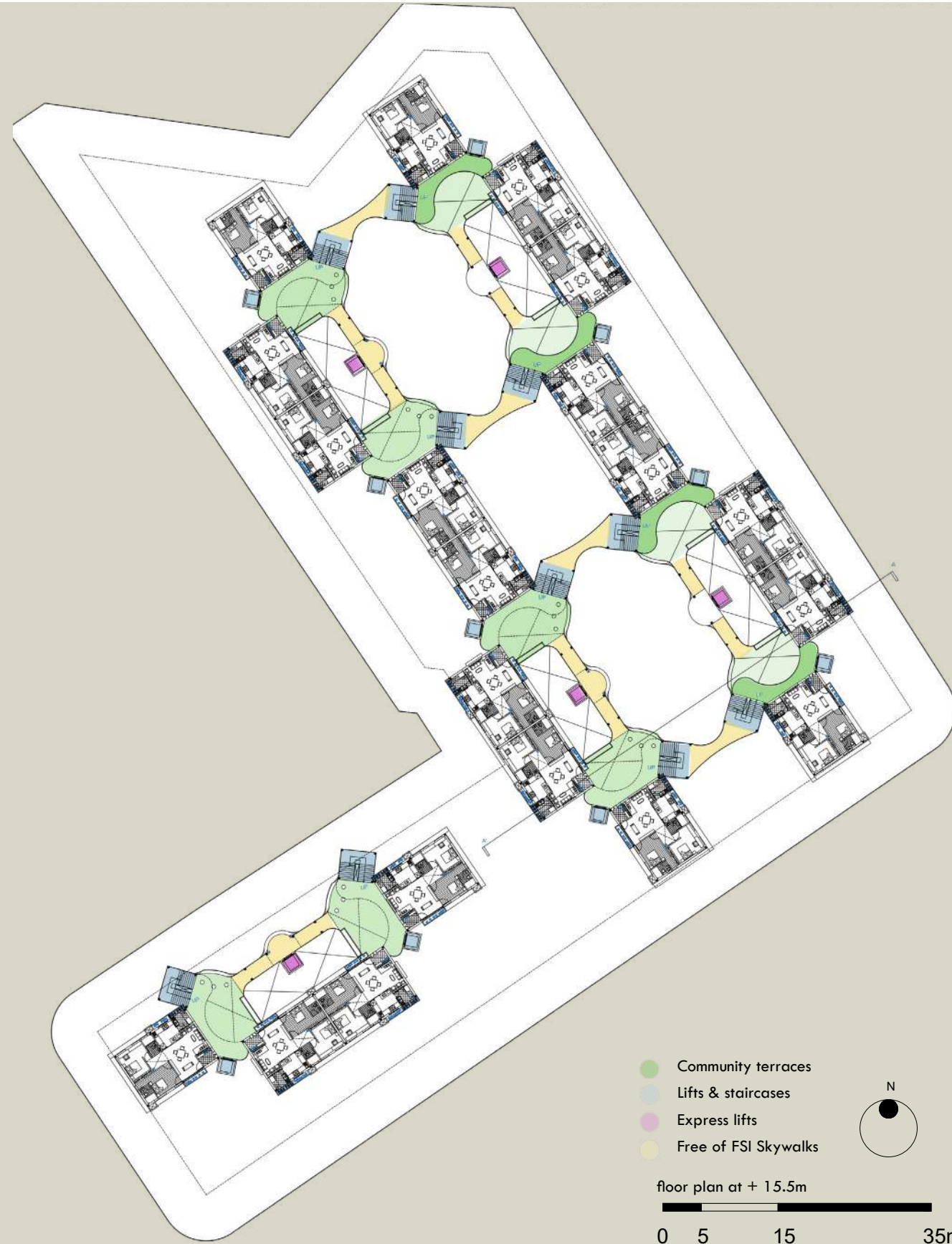
Typical floor plan

- the proposal ensures
1. Light and ventilation for lower floors by providing OTS volume between any two terraces
 2. Fenestrations that allow view into community space from verandah, living and bedroom spaces of each house make the terrace space interactive
 3. Voids developed in terrace space between lift and unit allows view towards the outside as shown in part sectional perspective
 4. Community space is as free of FSI as much possible

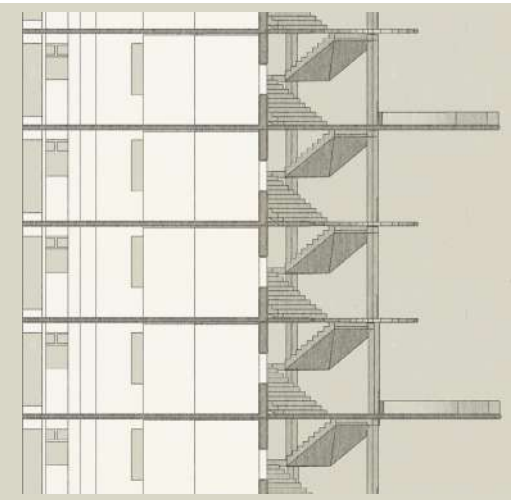
36 terraces across the built serving **274** apartment units



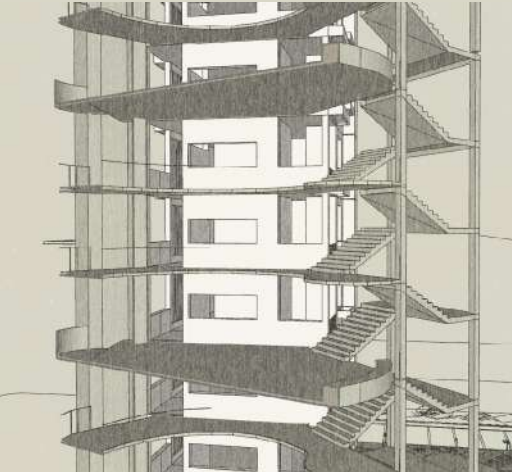
Total Carpet area =	21,070.6 sqm.
Total Rera carpet area =	19,947.2 sqm.
Total Builtup area =	24,413 sqm.
Total Super built up =	30,615.8 sqm.



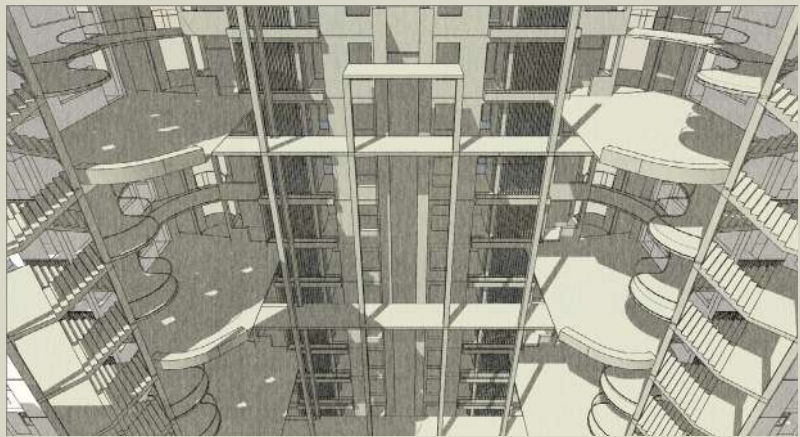
Express lift stops only at basement, ground and terrace level floors only



Part section emphasising triple volume of the community terrace spaces



Part sectional perspective through void which allows connection to the outside

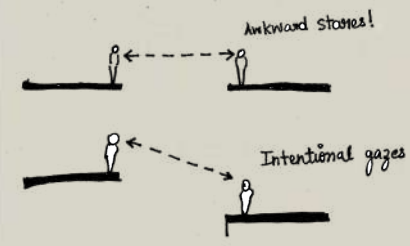


View emphasising free of FSI skywalks connecting two terraces of one block

Community terrace space

in building section

community terraces of opposite blocks are staggered in section by one floor
this relationship between two community terrace spaces ensures intentional gazes between neighbours for healthy interactions and avoids awkward gazes

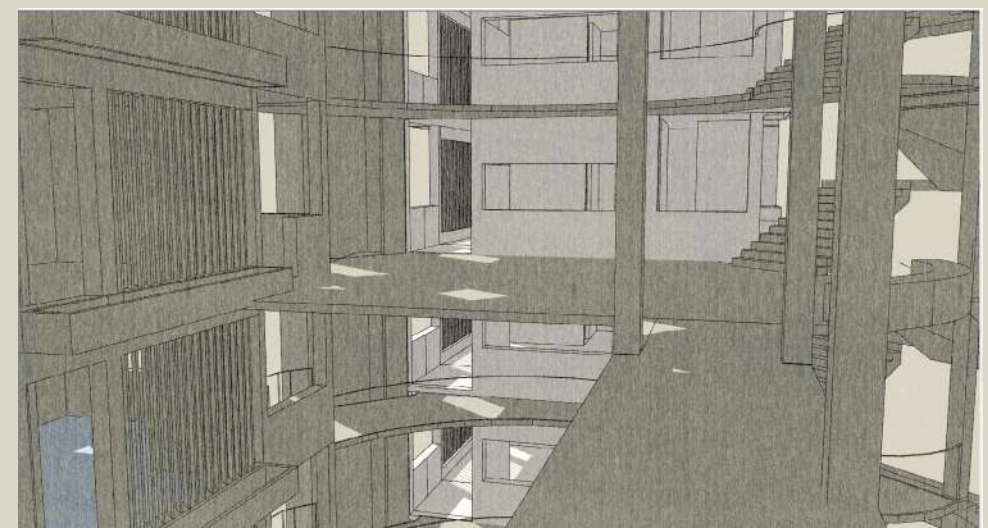
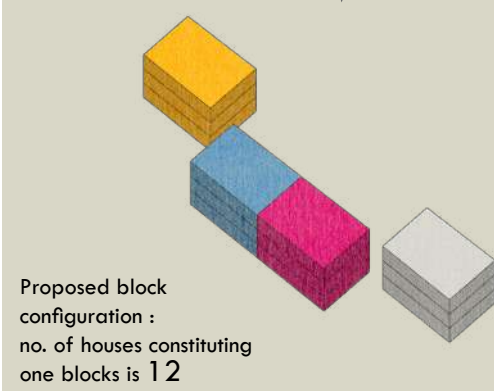
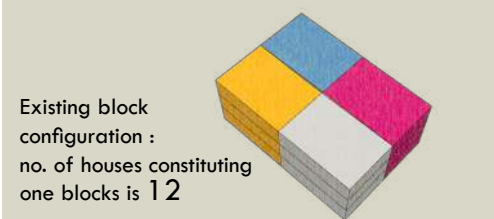


Section AA'



key plan showing section line

Community terrace space at block level



Entrance view to community terrace space from express lift through free of FSI skywalk



Entrance view to community terrace space from regular lift

Floor plan of one block

Total carpet area = 153.8 sqm.
Total rera carpet area = 145.6 sqm.
Total builtup area (non-terrace) = 217.8 sqm.
Total builtup area (terrace) = 290 sqm.

Super builtup of 4 terraced one block = 3120sqm.
Super builtup of 3 terraced one block = 3048sqm.
No. of 4 terraced blocks = 6
No. of 3 terrace blocks = 4



Such shared spaces are achieved by consuming the **free of FSI space** in front of the lift and staircase, and adding only **2.5 sqm** area from each unit apartment

Community terrace space

as a celebration of act of dwelling

Main objective of these shared community terraces is to create a sense of ground above ground.

Each terrace binds 6 houses which look into that space as a result of fenestrations creating a potential environment away from monotony as is experienced generally in high-rises.

The void allows proper sunlight and ventilation into the community space and provides connection to the outside hence feeling open.



visualisation of the triple volume community terrace space as it comes to life when residents start inhabiting it



kota stone flooring allow kids to draw with chalks and play hopscotch



planter pots allows possibility of kitchen gardening



becomes an extended living room in the evening for all to read, play and interact



allows residents to celebrate festivals

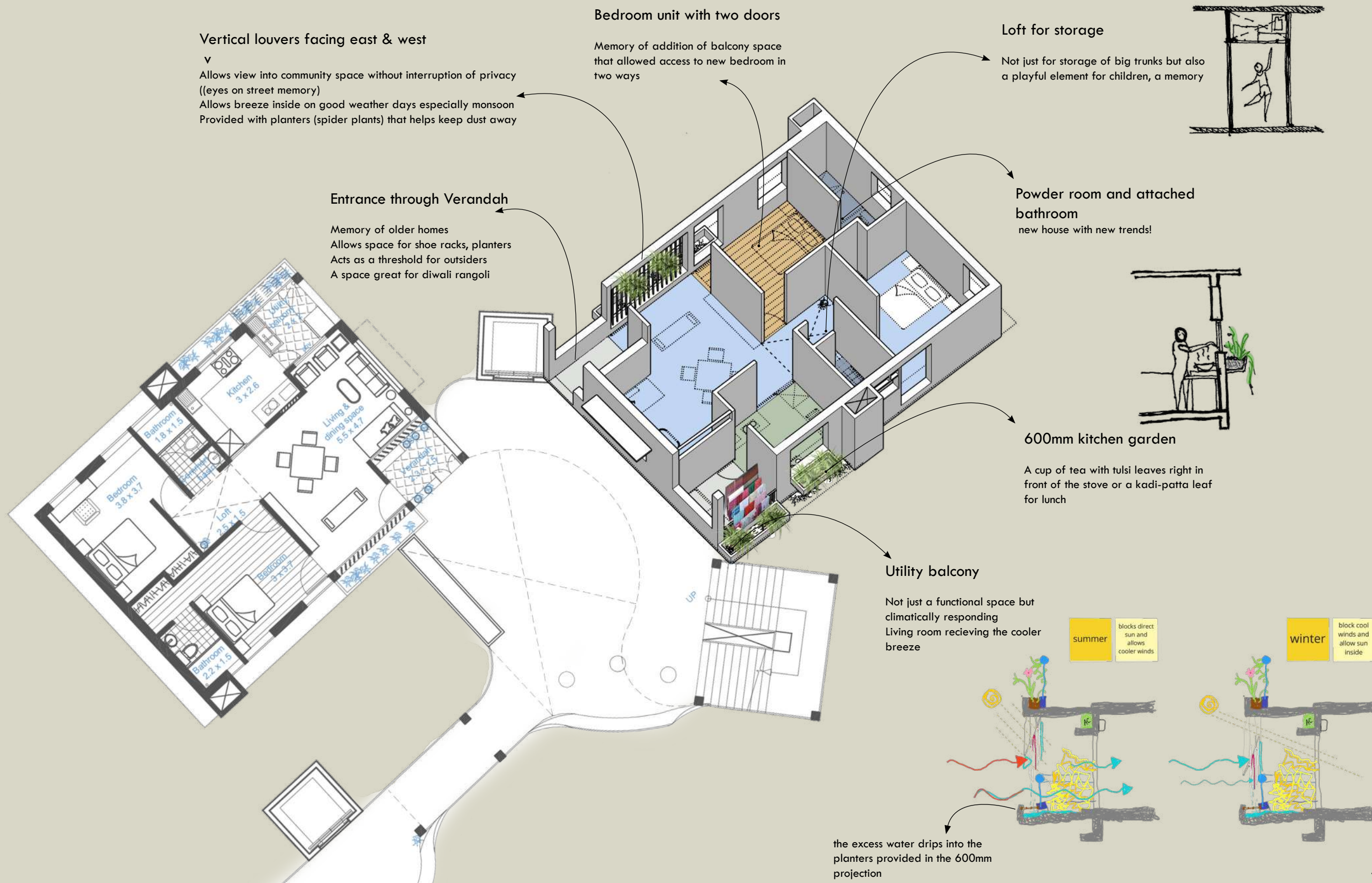
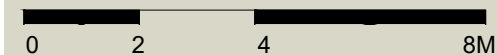
2BHK Unit plan

both the units look onto the shared community terrace space from verandah, living room, bedroom and utility balcony spaces. Individual unit being the most personal space of a resident in a mass housing project, it is ensured that it also retains valuable memories of a home.

Following are certain elements and characteristics which are retained from existing homes

- proportion of bedroom and living room
- extended verandah entrance
- common basin
- loft for storage
- fenestrations looking onto the terrace similar to how the existing homes look onto the street

Unit plan
 Carpet area = 77 sqm.
 Rera carpet area = 73 sqm.
 Builtup area = 89.1



Site Plan

at hollow plinth level

entrance to the residential premises is from 18m wide road for both vehicles and pedestrians. The entrance comprises of commercial shops on both the sides and is guarded by security guards.

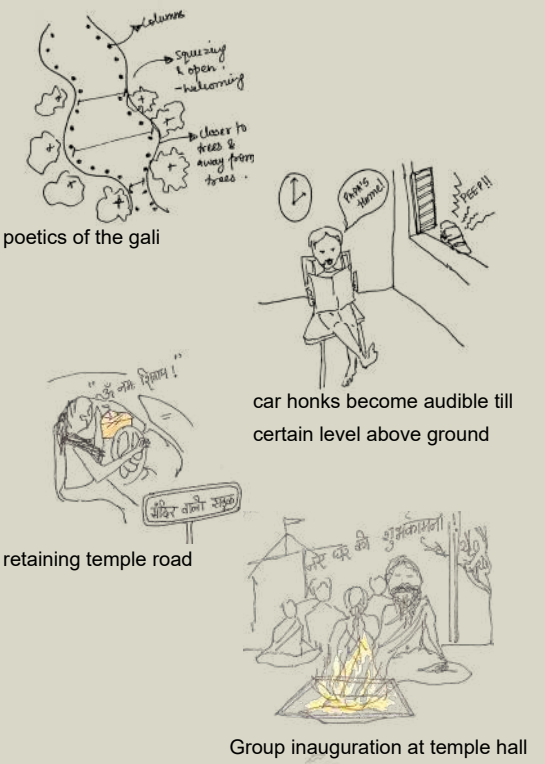
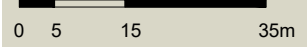
the central linear space of the complex becomes a typical pedestrian gali or street terminating at a garba ground on one end and kids playing area on the other end. Space remains undisturbed by vehicular traffic and provides jogging track.

Neem, champa and saptrani trees are grown for shading, flowering and fragrance, and noise cancellation characters respectively.

Garbage collection calculations
 12-15 L of garbage for a family of five people i.e. One unit
 Total garbage produced by 274 units = 4110 L = 4.11 cubm.
 MGB120L (96kgs) can serve 48 dwellings
 Hence, number of bins required= 5.7 - 6

- Commercial shops
- Building plinth
- Express lifts
- Staircases & lifts
- Pavement
- Roads
- Landscape areas
- Electric meters & lockers
- Shiva temple

ground floor plan at + 1.8m



First floor part plan of commercial zone

Infrastructural Provisions

- includes
- two basements for both four-wheeler and two-wheeler parking:
 - two ramps provided as per regulation
 - cut-out in floor slab for light and ventilation with a champ's tree to create an ecosystem
 - floors above are accessible only through express lift which ensures more interaction and use of staircases just like the existing walk-up scenario

2. fire safety measures

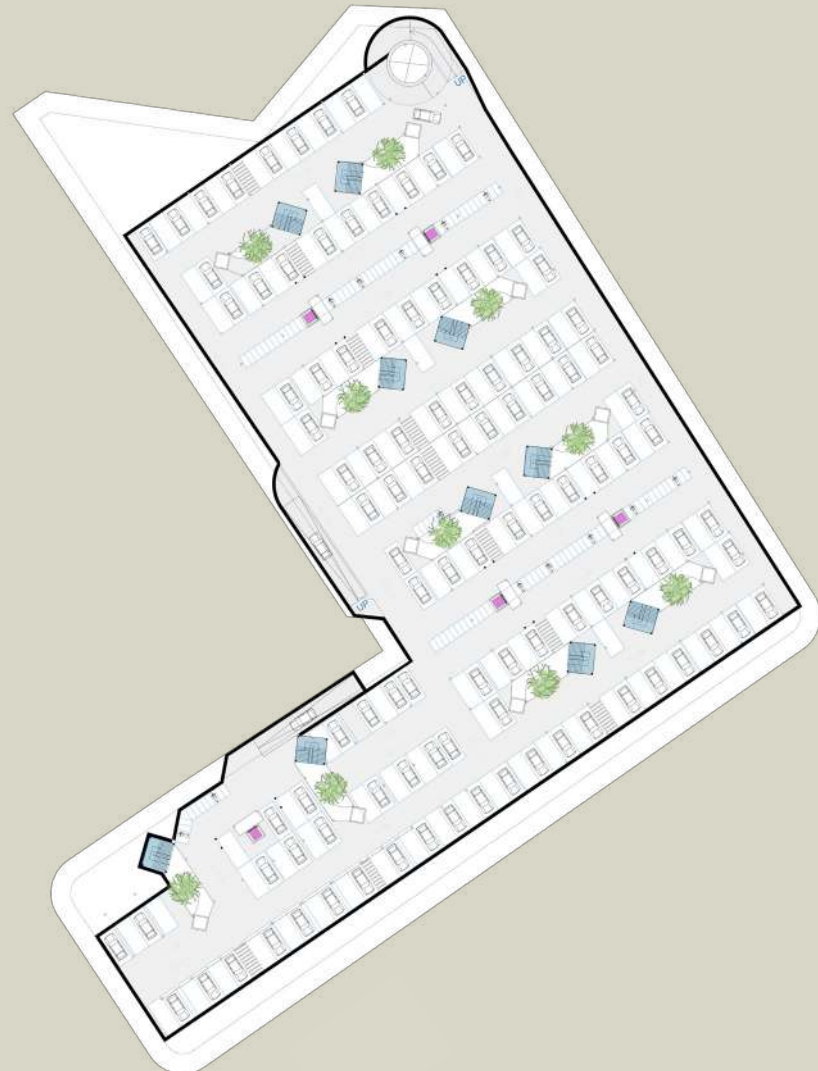
3. water tanks (OHT & UGT)

For entire site
 Type of BHK= 2
 Number of people per BHK= 5
 Total population = 1370
 Number of units = 274
 Total water requirement = 127940 litres (90L per person)
 Volume of water required per day = 127.97 cub.m ~ 128 cub.m.
 2 UGT, tank size= 4x2x8 m each

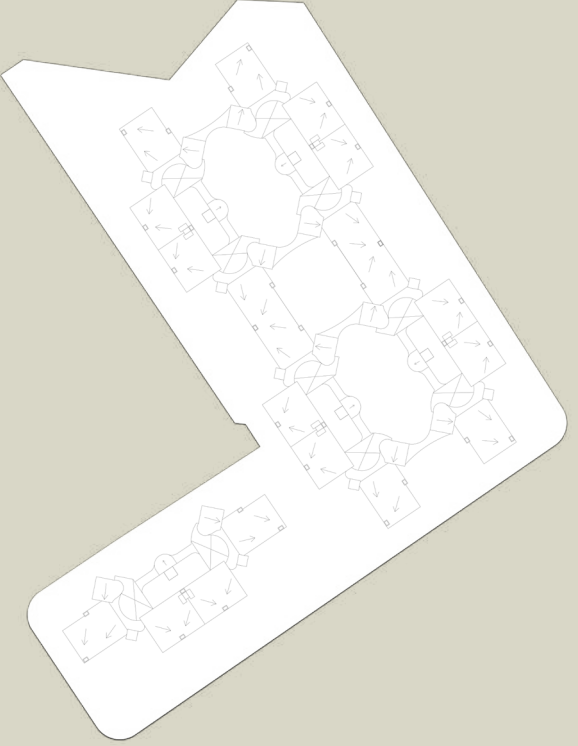
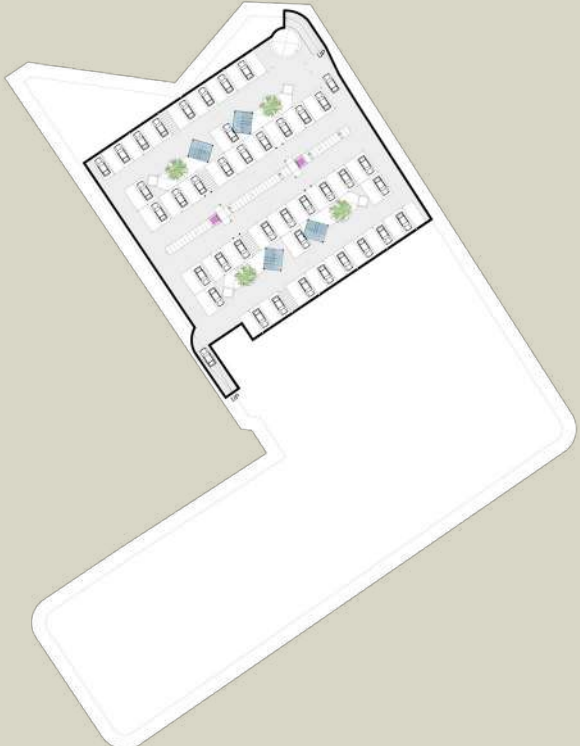
For separate blocks (56units)
 Population = 280
 Fire water tank, OHT= 2.5x1x2m
 UGT= 4x2.5x7.5m
 Water storage tank, OHT (33.33 % as specified in regulations)= 25200 L
 Tank sizes = 2.5x1x2m & 1x1.5x2

4. rain water harvesting (recharge well)

5. Drainage system



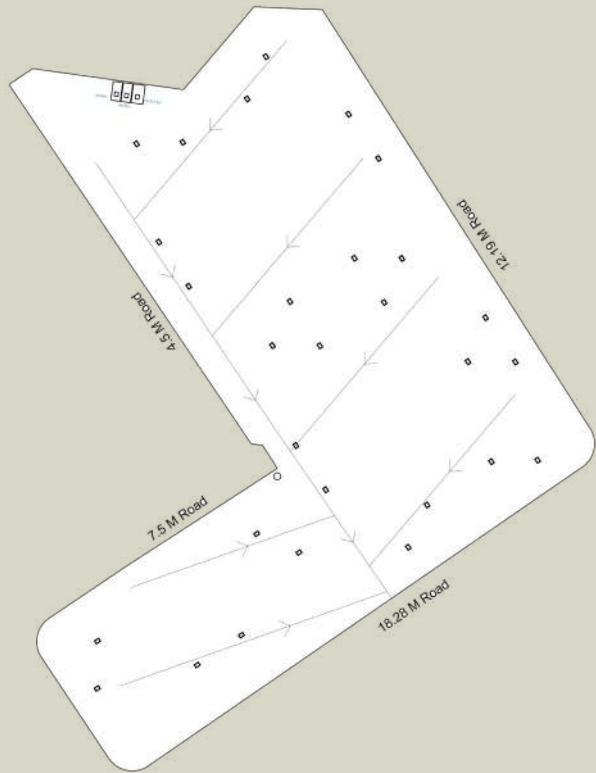
one-way efficient parking in basement
 2 ramps as per regulation



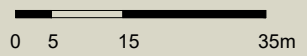
TANK SIZES
 1 x1.5 x2
 2 x2.5 x1
 2 x2.5 x1



Refuge area
 Fire staircase
 Fire truck routes



Drainage system at site level



Profitability calculations

Estimated cost of construction = $20,000 \times 30,615.8 = \text{Rs. } 61,23,16,000$
 Other costs = Rs. 19,57,00,000 excluding architect's fee
 Total cost of project = Rs. 80,80,16,000

Selling price of a house (89.1 sqm.) = $\text{Rs. } 53,420 \times 72.8 = \text{Rs. } 47,59,722$
 Cost of each terrace = 70% of house price = Rs. 33,31,805.4
 each cost terrace / 6 houses = Rs. 5,55,300.9

Selling price of house with terrace = Rs. 53,15,022.9
 Total selling price of 72 such terraced houses = Rs. 38,26,81,648.8
 Total selling price of 1118.16sqm. commercial = Rs. 22,36,32,000

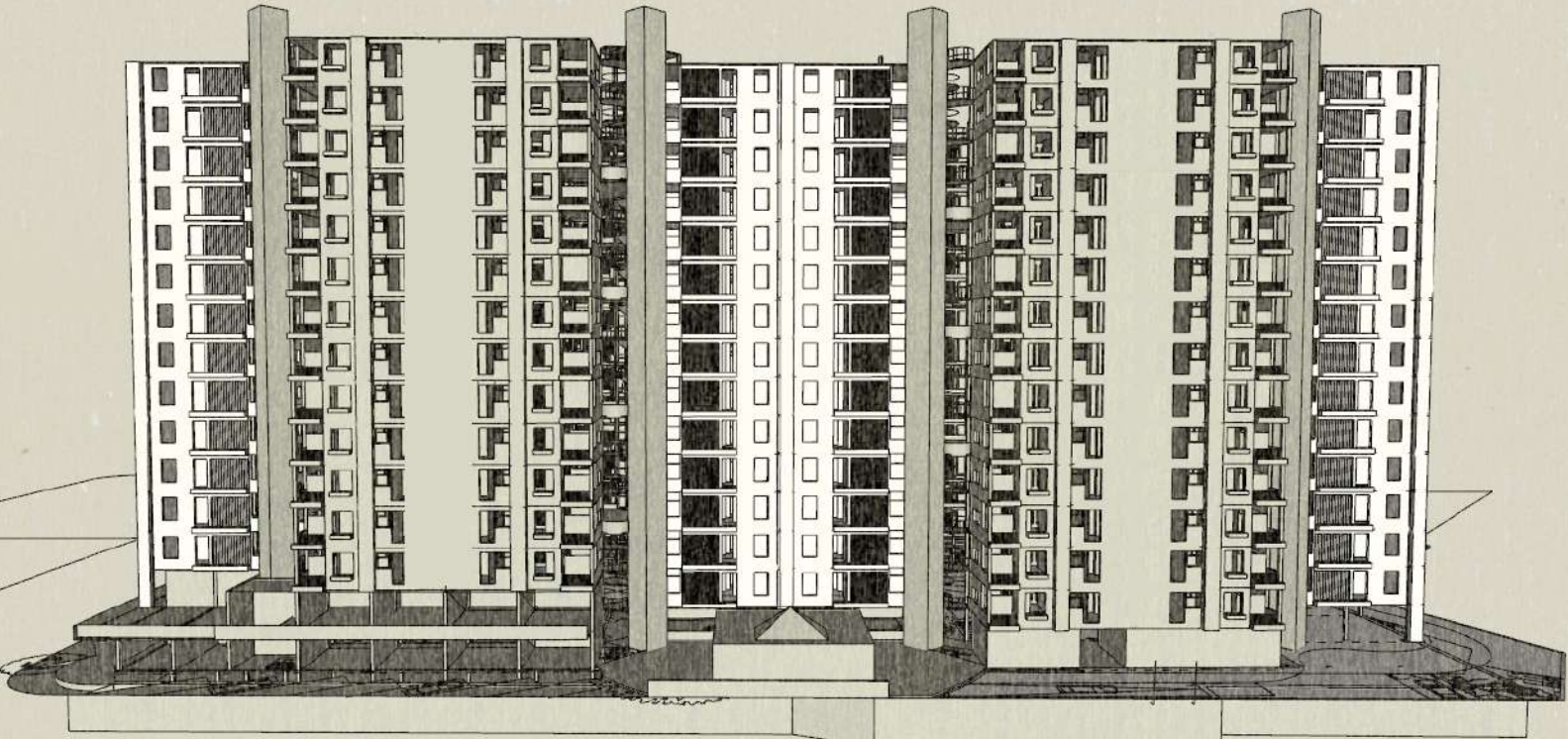
Total selling price = Rs. 60,63,13,648.8

Loss = Rs. 20,17,02,351.2

To cope up with lost cost,
 each new house price increase by Rs. 28,01,421.54
 so, cost of one new house = Rs. 81,16,444.4 (approx)

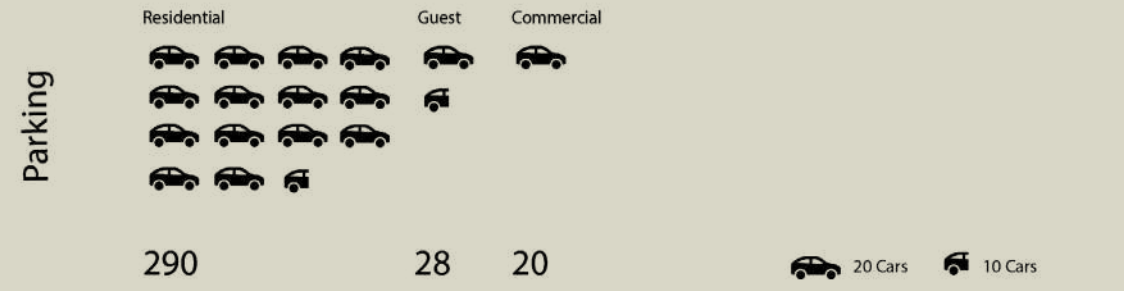
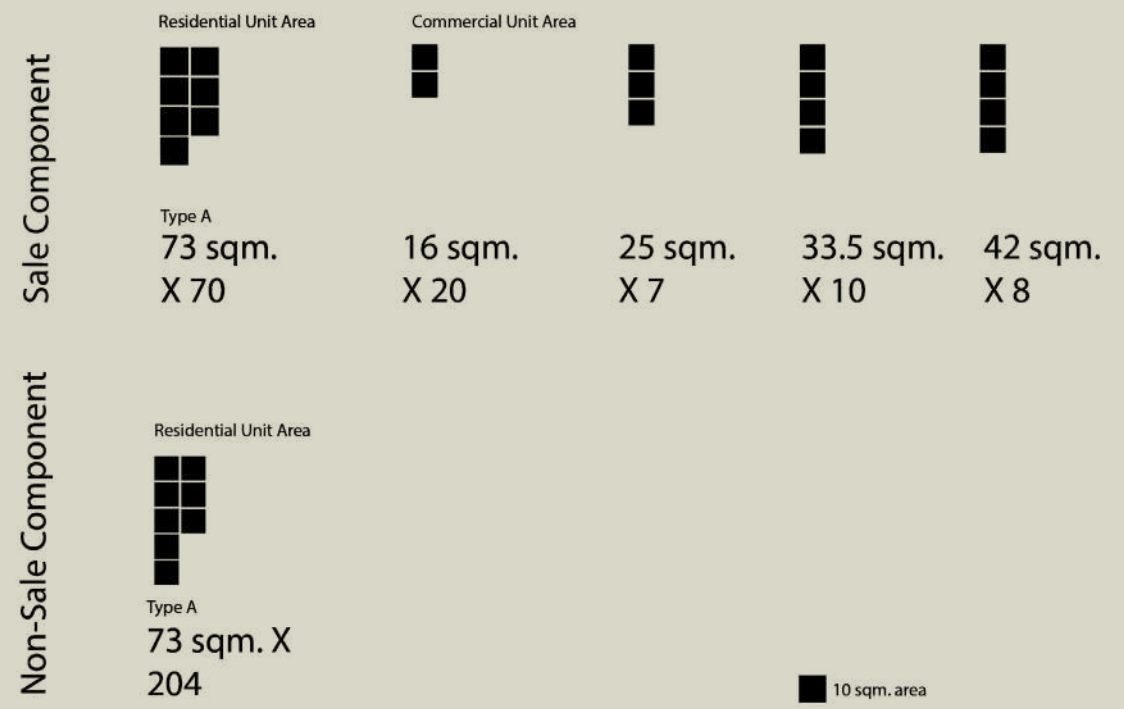


View of the entrance to residential premise with shops on both sides

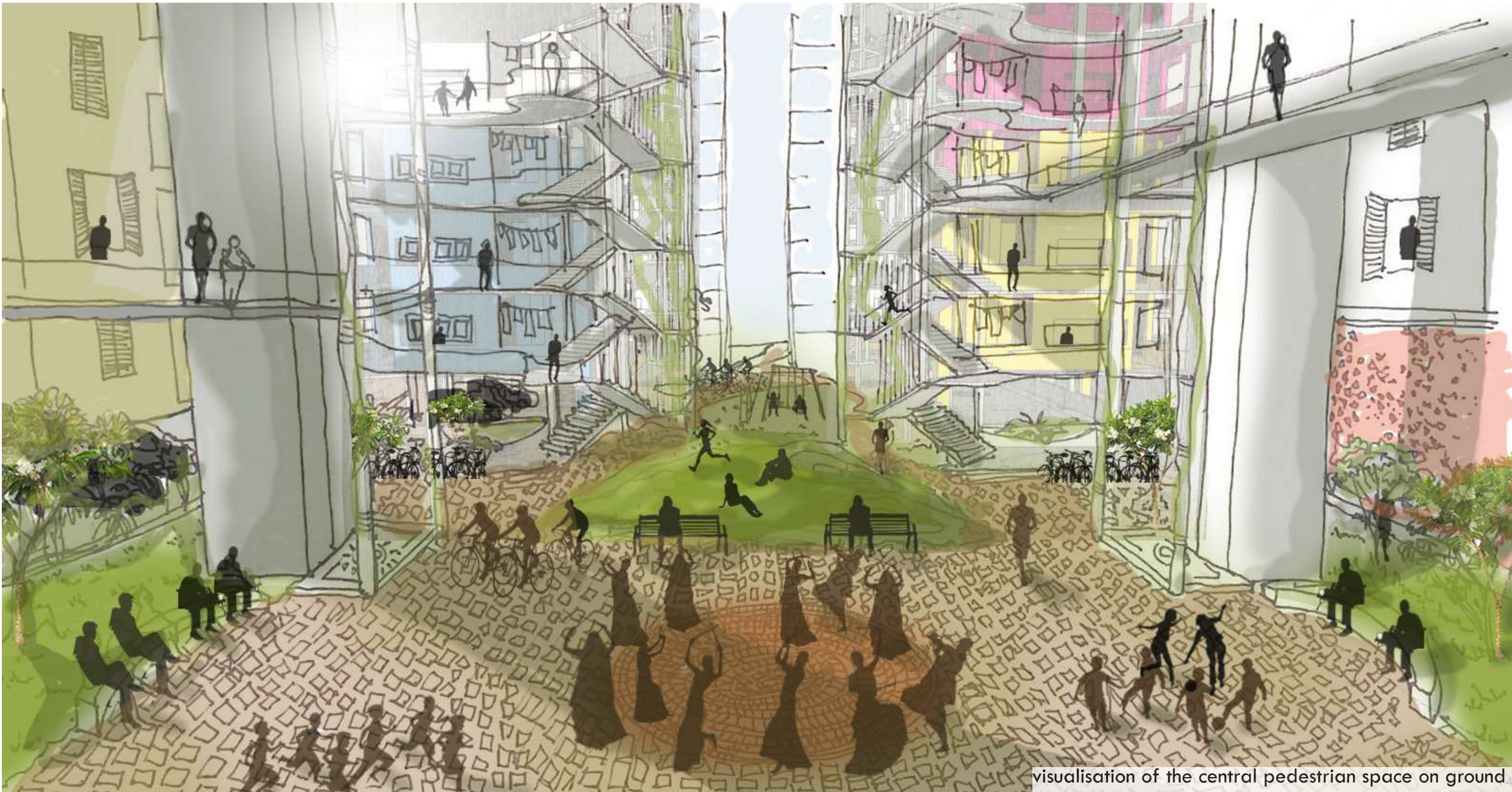


View of the Shiva temple towards 12m wide road

Summary of numbers



FSI - 2.7
 Achieved



visualisation of the central pedestrian space on ground