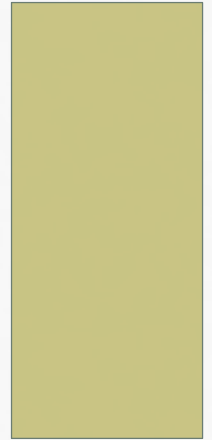




UDAAN

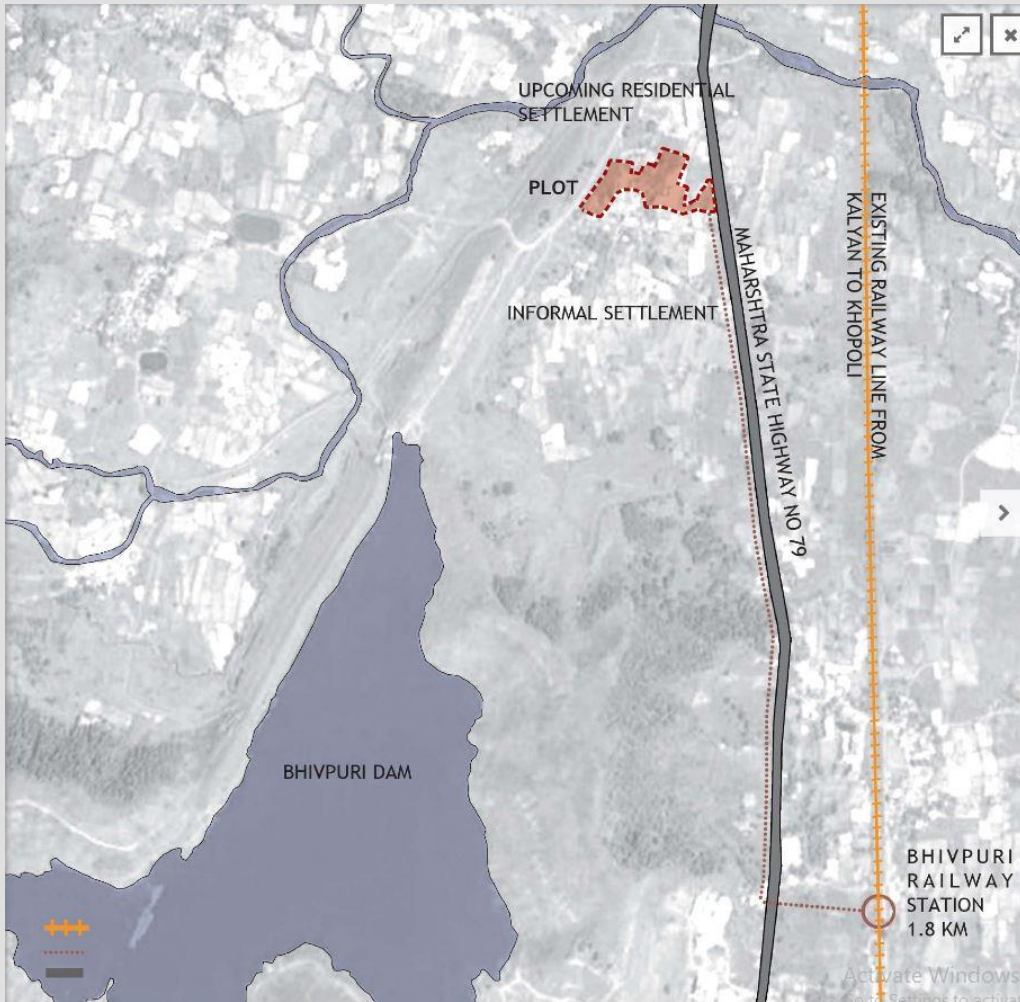
LOW COST MASS HOUSING PROJECT
BY SAMEEP PADORA



-VAIBHAV PANCHAL 51
-GAURAV NIRMALKAR 50



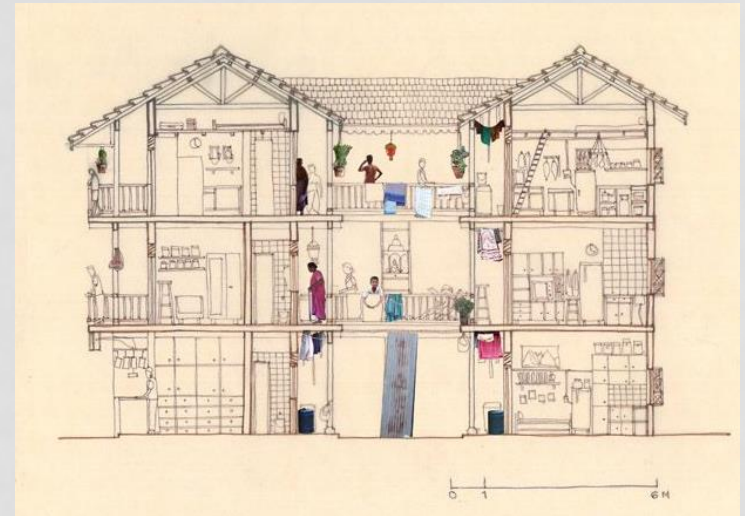
LOCATION



- A 19770 sq.mt plot is within 10 minutes walking distance from Bhivpuri station, Karjat.
- This is on the Central railway route between Neral and Karjat.
- It is also connected to NH4 and has road links to both Panvel/Navi Mumbai and Badlapur/Thane.
- The FSI for this area is 1.2

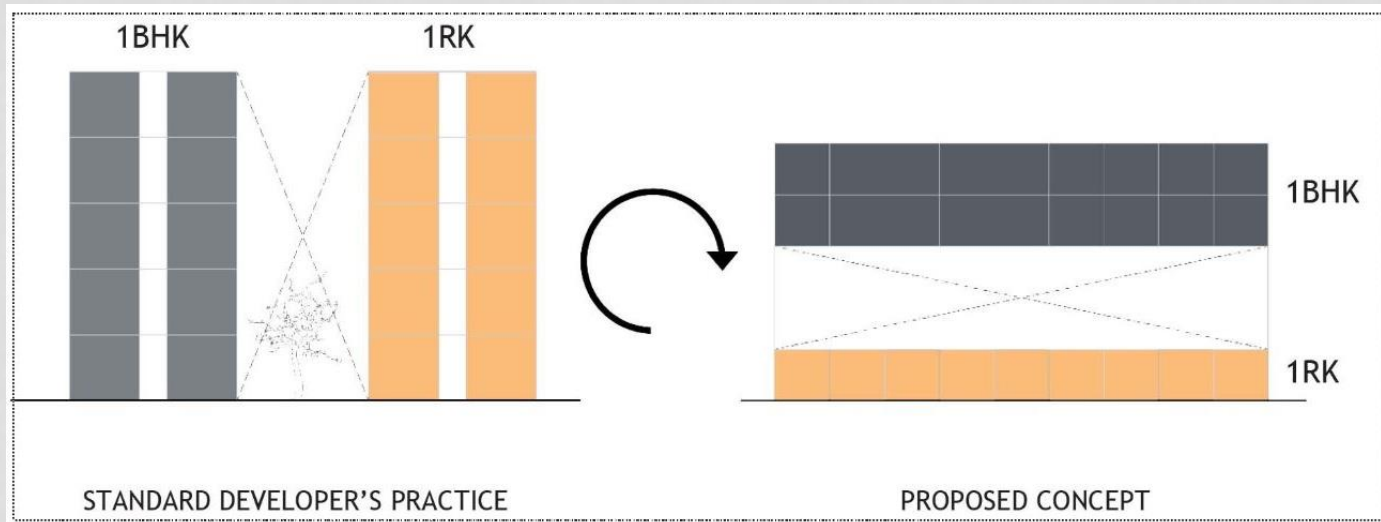
COMMUNITY, PROBLEMS & THEIR SOLUTIONS

- The ever increasing land prices in Mumbai is causing a major housing problem for the families that serves the privileged classes.
- The domestic helpers, drivers, sweepers, peons, etc are the invisible cogs that daily ensure the smooth running of the city.
- Currently they are being dis-housed from their decades old housing, since this has caught the eye of developers; and they are forced to relocate further from their primary sources of income.
- Currently, this segment forms 50-60 % of the urban population of Mumbai.



THE DESIGN

- Total BUA proposed: 19080 sq.mt
- Total Units proposed (assuming 300 sq.ft): 522
- Phase wise allocation:
 - Phase 1: 255
 - Phase 2: 267



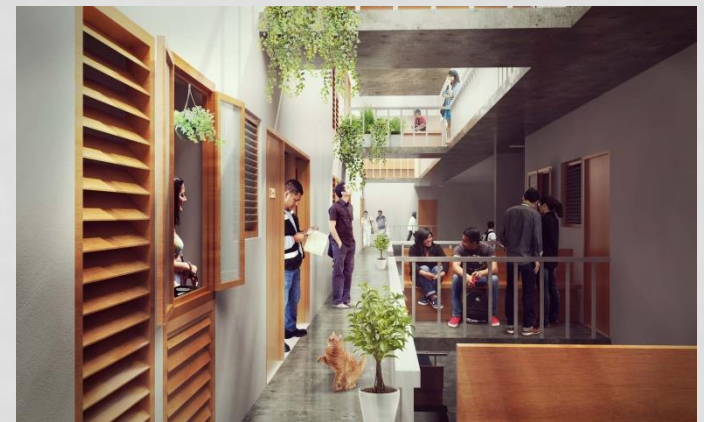
THE DESIGN

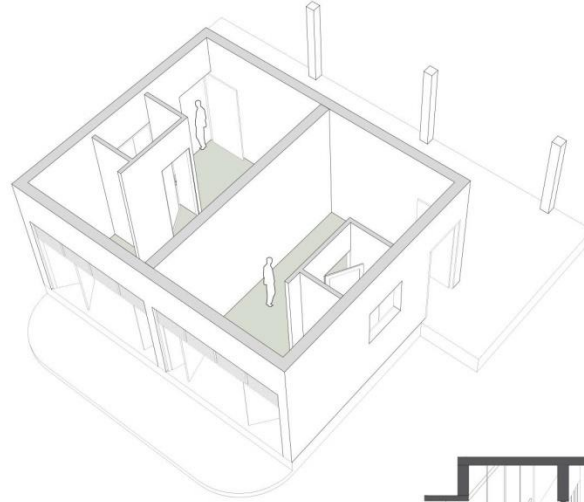
- The approach explores the flexibility available in clever repetition of a module.
- The project, being precast pods, can be executed with speed and allows for a number of units that can be configured to suit individual requirements of space for individual families over time.
- At the same time, rather than consolidating the 10% amenity into the de-facto club house disconnected from daily use, the design integrated it as a series of dispersed common social programs throughout the building.
- Since residents would pass by these on a regular day to day basis, the chance of these being maintained well were also much higher.
- Being a low-rise building the users experience a closer connection to the ground.



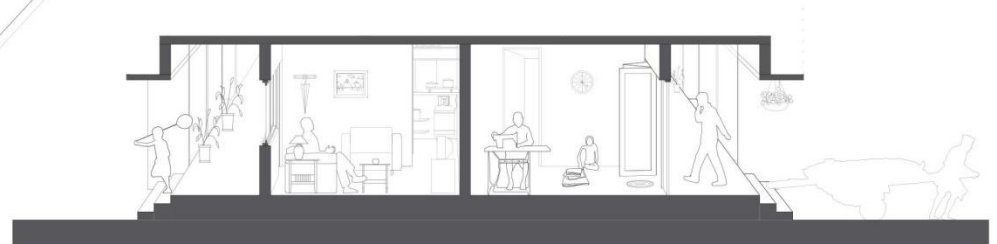
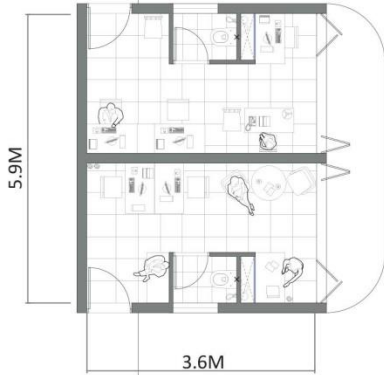
UNIT DESIGN

- 1 RK
- 1 BHK
- Mezzanine Unit
- Mixed Unit
- All the unit types are clubbed together in the same building, allowing a mix of user groups and creating a richer social fabric. All units have an identical width of 3.6m (approx 12ft) which is generated by the Wet Pod requirements 3.6×1.5 m.



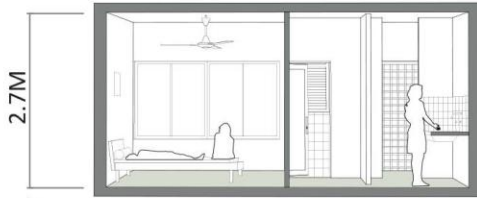


LIVE/WORK UNITS ARE FACILITATED BY VERANDAH EMBEDDED GROUND FLOOR UNITS THAT ALLOW FOR LIVELIHOOD GENERATING PROGRAMS IF NEEDED.

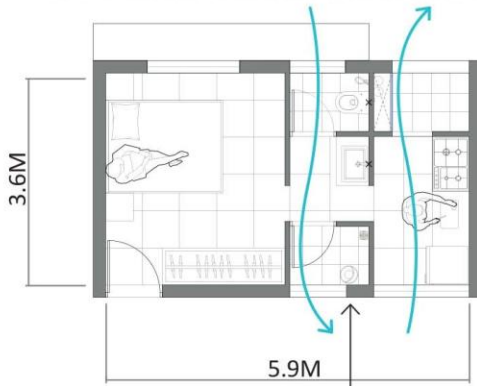


LIVE/WORK UNIT



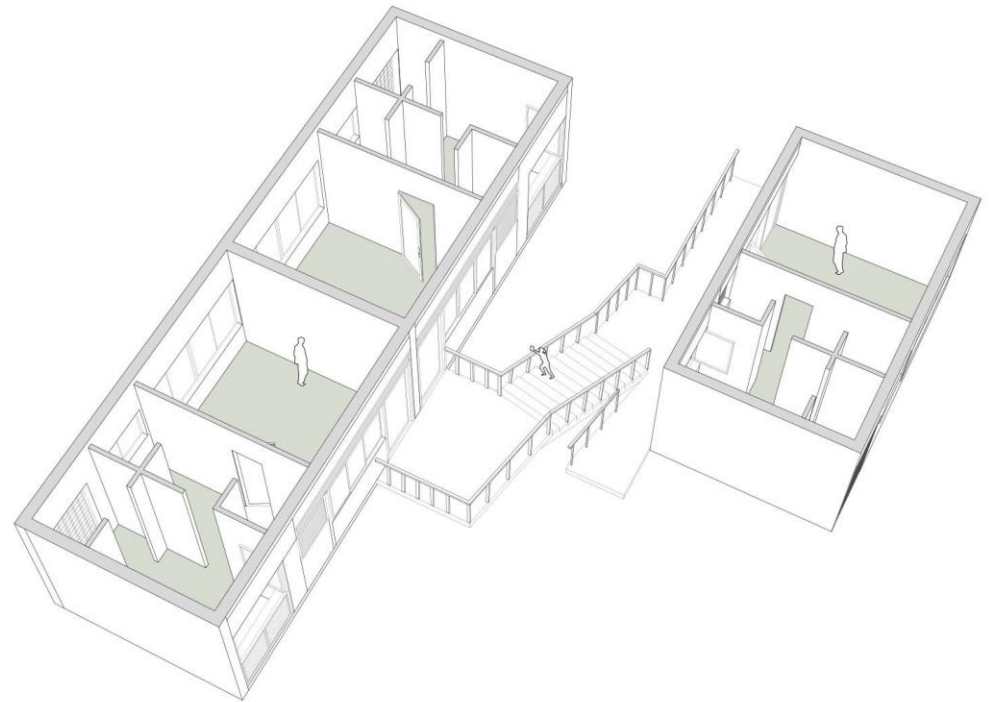


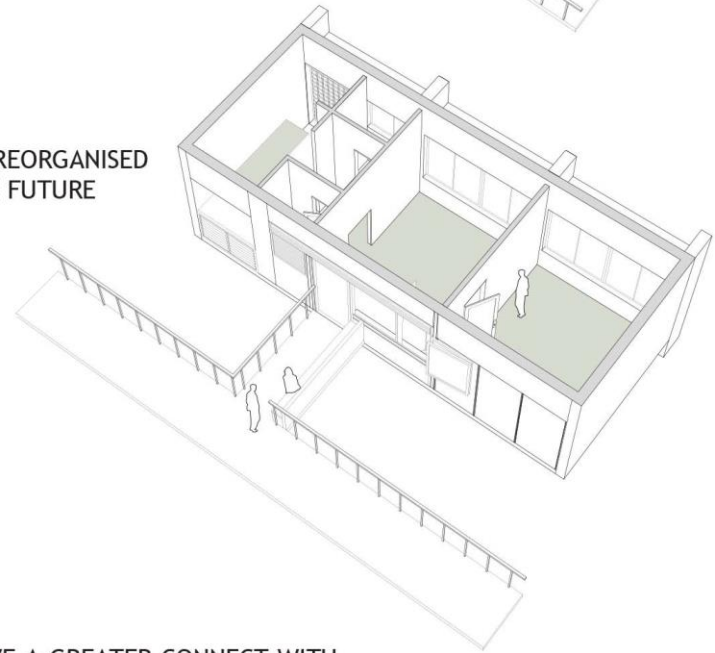
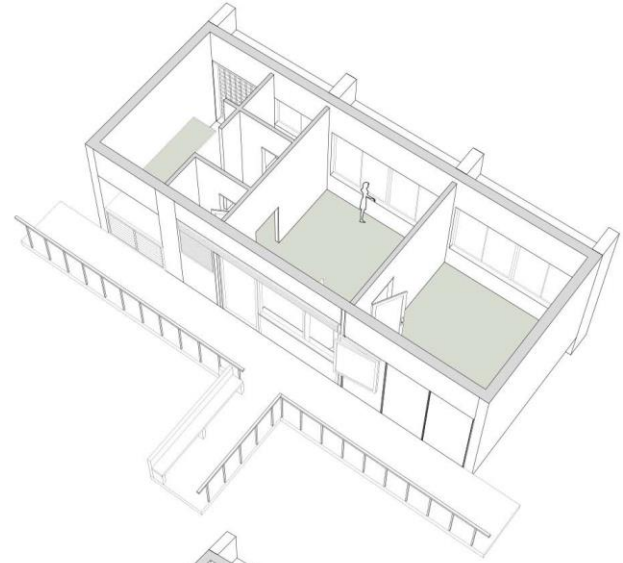
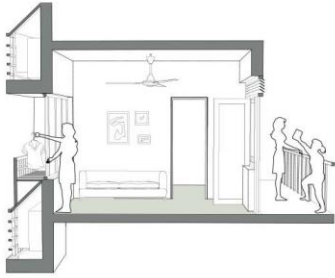
THE UNITS ARE DESIGNED TO BE NATURALLY VENTILATED



THE BATHROOMS ARE DESIGNED TO BE USED BY THREE MEMBERS OF THE FAMILY SIMULTANEOUSLY

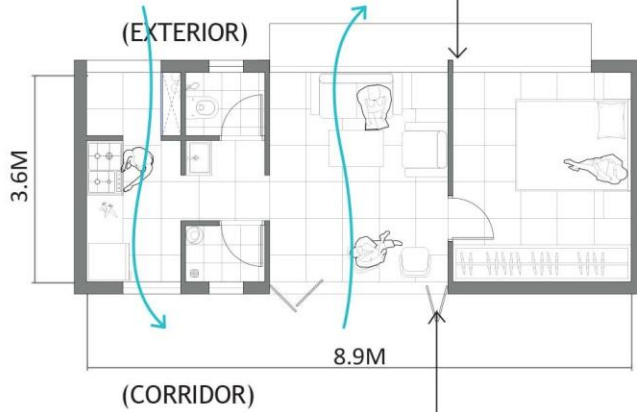
1 RK UNIT





THE UNITS ARE DESIGNED TO BE NATURALLY VENTILATED

THE INTERNAL WALLS CAN BE REORGANISED FOR FLEXIBILITY OF USE IN THE FUTURE

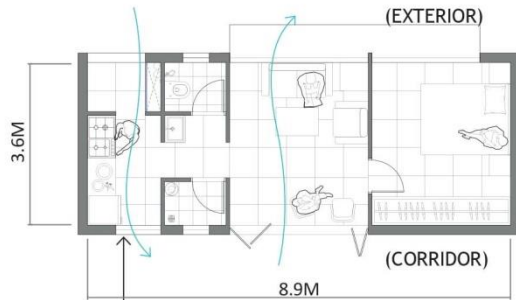
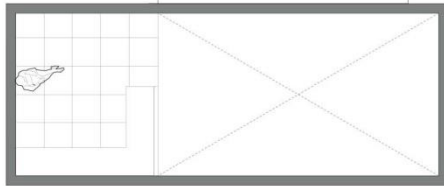


THE UNITS ARE DESIGNED TO HAVE A GREATER CONNECT WITH THE IMMEDIATE CORRIDOR AND COMMUNITY SPACES THROUGH COLLAPSIBLE FRONT DOORS AMONGST OTHER THINGS.

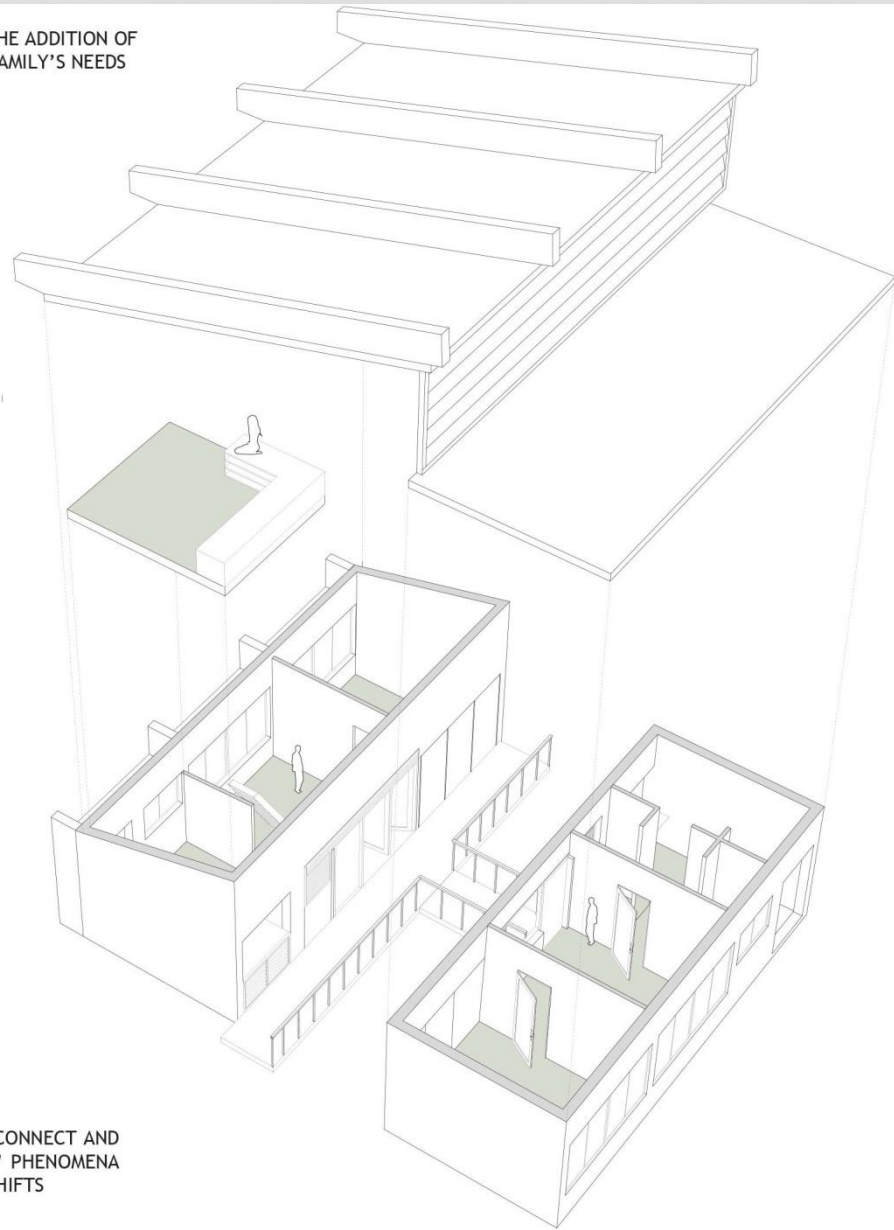
1 BHK UNIT



THE MEZANINE UNIT IS DESIGNED TO ALLOW FOR THE ADDITION OF A LOFT SPACE, TO KEEP UP WITH AN EXPANDING FAMILY'S NEEDS



ADDITIONAL WINDOWS IN KITCHENS ALLOW FOR VISUAL CONNECT AND A SENSE OF SECURITY THROUGH 'EYES ON THE STREET' PHENOMENA WHEN ONE OR MORE PARENTS ARE AWAY WORKING ON SHIFTS

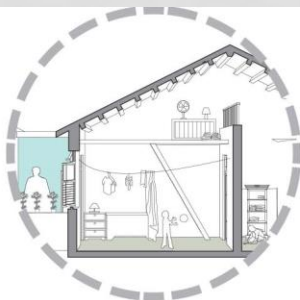


MEZZANINE UNIT

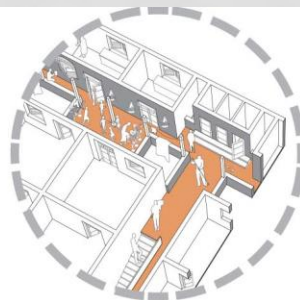


Climate considerations :

- Based on extensive studies of housing typologies in Mumbai, with its humid climate, the most effective way to ensure comfort conditions is by providing cross ventilation as far as possible.
- The design addresses this by using the staggered corridors to have cross ventilation through each unit and vertically ventilate the community/corridor areas by staggering the corridors and generating a stack effect cooling through the sloping roof over the circulation zone.



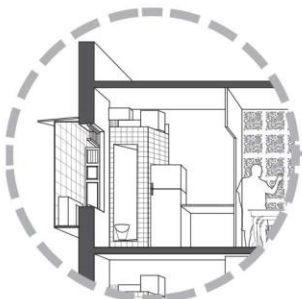
6. ADDED MEZZANINE SPACES ARE SEEN IN MOST TIGHT HOMES ADDED AS THE NEED FOR EXPANSION PERSISTS. THE SLOPING ROOF IS INTENTIONALLY PROVIDED TO CARRY SOLAR CELLS AS WELL AS TO ALLOW FOR MORE HEIGHT FOR A MEZZANINE IF AND WHEN NEEDED.



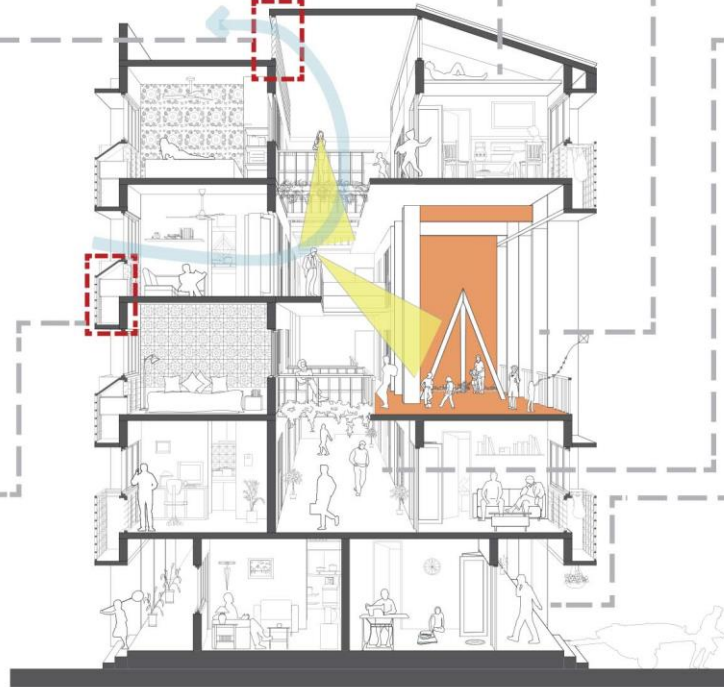
5. AS SEEN IN CHAWLS IN MUMBAI, THE CORRIDORS ARE NOT ONLY POTENTIAL SOCIAL SPACES BUT ALSO AN EXTENSION OF THE INTERIOR SPACE OF THE HOME, BLURRING THE BINARIES OF PUBLIC AND PRIVATE. WE ACHIEVE THIS BY MAKING THE ENTIRE WALL TOWARDS THE CORRIDOR AS COLLAPSIBLE SLIDING FOLDING DOORS.



1. VENTURI EFFECT VENTILATION SYSTEM ALSO EMPLOYED IN CHAWLS, ALLOWS FOR HOT AIR RISING THROUGH OUR VERTICALLY STAGGERED CORRIDOR SPACE TO ESCAPE OUT FROM LOUVERS IN THE ROOF.



2. INGENIOUS DETAILS OF STORAGE AND FLEXIBLE FURNITURE SYSTEMS AS EVIDENT IN MOST TIGHT LIVING SPACES.



SECTIONAL PERSPECTIVE



3. REFERENCING THE CHAWL COURTYARD AND THE ABILITY OF ITS PROPORTIONS AND ARCHITECTURE TO CREATE A RICH AND VIBRANT SOCIAL FABRIC, OUR CORRIDORS STAGGER IN SECTION CREATING A CONTINUOUS VOID SPACE. THIS ALLOWS FOR VISUAL CONNECTIONS BETWEEN RESIDENTS OF DIFFERENT FLOORS.



4. VARIABLE USAGE OF LIVE/WORK UNITS AS SEEN IN MOST HOUSING TYPOLOGIES IS FACILITATED BY VERANDAHS EMBEDDED GROUND FLOOR UNITS THAT ALLOW FOR LIVELIHOOD GENERATING PROGRAMS IF NEEDED.

KEYWORDS :

Smart building :

- The building has been designed by taking the users living style in consideration.
- Rather than consolidating the 10% amenity into the de-facto club house disconnected from daily use, the design integrated it as a series of dispersed common social programs throughout the building.

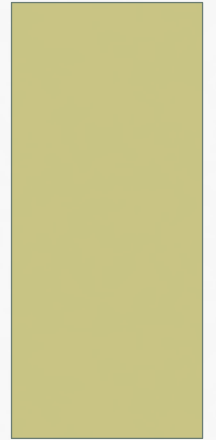
Mixed use housing :

- Instead of a typical vertical design practiced by standard developers, the housing has adopted a horizontal typology.
- Learning from the research into indigenous housing typologies, for migrant workers in Mumbai, led to four variant designs based on the same grid.
- Each satisfied the requirements of a particular type of family.
 1. 1 RK
 2. 1 BHK
 3. Mezzanine Unit
 4. Mixed Unit



AL BAHR TOWER, ABU DHABI

INTELLIGENT FACADE BUILDING



Location:

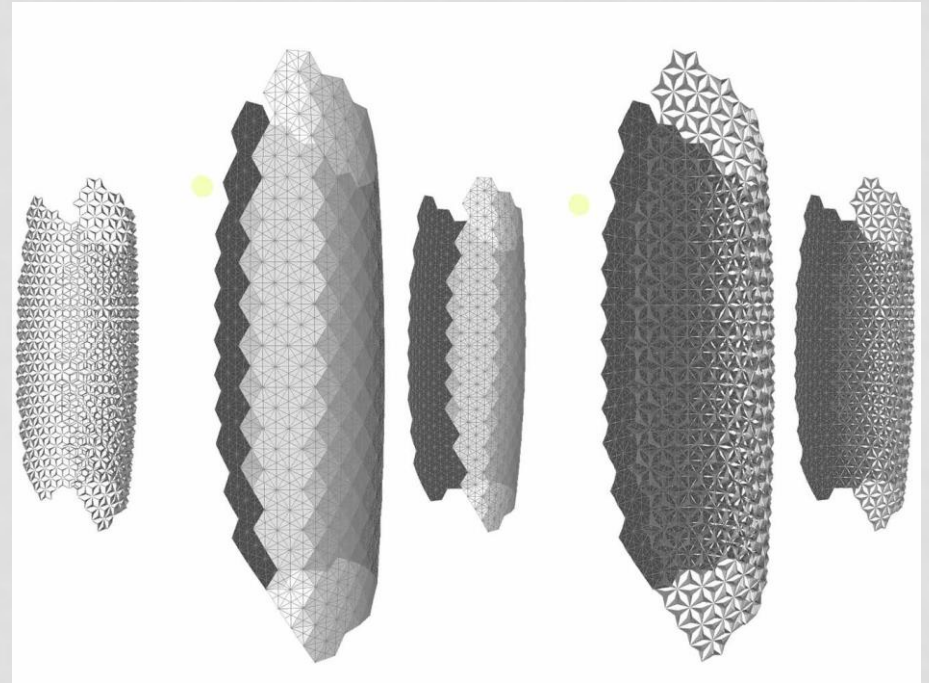
Eastern entrance of the junction of Al Saada and Al Salam Streets, in the city of Abu Dhabi.

Architect:

Aedas Architects, in collaboration with Arup Engineers.

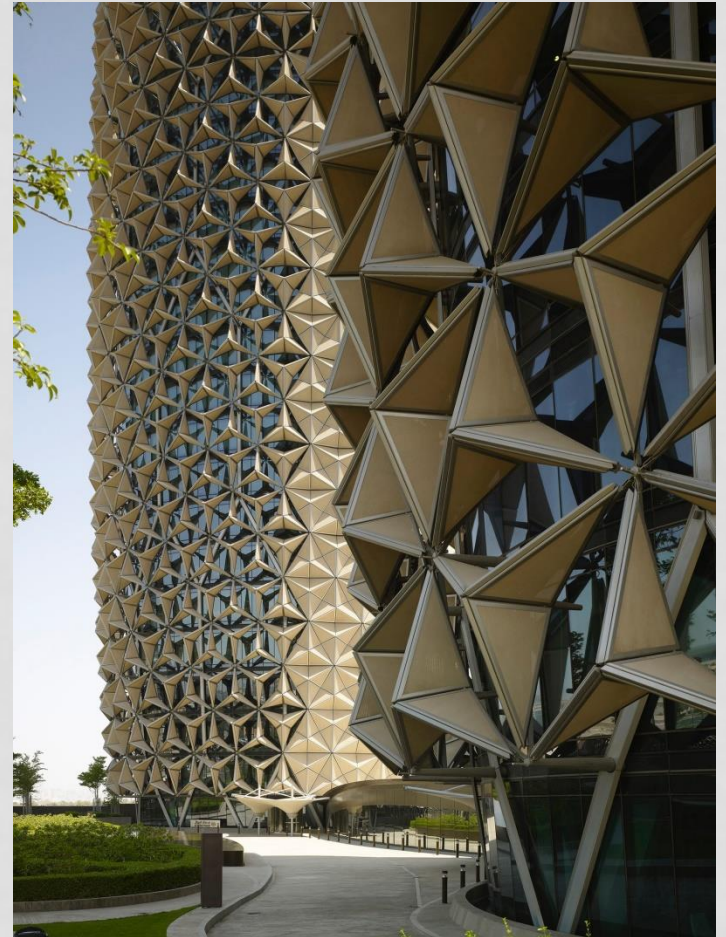
Concept:

- THE DESIGN CONCEPT IS BASED ON THE FUSION BETWEEN BIO-INSPIRATION, REGIONAL ARCHITECTURE, AND PERFORMANCE-BASED TECHNOLOGY.
- CIRCLES AND ORBITS ARE USED TO REFLECT THE CONCEPT OF UNIFICATION AND UNITY EVIDENT IN NATURE.
- THE DESIGN IS DRIVEN FROM ITS CONTEXT, TAKING INTO ACCOUNT ENVIRONMENT, TRADITION, AND TECHNOLOGY



SCREENS

- THE DESIGN IS BASED ON THE CONCEPT OF ADAPTIVE FLOWERS AND THE "MASHRABIYA" - A WOODEN LATTICE SHADING SCREEN
- A DYNAMIC AND SENSITIVE SHADING SCREEN ACTING AS' MASHRABIYA “
- SECONDARY SKIN FILTERS THE LIGHT AND REDUCES GLARE.
- POWERED BY RENEWABLE ENERGY DERIVED FROM PHOTOVOLTAIC PANELS.
- WRAPS GIANT LATTICE ALMOST TWO TOWERS COMPLETELY EXCEPT FOR THE AREA NORTH-FACING FACADES. SCREENS AL-BAHR TOWER SCREEN'S MODULE DESIGN ELEMENTS





QUANTITATIVE BENEFITS:

- 50% ENERGY SAVINGS FOR OFFICE SPACES ALONE, AND UP TO 20% FOR THE BUILDING OVERALL
 - 20% REDUCTION IN CARBON EMISSION WITH UP TO 50% FOR OFFICE SPACES USE ALONE
 - 15% REDUCTION IN OVERALL PLANT SIZE AND CAPITAL COST
 - 20% REDUCTION IN MATERIALS AND OVERALL WEIGHT DUE TO THE HIGHLY FLUID, RATIONAL AND OPTIMIZED DESIGN
- QUALITATIVE BENEFITS THE FOLLOWING ARE NON-MEASURABLE BENEFITS OF THE INNOVATIVE FACADE SYSTEM:
- IMPROVEMENT OF USER-COMFORT AND IMPROVED PHYSICAL AND PSYCHOLOGICAL WELL-BEING OF OCCUPANTS

The façade on Al Bahar, computer-controlled to respond to optimal solar and light conditions, has never been achieved on this scale before. In addition, the expression of this outer skin seems to firmly root the building in its cultural context.

Towers Al Bahar have implementation of advanced detection system designed to integrate the building with its cultural context and respond directly to the needs of the region's climate.

The effects of this system are comprehensive: reduced glare, improved daylight penetration, less reliance on artificial lighting, and over 50% reduction in solar gain, which results in a reduction of CO2 emissions by 1,750 tones per year.

"Mashrabiya" in Al Bahar Towers has a number of components transparent umbrella that open and close in response to the sun's path.



EFFICIENCY

- IT IS ESTIMATED THAT THE SCREEN REDUCES SOLAR GAIN IN MORE THAN 50% AND REDUCES THE NEED FOR AIR CONDITIONING.
- SCREENS ABILITY TO FILTER LIGHT HAS ALLOWED TO BE MORE SELECTIVE IN THE CHOICE OF GLASS.
- THIS ALLOWS US TO USE MORE NATURALLY TINTED GLASS, WHICH ALLOWS MORE LIGHT INSIDE AND LESS NEED FOR ARTIFICIAL LIGHT.
- THE INTELLIGENT FACADE, TOGETHER WITH SOLAR THERMAL PANELS FOR HOT-WATER HEATING AND PHOTOVOLTAIC PANELS ON THE ROOF, MINIMIZE THE NEED FOR INTERNAL LIGHTING AND COOLING, ALTOGETHER REDUCING TOTAL CARBON DIOXIDE EMISSIONS BY OVER 1750 TONS PER YEAR.
- FOR THE PROJECT'S SUSTAINABLE ENGINEERING AND SENSITIVE CULTURAL AND URBAN APPROACH, THE TOWERS WERE AWARDED THE 2012 TALL BUILDING INNOVATION AWARD. EFFICIENCY 18

