REVENUE GENERATING MODEL

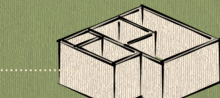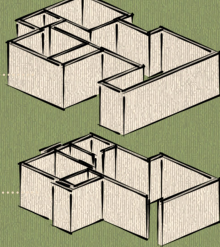LOWER FLOORS OF THE PROTO-TYPE IS RESERVED FOR THE OWNERS AND THE REMAINING 2 FLOORS (2 BHK & STUDIO APARTMENT) ARE FOR RENTALS
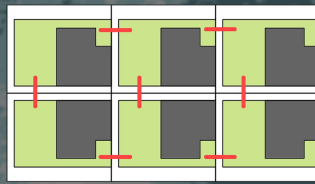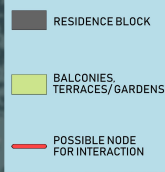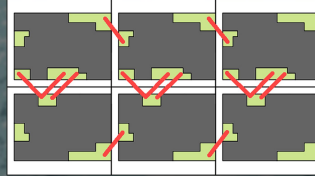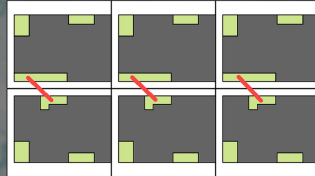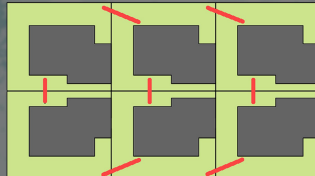
INCREMENTAL STUDIO APARTMENT

2 BEDROOM FOR RENT

DUPLEX FOR OWNERS

- RESIDENCE BLOCK
- BALCONIES, TERRACES/GARDENS
- POSSIBLE NODE FOR INTERACTION

THIRD FLOOR PLAN

SECOND FLOOR PLAN

FIRST FLOOR PLAN

GROUND FLOOR PLAN

N

SPACES OF SOCIAL INTERACTIONS

THE OWNERS OF THE PLOTS UNDER THE LANDPOOLING SCHEME ARE PRIMARILY THE RESIDENTS OF THE NEIGHBOURING VILLAGES.

THE SPACES & NEIGHBOURHOODS THEY AREACCUSTOMED TO ARE PRIMARILY SOCIALLY INTERACTIVE SPACES. EXCHANGING WORDS/GOODS OVER BOUNDARY WALLS, WOMEN DRYING SEEDS, MANGO JELLY, PAPADS ETC ON TERRACES IN SUMMERS, KIDS PLAYING GAMES/ FLYING KITES & SLEEPING ON TERRACES ARE SOME EXAMPLES.

THROUGH THIS DESIGN CHALLENGE WE INTEND TO KEEP ALIVE THE SOCIAL INTERACTION FOUND IN THE VILLAGES BY DESIGNING CONTEMPORARY HOUSES WITH A TOUCH OF TRADITIONALITY.

SOCIAL INTERACTIONS AT DIFFERENT LEVELS NOT ONLY STRENGTHENS THE BOND BETWEEN THE RESIDENTS BUT ALSO AIDS NATURAL SURVEILLANCE.

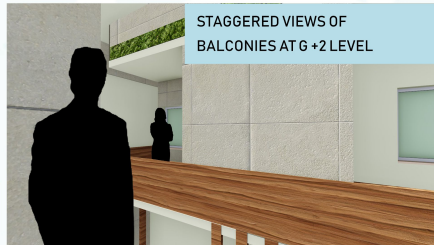THE STAGGERED INTERACTION PATTERNS ENSURES PRIVACY OF THE INDIVIDUALS.

LOCALLY AVAILABLE OXYGEN GIVING PLANTS

Money plant

3 Areca Palm

Snake plant

4 Danilla grass

Syngonium

5 Peace lily

1 — LIMITED HARDSCAPING WITH GRASS CELL PAVERS

2 — OUTDOOR SEATING (ARUGU) TO AID SOCIAL INTERACTION
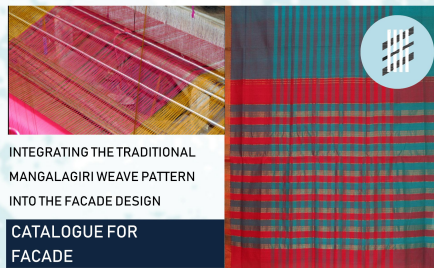
STAGGERED VIEWS OF BALCONIES AT G +2 LEVEL

STAGGERED VIEW OF NEIGHBOURS BALCONY FROM THE ENTRANCE

INTEGRATING THE TRADITIONAL MANGALAGIRI WEAVE PATTERN INTO THE FACADE DESIGN

CATALOGUE FOR FACADE

NORTH-WEST VIEW

HOT AIR RISES UP AND ESCAPES THROUGH THE LOUVERS

6

THIRD FLOOR PLAN

TERRACE GARDEN

KITCHEN 7.5 sq.m

STUDIO APARTMENT

BED ROOM 6.8 sq.m

LIVING AREA 10.5 sq.m

TERRACE

ENTRY

+10050

DOWN

+10050

SECOND FLOOR PLAN

BALCONY

UTILITY

KITCHEN 7.6 sq.m

BED ROOM 14.3 sq.m

DINING AREA 11.8 sq.m

LIVING AREA 20.6 sq.m

BALCONY

M.BEDROOM 17.5 sq.m

UP

ENTRY

+6750

FIRST FLOOR PLAN

BALCONY

BED ROOM 16 sq.m

CORRIDOR 1400 WIDE

+3450

DOWN

M.BEDROOM 13 sq.m

BALCONY

UP

+3450 ENTRY

6

GROUND FLOOR PLAN

VEGETABLE GARDEN 0.00

+600

0.00

UP

UP

KITCHEN 5.1 sq.m

DINING AREA 9.5 sq.m

LIVING AREA 30 sq.m

M.BEDROOM 10.5 sq.m

ENTRY

+150

5

OUTDOOR SEATING +600

VEGETABLE GARDEN

UP

0.00

3

1

2

4

FOOTPATH

GREENS

ROAD

N

TYPE A4 DEMONSTRATED CONSIDERING ALL CARDINAL DIRECTIONS

VARIANTS FOR SAME TYPOLGY FULLY COMPLIED WITH VASTU

Legend:
- Balcony/Garden
- Bedroom
- Kitchen
- Living Room
- Dining Room
- Toilet
- Utility

Ground | G + 1 | G + 2 | G + 3

N — WEST FACING PLOT

G + 3 | G + 2 | G + 1 | Ground

EAST FACING PLOT — **N**

NORTH FACING PLOT — **N**

Ground
G + 1
G + 2
G + 3

SOUTH FACING PLOT — **N**

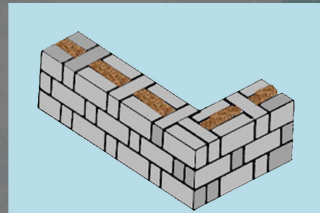
AMPLE AMOUNT OF NATURAL LIGHT IN THE INDOORS

PATTERNS FORMING INTERESTING SHADOWS MAKING INTERACTIVE SPACES EVEN MORE BEAUTIFUL

LOCAL MATERIALS
LIME STONE & WOOD - USED FOR EXTERNAL CLADDING. LIME STONE IS DURABLE AND EASILY AVAILABLE IN THE AREA

RAT-TRAP BOND
WITH COCONUT HUSK FILLER AS INSULATION
Fly-ash bricks in Rat-trap bond - Low cost and efficient brick bond

TERRACE GARDEN
Cool roof strategies to cut down the maximum heat entering from the roof
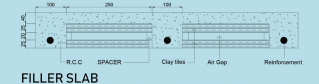
UNIVERSAL ACCESSIBILITY
Incremental lift provision
LIFT

COOL ROOF STRATEGIES TO CUT DOWN THE MAXIMUM HEAT INTO THE BUILDING

FILLER SLAB
R.C.C. | SPACER | Clay tiles | Air Gap | Reinforcement

CHINA MOSAIC TILES
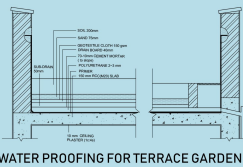
WATER PROOFING FOR TERRACE GARDEN

NORTH ELEVATION

SOUTHELEVATION

EAST ELEVATION

WEST ELEVATION

SOLAR PV & SOLAR THERMAL PANELS

HARVESTING PIT IN THE SET BACK

WATER MANAGEMENT
Step 1: Total water requirement for a residence of 10 occupants (Source: NBC)
- Drinking water = 5 L X 10 people = 50 LPD
- Domestic water = 70 L X 10 people = 700 LPD
- Flushing water = 40 L X 10 people = 400 LPD
- Hot water = 20 L X 10 people = 200 LPD
- Irrigation water = 0.5 x 500 SF = 250 LPD
- **Total = 1600 LPD**

Step 2: Amount of Rainwater that can be collected in a year
- Annual rainfall of Amaravati = 1067 mm
- Runoff areas (Area x coefficient x Annual rainfall) :
- Roof = 100 x 0.85 x 1067 = 90.6 KL / year
- Pavers =35 x 0.6 x 1067 = 22.4 KL / year
- Landscaping = 50 x 0.35 x 1067 = 18.6 KL / year
- Total = 131.7 KL/ year
- **Average per day = 131.7/365 = 0.36 KL = 3600 L**

Step 3: Size of Rain Water Harvesting pit required
- For Amaravati peak rainfall occurs in July i.e) 250 mm
- On one day it can be 250/15 days = 16.6 mm /day
- Maximum Flow on peak day
- Roof = 100 x 0.85 x 16.6 = 1.4 KL/day
- Pavers = 35 x 0.6 x 16.6 = 0.35 KL /day
- Landscaping = 50 x 0.35 x 16.6 = 0.3 KL/day
- Total = 2.05 KL/ day
- Percolation through one pit
- Percolation rate = 0.02 m/hr for 1 sqm space
- Assume pit size 2 x 2 = 4 sqm
- Percolation from 1 pit = 4 x 0.02 = 0.08 KL/hr
- Percolation in a day = 0.08 x 24 = 1.92 KL/day
- **No. of pits required = 2.05/1.92 = 1**

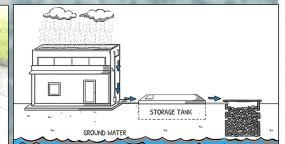## ELECTRICITY MANAGEMENT
PAYBACK PERIOD: 5 YEARS
Step 1: Solar PV Power generation
- Space requirement for 1 kW = 12 Sqm (Refered from solar PV catalogues)
- Total Space available = 60 Sq.m
- Possible Installed Solar P.V. size = 60 sqm/12 = 5 KW
- **Possible Annual power generation = 5 kW X 4.5 X 300 Days = 6750 kWh**

Step 2: Payback period for solar PV panels
- Annual Savings = 6750 kWh
- Let's assume electricity rate is Rs. 7 / kWh
- Savings = 6750 kWh X Rs. 7 = Rs. 47,250/–
- Solar PV Installation cost: 1 kW costs Rs. 80,000/-
- Total Installation cost = 5 kW X Rs. 80,000 = 4,00,000/-
- Pay back = Initial Cost / Annual Savings = 4,00,000/80,000 = 5 years

HOT WATER MANAGEMENT
PAYBACK PERIOD: 3.5 YEARS
Step 1: Total Hot water demand of the residence
- Total Population: Owners(5) + Tenants–2BHK (4) + Tenants–Studio Apartment(1) = 10 Occupants
- Hot water demand per person = 20 LPD (Source: NBC)
- **Total hot water demand = 10 x 20 = 200 LPD**
Step 2: Installation of solar thermal panels
- Area required for installation = Generally 0.03Sqm required for 1L
- **Total Space required for installation on roof top = 200 X 0.03 sqm = 6 sqm**
Step 3: Cost of Installation of solar thermal panels
- Cost for installation = Generally Rs. 250/1 L
- Cost for installation in the residence = 200 L X Rs. 250 = Rs.50,000/–
Step 4: Cost if conventional electric system is used
- If we use electric geyser 25L home geyser requires 2.5 kW electricity
- It takes 0.5 hrs to heat 25 L
- So, power consumption is 2.5 kW X 0.5 Hrs = 1.25 kWh for 25 L i.e. 0.05 kWh/L for a day
- Annual requirement = 0.05 kWh X 200 Days = 10 kWh/Year
- Total power requirement = 200 L X 10 kWh = 2000 kWh
- If electricity rate is Rs. 7/kWh
- Money spent is 2000 kWh X Rs.7 = Rs. 14,000/-
Step 5: Calculation of payback period
- Initial Cost: Rs. 50,000/-
- Annual Savings: Rs. 14,000/-
- Pay back: 50,000/14,000 = 3.57 Years