HOUSING

ARANYA HOUSING

(LOW COST HOUSING PROJECT)
INDORE, M.P, INDIA

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INTRODUCTION

- **Aranya** is a housing project of **Indore Development Authority (IDA)** primarily serving the **EWS** and other income groups.
- The master plan, prepared by the **Vastu-Shilpa Foundation** in **1983**, is designed around a central spine comprising the business district, and an agglomeration of **six self-contained neighborhoods**.
- It is situated on the **Delhi-Bombay highway**, **Six Kms** from the Centre of **Indore**.

- **Project Name** - Aranya Housing Project
- **Description** – Incremental Housing Project for different sections of society
- **Design** – Vastu-Shilpa Foundation (**B.V. Doshi**)
- **Year of Completion** – 1989
- **Site Area** – 85 Hectares (210 Acres)
- **Total Built-up Area** – 100,000 sq.m
- **Project Cost** – Rs. 100 million.
- **Award** – Aga Khan award for Architecture in 1996
- **Population** – 65000
- **Total no. of Plots** - 6500
- **In thirty years**, the entire fully developed township harmonizes the **virtues of choice, freedom and social togetherness**. As envisaged, the **EWS groups** emulate maximizing multiple uses of space with minimum of efforts.

ARANYA HOUSING

SITE

Location Plan of the site

ARANYA NAGAR

N

ACCESSIBILITY:

- ROADWAYS: Connected to the delhi-Bombay highway.
- RAILWAY STATION:indore junction-8km
- AIRPORT: devi ahilya bai holkar airport- 14 km

HOSPITAL:

- Vedant hospital – 1.2 km
- Synergy hospital -1.1 km

SCHOOL:

- St.Arnold H.S School – 1 km

MARKET

- Hatti super market- 1.2 km

GARDEN :

- Shehnai garden is connected with the complex

NEAREST RIVER: saraswati river

WHY THIS HOUSING PROJECT?

❖ The ideological basis for planning Aranya has been the following:

- ***Vitality*** – development to support socio-economic aspirations of the community.

- ***Imageability*** – builtform to impart identity and inculcate a sense of belonging amongst the inhabitants.

- ***Equity*** – to create equitable balanced community with satisfactory level of environmental qualities and opportunities for all

- ***Efficiency*** – to realize development that optimizes natural, material as well as human resources to the advantage of the user group.

- ***Flexibility*** – to evolve framework that absorbs with ease the progressive change and growth as a part of natural development process.

Site Plan of Aranya Township

ABOUT THE SITE

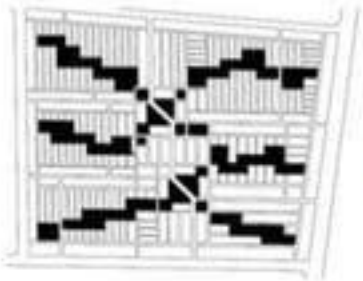
Aranya Housing consists of residential,commercial, institutional spaces that makes a complete Township

- AREA OF THE PROJECT:
  85 Hectares (210 acre)
- POPULATION:
  65000
- TOTAL NUMBER OF PLOTS:
  6500
- ENTRY/EXITS:
  The site is accessible from Agra Bombay highway towards east(60M road)and the main road(30M road)towards north.

Development of the Plan

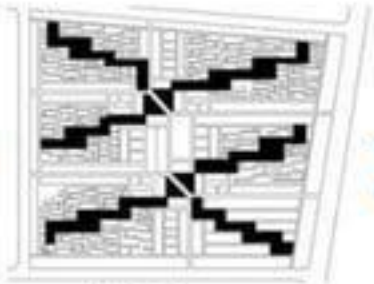
STAGE 1

Plan prepared by the IDA which was without any open space hierarchy, circulation systems and climatic considerations



STAGE 2

Initial stage of the proposed plan with distributed open spaces and street hierarchy



STAGE 3

Later stage plan with rectified orientation to decrease heat gain and increase natural shading

STAGE 4

Proposed master plan with interlinked open spaces, built form, distributed amenities, road hierarchy and climate friendly

SITE PLANNING

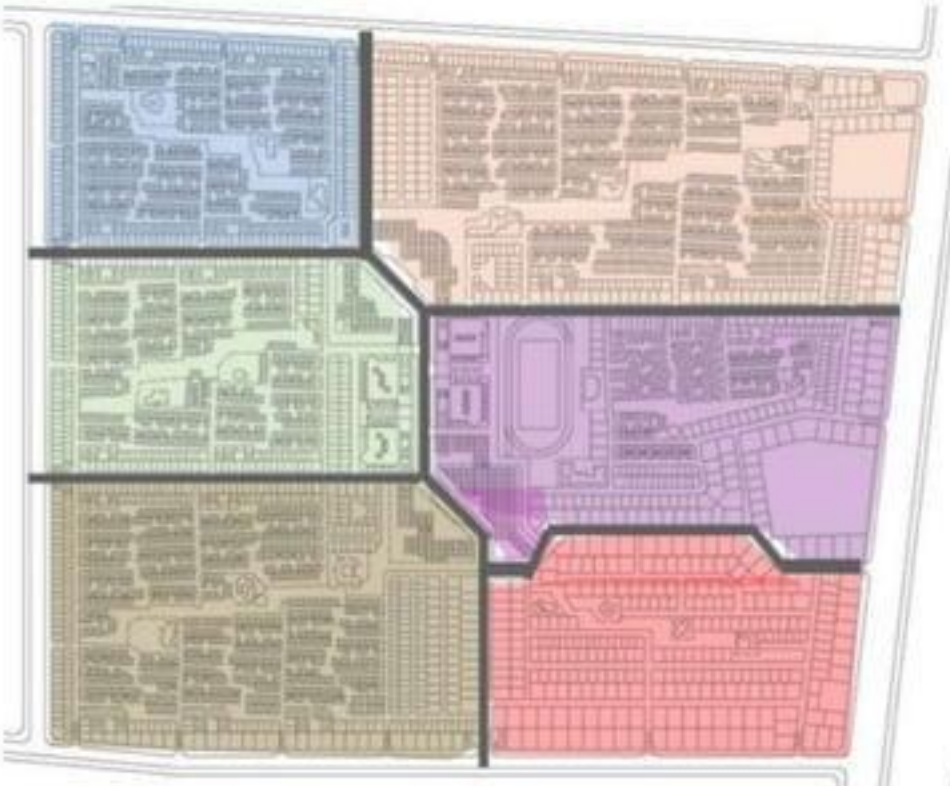
•The site is divided into six parts by the roads

•Each part/sector has residential clusters,community spaces,a set of road networks and services and green spaces

•Each sector has residential clusters of majorly 4 types of housing groups:

1. EWS
2. LIG
3. MIG
4. HIG

- The central spine area is meant for the commercial and institutional land use.



PLAN SHOWING DIVISION OF SECTORS VIA ROAD NETWORK

HOUSING TYPOLOGY AT ARANYA

GREEN AREA

COMMERCIAL+INSTITUTIONAL

Plan :Housing typology

EWS 1,2,3
4262 PLOTS= 65.1%
PLOT AREA=35-45M SQ

LIG 1,2,3
1095 PLOTS=16.7%
PLOT AREA=55-95 MSQ

MIG 1,2
891 PLOTS=13.5 %
PLOT AREA= 140-220M SQ

HIG 1,2
255 PLOTS=4.4%
PLOT AREA= 325-450 MSQ

FLATS
40 PLOTS=0.5%
PLOT AREA=618M SQ

LAND USE DISTRIBUTION

LAND USE	AREA(IN HECTARES)	PERCENTAGE
Net planning area	86.24	100
Residential area	50.17	58.17
Shopping/ commercial centers	2.8	3.25
School and community	5.8	6.7
Road area	20.29	23.52
Open spaces • Public area • Service slots	6 1.5 =7.5	6.8 1.33 =8.16

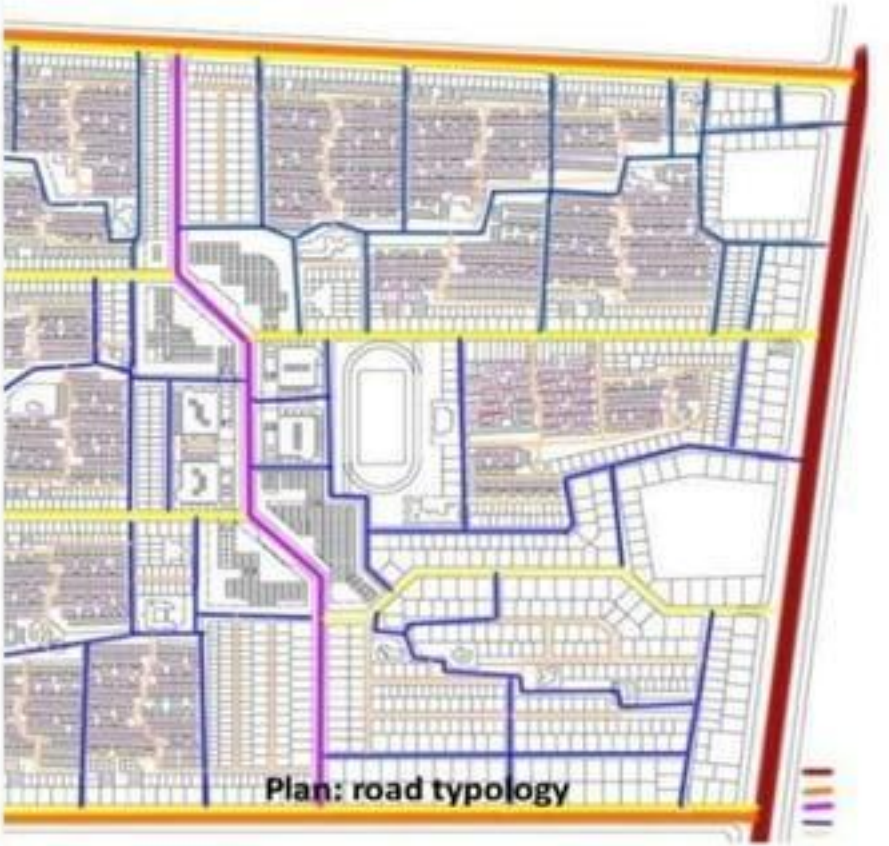
TRANSPORTATION NETWORK

TYPES OF ROAD SYSTEMS

- 60M :it is the metaled national highway on east, connecting the site to Indore city.
- 30M : it is the metaled city road forming the boundary on the north, south and east of the site.
- 15M:the central spine road linking the town center to the other parts of Aranya.

The road connects the 30m road on the north and the south

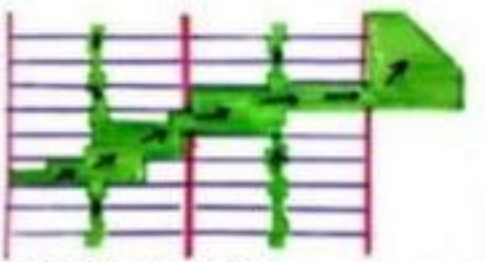
- 12M : it is forming the boundary of the six sectors of township.
- 9.5M: the stone paved access road to blocks from sector road to plot.
- 4.5M: stone paved internal streets in front of the plots.
- 1.5M: stone paved pedestrian path in green area.



ROAD CONNECTIVITY :SECTOR LEVEL

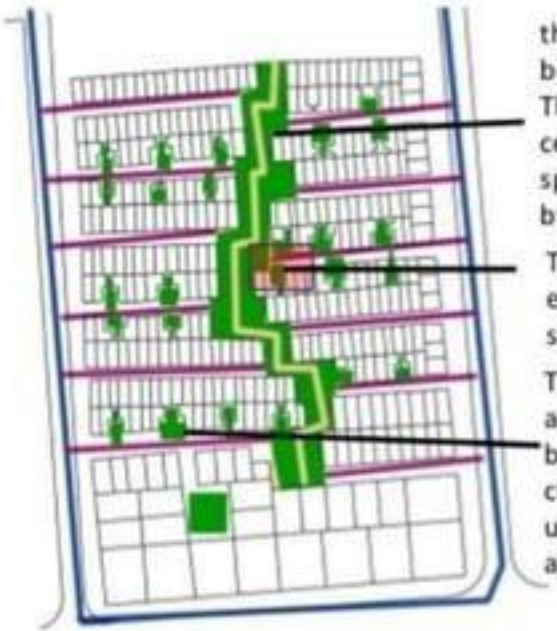
Plan: road typology of a sector

- Each sector is surrounded by the 12M road .
- The 9M road further divides the sector into small clusters of EWS,LIG,MIG and HIG housing groups.
- The LIG,MIG and HIG are located along 12M and 9M roads while the EWS are located along 4.5M roads



Sketch showing the connectivity of the green spaces with the roads

ROAD CONNECTIVITY : CLUSTER LEVEL (EWS)



the green spaces in between the blocks. These are linked to central spine by green spaces that are used by the communities .

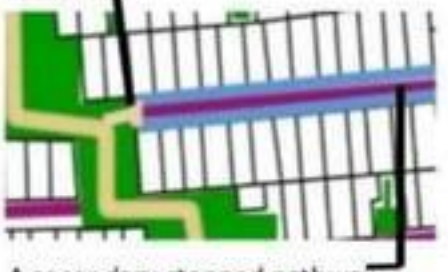
The cul-de-sacs at every cluster is the same.

The service cores are present in between the clusters that can be used for communal activities

4.5M 1.5M 9.5M

Plan: cluster level roads

The walkways running along the green spaces meet the 4.5m road at the cul de sac square

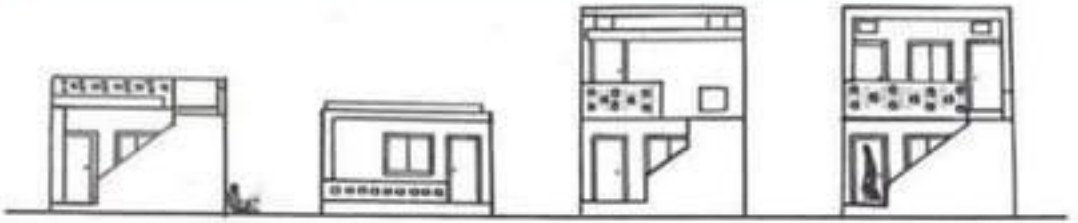


A secondary stepped pathway runs along the 4.5m road allowing the pedestrians to access the house. Thus the vehicular and the pedestrian movement are segregated.

1.5M walkway → Stepped pathway → house

Detail at

HOUSING TYPOLOGY FOR EWS GROUP



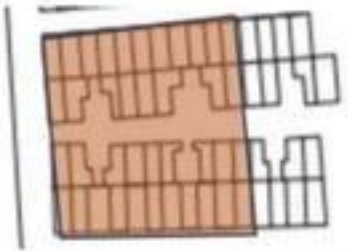
The house basically consists of a verandah ,2 rooms,kitchen and the main service core-toilet and the bathroom

The types only differ by the number of floors and the types of the stairs

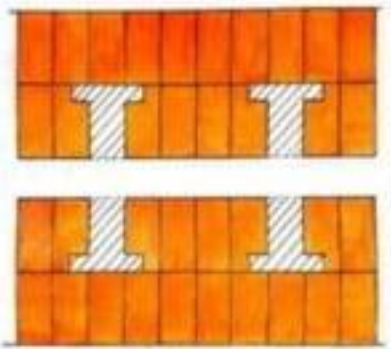
PLANNING OF UNITS

- The major house plans included a verandah(otla),a living room,followed by a kitchen.The toilets were provided at back of the house.
- Most houses were provided with an additional access at the back,that allowed them to keep animals,a vehicle or even renting out that part of the house for income.
- ten houses formed a cluster that opened into a street.
- The courtyard at the back opened into the open space of the cluster and was used as a play area and service area.

PLANNING OF CLUSTERS

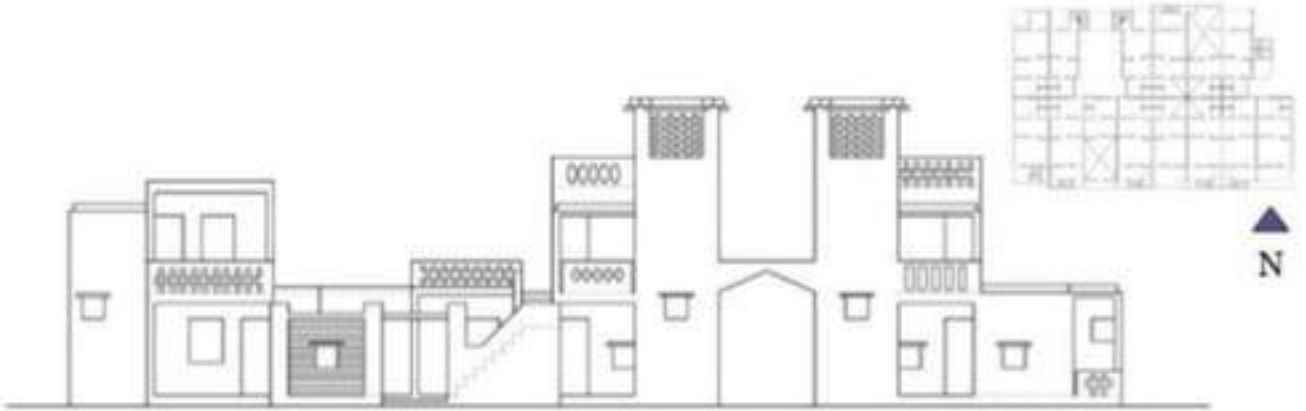


PLAN OF EWS CLUSTERS

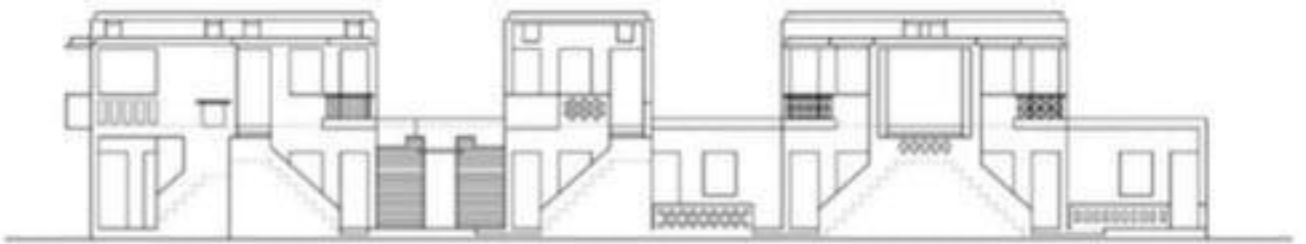


PLAN OF 4 EWS CLUSTERS

PLAN OF 1 EWS CLUSTER: each cluster has 9-10 housing units and each clusters has different types of house plan within the same plot area.



NORTH ELEVATION



SOUTH ELEVATION

INCREMENTAL HOUSING CONCEPT

- Incremental housing is a step by step process. Fundamentally it is an integral urban development process or building house communities.
- It is not quick ,immediate or complete but choice remains with the owner.
- It starts with a starter core shelter which could be a multipurpose room with kitchen and bathing facilities.
- The owner controls the expansion of their housing based on their needs and resources

STEP 1

The starter core shelter included the toilet and the kitchen

STEP 2

the addition of a room to the core shelter

STEP 3

Addition of optional unit to the previous space of the house

STEP 4

Addition of staircase and the terrace to step 3

STEP 5

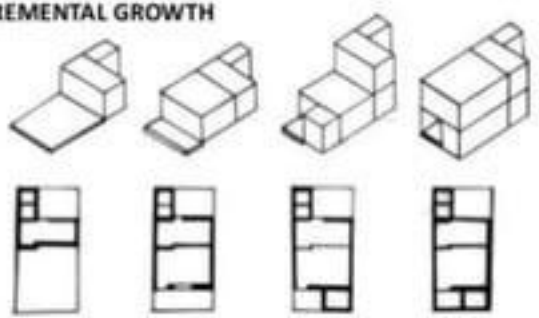
Addition of rooms on the first floor

STEP 6

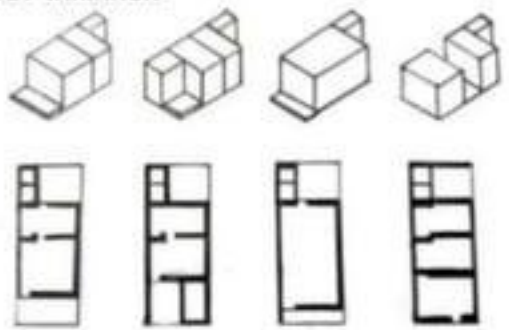
The final cluster creating a housing community

The incremental housing concept of aranya

INCREMENTAL GROWTH



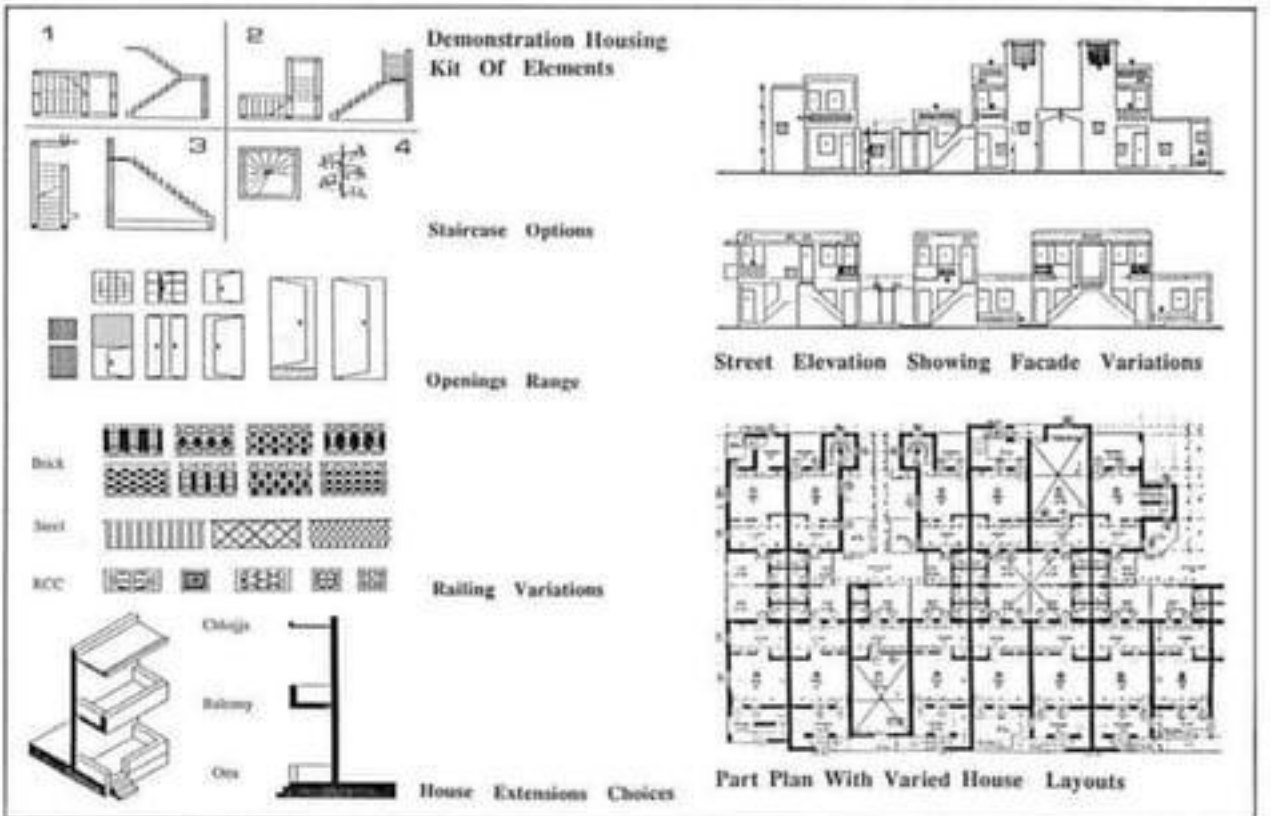
LAYOUT VARIATION



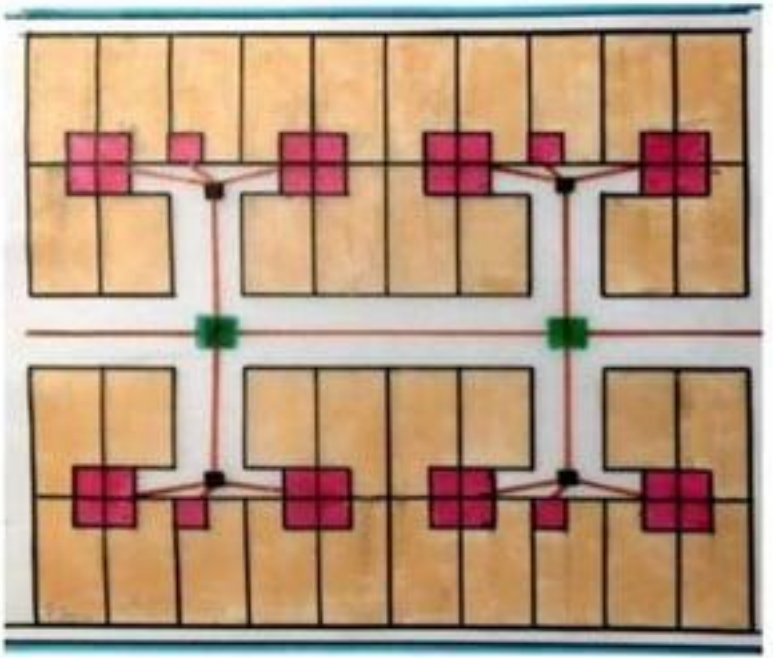
The clusters are so designed that the Users have the flexibility to choose how they wish to design their spaces.
They can increase their spaces by constructing another floor thus the space of the house can accommodate more people and activities as per the users need

SERVICE SLOTS
The service slots provided can be used for the children to play and can also be used as a space for temples or platforms for small gatherings.

TYPICAL DETAILS



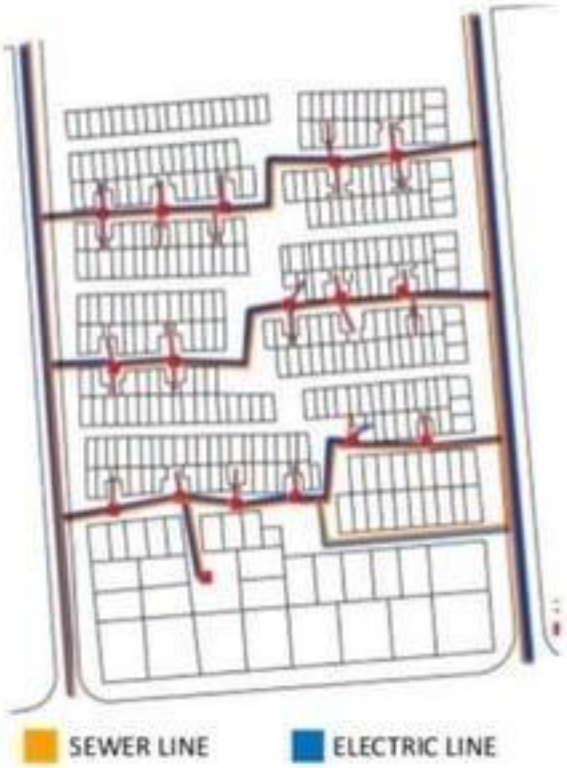
SERVICES



Plan of 4 cluster of EWS showing the sewer system

- A conventional sewage system was developed for the township, the natural slope of the site was in north west direction
- A cluster of 9 – 10 houses were connected to 1 inspection chamber and 18-20 houses to one septic tank.
- A well and a lift station were provided near the final manhole that discharges the waste water into the treatment plant,
- An oxidation pond on the north west corner of the site where the natural slope helped in collecting the sewage and was suitable for the predominant south west wind direction to avoid odour pollution.

SERVICES



Plan showing the sewer and electric line

•The system adopted for storm water drainage was a combination of an underground storm water system in wider roads and surface drainage on internal roads where ground slopes were effectively used. The road section dropped below ground level by six inches, allowing it to act as the drain.

ELECTRIC SUPPLY:

- HIG and MIG were provided with overhead cables.
- LOW PILFERAGE WAS installed in EWS and LIG areas

Section through a street showing the storm water drain

CONSTRUCTION TECHNIQUES

PLASTERED WALLS AND SIMPLE JAALI ARE USED IN THESE HOUSES

STONE PAVED STREETS

FOUNDATION-¡under reamed piles in concrete ,cast in situ locally used as the soil is black cotton soil.
Low cost undreamed CRC piles were built for the core house.(bathroom and the toilet) and the residents were provided with ready built foundations.

STRUCTURAL MEMBERS-¡reinforced concrete plinth beams ,load bearing brick walls,reinforced concrete slabs.

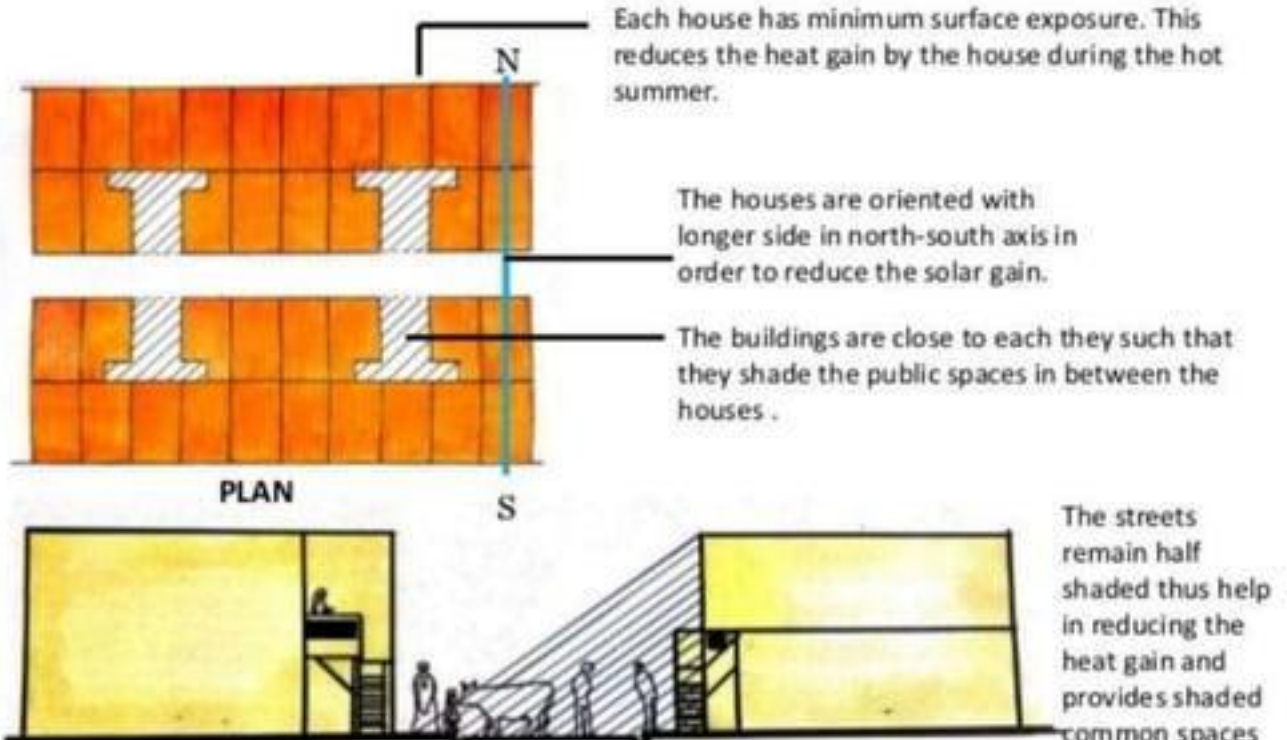
ROOFING:RCC slab plastered and painted.

EXTERIOR FINISHES-¡bright color in the façade ,railing ,grills and cornices in these houses.
The doors,windows,and grills were made by the residents on site.
The walls were plastered and painted.

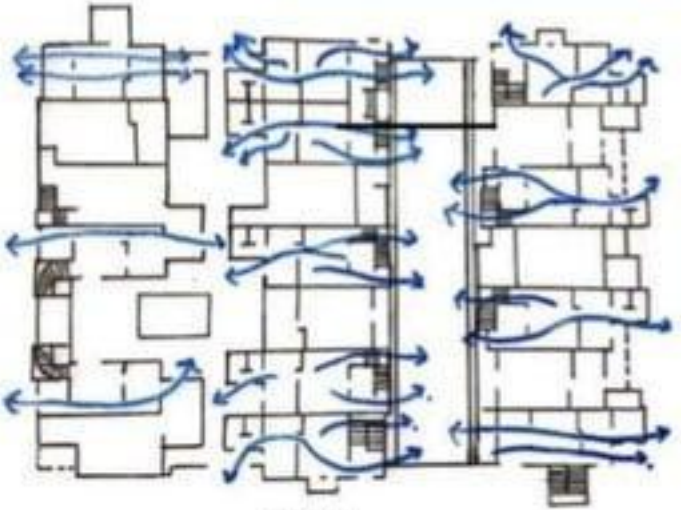
SEPTIC TANKS AND MANHOLE: corbelled brick manholes.

STREETS: the internal roads and streets are are stone paved since they are not meant for heavy vehicular loads.
Only the main roads are asphalt paved for heavy traffic

CLIMATE RESPONSIVE FEATURES



AIR CIRCULATIONS



PLAN

SECTION

The openings at the front and back of the houses helps for maximum air flow thus improving the ventilation .
They also use jaalis for air flow

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THANK YOU ...