

INTRODUCTION

SUSTAINABLE ARCHITECTURE

Sustainable architecture is an approach to designing buildings that aim to minimize environmental impact while enhancing occupants' health and well-being. It involves using eco-friendly materials, energy-efficient systems, optimizing site orientation for natural lighting and ventilation, and considering long-term environmental and social impacts throughout the building's lifecycle.

AIM

The aim of building sustainable buildings is to reduce environmental impact, conserve resources, improve occupant health and well-being, and promote long-term economic viability. This involves incorporating eco-friendly materials, energy-efficient systems, and thoughtful design to minimize carbon footprint and enhance overall sustainability.

OBJECTIVE

Achieving the goal of :

- Designing and building homes while adhering to the principles of affordable , sustainable , and environmentally conscious housing.
- To provide housing and promote low carbon-urbanization.
- To develop a sense of community engagement through shared spaces.
- To promote and foster sustainable building practices.

INFERENCES

- HIVE house designed by Opendias Architects is an adaptable and sustainable family home at Surat, Gujarat.
- Mud house in Faridabad designed by Kamath Design Studios use sustainable, local materials and promote natural ventilation and temperature regulation.
- CDS uses passive design principles to reduce energy consumption.
- Building orientation maximizes natural light.

CONCEPT



We draw inspiration from the ingenuity of nature and bees.. Honey comb aspire to be a model for sustainable, space-efficient living. Utilizing hexagonal honeycomb design to maximize space and making strong , stable structure.

Hexagonal shape of a unit of honey comb maximizes space usage. It promote shared resources and activities for a sense of community. Designing communal spaces to encourage interaction and collaboration among people. This helps in strong and earthquake-resistant construction.



Taking all the things in consideration , we tend to develop a residential building derived from the concept of biomimicry as honey comb. This building gives the sense of community involvement and shared spaces.



KUTUMBH

SITE CONTEXT



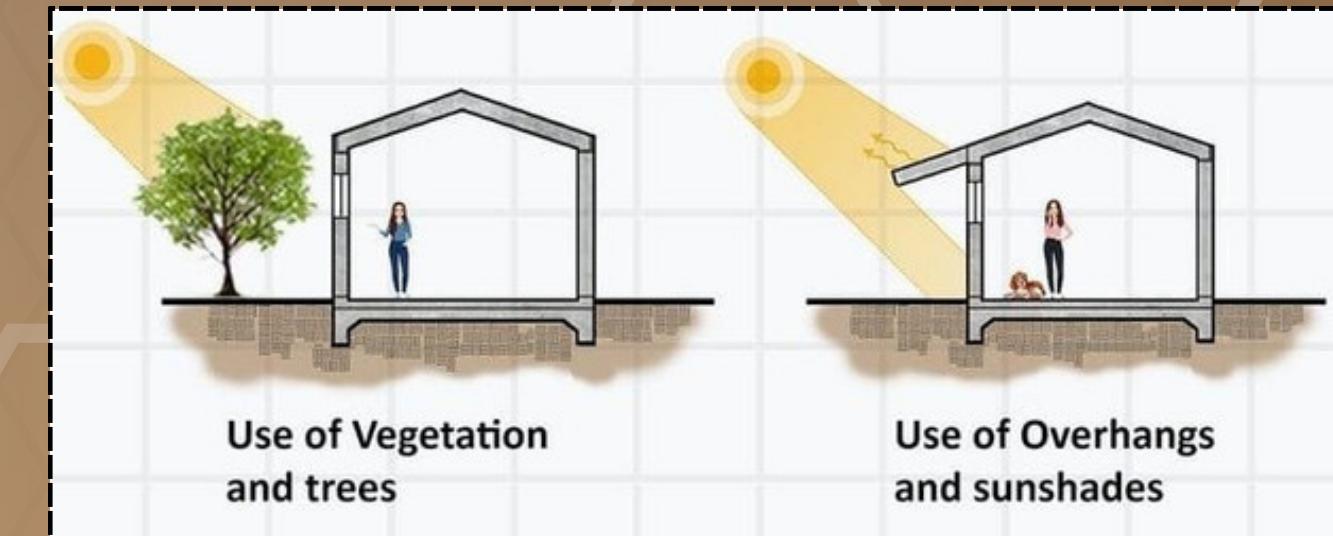
Orientation of our site is in north-east direction . Site will receive a good amount of morning sunlight. This will also help in active and passive designing methods of a building. This shows the shadow pattern of housing in Agra



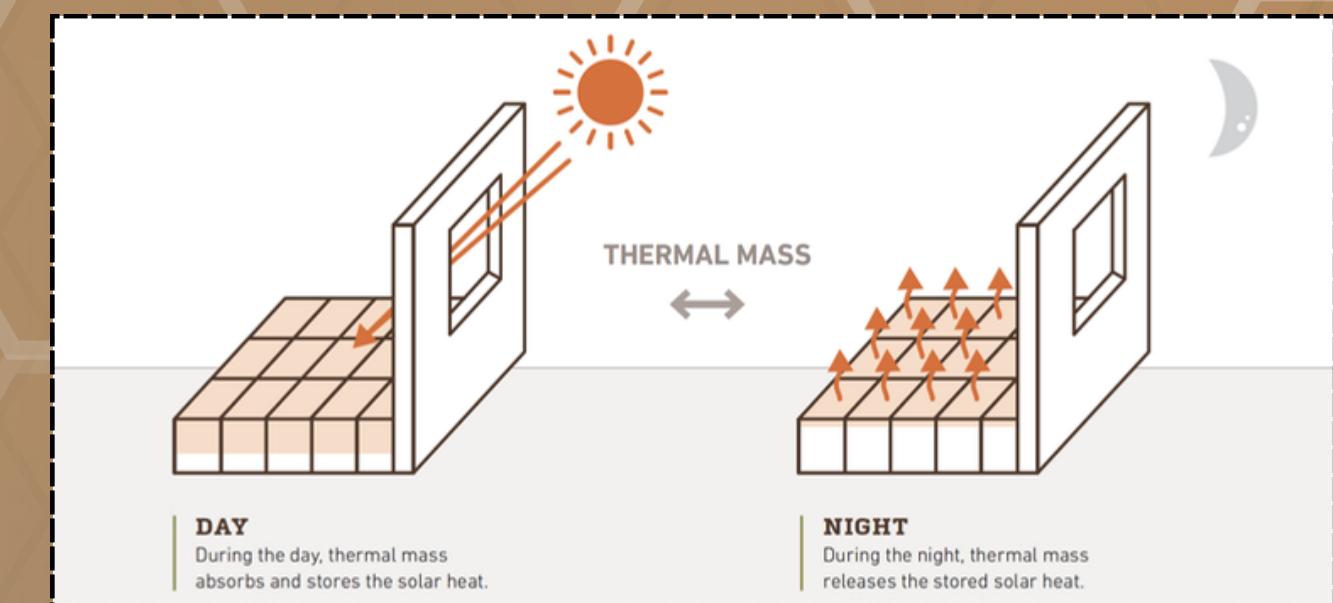
CLIMATE

Agra experiences an extreme climate with hot summers and cold winters. It is rich in various types of soils. Summers in Agra starts from March and lasts till June end Monsoons reaches Agra in July and lasts till September. Winters stays in Agra from December to February.

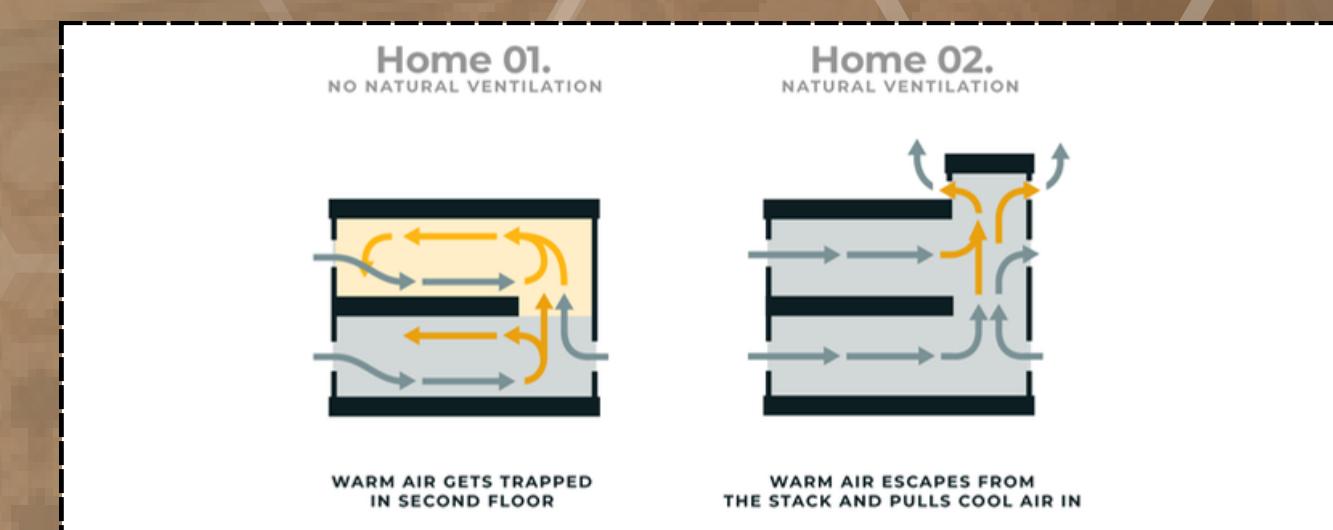
DESIGN COUNSEL



To reduce the sun radiation using active and passive methods of cooling



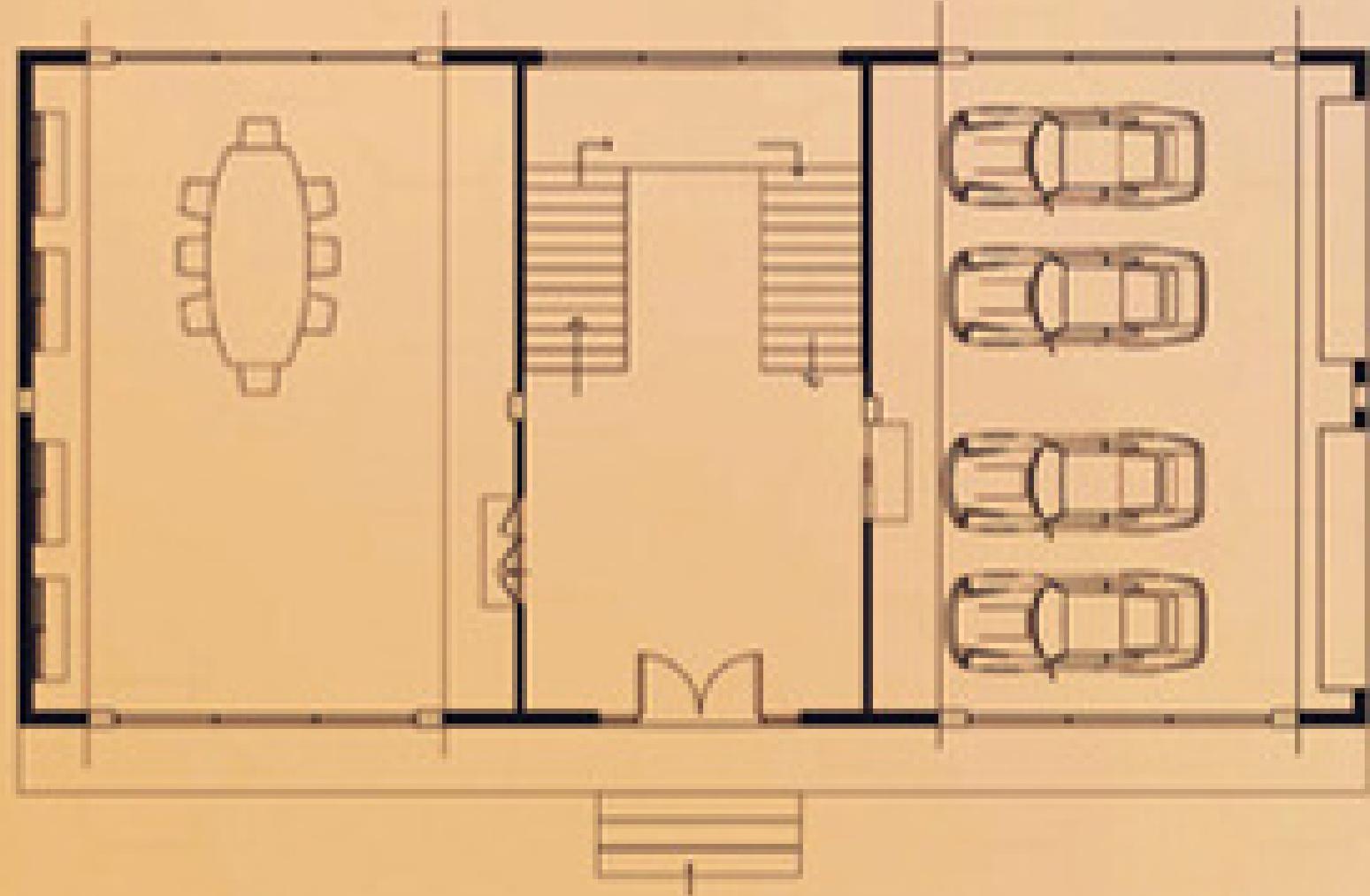
Use higher mass interior surface , to trap winter passive sun and also to summer night cool.



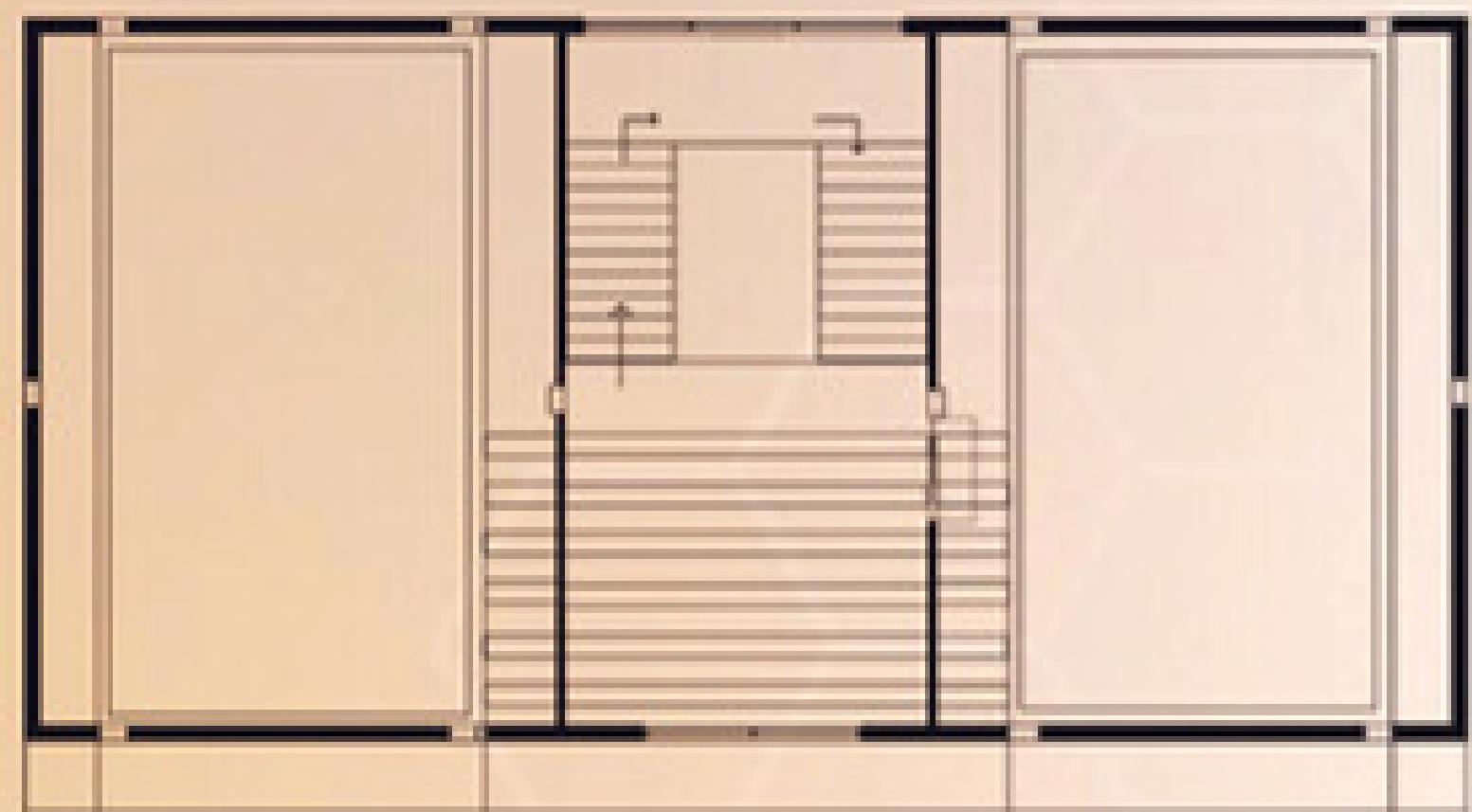
Good natural ventilation reduces air conditioning in warm weather, hence reduces costs.

Team :
Urbanutopians

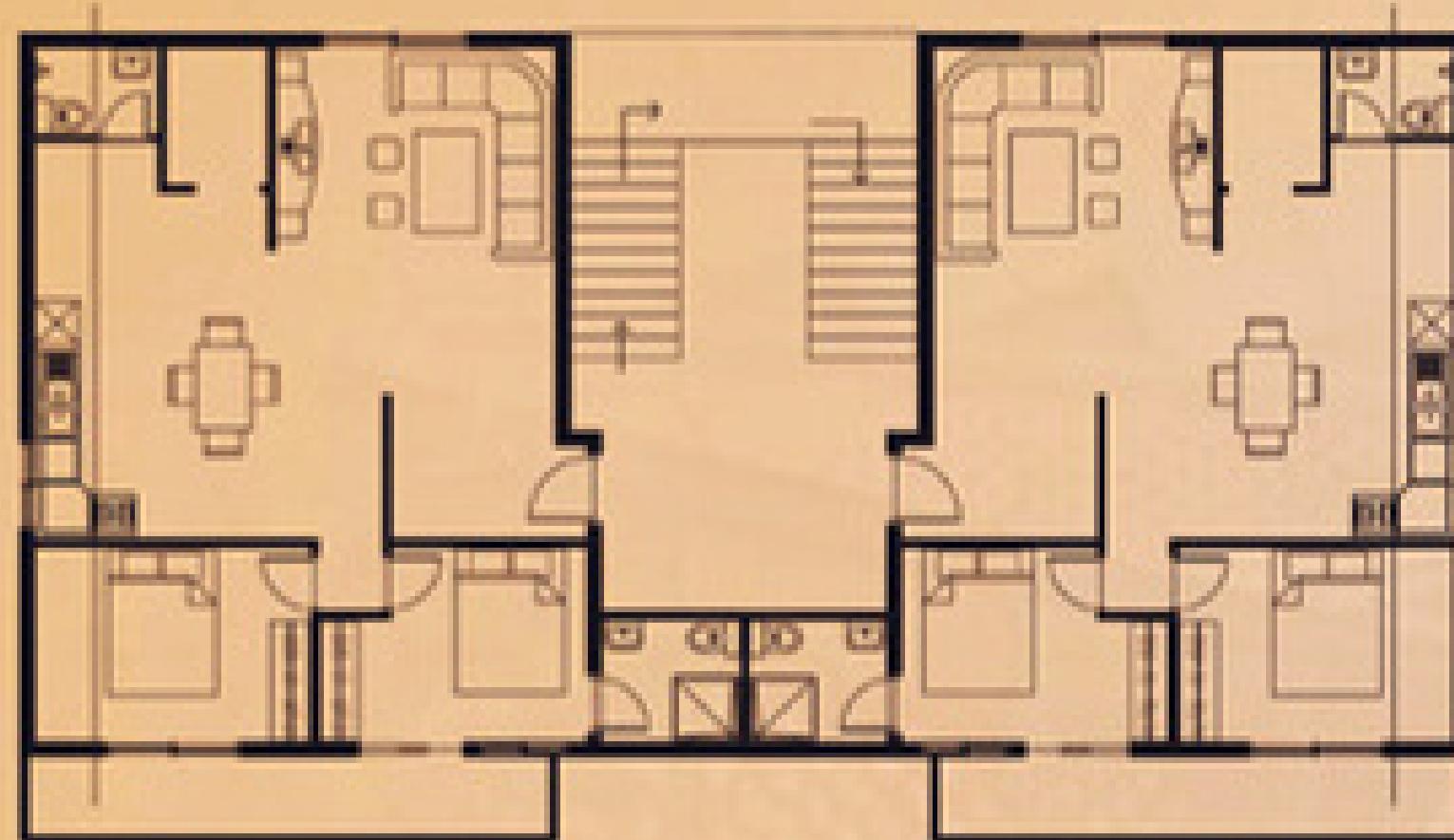
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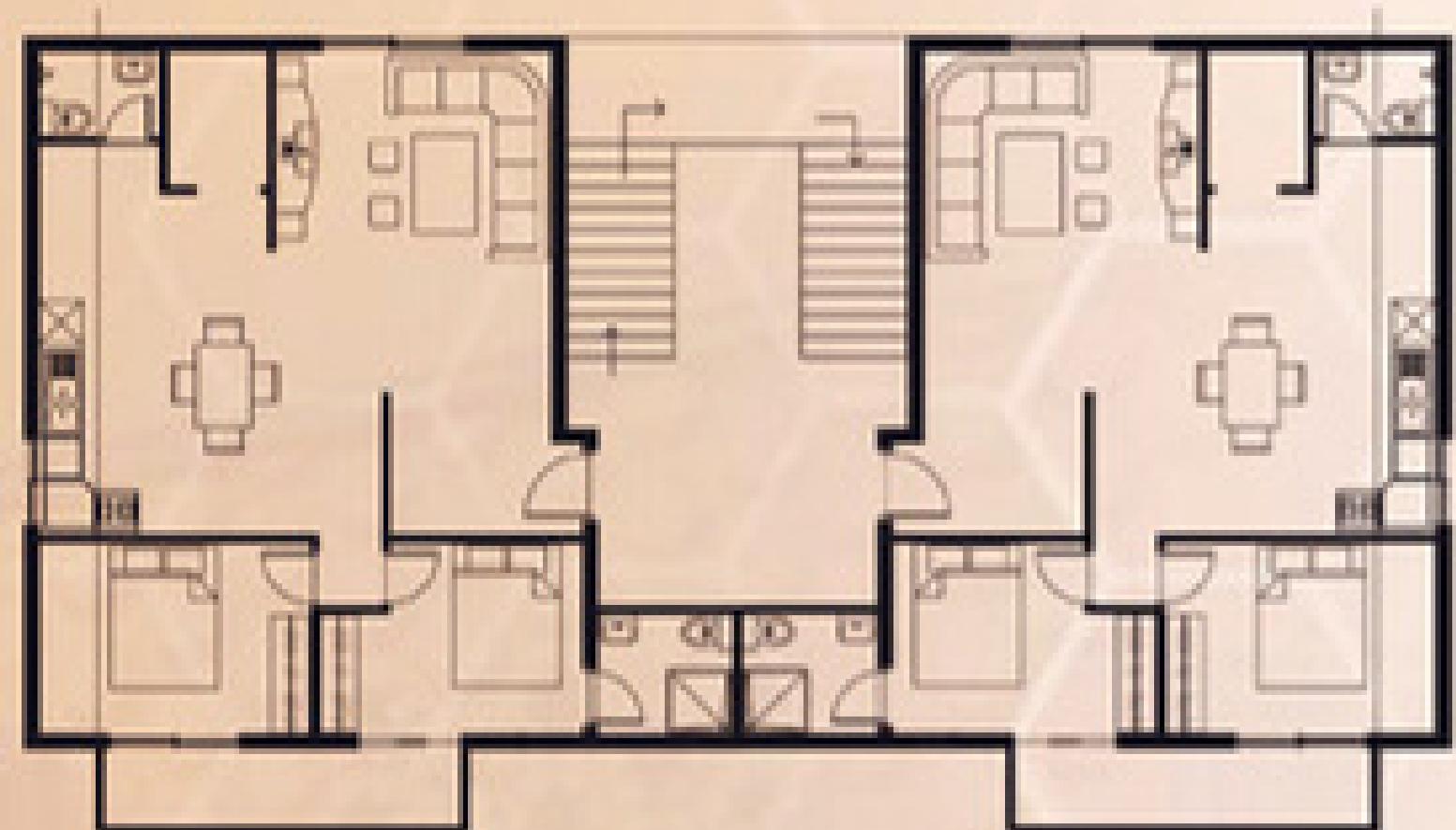
GROUND FLOOR PLAN



THIRD FLOOR PLAN (ROOF)



FIRST FLOOR PLAN



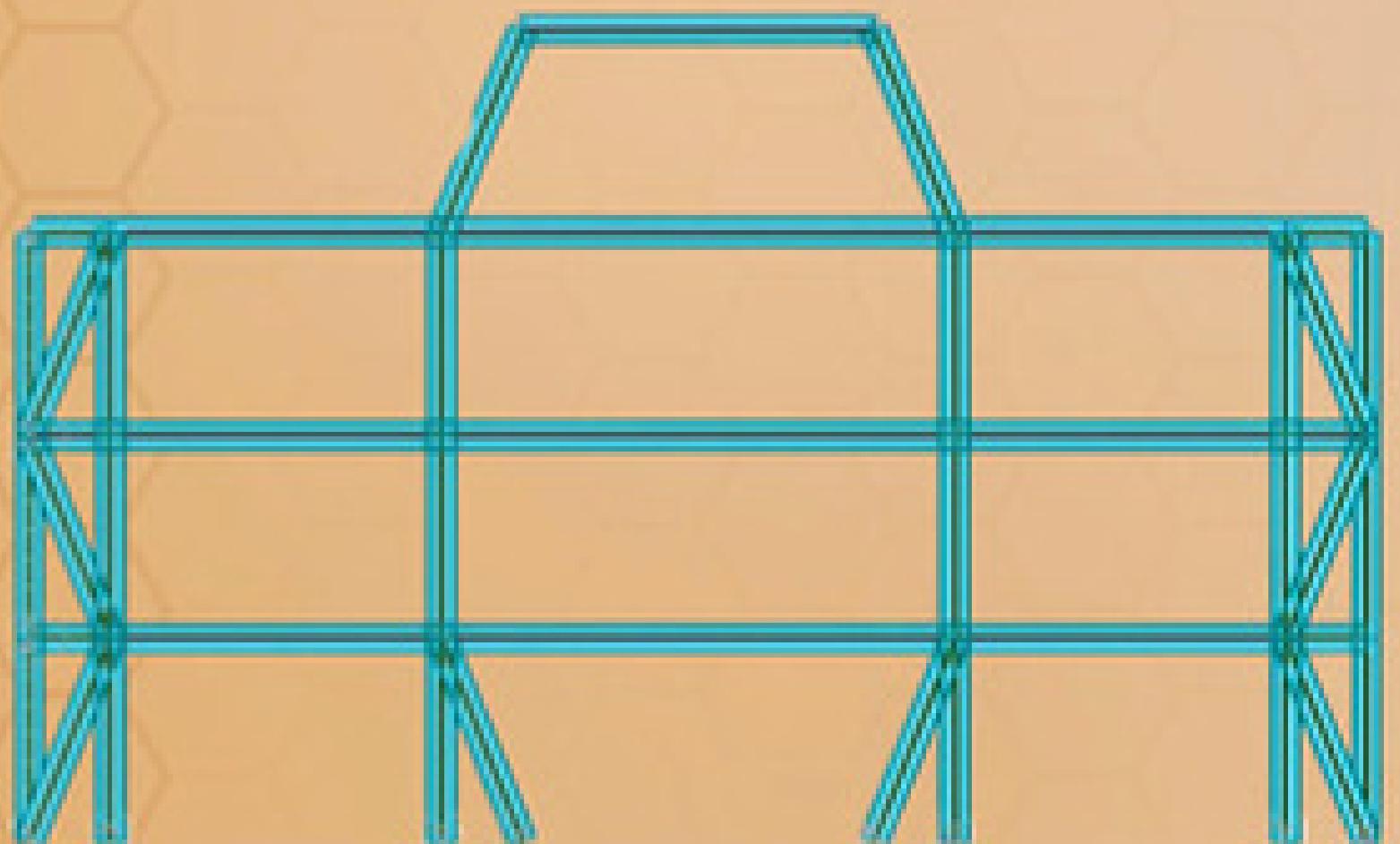
SECOND FLOOR PLAN

KUTUMBH

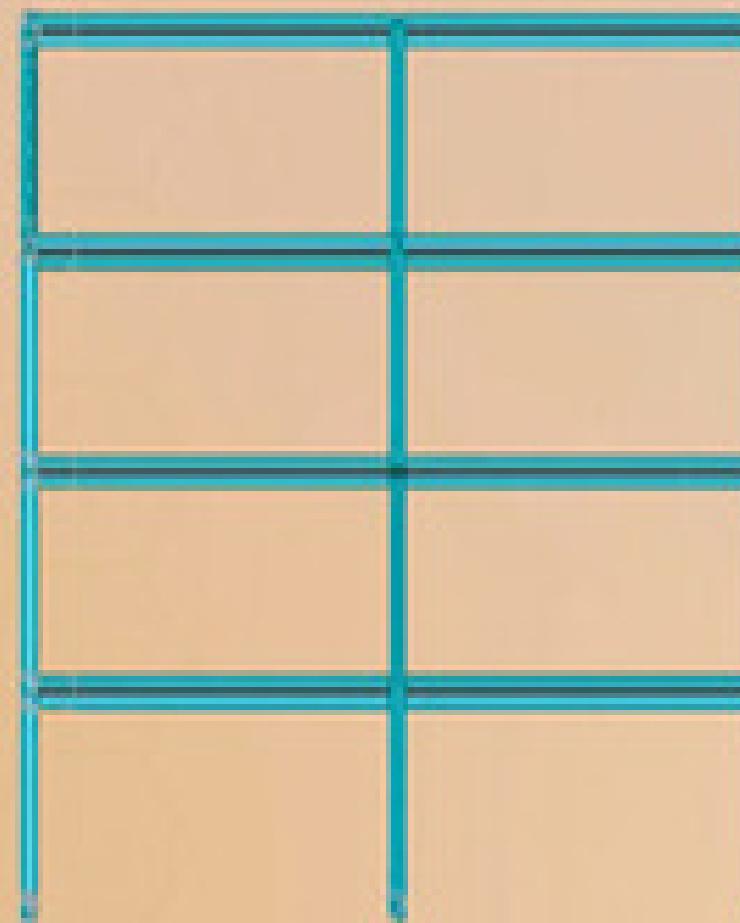
SCALE - 1:100

Team:
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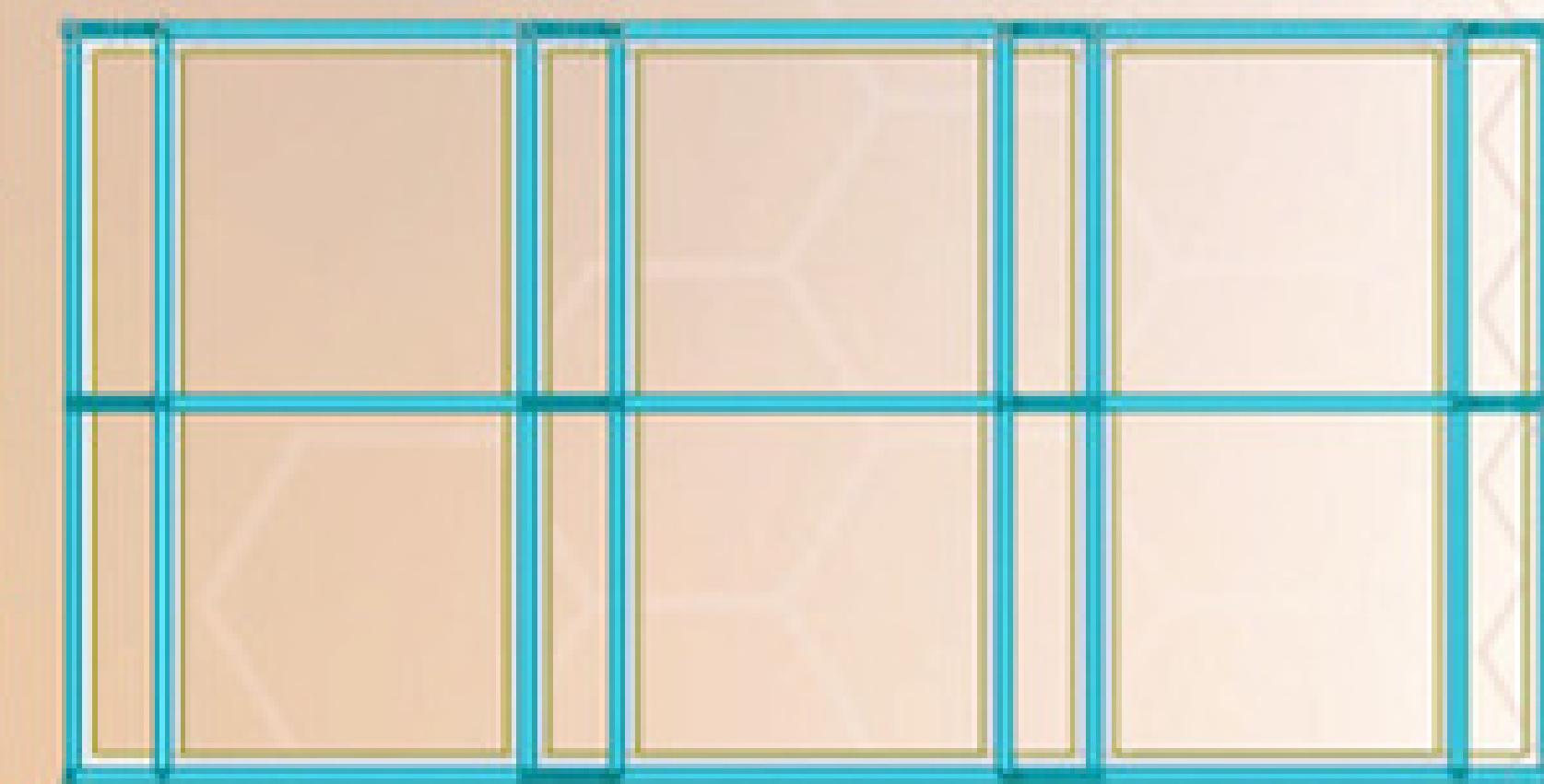
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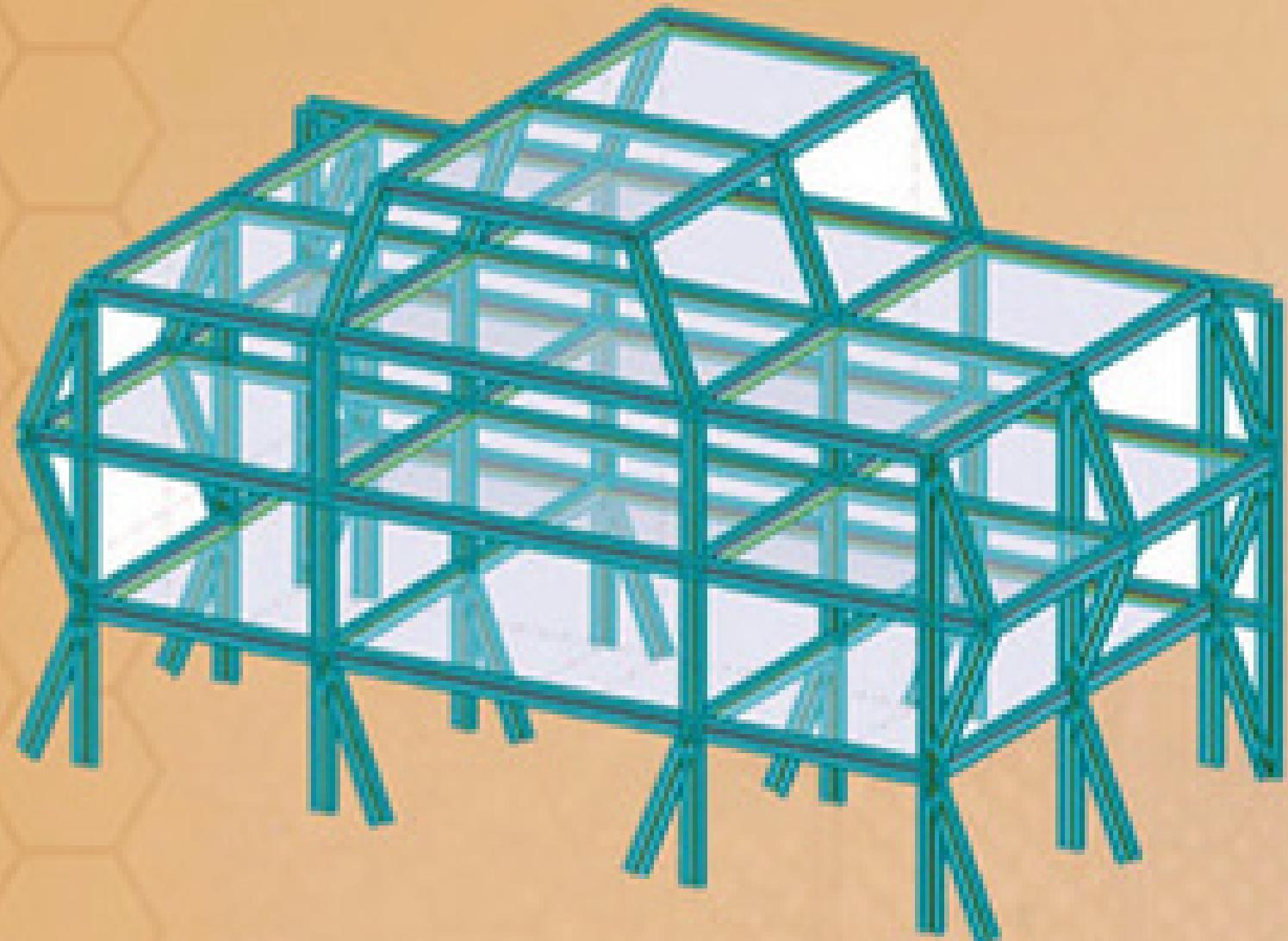
FRONT ELEVATION



SIDE ELEVATION



TOP PLAN



KUTUMBH STRUCTURAL DETAILS

ANTI SKID TILES

- Affordable
- Easy Installation
- Low maintenance



STEEL STRUCTURE

- Recycled repeatedly
- Less maintenance
- Strong but lightweight.



ALU GRILLS

- Light weight
- Affordable
- Easy installation
- Recyclable
- Easy Transportation



COMPRESSED MUD BLOCKS

- Low-cost and low embodied energy.
- Excellent thermal mass
- Fire-resistant.
- Good acoustic insulation.

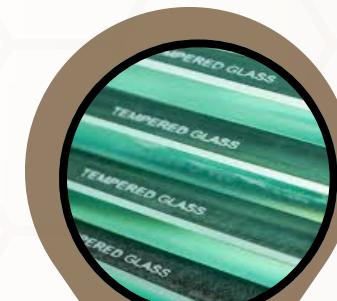
EARTHBAGS

- Highly versatile.
- Can be self-built on-site



LOW VOC PAINTS

- Enhanced indoor air quality
- Reduces toxic fumes

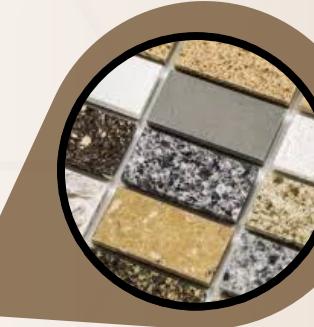


TEMPERED GLASS

- Thermal shock resistance
- Good Strength
- Safety Conscious

TRANSLUCENT WOOD

- Natural light transmission
- Energy efficiency
- Unique aesthetic

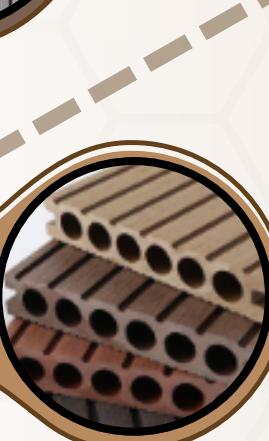


COMPOSITE GRANITE

- Durable
- Stain Resistance
- Scratch Resistance

RECYCLED PLASTIC LUMBER

- Durable and weather-resistance
- Low maintenance
- Versatility in various shapes



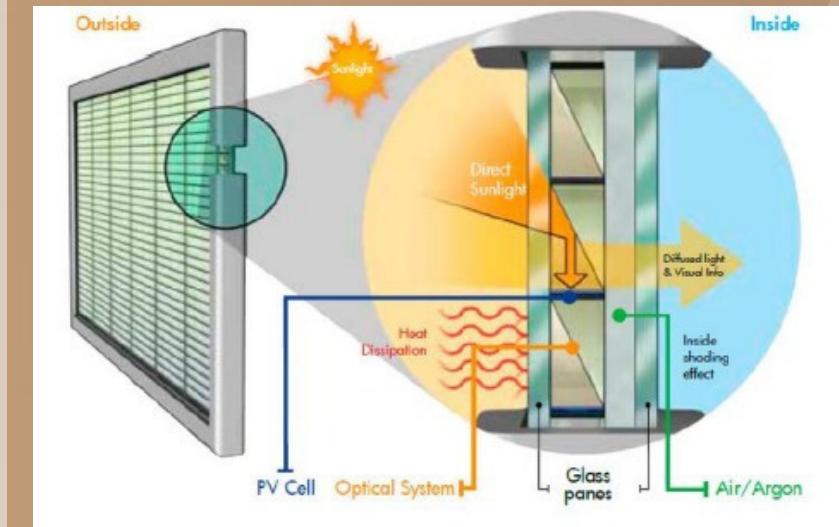
HPL DOORS

- Heat Resistance
- Scratch resistance
- Suitable for various situations.



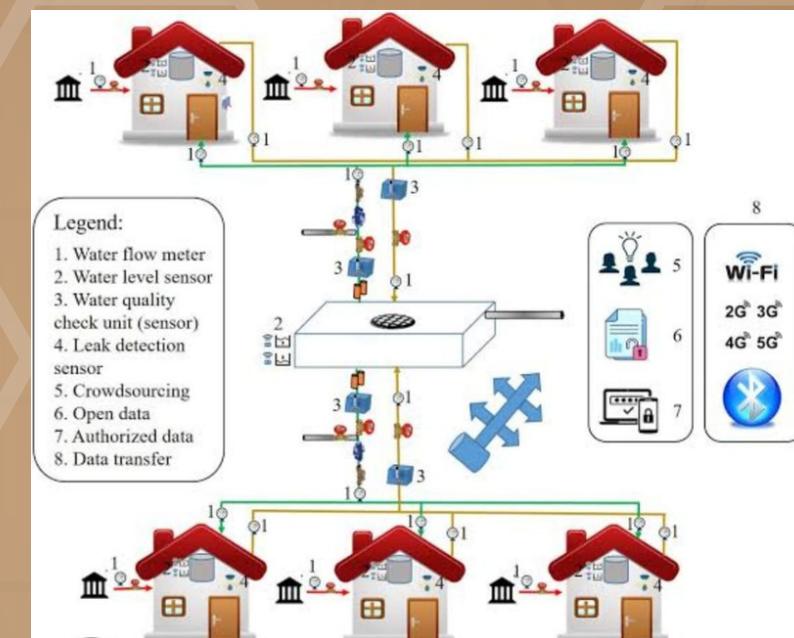
HEMPCRETE BLOCKS

- Excellent insulation for good thermal performance
- Breathable material
- Lightweight



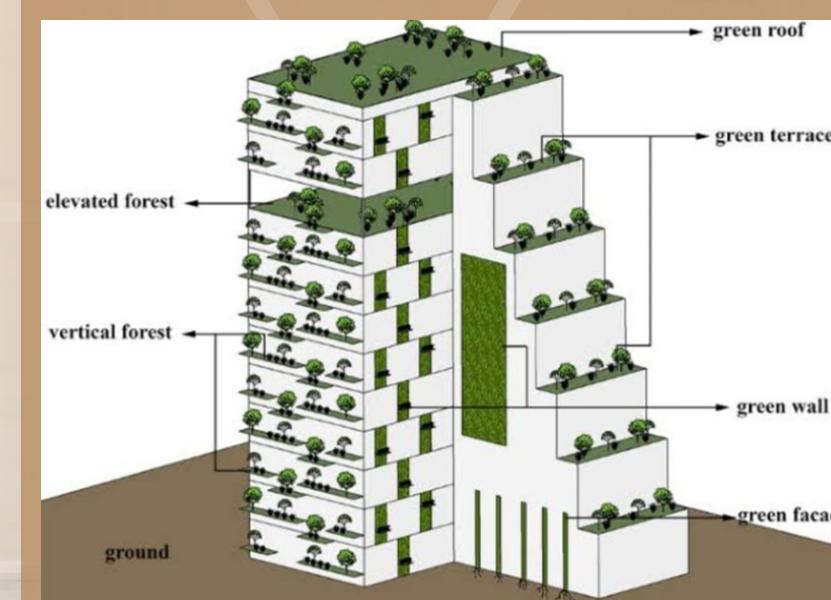
PHOTOVOLTAIC CURTAIN WALLS

- Solar panels are durable.
- BIPV panels are versatile. (stronger, adaptable designs)
- Solar energy in buildings is innovative.
- Solar houses can be highly efficient



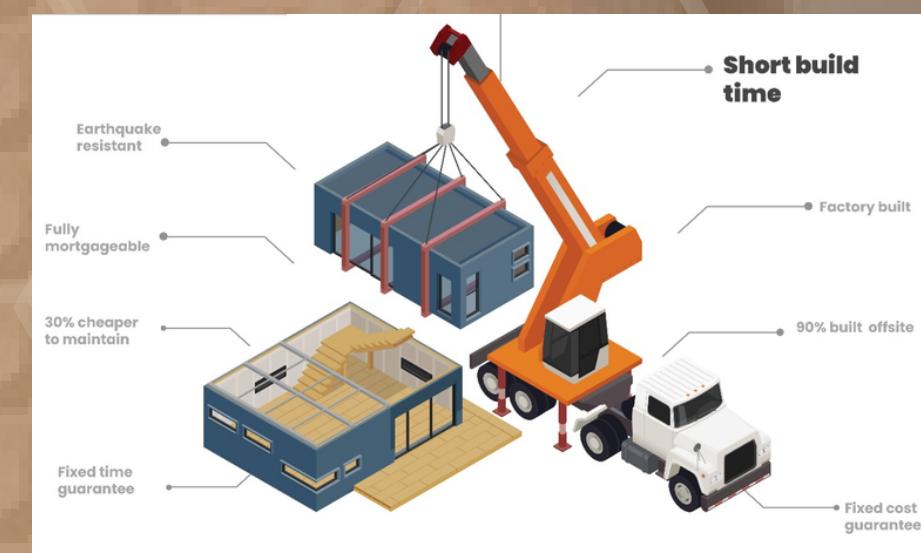
SMART RAINWATER HARVESTING SYSTEM

- Improving efficiency of water harvesting .
- Anticipate water related natural disasters
- Collecting valuable data.
- Prediction based on useful data.
- Lowering water costs and reducing water bills.



VERTICAL GARDENING

- Improved Air Quality
- Increased Biodiversity
- Mitigated Urban Heat Island Effect
- Enhanced Insulation
- Aesthetic Appeal
- Urban Farming
- Lower Carbon Footprint



PREFABRICATED CONSTRUCTION

- Reduced waste
- Improved energy efficiency
- Reduced carbon footprint
- Improved sustainability
- Cost savings
- Improved safety

MATERIALS AND FEATURES

Team :
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