Ms

by Raj Kumar

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THE HOUSING MODEL OF 21ST CENTURY

A Thesis Submitted
In Partial Fulfillment of the Requirements
for The Degree of

MASTER OF ARCHITECTURE
In
Field of Architecture (General)

SUBMITTED BY
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SCHOOL OF ARCHITECTURE
BABU BANARASI DAS UNIVERSITY, LUCKNOW
JUNE, 2022

THE HOUSING MODEL OF 21ST CENTURY

DECLARATION

This dissertation, entitled "HOUSING MODEL OF 21ST CENTURY" is being submitted in subject in Research Principles and Dissertation' as pan of requirement for third year of Master of Architecture by the undersigned for evaluation. The matter embodied in this dissertation is compilation of others' work, acknowledged properly. It in future, it is found that the above statement is false, then the institute may take any action against me as per rules.

DATE:
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M. ARCH
(2019-2022)
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CERTIFICATE

This is to certify that the work presented in the thesis project titled "HOUSING MODEL OF 21ST CENTURY" by Rajkumar (roll no.-1190109012) in partial fulfillment of the requirement for the award of Master of Architecture of Babu Banarasi das University, Lucknow is an authentic work carried out under my supervision and guidance.

To the best of my knowledge, the content of the report does not form a basis for the award of my previous Degree to anyone else.

Signature:

Ar. Aanshul Singh
Professor
Babu Banarasi Das University,
Lucknow.
Date:

Signature:

External Examiner
Date:

ACKNOWLEDGEMENT

Knowledge is expression of experience gained in life. It is the choicest possession that should be happily shared with others. In this regard I feel great pleasure in submitting this dissertation on "Housing Model Of 21st century". During this project I received a lot of help, advice and co-operation from our esteemed faculty and other distinguished persons. I wish to express my profound sense of gratitude to PROF Aanshul Singh. For their valuable guidance through the course of project without whose encouragement the project wouldn't have been a success.

I am grateful to my parents for their support and all those who have directly or indirectly helped me during the dissertation report.

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M.ARCH(Gen) 3rd year, VITH SEM. part time,
MAY.2022

Abstract—

As India gears up for rapid growth, the pace of urbanization in India is set to accelerate. In 2010, about 31% of India's population was residing in urban areas and this is expected to increase to 50% by 2050, adding 441 million to the urban population. This will lead to large additions to the residential building stock in existing cities as well as creation of several new cities. Due to the scarcity and high cost of land, as well as the desire to curtail suburban sprawl, a large part of this new urban residential construction is likely to be in the form of multi-storey residential buildings. The electricity consumption in residential buildings is expected to increase seven-fold during the period 2012 to 2032. A large potential exists for reducing electricity consumption in multi-storey residential buildings. Electricity savings can be achieved through the incorporation of passive design features into the building design; and the proper choice of installation and use of energy efficient space-cooling systems, appliances, and equipment. The buildings can even become net positive by installing renewable energy systems, such as solar water heating and solar photovoltaic. Given these future trends, there is an urgent need to design new residential buildings in a manner in which they are thermally comfortable but require much less energy for their operations. The initiative to develop a comprehensive set of guidelines for designing energy efficient multi-storey residential building was taken up under the Indo-Swiss Building Energy Efficiency Project (BEEP). I am glad to see that the first set of guidelines applicable to the composite and hot-dry climatic regions of India have been introduced. The Bureau of Energy Efficiency has plans to bring out similar guidelines for other climatic regions of the country in the future. I urge the agencies involved in the regulation, design, and construction of multi-storey residential buildings in urban areas to make use of these guidelines. This will not only help the country in saving energy, but also provide more comfortable housing.

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AIM: - The 21st Century Houses built by **Reuse of Resources** and Designed for Pandemic Situation.

OBJECTIVES: -

1-Reuse of Resources.

2-Prevent their occupants in Pandemic Situation.

1.- INTRODUCTION: -

The 21st century brought a whole new set of challenges for the house. in the 21st century within the context of booming populations, rapid urbanisation, increased environmental awareness, and demands for sustainability.

The 20th century shaped architecture recognising the extent of progress made.

If mass housing in the 20th century was defined by monotony and low quality, in the 21st century it is defined by individuality and longevity.

If the 20th century was defined by using Resources, the 21st century can be defined by a need to Reuse of Resources.

It's only now, in the 21st century that architects and planners are coming to terms with the repercussions of the suburban sprawl – its poor land use and forced reliance on the car.

Architects, while coming to terms with a farewell to the 20th century, have had to sharpen up. *The Contemporary House* reveals the new house as context conscious, sustainable, clever, minimalist, and uniquely crafted, with invention and innovation increasingly. Aesthetically, there's barely a pitched roof in sight. Form no longer expresses the traditional family unit, of

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man plus woman with 2 or 4 kids. The contemporary house reflects something less binary, more ambiguous, freer and more individual.

If the 20th century was defined by the building of sprawling suburbs and isolated villas, the site that defines the 21st century so far is the infill plot. Philosophies of minimalism are leading the way, with principles of living within our means detectable. Instead of a box at the heart a leafy (self-indulgent) site, a new shape has formed – 'the stack' – a space conscious, insulated and compact house.

If owning a house in the 20th century was a status symbol, owning a home in the 21st century is considered a right, and a major challenge for architects, and politicians, is how can we give everyone in this world what they deserve, a warm home to call their own.

While visually and stylistically, you can expect a surprise on each page of *The Contemporary House*, every house does have key elements in common. Each house is context conscious, characterful and most importantly, has a roof. The equation of how to house the world's population safely and responsibly has still not been solved – a challenge for architects for the rest of the 21st century.

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2- SCOPE: -

• **Environmental Benefits: -** Reuse requires fewer resources, less energy, and less labor, compared to recycling, disposal, or the manufacture of new products from virgin materials. Reuse provides an excellent, environmentally-preferred alternative to other waste management methods, because it reduces air, water and land pollution, limits the need for new natural resources, such as **stone**, timber, petroleum, **fibers** and other materials.

- **Community Benefits**: - For many years, reuse has been used as a critical way of getting needed materials to the many disadvantaged populations that exist. Reuse continues to provide an excellent way in which to get people the food, clothing, building materials, business equipment, medical supplies and other items that they desperately need. There are other ways, however, that reuse benefits the community.

- **Economic Benefits**: - When reusing materials, instead of creating new products from virgin materials, there is less burden on the economy. Reuse is an economical way for people of all socio-economic circles to acquire the items they need.

- Reduces the production of greenhouse gas emissions and other pollutants by reducing the need to extract raw materials and ship new materials long distances.
- Conserves landfill space, reduces the need for new landfills and their associated cost.

- Saves energy and reduces the environmental impact of producing new materials through avoided extraction and manufacturing processes

- Creates employment opportunities and economic activities in recycling industries.

- Saves money by reducing project disposal costs, transportation costs, and the cost of some new construction materials by recycling old materials onsite.

3.- LIMITATIONS: -

To Study the Reuse to Concrete: -

The early phases of many construction projects involve the demolition of concrete foundations, sidewalks, driveways, and other concrete structures, which can leave a contractor with a sizable volume of heavy, dense materials to deal with. Fortunately, concrete can be recycled and reused in many ways. Typically, the process involves crushing or pulverizing the concrete rubble near the demolition or building site. Choosing the best method often depends on the size and shape of the concrete pieces to be recycled.

Prevent their occupants in Pandemic Situation: -

The pandemic has reinforced that design and physical space plays a role in enabling disease to spread. But the built environment can also support infection control.

4.-METHODOLOGY: -

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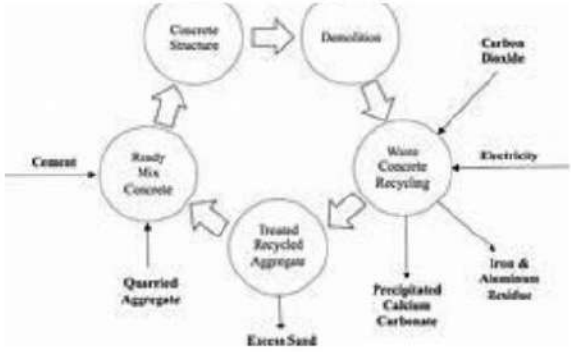

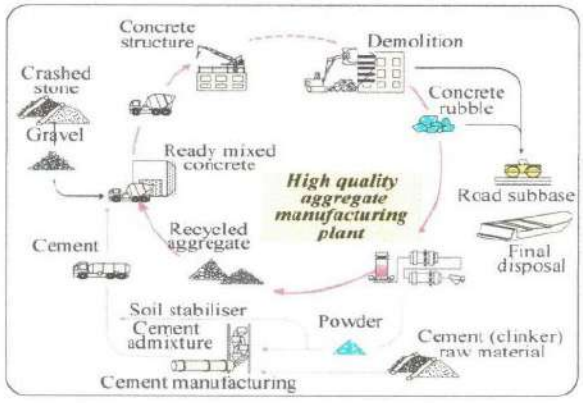

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We are currently learning how to navigate the world around us, keep ourselves and our loved ones safe, and carry out our day to day lives in ways that look very different from a few short months ago.

To protect public health, furniture has been rearranged, screens erected and signs of visual instructions remind us what we can and cannot do. Picture: Getty Images

MUCH NEEDED SPACES IN HOUSING PROJECTS: -

- Security Check at Main Entrance of Society
- Oxygen Gas Plant
- Common Quarantine Rooms with Attached Toilets
- Infection Resistant Material Used in Door Handles and lift buttons.
- All Bedrooms Should Attached Toilets.
- Plenty of Day Light Should Allowed in All Rooms.
- Good Cleaning Staff for Common Areas.
- Good Internet Connectivity.

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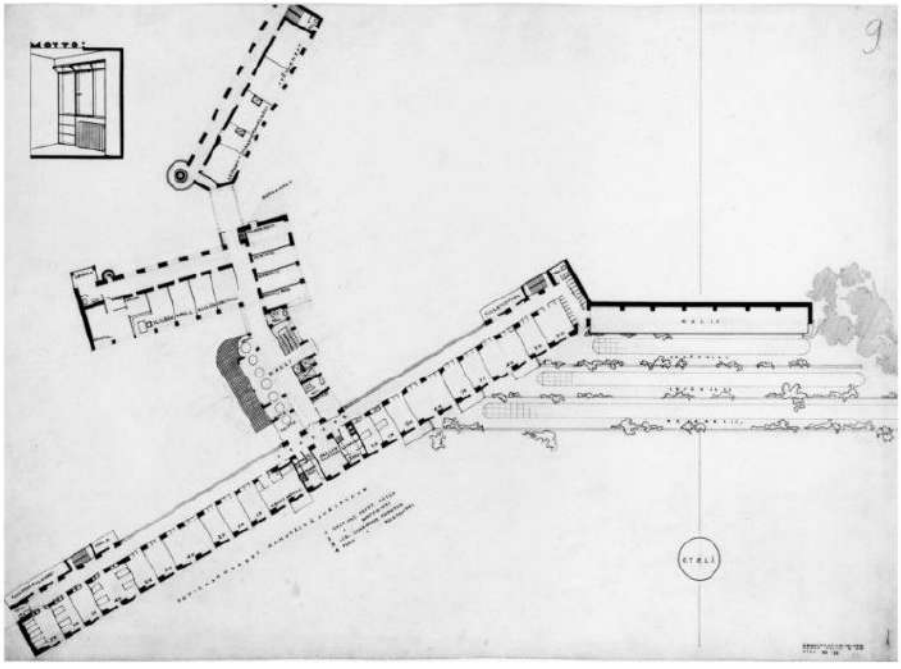
5.- CASE STUDY-1:- Alvar Aalto's tuberculosis sanatorium in Finland, built in 1929.

Hygiene was a principle that ran through the entire design process of Architect Alvar Aalto's tuberculosis sanatorium in Finland, built in 1929.

The planning of a tuberculosis sanatorium was a matter of national importance and urgency in Finland. In the early decades of the 20th century there was no medication for pulmonary tuberculosis, which posed a serious threat to public health. The disease was treated in specialized institutions through rest, diet, exercise and surgery. Patients were taught ways of making their everyday lives easier and protecting themselves and those living with them from infection. Treatment times were long and not very effective.

With no pharmacological treatment for tuberculosis, the Aalto's turned to the curative effects of access to light, air, and sunlight to shape their architectural response.

6 Alvar Aalto's Paimio Sanatorium, Finland,1929-33.



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The floor plan for Paimio Sanatorium attracted attention as it was asymmetrical and non-rectilinear, but at the same time was based on a controlled system of coordinates. The sun balconies joined the A wing at an angle of 20°, running parallel to the B wing; in other words, the A and B wings were at an angle of 20° to each other. This can be seen from the entrance forecourt as a false perspective. The circulation area connecting the A and B wings was at right angles in relation to the A wing, while the C wing joined the B wing at an angle of 45°.

They also designed the doorhandles in a more infection resistant material, and curved them to prevent the doorhandles catching the coats of visiting doctors. Writing in her diary of her experiences tending to wounded soldiers during the Crimean War of 1853, Florence Nightingale notes that: "quite perceptible in promoting recovery, [are] being able to see out of a window, instead of looking against a dead wall; the bright colour of flowers, the being able to read in bed by the light of a window close to the bed-head."
As medicine advanced throughout the 20th century with antibiotics and immunisations the reliance shifted from the psychological benefits of a total environment to hospitals as systems of efficiency and hygiene control.

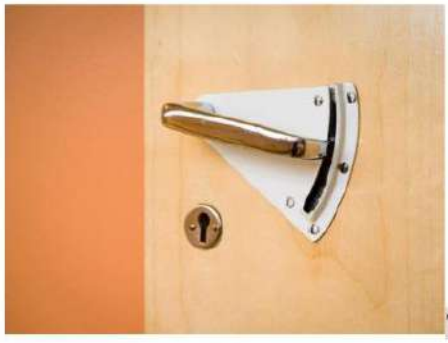
The model of care decoupled away from architecture and interiors, which were instead relegated to backdrops within the treatment process.

6

Washing one's hands was also seen as a basic ritual of good hygiene and the Aalto's designed the angled basin as a symbol of this, to be used with as little noise as possible.

The top floor balcony and its curved canopy.

Four separate wards were planned, with a total of 184 beds. The individual rooms were designed to accommodate two, three or four patients, with 25 cubic meters of space for each patient. Each ward would also have two single rooms. The sanatorium would have offices and examination rooms, rooms in each ward for the use of staff and of patients, and communal rooms for the use of all patients. In addition, kitchens, rooms for the use of nursing and domestic staff, communal spaces and equipment, an isolation ward with its own entrance for patients with contagious diseases were also to be located in the main building. Further, the competition programmed specified as separate buildings a residence for the senior physician, housing for the junior physicians and housekeeper, a maintenance building and a building for housing staff.

 The Aalto's also designed the Sanatorium doorhandles, in a more infection resistant material, and curved to prevent catching the coats of the visiting doctors.

INFERENCES: -

- **Orientation of Building-**
    1. Should be in manner that allowed more Sun Light and More Ventilated.
    2. All Rooms Should Allow Natural Light and Ventilation.
    3. Minimize the dependency of power.
    4. Patients take sun Bath.
    5. To Dry their Cloths in Sun light.

- **Use more infection resistant material in Following Area Common Areas like Lift, Stair Railings, Common Sitting Areas, Door Handles, etc.**

- **Corridors Should be Single Loaded-**
    1. It will help to Prevent the spreading of virus.
    2. Corridor will always be ventilated and allows natural lights.

- **Dedicated Lift Lobby for Patients and Doctors –**
    1. This lift and stair case use only for patients and Doctors.
    2. Us this lift lobby as service lift in others days.
    3. It will help to Prevent the spreading of virus.

- **Parking Facility Should be in Open Area –**
    1. Chance to infection will be reduce.

CASE STUDY: -2 - 20TH CENTURY

Levittown (The Imperfect Rise of the American Suburbs)

Nassau County, Long Island

The single-family house became a stylised and powerful entity reflective of an era that saw the emerging of a strong middle class seen in examples such as the Levitt & Sons-designed Levittown in USA. Levittown epitomised the mid-century suburb where each family had a material check list of cars, refrigerator, backyard, barbecue.

Levittown is a place in the Town of Hempstead in Nassau County, on Long Island, in New York, United States.

It is located halfway between the villages of Hempstead and Farmingdale. As of the 2010 census, had a total population of 51,881.

Levittown gets its name from its builder, the firm of Levitt & Sons. Inc. founded by Abraham Levitt on August 2. 1929, which built the district as a planned community for returning World War II veterans between 1947 and 1951. Sons William and Alfred served as the company's president and chief architect and planner, respectively.

There have been multiple proposals in the past to incorporate Levittown either as a village or as the third city in Nassau County.

TOP

Construction of Levittown was famously quick: a home was built every 16 minutes.

The Construction of Levittown

In the years after World War II, one problem was a severe housing shortage. A combination of unusually high birth rates and plummeting construction left many families struggling to find any suitable shelters, sometimes living in boxcars, chicken coops, and large iceboxes. To many of those families, the Levittown's were the answer to their prayers.

INFERENCES: -

- **Design and Planning should be in Following manner-**
    1. Houses designed and planned as Multileveled and in group development.
    2. No pitched roof, so the terrace should be used.
    3. Maximum utilization of land.

INFERENCES: -

- Old walls can be Reused as ornamental component in elevation.
- Old Building materials like Wood, metals windows and door are reused in elevation panels.

6.-LITRATURE STUDY-1: - Recycle and Reuse to Concrete

The early phases of many construction projects involve the demolition of concrete foundations, sidewalks, driveways, and other concrete structures, which can leave a contractor with a sizable volume of heavy, dense materials to deal with. Fortunately, concrete can be recycled and reused in many ways. Typically, the process involves crushing or pulverizing the concrete rubble near the demolition or building site. Choosing the best method often depends on the size and shape of the concrete pieces to be recycled.

Reusing concrete can a good way to reduce construction costs while providing some benefits to the environment. Recycled concrete not only stays out of landfills, but it also replaces other materials such as gravel that must otherwise be mined and transported for use.

Benefits of Concrete Recycling

- Recycling concrete helps reduce construction waste and extend the life of landfills as well as saving builders disposal or tipping fees.
- It also reduces transportation costs because concrete can often be recycled in areas near the demolition or construction site.
- If builders are seeking LEED Green Building certification, they can receive points for using recycled concrete.
- In some instances, new employment opportunities arise in a recycling activity that would not otherwise exist.

How Concrete Is Recycled

Concrete is recycled by using industrial crushing equipment with jaws and large impactors. After the concrete is broken up, it is usually run through a secondary impactor and is then screened to remove dirt and particles and to separate the large and small aggregate. Additional processes and equipment, such as water flotation, separators, and magnets, may also be used to remove specific elements from the crushed concrete. An alternative method is to pulverize the concrete, but this is not the always the best option, as it makes it harder to complete the separation process and may leave more contamination from smaller by-products.

Equipment Used to Recycle Concrete

When considering concrete recycling as an option, you will also need to evaluate the options available for crush the concrete. The most practical solution can be a portable crusher that can be moved to different locations or projects. Often, it works best to set it up a portable crusher at a centralized location, near where the concrete is being demolished but where it will not hinder site traffic. Factors to consider when choosing processing equipment include:

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- Equipment should have a powerful electromagnet or water flotation or an air separator system that can pull steel from concrete.
- Separate hydraulic stands will allow for a faster setup.
- Control systems may be automatic, manual, or remote.
- Systems that have conveyors, jaws, and cones can provide complete processing of the concrete, from demolition to a usable material.

Uses for Old Concrete

Recycled concrete can be used in many of the same ways as you would use new materials, such as gravel, paving materials, and aggregates.

- Permeable paving for walkways, driveways, and other outdoor hard surfaces: Broken concrete that is carefully laid creates a stable, porous traffic surface that rainwater can filter through. This technique reduces the amount of runoff water that must be managed by storm sewer systems and helps to replenish groundwater.

- Base for new asphalt paving. Through a process called *rubblization*, old concrete pavement can be broken in place and used as a base layer for asphalt pavement laid over it.
- Bed foundation material for trenches containing underground utility lines. Utility trenches are often covered with gravel to assist drainage, and crushed concrete makes a good, inexpensive substitute for gravel.

- Aggregate for mixing new concrete: Crushed concrete can replace some of the virgin (new) aggregate used in ready-mix concrete.
- Controlling streambank erosion: larger pieces of crushed concrete placed along vulnerable stream banks or gullies can help control erosion.
- Landscaping mulch: When properly crushed and well sorted, ground concrete can replace river rock or other gravels used as ground covers and mulch.
- Fill for wire gabions: Wire cages (gabions) filled with crushed gravel can make decorative and functional privacy screen walls or retaining walls.
- Material for building new oceanic reef habitats: large pieces of concrete carefully positioned offshore can form the foundation for coral to build new reefs.

INFERENCES: -

- Old Concrete may be reused in Landscape areas.
- Old Concrete may be reused in Building Elevation in Panels.
- Old Concrete may be reused in Plumb Concrete.
- Old Concrete may be reused in Boundary Wall.

LITRATURE STUDY-2: - Post-Pandemic Designs

- "If people now are going to be able to work from home on a far more regular basis, they need to have the ability to have a real work-life space and structure at home,"

- Family wants an open-plan home with flexible areas that can be closed off or opened up, to serve as office space or playrooms, depending on their needs that day.

- It is important to make apartments more adaptable, especially for families and people living in medium or high-density blocks.

- "Flexibility is key, especially for multi-family units. The question is how can you allow a family to be together but also have their moments of refuge on their own within that unit,".

- It has a storage area beneath and the option to conceal the desk behind moveable panels at the end of the day.

- "There are no corridors, as this is wasted space "The bedrooms are all set next to each other. You use slidable panels, which can completely open or close rooms as you like."

Sliding panels replace walls to make living space adaptable for different family members in the post-Covid apartments designed by French architecture firm Studio Belem.

- A room could be used as a yoga space or a children's playroom in the morning, then turned into a bedroom at night, or a living room could be enlarged by sliding back the doors of a bedroom, if guests are coming for dinner.

- The design removes all unnecessary doors and walls, and the rooms are placed in a line, to cut down on unused space, improve ventilation and let in as much light as possible.

- These light and plant-filled apartments aim to bridge the gap between interior and exterior for city dwellers deprived of outdoor space, the firm said on its website.

- "The pandemic has given us time to reflect and mature, and accelerate these changes, like more outdoor space, fresh air and natural elements."

- Balconies have become more important than ever. Balconies should be a right and not a privilege, especially for families in a multi-family environment... but they have to be useable, that means they should be about 6 feet (1.83 metres) deep and at least 8 feet (2.44 metres) wide to make sure there is space for a table and chairs

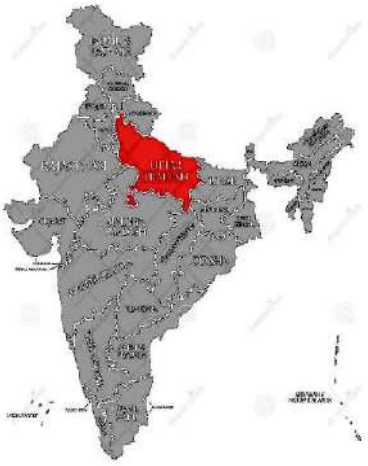
INFERENCES: -

- Use of big slider doors inside the apartment as internal openings.
- So, the space inside the apartment can mostly utilized as activity area.
- Big size Balcony provided and it not les then 8'x6'.
- Should be Provide a terrace garden area in each and every apartment.

7.- SITE ANALYSIS: -

VARANASI RINGROAD

Varanasi is one of the oldest cities in the world and a great center of learning, culture, and tradition. It is a prominent tourist and pilgrimage site attracting millions of visitors annually. Due to the non-availability of bypass outside the city, heavy vehicles carrying supplies to nearby districts were forced to cross Varanasi City enroute to their destination which resulted in heavy traffic congestions. Also, these trucks used to be in waiting for many hours to cross through the city during the 'No-Entry' hours, thus wasting both fuel and time. Therefore, the development of world-class highway infrastructure, around the city, was the need of the hour.



LOCATION OF UTTAR PRADESH IN INDIA

DECONGESTING TRAFFIC

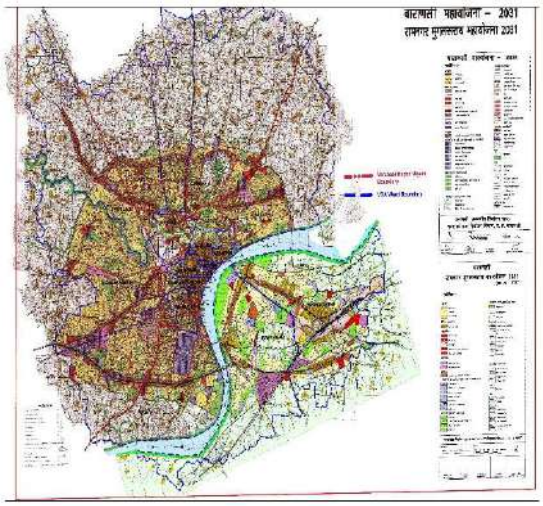
To address the problem of increasing traffic in the city, a ring road with a total length of 60 km is being developed, for the total cost of around Rs 3400 crore. The 16 km long Phase-I of the Ring Road was inaugurated in November 2018 whereas 17 km long Package-1 of Phase-II was opened for traffic in October 2021. Balance 27 km long Package-2 of Phase-II shall be completed by March 2023.

LOCATION OF VARANASI IN U.P.

The Ring Road will decongest traffic moving through the city of Varanasi. Heavy vehicles heading towards Lucknow, Ghazipur, Azamgarh and Gorakhpur would directly move through the Ring Road without having to enter the main city and thereby considerably reducing traffic congestion in the Varanasi city.

BETTER ACCESS TO SARNATH

The Ring Road, with five ROBs, five flyovers, two Major Bridges, eleven minor bridges and numerous underpasses at all required locations, will provide a way for traffic on National Highway 56 (Lucknow-Varanasi), National Highway 233 (Azamgarh-Varanasi), National Highway 29 (Gorakhpur-Varanasi) and Ayodhya – Varanasi highways to bypass Varanasi city, thereby reducing traffic congestion in the city. The entire project has also been provided with access controlled service road. It will reduce travel time, fuel usage and pollution in the area. It will also provide easier and more convenient access to Sarnath, an important site for Buddhist pilgrimage.



MASTER PLAN OF VARANASI 2031

The project will also provide increased employment opportunities, development of small and medium industries and give a boost to economic development in the area.

LITRATURE STUDY-3 - Building Massing

Building massing refers to the shape, size, and orientation of the building blocks; 'spatial configuration' characterizes how the building blocks are arranged in the given plot of land. Unlike office buildings, for which cooling loads are often dominated by internal heat gains (computers, lighting, persons, etc.), most of the cooling load in residential buildings originates from solar heat gains through the building envelope. The thermal quality of the building envelope of residential buildings is usually poor (uninsulated walls, single-glazed windows, absence of good external shading for windows), which allows large solar heat gains through windows and walls. Reducing the solar exposure on vertical surfaces of a multi-storey residential building is the first step towards reducing solar heat gains and internal cooling loads. It is a good practice to conduct a solar exposure analysis before deciding on building massing and spatial configuration. The layout of a building depends on many factors such as shape and size of site, building bye-laws, and town planning regulations. It is seen that some town planning regulations, such as requirements for floor space index (FSI), setbacks, and distance between buildings come in the way of optimising mutual shading and orientation. It would be worthwhile to review these from the point of view of energy efficiency.

Recommendations for building massing and spatial configuration

Recommendation 1: Orient the buildings to minimize solar exposure on vertical surfaces Orient the buildings to minimize solar exposure on vertical surfaces (e.g., the larger façade faces north and south).

Recommendation 2: Select the building shape to minimize solar exposure on vertical surfaces Proper choice of building shape for a particular orientation can reduce the solar radiation exposure (kWh/m2 of flat built-up area) by 20%–40%. If there is the flexibility of orienting the building correctly (i.e., larger façade in a north and south direction), then the preference of typologies in terms of reduced solar radiation exposure is n Preference 1: Linear double-loaded corridor typology n Preference 2: Linear typology n Preference 3: Tower typology Recommendation 3: Try to arrange building blocks so as to benefit from mutual shading to minimize solar exposure on vertical surfaces during summer months Mutual shading is a function of (a) latitude, (b) location with respect to the other buildings, (c) height of the context buildings, and (d) distance between the buildings. n Benefits of mutual shading in reducing the solar exposure are possible if the buildings are closely placed to the east and west of the reference building. n Shading from the buildings located south of the reference building is minimal during peak summer (June), though some amount of shading is possible during the months of April and September. n There is negligible shading from the buildings located north of a reference building

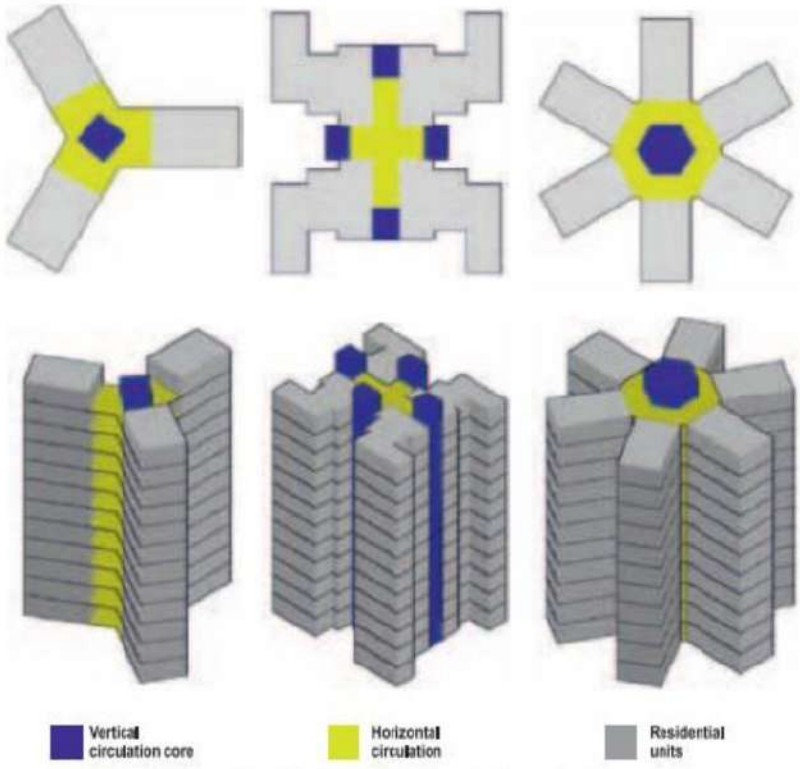


Figure 3.1a Possible configurations for tower typology

Figure 3.1b Example layout of a tower typology

Thus, one of the primary concerns during building design should be to include strategies that can reduce heat gains inside the living spaces. Solar heat gain through the building envelope (walls, roof, windows) is one of the important sources of heat gains. This chapter deals with appropriate selection of building forms (exposed surface area/built-up area), building orientation (façades orientation), and spatial configuration (building location and spacing) to reduce solar exposure and hence solar heat gains.

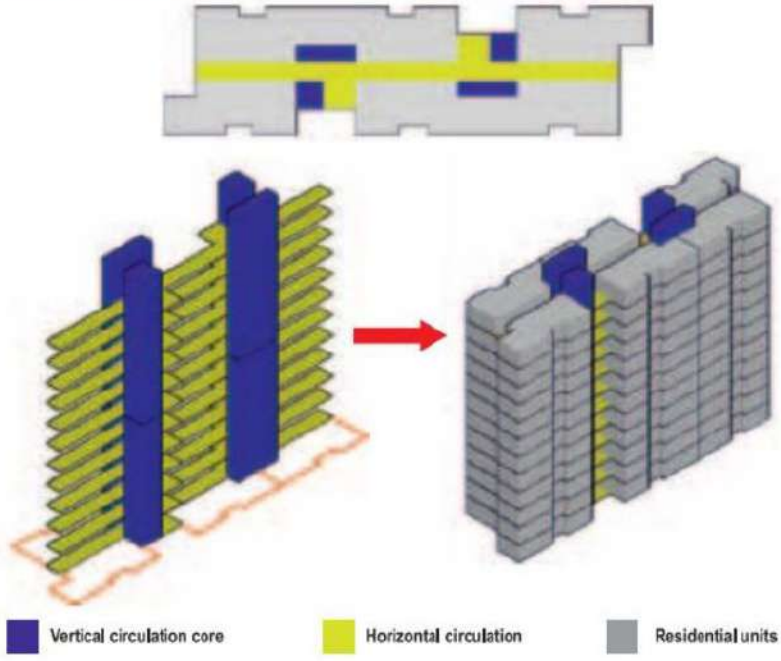


Figure 3.3b *Schematic of typical linear double-loaded corridor typology*

Typologies of multi-storey residential buildings the building massing of multi-storey residential buildings can be broadly classified into the following three typologies: 1. Tower typology 2. Linear typology 3. Linear double-loaded corridor typology Several mixed typologies are possible through a combination of the three primary typologies.

Tower typology Tower typology is the most common typology considered for multi-storey residential buildings because of its modular design. The tower blocks can be repeated across the site to generate a variety of spatial enclosures.

The tower typology is usually characterized by three or more flats per floor arranged around the central service core.

Linear typology Linear typology is characterized by linear arrangements of building blocks usually defined by either linear streets or by a linear edge of the open space. The adjacent flats on each floor will share at least one common wall. The vertical service core at each floor is usually shared by two or four flats Linear double-loaded typology Linear double-loaded typology is characterized by linear blocks with flats arranged along both sides of the circulation corridor. The vertical cores open into the double-loaded corridor and are distributed across the linear blocks.

GOOGLE IMAGE OF SITE AND SURROUNDINGS

VARANASI RINGROAD

SITE ANALYSIS (INFRA STRUCTURE AND CONNECTIVITY):

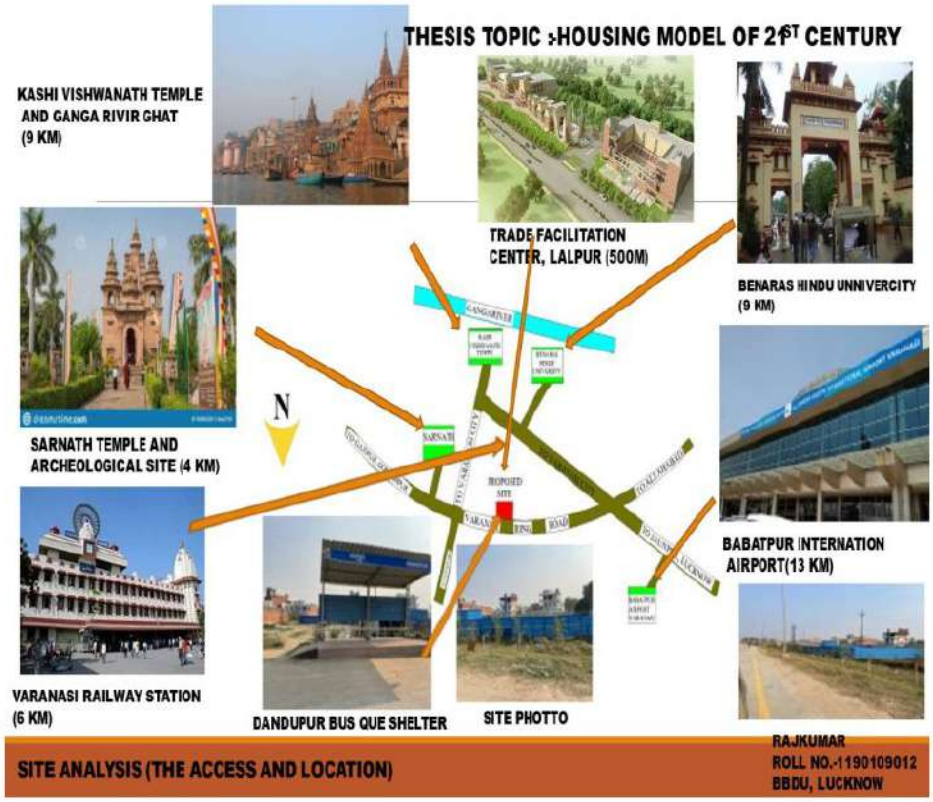
-

ACCESS:-

- SITE IS WELL CONNECTED TO ALL MAJOR HIGHWAYS LIKE RING ROAD, G.T.ROAD.
- SITE IS SITUATED ON 60M WIDE RING ROAD.
- SERVICE ROAD OF 9M WIDE IS PROVIDED TO ENTER ON SITE.

KEY DISTANCES:-

- SARNATH -4 KM.
- LAL BAHDUR SHASHTRI INTER NATION AIRPORT, BABATPUR -13 KM
- KASHI VISHWANATH TEMPLE -9 KM.
- BENARAS HINDU UNNIVERCITY -9KM.
- GHATS OF BENARAS -9 KM.
- VARANASI RAILWAY STATION-6 KM.



PHYSICAL SURVEY PLAN OF SITE: -

- SITE IS SURROUNDED BY MAXIMUM OPEN LAND, SOME INDEPENDENT HOUSE G+2 AND AGRICULTURE LAND.
- NATURAL SLOPE OF SITE IS SOUTH TO NORTH TOWARDS FRONT ROAD.
- SITE AREA IS 3 ACRES/12140 SQM./1.214 HECTARE.
- SURROUNDINGS OF SITE:-

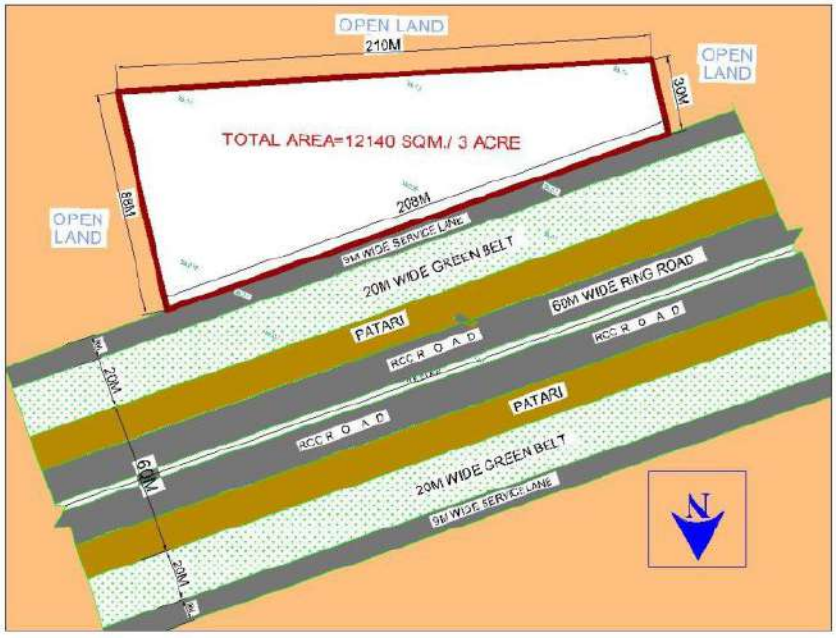
NORTH-RING- ROAD'S 9M WIDE SERVICE LANE,

SOUTH- OPEN LAND / AGRICULTURE LAND

EAST- OPEN LAND

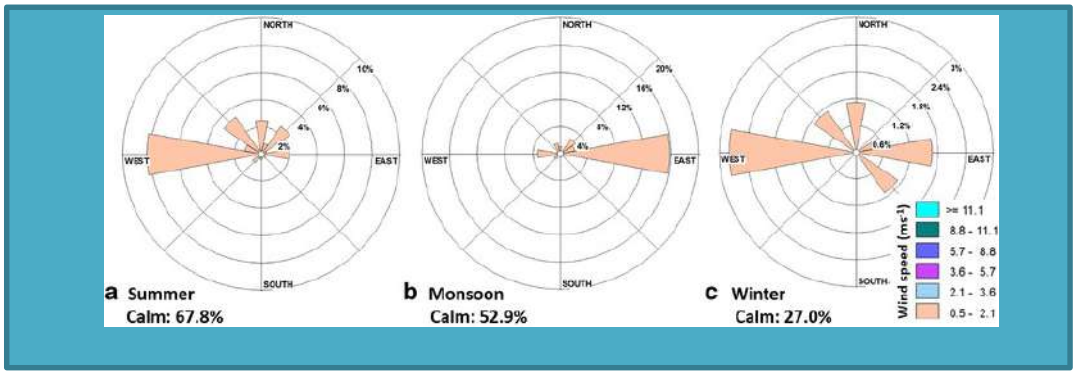
WEST- OPEN LAND.

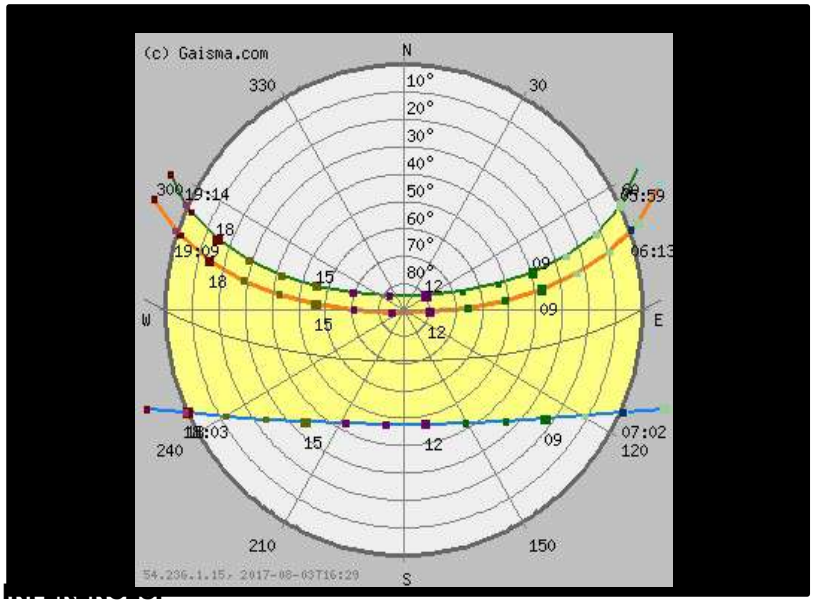
- SITE STRECHED LONG TOWARDS EAST – WEST.
- SITE LEVEL IS 1M DOWN FROM THE FRONT ROAD.
- AVERAGE DEPTH OF SITE IS 60M AND WIRTH IS 210M.



OTHER CHARECTERISTICS: -

In the SW during the monsoon season and for brief spells of a day or two in winters in association with passing western disturbances, heavily clouded or overcast skies generally prevail. The skies are mostly clear or lightly clouded during rest of the year.





- Composite Climate displays the characteristics of hot and dry, warm and humid as well as cold climate.
- Decrease Exposed Surface area Through – Orientation and Shape Of The Building, Uses Of Trees.
- Increase Thermal Resistance Through - Roof and Wall Insulation.
- Increase Thermal Capacity Through- Thiker Walls.
- Increase Buffer Spaces Through- Balconies.
- Decrease Air Exchange Rate Through – Weather Stripping.
- Increase Shading Through- Walls Glass Surface.
- Increase Surface Reflectivity Through- Use of Pale Color.
- Increase Humidity Level In Dry Summer Through- Trees And Water Bodies.
- Decrease Humidity in Manso0n Season Through- Dehumidifier.
- Orientation Of Building Should be In North – East Direction, This Helps In Receiving less radiation which result in lesser heat gain and reduse the over all air conditioning requirement and thus save energy. Proper Orientation

also help in receiving natural light and ventilation.

- Building Should Be Groped In Such a Way as to take Advantage of prevailing Breezes during the short period when air movement necessary.

- Since there is no under heated period throughout the year gain of solar radiation is undesirable. Need to keep the building in shade throughout the year.

- Adequate ground coverage is to be provided to cut down glare from bare ground and to make surrounding surfaces cooler which would permit flux of heat radiation away from the human body.

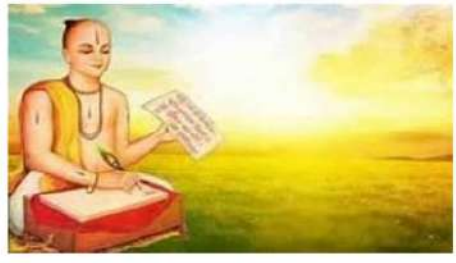
- Shady trees to be planted around the buildings.
- Proper orientation to cut solar radiation and gain wind and view to be provided.
- Adequate large cover from rain and sun to be given i.e. large projections desirable. Also to cut the intense sun from top thick insulating roofing is desirable.

INTRODUCTION OF VARANASI

Varanasi is a city on the Ganges river in northern India that has a central place in pilgrimage, death, and mourning in the Hindu world. The name Varanasi was officially so revived after 1947, but the city is still widely known as Banaras or Benares and since ancient times also as Kashi. The city has a synoretic tradition of Muslim artisanship that underpins its tourism. Located in the middle-Ganges valley in the south-eastern part of the state of Uttar Pradesh, Varanasi lies on the left bank of the river. It is 692 kilometres (430 mi) to the southeast of India's capital New Delhi, 320 kilometres (200 mi) south east of the state capital, Lucknow, and 121 kilometres (75 mi) east of Allahabad, another Hindu pilgrimage site.

The Buddha is recorded in the Pali canon to have given his first sermon, "The Setting in Motion of the Wheel of Dharma", at nearby Sarnath in 528 BCE. In the 8th century, Adi Shankara established the worship of Shiva as an official sect of Varanasi. During the Muslim rule during the Middle Ages, the city became an important centre of Hindu devotion, pilgrimage, mysticism and poetry contributing to its cultural importance.

Tulsidas wrote his Awadhi language epic, the *Ramcharitmanas*, a Bhakti movement reworking of the Sanskrit Ramayana, in Varanasi. Several other major figures of the Bhakti movement were born in Varanasi, including Kabir and Ravidas.[19] In the 16th century, the Mughal emperor Akbar built two large temples dedicated to Shiva and Vishnu in the city. Under the Treaty of Faizabad, the East India Company acquired Benares in 1775,[20][21] the city later successively becoming a part of the Benares Division in the Ceded and Conquered Provinces, the North-Western Provinces, and the United Provinces, and after India's independence of Uttar Pradesh.



Silk weaving, carpets and crafts and tourism employ a significant number of the local population, as do the Banaras Locomotive Works and Bharat Heavy Electricals. Varanasi is a cultural centre of northern India that has been closely associated with the Ganges. Hindus believe that dying here and being cremated along the Ganges River banks allows the cycle of rebirth to be broken and salvation to become possible. The city is known worldwide for its many ghats, steps leading down the steep river bank to the water, where pilgrims perform rituals. Of particular note are the Dashashwamedh Ghat, the Panchganga Ghat, the Manikarnika Ghat, and the Harishchandra Ghat, the last two being where Hindus cremate their dead. The Hindu genealogy registers at Varanasi are kept here. Among the notable temples in Varanasi are Kashi Vishwanath Temple of Shiva, the Sankat Mochan Hanuman Temple, and the Durga Temple.

The city has long been an educational and musical centre: many prominent Indian philosophers, poets, writers, and musicians live or have lived in the city, and it was the place where the Benares gharana form of Hindustani classical music was developed. In the 20th-century the Hindi-Urdu writer Premchand and the shehnai player Bismillah Khan were associated with the city. India's oldest Sanskrit college, the Benares Sanskrit College, was founded during East India Company rule in 1791. Later education in Benares was greatly influenced by the rise of Indian nationalism in the late 19th-century. Annie Besant founded the Central Hindu College in 1898. In 1916, she and Madan Mohan Malviya founded the Banaras Hindu University, India's first residential university. Kashi Vidyapith was established in 1921, a response to Mahatma Gandhi's Non-cooperation movement.

PHYSICAL INFRASTRUCTURE: -

- **ROAD AND BASIC INFRASTRUCTURE- THERE ARE WELL LAID 60M WIDE AND FOUR LANE WHICH HAVE ADEQUATE STREET LIGHTING AND A REGULAR CITY BUS SERVICE IS AVAILABLE.**
- **POWER- THE POWER SITUATION IN GENERAL IS GOOD AND POWER CUT IS INFRIQUANT, THE POWER LINE IS LAID THROUGH SERVICE LANE IN FRONT OF OUR SITE.**
- **WATER SUPPLY- THE DRINKABLE WATER TABLE IS AT AN AVERAGE DEPTH OF 20M AND THERE IS ALSO A GOOD WATER SUPPLY BY JAL SANSTHAN.**
- **SEWAGE DISPOSAL- THE SEWAGE IS DISPOSAL AFTER BEING TREATED IN S.T.P. SEWER LINE IS PASSING THROUGH IN FRONT OF OUR SITE.**

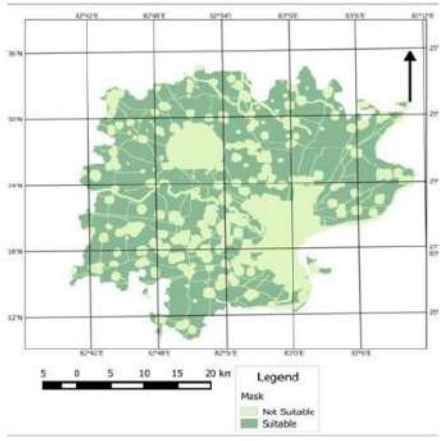
A

GEOGRAPHICAL DATA: -

- **LATITUDE- 25o23'08"N.**
- **LONGITUDE- 82o57'42"E.**
- **HEIGHT FROM SEA LEVEL- 86M =282FT.**
- **WATER TABLE- 3.5 TO 4.5 M**
- **TYPE OF SOIL AT UPPER LEVEL-SILTY CLAY**
- **FILLED UP SOIL- NOT MET**
- **TYPE OF FOUNDATION SUGGESTED-RAFT FOUNDATION**
- **MINIMUM SIZE OF RAFT-10MX10M**
- **DEPTH OF FOUNDATION FROM G.L.- 4M (MIN.)**
- **NO. AND DEPTH OF BORE HOLE - 3 BORE HOLE OF 15M**

TOPOGRAPHY AND VEGETATION: -

- THE TOPOGRAPHY OF SITE IS ALMOST FLAT.
- THE NATURAL SLOP OF SITE IS FROM SOUTH TO NORTH.
- THE SITE DOES NOT HAVE ANY PERMANENT GREEN COVER I.E. NO TREEA PERSENT ON THE SITE.
- THE SITE WAS USED AS AGRICULTURE LAND.



THE PRECIENT:-

- ADJECENT PLOTS ARE STILL VACANT.
- TWO MAIN VILLAGE NEARBY ARE AIRHE AND AHMEDPUR.
- VARANASI TRADE FACILITATION CENTER IS 500M FROM SITE.

CLIMATE: -

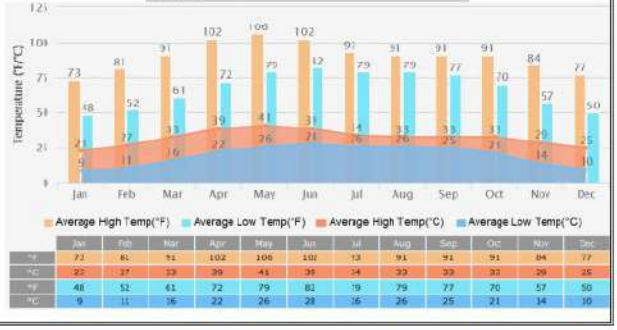
VARANSI HAS COMPOSITE CLIMATE, HOT SUMMERS AND COLD WINTER FOUR SEASONS CAN BE NAMED AS UNDER:

SUMMER (MARCH – JUNE,

2. MANSOON-(JULY - SEPTEMBER),

3. POST MANSOON (SEPTEMBER-OCTOBER),

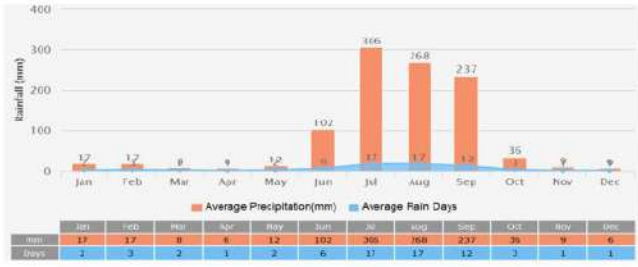
4. WINTER (NOVEMBER – FEBRUARY.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	73	81	91	102	106	102	97	91	91	91	84	77
°C	23	27	33	39	41	39	36	33	33	33	29	25
°F	48	52	61	72	79	81	79	79	77	70	57	50
°C	9	11	16	22	26	28	26	26	25	21	14	10

TEMPERATURE: -

From about the beginning of March, temperatures begin to increase rapidly. May and June are the hottest months when the mean daily maximum temperature is about 41° C. While days are little hotter in May than in June, nights are warmer in June than in May. From April onwards, hot dust – Laden winds locally known as "Loo" blows and weather is unpleasant. The mean daily maximum temperature in January is about 21° C and the mean daily minimum temperature is about 7° C.



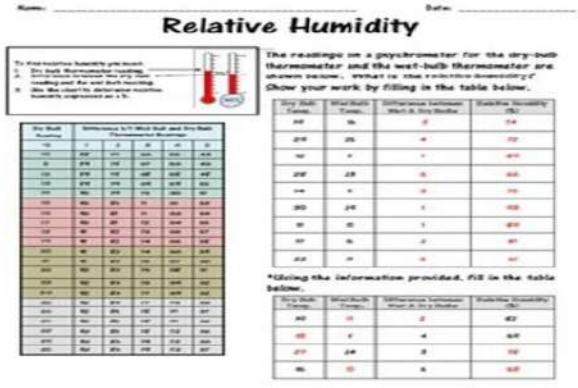
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
mm	17	17	8	9	12	102	306	268	237	35	9	6
Days	1	3	2	1	2	6	17	17	12	3	1	1

HUMIDITY:-

The air is generally dry during the greater part of the year. Humidity is high in the SW monsoon season. April and May are the driest months when the relative humidity in the morning is about 30% and in the afternoon less than 20%.

CLOUDNESS: -

In the SW during the monsoon season and for brief spells of a day or two in winters in association with passing western disturbances, heavily clouded or overcast skies generally prevail. The skies are mostly clear or lightly clouded during rest of the year.



WINDS: -

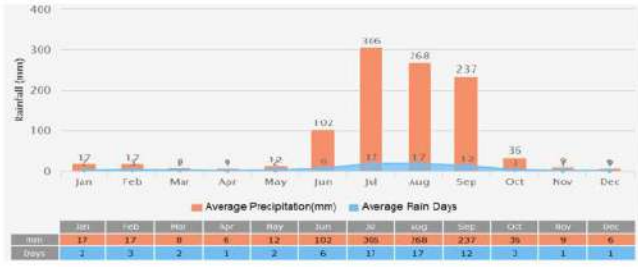
- Winds are generally light but gain force in the summer and monsoon seasons.
- The wind direction in summer is NW to SE.
- In winters the wind direction is SE to NW.

SUN AND ITS PATH: -

Sun is bright & very intense here for the maximum time of the year, though clouds are heavily visible during monsoon.

TEMPERATURE: -

From about the beginning of March, temperatures begin to increase rapidly. May and June are the hottest months when the mean daily maximum temperature is about 41° C. While days are little hotter in May than in June, nights are warmer in June than in May. From April onwards, hot dust – Laden winds locally known as "Loo" blows and weather is unpleasant. The mean daily maximum temperature in January is about 21° C and the mean daily minimum temperature is about 7° C.



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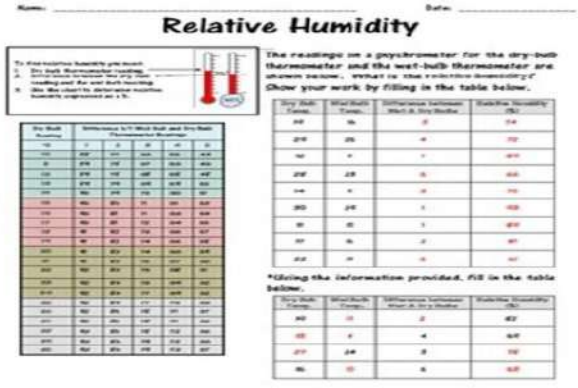

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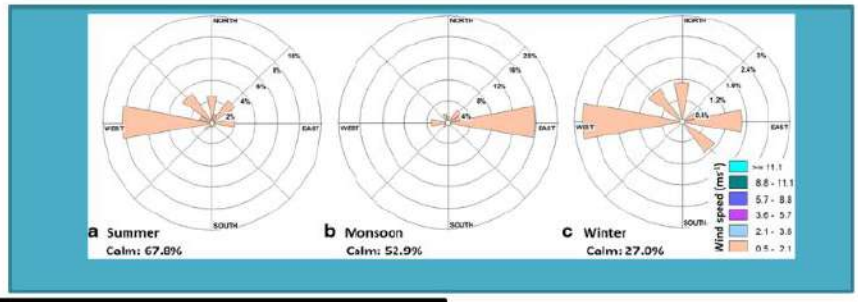

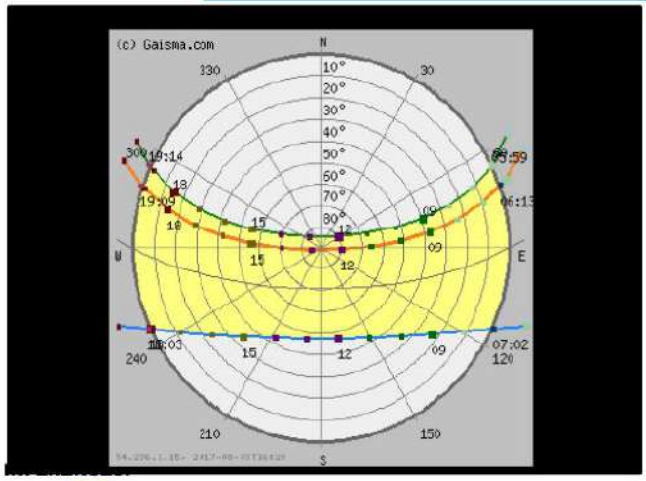

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8.- BUILDING BYLAWS

PLANNING AND ARCHITECTURAL CONTROLL: -

- The planning and architectural controls in Varanasi are governed by **Varanasi Development Authority**, Varanasi (vda).

BUILDING BYLAWS FOR GROUP HOUSING (PERMISSIBLE): -

- **LAND REQUIRE FOR GROUP HOUSING- MINIMUM 2000 SQM. AND MAXIMUM 4 HECTARE, AND MORE THEN 4 HACTARE THE LAYOUT SHOULD BE SENCTION AS TOWN SHIP.**
- **LANDUSE IN MASTER PLAN 2031 - SHOULD BE MIXED LANDUSE, RESIDENCIAL OR COMMERCIAL.**
- **Max. Ground Coverage - 40%**
- **FAR (Permissible) - 2.5 (1.5 ADITIONAL FAR. ON PURCHASE BASIS)**
- **SETBACKS - MIN. 6M ALL AROUND THE BUILDING BLOCK AND ALSO BETWEEN TWO BLOCKS.**
- **HEIGHT - AS/ SET BACK LEFT AROUND THE BUILDING BLOCK.**
- **UNIT - 330 UNIT/ HECTARE.**
- **PARKING - LESS THEN 50 SQM. APARTMENT- TWO WHEELER PARKING (2SQM) .**

  50 – 100 SQM. APARTMENT- ONE FOUR-WHEELER.

  100 – 150 SQM. APARTMENT- ONE AND HALF FOUR-WHEELER.

  150 – 200 SQM. APARTMENT- TWO FOUR-WHEELER.

- **ECS (EFFECTIVE CAR SPACE) – BASEMENT-32 SQM/ECS, COVERED(STILT)-28 SQM./ECS, OPEN-23 SQM./ECS, MECHANICAL (TWO STACK- 16 SQM./ECS).**
- **COMMUNITY SPACES - 5% OF CONSUMED FAR. (CLUB HOUSE, COMMUNITY HALL, GYM, LIBRARY, ETC.)**
- **CONVENIENCE SHOPS - 0.5% OF CONSUMED FAR.**
- **GREEN AREA (PARK) - 15% OF NET PLOT AREA**
- **TREES - 50 TREES / HECTARE.**
- **PROJECTION - 1.5 M (PROJECTED BALCONY IN SET BACK WHICH IS FREE FROM F.A.R.).**
- **ROOM SIZE - AREA 9.5 SQM (MIN.) AND WIRTH- 2.5 M(MIN.)**
- **KITCHEN - AREA 5.0 SQM (MIN.) AND WIRTH- 1.8 M(MIN.)**
- **TOILET - AREA 2.8 SQM (MIN.) AND WIRTH- 1.2 M(MIN.)**

BUILDING BYLAWS FOR GROUP HOUSING (PROPOSED):-

- LANDUSE IN MASTER PLAN 2031 - MIXED LANDUSE – 200M FROM BOTH SIDES OF RING ROAD.
- TOTAL AREA OF OUR SITE - 12140 SQM./ 3 ACRE/ 1.214 HACTARE.
- AREA OF ONE BLOCKS - 726 SQM.
- NO. OF BLOCKS -4 BLOCKS
- FLOORS PER BLOCK - BASEMENT+10
- GROUND COVERAGE - 726x4=2904 SQM.(23.92)% (PERMISSIBLE-40%)
- TOTAL COVERED AREA - 726X10X4 = 29040 SQM.
- TOTAL CONSUMED F.A.R. AREA - 29040/12140= 2.392 SQM. (PERMISSIBLE- 2.5)
- SET BACKS - 10M ALL AROUND THE BUILDING BLOCK AND ALSO BETWEEN TWO BLOCKS.
- HEIGHT - 30 M. (PERMISSIBLE-30 M)
- UNIT/ FLOOR/ BLOCK - 8 UNIT
- TOTAL UNIT - 8X10X4 = 320 UNIT. (PERMISSIBLE-400 UNITS)
- AREA OF BASEMENT - 6500 SQM.
- PARKING - 320 CARS (AS/ALL UNITS AREA IN BETWEEN 50-100 SQM.)

BASEMENT (AREA- 6650 SQM) - MECHNIZED PARKING TWO STACK - 6500/16- 406 CARS.

SURFACE PARKING - 37 CARS (ONLY FOR VISITORS – 10% OF TOTAL PARKING)

- COMMUNITY SPACES - 1517 (5%) OF CONSUMED FAR. (CLUB HOUSE, COMMUNITY HALL, OUTDOOR GAMES, GYM, LIBRARY, POOL, ETC.)
- CONVENIENCE SHOPS - 10 NOS.(0.5% OF CONSUMED F.A.R., 150 SQM OF AREA- 15 SQM. OF EACH SHOP)
- GREEN AREA (PARK) - 2435 SQM – 20% (PERMISSIBLE 15% OF NET PLOT AREA, DEVELOPED AS KIDS PLAY AREA, CENTRAL PARK, YOGA PAVALIONS, WATER BODIES, FOUNTAINS, OPEN AIR GYMNAGIUM, NANA NANI PARK, SUN BATHING AREAS.
- TREES - 125 TREES (PERMISSIBLE- 60 TREES).

9- PLANNING


KIDS PLAY AREA
RAMP
EXIT
60M WIDE RING ROAD
6M WIDE ROAD
BLOCK-D
9M WIDE FRONT ROAD
20M WIDE GREEN BELT
6M WIDE ROAD
CENTRAL PARK
BLOCK-C
STEPS
RAMP
ENTRY
6M WIDE ROAD
BLOCK-B
BLOCK-A
6M WIDE ROAD
CAR PARKING
SERVICES
9M WIDE ROAD
CAR PARKING

OBJECTIVE: -

TO GIVE A HEALTHY ENVIORNMENT TO

OCCUPANTS AND THEY CAN LIVE SAFELY IN

PANDEMIC SITUATIONS.

CONCEPT: - ORIENTATION OF HOUSING IS ACCORDING TO THE SUN WHILE PLACEMENT OF BLOCKS ARE DONE TO CHANNELIZE THE MANSOON WIND TO INDUCE CROSS VENTILATION DURING WET MONTHS.

- THE ORIENTATION OF BLOCKS IS NORTH SOUTH, HAVING NO WINDOWS ON WEST SIDE.
- BLUE LINE IN PLAN SHOWING WET MONTHS WIND.
- BLOCKS ARE SUCH PLACED THAT THE ADJECENT
- BLOCK DOES NOT COMES UNDER THE WINDSHADOW
- OF OTHER BLOCK.
- TREES ARE PLANTED TO CHANNELIZE THE WIND AND SHADE TO PADESTRIAN PATHWAYS.
- TO AVOIDE WINDSHADOW THE ADJECENT BLOCK ARE PLACED AT MAXIMUM DISTANCE AND WIDTH OF BLOCK IS KEPT 1.5 TIME MORE TO NORTH – SOUTH DIRECTION, TO ALLOWED MAXIMUM WIND IN THE BLOCKS.
- THE PLACEMENT OF BLOCK ARE DONE ACORDING TO THE GREEN AREA IN BETWEEN AND CENTRAL PARK AREA ACTING AS INTERACTIVE AREA IN BITWWEN THE BLOCKS.
- KIDS PLAY AREA ARE PLACED IN CORNER MOST OF THE SITE SO THEY PLAY SAFLY AND NO VEHCULAR MOVEMENT WILL BE THERE.

- WATER BODIES AND FOUNTAIN ARE GIVEN IN WEST SIDE OF THE SIDE SO THAT HOT WEST WIND TRAVELLING DURING HOT SUMMERS GET COOLED HERE THUS THE SITE GET COOLER AIR.
- HIGHTY DENSE TREES PLANTED NEAR SOUTH BOUNDARY WALL TO REDUCE THE WARM EFFECT OF SUN RAYS.
- BLOCKS ARE PLACED SUCH THAT THEY ARE NOT SHADING THE WALL OF THE OTHER BLOCKS DURING WINTERS

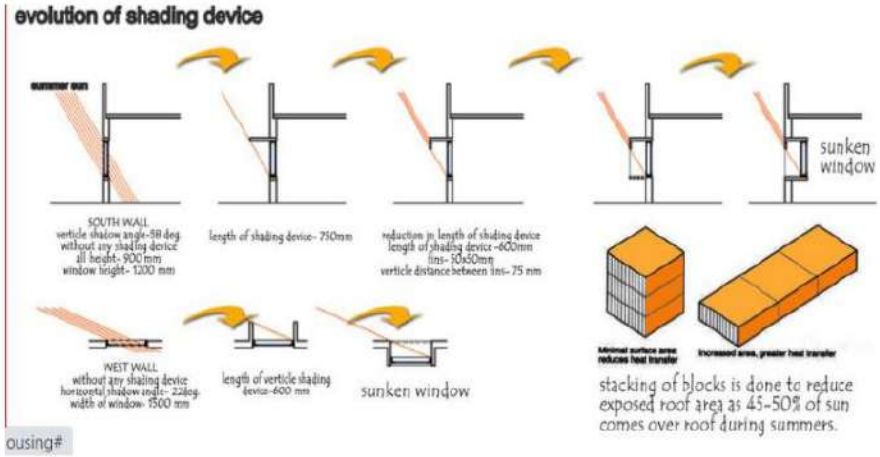
CLUSTER / BLOCK PLANNING: -

- THE BLOCKS HAVING NO WINDOWS ON WEST SIDE.
- BLUE LINE IN PLAN SHOWING WET MONTHS WIND.
- COMMON PASSAGE THROUGH EAST-WEST, IS ACT AS WIND TUNNEL.
- ALL THE APARTMENTS ARE THREE SIDES OPEN AND FULLY SCOPE OF CROSS VENTILATION.
- SOUTH FACING AREAS OF BLOCKS HAVE PROJECTED MASSONERY WARDROBES AND 1.5M WIDE BALCONIES WITH FACIA BEAMS, SO THAT THE OPENINGS OF BEDROOM ACT AS SUNKEN WINDOWS WHICH ARE MORE COMFORTABLE DURING

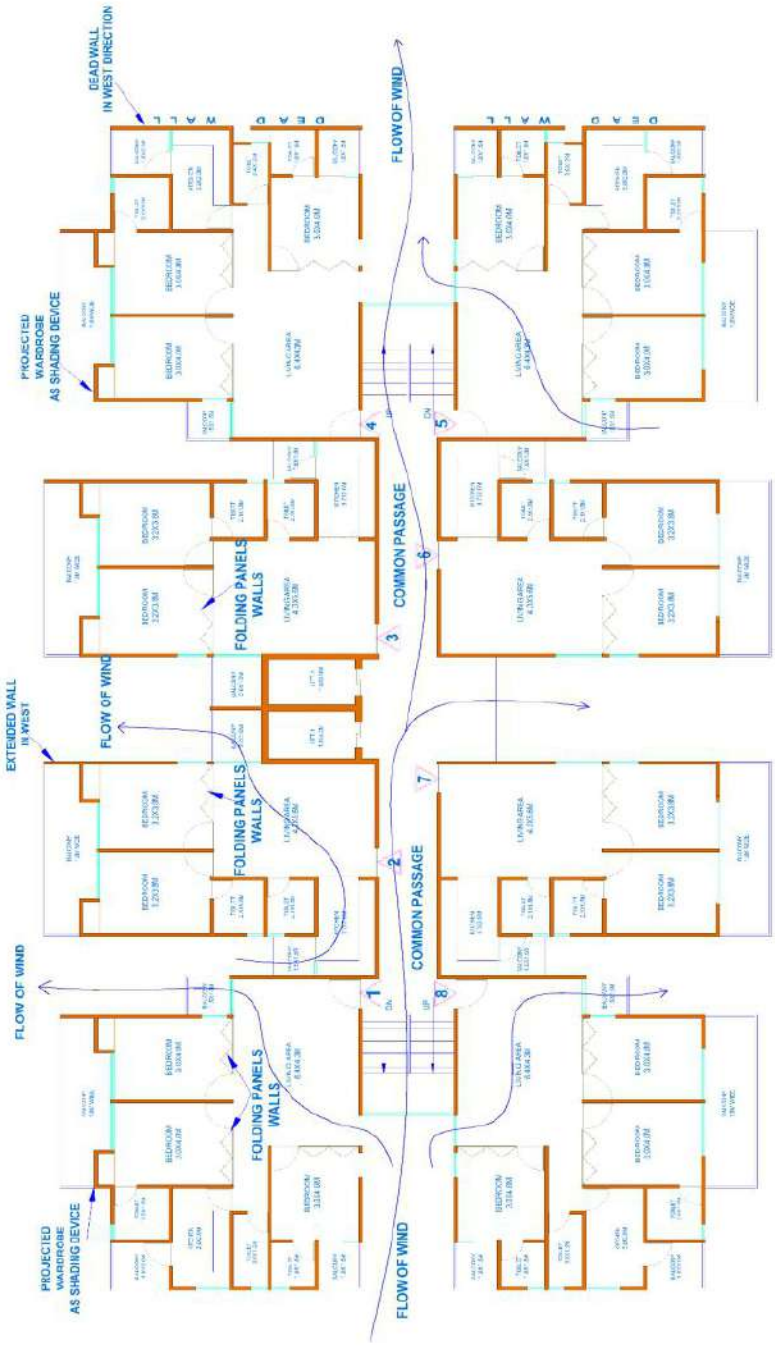
CONCEPT: - **TO PROVIDE MAXIMUM SHADES IN SOUTH AND WEST DIERCTION AND DESIGN FOR PANDEMIC SITUATIONS.**

OBJECTIVE: -

TO GIVE A HEALTHY ENVIORNMENT TO OCCUPANTS AND CROSS VENTILATION PROVIDED.

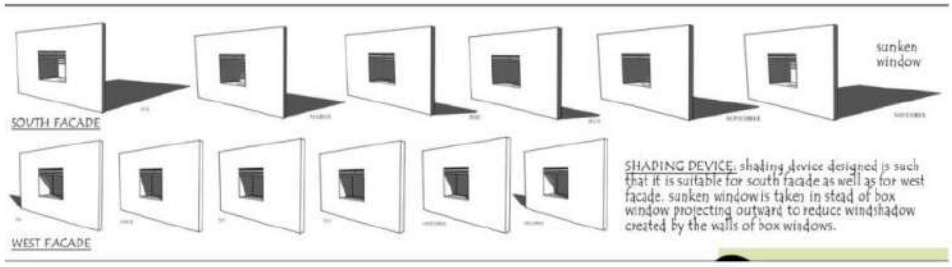

evolution of shading device
summer sun
SOUTH WALL
verticle shadow angle-58 deg
without any shading device
all height- 900 mm
window hright- 1200 mm
length of shading device- 750mm
reduction in length of shading device
length of shading device -600mm
fins- 10x50mm
verticle distance between fins- 75 mm
sunken window
WEST WALL
without any shading device
horizontal shadow angle- 22deg.
width of window- 1500 mm
length of verticle shading device-600 mm
sunken window
stacking of blocks is done to reduce exposed roof area as 45-50% of sun comes over roof during summers.

ousing#


DEAD WALL IN WEST DIRECTION
FLOWOF WIND
PROJECTED WARDROBE AS SHADING DEVICE
COMMON PASSAGE
FOLDING PANELS WALLS
FLOW OF WIND
EXTENDED WALL IN WEST
COMMON PASSAGE
FOLDING PANELS WALLS
FLOW OF WIND
PROJECTED WARDROBE AS SHADING DEVICE
FLOW OF WIND

CLUSTER / BLOCK PLANNING:-

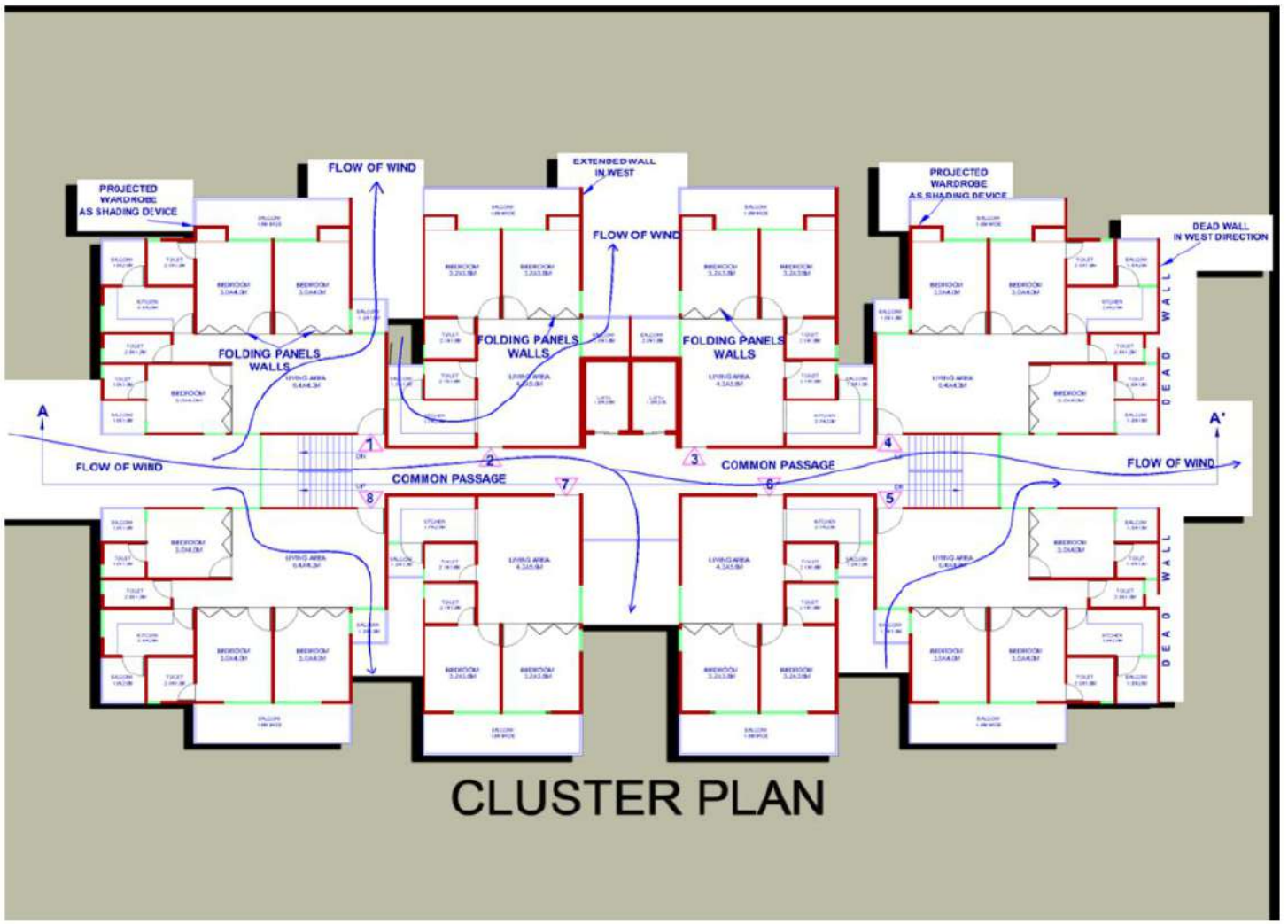
- LIFT SHOULD HAVE FOOT OPARATED.
- TWO STAIRCASE PRIVIDED AND BOTH ARE PLACED IN SUCH A WAY THAT IN CASE OF PANDEMIC,ONE STAIR CAN USE FOR PATIENTS, DOCTOR AND NURCES.
- MAIN DOOR OF APARTMENT KEEP MORE DISTANCE TO OTHER APARTMENT AND TRY TO NOT FACING TO OPOSITE APARTMENT WHERE AS POSSIBLE.
- RESIDENTS TO ENGAGE WITH NATURE AND THE COMMUNITY WHILE KEEPINGAT A COMFORTABLE DISTANCE FROM OTHERS.



OBJECTIVE:-

TO GIVE A HEALTHY ENVIORNMENT TO OCCUPANTS AND CROSS VENTILATION PROVIDED.

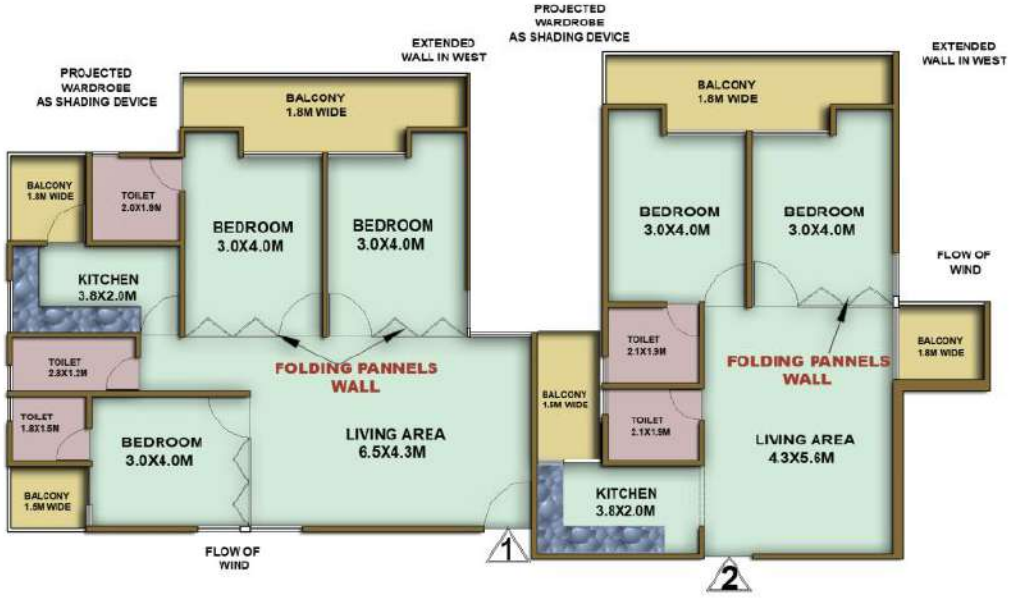
CONCEPT:- TO PROVIDE MAXIMUM SHADES IN SOUTH AND WEST DIERCTION AND DESIGN FOR PANDEMIC SITUATIONS.



CLUSTER PLAN

UNIT (APARTMENT) PLANNING: -

- "If people now are going to be able to work from home on a far more regular basis, they need to have the ability to have a real work-life space and structure at home."
- Family wants an open-plan home with flexible areas that can be closed off or opened up, to serve as office space or playrooms, depending on their needs that day.
- It is important to make apartments more adaptable, especially for families and people living in medium or high-density blocks.
- "Flexibility is key, especially for multi-family units. The question is how can you allow a family to be together but also have their moments of refuge on their own within that unit,".



CONCEPT: - TO PROVIDE MAXIMUM SHADES IN SOUTH AND WEST DIRECTION AND INSIDE THE APARTMENT LIVING AREA AND BEDROOMS CAN CLUB TO EACH OTHER IF REQUIREDS

OBJECTIVE: -

17

PROVIDE An OPEN PLAN HOME WITH FLEXIBLE AREAS.

UNIT (APARTMENT) PLANNING: -

- It has a storage area beneath and the option to conceal the desk behind moveable panels at the end of the day.
- "There are no corridors, as this is wasted space "The bedrooms are all set next to each other. You use slidable panels, which can completely open or close rooms as you like. "
- A room could be used as a yoga space or a children's playroom in the morning, then turned into a bedroom at night, or a living room could be enlarged by sliding back the doors of a bedroom, if guests are coming for dinner.
- The design removes all unnecessary doors and walls, and the rooms are placed in

a line, to cut down on unused space, improve ventilation and let in as much light as possible.

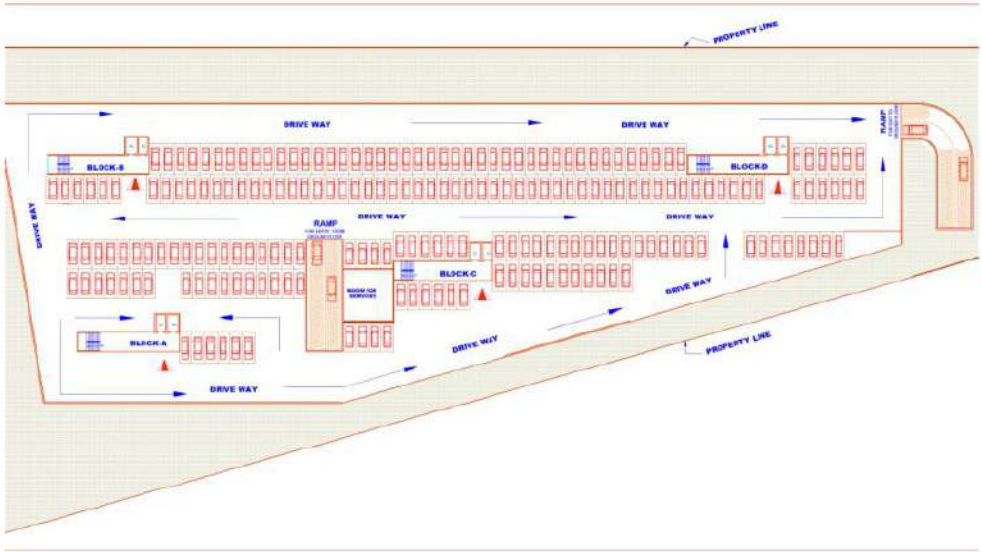
FOLDING PANELS REPLACE WALLS TO MAKE LIVING SPACE ADAPTABLE FOR DIFFERENT FAMILY MEMBERS IN PANDEMIC OR POST-PANDEMIC SITUATIONS.

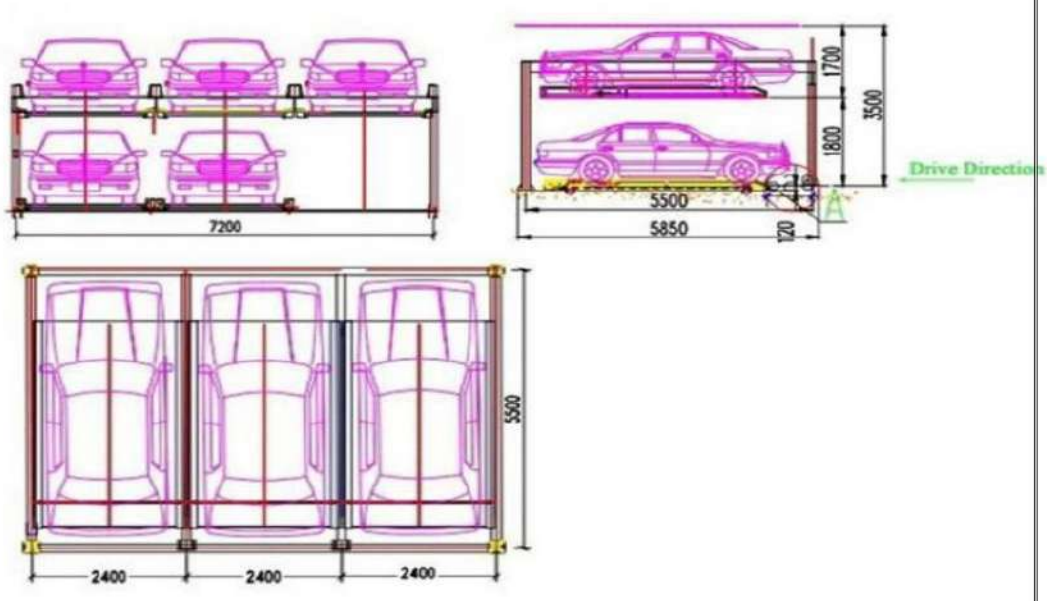
BASEMENT CAR PARKING:-

- TWO STACK MECHNIZED TYPE PARKING PROVIDED IN BASMENT.
- MECHANIZED TYPE PARKING REDUCE THE AREA OF ONE SLAB AS WE PROVIDE TWO BASEMENT.
- TWO 6M WIDE RAMP PROVIDED, ONE FOR ENTRY AND ONTHER

CONCEPT:-

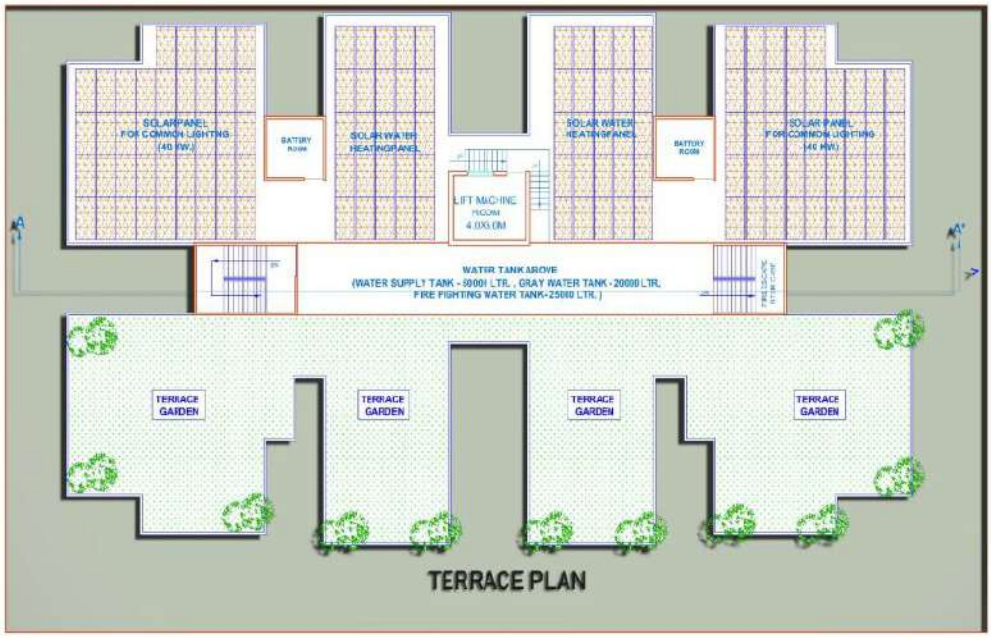
ΣΕΠΑΡΑΤΕ ΕΝΤΡΨ ΑΝΔ ΕΞΙΤ ΦΟΡ ΧΑΡΣ ΦΟΡ ΒΕΤΤΕΡ ΧΙΡΧΥΛΑΤΙΟΝ ΑΝΔ ΜΟϛΕΜΕΝΤ.


PROPERTY LINE
DRIVE WAY
DRIVE WAY
BLOCK-B
BLOCK-D
RAMP
DRIVE WAY
DRIVE WAY
DRIVE WAY
RAMP
BLOCK-C
DRIVE WAY
DRIVE WAY
BLOCK-A
DRIVE WAY
PROPERTY LINE

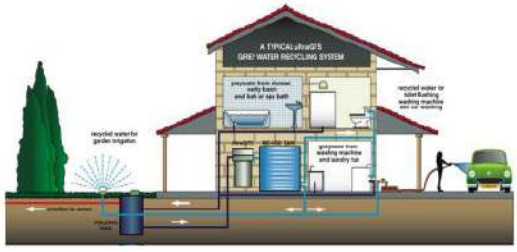

7200
1700
3500
1800
Drive Direction
5500
5850
120
5500
2400
2400
2400

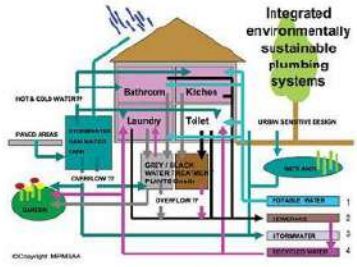
TERRACE PLAN: -

- SOLAR WATER HEATER FOR WARM WATER AND 40 KW OF SOLAR PANNEL FOR COMMON LIGHTING IS INSTALLED ON TERRACE WITH SOUTH FACING.
- SOLAR PANNEL PROVIDED SHADE TO THE TERRACE AND IT WILL LELP TO REDUCE HEAT.
- WATER TANK OF CAPICITY OF 50000 LTR. INSTALED ON TERRACE AND 25000 LTR WATER RESERVE FOR FIRE FIGHTING AND AS WELL AS 20000 LTR GRAY WATER TANK ALSON INSTALLED TO FEED FLUSH TANK OF APARTMENT TO CONSUME DISCHARGE WATER OF S.T.P.
- TERRACE GARDEN MAINTAIN AT TERRACE TO REDUCE HEAT.



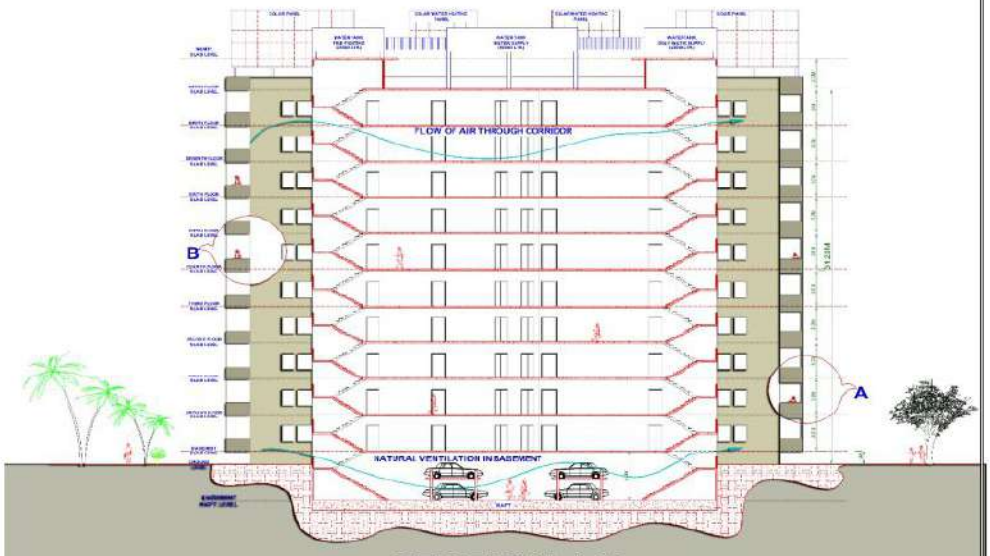
TERRACE PLAN





SECTION AA': -

- SECTION SHOWING BASEMENT +10 FLOOR AND EACH FLOOR HEIGHT IS 3M WITH 4M HEIGHT OF BASEMENT FLOOR TO ACCOMMODATE 2 STACK CAR PARKING AND OVER ALL HEIGT OF BUILDING IS 31.2M.
- GROUND LEVEL BASEMENT SLAB HEIGHT IF 1.2M FOR NATURAL VENTILATION
- SECTION SHOWING CORRIDORS ARE FULL OF FLOWING WIND.
- SOALR PANELS ARE INSTALLED ON TOP OF BUILDING FACING SOUTH.



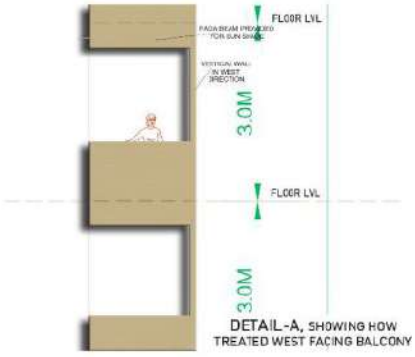
SECTION AA'

OBJECTIVE:-

TO PROVIDE NATURAL VENTILATION IN BASEMENT.

DETAIL-B, SHOWING EAST FACING BALCONY

CONCEPT:- ΟΠΕΝΙΝΓ ΒΑΛΧΟΝΙΕΣ ΑΡΕ ΔΕΣΙΓΝΕΔ ΑΧΧΟΡΔΙΝΓ ΤΟ ΔΙΡΕΧΤΙΟΝ.



DETAIL-A, SHOWING HOW TREATED WEST FACING BALCONY

ELEVATION :-

- ELEVATION SHOWING BASEMENT +10 FLOOR AND EACH FLOOR HEIGHT IS 3M WITH 4M HEIGHT OF BASEMENT FLOOR TO ACCOMMODATE 2 STACK CAR PARKING AND OVER ALL HEIGT OF BUILDING IS 31.2M.

FRONT ELEVATION

CONCLUSION:-

Housing building is considered as a way for the building industry to move towards protecting the environment and as well as in pandemic situation. The promotion of housing building practices is to pursue a balance among economic, social, and environmental performance in implementing construction projects. If we accept this, the link between sustainable development and construction becomes clear; construction is of high economic significance and has strong environmental and social impacts. With the growing awareness on environmental protection, this issue has gained wider attention from construction practitioners worldwide. Implementing sustainable building construction practices has been advocated as a way forward in fostering economic advancement in the building industry while minimizing impact on the environment. In order to reduce these detrimental impacts of construction on the environment and to achieve sustainability in the industry, three principles emerge: resource efficiency, cost efficiency and design for human adaptation. They form framework for integrating sustainability principles into construction projects right from the conceptual stage.

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