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Sustainable Home Design

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Abstract: ***The need for modern times is to reduce carbon footprints and adopt green energy sources. The green sources of energy need to find preferences than traditional sources. Unconventional sources of energy such as solar, wind are the option of traditional energy sources. Lack of awareness, high initial investment and lack of government incentives are some challenges in the housing sector, especially in developing economies to adopt energy sources. The energy consumption of the traditional residential building, the design and aesthetics has a significant impact on the environment. City planners, private housing developers and individual homeowners have to be aware of the informal sources of energy such as solar energy to meet their daily energy requirements. Energy durable homes have minimal dependence on traditional sources of energy, such as coal based thermal power plants. In this research paper to move a step near the energy sustainable building, the authors studied the design of the design, energy consumption and the conversion of the solar project of residential buildings through actor processing and education performance (SAPLAP).***

I. INTRODUCTION

The durable home is an efficient home that respects the source, adapts energy and water consumption, and is created or recovered in a way that lasts longer with quality systems. Durable homes use less effects, high-performance materials. Due to the high-quality material, the system breaks down and longer, they waste less .Various studies, which are concluding durable homes, decoration choices, insulation, windows, heat, ventilation and air conditioning, lighting, equipment plumbing fixtures, use of smart systems, generating energy from solar and wind and your habits Green cleaning is considered.

Most of the materials are selected for cement brick homes because research has shown that wood houses are more environmentally friendly than brick houses, so this research focuses more on durable materials for brick homes. Fly El Shap, Recycled, M sand, ground-granulated blast-furnace slag and many other things are examples of durable materials. Before you build a new home or renovate an existing one, consider investing in green energy. You can save energy and money by improving your home comfort and health. Consider the renewable energy system that can provide electricity, hot water or space heating and cooling during the planning process.

This research looked at various ideas and tricks to reduce waste, increase efficiency, and ensure the quality of the home air. Sometimes small changes can make a big difference to choose a light color on the outer wall. Helps to reduce the temperature at 5-8 degrees Celsius.

II. BUILDING SUSTAINABLE HOUSES IN INDIA COMES WITH SEVERAL CHALLENGES DUE TO VARIOUS FACTORS. THESE INCLUDE

A. High Initial Cost

Sustainable building materials and technologies often have a higher initial cost compared to traditional methods. This can be a barrier for many homeowners, especially in rural areas or lower-income urban communities, who may not be able to afford these more expensive options upfront.

B. Limited Access to Sustainable Materials

Though India has a variety of natural and eco-friendly materials available, such as bamboo, mud, and clay, they are often not easily accessible in all regions. The market for sustainable materials is still developing, and logistics for sourcing and transporting these materials can be complex.

C. Energy Consumption in Urban Areas

In cities, the construction of sustainable housing faces the challenge of ensuring that the home remains energy-efficient despite the urban environment, which often has high energy demands, air pollution, and heat island effects.

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D. Climate Variability

India's diverse climate conditions (from hot and arid to humid tropical) present challenges for designing a one-size-fits-all sustainable housing model. Building techniques need to be tailored to regional climates, which increases the complexity of the project.

III. SUSTAINABLE HOME DESIGN INCLUDES BELOW FACILITIES

A. Solar Panel

As with LED lighting, solar panels have been around for a very long time. Installing them in your home comes with a host of benefits which include:

1) Solar panels help save money.
2) They provide energy independence.
3) They help slow global warming.

B. Rainwater Harvesting

Rainwater harvesting collects and stores rain water for re use on site as oppose to letting it go to waste. Installing a rainwater harvesting system saves water consumption by up to 50%. This is by far one of the easiest and most energy efficient ways to save water, money and energy.

C. Side Drain with Stone Pitching

Providing the slope around compound wall side for collect the water in the stone pitching small drain. It collects the water and purifying the water and useable to the irrigation storage in tank for domestic use.

D. Invest in Eco friendly building Materials

Eco-friendly building materials have less of an impact on the environment so by investing in them you help do your part in protecting the environment. The materials are made from renewable resources and are not toxic. In addition, many of the materials are more energy efficient than the standard stuff which helps you save energy at the same time

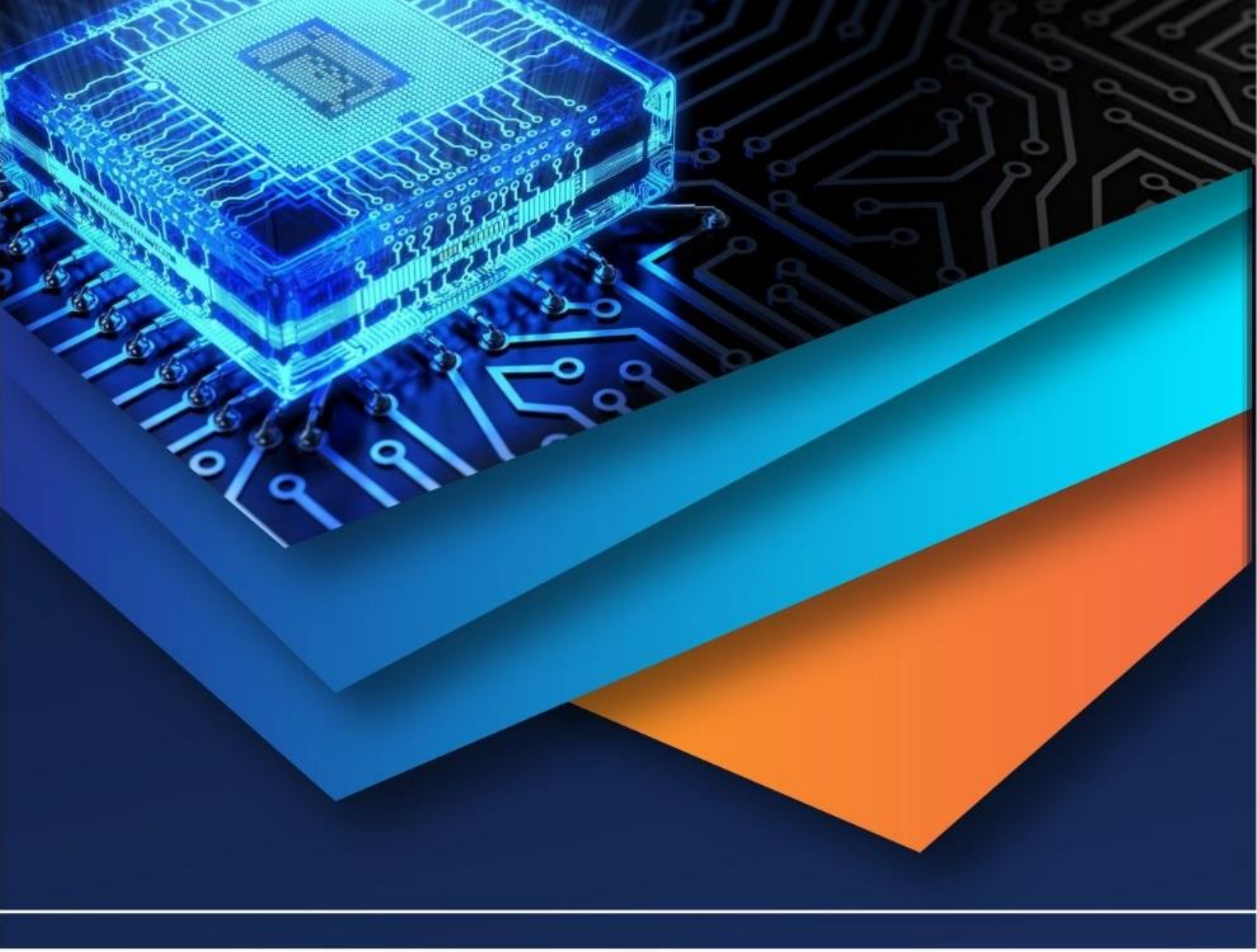
IV. CONCLUSIONS

sustainable house design is a forward-thinking approach that aims to create homes that are environmentally responsible, energy-efficient, and resource-conscious, all while promoting the health and comfort of its occupants. By focusing on energy efficiency, water conservation, the use of sustainable materials, waste reduction, and improved indoor air quality, sustainable homes contribute to a healthier planet and a better quality of life for those who live in them.

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