International Journal of Advanced Technology in Engineering and Science
Vol. No.08, Issue No. 03, March 2020
www.ijates.com
ijates
ISSN 2348 - 7550

A RESEARCH PAPER ON GREEN BUILDING

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ABSTRACT

Green building technology is one of the most trending topics all over the world which is been put forward to reduce the significant impact of the construction industry on the environment, society and economy. A drastic climatic changes been noticed and being experienced all over the world due to increase in the Green House Gases (GHG's). In the developed countries like United States of America, Russia, Australia, United Kingdom, there are already strict measures been taken to achieve a sustainable development and also rules and regulations are been made by their respective governments to support and achieve a sustainable and an eco-friendly development of their nations.However, in the developing countries like India, China, Srilanka, Pakistan, etc., they are far behind in achieving a sustainable development and eco-friendly constructions.So, as after seen of good results in reduces of pollution after taken good decision of other country government, so after this Indian government should also be take well decision and propagate the awareness programs.In some last ago year ,in India pollution increased at very high level so because of this people are difficult in live in the society and places.So green building is a technique that can reduces the pollution at higher level,its not only the method to reduces the pollution,many other methods we can use for reduce the pollution and sustainable development.Green building is a good technique to curb the global warming.

In this method we grow tree in the balcony of the building and at many parts of the buildings.

INTRODUCTION

There are many definitions of a Green building as per different researchers. It is also worth noting that the term green building is now days used as an interchangeable word with the high performance buildings or a sustainable buildings or structures. The concept of Green Building basically stands on five main points which are –

1.Reduction of the effects or rather the side effects of the structure on the environment.

2. Improving and enhancing the health conditions of the occupants in a structure.

3. Savings and returns on investments to the investors and the community.

4. Life cycle considerations during the planning and development process.

5. Construction industry is one of the most rapidly developing industries all around the world.

RESEARCH BACKGROUND

We were three members in a group when did research on green building.We learnt manythings about green building and also the methodology to reduce the pollution.Pollution is spreading like fire in our country so we should get idea and we must curb on it.If we will not control on this it would be very dangerous for our nature and for us. So,whenwere researching on this we learnt like

- Firstly we learnt steps of constructing green building.
- Methodology to curb on pollution.
- Method to curb on global warming.
- Awareness of people.
- Got good ideas and like how to make a building make in effective cost.
- Got ideas about green building materials etc.

METHODOLOGY

This study is aimed at research, study and development of the green building construction techniques in order to save our planet from pollution and global temperature rise. Also, it aims at spreading awareness among the people all over the world, about the advantages and also the long term cost savings from green buildings. Further, the structural methodology is structured as below:

1. Introduction

2. Literature survey.

3. Study of the research topic in detail

4. To study the research papers, articles and magazines related to the topic of study.

5. Data collection from the proposed areas of study which includes large, medium and small scale construction projects.

6. Collection of information with the help of web surveys.

7. Finding out new ways and techniques for development of green construction.

METHODOLOGY

CASE STUDIES AND SITE SELECTION

QUANTITY ESTIMATION

DECISION OF CHANGES

MARKET STUDIES

COST ANALYSIS

CONCLUSION

- **GREEN TECHNIQUES:-EMPHASIS OF FOUR 'R's:-**

Via sound designing, construction and building commissioning without compromising structural durability, indoor pollutant levels, ventilation, building code requirements, or marketability includes:-

Reduce:- lower quantity of building material, resources, and embodied energy are used.

Reuse:-construction materials that are practical and structurally sound are reused.

Recycle: - recycled materials are used, and home is designed for recyclables.

Renewable:- energy from natural sources and renewable building materials are emphasized.

The technique which emphasizes these four „R"s are called as **Green Techniques**.

These Green techniques can be classified as follows:-

- Structural or civil techniques.
- Electrical techniques

➢ **STRUCTURAL TECHNIQUES:-**

1. INSULATED WALL:-

All of us pay to heat and cool our homes and wish we could pay much less than we do. In a typical home, space conditioning and comfort bills can account for up to one-half of a home's energy bills with the remaining portion due primarily to water heating, lighting, and appliances. Installation of the cost-effective level of insulation is extremely important. Homeowners can affect their energy usage, save money, and help the environment all at the same time. Investing in energy-efficient options, such as insulation, will provide a continued payback to the homeowner and a more enjoyable and comfortable living environment for many years, as well as a reduction in emission of greenhouse gases. Types:-

1. Air gap insulation
2. Cotton insulation
3. Mineral wool insulation
4. Plastic Fibre insulation

2. GREEN CEMENT:-

Green Cement is a combinations incorporating limestone, fly ash or groundgranulated blast-furnace slag can be specified and, in some exposure conditions, may be more appropriate. The cement industry is actively recovering the energy from wastes by increasing the use of non-fossil fuels such as waste solvents; refuse derived fuel (RDF), certain non-recyclable paper and plastics, sewage pellet, and meat and bone meal. Using these alternative fuels not only reduces the need for landfill sites or disposal by incineration but also helps preserve our finite reserves of fossil fuels.

3. **FLY ASH BRICK:-**This is a fine, glass-powder recovered from the gases of burning coal during the production of electricity. These micron-sized earth elements consist primarily of silica, alumina and iron. When mixed with lime and water the fly ash forms a cementations compound with properties very similar to that of Portland cement. Because of this similarity, fly ash can be used to replace a portion of cement in concrete, providing some distinct quality advantages. Adding fly ash to stabilized soil bricks or ordinary bricks can increase their compressive strength. Other benefits include:

I. Low water absorption
II. Less consumption of mortar
III. Economical & eco-friendly
IV. Low energy consumption
V. No emission of green house gases

4. **TRANSPARENT ROOF / SUSTAINABLE DAY LIGHTING:-**Lighting accounts for around 15% of the energy bill in most homes, and around 25% in commercial buildings. The most sustainable lighting is natural daylight. It is not only a free renewable resource but it also has well-documented health benefits. Careful architectural design is required to maximize natural light in a building while maintaining indoor temperature regulation and reducing direct light glare. The strategic placement of windows, skylights, light shafts, atriums and translucent panels in harmony with other building components, such that light is reflected evenly throughout internal spaces, is known as day lighting design

Green Roofs:-

It consists of covering the roof by the plantation of the different types. Other than enhancing the aesthetic sense it acts as the natural insulation.

Construction:-The basic build up of a green roof is three layered: - drainage, filter and vegetation layer. Each layer needs to fulfill several functions to decrease the height and the weight of the overall build-up.

Vegetation:-Type of planting depends on depth of the growing medium layer as well as other factors.

Growing medium:-Grain size, water retention, air volume, and weight and nutrient reserves. The soil needs to be stable, not prone to settlement, well aerated even with water saturation and free of weeds.

Drainage:-This layer retains drains water off the roof, protects the root proof layer from being mechanically damaged, retains water for times of drought and provides the substrate with a balanced supply of water and air.

Insulation:-Warm roof rigid insulation

Roof membrane:-This prevents roots from damaging the waterproofing.

Green Paints:-According to the EPA, the air inside a home is, on average, two-to-five-times more polluted than the air outside. Paint is a large contributing factor to poor indoor air quality and can emit harmful chemicals, such as VOCs, for years after application. There are serious health and environmental concerns surrounding paint. Using paints that are free of Volatile Organic Compounds (VOCs) such as benzene and toluene, free of heavy metals such as lead or cadmium, and/or made of post-consumer recycled content can aid in reducing exposure to toxics both for you and your environment.

Eco Wood:-Eco wood is the wood produces and processed by the man himself by recycling. Also the wood manufactured from baggase of sugarcane can be classified into this category. This type of wood can again be recycled and reused. Thus it helps to keeps to environment healthy.

Green Glasses:-Green Glass products are used in exterior applications both for energy generation and energy conservation as well as for interior applications .

- **ELECTRICAL TECHNIQUES:-**Conservation Techniques

1. Optimum use of natural light.

2. Replacing incandescent lamps by compact fluorescent lamps (CFL‟s).

3. Replacement of conventional fluorescent lamp by energy efficient fluorescent lamp.

4. Replacing of mercury/sodium vapour lamp by halides lamp.

WORLD'S 7 LARGEST GREEN BUILDING

- One angle square, Manchester UK
- One Bryant park,new York city,US
- Shanghai Tower,Shanghai,China
- Micro Emission Sun Moon Mansion,Dezhou, china
- Manitoba Hydro Place,Wiinipeg Canada
- Apple Campus 2,SiliconVlley,USA
- Bullittcentre,Seatle,USA

CONCLUSION :- In an environmentally stressed world, green buildings are moving from an exotic curiosity to a necessity. Buildings are perhaps the single greatest stress on the environment, accounting for the world's fresh water withdrawals, one-quarter of its wood harvest, and two fifths of its material and energy flows. In such a scenario of shortages of clean water and other materials, and the possibility of devastating climate change, the greening of buildings constitutes a collective vital. Given the political difficulties of obtaining energy, and likely future shortages of conventional energy sources, we cannot ignore the enormous conservation that green buildings make possible. And buildings with natural materials and lighting also create a happier, healthier, more productive atmosphere. In today‟s era Green Buildings are essential as environmental balance is very important for survival and further development of human beings. Green Buildings are only way to a sustainable future.

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ISSN 2348 - 7550

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