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Implement Green Construction Technology in Construction

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ABSTRACT: The term "green building" is used to describe buildings that are designed, constructed, and operated, to have a minimum impact on the environment, both indoor and outdoor. Most discussions of green buildings refer to the importance of providing an acceptable, if not exceptional, indoor environment for the building occupants. However, these discussions of indoor environment quality have not included many specific recommendations or criteria for building design, construction, or operation. Building projects described as green building demonstrations often make reference to indoor air quality, but these references are often general and qualitative. In addition, rating systems that have been developed to assess the "greenness" of a building are based largely on design features and are not particularly specific with respect to indoor air quality. This paper reviews the features of indoor air quality that are considered in green building discussions, demonstration projects, and rating systems. These green building features are discussed in terms of their completeness and specificity, and are compared to other guidance on building design, construction, and operation for good indoor air quality. A case study of indoor air quality performance in a green building is presented. This study includes a description of the indoor air quality features of the building and the results of a short-term indoor air quality evaluation of the building involving ventilation and contaminant concentration measurements.

KEYWORDS: Environment, Construction, Demonstration Projects, Rating System.

I. INTRODUCTION

A 'green' building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life. Any building can be a green building, whether it's a home, an office, a school, a hospital, a community centre, or any other type of structure, provided it includes features. However, it is worth noting that not all green buildings are-and need to be-the same.

Different countries and regions have a variety of characteristics such as distinctive climatic conditions, unique and traditions, diverse building types and ages, or wide-ranging environmental, economic and social priorities – all of which shape their approach to green building. This is why world GBC supports its member green building councils and their member companies in individual countries and across regions, to pursue green buildings that are best suited to their own markets. Green building is a team effort and the designing and construction includes consultants from architecture and landscaping, air conditioning, plumbing, energy and electrical areas. The final design needs to be feasible and should minimize the negative impacts that the building would have on the environment. Implementation of green building concept can lead to a reduction of carbon emission by the 35 %, water usage by 40%, solid waste reduction by 70% and reduction in energy consumption by 50%. Green building concept also emphasizes on the fact that an area with high biodiversity should be avoided as a site for the construction of a building.

II. COMPARISION OF GREEN BUILDING WITH CONVENTIONAL BUILDING

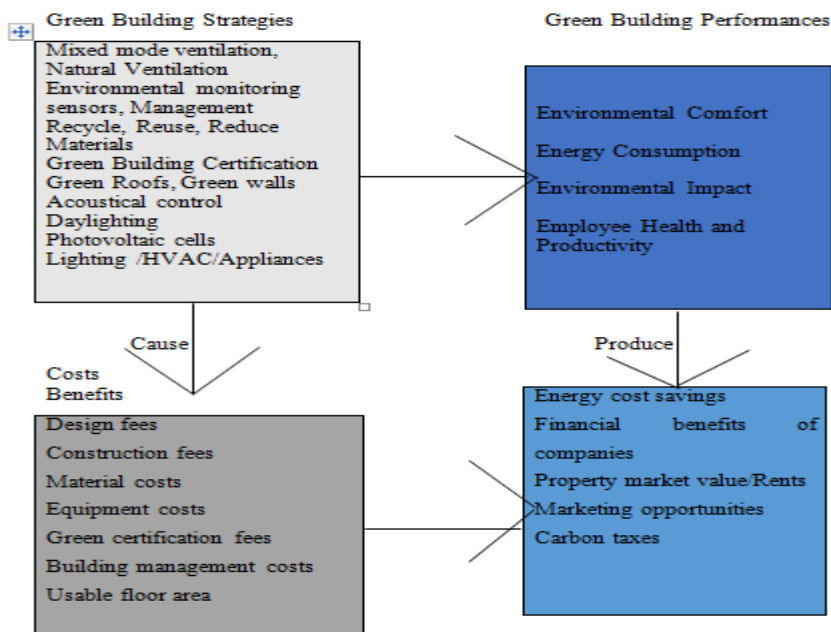
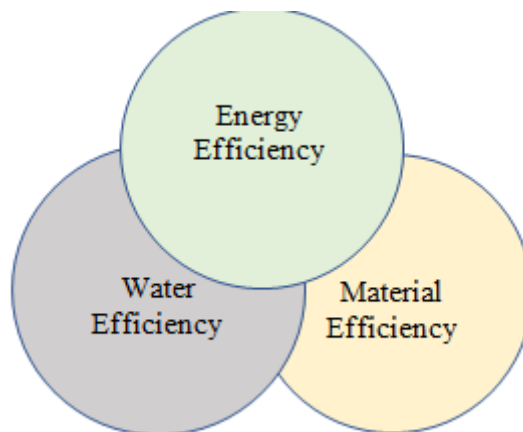
Conventional building construction refers to the traditional method of construction where the construction knowledge is passed from one generation to the other associated to the wet construction (in-situ) using reinforced concrete. A green building uses less energy, water and natural resources, creates less waste and is healthier for the people living inside compared to a standard building. There is a rapidly expanding market for green building materials. Green building provides suitable environment by controlling solar radiation temperature, energy efficiency, water conservation using

domestic treatment plant and indoor air quality. The main aim of green building is to reduce the environmental impact of new buildings. The sustainability in the environment can be well achieved by reducing the energy emission and consumption by the buildings. Sustainability means using the energy efficiently. Green building refers to a structure that is environmentally responsible and resource-efficient throughout a building’s life-cycle. The aim of this project is to conduct a comparative study on conventional and green residential building. Data regarding temperature details are represented in energy stimulation software-energy 2D. A study on various green building rating system is to be conducted. Rate of water consumption and electricity consumption, waste generated in the selected building were collected for grading the building using LEED certification. A model showing all elements of green building such as rainwater harvesting plant, biogas plant, grey water filter, cooling tunnel, etc. were made.

III. HOW TO ACHIEVE GREEN BUILDING OBJECTIVES

Seeking to lower environmental impacts and minimize social and economic value over a building’s whole life cycle (from design, construction, operation and maintenance, through to renovation and eventual demolition). Ensuring that embodied resources such as the energy or water used to produce and transport the materials in the building are minimized so that buildings are truly low impact.

To achieve green elements in Buildings



IV. MATERIAL AND ELEMENT

Building materials typically considered to be green include rapidly renewable plant materials like bamboo, cork, straw bales, plant-based polyurethane rigid foam, lumber from forest certified to be sustainably managed, ecology blocks, recycled plastic, reclaimed wood, reclaimed or recycled steel, , ferrock, terrazzo and other products. Bamboo has high strength to weight ratio, even greater comprehensive strength than concrete and brick, and lasts incredibly long. Cork has excellently absorbed noise, making it perfect for insulation sheets, and due to its excellent shock absorption qualities, it is perfect for sub-flooring. It also can be a good thermal insulator as it is fire resistant. Straw bales have good insulation properties and can act as sound proof materials. Rather than the sourcing. Mining and milling new components for construction, manufacturers are using recycled plastic and other ground-up trash to produce concrete.

Material Replaced in Green Building

Sl. No	ITEM	CONVENTIONAL MATERIAL	GREEN MATERIAL
1	Windows and openings	Aluminium panelled plain glasses	Insulated glass (IG Units)
2	Lighting fixtures	Tube lights & CFLs	Low watt LED tube lights & bulbs
3	Plumbing fixtures	Conventional fixtures	Special green fixture
4	Flooring	Vitrified & Glazed tiles and China mosaic	PVC Flooring, Glazed tiles & China mosaic
5	Doors	Pine wood	Engineering wood
6	Paints	Plastic VOC	Plastic Non-VOC
7	Bricks	Clay bricks	Fly ash bricks
8	Cement	OPC	PPC
9	Installation of rain water harvesting system	Not provided	Provided

V. ADVANTAGES OF GREEN BUILDING

One important advantage of green buildings is that they can be considered to be quite energy-efficient. While old conventional buildings are usually not insulated at all and lose plenty of heat, eco-friendly buildings can keep plenty of heat inside since they are insulated properly. In green construction process, the fraction of eco-friendly materials is often also much higher compared to regular building. It also has the goal to minimize waste. For instance, this could mean that materials that are left from construction. Processes are not disposed into landfills, but that those materials are rather reused for other purposes instead. By reusing those materials, we could greatly reduce the waste from construction practices, which would greatly improve our overall ecological footprint. Energy-efficient buildings also imply far less air pollution. For the production of energy, large amounts of fossil fuels are used, which in turn implies significant emissions. Thus, if the energy demand can be reduced through green building techniques, also the amount of fossil fuels that have to be used on a global scale can be reduced significantly. Thus, green construction can contribute to better air quality and to less particle pollution. A reduction in the use of fossil fuels through gas emissions. In turn globe warming can be slowed down to a certain extent and we as humanity can mitigate the adverse environmental effects that are associated with climate change.

VI. CONCLUSION

Nowadays, we should make a way to maximize our natural resources and also help our mother earth to get some relief since pollution is everywhere plus the global warming that we are all experiencing. Non-renewable energy is expensive and unsafe but did you know that through green building we can save a lot of energy. Before that, let's define first the meaning of green building (known also as green construction is the practice of creating structures and using processes that are environmentally responsible and resource efficient throughout a building life cycle: from siting to design, construction, operation, maintenance, renovation and deconstruction. The importance of this is it lesson the consume of energy and the pollution as well because the more we can non-renewable energy the higher the risk of pollution. The differences in green and normal building are the "Green Buildings" are more environment friendly as they in resources conservation also the initial cost may be higher but they prove in be economical in long run. Due to this advantage, it is predicted that in 2 or 3 years there will be the 10% of the buildings will be green. Green building high performance building increases the efficiency with buildings and their sites use and harvest energy, water and materials. Green building brings together a vast array of practices, techniques, and skills to reduce and ultimately eliminate the impacts of buildings on the environment and human health. The green building concept is gaining importance in various countries, including India these are buildings that ensure that waste is minimized at every stage during the construction and operation.

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