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Maintainable development and green buildings: A review

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ABSTRACT

In this development time, maintainable constructions have taken some new steps accelerated green building practice. The term “green building” is used to describe buildings that design and constructed, to have a less impact on the environment, indoor and outdoor. Green building is designed, constructed and operated to boost environmental, economic, and healthy and productivity performance over that of a conventional building. The project is certified by LEED certification. This study will be done using a case of the construction sector in Malaysia. The data will be gathered in an interview with many Property Development Companies or projects that apply the green building criteria. The commendation is that more property evolution companies should be interviewed so that more extensive results can be collected. Therefore, this study aims to look into building energy capacity and materials and design deputed in green buildings to instate constructive sustainability and to establish the advantage of spending energy carrying capacity, green materials and sustainable design.

Keywords— Green building, Zero energy, Maintainable

1. INTRODUCTION

Green building is also known as green construction or renewable building refers to a structure and the application of processes that are an environment in control and be sufficient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, levelling, and demolition(1). The increasing demand for landfill presents a new challenge to all countries with limited land. The prediction made by the international agency that the commercial buildings and the institutional building will rise two times in 2050. It is worth noting that green building has been used as a term interchangeable with sustainable building and high-performance building. As per review study, green building could be approached either from the process (i.e. how to implement the process) or outcome (i.e. how to evaluate the performance) perspective. Management approaches could be significantly different depends on the focus (8).

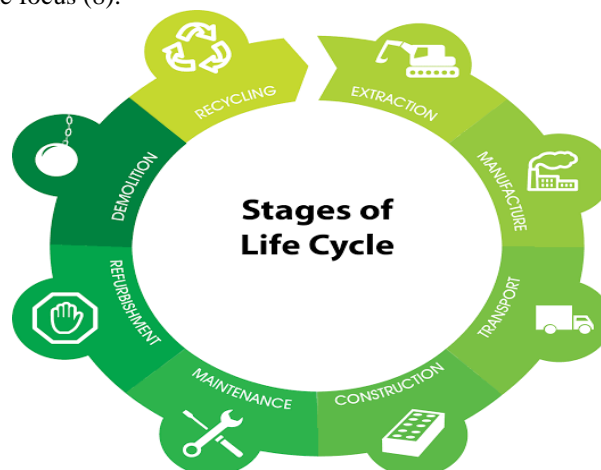


Fig. 1: Stages of life cycle

2. ENERGY-EFFICIENT/LOW-ENERGY BUILDINGS

The terms “energy-efficient building” mention to the building’s energy execution. These terms put a force on the building’s envelope and its technical installations, underlining thermal insulation, energy-efficient windows, and technical program. Also, in order to supply good indoor comfort, a proper ventilation scheme must be established (2).

With respect to execution levels, Sweden has implemented an official term of low-energy and very low-energy buildings. A low-energy building is explained as a building that uses 25% less energy for space heating¹ than determine in the building code, while a very low-energy building must use 50% less energy for space heating than assigned in the building code (3).

3. TYPES OF GREEN BUILDING MATERIALS

Green buildings materials do not produce any type of bad effect on the atmosphere. Some major examples of green building materials. These materials are those types of building materials that are eco-friendly in nature and do not impact any type of bad effect on the environment in any direction (4).



Fig. 2: Green building materials

3.1 Mud and clay

The mass of each object used direction to other styles of buildings. The deciding allow is usually connected with the quality of the soil being used. Larger amounts of soil usually mean using the cob/adobe style, while low soil is usually mated with sod building. Earthen walls change temperature slowly, so artificially raising or lowering the temperature can use more resources than in say a wood built a house, but the heat or coolness stay for a long time. Clay is able to hold heat or cold, releasing it over a period of time like a stone (5).

3.2 Fabric, ceramics and foam

The tent used to be the home of choice among wandering groups the world over. Two well types include the conical teepee and the circular yurt. It has been revived as a major construction technique with the development of tensile architecture and men made fabrics (6). Earthenware tends to be more water obstructive and heat obstructive than other types of pottery, due to its high combustibles temperature. Ceramics constantly are used to make such things as tiles, fixtures, etc. More newly artificial polystyrene or polyurethane foam has been used on a small dimension. It is light in weight, easily converted and best insulator. It is usually used as part of a structural insulated panel where the foam is provided between wood and cement (6).

3.3 Limestone

Limestone is may be the most prevalent building material obtained through the mining process. It is applied as a cladding material and plays a vitally important role in the production of a large range of area of building material. Concrete and plaster are obvious examples of products that depend on limestone; smaller obvious is the use of limestone in steel and glass production (6).

Most limestone is pressed at the quarry, then change into lime, by providing heat, at another location. When the heat is provided to the limestone make sulfide emissions, a major assistant to acid rain.

Limestone removes water and carbon from the stone and releases CO₂ into the environment. The quicklime is then crushed and retained. When we used in plaster or cement, it should be mixed with water and then tedious.

3.4 Petrochemicals and plastic

The building industry is large precarious on materials derivative from petroleum and physic gas. These are used in a wide range of products accompanied plastics, Mastic for plywood and laminated countertops, insulation, particleboard, carpeting, and paints (6). Combined with this adaptability, the general similarity of the composition of plastics ensures their use in almost all industrial applications today. Fly ash gives environmental advantages, it also improves the quality of concrete. Fly ash makes good strength, minimizes permeability, minimise corrosion of reinforcing steel, increases sulphate resistance, and reduces alkali-aggregate respnd. Provide higher strength to the concrete (6).

3.5 Wood

Wood is obtained by the trees and sometimes used for construction purposes when cutting or pressed into lumber and timber, such as boards, planks and similar materials. When the load is applied on wood is act like flexible member, keeping strength while bending, and is incredibly strong when compressed vertically. There are some extra qualities to the other types of wood, even among same tree variant.

History of wood, it is for building large structures was used in its unprocessed form as logs. The trees were just cut to the needed size, sometimes barish of peel, and then notchy or lashed into place. Fashwell Mineral-treated wood plates connected with cement into interlocking wall forms. Comparatively this material is Light in weight, having low density, Thermal and sound insulating, Non-combustible, Fire resistant, Pest resistant, Highly insulating (6).

4. “ZERO-ENERGY” OR “ZERO-CARBON” NEW BUILDINGS

As pointed out before, much building energy is diminutive because of poor design, insufficient technology and unfair practices. The concept of “Zero-energy” building has been proposed recently to focus on energy consumption. The carbon ejection produce from on-site or off-site fossil fuel uses are maintained level by the fund of on-site reuse energy making, so it is also called as “zero-carbon” building. Zero-energy buildings are constructed at higher cost energy keep value such as building guideline. The goal of green building is to increase the capacity of tool use and shorten the building’s negative effect on the environment during the building’s lifecycle. They may or may not be presumed “green” in all areas such as decreasing waste etc, but they reduce the ecological effect. Meanwhile, much green building certification schedules worldwide do not need a building to have net zero energy there resistant (7).

How to achieve green building?

The critical points to achieve green building can generally fall into three categories, i.e. technical, managerial and behavioural. It is cost noting that these coefficient are mainly interactive therefore a comprehensive extensive of them is needed (8).

The intention of the Study

The project of this paper is to notice the Green Value of a building adopted in Green stubbing method and its implications for Real Estate demand. Ahead, it is check up to highlight highly case connected with a petition of the green value in the real estate valuation premise in the country (9).

5. RATING SYSTEM OF GREEN BUILDING

The rating system in India

Before few years, ‘Green Buildings’ is regularly limelight in the media. Some of us courage have seen the Confederation of Indian Industry (CII)

Indian Green Building Council (IGBC)

Energy and Environmental Design (LEED) is the rating system developed for approving Green Buildings. This is developed by the U.S. Green Building Council (USGBC), the management promoting maintainable through Green Buildings. This is a framework for sensing building performance against the set creature and standard points of references. LEED was developing in 2000.

- IGBC Green Homes
- IGBC Green Factory Building
- IGBC Green SEZ
- IGBC Green Townships

6. GREEN BUILDING LIFE CYCLE

A Life Cycle Assessment (LCA) can help. It is a way to determine the impact of products on the environment. It helps the buyer and building-code officials make more informed decisions during the design and building processes (4). When equipped with an LCA’s insights:

Building Owners: It can see how renewable products referable reduce environmental impacts during the lifetime of their investment (4).

Contractors: can know how to better prevent environmental problems related to project management and inaccurate waste clearance (4).

Home Builders: can use LCAs to explain and confirm how a green building material produced energy savings during the whole life of the building (4).

7. CONCLUSION

Green building is a financially, health and most important environmentally responsible idea that more people need to adopt.

- It is very important for “human comfortable”.
- Maintaining of high and consistent quality product cost effective aspect.
- Improved functionality.
- Reduce water and energy consumption during preparation.
- Overall environment friendliness.

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