

## **The Use of Green Materials in the Construction of the Building**

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### **ABSTRACT**

*The adverse impacts to the environment from the construction building had led to a growing realization that there is a need for a more sustainable and responsible approach to the current practices. This report aims to explore the issues of green materials in the construction building in India. Through intensive literature study, it has brought better understanding on the definition and purpose of using green materials. In addition, this research includes the construction process work for green building materials, risk management for green building materials, design and construction relationships and environmental assessment of materials. This research also recommends some green building materials to be used in the construction building in India. Data of this research were collected through questionnaire survey and interview with appropriate professionals. Recommendation will be proposed in order for the construction building to move towards sustainability. In conclusion, it is necessary to raise the awareness of sustainable development and educate the organizations and public in order to create avenues for further action towards continual performance improvement.*

**Keywords:** GRIHA (Green ratings for integrated habitat assessment); IEQ (indoor environmental quality, LEED (Leadership in energy & environmental design).

### **INTRODUCTION**

Sustainability is a way as to meet the needs of the present without compromising the ability of future generations to meet the needs of the future. Another term that has come into common usage is high performance building. A high performance building is one whose energy, economic, and environmental performance is substantially better than one designed by standard practice. It is a building that is healthy to live and work in and it has a relatively low impact on the environment.

Beside the term sustainability, green and integrated design is now in common usage. Integrated design describes a process used to design and construct a building in such a manner so as to promote sustainability. The integrated design process required and encourages all the building team members to work together from the earliest stages of project development to achieve high

performance and sustainability in design. Green does not mean the shade of the paint but signifies the impact of the building on the environment.

To choose for the building materials, it closely relate to what type of building materials and how well using it. The first question on what type of building materials will have implications for the impact of the choice on natural resources and on the relative healthfulness of the environment. The second question on how well building materials are using will have implications for the performance of the materials.

Life Cycle Assessment (LCA) is the formal methodology for addressing the two questions. LCA is a process to investigate the impact a product at every stage in its life, from preliminary development through obsolescence. At

each stage, there are materials and energy consumed and the pollution and waste produced. Life stages include extraction of raw materials, processing and fabrication, transportation, installation, use and maintenance, and reuse/recycling/disposal. There is a general consensus regarding the concept of LCA and its usefulness in quantifying sustainability.

Selection of materials is only one part of making a green building. The LCA methodology helps to visualize the link between the big picture and the details, while bringing the human that much closer to the goal of living sustainably. Building materials make up the environment in which human live, work and play. Hence, the selections of green building materials are important to bring forward the human to a sustainable life.

### **Working Model of Green Material Building**



*Fig.1. Model of Green Building.*

### **Green Material**

The green material means which adopt one or more green features. Green materials are those that use the earth's resource in environment. They are made from recycle material and they are recyclable.

### **Environmental selecting criteria of green material**

- Low toxicity
- Minimal emission of harmful gases
- Recycled content
- Moisture resistant

- Energy efficient
- Local product
- Reusable components

### **The following Green Materials are collecting from environment.**

- Cellulose Fiber Cement Boards
- Bio-Bricks
- Window Films
- Cool Roof & System
- PVC Membranes
- Ceiling Boards
- 7 .Timbers
- Plywood
- Waste Plastic Fibers
- Recycle Aggregate
- Fly ash
- Waste glass
- Green Cement
- Autoclaved Aerated Concrete Block



*Fig 2. Bio-Bricks.*

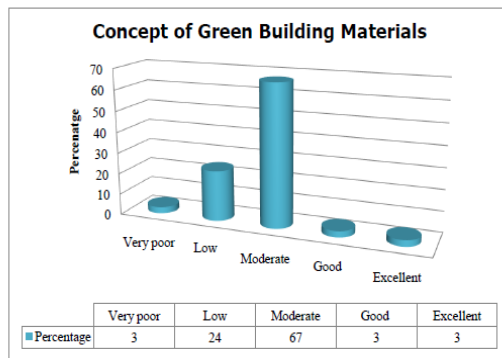


*Fig 3. Window Films.*



**Fig.4. PVC Membranes.**

### Concept of Green Building Material



**Fig.5. Concept of Green Building Materials.**

Figure shows how familiar are the respondents with the concept of green building materials. Throughout the survey questionnaires, the result shows that majority respondents which are 20 respondents and represent by 67 % considered themselves the moderate level on the concept of Green Building materials. Then, it followed by low level on the concept of Green Building materials which attain 24 %. Next, it shows good sign that about 3 % of total respondents considered that they have good and excellent level on concept of Green Building materials respectively. However, equally on the opposite site, 3 % considered that they are still in very poor

level on the concept of Green Building materials.

### Aim of Project

The aim of the Project is to investigate the issues related to the use of Green Materials in the Construction of the Building in India

### Objectives of Project

The objectives of the Project are listed as below:

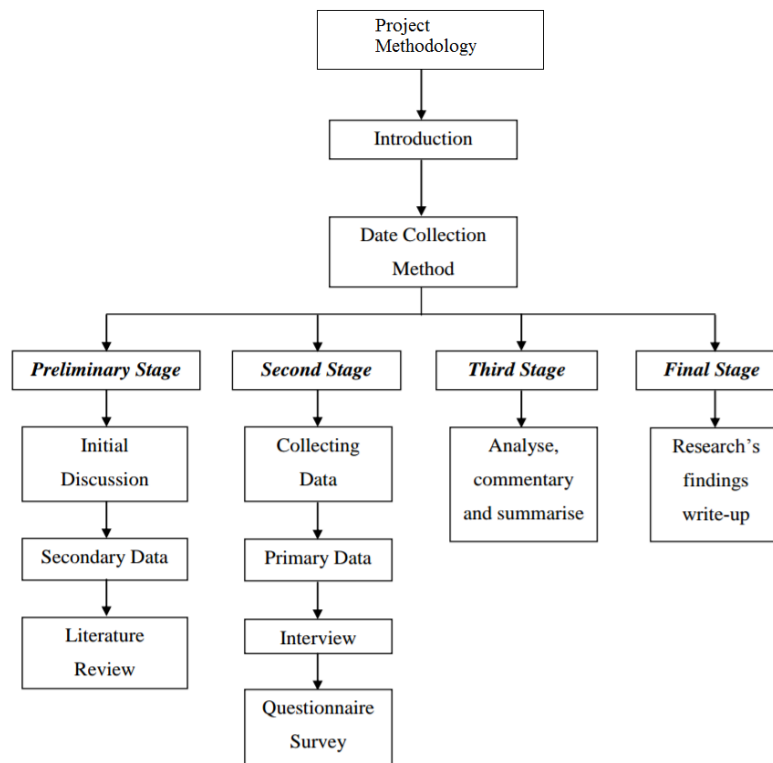
1. To identify the issues of Green Materials in the Construction of the Building in India
2. To explain the construction process by adopting the use of Green Materials in projects
3. To make suggestion on the green materials which can be used in the Construction of the building.

### METHODOLOGY

This study is aimed at Project, study and development of the green Material use in the building construction techniques in order to save our planet from pollution and global temperature rise.

It aims at spreading awareness among the people, about the advantages and also the long term cost savings from green buildings materials. 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 materials construction



## CONCLUSION

We are studied features of all construction material which are socially eco-friendly low toxic. It is concluded that there are various green material which water efficient, energy efficient. It can be concluded that the green construction material reduce side effect on environment to make efficient sustainable building as well as less environmental pollution content and like greenhouse gases emission soil pollution.

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