

Complete Case Study of Green Industrial Building In Chakan MIDC

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Abstract- *The idea of green building has made a great significance in a making come into existence nation like India. The hypothesis indicates making seem unimportant the waste and the price of development. With expansion in process of building up land the normal properties were put to use as a part of ill-judged ways which drives us in the direction of the use of green structures and the idea helps in making ideal use of regular properties. The green building is a nature-friendly segment, since it depends on the essential belief, opinion - "reduce, use again and make use of again". In the long run, the green structures manage the price of an abnormal state of money business and building execution, which drives us to the move-forward of future era. The point of a green building configuration is to make seem unimportant the interest on non-renewable properties, amplify the use good effects of these properties when being used and push up reduce, using again and use of renewable properties. Within connection with to the expression "Green buildings," we may simply give account of qualities of it as a special sort of working without having knowledge of the delicately balanced elements and start behind it. really, Green buildings have among its parts of a wide range of sort of material and gear.*

Keywords- Green building; Resource efficiency; Energy efficiency; Waste reduction.

I. INTRODUCTION

Greenhouse gas emissions—mainly CO₂—cause climate change, one of the world's biggest challenges. Without eco-friendly legislation, the environment will deteriorate fast. For improved living, eco-structure construction has been practiced for years. Due to rapid urbanization, India has 159.1 million people. Buildings use 40% of energy. Only eco-buildings may lower the quantity. The country may save 50%. Eco-friendly construction is becoming a priority. It also helps society, economy, and people.

Pre-construction regulations must be met. Developer, landowner, customer, and society profit equally. Urbanization makes eco-structuring and green building construction difficult. Eco-structure development with high populations

faces ongoing challenges. Better life and health are now priorities. This research reveals the challenges of rising population increase, urbanization, and green construction. Recommendations were made. Economy is the most important aspect of any building project, particularly residential dwellings in megacities like India.

THE AIM OF THE PROJECT ARE

- To compare the cost of construction of a home as a Green Home & a Conventional Home.
- To find out energy and water savings in a Green Home over the Conventional home.
- To find out percentage increase while constructing a Green Home instead of a Conventional Home.

OBJECTIVES OF PROJECT

- Using eco-friendly and regionally available construction materials.
- Using energy, water and other resources efficiently.
- To use renewable or recyclable resources.
- To protect the natural environment.

II. CONSTRUCTION MATERIALS

To fulfil global demand, the multibillion-dollar building construction sector produces and harvests millions of tonnes of raw materials.

Building supplies are massive. Construction uses 3 billion tonnes of raw materials annually and consumes 50% of all manufactured goods.³⁵

Buildings utilise 40% of US raw resources by volume.³⁶ Green building materials are vital. Green construction materials employ sustainable rather than nonrenewable resources and examine their consequences during the product's lifetime. Green building materials preserve energy, increase occupant health and productivity, and minimise maintenance and replacement costs. Green

building materials are selected based on reused and recycled content, zero or low off-gassing of harmful air emissions, zero or low toxicity, sustainably and rapidly renewable harvested materials, high recyclability, durability, longevity, and local production.

SCOPE

- The project's typical instance is beneficial for residential site situations.
- For those in this field, building a green home instead of a conventional one will cost more upfront, but it will pay off in a few years.
- This will help energy conservationists and building environmentalists.

III. LIMITATIONS

In existing system to battle climate change, reduce energy bills, and diminish our reliance on fossil fuels it is mandatory to construct new eco-friendly projects, renovate existing construction in eco- friendly buildings which will also lower the cost. In an up growing trend of population, it is obvious to follow eco-structure for our wellbeing. Goals of eco-structure construction can be attainable if there is cooperation between the public-private partnerships. By embracing the future and the change it will bring, we will achieve a balance between ourselves, our lifestyles, and our environment. Though India will be an urbanized country in demographic statistical term in less than four decades from now, but the nature of urbanism in the future remains rather indefinable. Political and cultural bindings, the threat of the climate change phenomenon and the crisis of governance at the national as well as urban local levels, all tend to make one feel uncomfortable, to state the least.

IV. LITERATURE OF REVIEW

Sr. no	Author's name	Title of paper	Publication year	Findings
1	Dr. Supriya Vyas, Ar. Seemi Ahmed et.al.	BEE (Bureau of energy efficiency) and Green Buildings	2015	"Energy Efficient" buildings of India are also mentioned in view of fast depleting energy reserves, energy conservation is need of the hour. Efficiently design homes and offices can cut energy bill substantially.
2	Jigneshkumar R. Choudhary et.al	Energy saving of Green Building Using Solar Photovoltaic Systems	2015	The idea of green buildings promotes use of renewable energy, recyclable & recycled products. Green building has to save water 36-40%, save energy 30-40% and save material 25-40% compared to conventional building. Green building is which one high thermal insulation, Rain water harvesting, terrace gardening, ventilation and energy efficient appliances.
3	V. Sumateja Reddy	Recycled and Recyclable Content Green Materials for Buildings for	2015	During construction or at the end of useful life, construction materials and components are often discarded with construction debris accounting for nearly 35 percent of landfill waste. The main objective of this

V. THEORETICAL CONTENTS

“A green building is one which uses less water, optimises energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building.”

The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or ‘high performance’ building

ELEMENTS OF GREEN BUILDING

There are 4 elements of Green Building. That shows the main points required to be considered while designing any building.

1. Smart Design
2. Energy Efficiency
3. Eco Materials
4. Water Conservation

OVERVIEW OF GREEN BUILDINGS

“High performance building.” A high-performance building is a building whose energy efficiency and environmental performance is substantially better than standard practice.⁷ Although green buildings, on average, use less energy than conventional buildings, energy efficiency remains elusive. In fact, there is a growing debate whether buildings that achieve some level of LEED certification are more efficient in their use of energy than regular buildings.⁸ Fortunately, there are numerous ways to improve a building’s energy efficiency, from insulating walls to installing automatic shutoff switches for lights. Energy efficiency can be and often is mandated by local and state energy codes, which require that new and substantially renovated buildings comply with increasingly stringent energy efficiency requirements.⁹ It suffices to say that if a building is not energy-efficient, it cannot be said to be green.

IMPACTS OF CONVENTIONAL BUILDINGS THAT GREEN BUILDINGS SEEK TO RECTIFY

The environmental impacts of buildings are enormous. Conventional buildings use large amounts of energy, land, water, and raw materials for their construction and operation. They are responsible for large greenhouse gas

(GHG) emissions as well as emissions of other harmful air pollutants. They also generate large amounts of construction and demolition (C&D) waste and have serious impacts on plants and wildlife. An analysis of these issues demonstrates the scope of the problem.

BENEFITS OF GREEN BUILDING

- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste

ECONOMIC BENEFITS

- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance



Figure: Green building factors

HEALTH AND COMMUNITY BENEFITS

- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life

VI. METHODOLOGY

This project researches, studies, and develops green building construction methods to reduce pollution and global warming. It also promotes green construction benefits and long-term cost reductions worldwide. The structural technique follows:

Study of Green building.

Study of the research topic in detail

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

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

Collection of information with the help of web surveys.

The goals of green building

Green building aspirations are next. Of course, making the environment more sustainable is a goal, but it goes deeper. Going green is helping the environment without harming its natural ecosystems. Building projects interrupt natural ecosystems, which may have a butterfly effect on animals and the environment. Even the tiniest improvements you can make can help improve planet earth for people, plants, and animals.

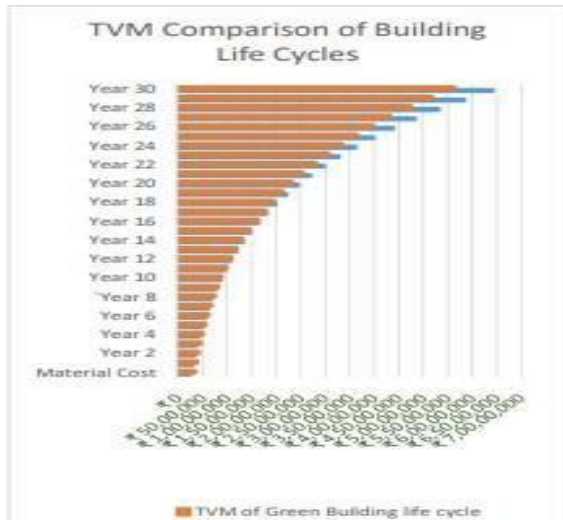
As shown, everyone should embrace green construction. To achieve your objectives without rebuilding, you may want to make a few green adjustments to your house. Saving money, energy, and the environment is possible. Going green is easier than people think, and you'll feel better about yourself too!

A building designer must consider numerous elements. Safety, serviceability, and cost-effectiveness are crucial design principles. Green buildings are in demand since construction companies pollute. Green buildings were created to make the construction sector more environmentally and health-friendly. Green buildings use less water and energy, have better indoor air quality, and consider the lifecycle impact of building materials, furnishings, and furniture.

Demand for "greener" buildings has surged due to their environmental, economic, and social advantages. Buildings emit 33% of global energy-related CO2. Lighting, heating and cooling, electricity, and general bad building design use most building energy.

Table1: Personnel use Energy Calculation

Energy calculations			
Sr. No.		Units	Cost
1	Total Consumption	32867.5	1,68,838.17
2	Public Use	3806.12	19,601.52
3	Remaining	29061.38	1,49,236.65
4	Per unit	3632.67	18,654.58
5	Per unit Per Month	302.72	1554.55



VII. ACKNOWLEDGMENTS

Sincere gratitude to my project guide Prof. Yugandhara Ingale for their valuable time, support and guidance during the course of the paper. I also Thankful who was kind enough to give his valuable remarks and suggestions during my project progress. I take this opportunity to convey our sincere thanks to all the individuals who have assisted and helped us in carrying and bringing out this paper. Last but not the least, the support and help of all the teachers and staff members of DEPARTMENT OF CIVIL ENGINEERING D Y PATIL COLLEGE OF ENGINEERING, AKURDI, PUNE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE is gratefully acknowledged.

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