

# Feasibility of Green Building

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**Abstract**—Feasibility of green building is inclusive topic in which many different concern such as design, materials, use of energy, cost, and environment, are weave together in the interest of creating functional structure which meets the need of present without compromising the ability of future generation to meet theirs. Like many of the innovation in green building has come at a time when the need is great. Pollution growth is ever-pressing issue, which limits building material and energy use, as well as space. This forces architecture to rethink their design in terms of its impact on multiple systems, thus making the challenge of creating new structure. Many advances in design and alternative building material are being made, which greatly reduce their cost of building and maintaining a structure, as well as environmental impact. Currently, most of the material we use to build our homes are hazardous to our health, and the building process an enormous waste, which makes up huge percentage of our landfills .By rethinking the design form beginning, reusing building materials, and using alternative materials, this waste could be greatly reduced, as well as raising efficiency and condition of the our own health.

**Index Terms**—green building

## I. INTRODUCTION

Green building are architecture in which many different concerns such as design, material , use of energy , cost, and the environment ,are weave together in the interest of creating functional structure which meets the need of the present without compromising the ability of future generations to meet their resources.

Like many of the innovations in the living, architecture has come at a time when the need is great. Population growth is an ever –pressing issue, which limits building materials and energy use, as well space. This forces architecture to rethink their design in terms of its impact on multiple systems, thus making the challenge of creating architecture a difficult one.

Which greatly reduce the cost of building and maintaining a structure, as well as the environmental impact. These methods are extremely important if we are to create true Green building. Currently, most of the materials we use to build our homes are hazardous to our health, and the building process creates an enormous waste, which makes up a huge percentage of our landfill. By rethinking the design from the beginning, reusing materials and using alternative materials, this waste could be greatly reduced, as well as raising efficiency and the condition of our own health has just begun to be utilized. More cities are changing their standards for building and attitude once ignorant

of the issues are changing. Architecture is a field composed of influences far and wide, combining city planning, engineering, biology, the art science, philosophy, building, poetry and more. This is a testament how it will take everyone working together to produce the most feasible green world for ourselves and generations to come.

**Abbreviations**

CLL GBC: The confederation of Indian green Building center Industry

LEED: Leadership in Energy and Environment Design

## II. LITERATURE REVIEW

Genomics, Indiabulls Real Estate Ltd, Jones Lang LaSalle Meghraj Project Management and Research.

The tremendous growth in economic activity across the globe is placing pressure on natural and environmental resources. There is increasing evidence that human activities are causing an irreversible damage to the global environment, which will have an adverse impact on the quality of life of future generations. The rising concern for the environment in response to global warming is driving thinkers to seek green solutions. The real estate industry is a significant contributor to the global warming due to extensive emission of greenhouse gases (GHGs) from the energy use in buildings. In some countries, the built environment accounts for about 40% of the energy used. Therefore, there is an imperative for the industry to develop green building technologies and green buildings. The construction industry in India is growing rapidly at a rate of 10% compared with the world average of 5.2%.It is observed that buildings in India consume about 20% of the total electricity in the country. Hence real estate activity in India has a significant impact on the environment and resources .This indicates that there is a real opportunity to develop green buildings in the country. However, developers face a major challenge in the development of green buildings as in some cases this increase construction costs. Developers find it difficult to adopt for green buildings due to price constrains difficulty in sourcing green building materials, technologies and service providers in India. This paper attempts to understand and find solutions to these problems. It investigates the cost efficiency of green building through a cost-benefit analysis and a study on the payback period of the extra investment in developing green building. The paper simultaneously attempts to capture the ease of sourcing green

technologies in India. We have considered one Indian bull's center in Mumbai, a building that is under construction and is applying for a LEED gold certification, as a case study.

### III. STATUS OF GREEN BUILDING IN INDIA

Green building posed a new challenge for Indian architectural with the oil crisis of 1973, the Indian scientific community quickly responded to the issue of green development heralded by the developed world. The emerging green architecture turned towards science and technology to provide solutions for environmental degradation. The western technology dependent solutions were adopted to solve India's environmental problems. In this approach energy efficiency was prioritized over all other concerns. It tended to be excessively quantitative in nature with the success of building being measured by its energy consumption, material embodied energy, waste and existing power structures. Other approaches towards sustainability such as alternate modes of productions, a decentralized approach to planning, emphasis on appropriate and need for contemporary regionalism were marginalized.

The government and universities set up new research centers, for exploring non-conventional and renewable energy resource and simultaneously institution researching adobe as low cost alternatives emerged. Government institution promoted energy efficiency as a solution for achieving green architecture, the salient features in this approach were increasing energy efficiency, reducing water consumption, using renewable energy and recycled product. The activists following Gandhi drew inspiration from his rustic ideal. In spite of its obvious ecological benefit's, it did not appeal to the popular modernity of rapidly urbanizing population. Adobe symbolized the temporary dwellings that the migrants and lower income group were trying to leave behind. Their aspirations were for the pucca (permanent) house made from bricks and steel, which signified progress to the upward mobility. The productions of green architecture reiterate the old Gandhi/Nehru dialectic without finding less extreme or hybrid solutions.



Fig. 1. Green building

CII GBC is green building that has institutionalized green architecture new markets are now being design on principals laid out by the US green building council, all vying for the LEED gold/platinum ratings and seven more are awaiting completion so that they can apply. All these buildings are corporate offices or IT parks. Being 'green' adds values to corporations who are competing globally project.

The president of India was present at the opening of CII GBC and awarded ceremony of Grundfos (the other building that was awarded gold rating). This has sent out the signal that green building now has official patronage. The belief that science can fix the world's problem in future reinforced by the president's endorsement, as he is the father of India's space program with dreams of making India's space program with dreams of making India a technical superpower.

### IV. PROBLEM STATEMENT

#### A. *Healthful Interior Environment*

All possible measure is to be taken to ensure that material and building systems do not emit toxic substances and gases in to the interior atmosphere. Additional measures are to be taken to clean and revitalize interior air with filtration and planting. All possible measures is to be taken to use buildings use of energy is minimal cooling; Heating and lighting systems are to use methods and products that conserves or eliminate energy use.

#### B. *Ecologically Materials*

All possible measure is to be taken to use building and product that minimize destruction of the global environment. Wood is to be selected based on non-destructive practices. Other materials and product are to be considered based on the toxic west output of production.

#### C. *Environmental Form*

All possible measure is to be taken to relate the form and plan of the design to the site, the region and the climate. Measure is to be taken to Heal and augment the ecology of the site. Accommodations are to be made for recycling and energy efficiency. Measures are to taken to relate the form of building to J harmonious relationship between the inhabitants and nature.

#### D. *Good Design*

All possible measure are to be taken to Achieve an efficient, long lasting and elegant relationship of use areas circulation relationship with appropriate history, the earth and spiritual principals are to be searched and foe and express. Finished building shall be well built, easy to use and beautiful.

### V. OBJECTIVES

- To bring out the important of biological pattern and bio-material for architecture on different scales and levels of design.
- To consider biological basis of human perception and behavior, the way to satisfy the need and demands associates with them.
- To present new possibilities and new scopes in restructuring urban and agricultural area, as well as human settlement in general, in accordance to bio political principals.

- To introduce the nation Bio polis optimal strategy leading to the realization of bio -architectural patterns.

#### VI. LIMITATION OF GREEN BUILDING

These stand-alone green buildings overshadow critical issues of sustainability. The current, award-based production of green architectures while constructing an Indian identity as one addressing environment concerns skews the Indian green debate by ignoring important social aspect in the production of green architecture. In short version of sustainability adopted by India exists outside familiar systems of social and cultural production.

Although the technology depends green buildings have contributed in raising awareness and stimulating debate about green architecture, they have several limitations. These buildings have 10-25 percent higher initial investment than traditional constructions. High initial cost and therefore dependence on corporate or government patronage has also restricted the adoption of this type of corporate or institutional building types with a few insolated exceptions of suburban residences. Almost 50% of all construction activity in India is in private housing. Efforts to make these larger sectors green have been virtually negligible. Isolated buildings are judged, as 'green' while their context is not considered at all .Ignorance of the social process, underlying the built object has isolated the building form its context.

Maximizing natural lighting and ventilation to achieve energy efficiency is often achieved at the cost of using large quantities of materials with high-embodied energy like glass, aluminum, etc. The large among of energy that goes into extracting, processing and transporting materials used in these buildings (embodied) is usually neglected when calculating the building's energy efficiency. The claimed reduction in energy usage is therefore not an accurate picture of actual energy consumed.

The intent of technology-oriented green architecture in India has been to procedure spectacular building. Building like CII GBC and Granados are an example of that. As "conspicuous technology" has been the goal of science in India since independence these building are an extension of that Indian middle class depends upon 'spectacular technology 'to deliver them from social problems. With CII GBC winning accolades internationally, it has come to symbolize all that green architecture stands for in India. It has become synonymous with

green rating system and green technology such as solar heater and photovoltaic.

Environmental agendas in India and green building are often based on precedents from developed countries. The 2004 draft National Environmental policy of India came under heavy criticism for this season for this reason. It laid down environmental challenges for India in general terms as lifted from Agenda 21 without making them relevant to India or her concern. Similarly, this issue of energy efficiency is more relevant for developed countries where one-third of total energy is utilized for heating or cooling of buildings. In adopting energy efficiency as the main criteria for green building in India, several more critical issues have been ignored. In India the issue of water and sanitation are more critical than energy efficiency. Studies indicate that at current rate of population growth and per capita consumption of water, there will be a shortage of drinking water in urban centers with in urban centers within the next decade.

#### VII. CONCLUSION

1. Real estate development uses about 40%of the energy and it is one of the prime contributor's to global warming due to the emission of Green House Gas (GAS) caused by the energy used. Therefore there is an extreme need to develop green buildings.
2. A green Building use less energy, water and natural resources. It generates less waste and provides a healthy living environment for the occupants.
3. The two green building rating system in India are LEED1 by IGBC2 and GRIHA3 by TERI.4LEED is most popular among the ratings and the credits earned through LEED ratings can be traded in the carbon market.
4. Green buildings have tangible and intangible benefits from the operational cost savings and reduced carbon emission credits and high rental or capital value. The intangible benefits are generated from the better working conditions within the building.

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