

Conservation of Energy in Green Building Construction

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Abstract – In today scenario the construction is important since country is developing and day to day the competition in construction industry is going high although from the nature perspective we have to adopt the sustainable development thus that the development can't impact the character by opting numerous general construction techniques which will cut back the chance of harness the character like Rain water harvesting, BIM Model Approach to Green Building, Renewable Source (Solar Panel), Green Roof, Use of Local Available Material & Proper reuse recycle of Construction waste. In this paper the Primary Green Building Rating systems in India (Green Rating for Habitat Assessment (GRIHA), Indian Green Building Council (IGBC), and Bureau Energy Efficiency (BEE)) also discussed.

Index Terms –Construction; BIM Model; Green Roof; GRIHA; IGBC; BEE

I.INTRODUCTION

Now a days a construction industry booming and everywhere is construction since the nature, habitat getting into danger of Green House Gases (GHG) which is emitted during construction and it imbalances the nature. So in this review paper discussed about to balance the habitat and how we can reduce the risk of GHG by four common approach methods which are itself a very vast topic which can reduce maximum risk by just applying them and which should every house need. The three most important Green Building assessment Systems GRIHA, IGBC and BEE In India and their criteria of rating the green building.

2. COMMON METHOD TO GREEN BUILDING ERECTION

2.1 Building Information Modelling (BIM)

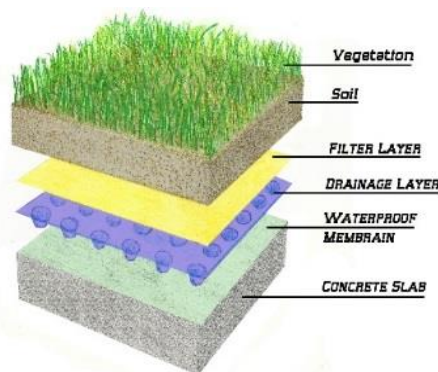
BIM is widely used in construction project as it the precise representation of the project in 2D, 3D, 4D, 5D, 6D & 7D Model in various building design interactive program (Internet source). From the Green Building point of view BIM plays a key role & very large information required for efficient perfect solution such that BIM act as a bridge in life span of Building [1]. Various building energy simulation tool are designed for Green Building and they can calculate various environmental

impact. Analysis of Energy in design gives the chance to take effective decision related to cost, modifications in building & by improving the BIM software it can give result accurate and energy efficient outcome [2]. The Green Building Extensible Mark-up Language (gbXML) is the schema, a section of Building Information Modelling dedicated for Design of Green Building & Analysis activity. gbXML is a file format which is used by different energy simulation engines [3] .

2.2 Green Roof

Green Roof concept is better for environment point of view such that it can reduce the global warming effect leads to better environment. It covers a roof of a building usually make above a waterproof membrane cover with soil and vegetation and retaining precipitation by runoff [4]. It reduce rainwater runoff without making a costly & big Drainage system [5]. About half of sun rays in a day comes on the open roof so that it is beneficial to develop a Green Roof. It helps to grow the vegetation, plants and helps to develop biodiversity International Union for Conservation of Nature (IUCN). It can

THE BASIC GREEN ROOF CONSTRUCTION FIG 1[6].



reduce the Green House gases (GHS) impact and reduce the noise in buildings which is very beneficial for habitat [4].

2.3 Rain Water Harvesting

Development is everywhere new building colonies constructed in large scale and the demand of water becoming high day by day and the vigorous demand reducing the water level so as it is necessary to opt rain water harvesting system both in heavy rainfall zone and in low rainfall zone because rain is unpredictable. The rain water harvesting reduce soil erosion in a heavy rainfall areas and floods, used for different irrigation purposes, can be used for different purposes in house and above all it helps to cut down water bills which is beneficial for both economic and environment [7].

2.4 Material Selection

The construction material is the major part of any building and there are many types of construction material widely used but it is more important to adopt the eco-friendly recycled material which has a better feature and it can't harm the nature in any manner [8]. Sustainable construction leads to better workability and it reduce the harmful effect on nature and can increase the life cycle of building. The material should be Energy Efficient & Nontoxic. Sustainable Building Material chosen from locally made and it can reduce CO₂ Emission and cost of transportation [9].

3. BASIC GREEN BUILDING ASSESMENT SYSTEM IN INDIA

3.1 Definition

The rating for green building on the basis of predefined construction measures by giving grade points [10].

3.2 Types

3.2.1 GRIHA

It is designed by Government of Bharat Ministry of latest Energy and Renewable Energy and also (TERI) the Energy and resource Institute. It consists of 34 Criteria under which rating is done and give points for better work some of the main rating criteria are (a) Site Selection (b) Reduce air pollution during construction (c) Reduce building water use (d) Renewable energy utilization (e) Waste water treatment (f) Storage and Disposal of waste (g) Innovation Points [11].

3.2.2 IGBC

It is branch of CII shaped in 2001. The IGBC has rating systems criteria for different buildings which are (a) IGBC Green New Buildings (b) IGBC Green Existing Building (c) IGBC Green Home (d) IGBC Green School (e) IGBC Green Factory Building (f) IGBC Green Township [10].

3.3.3 BEE

It is scheme launched by Hon'ble Minister of Power in May, 2006 has its own rating system for a building and electrical appliances on the star scale of 1 to 5. More stars rating means more efficiency. Basically the objective of the BEE rating is to provide an information on the rating scale to the customers about the energy saving electrical product [10] [12].

4. CONCLUSION

Since we can conclude from the above topic that we have to just make an approach and implement it so that the construction can't affect the nature although the green building rating systems has its own design rating system so that construction can be done in context to save the nature

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