International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 04 Issue: 03 | Mar -2017 www.irjet.net p-ISSN: 2395-0072

Review on Green Building Concepts & Techniques

S.Selvendran[1]

[1]*UG Scholar, Sri Vidya College of Engineering & Technology, Virudhunagar, India.*

Abstract – *Green Building is becoming emerging adoption method to have sustainable building. The main objective of the green building is to reduce the effect of CO2 caused to environment. Constructing industry is the one of the major industry which is emitting CO2 in to atmosphere. To reduce the adverse effects which cause to environment, by the usage of non-renewable resources. In this paper methods employed in green building and concepts evolved in it are discussed. So I believe that by the using the alternative material, new construction technique and methods, use of renewable resources will help us to make a perfect green building which does not gives any harm to our environment and it will be a sustainable building.*

Key Words: Green Building, Sustainable Building, Renewable resources, Non-Renewable Resources, Eco-Friendly Material.

1. INTRODUCTION

Since from the starting of industrial revolution after world war there was lot of growth in infrastructure in all over the world. In this infrastructure growth there where lot of building were constructed in conventional method. While using the conventional method for constructing there will be lot of wastage in building materials, not only there will be wastage, all the conventional materials will have highest adverse effect to environment. To overcome this issue new contemporary building materials are need to use for the construction works. And green ideas are needed to adopted in construction works.

1.1 What is a green building?

A Green Building is a structure which is built with the main aim to use the eco-friendly material and to reduce the adverse effects to environment by using green materials, A Green building is also known as a sustainable building.

Green building will improve the living style of the human and will have direct or indirect connection in preserving the non-renewable resource for our future generation.

1.2 Objective of a Green Building

- Protecting occupant health
- Improving employee productivity
- Using energy, water and other resources more efficiently
- Reducing overall impact to the environment
- Optimal environmental and economic performance
- Satisfying and quality indoor spaces

2. THE METHODS TO MAKE A BUILDING AS GREEN

2.1 Method-I

- Replacing current building material by alternative eco-friends and sustainable material.

2.2 Method-II

- By applying new techniques on construction.

2.3 Method-III

- By making the building as zero energy building.

2.4 Method-IV

- Some necessary and immediate change in building policy.

3. METHOD –I (Use of Alternative & Sustainable Material)

3.1 Autoclaved Aerated Concrete

Autoclaved aerated concrete was invented in the mid – 1920s. AAC is a lite in weight and it is a precast building material which is simultaneously provides structure effective insulation and fire proof. AAC has wide range of products in field like blocks, wall panel, floor and roof panels, and reinforced lintel beam.

AAC blocks has advantages in construction is its quick and easy installation, because of the light weight of the material.

AAC is only about 20% of the weight of concrete and it carries approximately 50% of the compressive strength of regular concrete.

3.2 Hydraulic Pressed Straw Bale

Grasses and straw have been in use in a range of ways in building since pre-history around the

world. Straw bale building typically consists of stacking a series of row of bales.

It is a good sound insulation material. And the raw material will available locally in all places.

It is an eco-friendly material and no pollution or environment effect is caused to environment by using this material.

3.3 Compressed Earth Block

Compressed Earth Block or CEB is a construction material made from the soil which is locally available. Compressed Earth Blocks are made by compressing a soil and 6-10% Portland cement. These blocks can be used to build with after curing for seven days. They reach full strength after curing of 28 days.

4. Method – II (By applying New Techniques On Construction)

4.1 Nano house

By the name NANO HOUSE we can easily understand that resident houses which is built by using less space and space which are used in efficient manner.

The Nano housing System is a pre-engineered concept for constructing residential buildings. The design was based on a combination of pre-engineered structural insulated panels and use of renewable energy systems. This suggests a best building technique to solve the global housing issue.

The 'Nano House' can be used by a family of four in an area consisting of 25 square meters. This can be made possible by incorporation of suspending technology, which nearly doubles the size of the living area with in this space by transforming what is common living space by day into two separate bed rooms by night. The suspending technology can be adopted in new construction.

4.2 Taking Advantage of building orientation

The detailed study about the land scape, study about the sun's light intensity in place to place, and to study about air circulation pattern. The detail study in these fields can help in placing of ventilator. By the efficient placing of the ventilators we can get optimized light and air flow inside the building.

These will be results in reduce of utilization of energy for the purpose of ventilation and lighting. Even small amount of reduction in each and every building contribute an d greater amount of relaxation in energy demand. If energy utilization is reduced it gives big contribution to reduce emission of CO2 in to atmosphere.

5. METHOD –IV (Some Changes in Building Policies)

5.1 Common Septic Tank for A Street

- By this we can reduce the use of building material and the waste can be converted into fertilizer and use it as natural fertilizer.

5.2 Banning of private bore wells

- By this we have taken a step for avoiding earth quake.
- By this we can provide underground water resource equally to all people

5.3 Taxation on underground water for additional usage

- According to the World Health Organization (WHO) , each person needs 45 litres of water per day. This includes water for drinking, washing, cooking, and also includes some livestock purpose. In addition, a portion of wastage is included in this rate.
- Impose tax on additional usage of water, when usages increase the standards levels.
- By this hard method, we can reduce the underground water depletion.

6. CONCLUSION

With these brief, about the methods that can help us to create a green building, we like to put an end for our paper. From this paper we know that green building is the most important one to the human life and also to the environment safe. As a civil engineer we need to convert our construction method in a green way. Need to make every part of the construction in a green concept. Go green and go head

REFERENCES

[1] David A.Adler, "Perimeter, Area and Volume: A Monster book of Dimension" – Holiday House, Reprinted Edition (Jan-1, 2013).

[2] S.Srinivas, Green Buildings in India: Lessons Learnt, Senior Counsellor, CII – Godrej GBC.

[3] M.K. Urbikain, J.M. Sala, Analysis of different models to estimate energy savings related to windows in residential buildings.

[4] Joe Hackler and John P. Holdren, Journal of Green Building, Volume 3, winter 2008.

[5] ENVJS Centre on Human Settlements, STATUS OF GREEN BUILDINGS IN CITIES OF INDIA, School of Planning and Architecture, New Delhi – 110002.

[6] Fadi Chlela , Ahmad Husaunndee , Christian Inard , Peter Riederer A new methodology for the design of low energy buildings, University of La Rochelle, Av. Michel Cre´peau, 17042 La Rochelle, France.

[7] Greg Kats, Leon Alevantis, The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force Department of Health Services Adam Berman, Evan Mills, Lawrence Berkeley National Laboratory.

[8] M.K.Urbikain, J.M.Sala, Analysis of different models to estimate energy savings related to windows in residential buildings.

[9] S.Srinivas, Green Buildings in India: Lessons Learnt, Senior Counsellor, CII – Godrej GBC

[10] Thomas M.Menino, Green Building Task Force a Commitment to Future Department of Thermal Engineering, School of Engineering of Bilbao, The University of Theasque Country, Spain.