

Resource Management for Green Buildings

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Abstract

Green building is interpreted in many different ways, common opinion that they should be designed and operated to reduce the over all impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

Resource management is the usage of all the resources natural and artificial for management of green buildings. It encourages the use of resources in a manner that it is less polluting .Also wise usage of our resources will automatically ensure that buildings are sustainable for the present and future usage.

Lighting management is the most important energy efficient feature required in a green building .It also ensures the proper usage of natural light and building orientation.

Water management is a very necessary concept of energy efficiency. There is a great need to conserve water for the present and the future generations.

Waste management is of major concern as waste management is not much practiced in India and it leads to many diseases if not managed properly.

Keywords: green buildings, energy efficiency, waste management, water management.

1. Concept of Green Building

“A green building is one which uses less water, optimizes energy efficiently, conserves natural resources, generates less waste and provides healthier space for occupants, as compared to a conventional building.”(IGBC, 2008)

Green Building is a concept idea incorporating a wide spectrum of solution and best practice. Though green building is interpreted in many different ways, common opinion that they should be designed and operated to reduce the over all impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

1.1 Green buildings guidelines

There are developed to provide a series of guidelines and benchmarks to those interested in construction of a sustainable and green building. It was understood that in order to develop a proper understanding of the elements of a green building and to then construct it, a comprehensive set of guidelines would be required to direct the interested party in the appropriate techniques and processes towards building a green building.

1.2 Green Building Rating System in India

There are mainly two types of Green Building Rating System that are being followed in India:

- **GRIHA Rating system**

GRIHA, an acronym for Green Rating for Integrated Habitat Assessment, is the National Rating System of India. It has been conceived by TERI and developed jointly with the Ministry of New and Renewable Energy, Government of India. It is a green building design evaluation system and is suitable for all kinds of buildings in different climate zones of the country.

GRIHA is a rating tool that people assesses the performance of their building against certain nationally acceptable benchmarks. It will evaluate the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a ‘green building’.

AGRIHA criterion for evaluation is based on some of the following points:

- Site selection and site planning
- Building planning and construction stage
- Building operation and maintenance
- Innovation

Lighting management is the most important energy efficient feature required in a green building. Windows are a must with proper orientation so as to properly utilize the natural light. Artificial light is required as a necessity but the consumption can be

curtailed to a great extent. Most energy is consumed by the lighting equipment. There is no psychological difference between usage of tube lights and CFLs. Some designers even think tube lights are more illuminating as compared to CFLs.

Water management is a very necessary concept of energy efficiency. There is a great need to conserve water for the present and the future generations.. Some designers believe that people are not ready to accept the other water conserving techniques as they might not be aware about the benefits. Also, it is psychologically that people don't accept the change easily. Most of the waste water is either utilised for irrigation purpose or for cleaning up of washrooms. This saves a lot of water and it is a small practice that can be implemented in daily life. Drip less taps help in saving a lot of water but not much implemented in the buildings. They also said even foamed taps help in saving water. Designers also believe that rain water should not be wasted and it should be reused for cleaning purpose or for other household work to reduce the usage of tap water and minimize water loss. Usage of rain water also depends on the awareness of occupants as again it is a small practice that can be done in daily life.

Waste management is of major concern as waste management is not much practiced in India and it leads to many diseases if not managed properly. Also utilizing waste paper and saving paper also come under waste management. Majority of the designers (93%) are not aware about any waste management technique and they haven't incorporated any waste management technique in their buildings. This might be due to the fact that they are not aware about any techniques and also waste management is not given much focus in India. Almost all the designers do save paper by some or the other method. They use newspaper as rough paper and use e-mails instead of using paper. This helps in saving a lot of paper and every person should implement it in their life. Many people print on both sides of paper to prevent unnecessary loss of paper.

Other energy efficient practices will include awareness regarding wood substitutes, low volatile organic compound paints, energy efficient glass, etc.

2. Conclusion

Resource management is relatively a new and emerging in the green building design concept .Judicious use of our natural resources will help in minimizing the usage of natural resources. Efficiently using natural light so that less of energy is consumed in terms of artificial lights. Using windows on walls facing east and north direction will help in cutting glare.

Designers have suggested certain ways in which energy efficiency of an existing building can be improved. Most of them said that people have to be made aware regarding the usage of energy efficient devices and they should be made ready to spend more on energy efficient devices. Government should also make efforts in spreading awareness through more seminars and conferences at local level as well. Energy auditing can be done to make people aware that how much energy they are consuming and by implementing these features they are cutting on lot of unnecessary wastage. Energy efficient techniques like energy efficient glass, dual flush system,

waste water utilization etc. should be done to improve the energy efficiency of a building.

Proper disposal of waste management is also a key factor in making green buildings. Waste should be properly segregated and then disposed. Also awareness for e waste should be mandatory in all societies. Awareness should be at community and college, school level for collecting and segregation of waste.

Designer community at large should implement all the resource management techniques as a mandatory factor for designing green buildings.