

SUSTAINABLE BUILDING MATERIAL FOR GREEN BUILDING CONSTRUCTION AND CONSERVATION

Ar. SMITA S. NALE

Assistant Professor

Department of Interior Design

College of Non-conventional Vocational Courses for Women,
Kolhapur [MS] INDIA

ABSTRACT

Materials are basic components of building construction. Building materials are generally selected through functional, financial and technical requirements. Eco-friendly building with their eco-friendly interior is a need. Demand of houses are increases which are harmful to environment and human health. Hence we are facing various environmental issues. Due to which we need sustainable materials which help to reduce various environmental issues. When it comes to designing a sustainable spaces innovation is high with help of sustainable materials. Every Architect should suggest sustainable spaces with ecofriendly concepts and the reason is obvious as we all know the importance of the same. Architects use more eco-friendly methods of designing or constructing their building in order to reduce various environmental issues. Therefore we have to use more and more sustainable materials for better tomorrow. Some of the materials are clay tiles, coir composite board, bamboo matt boards, fiber ply ash cement boards, sun dried bricks, rice husk ash based insulating bricks etc. Sustainable interior design is defined as interior design in which all systems and materials are designed with an emphasis on integration into a whole, for the purpose of minimizing negative impacts on the environment and on the occupants, also in a maximizing the benefits to the environment and also being cost efficient to our clients.

Keywords: Green interior, sustainable materials, eco-friendly

1 INTRODUCTION

As today people in India spend about 80% of their time in buildings whether it is in offices, schools, colleges or homes, so accepting eco-friendly home interior designs plays a vital role on our lives. Now a day's exterior and interiors have tremendous impact on environment, using natural sources, electricity and potable water which produce 50 to 60 % waste in

Ar. SMITA S. NALE

1P a g e

landfill with harmful emission i.e. greenhouse gases etc. To reduce this architect and interior designer become more environmental friendly. Which make optimal use of resources, produce minimum waste and solve the environmental issues, also save money.

Eco-friendly materials may come from traditional sources like earth and stone. Many other factors such as operating energy efficiency, integrated design, reduction of water consumption and waste, reduction of private automobile use etc. are important as eco-friendly or sustainable material. They are responding by creating eco-aware interiors that they hope will attract a new generation. Now a days a wide range eco-friendly building materials are manufactured. We have to choose energy efficient, environment friendly, affordable and long lasting materials for exterior as well as for interior.

Eco friendly houses don't offer any less comfort, safety or durability than conventional houses, also don't look different from the existing buildings although some eco-friendly construction design also focus on integrating building into the surrounding environment as much as possible. One major difference between these two types' i.e. conventional building and eco-friendly building is use of energy. Eco homes use 30% less energy as compare to conventional homes.

II. DEVELOPMENT OF GREEN BUILDING

Architects and interiors make sure that they are providing sustainability in built environment and sustainability in interior design elements – like Materials, Furnishing and Lighting

This study aimed to explore the options available for sustainable material in market and cultivate a thoughtful understanding of what constitutes for not selecting a sustainable material choice for interior design practice. Interior designers should recommend and specify only earth-friendly and healthy materials and products. They should challenge their design capabilities, determine the appropriate.

The building or house designed for energy efficiency will take advantages of the site, sunlight, directions and benefit of natural breeze. The floor plan and placement of window are also considered when designing an energy-efficient home. In additional, an energy home will have adequate amount of insulation, an efficient heating system, and high quality window and door, it will also be sealed tightly against the air leak. The orientation of a well-designed, energy efficient home will take advantages of free energy from the sun. An appropriate home design most used rooms and outdoor activity areas on the south to take advantages of useful heat from winter sunlight during the day. heat can be collected from sunlight by a Variety of methods including large expenses of window, a solarium, a sun space, or thermal storage wall on the south side of the house. A solarium or sun attached to the main structure of the house increases the thermal resistance of the outside envelop in an energy

Ar. SMITA S. NALE

2P a g e

efficient home, roof overhang must be wide enough to be effective. A correctly designed overhang eliminates the need of deciduous trees on the south, east, and west side of the house and shade wall and window from the high and hot summer sun if the overhang is designed correctly it will allow the lower angled winter sunlight to enter the house through the window and also block the summer sunlight from entering the window.

III CONCEPT OF ECOLOGICAL & GREEN DESIGN

Basic principles that underlie ecological and green design in construction industry can be listed as:

1. Saving of existing material resources;
2. Conserve energy and save money
3. Maintenance of a clean and healthy environment both in terms of topographic changes and the degree of air, water and soil pollution
4. provides an optimal ratio between the surface of the envelope and the building volume;
5. Measures regarding the diminution of heat losses;
6. requires more efficient installations and equipment;
7. Contributes the creation of insulating spaces between environments with different temperatures (buffer spaces in attics, basements, staircases, etc.);
8. Ensuring of adequate thermal inertia;
9. Contributes the thermal insulation of the closing elements of a building (exterior walls, floors, roofs);
10. Provides hierarchy of spaces requiring different temperatures and their orientation in relation to the cardinal points;
11. Provides optimization of natural ventilation;
12. Requires use of renewable energy sources (solar, geothermal energy);
13. Provides and increased awareness of users, adoption of more rational building operation conditions
14. Encouragement of investments for the conservation of energy
15. Minimise waste through sustainability

IV SUSTAINABLE MATERIALS

Sustainable products are those products that provide environmental, social and economic benefits while protecting public health and environment over their whole life cycle, from the extraction of raw materials until the final disposal. We used sustainable material conserve energy and save money. The four types of sustainability are human, social, economic and environmental.

Example of sustainable material are bamboo , wood ,hemp ,wool ,linen, straw ,clay, stone sand, sand ,beeswax and coconut. Mostly use local materials to cut off transportation cost. The 3 pillar of sustainability are *economic, environmental & social pillar*. If any one of the pillar is weak then the system as whole can become unsustainable.

CONCLUSION:

Design for energy efficiency, low environmental impact, waste reduction, longevity and flexibility, positive and healthy environment and also for cost effectiveness. Interior environments are the places that meet the human needs, the need is willing to create sustainable environment with the help of natural resources.

REFERENCES

www.google.com
www.wikipedia.
www.nicheninteriors.com
www.slideshare.net
www.researchgate.net