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Introduction and Characteristics of Green Building Concepts and Sustainability

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Abstract: ***In this current scenario a living and sustainability in respect to Building and environmental has been taken placed around us. It is very clear that to promote green architecture and sustainability we need to go through many various guidelines, specification, method and technology, Both Green architecture and sustainable are connected with one another and work for each other. A difference is built in between sustainable and green program, their conclusion includes for the prospective and forthcoming developments of building environmental. Day by day we are losing our comfort, social activities, social networking, environmental benefits, natural resources and many more or side by side we also minimising our community gathering, health benefits, security and increases crime sectors in local life. Unstastanability is having adverse effect on human being, atmosphere environments and their surrounding now we need to highly improve our life quality, benefit of health, social gathering, life span and environmental concepts. There are many solutions exist to fulfil all requirements with the help of human involvement, using newer technology and method. These are become some common questions emerge that why green architecture and sustainable important for the environments and human life, how much it is important, where to be important etc. Under green architecture and sustainability the parameters need to be considered is building orientation, Active and passive architecture design, Green vegetation, hydrology, building shades, smart building technology, construction phenomena and urban open spaces. This paper contributes maximum and extensive quotations to all features of green building principles and concepts.***

Keywords: Green Building, sustainability, Active energy, passive energy, energy efficiency

1. Green building

Green building and its design style is all about to express the balance in between high demand nature quality construction and low environment impact. Generally it is to be known a living comfort total cycle in space of environment and nature. Green building turns totally towards the building structure and the operation that are used in environmentally responsible and recourse efficient in building life style starting from building design planning, orientation, construction, extra energy device, operation , maintances, conservation, renovation and demolition.

The green building application develops and companions the traditional and classical building design about of utility, economy, comfort and durability. A similar conception is green building which regularly play on smaller scale incline and focus on the use of local available material, vernacular architecture, Morden architecture and sustainable architecture defined as collaboration require of present generation without disturbance the capability of future generation to conform their needs.
Some of the feature needs to create the building green as follows:-

1) Well planned use of water, energy, and some of the other resources.
2) Use of maximum renewable energy
3) Fresh and hygienic indoor air quality
4) Use of local and natural materials.
5) Consideration of proper planning, according to climate, affordable, sustainable etc.
6) Need to be reducing the pollution and recycle materials.

2. Building Orientation

It is very understandable that before design any building we must follows some rule and regulations where these things can be done more better and correct similarly one point in all is building orientation. Again it is an important and focus topic where always kept our building in such directions from north to south and east to west in comfortable zone and match with favourites climate so that it cannot harm the environment and social life. so further and finally we must keep our building in longer span from north and south and shorter span from east and west which consider as a good and best placement according to the various studies and research. Once you placed building orientation toward the suitable direction on site it is understood that its goes in right design additionally we must look building elements such as opening, windows, door, roofline and many other features they all use to open in comfortable directions. Hence a good and right building orientation can save money in a longer period which also minimise the cooling and heating cost expenditure. We design building in such manner that building itself maintained the respective features and work as a eco-friendly environments.

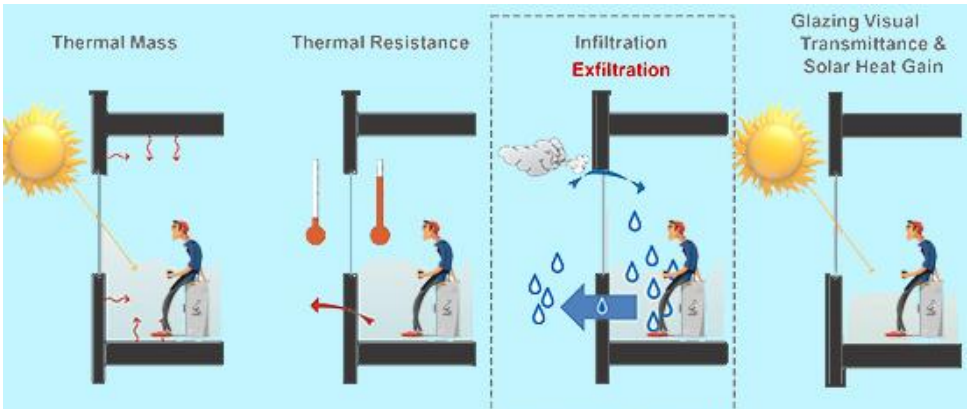


Figure 1: Heat thermal mass

3. Shading

Shading is one another major part of passives design. Including shading in building create or minimise many other effective activities. We design our building in such manner that we corporate shading according to the giver climate or depends upon the building orientation. Providing shading to any building either inside and outside minimise the summer temperatures, save energy as compare to earlier, comfortable and healthy satisfaction around us.

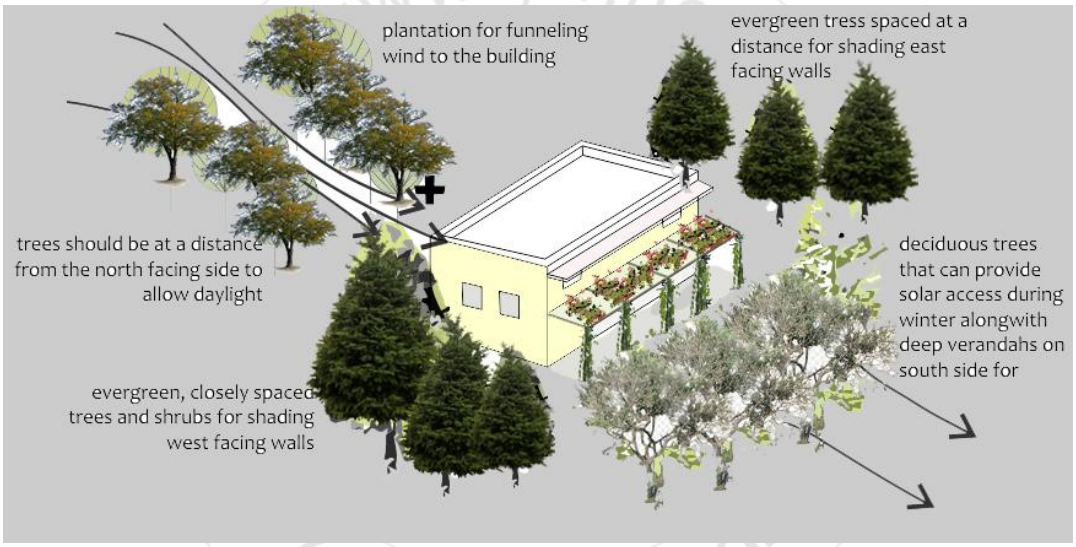


Figure 2: Plantation for funnelling wind to the building

As per the experience and day to day life analysis this is very common and correct data that entire direct sunlight from outside to inside generate the maximum heat, temperatures, uncomfortable zone, health issues and many more and including these above all cause many harmful effects on building, human health and also to the environment. Now let's comes to the building part effective and most useful shading in any building is windows, opening, eaves, awning, shutters, Plantation, pergola, louvers, etc. Which can maximum reductions of the heat is almost 65 to 70% in total calculation. Again effective next point is considering shading of double glass or coated glass also help to reduce the heat and temperatures from outside. Proper planning installation of plantations for example tree, creepers, trellises, ground cover, can also support to minimise heat in generally in summers days. From many litterateur and study it is very clear that planning landscaping in a larger area is the best and right way to keep your house and environments cool whereas as the temperature which is generated inside home increases around 25 degree or more if west and east wall and windows are not shaded.

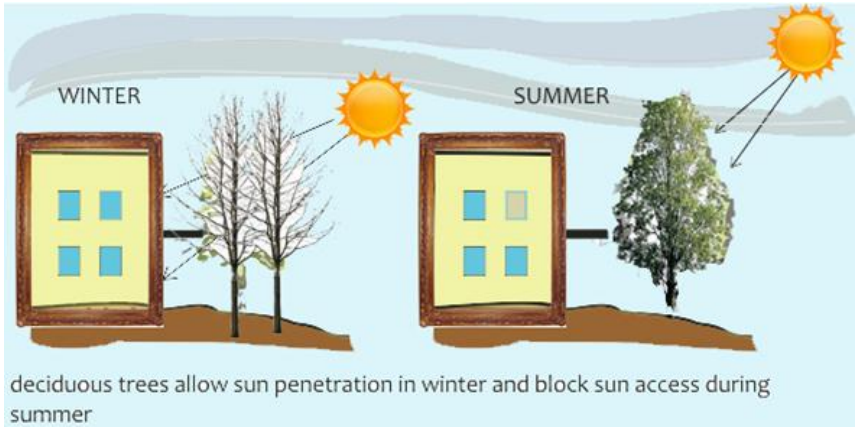


Figure 3: Evergreen tree and deciduous tree for shading

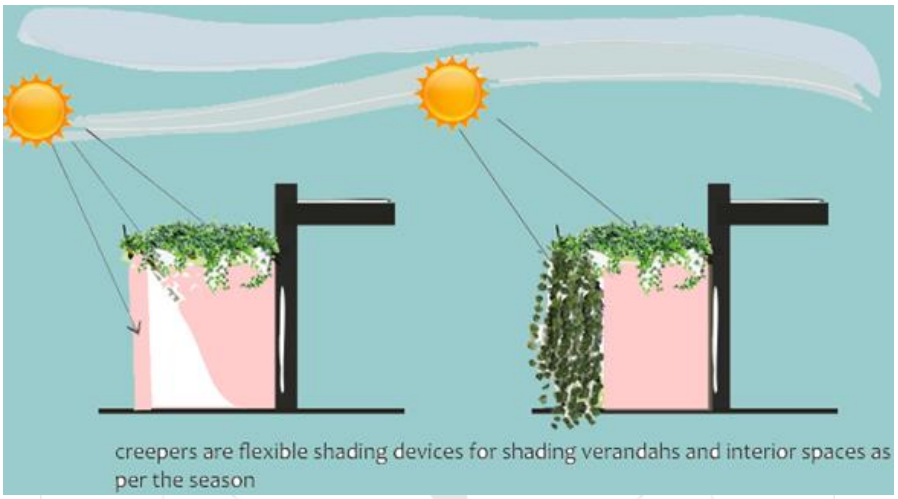
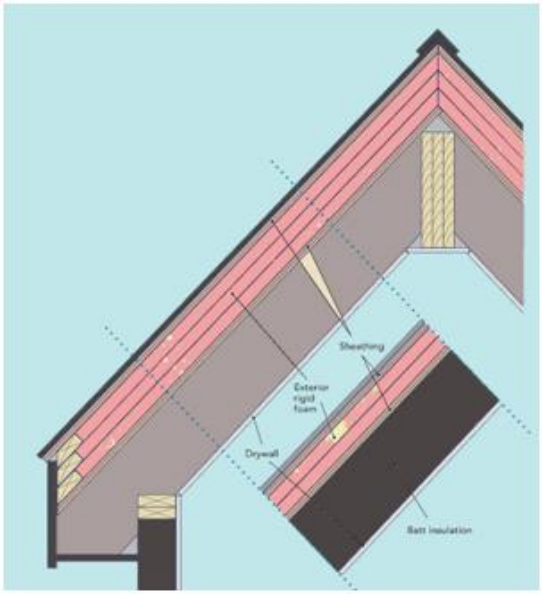


Figure 4: Plant Creepers flexible shading device for verandas and interior space

4. Insulation

Insulation is here again one most important feature of the green building. as we the the terms indicate the insulation means keep insulation cool inside of building, insulation of any building is done by many various methods and in various part of the building without doing insulation our can't be completed so using this method inside the house is bigger features which can see and install in different different part. For example insulation of building can done in roof insulation, wall insulation, celling insulation, and soon. Insulation keep our building cool and low heat inserted is. Allied thermal insulation. This insulation in building play a vital role to fulfil the purpose of building heat and also for its occupants. It minimise the heat can decrease the energy demands of heating and cooling systems. as we discussed above that the insulation can done in different part of building every part of the building insulation can done in different materials and design which can only be design in such specific part. For example if we doing insulation on roof, wall and floor then we can must place insulation materials for example thermocol, cellulose, rock wool, glass wood, polystyrene, mineral wool, etc. And one things also very effective that building orientation is properly done according to their local climate, and also design in such manner of low cost budget, energy cost, and comfort environment factors.



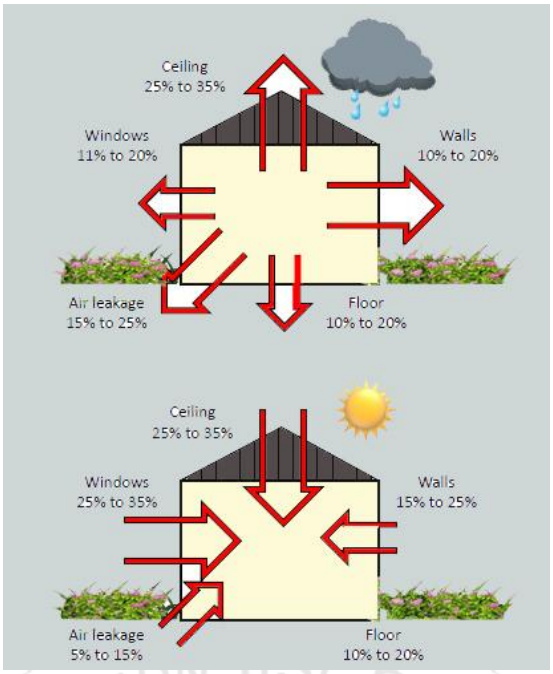


Figure 5: Building Insulation roof

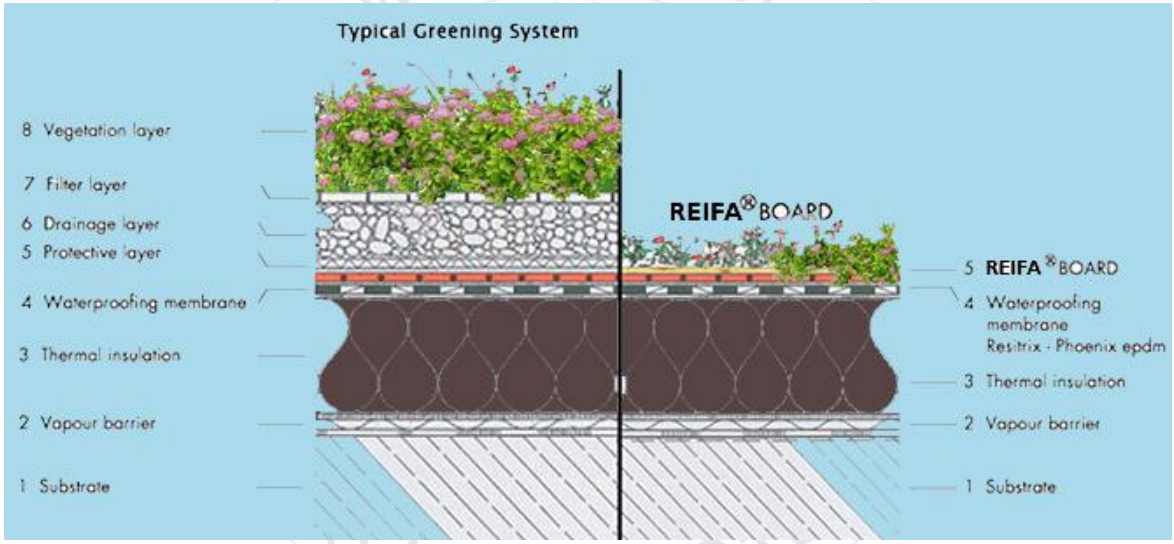


Figure 6: Terrace green system

5. Case Study

Now let's talk about our case study which is more or less based on green and sustainable feature. Everybody is concerned about the beautification and ornamental element towards the house which is very common thought comes out every day. As we know that our homes is our palace, how much we decorate day by day it is not going to be not enough, so to fill the requirements we added some features of green and sustainable, we design a house where we considered maximum point of green building and their elements.

High performance of building design is an actual, active and climate responsive closer to building design. Again it's also depends on numerous components such as prevailing climatic condition, locally obtainable materials, Geographical location, energy efficiency, Design parameters classification of utilisation of building consideration. This kind of prospective safeguard minimise harm to the building and environment. Traditional building techniques understanding reveal the concept of sustainable which existed India country from a longer period and where buildings are normally constructed with the help of local materials for examples mud, wood, stone and bamboo.

Overall, participation would be more effective towards sustainability and more likely to take advantage of opportunities and reduce barriers if it were designed to be more inclusive, deliberative, and decentralized; and if housing associations and funding agencies align their objectives.

Figure 7: Showing vertical garden on the left side of the wall

Site Study
a) Landscape
b) Landform
c) Build form and open space
d) Street width and orientation

6. Orientation

Building façade
a) Wall
b) Roof
c) Floor
d) Fenestration

Techniques
a) Trombe wall
b) Glazing
c) Water wall

Figure 8: Front elevation of house with hanging flower pot and balcony plantation

Here we have main three categories part of sustainable first is environment, second social and third is economic. Now come to the first part that is s environment which play a important role all over the green and sustainable, we design our house in outline to maintain the greenhouse gas emissions, save energy, save water, also decrease waste materials throughout come from construction site. Maximum use of eco-friendly material like bamboo, wood structures, stone, clay and such many more, use of green plant is an essential part of this house here we use Green terrace, plantation all over the seat back and on the front too, basket hanging plantation, vertical garden over the wall. As we understand that the grading is a most fun part of the live and in such new technology we can place greenery on the outdoor green wall, fences. Green wall support the air circulation around the house and also enhance sun exposure for the plant. it cool the environment interior , exterior and surrounding too.

Figure 9: Bird eye view of building showing terrace garden on top roof

Doing anything new is always a great inspiration terms. Here also we just try to achieve maximum perimeters of sustainable part. Again here one main part is cost effective where this house is made according to the minimum cost-effective using the local available materials. Ahouse designed to be ecologically correct by using resources efficiently, using internal recycling, renewable energy sources, recyclable or biodegradable construction materials, and blending in with the local environment, particularly in out-of-town locations. The aims are to reduce to a minimum the environmental impact, and to take human health factors into consideration.

Figure 10: Showing vertical garden

7. Conclusion

The aim of this paper to understand the house project on some of the basic design flowed on plan elevation and surrounding with the help of green building and sustainable concepts. Whatever we made not only for comfort but also other main activities, functions, style, beautification and sustain. We covered major part is our plantation and vegetation including eco-friendly materials which is found on the local site itself. As many of us not knowing the difference between normal buildings and green buildings which is mandatory to know everyone and mainly some of the basic differences us already discussed above. Growth of populations which increases day by day and special moving towards the urban area which cause disturbance to the city, environment and their lifestyle. To reduce the harmful effect from environment, ecology and sun we must introduce such things around everyone which should understand deeply and respectfully follows some international, nation standard and maintain the environment system without harm to anyone. Maximum focus on some of the points that's including active and passive energy building, shadings, building orientation, plantation, reduce waste product and so on.

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