

ENERGY EFFICIENT HOMES / BUILDINGS / CONSTRUCTIONS

ENERGY EFFICIENT BUILDINGS CAN BE DEFINED BY DIVIDING IT IN DIFFERENT MANNNER AS UNDER :

1. **Energy saved while construction.**
2. **Energy saved over the years in the maintenance of building.**
3. **Energy saved while using the building in terms of standard of living.**
4. **The ultimate life of the buildings in terms of no. Of years without alterations or renewal of constructions**

ELABORATION: -

1. **Energy saved while construction.** This depends upon materials used labour charges etc. This varies in greater amount based on designs ,looks , quality of material and efforts required to use the materials. Lots of innovations and technologies are available, needs to be innovated for reduction in material cost and efforts required for construction and fabrications. In fact prefabrications at factories of various structures is one of the process which can save energy as well as material cost .This requires lots of ground work & education for acceptance by the people. For floorings calibrated dimensional stones and tiles etc needs to be manufactured at factories and new effective adhesives needs to be developed for fixing the tiles/stones as done abroad. Lot of new power tools & equipments are available for mixing plasterers, coatings, electric / sanitary fittings etc. The equipment oriented construction is must for energy efficiencies for high speed and better finish/workmanship. Plenty of scope is there in India in these aspects.
2. **Energy /cost saved in maintenance/repair of building over the years.** This very important aspect depends upon the materials and processes used while construction. The workmanship plays important role. The architects civil engineers, contractors, designers etc are responsible for this to ensure while selecting correct products and workforce to execute the work. It is very unfortunate presently in India that these people have drifted from ethics and while selecting the materials, merits of the materials does not get priority but ulterior motives prevail over it. A lot of confusion has been created in the minds of the people. The manufacturers while competing purchases such authorities and laboratory reports to sell the products. Hence reliable prediction cannot be made from construction authorities and certifying laboratories. In government departments and big sectors lot of corruptions dictates decision to selection of materials. also it has been over the period discovered that laboratory test were not reliable predictors to ensure life cycle or quality of the products fully as actual environmental conditions cannot be created in laboratories.

It is very important that what kind of tests are mandatory for various materials. Also certain materials can only be judged by using it and exposing it to actual weather conditions. In facts wide varieties of materials are being used in the construction of various types of buildings. Some are for giving strength and really needs to be tested properly as safety of the structure is involved Cement, Steels, Electrical, cables/equipment and such materials which plays main role in the building must be thoroughly inspected/examined to ensure safety of structure. Not only this, the procedures to be used and post fabrication instructions play very important role such as mixing of cement concrete, curing of cement concrete and plasters etc. Certain materials and systems are for various services such as sanitary wares, drainages, electrical and electronic gadgets. There are big jumps going on about technologies in these concepts and after very short intervals new varieties introduced of items in the markets. Definitely day by day much better offers are available due to competitions as well as new developments are talking place.

There are certain materials which are for comforts looks and status symbols. These may include paints on walls furniture's, grills, staircase railing, exteriors coatings, and carvings etc. In this area also plenty of options are available and innovated ideas are regularly flowing. Manufacturers must now take care to design these materials in such a manner that the life, look, luxury and energy efficiency all can be simultaneously achieved. Lot of scope are always there. Ultimately it is "THE" requirement to select right materials, design and processes so that maintenance /repair are minimised over the period of the life cycle of the buildings/constructions. The buildings /construction are always attacked by various internal and external enemies constantly. It is important to identify them and find the ways to defend effectively from these attacks. Some of the main elements which effects life of the buildings/ Constructions adversely and make us to maintain/repair them frequently at short intervals. The main known elements which effects adversely the building are:-

Sunlight (UV rays & heat)

Water – rains, storms, humidity, dampness etc.

Earthquake – Vibrations, jerks etc.

Chemical – Underground salts +water, Acid rains, toxic gases, Air pollutants etc.

Biological – Bacterial, Fungal, Insecticides such as termites.

In facts this is very vast subject and volumes can be written after R&D work. If we can thoroughly and properly understand above & find remedies then our major problems will be resolved and we all can make our life, energy efficient. 'NUSHAR' products are designed to combat above enemies. Please refer literatures of 'NUSHAR' for that.

3. Energy saved while using the buildings:-

'NUSHAR' products play important role in saving energy in day to day life. please refer to 'NUSHAR' literature (enclosed) for details.

Main features which make energy efficient buildings may be as follows.

Thermal Barrier: - Buildings temperature variations must be minimum with change in climate conditions. Heat Barrier materials must be used for this. This keeps cooler in summer & warmer in winter.

Water Proof: - From foundation to terrace the building must be water proofed. This will prevent attack of underground water, Rain water or day to day used attack and save lot of energy in spending time and money in repair and repaints the walls etc.

Buildings should be bacteria/fungal free: - 'NUSHAR' Products (coatings) are bacterial/fungal resistance will helps reducing them greatly and keep the health good.

Buildings needs to be designed in such a way that it is well ventilated as well as natural lights should be maximum available. This will reduce electrical charges. 'NUSHAR' Mother Coat is highly reflective and maintains good light with low wattages bulbs hence saving in electricity. These above points are just mentioned in brief. There is lot of scope of writing on this subject. It is the main responsibilities of civil engineers and Architects to ensure that the detailed knowledge must be acquired through studies R&D and must be ensured to implement the right technology without any delay in order to be benefiting the society.

4. The Ultimate life of the building in terms of nos. of years without alterations or renewal of constructions :-

This is very obvious that ultimately actual energy efficiency will be indicated by the life of buildings verses cost of the building. The most important here is to maintain a very good balance. One cannot go with very high price, if he cannot afford. Definitely one can always think deeply and calculate properly with accuracy and need to spend little more say 5% to 10% extra and can achieve lot of savings in terms of above mentioned methods. If one can gain multiple life of building, regular saving in electrical charges/energy, high standard of livings, hygienic living, reduced bacterial & fungal attacks

It would be worth spending 5 to 10 percent extra which is recovered in 2 to 3 years directly in cutting electrical bill. the remaining advantages such as strong and safe, long life of structure from foundation to top by use of ' NUSHAR' products to prevent from various Thermal, Water, Chemical, bacterial, fungal, UV etc attacks.

Recently in New Delhi India some buildings collapsed and lots of property and human life loss was experienced. This situations exists at many places at coastal areas near ricer banks, high rain Jones even at jodhpur city where underground water attacks foundations of buildings and reduces the life of the buildings reduces the life of the buildings ultimately loss of property & human life.

We at 'NUSHAR' anticipated these aspects twenty years before while staying at different coastal areas and New Delhi were regularly trying to find solution to these problems. We have certain solutions which will ensure safe and increased life of buildings with energy efficiency + Combat Global Warming.

Enclosures: -

1. Write ups
2. Catalogue
3. Nushar Products usefulness.