

An Overview of the Green Building Concept

Over the last three to four decades, in many fields in which human beings are actively involved in, the concept of 'Cure' has begun to be transformed into the concept of 'Prevention'. In parallel, within the construction industry, the Green Building Concept evolved and came into existence in its one form or another and it has now been gaining its momentum rapidly across the world.

What is Green Building Concept?

Green building concept, in broader terms, involves a building, which is designed, built, operated, maintained or reused with objectives to protect occupant health, improve employee productivity, use wisely natural resources and reduce the environmental impact.

In other words the green building process incorporates environmental considerations into every stage of the building construction. This process focuses on the design, construction, operation and maintenance phases and takes into account the lot design and development efficiency, energy and water efficiency, resource efficiency, indoor environmental quality, building-owner maintenance and the building's overall impact on the environment. A few aspects of green building concept are outlined below.

Lot design, preparation and development - Thoughtful and efficient site design and development practices help lessen environmental impact and improve the energy performance of new Constructions. The designs with a focus on saving trees, constructing onsite storm water retention/infiltration features and orienting the house to maximise solar power gain are basic aspects in a green building.

Resource efficiency - It is a fact that a green building is most successful when the concepts are incorporated and implemented at the design phase - the time at which material/product/system selection occurs. Creating resource efficient designs and using resource efficient materials can maximize function while optimizing the use of natural resources. For instance, engineered wood products can help optimize resources by using materials in which more than 50% more of the log is converted into structural timber than conventional dimensional timber. But we need to weigh the benefit of such products against the amount of energy consumed during the process and accordingly make our selection.

One aim of resource efficient construction is to reduce job-site waste. Invariably, there are leftover materials from the construction process. Adhering to a construction waste management plan helps reducing the quantity of landfill material. This can be achieved through taking advantage of available recycling facilities and markets for recyclable materials. This will help reducing the construction waste by at least two-thirds, creating potential cost savings for builders and reducing the burden on landfill space.

Energy efficiency - The energy efficiency is weighted heavily in most green building programs. A whole system approach will bring improved results. Further, a careful window selection, building envelope air sealing, duct sealing, proper placement of air and vapour barriers, use of solar powered heating/cooling systems will contribute towards an energy efficient building.

Water efficiency - Green homes often focus on conserving water both indoor and out. Implementing more efficient water delivery system indoors and native and water retaining and drought resistant landscaping selections outdoors can aid preventing unnecessary waste of valuable water resources. For an example use of heavy and light water-closet flushing options (implemented in The Tea Factory Hotel located in Nuwaraeliya in Sri Lanka) will help conserving water used indoor.

Current research and practices have shown the natural processes can be a very successful method of filtering and removing contaminants from storm water and waste water which can then be reused successfully for irrigation purposes etc.

Indoor environmental Quality - An increase in respiratory ailments and allergies and the use of chemicals that can give off gas from materials have greatly contributed to sensitive awareness of the air we breathe inside our homes. The green building focuses on measures that can lessen the effects of potential contamination including controlling the source, diluting the source, and capturing the source through filtration.

Operation, maintenance and building owner education - Improper and inadequate maintenance can hamper the designers' and contractors' efforts to create a resource efficient environmental friendly building. By educating owners with alternative environmental friendly products/systems for use in maintenance of buildings and providing owners with an effective and proper operation and maintenance manual may help obtaining their contribution to achieve green building objectives.

Why should we care about green building?

During the last 30-40 years we have been sensing the bitter experience of global warming, ozone depletion, resource depletion, energy scarcity, ecological toxicity, human toxicity, acid rains etc. These have alarmed, rather compelled the mankind to change the way they operate on the earth. Though we cannot avoid affecting the environment, the green buildings will aim and contribute towards minimising the environmental impact.

It should also be emphasized that green buildings do not only contribute towards a sustainable construction and environment but it also brings lots of benefits and advantages to the building owners and the users. It contributes towards lower development costs, lower operating costs, increased comforts, healthier indoor environment quality, and enhanced durability and less maintenance costs.

The uncertainties in application of green building concept Though there are guidelines being developed for implementation of green building concepts, there are many gray areas and unfolded chapters which hinder the success of their implementation. The most significant fact being that there is very little publicly available data regarding manufacturing process that document energy consumption, impact on natural resources, CO₂ emissions for each building material etc. Therefore, undoubtedly, to a certain degree,

the decision making process involves personal and local value judgement. The data collected on Life Cycle value assessments will help overcoming such issues but still this tool is in its early stages and may need a little more time to provide us with accurate and comprehensive data about the building materials, products and systems.

How UAE is responding?

Until recently we have not perceived a significant contribution within the UAE construction industry towards green buildings. Clients had more often tend to go by cheaper options of construction and ended up in higher operational and maintenance costs adding larger impact on environment. This trend has now begun to change and today the green building concepts are being crept into the construction developments.

Recently, by a leading US environmental council (US Green Building Council), which rates buildings on their eco-friendliness, has recognized the Wafi City as a Silver Building as per the Leadership in Energy and Environmental Design (LEED) Standards. Along with this recognition, it was an encouraging step taken by architects and environmentalists in UAE to establish the Emirates Green Building Council (EGBC) to advance green building principles in the country.

In order to successfully implement the green building principles in UAE, on one hand, it is a timely necessity to educate the property developers, the prospective owners and the professionals in the construction industry on sustainable construction. On the other hand, though not possible at once, it is necessary to take steps on establishing an accurate scientific and quantitative data-base on building products, systems and materials, more specifically a data- base on behaviour of these products, systems and materials under the extreme climatic conditions prevalent in UAE.

A thought

The mankind has impacted so much on the global environment to twist its balance. Therefore, today, as the dependents of the environment, at whichever level in the society you and me are, it is a timely obligation of us to wide open our eyes towards changing our attitudes and the way of living. Begin individual, think simple and light but apply heavily, when need one, use only one not two, impart the accrued benefits/losses with the person next to you and contribute towards a sustainable environment.



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