

Costlier to construct, economical to maintain

Green buildings may be expensive initially, but in the longer run these are cheaper because of low energy consumption

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A green building is environment friendly, saves energy and is cost-efficient. Big deal, you think. That is the reaction most of us, who have not worked in a green building, would have.

AR Noronha, vice-president, Projects, ITC Green Centre, Gurgaon, differs. Very gung-ho about his building, he says, "When you walk around our office premises then the quality of indoor experience as well as outdoor experience is very nice. The entire area is full of light, natural light which takes away the fatigue".

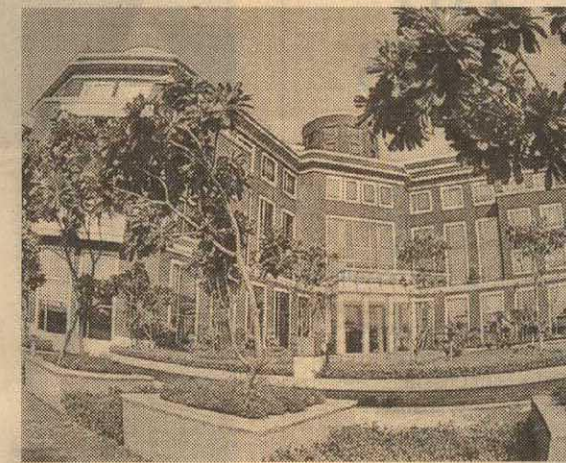
What exactly is a green building and does it really have the benefits its builders claim it has? Most would qualify a green building as one that minimises environmental impacts and reduces the energy consumption.

A green building uses energy in an efficient and eco-friendly way. 'Green' structures within a building would include window walls that utilise the sun for lighting the building naturally, and green roofs, which are gardens planted on entire rooftops as a form of insulation, making the structure cooler. Green buildings ensure that waste is minimised at every stage during the construction and operation of the building resulting in low cost.

"A green building is a high performance sustainable building, which has minimum negative impact on the environment. Therefore, a green building would use highly energy efficient electrical and mechanical systems, equipment, recycled materials, minimise use of virgin materials and recycle water," says Vidur Bharadwaj, a Delhi-



(Left) A view of the Wipro building; (above) NEG Micon building in Chennai, and ITC Green Centre, Gurgaon



based consultant architect.

Architect Indranil Roy adds that the concept is nothing new as it was practiced by our ancestors for ages. Houses that were built in ancient times were ones that were eco-friendly.

Noronha points out with pride more features that his building has. "We have used glasses through which light penetrates, but not heat. The partitions are made of glass. The materials used in the wall helps the building remain cool."

The three Rs: Recycling of old material, reduction of wastage and re-use of the material are all implemented here, he claims. "Not even a single drop of water goes outside our office complex as everything is re-used. Among the other material used is fly ash, while the carpets used are all imported ones and are generally VOC (volatile organic compound)

free. The wood used here is FSC free."

Ramesh Srinivasan, general manager, Civil Infrastructure of Wipro Technologies, agrees that green buildings provide significant returns. Wipro has set up energy and water efficient buildings at their campuses, citing the ISO 14000 certification as proof.

Apart from the direct commercial benefits (lower energy and water bills), there are significant gains in terms of better working conditions and therefore higher employee satisfaction, he says.

"The costs are significantly lower if a life cycle cost is considered. The first time costs in terms of more efficient ACs, electrical, water reticulation

and building system are about a few per cent higher, compared to a run-of-the mill building."

"A green building is primarily expected to give the occupants a salubrious working environment, in terms of indoor air quality, good views and natural lighting," Srinivasan says.

"Care has been taken in the use of recycled or recyclable material which leads to a lower pressure on resources.

For example, the building envelope is of aerated concrete blocks, which have a high fly ash content. This has good insulating properties, leading to lower heat gains and therefore reduced AC costs (both capital and operating). Various power and water saving design fea-

tures are incorporated to ensure that the equipment respond to the varying occupancy loads, leading to lower consumption," he elaborates.

Bharadwaj says that he and other architects are in the process in designing an IT park with over 6 lakh sq ft area, which shall be totally green. He also says that they are forming a forum of architects who can take this concept forward to rural India. This forum will hold training and workshops to educate people on this concept. On the cost front, he says that extra cost is not required to make a building green. It depends on the use and scale of building.

How different are green buildings from one another? Srinivasan says it is a question of using the right material at the right place. For Wipro's buildings, as far as possible, the material was sourced locally. Care was taken to

source environment-friendly material—rapidly renewable wood sourced from managed forests and recycled/reused materials.

Bharadwaj feels the maintenance cost is about the same as any regular building.

Are green buildings more expensive? Noronha says the cost of making such buildings is 15-25% higher but the cost of maintenance of such buildings is very less, and 40% of the energy is saved. "In our centre, the cost of AC maintenance has gone down as the surroundings are cooler," he says.

Srinivasan adds that the

buildings make good commercial and common sense. Green buildings also help prevention of soil erosion; help in rainwater harvest and the landscapes help reduce heat islands.

Roy says it is not difficult for a common man to have a green home, but cost is 30% higher.

Bharadwaj, however, says that extra cost is not required to make a building green rather it depends on the scale and scale of building.

So are you all set to move to a green building? There seem to be a lot of compelling reasons.

Green buildings are about using the right material at the right place