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Greening homes, offices

Commercial and residential buildings account for more than 30 per cent electricity consumption in India. In excess of 40 million sq m of commercial and residential space is added annually, which results in an additional burden of about 5.5 billion units of electricity. However, it is easily possible to cut down this figure by 2 billion units through energy efficiency measures.

This energy efficiency can be

“Through various qualitative and quantitative assessment criteria, GRIHA would be able to rate a building on the degree of its greenness. The rating would be applied to different types of new and existing buildings, whether commercial, institutional or residential. MNRE also proposes to incentivise the National Rating System with a view to promote large-scale design and construction of green buildings in the country.”

The guidelines laid down in GRIHA may be revised every three years to take into account the latest scientific developments during this period.

This system, along with the activities and processes that lead up to it, will benefit the community at large by reducing greenhouse gas, improving energy security, and reducing stress on natural resources.

Hina Zia, Research Associate, Centre for Research on Sustainable Building Sciences at TERI says, “Green houses are designed in a manner so as to minimise heating and cooling costs by appropriate orientation of house. There is reduced need for artificial lighting during the day and energy saving lights like CFL, LED instead of incandescent lamps are installed. Rain water harvesting methods are implemented, and solar water heaters are used.”

In addition, water saving fixtures, dual flushing cisterns, dual plumbing system (for reuse of water used for washing and showers for flushing) are fitted; materials saving technologies are employed; and low VOC (volatile organic carbons) paints, sealants and adhesives with lesser harmful emissions are used for building eco-friendly abodes.

One of the buildings that exhibits a model sustainable habitat based on clean technologies is TERI’s ‘RETREAT,’ a residential training facility for executives near Delhi. The complex has harnessed both traditional and modern means of tapping renewable sources of energy to offer modern amenities such as lighting, air-conditioning, cooking, laundry, and so on at substantially reduced costs. It saves 40-50 per cent of energy costs over conventionally designed buildings at an additional investment of about 25 per cent.

“The GRIHA system is a proof that near self-sufficiency in energy is not a utopian idea but a reality cast in brick and mortar. India needs to devise such technologies customised for the needs of our own people,” says R.K. Pachauri, Director General, TERI.

As Zia says, “To some extent, a lot of people have a wrong notion that such homes are costlier. Eco-friendly homes are cost-effective solutions in the long run. The construction materials and techniques bring down the cost; however there may be some incremental cost due to installation of certain appliances, equipment and fixtures that cost more initially but the payback period is 2 to 5 years. The lower energy and water bills bring in a win-win situation.”

With increasing awareness on energy efficiency, corporates are making sincere efforts towards going green. ITC and Infosys are the leading corporates in this field. These initiatives from the market leaders, have a tremendous replication effect and several other companies are following suit.

TERI claims it has several corporates such as ITC, Ranbaxy, Max Health Care, Hindustan Unilever, Triburg, Orient Craft and Suzlon Energy on its facilitation list who have taken to constructing most of their future buildings in a green mode out of concern for reducing their energy consumption and ecological footprint.

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Eco-friendly homes are cost-effective solutions in the long run

achieved through an even mix of architectural techniques combined with technological interventions.

TERI has come up with a national rating system called GRIHA (Green Rating for Integrated Habitat Assessment) for green buildings. The GRIHA rating system takes into account the provisions of the National Building Code 2005; the Energy Conservation Building Code 2007 announced by BEE (Bureau of Energy Efficiency) and other IS codes. The system, by its qualitative and quantitative assessment criteria, rates a building on the degree of its ‘greenness’.

Although internationally, voluntary building rating systems have been instrumental in popularising green design, GRIHA has been developed keeping in view the Indian agro-climatic conditions.

Vilas Muttemwar, Minister of New and Renewable Energy (MNRE), says,