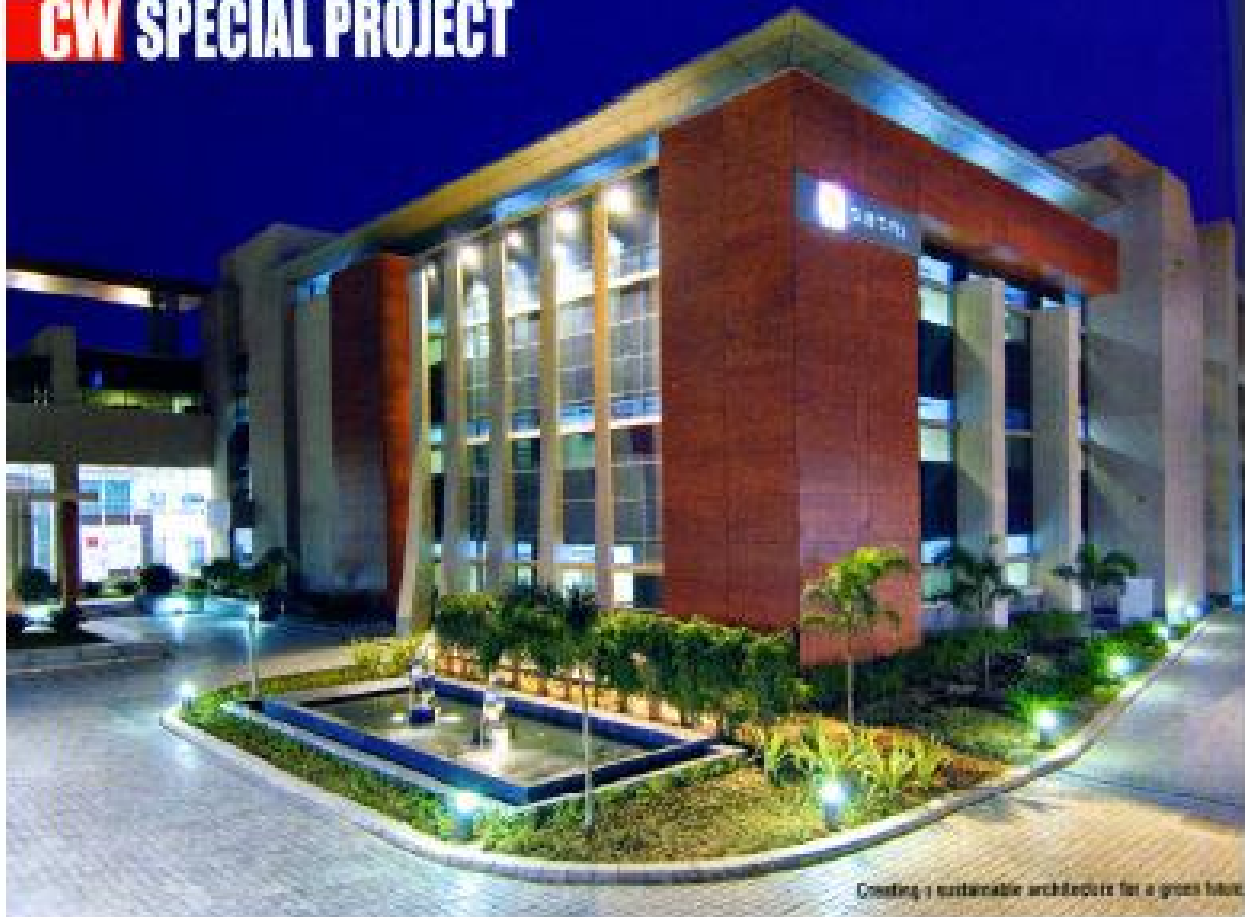


CW SPECIAL PROJECT



Creating a sustainable architecture for a green future

Touch of Green

Corporate houses are realising that going green is good for the health of the bottom line. Patni's green Knowledge Centre is a case in point, says **JAYANTHI NARAYAN**.

Corporate India is steadily waking up to the benefits of green architecture, including significantly lower running costs and a better brand image. And Patni Computers has recently joined the bandwagon with its state-of-the-art green IT-BPO facility in Noida.

Green theme

Designed on a green architecture theme, the new facility is spread over 5 acre with a seating capacity of 3,500 in a single shift. Set up with an investment of Rs 175 crore (\$ 40 million), the project was completed in just 14 months. "This is a project from the bottom of my heart where we have integrated the skin and the soul of a building through environment-friendly concepts, materials and systems," says

Architect Vidur Bharadwaj. "This is aimed to create sustainable architecture at its best."

Sanjiv Kapur, Senior Vice President and Head - Patni BPO, Patni, explains the concept, saying, "The green architecture of the Patni Knowledge Centre is inspired by the traditional, inward-looking 'Indian' *haveli* plan. It is designed keeping in view the movement of the sun to ensure that the building receives maximum natural light." A central courtyard acts as a micro-climate generator and reduces energy consumption. "The concept of the design takes us back into Indian traditional architecture which was designed around courtyards," adds Bharadwaj. "However, the clothes it wears is the projection of a very modern look and represents today, and times to come."

The centre's integrated design and

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Going Green The Way Forward

ALREADY acknowledged as one of the leaders in environmentally-friendly construction, India could surpass the United States within four years to become the country with the most space covered by green buildings, according to the agency that sets standards and certifies eco-friendly real-estate development.

The Indian Green Building Council (IGBC), which today has about 110 million sq ft of green real estate registered with it, is targeting a nearly ten-fold increase in eco-friendly property development in a billion sq ft, the council's chairman Prem C Jain said. Modern technologies, including Integrated Building Management Systems (IBMS), would play a key role in the ensuring the success of the green building movement in the country.

IBMS, which functions like a nerve centre, automates mechanical, electrical and security systems in large complexes and could prove an invaluable asset for eco-friendly property management. Till recently, buildings were provided with individual controls for some operations, while programmed gear was available only for select areas. IBMS functions with the help of an intricate network that runs throughout the building and gives the operator complete control of all lighting, heating, air conditioning and other systems from a single room.

"Green buildings are ecologically sustainable developments. In other words, construction that causes the least damage to the environment, both during and after construction. We are striving to reduce our carbon footprint. IGBC is doing its best to educate developers to recycle air and water and use energy-efficient materials and technology to reduce wastage and save precious resources. In this regard, we must learn from Singapore, for the island nation has achieved a lot in terms of ecologically sustainable development," Mr Jain observed.

The council's main emphasis in the Indian context is on water conservation. Water shortages are common throughout the country and, according to Mr Jain, the best solution is to conserve the resource and recycle used water. The building management system helps here, too. Also, monitoring and managing energy usage is a big challenge.

"India receives 120 days of sunlight. We need the light but have to keep the heat out. As such we cover windows and end up using lights across the building (which is why you need a building management system that controls daylight through shading and adjusting lighting dimmer controls when the light in a room is sufficient. From a user's perspective, any automated system will help reduce energy bills. From a larger environmental perspective, we end up consuming less electricity and that in turn puts less pressure on our power generating stations. That consumes vast amounts of precious natural resources."

"I only wish we could use more solar energy in powering our buildings. Photovoltaic cells are still not cheap for us to go in for massive solar farms, but there's enough sunlight in the Tier II cities to meet the country's energy demand, both present and future," he added.

Heating, ventilation and air-conditioning equipment that run all day inside large campuses are environmentally problematic, too. IBMS can help in maintaining indoor air quality throughout a building by controlling the sequencing of the chiller and reset the temperature of chilled water.

"Indoor air quality is a serious concern today. The air inside an office seems fresh when we enter, but the quality drops drastically by the end of the day. Building management systems set a carbon dioxide monitor to check the levels of the gas and decide how much fresh air is to be drawn into the building."

The usage of IBMS in green buildings is about 30 years old - the first large-scale deployment of a building management system was at America's space agency NASA. In the late '80s, with NASA gearing up to send a man to the moon, it employed consultants to design an IBMS for all of its facilities. Mr Jain was part of the team that worked on this project.

"At the time of installing IBMS building management systems in India are much lower now. For instance, what would have cost Rs 6 crore ten years ago, will cost you Rs 60 lakh now. Mr Jain said.

"If a mistake could be corrected on buildings on the planet into green buildings then we would not have to invest in any new power generation project, because, the power generation capacity across the world would be sufficient to power future development.

Talent Shortage May Stunt Green-Building Movement's Growth

AS THE green building movement in India gathers steam with growing numbers of real-estate developers adopting eco-friendly construction methods, it is trying to overcome a huge shortage in green-friendly industry professionals. The Indian Green Building Council (IGBC) - the nodal body for eco-friendly construction - has some 100 buildings registered with it for certification and is drawing up plans to try and overcome the shortage, said Prem C Jain, the council's chairman, speaking at a seminar on Green Buildings in India: challenges ahead, organised by Zicom-CNA Automation Ltd and The Economic Times.

"To start with, the Council proposes to train a wide range of architects from each real estate firm in eco-friendly design and construction. The council is also working with the Bureau of Energy Efficiency (BEE) to introduce specialised green building courses in schools of architecture. The session was moderated by Ashish Rajkumar.

Trends, Analysts, Forecast

Dr Prem C Jain, chairman, IGBC and CMO, Zicom Services

Dr Ashish Rajkumar, president, ISHRAE and director, Special Services

Dr Prem C Jain, chairman, IGBC and chairman and managing director, Special Services

Shashi Rajkumar, partner, Design and Development, KPS Ramiah, managing director, Air Treatment Engineering Pvt.Ltd.

Pankaj Dharkar, managing director, Pankaj Dharkar & Associates, Lu Wing Sim, senior manager, GETC Asia and Paul Jordan, chief technology officer, American Auto Matrix

...value that is added from the start. You are creating a new service for the customer and the bill pay for a house on the fact that you have added that technology in creating a better and efficient house. So when a number of people build green buildings, those who don't tend to stand out." Both in America and Singapore, tenants are willing to pay more if they can't be convinced that their savings, and hence, profits, are higher when they move into a green building, energy, water and manpower are key contributors to separating green and to manage such efficiency green-friendly integrated building management systems are installed. Real estate firms in these countries are credited for their work and their brand gets instantly promoted.

"We're seeing an interesting phenomenon in the US, where architects integrating a green building are adding considerable value to residential real estate development. For instance, an IT-enabled lockbox installed in a building can save



Left to right: Ashish Rajkumar, president, ISHRAE and director, Special Services, Dr Prem C Jain, chairman, IGBC and chairman and managing director, Special Services, Shashi Rajkumar, partner, Design and Development, KPS Ramiah, managing director, Air Treatment Engineering Pvt.Ltd., Pankaj Dharkar, managing director, Pankaj Dharkar & Associates, Lu Wing Sim, senior manager, GETC Asia and Paul Jordan, chief technology officer, American Auto Matrix

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STRAIGHT TALK



India needs several experienced architects to understand the nuances of energy modelling associated with green buildings.

PANKAJ DHARKAR
MANAGING DIRECTOR
PANKAJ DHARKAR & ASSOCIATES



Green Buildings are eco-friendly structures that give more to the planet than what they take from it.

SHEETAL RAMKHA
PARTNER
DESIGN AND DEVELOPMENT



IGBC has proposed to train a team of architects from each real estate firm, in eco-friendly design and construction.

DR PREM C JAIN
CHAIRMAN
INDIAN GREEN BUILDING COUNCIL



In the past, we've had green structures like the Taj Mahal, but the concept seems to have lost favour now.

ASHISH RAJKUMAR
PRESIDENT, ISHRAE AND DIRECTOR, SPECIAL SERVICES



It's a myth that construction of green buildings is more expensive. If the base building design and air-conditioning is done well, costs can be contained.

KPS RAMIAH
MANAGING DIRECTOR
AIR TREATMENT ENGINEERING



Over the years, people have realised that they stand to gain from improved indoor air quality and lower energy bills.

LU WING SIM
GENERAL MANAGER
GETC ASIA



In the US, technologies integrating a green building are adding considerable value to the concept of eco-friendly real estate development.

PAUL JORDAN
CTO
AMERICAN AUTO MATRIX



As corporates, we feel it is our moral responsibility to promote the cause of environment conservation for the benefit of future generations.

PRAMOUDU RAO
MD, ZICOM ELECTRONIC SECURITY SYSTEMS LTD

GREEN BUILDINGS NEED OF THE HOUR

PANKAJ DHARKAR, PRESIDENT, PANKAJ DHARKAR & ASSOCIATES, AN MEP CONSULTANCY FIRM, EXPLAINS THE IMPORTANCE OF GREEN BUILDINGS

TODAY'S modern buildings are replete with a mix of advanced technology, but have also led to an increase in the environmental impact. The new-age buildings account for 12% of water usage, 30% of green house gas (GHG) emissions, 6% of waste output and 78% of electrical consumption.

In contrast, Green Buildings are eco-friendly and can contribute towards a cleaner environment by reducing the amount of energy used to light, heat, cool and operate buildings and their related hardware and systems. Recognising the need for green buildings, several individuals as well as organisations are making efforts towards increasing the awareness of their importance and the challenges that need to be tackled.

A building's initial construction cost may represent only 20-30% of its building's entire life cycle cost. Usually, the cost of constructing green buildings is higher by 15-20%, but they save around 30% energy usage annually. Hence, there is a need to create awareness about not only the first cost, but also the long-term benefits of green buildings as well as the long-term benefits of green buildings to the users.

As corporates, we feel it is our moral responsibility to promote the cause of environment conservation for the benefit of future generations.

...involvement of new agencies, and this is where ancillary efforts in Lack of experienced workforce in this field is a huge problem as structural service providers pose a huge risk here. Due to the shortage of well-trained project managers, there is a possibility of mismanagement of green building projects. This is also a common problem in India. The IGBC, unlike the USGBC, rates buildings only after they have been occupied. "At the moment, it looks like it will take longer to design green buildings for these are a handful of people available. But we hope to catch up in a year leading developers across the country are very alert to the situation and are keen on sending their staff to train with us. We will ensure that things don't slow down," Mr Jain said.

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Developers need to understand that green buildings are not just about design process and