



GreenHabitat

"A newsletter on Green Buildings"

From Indian Green Building Council, CII-Sohrabji Godrej Green Business Centre



Green Building Congress 2005

14-17 Sep 2005, New Delhi

Green Building Congress, a flagship event of CII-Godrej GBC on Green Buildings will be **inaugurated by His Excellency, Shri A P J Abdul Kalam, President of India.**



The objective of the event is to create awareness on Green Building concepts and advance the Green Building Movement in India.

To boost the growth of the Green Building movement in India, it is necessary that all the stakeholders of the construction industry be abreast of Green Building concepts.

Hence, the event is designed to be a platform for knowledge transfer, networking and exploring business opportunities.

Event Coverage

- ❖ **International Conference on Green Buildings** - sheds light on latest trends and technologies, new concepts, innovations & ideas, best practices, International Experiences and Case Studies on Rated Green Buildings. The conference will attract more than 450 senior level professionals from the construction industry.
- ❖ **Seminar on Green Homes** - addresses green concepts which can be incorporated in Homes. The seminar is exclusively designed for homemakers and working women.
- ❖ **Exhibition on Green Building Products** - exposition on Green Building Materials, Equipment & Technologies. More than 50 products and concepts will be displayed at the exhibition and around 10,000 visitors are expected to attend.

What's New in Green Building Congress 2005:

- **Green Building Tours:** Visits to the recently rated green buildings in Delhi namely ITC Green Centre and the upcoming Wipro building are being organized. The tours can accommodate 140 participants.
- **LEED Training Workshop** is being formally launched with Dr Kath Williams, President, World Green Building Council as faculty. Other faculty for the workshop would be LEED Accredited Professionals from CII-Godrej GBC.

Who should attend?

Architects, Consultants, Builders, Corporate representatives, Green product / equipment manufacturers, Facility Management Groups, International agencies and Government Agencies.

Glimpses of Green Building Congress 2004



Hon'ble Chief Minister of Andhra Pradesh, Dr.Y.S.Rajasekhara Reddy, addressing the audience



Visitors at the International Exhibition on Green Building Products

Event	14 Sep 05	15 Sep 05	16 Sep 05	17 Sep 05
International conference on Green Buildings (15-16 Sep)			✓	
Seminar on Green Homes (17 Sep)				✓
Exhibition (14-17 Sep)			✓	
Green Building Tours (17 Sep)	✓			✓
LEED Workshop (17 Sep)	✓			✓

Indoor Air Quality (IAQ) in Buildings – CO₂ monitoring:

What is IAQ?

As per ASHRAE 62-1999, acceptable IAQ has no known contaminants at harmful concentrations and does not cause dissatisfaction to 80% of occupants exposed to it.

Why is IAQ important?

IAQ has a tremendous impact on human health and occupant productivity.

Studies show that occupant productivity can be enhanced by 14%-16% as compared to a conventional building.

Health problems like Sick Building Syndrome etc will also be lesser in buildings with good IAQ.

This in turn will result in lower absenteeism and enhanced efficiency.

Health impacts of poor IAQ:

- ❖ **Sick Building Syndrome (SBS):** This term is used to describe situations in which building occupants experience acute health problems and discomfort when they spend time inside a building.
- ❖ The complaints may be localized in a particular room or zone, or may be widespread throughout the building.
- ❖ Typical symptoms of SBS can be headache, nausea, irritation in the eyes etc
- ❖ Other health problems aggravated by poor IAQ are asthma, bronchitis etc.

How to ascertain good IAQ levels:

One of the methods of ascertaining IAQ is measuring Carbon-di-oxide (CO₂) levels in occupied areas. High CO₂ levels indicate poor Indoor air Quality.

To ensure good IAQ, fresh air needs to be continuously purged inside the building.

The recommended levels of fresh air as per ASHRAE 62-1999 are as follows:

Outdoor Air Requirements For Ventilation

Application	Estimated Maximum Occupancy Persons/ 1000 ft ²	Outdoor Air Requirements cfm/ person
Dining room	70	20
Cafeteria	100	20
Kitchens	20	15
Office spaces	7	20
Reception	60	15
Conference	50	20
Smoking lounge	70	60
Auditorium	150	15

Measuring IAQ using CO₂ Monitoring:



A Comparison of indoor and outdoor CO₂ concentrations helps in deciding the level of fresh air to be injected into an occupied area.

The differential CO₂ level within each space is based on occupant activity level.

For example, in spaces like offices, differential CO₂ level should not exceed 530 parts per million (ppm) with respect to outdoor CO₂ levels

CO₂ sampling locations must be selected so that they provide representative readings of the CO₂ concentrations in the occupied spaces. Normally, these are located in the return air ducts.

A Building Management System will help to detect the differential CO₂ levels and automatically open the fresh air dampers.

The cost of CO₂ sensors typically ranges from Rs.30,000/- to Rs.50,000/-.

Grundfos building awarded LEED Gold Rating!!



A front view of Grundfos Pumps Building, Chennai

Grundfos Pumps India Pvt Ltd's new corporate office in Chennai has been awarded the Gold Green Building rating by USGBC (US Green Building Council) under their LEED (Leadership in Energy and Environmental Design) programme.

The building has achieved 42 points out of 69 possible points and is the first Gold rated building in India.

Out of the 180 projects across the world that the USGBC has certified so far, only around 50 have been awarded the Gold rating.

The office complex is constructed on a 2-acre plot of land with a built up area of around 35,000sq ft.

Some of the salient green features incorporated in the building are:

❖ Water Management:

- 40% reduction in potable water use
- Zero water discharge & water recycling
- Native plants and high efficiency irrigation system
- 100% recycled water for irrigation

❖ Energy Management

- 28 % energy savings over a conventional building
- Air cooled High efficiency chiller with a COP of 2.7
- VFD's for fans and pumps
- Insulation of thermal storage system
- More than 75% of the building uses daylighting

❖ Building Envelope:

- Use of cavity wall to reduce heat ingress in the building
- High Performance glass for glazing

❖ Resource Reuse:

- More than 10% of the building materials (by value) have been salvaged from other buildings



Landscaping in front of the building

❖ Recycled Content :

- Fly ash based cement, gypsum based acoustic ceiling, recycled glass, ceramic tiles with a high recycled content and MDF cabinetry
- Recycling of more than 95% construction waste

❖ CO2 Monitoring

- CO2 sensors to monitor indoor air quality

❖ Green Housekeeping:

- Eco-friendly chemicals and housekeeping practices

❖ Indoor Environmental Quality:

- Use of low VOC paints, carpets , adhesives & sealants



A view of the courtyard



Daylighting in the building

Would you like to be a Certified Green Building Professional – A Passport to Mega Business Opportunities!

The Green Building Movement is poised to take off in a big way. About 100 Green Buildings are expected to come up in India by 2010 presenting a business opportunity of Rs 750 Crores.

The growth of the Green Building sector will open up a plethora of opportunities for Green Building Professionals!!

How to become a Green Building Professional?

By taking the LEED Accredited Professional examination being administered by US Green Building Council (USGBC).

Eligibility :

Any individual with knowledge of construction industry and LEED documentation process, credit intents, requirements, submittals, technologies, and strategies can become a Certified Green Building Professional by taking the LEED exam.

The duration of the exam is for 2 hrs and examinees have to secure a minimum of 39 marks out of 73 possible marks to be successful in the exam.

Benefits :

- LEED Accredited Professionals are eligible to participate in Green Building Design anywhere in the world.
- One point is awarded to LEED Projects which have a LEED Accredited Professional in the design team

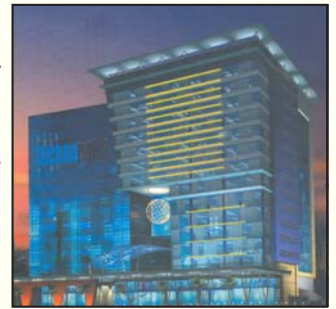
The Indian Green Building Council is working with USGBC to launch the exam in India. This should be available by the end of 2005 in India.

LEED Accredited Professionals in India

Name	Organisation
Alpana Jain	IIEC, New Delhi
Anand M	CII - Godrej GBC, Hyderabad
Daruwalla H N	Godrej & Boyce Mfg Co Ltd, Mumbai
Air Cmde S C Kumar	CII - Godrej GBC, Hyderabad
Raghupathy S	CII - Godrej GBC, Hyderabad
Rumi P Engineer	Godrej & Boyce Mfg Co Ltd, Mumbai
Sangramsinh Parmar	Karan Grover Associates, Baroda
Sathiaran Deepa	Airfrige
Selvarasu M	CII - Godrej GBC, Hyderabad
Srinivas S	CII - Godrej GBC, Hyderabad
Sunanda Akkiparambhat	Mistry Architects, Bangalore
Tanmay Tathagat	IIEC, New Delhi

IT Parks going for green buildings:

Technopolis- Coming up in Kolkatta, Technopolis is one of India's first IT parks' to go in for a green building. The IT Park will house 5500 IT professionals in its 675000sq ft building. The building is likely to be completed in early 2006.



Olympia Technology Park: This IT Park coming up in Chennai will accommodate 12000 IT professionals in a 13,00,000sq ft office. The building is likely to be completed in early 2006.



Upcoming green buildings in India:

Name	Square footage	Building usage
North Delhi Power Ltd, New Delhi	54,000 sq ft	Corporate Office
Wipro Technologies, Gurgaon	1,75,000 sq ft	Office for Software Development
Indian Machine Tools Manufacturers Association, Bangalore	4,00,000 sq ft	Exhibition & Convention Centre
CII -Naoroji Centre of Excellence, Mumbai	1,00,000 sq ft	Office
NEG Micon India Pvt Ltd, Chennai	20,000 sq ft	Corporate Office
Technopolis, Kolkata	6,75,000 sq ft	IT Park
Olympia Technology Park, Chennai	13,00,000 sq ft	IT Park

If you are constructing a building, Go Green!

CII-Godrej GBC offers Green Building Advisory Services in India to achieve the green building rating awarded by USGBC, under their LEED Rating Programme.

For assistance, kindly contact:

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