

One Day Seminar on  
**"Emerging concept of Green Buildings in Chhattisgarh"**

To,

.....  
.....



Subject : Invitation for a seminar on **"Emerging concept of Green Buildings in Chhattisgarh"**

Dear Sir/ Madam,

We would like to take this opportunity to inform you that we are organizing a seminar on **"Emerging concept of Green Buildings in Chhattisgarh"**. We have invited distinguished speakers from Delhi (TERI, GRIHA) as well as Raipur, engaged in this domain to participate in the seminar. We would be highly honored if you can spare some time from your busy schedule to attend the seminar.

In the event, if you are not able to make it, we would request you to kindly depute one of your colleagues to represent you in the seminar. We are sure that the experience of taking part in the seminar will be enriching.

**Chief Guest : Hon'ble Minister Shri Rajesh Munat Ji**  
(Minister Chhattisgarh Government)

**Date : 17<sup>th</sup> Oct. 2012, Wednesday**

**Time : 10.00 am to 5:30 pm**

**Venue : Hotel Golden Tulip, VIP Road, Raipur (C.G.)**

We eagerly await your participation in the seminar.

Thanks and regards

**Dr. Meenakshi S. Rathore**

**GRIHA Patron (Chhattisgarh Region)**

- E-Tech Consultancy Services & Enterprises

- GEC Consultants & Contractors



**Organizers**

**Association for Development and Research of Sustainable Habitats (ADaRSH, GRIHA Secretariat)**

Darbari Seth Block, IHC, Lodhi Road, New Delhi - 03

and

**E-Tech Consultancy Services & Enterprises**  
**GEC Structural Consultants & Contractors**

**Contact :**

**Dr. Meenakshi S. Rathore**

**E-Tech Consultancy Services & Enterprises**

**GEC Structural Consultants & Contractors**

**K-6, Agrasen Nagar, Near D.D. Nagar Police Thana,**

**Ring Road No. 1, Raipur (C.G.) 492001**

**Mob. : 78699-15307, 90390-15307**

**E-mail : gec.msahu@gmail.com**

## Introduction

### Did you know?

Across the globe, the areas valued highest for Real Estate sale or purchase, are the greenest parts of a city. These offer the best quality of life in terms of clean air, cooler climates, ample ground water, rich flora and fauna, natural lighting, ample wind-flow, recreation areas for children and adults, etc.

With unrestricted glass facades and extensive air-conditioned spaces, today we design buildings that work towards isolating the internal from the external environment, thereby resulting in very high energy consumption.

It is imperative we alter that trend to minimize the detrimental impact on the environment and to create a new future for our children, our towns, cities and our country.

Below: A typical office building in Gurgaon

Here all the window blinds (curtains) are rolled down / closed. The sunlight in



our country is very harsh and brings with it heat and glare, which people try to battle by rolling the blinds down and using lots of air-conditioning respectively.

### The Seminar Intends to cover following points :

- Buildings and the environment
- Need of Green Building in building sector
- Need of ECBC in building sector
- Energy efficient materials
- What is GRIHA rating system for building
- Scope of GRIHA in Chhattisgarh
- Importance of Chhattisgarh ECBC and correlation between Chhattisgarh ECBC and GRIHA



## Broad functions of a building



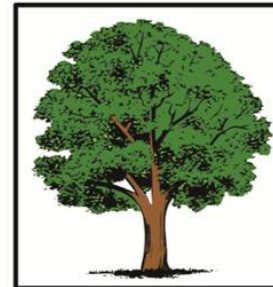
Apart from the basic function as a shelter, a building should provide **two fundamental physiological 'comforts'** to its occupants; they are:

**Visual comfort** (the ability to allow occupants to see clearly for carrying out their daily domestic/official tasks), and

**Thermal comfort** (the ability to keep occupants cool in the summers and warm in the winters)

These 'comforts' can be provided

1. **Naturally** (using sun-light, natural winds, evaporation, trees, etc.) while saving energy, and
2. **Artificially** (using electric lighting, ACs, etc.) Involving large-scale energy generation leading to pollution and green-house gas emissions.



Additionally, these 'comforts' can respond to.

1. **Local conditions** (since local conditions vary from place to place, and give us lots of flexibility in designing local buildings) or
2. **Global conditions** (which cater to "international" requirements which may drastically vary from our local conditions, and may require a lot of energy to provide / recreate)



Lack of appropriate information and tendencies to follow fashionable trends that are short-lived often lead us to provide 'international' comfort conditions in our buildings, at the cost of very high energy consumption.

It should be our endeavour to help secure the energy and resource future of our country through green buildings and habitats suitable to our country and people.



## How do Buildings impact the environment ?

### Buildings\* consume resources such as

Land	Farms, forests, fertile land, marshes, etc.
Soil	Earth, clay, stone, lime, sand, silica, etc.
Trees	Wood, ply, board, shuttering, etc.
Metals	Steel, iron, aluminium, copper, lead, etc.
Plastics	PVC, UPVC, PU, etc.
Water	Construction, landscape, cooling, washing/ drinking / flushing, etc.
Electricity	Cooling / heating, lighting, pumping, entertainment / working, etc.

### And buildings\* generate waste

Site waste	cut trees and vegetation, excavated soil, blasted stone, rubble, etc.
Construction Waste	metals, boxes/cans, broken bricks, shuttering oils, etc.
Sewage/sullage	black water, grey water, etc.
Organic waste	peels, vegetables, fruits, etc.
Inorganic waste	
i. Recyclable waste	paper, glass, metals, etc.
ii. Non-recyclable Waste	demolition debris, all plastics, synthetic fibres, etc.
E waste	CDs, electronics, hardware, etc.
Chemical waste	adhesives, paints, etc.

**\* Buildings mean the building systems and the people who design, build, and occupy them.**

India generates approximately 150,000 to 200,000 tons of waste per day. This waste has now become unmanageable and requires a lot of energy and land to get rid of, through toxic processes such as incineration or land filling.

Additionally, since most municipal solid waste is not segregated at source, it becomes tougher to introduce it into the recycling stream and thus the contamination from the same is worse still.

Cities today are cesspools of disease and epidemic. With waste materials contaminating our ground-water, farm lands, forests, and the air we breathe. We have to turn the situation around before it is too late.



## What is a green building?

The greenest possible habitat would strive to achieve the following:

- **Optimise demand for electricity, water and other natural resources** (in construction, operation and demolition)
- **Generate all its electricity on site** through renewable means
- Cater to all its **water demands through sustainable processes** such as rain water harvesting
- **Grow its own food on site**
- **Recycle and reuse all its waste on site** and burden the environment to the minimum.

We often refer to this process of design as "closing the loop". In other words, striving to generate and utilize on-site resources to construct and operate the building and then ensuring that all the waste material is managed on-site itself, thereby leaving nothing (if possible) to be put into the municipal systems.

**In the Indian context**, a building is 'green' when

- It is designed using an integrated approach (as mentioned in NBC, Part 0)
- It provides its users with an "optimal" level of comfort catering to local needs (as per NBC-Part 8)
- It uses minimum resources, sourced locally (as per various IS codes and other local materials)
- It consumes minimum energy and water (as per ECBC and NBC)
- It generates optimum waste, processed locally (as per CPCB, and MoEF norms)

... during its construction, operation and demolition (i.e., over its entire life cycle)



## Why should you get your building rated?

Some of the benefits of a green design to a building owner, user, and the society as a whole are as follows:

1. **Reduced energy consumption without sacrificing the comfort levels (lower operational costs)**
2. Reduced water consumption
3. Reduced system sizes (HVAC, transformers, cabling, etc.) for optimal performance at local conditions.
4. **Reduced investment (lifecycle cost)**
5. Reduced destruction of natural areas, habitats, biodiversity, reduced soil loss from erosion etc.
6. Reduced air and water pollution (with direct health benefits)
7. Limited waste generation due to recycling and reuse
8. Reduced pollution loads
9. Increased user productivity
10. Enhanced image and marketability



## What is GRIHA?

### **GRIHA (Green Rating for Integrated Habitat Assessment)**



is India's National Rating System for Green buildings. It has been developed by TERI (The Energy and Resources Institute) and MNRE (Ministry of New and Renewable Energy).

It is based on nationally accepted energy and environmental principles, and seeks to strike a balance between established practices and emerging concepts, both national and international.

GRIHA attempts to minimize a building's resource consumption, waste generation, and overall ecological/ environmental impact by comparing them to certain nationally acceptable limits / benchmarks.

GRIHA assesses a building out of 34 criteria and awards points on a scale of 100. In order to qualify for GRIHA certification, a project must achieve at least 50 points. Certain criteria / points are mandatory and have to be complied for the project to be eligible for rating.

### **Project scoring**

- \* 50-60 points is certified as a **1 star** GRIHA rated building,
- \* 61-70 is a **2 star** GRIHA rated building,
- \* 71-80 is a **3 star** GRIHA rating building,
- \* 81-90 is a **4 star** GRIHA rated building and
- \* 91-100 is a **5 star** GRIHA rated building

### **Who administers GRIHA?**

**ADaRSH** is a non-profit, independent society registered under the Societies Act and is the body responsible for administering and giving GRIHA rating to the projects that register under the system.