

ग्रीन सर्टिफिकेशन

GREEN CERTIFICATION

Green Certificate

▶ Green Certificate -

terminology predominantly used in Europe but now becoming more widespread globally - are a tradable commodity proving that certain electricity is generated using renewable energy sources.

Usually, at least the following sources are considered as renewable:

- ▶ Wind
- ▶ Solar
- ▶ Wave and Tidal
- ▶ Geothermal
- ▶ Hydro

Green Certificate

System of checking building or any establishment to see that they are built and operated in a way that it protects the natural environment.

► *There are different levels of Green Certification.*

S. No.	Level of Rating	Recognition
1	Certified	Best Practices
2	Silver	Outstanding Performance
3	Gold	National Excellence
4	Platinum	Global Leadership

Green Certification is awarded to

Commercial	Health & Wellbeing	Industrial	Built Environment
<ul style="list-style-type: none">Green New BuildingsGreen Existing BuildingsGreen InteriorsGreen CampusGreen Data Centres	<ul style="list-style-type: none">Green Healthcare Facilities RatingWellbeing Rating*	<ul style="list-style-type: none">Green FactoriesGreen SEZ	<ul style="list-style-type: none">Green CitiesGreen VillagesGreen TownshipGreen Landscape
	Residential	Education	Transit
	<ul style="list-style-type: none">Green HomesGreen Residential SocietyGreen Affordable Housing*	<ul style="list-style-type: none">Green SchoolsGreen Campuses	<ul style="list-style-type: none">Green Metro StationsGreen Existing MetrosGreen Railway Stations

* Under Development

Green Certified Projects

- ▶ Green certification provides third-party validation of the design and/or performance of a building or infrastructure.
- ▶ Green certified projects blend environmental, economic, and occupant-oriented performance.
- ▶ They typically cost less to operate and maintain; are more energy and water efficient; have higher occupancy rates than conventional buildings in the same market; are healthier and safer for occupants; and are a physical demonstration of the values of the organizations that own and occupy them.

Rating programs aligned with:



MoEF
Government of India



BEE
Star Rating Programme



Energy Conservation
Building Codes (ECBC)



National Building Code
of India

Green Certification in India

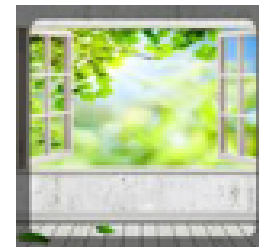
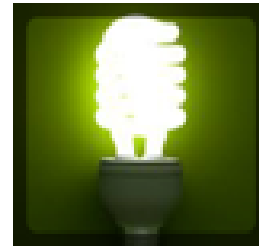
- ▶ Ministry of Environment, Forest and Climate change controls all the certifications for clearances of Projects which may have environmental issues.
- ▶ Ministry of Environment, Forest and Climate has control on construction of New Buildings, Projects, Industries etc.

Major Green Certifying Agencies

- ▶ **IGBC** Indian Green Building Council
- ▶ **GRIHA** Green Rating for Integrated Habitat Assessment
- ▶ **ECBC** Energy Conservation Building Code
- ▶ **LEED** Leadership in Energy & Environmental Design

Green Building – The Definition

A green building is one which uses less water, optimizes energy efficiency, conserves natural resources, generates less waste and provide healthier spaces for people, as compared to a conventional building



Green Building

- ▶ A green building, in simple terms, is a structure which is effective in conserving energy and utilizing resources efficiently.
- ▶ Such green building design will not only use the eco-friendly material in construction but also design the essential utilities to use resources, such as sunlight, heat, water, etc. in an optimally efficient manner.

Green Building

- ▶ However, not every building that uses eco-friendly building materials like clay can be called as a green building.
- ▶ There are certain strict regulations that govern the criteria that make a building fit Green certification.

5 Main criteria which any building needs to fulfil in order to be awarded a green building certification:

- 1. Sustainable Design** - A building created through sustainable development, without damaging the existing eco-system.
- 2. Water Use** - Preservation and efficient use of existing water cycle. Retaining storm water and making it potable through filtration on location, recycling used water and preserving the surrounding natural hydrological eco-system.
- 3. Environment and Energy** - Reducing carbon footprint on surrounding through eco-friendly and sustainable construction material, apart from frequently using renewable energy and resources.
- 4. Indoor Comfort** - The building should provide optimal comfort indoors, through efficient maintenance of air quality, temperature, and ventilation, with access to sufficient daylight for conserving electrical energy.
- 5. Materials Used** - The building needs to have minimal, or no, non-renewable construction material, have efficient, eco-friendly design and engineering, with maximum use of recyclable, eco-friendly construction materials.

Green Certification in India (Provisions for Sanction)

1. Water Conservation and Management

a) Rain Water Harvesting b) Low Water Consumption Plumbing Fixtures c) Waste Water Recycle and Reuse d) Reduction of Hardscape

2. Solar Energy Utilization a) Installation of Solar Photovoltaic Panels

b) Installation of Solar Assisted Water Heating Systems

3. Energy Efficiency

a) Low Energy Consumption Lighting Fixtures (Electrical Appliances - BEE Star and Energy Efficient Appliances)

b) Energy Efficiency in HVAC systems.

c) Lighting of Common areas by Solar energy/ LED devices.

4. Waste Management

a) Segregation of Waste

b) Organic Waste Management

Green (Factory) Company

- ▶ A green factory in simple terms, is a factory which is effective in conserving energy and utilizing resources efficiently. Self-sustained in water and energy consumption, enhanced indoor air quality, good day light, health, well-being and safety of workforce.

National Priorities addressed in the Rating System.

- ▶ Water Efficiency
- ▶ Handling of Waste
- ▶ Energy Efficiency
- ▶ Reduced use of Fossil fuels
- ▶ Reduced use of Virgin materials
- ▶ Sewage/Effluent Treatment Plant
- ▶ Occupational Health

Credits for Green Certification

▶ Soil Erosion and Prevention Control

- Contaminated Site Remediation
- Access to Public Transport/Shuttle Services
- Basic Amenities
- Natural Topography & landscaping (20%, 30%)
- Heat Island effect on Roof and Parking Areas
- Non-Fossil Fuelling facility for vehicles
- Design for Differently Abled
- Night Sky pollution reduction

Credits for Green Certification

▶ Water Conservation

- Rain Water Harvesting - Roof and Non-Roof run-off
- Limit Turf Area
- Drought Tolerant Species
- Management of Irrigation system
- Non- Process waste water Treatment
- Water Use Reduction

Credits for Green Certification

▶ Energy Conservation

- CFC Free Equipment
- Minimum Energy Performance
- HCFC Free/Low Impact HCFC Impact
- On sight Renewable Energy
- Green Power
- Eco-Friendly Captive Power Generation for Factory Requirement

Credits for Green Certification

▶ Sustainable Transportation

- Pedestrian Network
- Bicycle Lanes Network
- Access to Sustainable Transportation

Credits for Green Certification

▶ Material Conservation

- Waste Reduction during construction
- Materials with Recycled content
- Local Materials
- Material Reuse
- Certified wood/Rapidly Renewable building Material and furniture

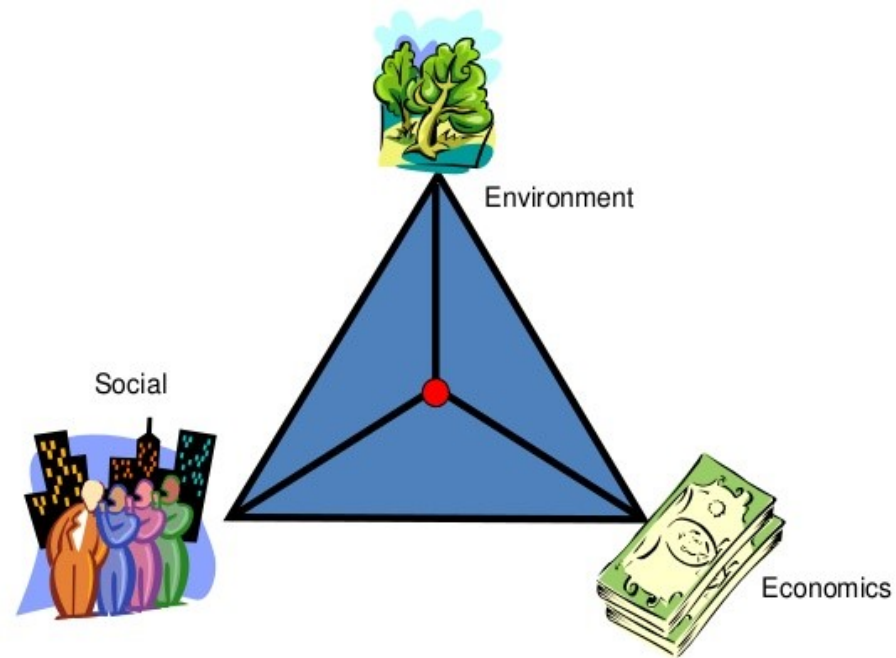
Credits for Green Certification

▶ Indoor Environment Quality and Occupational Health

- Tobacco Smoke Control
- Minimum Air Fresh requirements
- Improved Air fresh ventilation
- Building Flush out
- Day Lighting
- Reduction of Workmen Fatigue
- Eco-Friendly Housekeeping Chemicals
- Aerobic and Cardiovascular Gymnasium

Benefits of Green Certification

- ▶ Going Green makes a large effect on Environment, Human Health, and the Economy
- ▶ Successful adoption Green Standards can maximize both Economic and Environmental performance of the Assets.



Benefits - Environmental

- ▶ Protect Biodiversity and ecosystems
- ▶ Improves Air and Water quality
- ▶ Reduce waste streams
- ▶ Conserve Natural resources

Benefits - Economic

- ▶ Reduces operating costs
- ▶ Create, expand and share for Markets for Green product and services
- ▶ Improves Occupant productivity

Benefits - Social

- ▶ Enhances occupant comfort and health
- ▶ Heighten aesthetic qualities
- ▶ Minimizes strain local infrastructure
- ▶ Improves overall quality of life

Green Certified Assets on *South Central Railway*

S. No.	Asset	Type	Level
1	Rail Nilayam	Green Building	Gold
2	Hyderabad Bhavan	-do-	Gold
3	Rail Vikas Bhavan Guntur	-do-	Platinum
4	Secunderabad Junction	-do-	Platinum
5	Kachiguda Station	-do-	Gold
6	Carriage Workshop Lallaguda	Green-Co	Silver
7	Wagon Workshop Rayanapadu	-do-	Gold
8	Carriage Repair Shop Tirupati	-do-	Gold
9	Supervisors' Training Centre Lallaguda	Green Campus	Gold

चलो एक साथ
हरित की ओर

Let's go green
TOGETHER

जय हिन्द
Jai Hind