



## Sustainable Perspective of an Existing Building by IGBC Rating System

### KEYWORDS

Construction sector, sustainability, site facilitation, energy efficiency, water efficiency, health and comfort, innovation.

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**ABSTRACT** *Our nation is developing at faster pace with its various modes of development, Construction is one of them. Construction sector involves one of the largest economic activities, is further growing rapidly, thus preserving the environment poses a host of challenges. Thus urgent steps to stop the deterioration of environment. One thing that can cope up with the gap is the sustainability concept, by which we can improve environment and thereby human health. This work highlights the study of existing building sustainable perspective in which we analyse the building in terms of site facilitation, Energy Efficiency, Water Efficiency, Health & comfort and Innovation. Thus converting an existing building into Green building under the guidelines of IGBC Operation and Maintenance (O&M) Existing Building rating system. This work also involves implementations of sustainable practices according to the building feasibility and available resources to make the building sustainable and achieve green certification.*

### INTRODUCTION

Sustainability refers to fulfilling the present needs without neglecting the needs for future generation. Hence, Sustainable development is an organizing principle which helps in developing human society considering the needs of present living conditions without underestimating the future generation needs. Thus green building is one of the factor to achieve sustainability in construction sector, Green Building is one which uses less water, optimizes energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building.

Integrating Sustainability initiatives in construction industry is an organized effort to design and build building/facilities/infrastructure using proper material and processes that promote the sustainability. Green practices in the existing building can help address national issues like water efficiency, energy efficiency, and reduction in fossil fuel use in commuting, handling of waste and conserving natural resources. Most importantly these concepts can enhance occupant health, happiness and well-being.

### WHY MAKE EXISTING BUILDING GREEN BUILDING?

Making an existing building as green building becomes less stringent as compared to construct a new building as green building. This is because construction of new building requires more energy and water consumption, it also the more waste after construction which has to be deposited in landfills which is both detrimental to the environment and also increases cost.

### CHALLENGES FACED

One of the critical challenges faced for development of green building in India is the incremental investment in real estate market scenario and getting monetary recognition. Also its massing, orientation, site configuration and predetermined systems are most partly fixed, thus making alterations in building becomes difficult.

### IGBS CERTIFICATION FOR AN EXISTING BUILDING

To get certified as green building, an existing building should

satisfy all the mandatory requirements and minimum number of credit points from IGBC Green Existing Building O&M certification. It can make building sustainable over the life cycle of building. It is the first rating programme developed in India exclusively for existing building. It is necessary for the project team to provide with all the supporting documents of the mandatory requirements and attempted credits. However its validity is for the period of 3 years from the date of issue of certification. After registration for Green Building, Preliminary submission has to be done. Review for preliminary submission is given by IGBC. After review reply it is further sent for final certification, if accepted award certification is granted. However, if not accepted appeal is made and whole process from review reply is repeated.

Documentation is submitted in two phases – Preliminary submittal and final submittal

#### 1) Preliminary submission

It includes all the mandatory requirements and minimum no. of credits. Review is done by third party assessors and review comments would be provided within 30 days followed by preliminary submission.

#### 2) Final submission

Final submission involves clearing preliminary review queries and final submittal. The final review will also be provided within 30 days, indicating the rating achieved.

### IGBC O&M RATING SYSTEM AN OVERVIEW

Sr No.	Category	Mandatory Requirement	Points
1	Site and facility Management	2	18
2	Water efficiency	1	26
3	Energy efficiency	2	30
4	Health and comfort	2	14
5	Innovation category	0	12
	Total	7	100

**1) Site facilitation**

It will involve Green policy and waste collection and disposal as its mandatory requirement whereas eco-friendly commuting practices, eco-friendly landscaping practices, heat island reduction (roof and non-roof), outdoor light pollution reduction carries separate points.

Eco-friendly commuting practices will involve sustainable approach towards transportation for the occupants of the project. Whereas eco-friendly landscaping practices consists of using organic fertilizers for landscaping practices. Maintaining the roof and non-roof temperature by providing adequate landscape and also provision of heat reflective paints will help in earning credits under heat island reduction (roof and non-roof). Avoiding the spreading of light in vertically upward direction for outdoor light reduction. This credit overall carries 18 points.

**2) Water efficiency**

It awards separate points for Water efficient fixtures where the project needs to replace with faucets, water closets having limited flow rate as prescribed by IGBC. Rainwater harvesting has to be done on site for alternate storage to water to improve ground water table. Waste water treatment has to be done in STP and also waste water reuse includes reusing treated water for non potable purposes such as landscaping, flushing, cooling tower water, etc to avoid polluting the streams. Water metering involves compulsory installation of water meters in the project to enhance the performance of the project. Turf design aims in minimizing the turf area to reduce water consumption since lawn consumes more water. Also the landscape should always be 15% of the total site area. This credit carries overall 25 points.

**3) Energy Efficiency.**

Energy efficiency includes following credits Improved Energy performance is one of the credit given to reduce the environmental impact due to excessive energy use and can be achieved by proper installation of lighting fixtures such as LEDs etc. to save over use of energy. Another credit, On-site Renewable Energy and off-site renewable energy encourages to adopt possible use of renewable energy on the site or away from site. Use of solar panels or buying renewable energy certificate can help in reducing the burden on fossil fuels. Energy metering is to be done for continuous monitoring and to enhance the performance of the building. This credit carries in all 30 points.

**4) Health & comfort**

It has safe drinking water, tobacco smoke control and fresh air ventilation as its mandatory requirement. Whereas the credit carbon dioxide monitoring is to control the CO<sub>2</sub> level for occupant's comfort and well-being. Control Isolation of polluting equipment and system is the credit put forth to minimize the hazards of indoor chemicals affecting the indoor air quality and occupants health. The credit Eco-friendly housekeeping chemicals aims in using non-toxic, eco-friendly, biodegradable housekeeping chemicals that are within green seals standards. Thermal comfort, Indoor temperature is to maintain building temperature and humidity level for well-being of occupants. Facilities for differently able people ensures making the building user-friendly by providing ramps, audio Brail provisions in elevators etc. Occupants' physical fitness facilities is one of the credit to enhance the physical fitness of building occupants. This credit carries altogether 15 points.

**5) Innovation category**

It includes 5 credits under innovation and one IGBC AP credit. In the latter credit there should be atleast one IGBC AP member in the project. Whereas the former credit includes various categories under innovation, or any latest trends used in the project. Innovation credits overall carries 12 points.

**CONCLUSION**

Achieving green building certification for an existing building certification for an existing building from IGBC encompasses lots of benefits. Tangible benefits are that when the green building is implemented, it lessens the overall impact on environment. Lessens operating cost and leads to energy and water savings. Also intangible benefits are improving occupants health and comfort. Thus to get certified as green building, an existing building should satisfy all the mandatory requirements and minimum number of credit points from IGBC Green Existing Building O&M certification.

**REFERENCE**

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