



Confederation of Indian Industry

GREEN PRODUCTS RATING

CONSTRUCTION BLOCKS

Pilot Version

Copyright

All Rights Reserved

CII-Sohrabji Godrej Green Business Centre authorizes you to view the Green Products Rating for individual use. You agree not to sell or modify the Green Products Rating in any way for any public or commercial purpose, including display in a website or in a networked environment.

Unauthorized use of the Green Products Rating violates copyright, trademark and other laws, and is prohibited. All the content in the Green Products Rating are owned by the CII Sohrabji Godrej Green Business Centre and are protected by copyright.

Disclaimer

None of the parties involved in the creation of the Green Products Rating, including Green Products & Services Council, its members, or the Indian government make any warranty (express or implied) or assume any liability or responsibility, to you or any third parties for the accuracy, completeness or use of, or reliance on, any information contained in the Green Products Rating Standard, or for any injuries, losses or damages (including, without limitation, equitable relief) arising out of such use or reliance.

As a condition of use, you covenant not to sue and agree to waive and release the Green Products & Services Council, its members and the Indian government from any and all claims, demands and causes of action for any injuries, losses or damages (including, without limitation, equitable relief) that you may now or hereafter have a right to assert against such parties as a result of your use of, or reliance on, the Green Products Rating.

Published by:

Confederation of Indian Industry
CII- Sohrabji Godrej Green Business Centre
Survey No 64, Kothaguda Post
Near HITEC City, Hyderabad - 500 084
Tel: +91 40 44185111
Fax: +91 40 44185189
www.greenbusinesscentre.com

Forward from Green Products and Services Council

India is poised for high and accelerated growth in the coming years and construction sector has been contributing significantly for the country's economic growth. On the other hand, the activities that lead to economic growth such a manufacturing and use of products, materials and technologies pose enormous challenges related to environment, health and wellbeing of people. Hence, there is a need for a holistic approach to address the above aspects.

The Green Products and Services Council formed under the aegis of the CII-Sohrabji Godrej Green Business Centre, one of the centres of Excellence of Confederation of Industry. The objective of the council is to facilitate Green Product Market Transformation in India.

The council is committee-based, member-driven and consensus-focused. The council involves all major stakeholders including product manufacturers, standard developers, conformity agencies, product testing laboratories, Government, Academia etc.

The Green Products and Services Council presently offers Green Product Rating for materials, products and technologies. The rating standards are developed based on consensus by technical committees involving all major stake holders. The Green product rating for construction blocks is our initial efforts towards facilitating green product market transformation.

Acknowledgement

The Green Product Rating for the Construction Blocks has been made possible through the efforts of Green products & Services Council and the technical committee on Construction Blocks members, product experts, and sustainability consultants volunteered.

Green Products and services council would like to thank the following organisations for their participation and contribution in developing the Green product rating standard for the construction blocks.

- ❖ Aerolite Ceiling Systems
- ❖ Ahlada Engineers Pvt Ltd
- ❖ Eco-Care Building Products (P) Ltd
- ❖ Epitome Bamboo Flooring
- ❖ Godrej & Boyce Mfg.Co.Ltd
- ❖ HIL Limited
- ❖ Hindustan Sanitaryware & Industries Limited
- ❖ Intertek
- ❖ KERAKOLL India Pvt. Ltd
- ❖ Manohar Constructions
- ❖ Nippon Paint (India) Limited
- ❖ Owens Corning Industries (India) Pvt Ltd
- ❖ Roxul Rockwool Insulation Pvt Ltd
- ❖ Saint – Gobain Glass India Ltd
- ❖ SCS Global Services
- ❖ SGS India Pvt Ltd
- ❖ The Supreme Industries
- ❖ TherMatek
- ❖ Underwriters Laboratories
- ❖ U.P. Twiga Fiberglass Limited
- ❖ Voltas Limited
- ❖ Zuari Cement

Contents

| | | |
|-----|--|----|
| 1. | <i>Introduction</i> | 6 |
| 2. | <i>Green Products Rating – Life Cycle Approach</i> | 7 |
| 3. | <i>Benefits</i> | 7 |
| 4. | <i>National Priorities addressed in Rating</i> | 8 |
| 5. | <i>Development of Rating Standards</i> | 9 |
| 5.1 | <i>Features of Green Product Rating</i> | 9 |
| 6. | <i>Methodology of Rating</i> | 11 |
| 6.1 | <i>Product testing</i> | 12 |
| 6.1 | <i>Evaluation by 3rd party Conformity Agency</i> | 12 |
| 7. | <i>Green product Rating Levels</i> | 13 |
| 8. | <i>Validity of the Rating</i> | 13 |
| 9. | <i>Fee for Green product rating</i> | 13 |
| 10. | <i>Upgradation of rating</i> | 13 |
| 11. | <i>Summary of Credits & Points Distribution</i> | 14 |
| | <i>GREEN PRODUCTS RATING STANDARD FOR CONSTRUCTION BLOCKS</i> | 18 |
| 1.0 | <i>Product Design</i> | 19 |
| 2.0 | <i>Product Performance</i> | 21 |
| 3.0 | <i>Raw Materials</i> | 23 |
| 4.0 | <i>Manufacturing Process</i> | 27 |
| 5.0 | <i>Waste Management</i> | 34 |
| 6.0 | <i>Life Cycle Approach</i> | 36 |
| 7.0 | <i>Product Stewardship</i> | 38 |
| 8.0 | <i>Innovation</i> | 40 |

1. Introduction

The construction industry is one of the fastest growing sectors in India contributing significantly for economic growth. At the same time, the rapid growth of the sector poses host of challenges for preserving environment and health of occupants. The Green Building Movement spearheaded by Indian Green Building Council (IGBC) has enabled construction industry to incorporate Green Building concepts for the enhanced economic, health and environment performance of the buildings.

Thus far, the Council has been instrumental in enabling 2.60 Billion sq.ft of green buildings in the country. The Green Building market growth has created demand for Green products & services. The demand is expected to grow exponentially in future.

Against this background, CII-Sohrabji Godrej Green Business Centre (CII-Godrej GBC) has launched **Green Products and Services Council** with the support of all the stake holders including Product manufacturers, standard developers, Architects, Green Building developers, Conformity agencies etc.

The key objective of the council is to facilitate Green product market transformation in India through 'Green Product Rating'.

The initial focus of the council will be on Green building products and related technologies. Over a period of period of time, the council will expand its focus on other areas such as Industrial products, consumer items, services etc.

Why Green Product Rating?

The Green Product Rating is a tool for facilitating Green Product market transformation in the country. The Green Products Rating is expected to:

1. Enable green building projects in selecting the right product and equipment
2. Increase the market demand for the Green products
3. Puts a system in place for a product to be called 'green'

2. Green Products Rating – Life Cycle Approach

The Green Products Rating adopts a holistic approach based on the 'Life Cycle' of the product. The rating system encourages the product manufacturers to implement measures that would result in environmental, health and wellbeing benefits at the following stages of the life cycle of the products.

1. Product Design
2. Raw materials
3. Manufacturing Process
4. Product Performance during use
5. Disposal / Recycling



3. Benefits

The Green product rating benefits both the product manufacturers and the users. The benefits are both tangible and intangible.

For Product Manufacturers

Some of the benefits of the Green product rating for the product manufacturers are highlighted below:

1. Green product rating differentiates the Green product from the competition
2. Increases the market reach out with credible and precise information on the Green features of the products
3. Enables Green product Innovation
4. Increases resources conservation through enhanced energy efficiency, water efficiency, use of renewable energy, minimization waste etc during the manufacturing process and hence increase in profitability
5. Acts as a driver for achieving environment excellence
6. Complements National & International Green Building Rating systems

For Users

Use of rated Green products leads to significant tangible and intangible benefits for the end users.

Some of the benefits for the users are highlighted as below:

1. Time and effort in carrying out due diligence in selecting green product is saved
2. The user is assured of the performance of the product and equipment
3. Ensures Toxic and Carcinogen free products which in turn increases health benefits & wellbeing of the users
4. Improved product performance during use to reduce resource consumption and environmental impacts
5. Recognition and credits for achieving national and international rating for the buildings

4. National Priorities addressed in Rating

The Green Product Rating addresses the following which are priorities of the Government at the National level:

Water:

Water is a major concern in most part of the country. Implementation of water efficiency measures and “zero Liquid Discharge” are being encouraged to address the water related issues.

Land:

Availability of land and increase in land pollution are major areas of concern. The rating system demands for increased recycling of material after use which would result in reduction in landfills and hence reduction in land pollution.

Energy Efficiency:

The rating system encourages the product manufacturers to adopt energy efficiency improvement measures and reduce their energy consumption which is in line with the National Mission on Enhanced Energy Efficiency. This also addresses

Renewable Energy:

The rating advocates compliance with Renewable Purchase Obligation (RPO) and encourages product manufacturers to invest in renewable power generation. This is in line with Government of India's objective of increasing the contribution of renewable power sources.

5. Development of Rating Standards

Green product rating applies product specific '**Rating Standards**' for evaluating the products. The rating standards are developed with the support of respective product committees formed under the aegis of Green products and services council.

The product committee involves all major stake holders related to the respective product category including product manufacturers, standard setters, conformity agencies, Architects, users etc. The product committee is led by an expert who is also an unbiased specifier.

5.1 Features of Green Product Rating

The rating system follows prescriptive as well as performance based approach for evaluating a product. The rating calls for demonstration of product performance through testing as per specified standards and implementation of measures at every stage of Life Cycle of the product, leading to clearly measurable environmental benefits.

The rating system evaluates green features for products based on various performance parameters grouped under the following Credit Modules.

1. **Product Design:** The rating necessitates manufacturer to demonstrate its top management commitment towards environment performance improvement of the product.
2. **Product Performance:** The required performance parameters of the product need to be demonstrated through product testing as per the specified standards.
3. **Raw Materials:** The rating demands for efforts to bring down the use of virgin materials through recycling and elimination of toxic and hazardous content in the input materials for product manufacturing.
4. **Manufacturing Process:** The green product rating recognises the efforts taken by the product manufacturer to reduce the resource consumption during the manufacturing process

5. **Waste Management:** The rating calls for efforts to minimize the wastes or safer disposal of the wastes generated during manufacturing process other than the materials used for product manufacturing.
6. **Life Cycle Approach:** The rating encourages the product manufacturer to carryout Life cycle analysis for the products and implement measures based on the impact analysis.
7. **Product Stewardship:** The rating recognizes the measures implemented by the product manufacturers to reduce environmental impact in product transportation and recycling / product disposal
8. **Innovation:** The rating recognises the innovative measures implemented by the product manufacturers which had resulted in substantial reduction in environment impact exceeding the threshold level specified in the rating standard.

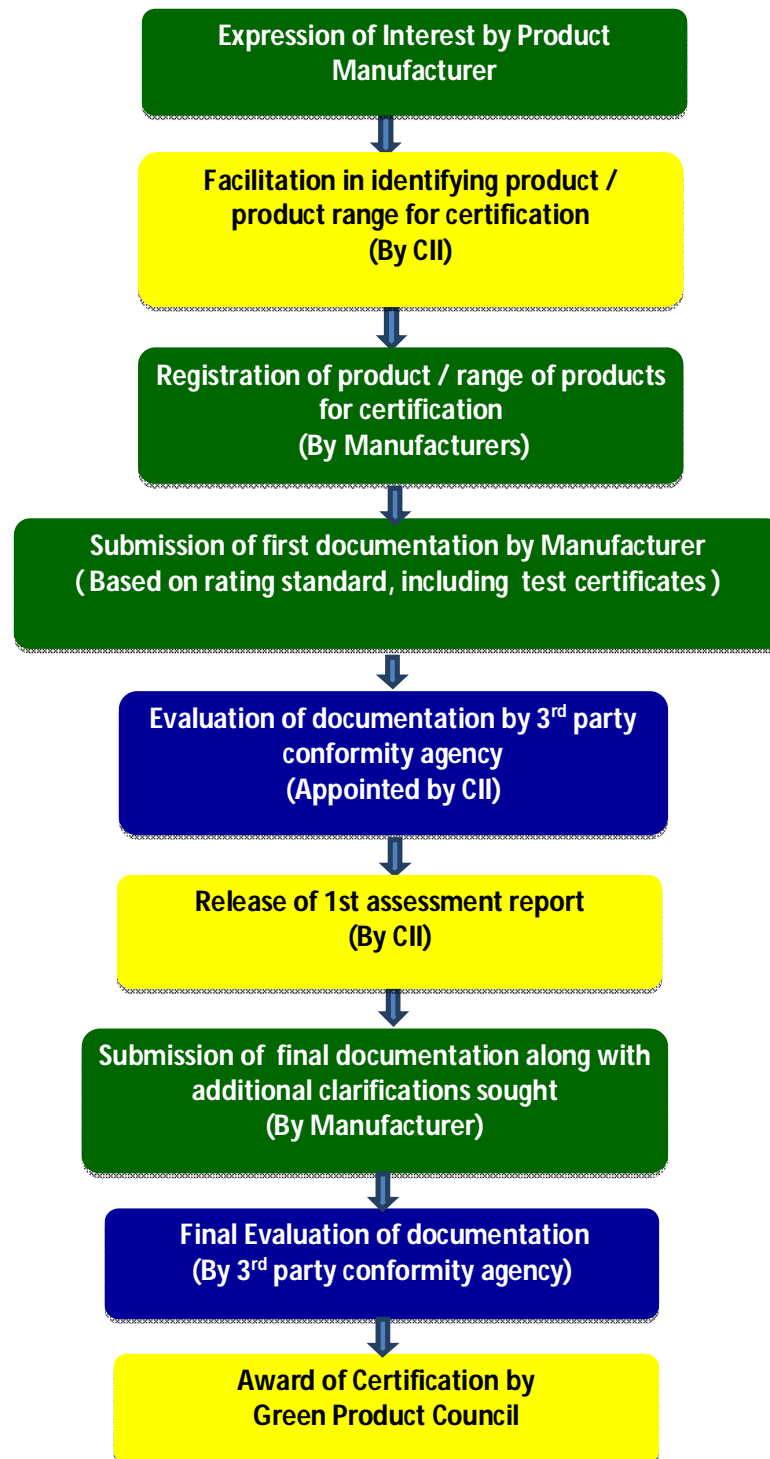
The approach and the Credit Modules for evaluation of products remain by and large the same for all the product categories. However, the credits as part of the individual Credit Modules and the weightage will vary depending upon the product categories and their significance.

A Product needs to comply with certain specified mandatory requirements and compliance to mandatory requirements is a pre-requisite. The mandatory requirements will vary depending upon the product category.

The threshold limit of all the credits is 100. The product manufacturers can apply for the Credits depending upon the applicability and gain credit points for the rating.

6. Methodology of Rating

The step by step methodology for the rating is mentioned below.



6.1 Product testing

The Green Product Rating calls for testing of select product parameters for the award of rating. The product parameters will vary depending upon product categories. Wherever testing of the products is specified, the rating system also specifies the testing standards and the requirements.

The product manufacturers can carry out the product testing in any of the Laboratories accredited by **National Accreditation Board for Testing and Calibration Laboratories (NABL)** according to the specified standards and produce the test certificates with the test results for further evaluation.

If the product testing has been already carried out in an NABL accredited laboratory owned by the product manufacturer, the product manufacturer has to submit the details of the test procedures & methodology for verification.

If the product testing need to be carried out outside the country, the laboratory should have been accredited by the accrediting agency recognized by the Government of the respective country or an accrediting agency which is member of international bodies such International Laboratory Accreditation Co-operation (ILAC) or Asia Pacific Laboratory Accreditation Co-operation (APLAC).

6.1 Evaluation by 3rd party Conformity Agency

The document submitted by the product manufacturer will be evaluated by a 3rd party conformity agency appointed by CII-Godrej GBC.

Conformity agency is a competent 3rd party agency for carrying out product conformity assessment for various products which would involve Product testing, inspection, factory audits and documentary review.

7. Green product rating – Eligibility

A product will be certified depending upon the number of credit points achieved based on the evaluation of 3rd party conformity agency.

The maximum achievable credit points are 100. A product will be certified as 'Green Product' if it achieves 50 or more credit points in the evaluation.

8. Validity of the Rating

The Green product rating is valid for 2 years from the date of award of the rating for the product / product range.

At the end of the validity period, the product manufacturer need to apply for the renewal of the Green product rating.

Before the end of the validity period, the product manufacturer can attempt for higher level of rating after implementing sufficient measures for gaining credit points. However, the attempt can be made only after a year from the date of award of the product rating.

9. Fee for Green product rating

The fee details are available on website www.greenbusinesscentre.com. The fee details can also be obtained through the contact details given in this booklet.

10. Upgradation of rating

This Green product rating for Construction blocks is Green Product and Services council's initial efforts towards facilitating market transformation in Green Building Products. The council's endeavor is to periodically upgrade the standards and raise the bar.

The upgradation of the standards will be taken up with the support of product committee on consensus basis. Updates or addenda will be incorporated and formally communicated to the applicants.

11. Summary of Credits & Points Distribution

| Construction Blocks | | |
|-------------------------------|--|---------------|
| Credits | Criteria | Credit Points |
| 1 | Product Design | |
| Credit 1.1 | <i>Eco - Vision</i> | 1 |
| | <i>Strategies adopted, resource allocation, stake holder engagement, Implemented measures & Impacts</i> | |
| | <i>- At design stage of the product</i> | 2 |
| | <i>- At manufacturing stage of the product</i> | 2 |
| | <i>Sub Total</i> | 5 |
| 2 | Product Performance | |
| Mandatory Requirement* | <i>Product testing for minimum performance as per ASTM C55 standards</i> | |
| Credit 2.1 | <i>U' Value in W/m² Deg K</i> | |
| | <i>U - 2.5</i> | 4 |
| | <i>2.25 ≤ U < 2.5</i> | 6 |
| | <i>2.0 ≤ U < 2.25</i> | 8 |
| | <i>1.75 ≤ U < 2.0</i> | 10 |
| | <i>1.50 ≤ U < 1.75</i> | 12 |
| | <i>1.25 ≤ U < 1.50</i> | 14 |
| | <i>1.0 ≤ U < 1.25</i> | 16 |
| | <i>0.75 ≤ U < 1.0</i> | 19 |
| | <i>0.50 ≤ U > 0.75</i> | 22 |
| | <i>U < 0.5</i> | 25 |
| | <i>Sub Total</i> | 25 |
| 3 | Raw Material | |
| Mandatory Requirement* | <i>1) Use minimum 30% (by weight) of flyash or industrial waste as Raw material 2) Source 40% of raw materials (by weight) within a distance of 250 km</i> | |
| Credit 3.1 | <i>Flyash or Industrial waste</i> | |
| | <i>Flyash or Industrial waste content > 30% ≤ 35%</i> | 3 |
| | <i>Flyash or Industrial waste content > 35% ≤ 40%</i> | 4 |
| | <i>Flyash or Industrial waste content > 40% ≤ 45%</i> | 5 |
| | <i>Flyash or Industrial waste content > 45% ≤ 50%</i> | 6 |

| | | |
|-------------------|--|-----------|
| | <i>Flyash or Industrial waste content > 50%≤ 55%</i> | 7 |
| | <i>Flyash or Industrial waste content > 55%≤ 60%</i> | 8 |
| | <i>Flyash or Industrial waste content > 60%≤65%</i> | 10 |
| | <i>Flyash or Industrial waste content > 65%≤70%</i> | 12 |
| | <i>Flyash or Industrial waste ≥ 70%</i> | 15 |
| | | |
| Credit 3.2 | <i>Regional Materials</i> | |
| | <i>Regional material content >40%≤ 50%</i> | 3 |
| | <i>Regional material content >50%≤ 60%</i> | 4 |
| | <i>Regional material content >60%≤ 70%</i> | 5 |
| | <i>Regional material content >70%≤ 80%</i> | 6 |
| | <i>Regional material content >80%≤ 90%</i> | 7 |
| | <i>> 90% regional material content</i> | 8 |
| | | |
| Credit 3.3 | <i>Eliminate toxic and hazardous materials</i> | |
| | <i>Radiation level within permissible level</i> | 2 |
| | <i>Sub Total</i> | 25 |
| 4 | Manufacturing Process | |
| Credit 4.1 | <i>Energy Efficiency</i> | 7 |
| | <i>Reduction in specific energy consumption ≥ 5%</i> | 1 |
| | <i>Reduction in specific energy consumption ≥ 10%</i> | 2 |
| | <i>Reduction in specific energy consumption ≥ 15%</i> | 3 |
| | <i>Reduction in specific energy consumption ≥ 20%</i> | 5 |
| | <i>Reduction in specific energy consumption ≥ 25%</i> | 7 |
| | (OR) | |
| | <i>Benchmarking</i> | |
| | <i>National Benchmarking – Among top 5 Companies</i> | 5 |
| | <i>International Benchmarking – Among top 10 Companies</i> | 7 |
| | | |
| Credit 4.2 | <i>Water Efficiency</i> | 6 |
| | <i>Reduction in specific water consumption</i> | |
| | <i>Reduction in specific water consumption ≥ 5%</i> | 1 |
| | <i>Reduction in specific water consumption ≥ 10%</i> | 2 |
| | <i>Reduction in specific water consumption ≥ 15%</i> | 3 |
| | <i>Reduction in specific water consumption ≥ 20%</i> | 4 |
| | (OR) | |

| | | |
|-------------------------------|--|-----------|
| | Benchmarking | |
| | - Among top 5 units at National level | 3 |
| | - Among top 5 units at International level | 4 |
| | | |
| | Rain water Harvesting - Harvest 95% rainwater run-off from Roof & Non Roof areas | 1 |
| | Beyond the fence initiatives | 1 |
| | | |
| Credit 4.3 | Renewable Energy | 7 |
| | On-site renewable energy generation (Both electrical & thermal) | |
| | ≥2.5% ≤ 5% of total annual energy consumption | 1 |
| | > 5% of total annual energy consumption | 2 |
| | Off-site Renewable Power | |
| | ≥10% of total annual power consumption | 1 |
| | ≥20% of total annual power consumption | 3 |
| | ≥30% of total annual power consumption | 5 |
| | | |
| | Sub Total | 20 |
| | (OR) | |
| Alternate Option | GreenCo Rating | |
| | GreenCo - Platinum / Gold | 20 |
| | GreenCo - Silver | 15 |
| | GreenCo - Bronze | 10 |
| | | |
| 5 | Waste Management | |
| Mandatory Requirement* | Solid, Liquid and Gaseous Wastes : Compliance to local regulations | |
| Credit 5.1 | Waste Utilisation & Disposal | |
| | Non Hazardous waste | |
| | 10% reduction in disposal of waste per unit of production | 1 |
| | 15% reduction in disposal of waste per unit of production | 2 |
| | 20% reduction in disposal of waste per unit of production | 3 |
| | 25% reduction in disposal of waste per unit of production | 4 |

| | | |
|-------------------|---|------------|
| | Hazardous Waste | |
| | > 5%reduction in waste going to landfill | 1 |
| | > 10%reduction in waste going to landfill | 2 |
| | > 15%reduction in waste going to landfill | 3 |
| | > 20% reduction in waste going to landfill | 4 |
| | <i>Sub Total</i> | 8 |
| 6 | Life Cycle Approach | |
| Credit 6.1 | <i>Life Cycle Analysis</i> | 4 |
| | <i>Measures taken & Quantification of benefits achieved</i> | |
| | - Implementation of at least one initiative | 1 |
| | - 2% impact reduction | 2 |
| | - 4% impact reduction | 3 |
| | - 6% impact reduction | 4 |
| | - 8% impact reduction | 5 |
| | - 10% impact reduction | 6 |
| | <i>Sub Total</i> | 10 |
| 7 | Product Stewardship | |
| Credit 7.1 | <i>Education</i> | |
| | > 10% of people involved in handling the product after despatch and users | 1 |
| | > 20% of people involved in handling the product after despatch and users | 2 |
| | | |
| | <i>Sub Total</i> | 2 |
| 8 | Innovation | |
| Credit 8.1 | <i>Innovations</i> | 4 |
| | | |
| Credit 8.2 | <i>Other Credentials, Awards and Accolades</i> | 1 |
| | <i>Sub Total</i> | 5 |
| | Total Points | 100 |

* - Compliance to mandatory requirements across all modules is a pre-requisite

**GREEN PRODUCTS RATING STANDARD
FOR
CONSTRUCTION BLOCKS**

1.0 Product Design

Credit 1.1: Eco-Vision

Points: 5

Intent:

To design the product holistically considering all the environmental attributes, so as to minimize associated impacts

Award of points:

Provide the details of the Eco Vision to action as per the following for achieving excellence in design of the products that would result in environmental, health & wellbeing benefits.

- ❖ Eco-Vision statement
- ❖ Strategies adopted, resource allocation, stake holder engagement, Implemented measures & Impacts
 - At design stage
 - At manufacturing

| Credits | Criteria | Credit Points |
|-------------------|---|---------------|
| | Product Design | |
| Credit 1.1 | <i>Eco - Vision statement</i> | 1 |
| | <i>Strategies adopted, resource allocation, stake holder engagement, Implemented measures & Impacts</i> | |
| | <i>- At design stage of the product</i> | 2 |
| | <i>- At manufacturing stage of the product</i> | 2 |

Exemplary Performance:

This credit is not eligible for exemplary performance under Innovation Credit.

Documentation Required:

1. Eco Vision statement
2. Strategies adopted at design & manufacturing stage to achieve eco vision
3. Proof for resource allocation for improving the design of the product & manufacturing of the product
4. Details of employees and stakeholders engaged
5. Details of measures taken at design stage and manufacturing stage of product with quantification of benefits

2.0 Product Performance

Credit 2.1: Thermal Performance

Points: 25

Intent:

Enhance the thermal performance of the construction blocks during its use, thereby leading to energy efficiency and associated environmental benefits

Mandatory Requirement:

Test the 'R' value of the construction block as per ASTM C55 standard in any of the laboratories as specified in section 6.1 and produce test certificates along with the test results.

Award of points:

Based on the test results obtained as specified in the mandatory requirement, establish that the standard wall built with the construction blocks achieves the prescribed 'U' value of 2.5 W/m²K under IGBC baseline requirement.

For calculation or simulation purpose, the standard wall is defined as 190 mm brick wall with 15 mm thick plastering on either side.

| Credits | Criteria | Credit Points |
|-------------------|---|---------------|
| | Product Performance | |
| Credit 2.1 | <i>U' Value in W/m² Deg K</i> | |
| | <i>U - 2.5</i> | 4 |
| | <i>2.25 ≤ U < 2.5</i> | 6 |
| | <i>2.0 ≤ U < 2.25</i> | 8 |
| | <i>1.75 ≤ U < 2.0</i> | 10 |
| | <i>1.50 ≤ U < 1.75</i> | 12 |
| | <i>1.25 ≤ U < 1.50</i> | 14 |
| | <i>1.0 ≤ U < 1.25</i> | 16 |
| | <i>0.75 ≤ U < 1.0</i> | 19 |
| | <i>0.50 ≤ U > 0.75</i> | 22 |
| | <i>U < 0.5</i> | 25 |

Exemplary Performance:

This credit is not eligible for exemplary performance under Innovation Credit.

Documentation Required:

1. Test report carried out as per the ASTM C55 standard to determine the 'U' value of construction block.
2. Calculation or simulation reports demonstrating the achievement of the specified 'U' values.

3.0 Raw Materials

Credit 3.1: Flyash or Industrial Waste Content

Points: 15

Intent:

Encourage the use of fly ash or industrial waste in the manufacturing process of construction blocks to avoid dumping of ash or industrial waste in landfills, thereby reducing environmental impacts.

Mandatory Requirement

Utilize minimum of 30% by weight flyash or any other industrial waste as part of the raw materials.

Award of points:

Utilization of flyash or industrial waste in manufacturing of construction blocks for more than 30% by weight will gain credit points as mentioned below.

| | <i>Criteria</i> | Credit Points |
|-------------------|--|----------------------|
| | Raw Material | |
| Credit 3.1 | <i>Flyash or Industrial waste</i> | |
| | <i>Flyash or Industrial waste content > 30% ≤ 35%</i> | 3 |
| | <i>Flyash or Industrial waste content > 35% ≤ 40%</i> | 4 |
| | <i>Flyash or Industrial waste content > 40% ≤ 45%</i> | 5 |
| | <i>Flyash or Industrial waste content > 45% ≤ 50%</i> | 6 |
| | <i>Flyash or Industrial waste content > 50% ≤ 55%</i> | 7 |
| | <i>Flyash or Industrial waste content > 55% ≤ 60%</i> | 8 |
| | <i>Flyash or Industrial waste content > 60% ≤ 65%</i> | 10 |
| | <i>Flyash or Industrial waste content > 65% ≤ 70%</i> | 12 |
| | <i>Flyash or Industrial waste ≥ 70%</i> | 15 |

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation Credit, if the flyash or industrial waste content in manufacturing of construction block exceeds more than 5% of the maximum threshold limit of 70%.

Documentation Required:

1. Declaration by the manufacturer highlighting the % of flyash or industrial waste by weight in the product or product range applied for rating
2. Details of Annual production and raw materials purchased.

Credit 3.2: Regional Materials**Points: 8****Intent:**

Encourage the use raw materials that are extracted or manufactured locally to reduce fossil fuels for transportation, thereby reducing associated environmental impacts.

Mandatory Requirement

Source the raw materials minimum of 40% of by weight regionally within 250 kms from the place of manufacturing of construction blocks.

Award of points:

Credit points will be awarded for any additional sourcing of raw materials over and above 40% by weight which is a mandatory requirement.

Threshold limits for the award of credit points for sourcing of regional materials are as below.

| | <i>Criteria</i> | Credit Points |
|-------------------|---|----------------------|
| | Raw Material | |
| Credit 3.2 | <i>Regional Materials</i> | |
| | <i>Regional material content >40%≤ 50%</i> | 3 |
| | <i>Regional material content >50%≤ 60%</i> | 4 |
| | <i>Regional material content >60%≤ 70%</i> | 5 |
| | <i>Regional material content >70%≤ 80%</i> | 6 |
| | <i>Regional material content >80%≤ 90%</i> | 7 |
| | <i>> 90% regional material content</i> | 8 |

Exemplary Performance:

This credit is not eligible for exemplary performance under Innovation Credit.

Documentation Required:

1. Declaration by the manufacturer, highlighting the % of raw materials by weight sourced regionally
2. Details of the sources of the raw materials and the distance from the manufacturing facility.

Credit 3.3: Elimination of toxic and hazardous materials**Points: 2****Intent:**

To ensure that the product does not contain toxic, hazardous and radioactive materials thereby ensuring safe usage of the product

Award of points:

Measure radioactivity of the product and ensure that the radiation level is within permissible level.

| Credits | Criteria | Credit Points | Breakup |
|-------------------|---|---------------|---------|
| Credit 3.3 | Elimination of toxic and hazardous materials | | |
| | <i>Radiation level within permissible level</i> | | 2 |

Exemplary Performance:

This credit is not eligible for exemplary performance under Innovation Credit.

Documentation Required:

1. Test certificate of the radio activity level of the blocks

4.0 Manufacturing Process

Credit 4.1: Energy Efficiency

Points: 7

Intent:

Enhance energy efficiency in the manufacturing process of the product, to reduce environmental impacts.

Award of points:

Establish specific energy consumption of the plant and monitor on a continuous basis

Implement energy efficiency improvement projects or technologies for reducing the energy consumption.

| Credits | Criteria | Credit Points |
|-------------------|---|---------------|
| | Manufacturing Process | |
| Credit 4.1 | Energy Efficiency | |
| | <i>Reduction in specific energy consumption \geq 5%</i> | 1 |
| | <i>Reduction in specific energy consumption \geq 10%</i> | 2 |
| | <i>Reduction in specific energy consumption \geq 15%</i> | 3 |
| | <i>Reduction in specific energy consumption \geq 20%</i> | 5 |
| | <i>Reduction in specific energy consumption \geq 25%</i> | 7 |
| (OR) | | |
| | Benchmarking | |
| | <i>National Benchmarking – Among top 5 Companies</i> | 5 |
| | <i>International Benchmarking – Among top 10 Companies</i> | 7 |

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation Credit, provided, the measures implemented for reducing the energy consumption are innovative and resulted in significant reduction in energy consumption

Documentation Required:

1. Details of annual production, energy consumption & specific energy consumption for the preceding 3 years
2. Details of National Benchmark & International Benchmark data with comparisons
3. Details of implementation of energy efficiency improvement measures with actual benefits achieved

Note:

Manufacturing units which are in operation for less than 2 years need to demonstrate a system in place for specific energy consumption monitoring and provide the Benchmarking details as highlighted in point no: 2.

Credit 4.2: Water Efficiency**Points: 6****Intent:**

Incorporate water efficiency measures in the manufacturing process to reduce potable water consumption and implement measures to benefit the society at large.

Award of points:

Implement water efficient measures & technologies and recycle* waste water generated from the plant to reduce the fresh water consumption.

Harvest or Capture minimum of 95% of rain water runoff from roof & non roof areas of the manufacturing facility

Implement measures for improving the availability of portable water beyond the fence for the benefit of the local community

| Credits | Criteria | Credit Points |
|-------------------|---|----------------------|
| | Manufacturing Process | |
| Credit 4.2 | Water Efficiency | |
| | Reduction in specific water consumption | |
| | <i>Reduction in specific water consumption \geq 5%</i> | 1 |
| | <i>Reduction in specific water consumption \geq 10%</i> | 2 |
| | <i>Reduction in specific water consumption \geq 15%</i> | 3 |
| | <i>Reduction in specific water consumption \geq 20%</i> | 4 |
| | (OR) | |
| | Benchmarking | |
| | <i>- Among top 5 units National level</i> | 3 |
| | <i>- Among top 5 units International level</i> | 4 |
| | | |
| | <i>Rain water Harvesting - Harvest 95% rainwater run-off from Roof & Non Roof areas</i> | 1 |
| | <i>Beyond the fence initiatives</i> | 1 |

*- Recycling of water can be factored into the reduction in specific water consumption

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation, if the facility achieves the status of “Zero effluent Discharge”

(OR)

The measures taken exceed the threshold limits.

Documentation Required:

1. Details of annual water consumption & Specific water consumption for 3 years
2. Details of National Benchmark & International Benchmark data with comparisons
3. Rain water harvesting system installed and quantity of water harvested annually
4. Details of the beyond the fence initiatives and the benefits

Note:

Manufacturing units which are in operation for less than 2 years need to demonstrate a system in place for specific water consumption monitoring and provide the Benchmarking details as highlighted in point no: 2.

Credit 4.3: Renewable Power**Points: 7****Intent:**

Encourage the use of on-site & off site renewable energy sources to reduce the dependence on fossil fuels and their associated environmental impacts.

Award of points:

Install on-site & off-site renewable energy system to reduce dependence on fossil fuels.

| Credits | Criteria | Credit Points |
|-------------------|--|----------------------|
| | Manufacturing Process | |
| Credit 4.3 | Renewable Energy | |
| | <i>On-site renewable energy generation (Both electrical & thermal)</i> | |
| | <i>≥2.5% ≤ 5% of total annual energy consumption</i> | 1 |
| | <i>> 5% of total annual energy consumption</i> | 2 |
| | <i>Off-site Renewable Power</i> | |
| | <i>≥10% of total annual power consumption</i> | 1 |
| | <i>≥20% of total annual power consumption</i> | 3 |
| | <i>≥30% of total annual power consumption</i> | 5 |

A company is eligible for claiming the allotted points to the threshold level of 5 Credits if they have done exceedingly in either on-site or Off site renewable energy generation.

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation Credit, if the contribution from the renewable energy sources is more than 40% of the annual energy requirement of the manufacturing facility

Documentation Required:

1. Details of installation of onsite and offsite renewable power generating sources including the technology, installed capacity and location with photographs of installations.
2. Details of total power consumption in the manufacturing facility and renewable power produced in kWh

4.1 Alternate Option

GreenCo – Green Company Rating System

To evaluate “How Green a company is”, CII has launched the GreenCo rating system for manufacturing unit.

GreenCo advocates a performance based approach. It aims to provide leadership and guidance to businesses on how to implement green strategies. The rating system evaluates green features specific to manufacturing unit against the following performance parameters:

- ❖ Energy Efficiency
- ❖ Water Conservation
- ❖ Renewable Energy
- ❖ Greenhouse Gas Emission
- ❖ Waste Management
- ❖ Material Conservation, Recycling and Recyclability
- ❖ Green Supply Chain
- ❖ Product Stewardship
- ❖ Life Cycle Analysis

The certification levels of GreenCo are as follows:

| | |
|---------|------------------|
| Level 1 | Certified |
| Level 2 | Bronze |
| Level 3 | Silver |
| Level 4 | Gold |
| Level 5 | Platinum |

Green Product Rating & GreenCo

The parameters highlighted as part of the module 4.0 - Manufacturing are related to a manufacturing unit and already covered in GreenCo rating. The documentations required and the evaluation procedures are one and the same.

Hence, a Company which has received a GreenCo rating in the past 2 years need not to again submit the documents and apply for the credits as part of the manufacturing module.

Credit points for the manufacturing module will be awarded for a GreenCo company as below.

| Level | Points |
|-------------------------|---------------|
| GreenCo Platinum / Gold | 20 |
| GreenCo Silver | 15 |
| GreenCo Bronze | 10 |

5.0 Waste Management

Credit 5.1: Waste Utilization & Disposal

Points: 8

Intent:

Encourage appropriate handling and disposal of waste during manufacturing, thereby reducing environmental impacts and enhance health & wellbeing of the society.

Mandatory Requirement

Compliance to local regulations on solid, liquid and gaseous wastes discharged from the manufacturing location.

Award of points:

Minimize wastes through 'reduce, reuse and recycle' techniques. Reduce waste disposal to landfill

| Credits | Criteria | Credit Points |
|-------------------|--|---------------|
| | Waste Management | |
| Credit 5.1 | <i>Waste Utilisation & Disposal</i> | |
| | Non Hazardous waste | |
| | <i>10% reduction in disposal of waste per unit of production</i> | 1 |
| | <i>15% reduction in disposal of waste per unit of production</i> | 2 |
| | <i>20% reduction in disposal of waste per unit of production</i> | 3 |
| | <i>25% reduction in disposal of waste per unit of production</i> | 4 |
| | Hazardous Waste | |
| | <i>> 5%reduction in waste going to landfill</i> | 1 |
| | <i>> 10%reduction in waste going to landfill</i> | 2 |
| | <i>> 15%reduction in waste going to landfill</i> | 3 |
| | <i>> 20% reduction in waste going to landfill</i> | 4 |

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation Credit, if 100% of the waste generated is utilised through innovative ways and means with higher value addition.

Documentation Required:

1. Declaration from company highlighting that all the compliance requirements are met as per the local regulations *
2. Details of the following for the preceding 3 year:
 - Waste Generated and their quantity by weight or volume
 - Utilisation of the wastes and the process of utilisation
 - Wastes handed over to Approved Common Hazardous Wastes Treatment Storage and Disposal Facility (TSDF)

*Note: Company has to produce a copy of the environment statement to the 3rd party conformity agency for assessment purpose during their plant visit.

6.0 Life Cycle Approach

Credit 6.1 Life Cycle Analysis

Points: 10

Intent:

Identify environmental impact at every stage of the life cycle of the product and initiate measures to reduce such impacts

Award of points:

Carry out Life cycle analysis of the product for the boundary conditions of Cradle to Cradle. i.e From the raw material sourcing to recycling / disposal of the manufactured products.

The product manufacturer can carry out the life cycle analysis with the support of external service provider or with internal expertise using a LCA software tool.

Based on the Life Cycle impact analysis, implement measures for reducing the environmental impacts.

| Credits | Criteria | Credit Points |
|-------------------|---|---------------|
| | Life Cycle Approach | |
| Credit 6.1 | <i>Life Cycle Analysis</i> | 4 |
| | <i>Measures taken & Quantification of benefits achieved</i> | |
| | <i>- Implementation of at least one initiative</i> | 1 |
| | <i>- 2% impact reduction</i> | 2 |
| | <i>- 4% impact reduction</i> | 3 |
| | <i>- 6% impact reduction</i> | 4 |
| | <i>- 8% impact reduction</i> | 5 |
| | <i>- 10% impact reduction</i> | 6 |

Exemplary Performance:

This credit is eligible for exemplary performance if the implemented measure is innovative and addresses any of the measure that has not been covered as part of the rating system

Documentation Required:

1. LCA study report with the details of the study conducted and impact analysis
2. Details of the measures implemented based on the impact analysis of LCA study and the benefits achieved

7.0 Product Stewardship

Product stewardship advocates that all those involved in the Life Cycle of product share responsibility for reducing its health and environmental impacts with producers bearing the primary responsibility.

In the Green Product Rating, Product Stewardship credit focuses on the following:

1. Education for the Stake holders on Green Products for reaping the intended benefits fully
2. Quality management system for minimizing the rejection rate after product dispatch
3. Extended producer responsibility increasing the recycling or safer disposal

The credit points are allotted for the focus areas as applicable for the individual product categories. In case of Construction Blocks only education for the stakeholders has been considered.

Credit 7.1: Education**Points: 2****Intent:**

Educate those involved in handling the product at every stage post-despatch, so as to reap the intended environmental benefits.

Award of points:

Companies to develop and implement stake holder specific awareness and information sharing programmes for reaping the benefits of Green products at every stage of its life cycle.

| Credits | Criteria | Credit Points |
|-------------------|---|----------------------|
| | Product Stewardship | |
| Credit 7.1 | <i>Education</i> | |
| | <i>> 10% of people involved in handling the product after dispatch and users</i> | 1 |
| | <i>> 20% of people involved in handling the product after dispatch and users</i> | 2 |

Exemplary Performance:

This credit is not eligible for exemplary performance under innovation criteria.

Documentation Required:

1. Details of the stake holders specific awareness or information dissemination programmes about the Green Products, its features and their roles to reap the intended benefits
2. Estimation of % of stake holders covered

8.0 Innovation

Credit 8.1 Product Innovation

Points: 5

Intent:

Recognize initiatives that are not addressed in this rating system but have a profound impact in protecting the environment.

Award of points:

1. As part of the credit, the product manufacturer can apply for four innovative measures. If the implemented measures meet any one of the following criteria mentioned below can be considered as an innovative measure.
 - Any environmental measure not covered in the rating but addressed by the manufacturer
 - Any measure surpassing the credit threshold of any of the credits included as part of this rating
2. Receipt of Eco labels, Awards & accolades

The points for innovative measures are as follows:

| Credits | Criteria | Credit Points |
|-------------------|---|---------------|
| | Innovation | |
| Credit 8.1 | <i>Innovation : Each innovative measure implemented at any stage of Life cycle will gain 1 Credit Point</i> | 4 |
| | <i>Other Credentials, Awards and Accolades</i> | 1 |

Documentation Required:

1. Details of the innovative measures highlighting the Intent and the measured Impacts
2. Copy of the certificates for the details of Eco-labels, Awards & accolades obtained