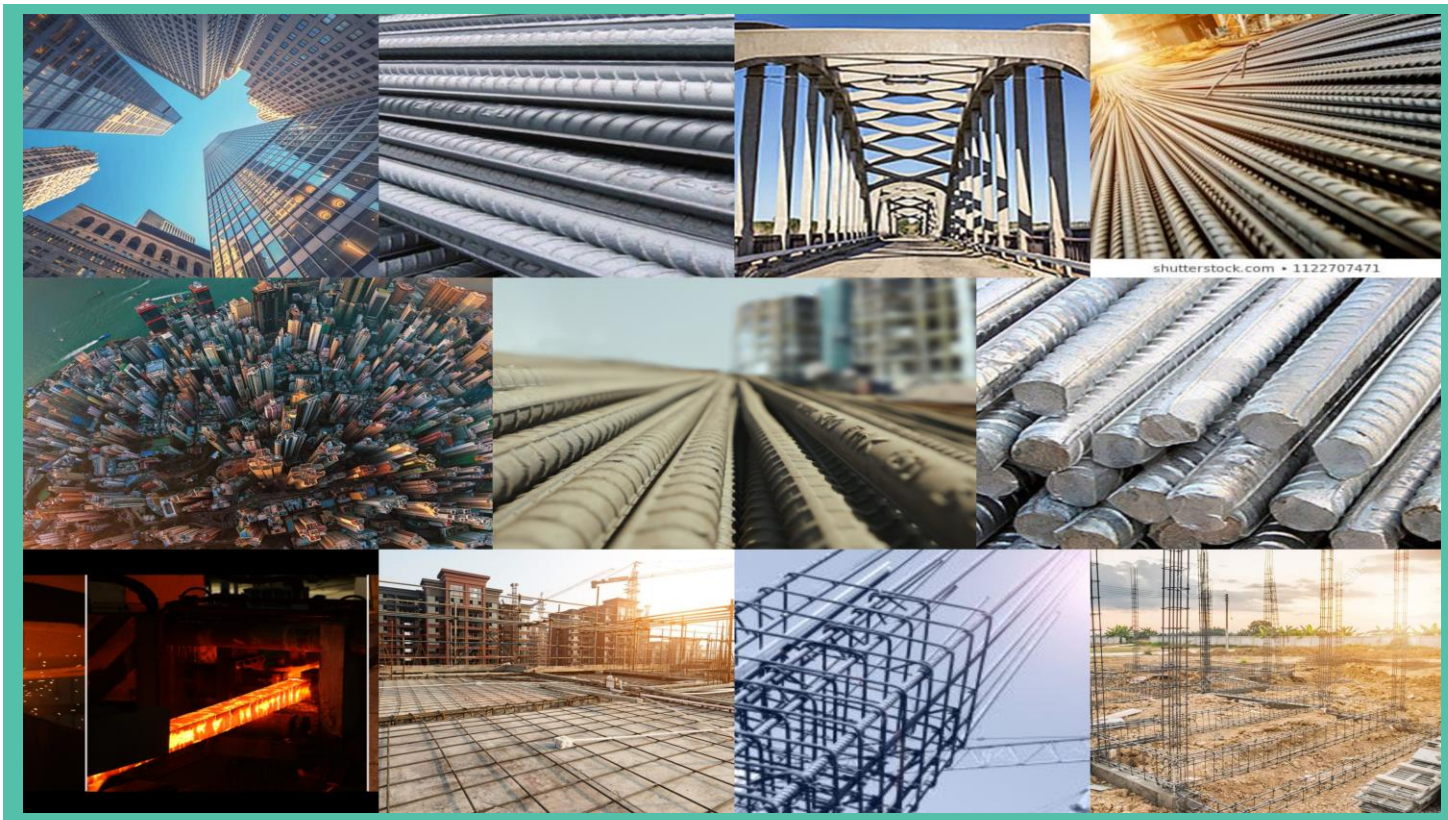

GreenPro Ecolabelling Standard for

Steel Rebars Used for Concrete Reinforcement

Version- 1

Supporting Councils and Programmes

IGBC

GreenPro Certification Standard for

“Steel Rebars Used for Concrete Reinforcement”

Version - 1

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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

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- Er. Ar. Anchuri, Chief Consultant, Anchuri and Anchuri Company
- Mr Somasundaram, MD, Amman Try Steels Pvt Ltd
- Mr Sandeep Bihani Commercial Head, GK Steels
- Dr. Jayanta Saha, General Manager, Institute for Steel Development & Growth
- Mr Devasish Mishra, Vice President, Vijayanagar Steel Works, JSW Steel Limited
- Mr C.H.Ramesh, HOD – Mechanical, Jairaj Ispat Limited
- Mr Kapil Jat, GM – Operational Excellence, Jaideep Ispat & Alloys Pvt Ltd
- Mr. Dilip Mehra, Senior Branding Manager, Kamdhenu Limited
- Mr Rajeev Gupta, AGM, Jai Prakash Associates
- Dr S Rajkumar, In Charge - Centre for Excellence & Futuristic Development & SCSR B&F IC | Larsen & Toubro Ltd, L&T Construction
- Mr Jismon Isaac, Operations Manager, Metcon TMT
- Mr. Vijay Kulkarni, Former Principal Consultant- RMCMA and Former President - ICI
- Dr Sandip Bhattacharya, VP (QA & QC) ,Rashmi Metaliks Ltd
- Dr Jaswant Arlekar, Chief Consultant, R.S. Mandrekar and associates
- Mr Akshat Sharaf, Director, Radha TMT
- Mr Saujal, Manager – Infrastructure, SGS India Private Limited
- Mr Samir Korgaonkar, Deputy Director - Operations, Sunvik Steels Pvt Ltd
- Mr B Raju Prasad, VP - Marketing, Vinayak Steel
- Mr Sanju Roy, GM - QA & TD ,Vizag Steel Limited

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1. Introduction

The construction industry is one of the fastest-growing sectors in India contributing significantly to economic growth. At the same time, the rapid growth of the sector poses a host of challenges for preserving the environment and health of occupants. The Green Building Movement spearheaded by the Indian Green Building Council (IGBC) has enabled the construction industry to incorporate Green Building concepts for the enhanced economic, health, and environmental performance of buildings. Thus far, the Council has been instrumental in enabling 7.61 Billion Sq. ft of green buildings in the country. The Green Building market growth has created the demand for Green products & services. The demand is expected to grow exponentially in the future.

Against this background, CII-Sohrabji Godrej Green Business Centre (CII-Godrej GBC) has launched the **Green Products and Services Council** with the support of all the stakeholders 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 Certification'.

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

This certification is applicable for all Steel Rebar manufacturing units including commercial and captive plants. The scope of this framework includes only the Rebar Manufacturing process and not its upstream (source of crude steel for producing rebar and the technology for manufacturing crude steel differs and is not comparable. Hence, to have this certification open to all types of rebar manufacturers, the scope of this certification is limited to the Rebar manufacturing process irrespective of the sourcing route of the raw material crude steel).

It is suggested that for brands opting for this framework having multiple manufacturing units (including contract manufacturing), some parameters will be scored based on the weighted average of the score from individual manufacturing units and some parameters will be overall. (Eg. Product-related initiatives, customer engagement, etc., will be overall irrespective of the individual manufacturing units, whereas reduction in utility consumption will be scored manufacturing unit-wise and finally weighted average score will be taken for the overall scoring).

1.1 Why GreenPro Certification?

The GreenPro Certification is a tool for facilitating Green Product market transformation in the country. The GreenPro Certification 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. Put a system in place for a product to be called ‘green’

1.2 GreenPro Certification for Steel Rebars Used for Concrete Reinforcement

Concrete is a relatively brittle material that is strong under compression but weak in tension. Plain, unreinforced concrete is unsuitable for many structures as it is relatively poor at withstanding stresses induced by vibrations, wind loading, and so on. Hence, Steel bars are commonly used as reinforcement to impart tensile and shear strength to the structure. Reinforced concrete is versatile and economical, hence one of the most widely used practices for the construction of various types of structures like buildings, bridges, metros, etc. With this background, the steel demand is on the rise in India. As per Indian Steel Association (ISA), India was the world’s second-largest steel producer in 2019 with crude steel production of 111.2 million tons (MT), and the steel demand is estimated to grow 7 percent in FY20 and FY21.

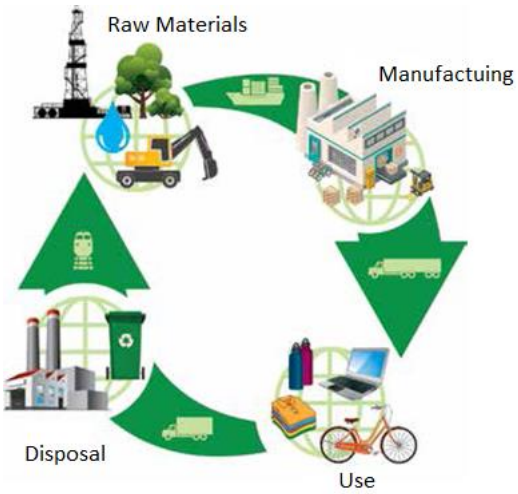
Steel rebars form the backbone of the construction segment and must possess suitable mechanical and chemical properties so that they can exhibit high tolerances to various damaging forces acting on the building members such as foundations, beams, columns and slabs, and external environment. Currently, a clear trend is discernible in that reinforced concrete structural members are required to be designed for longer service life from sustainability considerations. The Steel Rebars sector offers enormous cost-effective intervention opportunities for improving the performance of the product to enable them to meet the upcoming requirements of infrastructure development. This shall help in the sustainable construction of new infrastructure projects in India such as bridges, metros, tunnels, etc. for a prolonged service life.

Hence, CII-Godrej Green Business Centre proposes to develop Green Product Certification for Steel Rebars Used for Concrete Reinforcement to facilitate market transformation and thereby facilitate in reducing the overall environmental impact from the Steel Rebars / Reinforced Concrete sector.

2. GreenPro Certification–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

GreenPro certification benefits both the product manufacturers and the users. The benefits are both tangible and intangible.

<u>For Product Manufacturers</u>

Some of the benefits of GreenPro Certification for the product manufacturers are highlighted below:

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

For Users

The use of Greenpro certified steel rebars should lead to significant tangible and intangible benefits for the end-users (Developers and Contractors) in terms of environmental sustainability.

Some of the benefits for the users are highlighted below:

- Recognition and credits for achieving national and international Certification for the Green Buildings
- Improved product performance during use to reduce resource consumption and environmental impacts
- Time and effort in carrying out due diligence in selecting a green product is saved
- Ensures Toxic and hazardous substances free products which in turn decrease “health and wellbeing” risks of the users

For Structural Designers

- High-quality steel for better design and longer durability of structures
- Reduces due diligence and effort in the verification of sustainable steel rebars
- Brings cost-effectiveness and increases the pace of construction

4. National Priorities addressed in Certification

GreenPro Certification addresses the following which are priorities of the Government at the National level:

Water:

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

Land:

The availability of land and the increase in land pollution are major areas of concern. The Certification system demands increased recycling of material after use which would result in a reduction in landfills and hence reduction in land pollution.

Energy Efficiency:

The Certification 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.

Renewable Energy:

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

A combination of improving energy efficiency and the use of renewable energy leads to support the government's efforts on Climate Change issues.

5. Development of GreenPro Certification Standards

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

The product committee involves all major stakeholders related to the respective product category including product manufacturers, standard setters, conformity agencies, architects, users *et al.* The product committee is led by an expert who is also an unbiased specifier.

Key findings of pilot projects are incorporated into the certification standard with consent from the product committee.

5.1 Features of GreenPro Ecolabel

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

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

1. Product Design: The Certification necessitates the manufacturer to demonstrate its top management commitment towards environmental 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. Waste Management: The Certification calls for efforts to minimize the wastes or safer disposal of the wastes generated during the manufacturing process

4. Energy Management: The Certification encourages the use of energy-efficient process including proper monitoring of energy consumption, use of energy source having a comparatively lesser environmental impact and use of renewable energy

5. Water Management: The Certification calls for efforts to minimize the water consumption processes as well as promotes the concept of Zero Liquid Discharge, water-saving and monitoring

6. Life Cycle Approach: The Certification encourages the product manufacturer to carry out Life cycle analysis for the products and implement measures based on the impact analysis.

7. Product Stewardship: The Certification recognizes the measures implemented by the product manufacturers to reduce environmental and health impacts in product transportation, use, and recycling/product disposal

8. Innovation: The Certification recognizes the innovative measures implemented by the product manufacturers which had resulted in a substantial reduction in environmental impact exceeding the threshold level specified in the Certification standard.

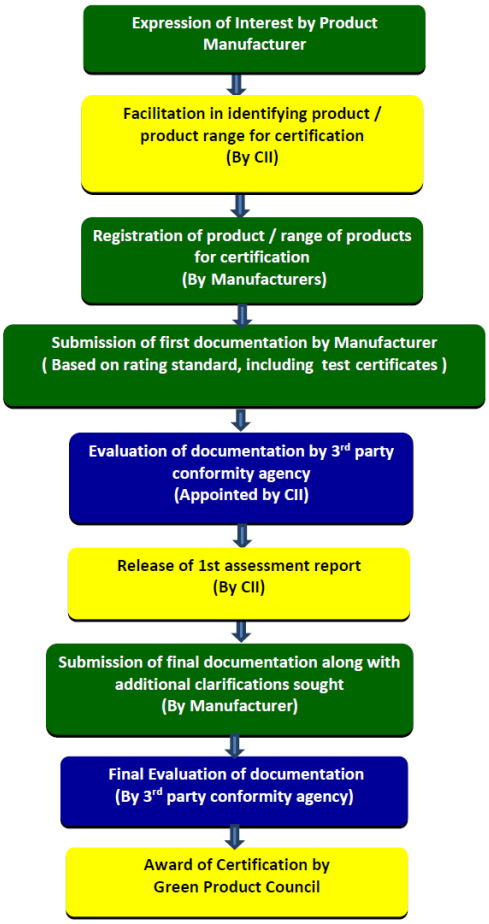
The approach and the Credit Modules for evaluation of products remain by and large the same for all the product categories. However, the credits as part of the individual Credit Modules and the weightage will vary depending upon the product categories and their significance.

A Product needs to comply with certain specified mandatory requirements. 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 Certification.

6. Methodology of Certification

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



6.1 Product testing

The Green Product Certification calls for testing of select product parameters for the award of Certification. The product parameters will vary depending upon product categories. Wherever testing of the products is specified, the Certification 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 3rd party **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 needs 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 a member of international bodies such as International Laboratory Accreditation Co-operation (ILAC), Asia Pacific Laboratory Accreditation Co-operation (APLAC), etc.

6.2 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 Certification

A product will be certified depending upon the number of credit points achieved based on the evaluation of a third-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.

If multiple plants are manufacturing the same product, then the scoring shall be based on the weighted average of all plants. For Integrated plants, the plant may choose to show compliance at unit level or plant level.

8. Validity of the Certification

GreenPro certification is valid for 2 years from the date of award of the Certification with a yearly review for the product/product range. At the end of the validity period, the product manufacturer needs to apply for the renewal of the Green Product Certification.

Before the end of the validity period, the product manufacturer can attempt for a higher level of Certification 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 Certification.

9. Fee for Green Product Certification

The fee details are available on the website www.ciigreenpro.com. The fee details can also be obtained through the contact details mentioned in the manual.

10. Updating of the Standard

GreenPro Certification Standard for Steel Rebar is the result of the Green Product and Services council's efforts towards facilitating market transformation in Green Building Products. The council endeavors to periodically update the standard and raise the bar.

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

Summary of Credits & Points Distribution

GreenPro Certification - Steel Rebars Used for Concrete Reinforcement		
Credits	**Criteria**	**Proposed Credit Points**
1	**Product Design**	**5**
1.1	Eco vision	2
1.2	Strategies adopted	3
	- At the design stage of the product	2
	- ISO 14001 certified manufacturing plant	1
2	**Product Performance**	**30**
	Mandatory Requirement Use of clean steel billet meeting the requirement of IS 1786:2008 (Clause 1.6) on the metallurgical history of input material	
	FE 415	
	Low Ductility (Non D grade) and No Corrosion Resistance	10
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	15
	High Ductility (D/S grade) and High Corrosion Resistance CRE=>0.4	20
	FE 500	
	Low Ductility (Non D grade) and No Corrosion Resistance	20
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	25
	High Ductility (D/S grade) and High Corrosion Resistance CRE=>0.4	30
	Fe 550	
	Low Ductility (Non D grade) and No Corrosion Resistance	20
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	25
	High Ductility (D/S grade) and High Corrosion Resistance CRE=>0.4	30
	** Where CRE = Cr+Cu+P+Mo+Ni*	
	**For grades above Fe 550, the same scoring pattern of Fe 550 shall be applicable*	
3	**Manufacturing Process**	**35**
3.1	**Energy Efficiency**	**15**
3.1.1	Energy Monitoring Systems	2
	Availability of monitoring systems recording of thermal/electrical and utility consumption at site/company level	1
	Availability of monitoring systems recording of thermal/electrical and utility consumption at plant/production unit level	2
3.1.2	Reduction in specific energy consumption (Includes both thermal & electrical) over the last 2 years	13
	Reduction in specific energy consumption > 0.25 ≤ 0.50 %	1
	Reduction in specific energy consumption > 0.5 ≤ 1 %	3
	Reduction in specific energy consumption >1 ≤ 1.5 %	5
	Reduction in specific energy consumption >1.5 ≤ 2.5 %	7
	Reduction in specific energy consumption > 2.5 ≤ 3.5 %	10
	Reduction in specific energy consumption > 3.5 %	13

	*Applicant can choose to demonstrate reduction in specific energy consumption either at plant or site or company level (ISPs)	
	Either 3.1.1 + 3.1.2 (OR) as below	
	National Benchmarking – Among top 5 Companies	12
	International Benchmarking – Among top 10 Companies	15
3.2	**Water Management**	**10**
3.2.1	Water Monitoring	2
	Availability of monitoring Systems for COD, BOD, TSS, water consumption, discharge etc. at site/company level	1
	Availability of monitoring Systems for COD, BOD, TSS, water consumption, discharge etc. at plant/production unit level	2
3.2.2	Reduction in specific water consumption over the last 2 years	6
	Reduction in specific water consumption > 0.5 ≤ 1 %	1
	Reduction in specific water consumption >1 ≤ 2.5 %	2
	Reduction in specific water consumption > 2.5 ≤ 4 %	4
	Reduction in specific water consumption > 4 %	6
	*Applicant can choose to demonstrate a reduction in specific water consumption either at plant or site or company level(ISPs)	
	Either 3.2.1 + 3.2.2 (OR) as below	
	National Benchmarking – Among top 5 Companies	6
	International Benchmarking – Among top 10 Companies	8
3.2.3	Water discharge	1
	Zero Liquid Discharge Facility - Yes (to be assessed during site visit)	1
3.2.4	Rain water harvesting	1
	Capture a minimum of 95% of rainwater runoff from roof & nonroof areas of the manufacturing facility	1
3.3	**Renewable Energy**	**10**
3.3.1	Renewable Energy (Use of on-site or off-site renewable sources for meeting the power requirements)	5
	≥ 2.5 % substitution in the electricity source	3
	≥ 5 % substitution in the electricity source	4
	≥ 10 % substitution in the electricity source	5
3.3.2	Source of energy for reheating billets	5
	>50% energy demand for reheating by coal	0
	>50% energy demand for reheating by furnace oil	2
	>50% energy demand for reheating by natural gas	3
	>50% energy demand for reheating by waste heat gases/by product gases/Biomass fuels	5
4	**Waste Management**	**10**
	Mandatory Requirements: Disposal/treatment of Solid, Liquid and Gaseous wastes comply to local regulations	
4.1	Classification of Waste types and Proper documentation/Inventorisation of waste types	1
4.2	Waste Disposal by Manufacturer	9
	Waste sent for recycling >10% ≤ 20%	1
	Waste sent for recycling >20% ≤ 40%	3
	Waste sent for recycling >40% ≤ 60%	5
	Waste sent for recycling >60% ≤ 80%	7

	Waste sent for recycling >80% to 100% / Waste recycled internally without any third party vendor	9
3 & 4	**Comply to credit for 3 & 4 (Or) GreenCo Rating**	**45**
	GreenCo Platinum	45
	GreenCo Gold	40
	GreenCo Silver	35
	GreenCo Bronze	30
5	**Life Cycle Assessment (LCA)**	**10**
5.1	Life Cycle Assessment	4
5.1 (a)	Life Cycle Analysis (Internal)	2
5.1 (b)	Life Cycle Analysis (Validated by 3rd Party)	4
5.2	*Measures taken & Quantification of benefits achieved*	6
	- 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
6	**Product Stewardship**	**5**
6.1	Customer Education	3
	Coverage with qualified personnel to educate customers and address concerns	2
	Initiatives taken for enhancing product / application knowledge of stakeholders	1
6.2	Quality management system after dispatch of the product	2
7	**Innovation & Awards**	**5**
	Innovation & Awards	**5**
	Innovation: Each innovative measure implemented at any stage of Life cycle related to sustainability or product improvement will gain 1 Credit Point	4
	Awards and accolades	1
	Total Points	**100**

GREENPRO CERTIFICATION STANDARD FOR

STEEL REBARS USED FOR CONCRETE REINFORCEMENT

Mandatory Requirement

For a product to be taken up for GreenPro certification, the manufacturer shall comply with the applicable acts & rules related to environment and health & safety (demonstrated, for example, by providing copies of:

(a) Valid Certificate of consent to operate the plant by the local Municipal Corporation.

(b) Valid consent to operate under the water (Prevention & Control of pollution) Act & Air (Prevention & Control of pollution) Act

(c) Valid authorization under the hazardous waste (management, handling & trans-boundary movement) rules

(d) Health & Safety compliance as per the norms of National Safety Council & Compliance to local regulations for withdrawal of water

(e) Data to demonstrate continued compliance with the requirements of (a) to (d)

Credit 1: Product Design Points: 5

Intent:

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

Award of points:

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

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

- Eco-Vision statement
  - At the Design Stage
  - At Manufacturing

Strategies adopted, environment improvement measures/green measures at the design and manufacturing stage of the following products:

- High Strength steel rebar
- High Ductility steel rebar
- Corrosion Resistant steel rebar
- Durable steel rebar

Credits	Criteria	Proposed Credit Points
1	**Product Design**	**5**
1.1	Eco vision	2
1.2	Strategies adopted	3
	- At the design stage of the product	2
	- ISO 14001 certified manufacturing plant	1

Documentation Required:

1. Eco Vision statement
2. Strategies adopted at design & manufacturing stage to achieve eco vision
   a. Proof for resource allocation for improving the design of the product & manufacturing of the product
   b. Details of employees and stakeholders engaged
3. Details of measures taken at the design stage and manufacturing stage of product
4. Valid certificate of ISO 14001 of the manufacturing facility (This document is applicable at the manufacturing site level. In case of more than one site undergoing assessment from the same company, the weighted average of this credit point will be taken for final scoring)

Credit 2: Product Performance Points: 30

Intent:

To promote the manufacturing of steel rebars having higher strength and durability leading to longer life of structures, thereby reducing the environmental impact of raw materials.

Award of points:

Points under this criterion would be awarded based on steel rebar properties (a combination of strength, ductility, and corrosion resistance)

2	**Product Performance**	**30**
	Mandatory Requirement Use of clean steel billet meeting the requirement of IS 1786:2008 (Clause 1.6) on the metallurgical history of input material	
	FE 415	
	Low Ductility (Non D grade) and No Corrosion Resistance	10
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	15
	High Ductility (D/S grade) and High Corrosion Resistance	20
	FE 500	
	Low Ductility (Non D grade) and No Corrosion Resistance	20
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	25
	High Ductility (D/S grade) and High Corrosion Resistance CRE=>0.4	30
	Fe 550	
	Low Ductility (Non D grade) and No Corrosion Resistance	20
	High Ductility (D/S grade) or High Corrosion Resistance CRE=>0.4	25
	High Ductility (D/S grade) and High Corrosion Resistance CRE=>0.4	30
	* *Where CRE = Cr+Cu+P+Mo+Ni*	

*For grades above Fe 550, the same scoring pattern of Fe 550 shall be applicable

Documentation Required:

1. Test results from any 3rd party NABL accredited lab for the strength, ductility, and corrosion resistance.

2. Plant's production data for different strength levels, grade names and CRE values. Overall points would be calculated by weighted average of production volumes for the various catagories of rebars under the common brand across all production units of the applying organization.

Credit 3: Manufacturing Process Points : 35

Credit 3.1: Energy Efficiency Points: 15

Intent:

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

Award of points:

Establish specific consumption of the plant and monitor it continuously.

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

Credits	Criteria	Proposed Credit Points
3.1	**Energy Efficiency**	**15**
3.1.1	Energy Monitoring Systems	2
	Availability of monitoring systems recording of thermal/electrical and utility consumption at site/company level	1
	Availability of monitoring systems recording of thermal/electrical and utility consumption at plant/production unit level	2
3.1.2	Reduction in specific energy consumption (Includes both thermal & electrical) over the last 2 years	13
	Reduction in specific energy consumption > 0.25 ≤ 0.50 %	1
	Reduction in specific energy consumption > 0.5 ≤ 1 %	3
	Reduction in specific energy consumption >1 ≤ 1.5 %	5
	Reduction in specific energy consumption >1.5 ≤ 2.5 %	7
	Reduction in specific energy consumption > 2.5 ≤ 3.5 %	10
	Reduction in specific energy consumption > 3.5 %	13
	*Applicant can choose to demonstrate improvement in specific energy consumption either plant or site or company level (ISPs)	
	Either 3.1.1 + 3.1.2 (OR) as below	
	National Benchmarking – Among top 5 Companies	12
	International Benchmarking – Among top 10 Companies	15

Documentation Required:

1. Details of energy monitoring systems at the unit and plant level
2. Details of annual production, energy consumption & specific energy consumption for the preceding 2 years
    a. Total electricity consumed (year-wise for last 2 years)
    b. Total thermal energy consumed (year-wise for last 2 years)
    c. Total steel TMT rebars manufactured (year-wise for last 2 years)
    d. Specific energy consumption calculation for the last 2 years
2. Details of implementation of energy efficiency improvement measures with actual benefits Achieved
3. Details of National Benchmark & International Benchmark data with comparisons.

Credit 3.2: Water Management Points: 10

Intent:

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

Award of points:

Implement water-efficient measures & technologies and recycle wastewater generated from the plant to reduce freshwater consumption. To work towards achieving zero wastewater discharge and water positive status.

Harvest or Capture a minimum of 95% of rainwater 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	Proposed Credit Points
3.2	**Water Management**	**10**
3.2.1	Water Monitoring	2
	Availability of monitoring Systems for COD, BOD, TSS, water consumption, discharge etc. at site/company level	1
	Availability of monitoring Systems for COD, BOD, TSS, water consumption, discharge etc. at plant/production unit level	2
3.2.2	Reduction in specific water consumption over the last 2 years	6
	Reduction in specific water consumption > 0.5 ≤ 1 %	1
	Reduction in specific water consumption >1 ≤ 2.5 %	2
	Reduction in specific water consumption > 2.5 ≤ 4 %	4
	Reduction in specific water consumption > 4 %	6
	*Applicant can choose to demonstrate improvement in specific water consumption either plant or site or company level(ISPs)	
	Either 3.2.1 + 3.2.2 (Or) as below	
	National Benchmarking – Among top 5 Companies	6
	International Benchmarking – Among top 10 Companies	8
3.2.3	Water discharge	1
	Zero Liquid Discharge Facility - Yes (to be assessed during site visit)	1
3.2.4	Rainwater harvesting	1
	Capture a minimum of 95% of rainwater runoff from roof & non-roof areas of the manufacturing facility	1

Documentation Required:

1. Details of annual water consumption & Specific water consumption for 2 years.
2. Data on the following to be submitted for assessing the trend of specific water consumption
    - Total water consumed (year-wise for last 2 years)
    - Total steel TMT rebars manufactured (year-wise for last 2 years)
    - Specific water consumption calculation for the last 2 years
3. Site visit by assessors to ensure facilities available for zero liquid discharge
4. Details of zero water discharge plant (if available)
5. Details of rainwater harvesting measures in the plant
6. Details of National Benchmark & International Benchmark data with comparisons

Credit 3.3: Renewable Power — Points: 10

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 systems to reduce dependence on fossil fuels.

Credits	Criteria	Proposed Credit Points
3.3	**Renewable Energy**	**10**
3.3.1	Renewable Energy (Use of on-site or off-site renewable sources for meeting the power requirements)	5
	≥ 2.5 % substitution in the electricity source	3
	≥ 5 % substitution in the electricity source	4
	≥ 10 % substitution in the electricity source	5
3.3.2	Source of energy for reheating billets	5
	>50% energy demand for reheating by coal	0
	>50% energy demand for reheating by furnace oil	2
	>50% energy demand for reheating by natural gas	3
	>50% energy demand for reheating by waste heat gases/by-product gases/Biomass fuels	5

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation Credit if the contribution from the renewable energy sources is more than 50% 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
3. Details of fuels used for re-heating of billets along with the source of energy\

Credit 4: Waste Management Points: 10

Mandatory requirements :

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

Intent:

To ensure that the solid, liquid & gaseous wastes discharged from the plant comply with all local regulations.

Compliance Options:

Compliance certificate from State Pollution Control Board

Waste Utilization & Disposal

Intent:

Encourage appropriate handling, create wealth out of waste, or proper disposal of wastes generated during manufacturing, thereby reducing environmental impacts and enhance the health & wellbeing of the society.

Award of points:

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

Credits	Criteria	Proposed Credit Points
4	**Waste Management**	**10**
	Mandatory Requirements: Disposal/treatment of Solid, Liquid and Gaseous wastes comply to local regulations	
4.1	Classification of Waste types and Proper documentation/Inventorisation of waste types	1
4.2	Waste Disposal by Manufacturer	9
	Waste sent for recycling >10% ≤ 20%	1
	Waste sent for recycling >20% ≤ 40%	3
	Waste sent for recycling >40% ≤ 60%	5
	Waste sent for recycling >60% ≤ 80%	7
	Waste sent for recycling >80% to 100% / Waste recycled internally without any third party vendor	9

Documentation Required:

1. Compliance Letter/Certificate from state/central pollution control board
2. Documentation of Waste Types
3. Documentation, photograph, certificate of waste recycler ensuring they are authorized to handle the specified waste

Credit 3 & 4: Alternate Compliance based on GreenCo Rating

If the manufacturing facility has adopted GreenCo rating, then the credits shall be allocated based on GreenCo rating as follows:

3 & 4	Comply to credit for 3 & 4 (Or) GreenCo Rating	45
1	GreenCo Platinum	45
2	GreenCo Gold	40
3	GreenCo Silver	35
4	GreenCo Bronze	30

Credit 5: Life Cycle Assessment (LCA) 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 an external service provider or with internal expertise using an LCA software tool.

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

Credits	Criteria	Proposed Credit Points
5	**Life Cycle Assessment (LCA)**	**10**
5.1	Life Cycle Assessment	4
5.1 (a)	Life Cycle Analysis (Internal)	2
5.1 (b)	Life Cycle Analysis (Validated by 3rd Party)	4
5.2	Measures were taken & Quantification of benefits achieved	6
	- 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

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 the LCA study and the benefits achieved.

Credit 6: Product Stewardship Points: 5

Intent:

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

The credit points are allotted for the focus areas as applicable to the individual product categories.

Education :
Educate those involved in handling the product at every stage post-dispatch, to reap the intended environmental benefits.

Quality Management:
Establish a system for take-back for recycling of products at the end of life & packaging materials after use.

Compliance Options:

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

Credits	Criteria	Proposed Credit Points
6	**Product Stewardship**	**5**
6.1	Customer Education	3
	Coverage with qualified personnel to educate customers and address concerns	2
	Initiatives taken for enhancing product/application knowledge of stakeholders	1
6.2	Quality management system after dispatch of the product	2

Documentation Required:

1. Documentation/SOPs related to awareness sessions conducted for various stakeholders
2. System process available for quality management of the product after-sales/dispatch to be shown during site visit and also to be documented as part of the application

Credit 7: Innovation & Awards Points: 5

Intent:

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

Compliance options:

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 innovative measure.

- Any environmental measure is 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	Proposed Credit Points
7	**Innovation & Awards**	**5**
7.1	Innovation: Each innovative measure implemented at any stage of Life cycle will gain 1 Credit Point	4
7.2	Other Credentials, Awards, and Accolades	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