Copyright

Disclaimer

None of the parties involved in developing the IGBC Green New Buildings rating system® Abridged Reference Guide 2025, including the Indian Green Building Council assume any liability or responsibility, to the user or any third parties for any injuries, losses or damages arising out of such use.

Indian Green Building Council
C/o Confederation of Indian Industry
CII - Sohrabji Godrej Green Business Centre
Survey No. 64, Kothaguda Post
Near Kothaguda Cross Roads, Ranga Reddy District
Hyderabad - 500 084
India

Foreword from the Indian Green Building Council (IGBC)

India's construction sector is experiencing rapid growth across infrastructure and building developments. With this expansion comes the critical responsibility to safeguard the environment and promote sustainable practices.

To drive environmental stewardship within the construction industry, the **CII-Sohrabji Godrej Green Business Centre** established the **Indian Green Building Council (IGBC)** a consensus driven, not for profit body representing diverse stakeholders from the building sector. The Council brings together builders, developers, architects, consultants, and owners to design and construct green buildings that deliver both economic and environmental benefits.

Since its inception in **2001**, IGBC has been at the forefront of the **Green Building Movement in India**, fostering awareness, capacity building, and innovation among industry stakeholders. To date, the Council has facilitated the development of over **14.6 billion sq. ft.** of green building space across the country, catalyzing a significant market transformation in sustainable materials and technologies.

Continuing its commitment to advancing green practices, IGBC develops tools and frameworks that support the integration of sustainability into building design and construction. The launch of the **IGBC Green New Buildings Rating System – Version 4** marks a significant milestone in promoting next-generation green building standards in India.

Acknowledgements

The IGBC Green New Buildings rating system Version 4 Abridged Reference Guide has been made possible through the efforts of many dedicated stakeholders, staff members and others in the IGBC community. Excellent inputs came in during the 'Technical Committee Meeting' held in October 2025 at Mumbai and 'Call for Public Comments' in November 2025. Several champions have led this initiative from the front since 2014 onwards. They have shown tremendous involvement, commitment and leadership in developing this standard from Pilot Version to Version 4.0. IGBC places on record its sincere thanks to the participating organisations and individuals who enthusiastically volunteered in development of the rating system.

IGBC would like to thank the following Technical Committee members for their participation and contribution in developing the rating programme. We also thank members for agreeing to participate in future development of the rating programme.

- **Mr. Ramesh Nair,** Chairman, IGBC Green New Buildings Certification Program & CEO, Mindspace Business Parks REIT, K Raheja Corp
- **Mr. Ankur Kulkarni,** Managing Director, KDS Globe
- **Mr. Anubhav Saxena,** Deputy General Manager, K Raheja Corp
- **Mr. Arun Selvakumar,** Sustainability Lead, CapitaLand
- **Mr. Ashish Bahal,** Partner, Lucent Lighting Limited
- **Mr. Senthilraj Balachandran,** Senior Vice President- Head MEP & Sustainability, K Raheja Corp
- **Mr. Baljit Singh,** Executive Vice President, Operations, Brookfield Properties
- **Mr. Dalip Singh,** Senior Technical Analyst, The Air-Conditioning, Heating and Refrigeration Institute (AHRI)
- **Mr. Danish Gufran,** Smart Infra - Building Sustainability, Siemens
- **Ms. Deepali Hegde,** ESG & Corporate Sustainability Strategist, Godrej Properties
- **Ms. Dhwani Talati,** Director- Head of ESG and Sustainability Consultancy, CBRE
- **Mr. Gaurang Lele,** Director, SHASHWAT Green Building Consultants
- **Mr. Harish Borah,** Principal Expert – Life Cycle Studies (LCC & LCA), ADW Developments UK
- **Mr. JP Rout,** Head - Projects, Surmount Energy Solutions Pvt. Ltd.
- **Mr. Jayasankar Kentinkara**, Vice President, Ultratech Cement Ltd.
- **Mr. Jayesh Vira,** Managing Director, Enviro Consultancy Pvt. Ltd.
- **Mr. Kavin N,** Project Manager, EN3 Sustainability Solutions Pvt Ltd
- **Ms. Ketaki Karmarkar,** Director, VK:e environmental
- **Ms. Mala Singh,** Founder and Director, PEC Greening India
- **Ms. Malti Gupta,** Sustainability Head, Ramboll India Pvt. Ltd.
- **Mr. Milind Joshi,** Founder, Milind Joshi & Associates
- **Ms. Nidhi Gupta,** Associate Director, Environmental Design Solutions
- **Dr. Neeladri Chatterjee,** Chief Manager, Indian Oil Corporation Limited
- **Ms. Neetu Jain,** Founder, Panache Greentech Solutions Pvt. Ltd.
- **Ms. Neha Kedia,** Project Head, Furaat Earth Pvt. Ltd.
- **Mr. Rakesh Bhatia,** Sr. Vice President, Ecofirst Services Limited
- **Mr. Rajesh Venkiteswaan,** CEO, Qpro Design Consultants Pvt. Ltd.

- **Ms. Rashmi Kolatkar,** Director, Building Environment (India) Pvt. Ltd
- **Mr. Ramaiah Kumar,** Head Sustainability Consulting, Jones Lang LaSalle (JLL)
- **Ms. Runa Patil,** Founder, Elemental Consultancy Services
- **Mr. Sagar Jadhav,** Associate Faculty (CESE), Centre for Municipal Capacity Building and Research (MCGM)
- **Mr. Sameer Sinha,** Founder and MD, Savvy Group
- **Mr. Sandeep Shikre,** Founder, SSA Architects
- **Ms. Sangita Jhangiani,** President, ASHRAE
- **Mr. Selvarasu Maru,** Managing Director, LEAD Consultancy and Engineering Services (India) Pvt. Ltd.
- **Mr. Shreekant Phanse,** Head – Public & Govt. Affairs, Signify N.V.
- **Dr. Sivakumar Palaniappan,** Professor, Center for Cons Management, IIT Madras
- **Mr. Melvin Mathew,** Founder & MD, Grune Design Private Limited
- **Mr. Sudeep Koite,** Managing Director, Saint Gobain Gyproc Business
- **Mr. Sumesh Nair,** General Manager, Godrej & Boyce Mfg. Co. Ltd.
- **Ms. Tanvi Bobhate,** Maharashtra Pollution Control Board - State Climate Action Cell
- **Mr. Viral Mehta,** Partner, ICES (EE)

Introduction

The building sector in India is expanding rapidly, contributing significantly to the nation's economic growth and urban transformation. While this progress signals strong economic momentum, it also underscores the urgent need to align development with India's decarbonisation and sustainability goals. Integrating green building concepts and techniques within the sector is therefore essential—not only to optimise resource use, but also to ensure that growth remains environmentally responsible, socially inclusive, and aligned with global ESG benchmarks.

Green building practices can play a pivotal role in advancing India's low-carbon transition. They address critical national priorities such as improving water and energy efficiency, reducing dependence on fossil fuels for commuting and operations, promoting effective waste management, and conserving natural ecosystems. Beyond environmental benefits, these practices enhance occupant health, well-being, and productivity.

In this context, the **Indian Green Building Council (IGBC)** has introduced the **'IGBC Green New Buildings Rating System (Version 4)'**, designed to integrate decarbonisation strategies and sustainable resource management into building design and operation. This comprehensive tool enables architects, developers, and policymakers to measure, monitor, and reduce environmental impacts across diverse climatic zones and evolving urban lifestyles, thereby supporting India's commitments to net-zero emissions and the United Nations Sustainable Development Goals (SDGs).

To develop this advanced framework, IGBC constituted the **Green New Buildings Technical Committee** under the leadership of **Mr. Ramesh Nair**. The committee brings together a diverse group of stakeholders—including architects, builders, consultants, developers, owners, institutions, manufacturers, and industry representatives—whose collective expertise has shaped a robust and inclusive rating system. The outcome is a future-ready tool that embeds Net Zero principles into India's built environment, accelerating the transition toward a resilient, low-carbon economy.

I. Benefits of Green New Buildings

The IGBC Green New Buildings Rating Programme is a powerful tool that integrates sustainability from the planning stage and contributes directly to India's broader decarbonisation roadmap and strengthen their alignment with ESG performance standards.

The tangible benefits of implementing the IGBC Green Service Buildings framework are immediate and significant. From the very first day of occupancy, projects typically achieve:

- 20–30% energy savings, resulting in improved energy efficiency thereby reducing the carbon emissions and operational costs.
- 30–40% potable water savings, supporting national goals on water security and resource efficiency.

These efficiency gains directly contribute to measurable progress in climate action, responsible consumption, and natural resource conservation. Equally important are the intangible benefits, which deliver long-term social and governance value. Collectively, these outcomes strengthen organizational resilience, enhance ESG credibility, and contribute to a low-carbon, sustainable future for India's built environment.

II. National Priorities Addressed in the Rating System

The IGBC Green New Buildings rating system addresses the most important national priorities which include enhancing resource efficiency, conservation of biodiversity & ecosystem, water conservation, zero waste to landfill, energy efficiency, reduced use of fossil fuels, embedded carbon footprint and health & well-being of

occupants. The rating system requires the application of National standards and codes such as the NBC, ECSBC, MoEF guidelines, CPCB/ SPCB guidelines, and several others. The overarching goal is to exceed prevailing national standards, setting progressive benchmarks for sustainability and performance.

III. IGBC Green New Buildings Rating System

Features

The IGBC Green New Buildings Rating System® 2025 is a voluntary, consensus-driven framework designed to promote sustainability and environmental responsibility in the built environment. Developed around materials, technologies, and practices currently available in the Indian market, the system provides a practical pathway for transforming conventional buildings into high-performance, resource-efficient, and low-carbon spaces.

The primary objective of the IGBC Green New Buildings Rating System is to enable a holistic approach to sustainable design and construction. It emphasizes integrated architectural planning, energy and water efficiency, waste management, and the use of sustainable materials and technologies, all while prioritizing occupant health, comfort, and well-being. Through these principles, the programme supports India's decarbonisation goals and strengthens the ESG performance of the nation's building sector, setting a benchmark for environmentally responsible growth.

The rating system evaluates certain mandatory requirements & credit points using a prescriptive approach and others on a performance-based approach. The rating system is evolved to be comprehensive and at the same time user-friendly.

Some of the unique aspects addressed in this rating system are as follows:

- **Recognition of Passive Design Strategies**: Integration of climate-responsive design and conceptual analysis to enhance thermal comfort while reducing energy demand
- **Optimised Water Management and Towards Water Neutrality**: Reduce dependency on potable water and roadmap for Net Zero Water.
- **Renewable Energy Integration**: Combination of on-site and off-site renewable energy (RE) solutions to reduce reliance on fossil fuel–based electricity and advance towards Net Zero Energy.
- **Mandatory Waste Management**: Reinforces circular economy principles by mandating comprehensive waste segregation, recycling, and reuse to achieve zero waste to landfill.
- **Material Resource Efficiency**: Promote the use of sustainable building materials to reduce lifecycle emissions and enhance sustainability in construction.
- **Decarbonisation Pathway and GHG Inventorisation**: Provides a structured framework for carbon accounting, monitoring, and progressive decarbonisation across the building lifecycle.
- **ESG Impact Drivers**: Integrates ESG considerations, encouraging projects to address environmental stewardship, social well-being, and responsible governance through design and operation.

Scope

- IGBC Green New Buildings rating system® is designed primarily for new buildings, both for air-conditioned and non air-conditioned buildings. New Buildings include (but are not limited to) offices, IT parks, banks, shopping malls, airports, stadiums, convention centers, educational institutions (colleges, universities), libraries, museums, etc.,
- Building types such as residential, factory buildings, schools, integrated townships will be covered under other IGBC typology specific rating programmes.

- IGBC Green New Buildings rating system is broadly classified into two types:
  - Owner-occupied buildings are those where ≥ 50% or more of the building's built-up area is occupied by the owner.
  - Tenant-occupied buildings are those where ≥ 50% or more of the building's built-up area is occupied by the tenants.

  Based on the scope of work, projects can choose any of the above options.
- New buildings are those which are in operation for less than one year.
- Major renovation in buildings includes, but not limited to, major renovation of external façade (wall and glazing), interiors, lighting and HVAC systems.

Validity

The rating awarded for IGBC Green New Buildings would be valid for a period of 3 years. Thereafter, the building has to apply for re-certification with the Existing Building rating system. The building can also apply for re-certification/ renewal within 3 years of award of the rating for a superior rating, if new green features are implemented or existing green features are enhanced in the building. The recertification/ renewal of new projects will be considered under Existing Buildings category.

In case the project must undergo upgradation within 3 months of certification, the project team can appeal for the specific credits that will be attempted. After 3 months of certification, the project team must follow the upgradation process.

IV. Future Developments in IGBC Green New Buildings Rating System

Many new green building materials, equipment and technologies are being introduced in the market. With continuous upgradation and introduction of newer green technologies and products, it is important that the rating programme also keeps pace with current standards and technologies.

Therefore, the rating programme will undergo periodic revisions to incorporate the latest advancements and changes. It is important to note that the project teams applying for IGBC Green New Buildings rating system should register their projects with the latest version of the rating system. During the course of implementation, projects have an option to transit to the latest version of the rating system.

IGBC will highlight new developments on its website (www.igbc.in).

V. Overview and Process

IGBC Green New Buildings rating system (Version 4) addresses green features under the following categories:

- Site Selection and Planning
- Water Conservation
- Energy Efficiency
- Building Materials and Resources
- Indoor Environmental Quality
- Innovation and Decarbonisation in Building

The guidelines detailed under each mandatory requirement & credit, enables the design and construction of new buildings of all sizes and types (as defined in scope). Different levels of green building certification are

awarded based on the total credits earned. However, every building should meet certain mandatory requirements, which are non-negotiable.

The project can apply for IGBC Green New Buildings rating system certification, if the project can meet all mandatory requirements and achieve the minimum required points and evaluate all the possible points to apply under the rating system using a suitable checklist.

Registration

Organisations interested in registering their projects under IGBC Green New Buildings rating system Certification are advised to first register with IGBC. The website includes information on registration fee for IGBC member organisations as well as non-members.

Registration is the first step which helps establish initial contact with IGBC and provides access to the required documents and important communications, along with other necessary information. IGBC website provides all important details on IGBC Green New Buildings rating system registration & certification - process, timeline and fee.

Precertification

The project team is expected to provide supporting documents at preliminary and final stage of submission, for all the mandatory requirements and the credits attempted.

The project needs to submit the following:

- General information about project, including
  - Project brief stating project type, different type of spaces, occupancy (permanent & transient), number of floors, area statement, etc.
  - General drawings (in PDF format only): Master/ Site plan, Parking plans, Floor plans, Elevations, Sections, Photographs of the green measures implemented and Filled-in templates
- Narratives and supporting documentation such as drawings, tentative calculations (in excel sheets), declarations/ contract documents, tentative manufacturer data sheets/ material test reports, etc., for each mandatory requirement and credit.
- A certificate is provided to projects on achieving precertification.

The Precertification is valid for 3 years from the date of award, after which projects are required to apply for the full certification (or) submit construction progress reports once in six months to get an extension certificate for Precertification rating.

Note:

Projects (Owner-occupied Buildings) applying for MoEF clearance can apply Precertification.

Certification

To achieve the IGBC Green New Buildings rating, the project must satisfy all the mandatory requirements and the minimum number of credit points.

The project team is expected to provide supporting documents at preliminary and final stage of submission, for all the mandatory requirements and the credits attempted.

The project needs to submit the following:

- General information about project, including

- Project brief stating project type, different type of spaces, occupancy (permanent & transient), number of floors, area statement, etc.,
- General drawings (in PDF format only): Master/ Site plan, Parking plans, Floor plans, Elevations, Sections, Photographs of the green measures implemented and Filled-in templates

➢ Narratives and supporting documentation such as drawings, calculations (in excel sheets), declarations/ contract documents, purchase invoices, manufacturer data sheets/ letters/ material test reports, etc., for each mandatory requirement and credit.

➢ A certificate and mountable plaque is provided to projects on achieving certification.

Renewal of Precertification

Kindly refer to the link below for the guidelines on renewal of Precertification:

Precertification Renewal

Project Documentation:

The project documentation is submitted in two phases - Preliminary submittal and Final submittal.

- **Preliminary Phase:** Involves submission of all documents, which shall include the mandatory requirements and the minimum number of credits. After the preliminary submission, review is done by third-party assessors and review comments would be provided.
- **Final Phase:** The next phase involves submission of clarifications to preliminary review queries and final submittal. This final review will be provided, after which the rating is awarded.

Note:

It is important to note that the mandatory requirements and credits earned at the preliminary review are only considered as expected. These mandatory requirements and credits are not awarded until the final documents are submitted, along with additional documents showing implementation of design, construction and operational features, as applicable. If there are changes in any 'expected credits' after preliminary review, these changes need to be documented and resubmitted during the final review. Before the release of final review along with the IGBC rating, a site visit is carried out by IGBC to verify the green features implemented in the project.

Threshold for Certification & Precertification	
Certification Level	**New (Owner and Tenant Occupied) Buildings**
Certified	40 – 49
Silver	50 – 59
Gold	60 – 74
Platinum	75 – 100

Certification Process

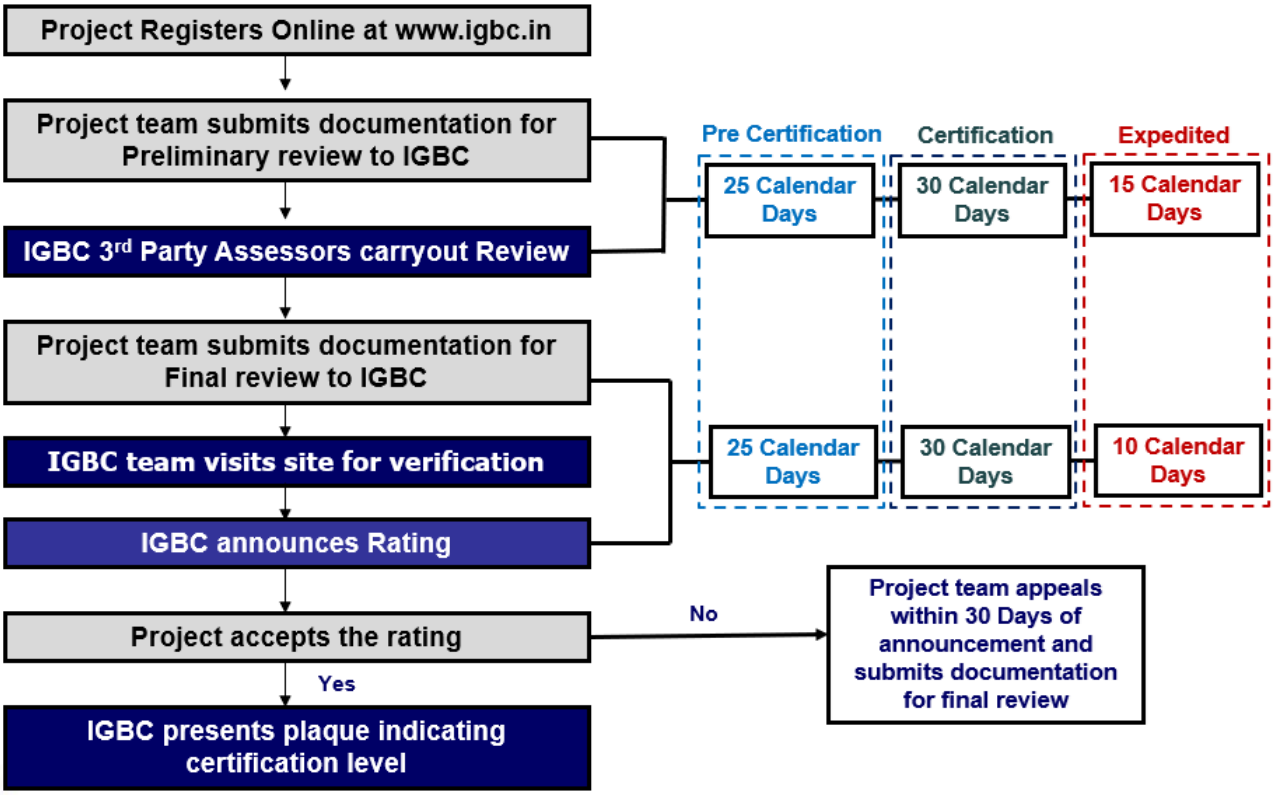

Figure 1 Certification Process

Credit Interpretation Ruling (CIR)

In some instances, there is a possibility that the design/ construction/ operations team may encounter certain challenges in applying or interpreting a mandatory requirement or a credit. It can also happen in cases where the project can opt to achieve the same intent through a different compliance route.

To address this, IGBC uses the process of Credit Interpretation Ruling (CIR) to ensure that interpretations are consistent and applicable to other projects as well.

The following are the steps to be followed in case the project team encounters any difficulty:

- Refer the Abridged Reference Guide for description of the credit intent and compliance options.
- Review the intent of the mandatory requirement / credit and self-evaluate whether the project satisfies the intent.
- Review the Credit Interpretation Ruling web page for previous CIR's, if available, on the relevant mandatory requirement or credit. All projects registered under IGBC Green Service Buildings rating system will have access to this page.
- If a similar CIR has not been addressed or does not answer the question sufficiently, submit a credit interpretation request. Only registered projects are eligible to post credit interpretation request. Two CIRs are answered without levying any fee, and for any CIR beyond the first two CIRs, a fee is levied.

Appeal

In rare cases, mandatory requirements/ credits get denied due to misinterpretation of the intent. On receipt of the final review and if the project team feels that sufficient grounds exist to appeal a credit denied in the final review, the project has an option to appeal to IGBC for reassessment of denying mandatory requirements/ credits. The documentation of the mandatory requirements/ credits seeking appeal may be resubmitted to IGBC along with necessary fees. IGBC will take 15 calendar days to review such documentation. If an appeal is

pursued, please note that a different review team will be assessing the appeal documentation. The following documentation should be submitted:

- General information about project, including
  - Project brief stating project type, different type of spaces, occupancy, number of floors, area statement, etc.,
  - General drawings (in PDF format only): Master/ Site plan, Parking plans, Floor plans, Elevations, Sections, Photographs of the green measures implemented and Filled-in templates

Resubmittal and appeal submittal documentation for only those mandatory requirements / credits that the project is appealing for. Also, include a narrative for each appealed mandatory requirement / credit to describe how the documents address the reviewer's comments and concerns.

Fee

Registration, Certification fee and Expedited fee details are available on the IGBC website (www.igbc.in) or can be obtained from IGBC https://igbc.in/https://igbc.in/

Updates and Addenda

As the rating system continues to improve and evolve, updates, addenda and errata to the abridged reference guide will be made available through IGBC website. The additions thereof will be suitably incorporated in the next version of the rating system.

CHECKLIST

IGBC Green New Buildings (Version 4) Checklist		Credit Points Available	
		Owner Occupied	Tenant Occupied
Modules		**100**	**100**
Site Selection and Planning		**14**	**14**
SSP Mandatory Requirement 1	**Local Building Regulations**	Mandatory	Mandatory
SSP Mandatory Requirement 2	**Soil Erosion**	Mandatory	Mandatory
SSP Mandatory Requirement 3	**Accessible Design**	Mandatory	Mandatory
SSP Credit 1	**Proximity to Essential Services**	1	1
SSP Credit 2	**Sustainable Transportation**	2	2
SSP Credit 3	**Sustainable Landscape**	5	5
SSP Credit 4	**Heat Island Reduction, Roof and Non-roof**	3	3
SSP Credit 5	**Outdoor Light Pollution Reduction**	1	1
SSP Credit 6	**Sustainability Initiatives**	2	2
Water Conservation		**20**	**20**
WC Mandatory Requirement 1	**Rainwater Harvesting, Roof & Non-roof**	Mandatory	Mandatory
WC Mandatory Requirement 2	**Water Efficient Plumbing Fixtures**	Mandatory	Mandatory
WC Credit 1	**Water Use Reduction for Construction**	1	1
WC Credit 2	**Rainwater Harvesting, Roof & Non-roof**	4	4
WC Credit 3	**Water Efficient Plumbing Fixtures**	5	5
WC Credit 4	**Irrigation Water Reduction**	2	2
WC Credit 5	**Wastewater Treatment**	2	2
WC Credit 6	**Alternate Water Use**	4	4
WC Credit 7	**Water Metering & Management**	2	2
Energy Efficiency		**26**	**29**
EE Mandatory Requirement 1	**Eco-friendly Refrigerants**	Mandatory	Mandatory
EE Mandatory Requirement 2	**Minimum Energy Efficiency**	Mandatory	Mandatory
EE Mandatory Requirement 3	**Commissioning Plan for Building Equipment & Systems**	Mandatory	Mandatory
EE Credit 1	**Passive Design Measures**	2	2

EE Credit 2	**Enhanced Energy Efficiency**	12	15
EE Credit 3	**Renewable Energy**	10	10
EE Credit 4	**Energy Management**	2	2
Building Materials and Resources		**13**	**13**
BMR Mandatory Requirement 1	**Waste Management**	Mandatory	Mandatory
BMR Mandatory Requirement 2	**Organic Waste Management, Post-occupancy**	Mandatory	Mandatory
BMR Credit 1	**Sustainable Building Materials**	5	5
BMR Credit 2	**Embodied Cabon Assessment**	4	4
BMR Credit 3	**Organic Waste Management, Post-occupancy**	2	2
BMR Credit 4	**Towards Zero Waste to Landfill**	2	2
Indoor Environmental Quality		**14**	**11**
IEQ Mandatory Requirement 1	**Minimum Fresh Air Ventilation**	Mandatory	Mandatory
IEQ Mandatory Requirement 2	**Tobacco Smoke Control**	Mandatory	Mandatory
IEQ Credit 1	**Indoor Air Quality Management During Construction**	1	1
IEQ Credit 2	**Low-emitting Materials**	2	2
IEQ Credit 3	**Minimise Indoor and Outdoor Pollutants**	1	1
IEQ Credit 4	**Indoor Air Quality Monitoring and Management**	4	4
IEQ Credit 5	**Daylighting and Controls**	4	1
IEQ Credit 6	**Occupant Well-being**	2	2
Innovation and Decarbonisation in Buildings		**13**	**13**
ID Credit 1	**Innovation in Design**	4	4
ID Credit 2	**GHG Inventorisation and Roadmap**	3	3
ID Credit 3	**ESG Impact Drivers**	5	5
ID Credit 4	**IGBC Accredited Professional**	1	1

Site Selection and Planning

(Maximum: 14 Credit Points)

Local Building Regulations

SSP Mandatory Requirement 1

Intent:

Ensure that the building complies with necessary statutory and regulatory codes.

Compliance Options:

The project shall comply with following statutory approvals from the Government of India or State Government authorities, as applicable:

- Approved site plan and building plans for construction
- Status of completion or Completion certificate signed by Principal Architect (OR) Occupancy certificate from Local Authority
- Environment Clearance by MoEF&CC or SEIAA

Note:

- *Buildings with 20,000 sq.m built-up area or more shall submit 'Environmental Clearance Certificate' or 'Environmental Impact Assessment (EIA) Study Report', as applicable, approved by Ministry of Environment & Forests (MoEF) or State Environment Impact Assessment Authority (SEIAA) to show compliance for certification.*
- *The project team must show compliance as per Local norms or EIA or whichever is stringent.*

Site Management, During Construction

SSP Mandatory Requirement 2

Intent:

Control soil erosion and sedimentation, thereby, reducing negative impacts to the site and surroundings.

Compliance Options:

Case A: Erosion and Sedimentation Control

Implement the following measures, as applicable:

Pre and During Construction:

Soil Erosion:

- Soil erosion control measures taken before, during and after construction (post-occupancy) must conform to the best management practices highlighted in the National Building Code (NBC) of India 2016, Part 10 - Landscape Development, Signs and Outdoor Display Structures, Section 1 - Landscape Planning and Design and Development, Chapter 11 - Protection of Landscape During Construction.
- Fertile topsoil (150 to 200 mm in depth) to be stockpiled, preserved, stabilized, and its fertility must be maintained during preconstruction activities., for future reuse or donation, as per NBC 2016 guidelines. *(Not applicable for Brownfield Sites and redevelopment projects)*
- Develop measures to address soil erosion, such as desilting chambers, sediment traps, landscaping after occupancy.
    - Site Barricading
    - Protection of existing trees
    - Wheel washing
    - Sprinkling of water on site
    - Sediment Basin/ Traps
    - Soil stabilisation through mulching, bunding

Notes:

- *If the topsoil in the project is not fertile (or) suitable for preservation, in such a case the project must provide soil fertility test report indicating the soil is not fertile.*
- *The stored topsoil shall be utilized as the finished grade for planting areas either within the site or externally. If the stored topsoil is not utilized on-site, appropriate measures must be taken to ensure its proper reuse. Donation of substantial quantity of fertile topsoil could be to other projects, nurseries and farmers.*
- *In case of redevelopment/ brownfield projects, topsoil preservation from non-vegetated areas is exempted.*

Post Construction:

- Natural Vegetation
- Storm water channels with sediment traps/ check dams
- Soil stabilizers/ binders to enhance the cohesion of the soil
- Silt fences, Erosion control blankets, or Mats

Case B: Basic Facilities for Construction Workforce

Compliance Options:

Provide basic facilities for construction workforce to exceed the guidelines of 'The Building and other Construction Workers Act, 1996 & Rules, 1998'.

- Adequate housing to meet or exceed local / labour byelaw requirement.
- Mandating that the workers are thermally comfortable.
- Sanitary facilities:
  Provide at least 3 toilet seats & 3 urinals for the first 100 workers and one additional toilet seat & urinal for every 100 workers thereafter (or) as defined by local / labour byelaw.
  (The sanitary measures should be provided separately for men and women).
- First-aid and emergency facilities.
- Adequate drinking water facilities.
- Personal protective equipment (by owner / contractor).
- Dust suppression measures.
- Adequate illumination levels in construction work areas.
- Site emergency alarm.
- Day care/ crèche facility for workers' children.
  (Only if, more than 50 female building workers are employed full time)

Note:

The project can consider 'Constructional Practices and Safety Guidelines' from National Building Code (NBC) of India 2005, Part 7 - Constructional Practices and Safety.

Differently Abled Friendly Design

SSP Mandatory Requirement 3

Intent:

Ensure that the building design caters to differently abled and senior citizens.

Compliance Options:

Design the building / campus to provide the following, for differently abled and senior citizens in accordance with the guidelines of the National Building Code (NBC) of India 2005.

1. Dedicated Parking for Differently Abled

   Preferential parking for differently-abled individuals shall be provided in accordance with NBC 2016 – (Part 3, Annexure B-3.2) that includes,

   - For up to 100 parking spaces, four designated accessible parking spaces shall be provided
   - For up to 200 parking spaces, six designated accessible parking spaces shall be provided
   - For over 200 parking spaces, six designated accessible parking spaces for 200 parking spaces and one for each additional 100 parking spaces shall be provided.
   - The minimum width of the parking space for a car shall be 3 900 mm and the minimum length shall be 5 400 mm. This minimum width includes the transfer area beside the car with a minimum of 1 500 mm.
   - Dedicated parking shall be accessible within 30m of the main entrance.
   - Signages shall be installed for dedicated differently abled parking at a minimum height of 2.1 m.
   - Symbol of accessibility shall be painted on floor surface as per NBC 2016 -Part 3, Annexure B-3.3.

2. Easy access to the main entrance of the building.
   - The clear width of the accessible entrance door shall not be less than 900mm.
   - Non-slippery ramps, with handrails on at least one side (as applicable).
   - Provide minimum one accessible entrance with provision of ramp. Ramps designs shall conform to NBC 2016 – Part 3, Annexure B-6.2.2 - Table 10 and B-6.2.1 c, B-6.2.4. single row of tactile ground surface indicator warning blocks shall be placed at the beginning and end of each ramp conform to NBC-2016, Part-3.
3. Elevator
   - The elevator opening shall be minimum 900 mm.
   - The minimum size of the lift shall be 1 500 mm wide by 1 500 mm deep.
   - Additionally Audio and braille assistance shall be provided in lifts for visually impaired people as per NBC 2016-Part 3, Annexure B-6.4.
4. Restrooms (toilets) in common areas
   - Provide minimum one unisex wheelchair user accessible restroom that shall conform to NBC 2016 – Part 3, Annexure B-9.2.2, with central placement of water closet and provision of washbasin.
   - The restroom doors should swing out/should be two way opening type or sliding.

- The floor surfaces shall be slip resistant, anti-glare and firm.
- Signages at entrance of accessible toilets shall conform to NBC 2016 – Part 3, Annexure B-9.18.

5. Main walkways / pathways with adequate width in exterior areas.
6. Uniformity in floor level for hindrance-free movement in common areas & exterior areas.
7. Visual warning signage in common areas & exterior areas.
    - Signages such as 'Steps Ahead', 'Differently abled Parking', 'Way finding' etc.

Proximity to Essential Services

SSP Credit 1 **Points: 1**

Option 1: Basic Amenities

Intent:

Provide access to basic amenities and public transport, so as to reduce negative impacts caused from automobile use.

Compliance Options:

Select a site with access to at least seven basic amenities, within a walking distance of 800 m from the building entrance.

List of Basic Amenities:

- Automated Teller Machine (ATM) / Bank
- Healthcare Clinic / Hospital
- Grocery store / Supermarket
- Park / Garden
- Pharmacy
- Post office / Courier service
- Stationery Store/ Xerox/ Print Store
- Restaurant / Cafeteria
- Utility Bill Payment Center (Electricity/ Water)
- Service apartment / Hotel
- Sports club / Fitness center / Gym
- Petrol/ Diesel/ CNG Pump
- Vehicle Repair shop/ Service center

Notes:

- *The basic amenities shall be functional at the time of project completion.*
- *All amenities are to be considered only once.*
- *The amenities shall be accessible to building occupants and other users of the building.*
- *Basic amenities within the campus can also be considered to show compliance.*
- *For campus projects with multiple buildings, the compliance for basic amenities can be shown through one or a combination of the following criteria:*
  - *Within the campus*
  - *From entrance of the campus / zone*

(And/ Or)

Option 2: Transit Connectivity

Compliance Options:

Locate the building within 800 meters walking distance from an intra-city railway station (or) a bus-stop (or) Auto stand (or) other modes of public transport.

Notes:

- *For campus projects with multiple buildings, the compliance can be shown from the entrance of the campus/ zone.*
- *If the project includes an auto stand for compliance, it must be a permanent stand.*

Sustainable Transportation

SSP Credit 2 Points: 2

Intent:

Encourage the use of non-fossil fuel vehicles, thereby reducing negative impacts resulting from fossil fuel-based automobiles.

Compliance Options:

Option 1: Non-Fossil Fuel Based Vehicles (2 points)

Operate or have a contract in place for non-fossil fuel based vehicles within or outside the building as shuttle services, to cater at least 20% of the building occupants. Also, designate preferred parking spaces for such vehicles within the site.

Notes:

- *For Electric Vehicles, the project shall install electric charging facilities within the projects' parking area to cater to the electric vehicles.*
- *For Compressed Natural Gas (CNG) Powered Vehicles, the project shall have at least one CNG filling station within 5 km distance from the projects' campus entrance.*

(Or)

Option 2: Electric Vehicles

Case A: Electric Vehicle Charging Equipment *(2 points)*

Provide charging facilities for low-emitting vehicles within the site, to cater at least 10% of the total two-wheeler and four-wheeler parking capacity (excluding visitor parking):

Points are awarded as below:

Compliance Requirement	Percentage of total 2 and 4 wheelers parking spaces	Points
Electric Vehicle Charging Equipment	≥ 10%	1
Electric Vehicle Infra Ready	≥ 20%	2

(Or)

Case B: Electric Vehicle Infra Ready *(1 point)*

Provide EV infrastructure for 10% of the total 2 wheelers and 4 wheelers parking holding capacity.

EV-ready parking spaces must provide a full-circuit installation with the required panel capacity, and a conduit (raceway) with wiring that terminates in a junction box or charging outlet. The service panel must have enough capacity and physical space for the new circuit.

Refer below requirement for charging equipment's:

Provision Norms for Charging Points	Four Wheelers	2 Wheelers
	• 1 Slow/ Moderate charger per 3 EV's • 1 Fast charger per 10 EV's	• 1 Slow/ Moderate charger per 2 EV's • 1 Fast charger per 10 EV's

Charger Type	Charger Connectors*	Rated Voltage	No of Charging Points/ No. of Connector guns (CG)
Fast	CCS (min 50 kW)	200 – 1000	1/1 CG
	CHAdeMO (min 50 kW)	200 – 1000	1/1 CG
	Type-2 AC (min 22 kW)	380 – 480	1/1 CG
Moderate/ Slow	Bharat DC-001 (15 kW)	72 – 200	1/1 CG
	Bharat AC-001 (10 kW)	230	3/3 CG of 3.3 kW each
*In addition, any other fast/slow/moderate charger as per approved BIS standards whenever notified.			

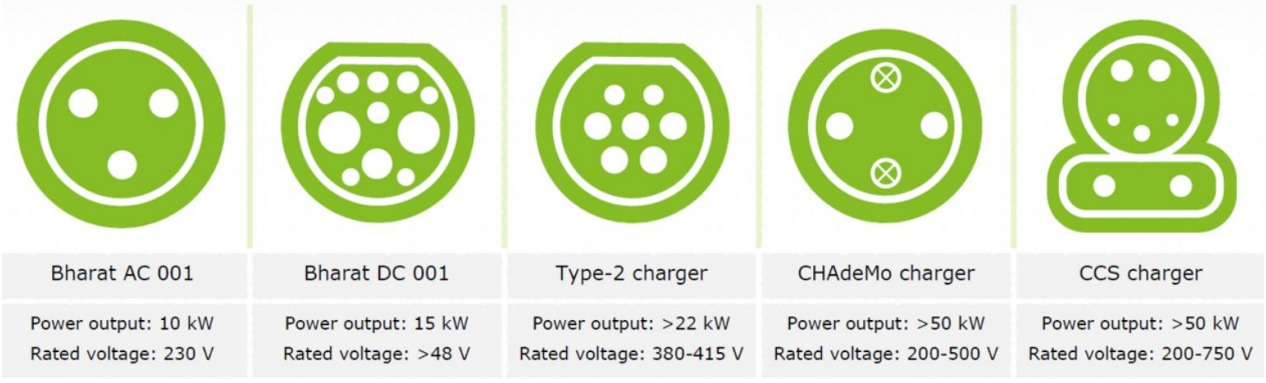

Figure 2 Types of chargers connectors

Notes:

- *Preferred parking spaces refer to the spaces that are easily accessible to the building entrance.*
- *Low-emitting vehicles sourced on contract by the owner/ developer for building occupants can also be considered to show credit compliance.*
- *Charging facilities for low-emitting vehicles include electric, Compressed Natural Gas (CNG), biodiesel, etc.*

Exemplary Performance:

This credit is not eligible for exemplary performance.

Sustainable Landscape

SSP Credit 3 Points: 5

Intent:

Encourage retaining the site features to minimise site damage or restore the site by designing landscape to reduce long-term negative environmental impacts, thereby promoting habitat and biodiversity.

Compliance Options:

Case A: Site Preservation *(1 point)*

Demonstrate that the project complies with one of the following measures:

1. **Existing Topography / Landscape:**
   Retain at least 20% of the existing vegetated areas, without any disturbance whatsoever.
2. **Water Bodies / Natural Rocks:**
   Retain 100% of the water bodies / natural rocks, without any disturbance whatsoever.
3. **Existing Trees:**
   Design to integrate trees with new development, so as to preserve 75% of existing trees.

(And/Or)

Case B: Landscape Design *(4 points)*

Compliance Options:

Option 1: Vegetation over Ground / Built Structures *(2 points)*

Design vegetated spaces over ground / built structures, for at least 20% of the site area (including development footprint).

Points are awarded as below:

Percentage of Site Area with Vegetation on the ground and/or over built structures	Points
≥ 20%	1
≥ 30%	2

Notes:

- *Existing Landscape shall not be considered to show compliance.*
- *Development footprint includes building footprint and other hardscapes areas such as parking, footpaths, walkways, roads, etc.,*
- *Vegetation/ Soft landscape shall not be designed with monoculture plant species, since such species would not promote habitat and biodiversity.*
- *Vegetation on the ground as well as vegetation over built structures such as roofs, basement, podiums, etc., can be considered.*

- *Vertical Landscaping on the external walls can also be considered for this credit calculation. Plantation of Creepers would not be considered, as creepers are not permanent throughout the year unlike trees/ shrubs.*
- *Partially vegetated areas and disturbed site areas such as grass pavers, grass medians, jogging track, open-air theatre, playground, is considered as site disturbances and shall not be considered.*
- *Only native / adaptive/ drought tolerant vegetation shall be considered for this credit calculation.*
- *Potted plants shall not be considered as vegetation.*
- *Artificial vegetation shall not be considered.*

(And/ Or)

Option 2: Preservation or Transplantation of Trees *(1 point)*

Plant tree saplings that can mature into grown-up trees with medium to large canopy in the next 5 to 8 years on the project site, as per the criteria given below.

Note:

The project team can consider existing and transplanted trees within the project site to demonstrate compliance.

Site Area	Number of Tree Saplings (Including Existing and Transplanted Trees)
For every 80 sq.m	1 or more

Table 1

Notes:

- *Trees/ Saplings shall be in place at the time of occupancy.*
- *Trees transplanted from other sites to the project site can also be considered to show credit compliance.*
- *Calculation of existing fully grown trees (and / or) tree saplings is allowed to show credit compliance.*
- *Only native / adaptive trees and tree saplings shall be considered for this credit calculation.*
- *Trees / Saplings planted in pots shall not be considered for credit calculations.*

(And/ Or)

Option 3: Landscape Design *(1 point)*

Limit use of turf on the site and ensure that landscaped area is planted with drought tolerant / native / adaptive species.

Points are awarded as below:

Type of Landscape	Percentage of the Total Landscaped Area	Points
Turf Area	≤ 20%	1
Drought Tolerant / Native / Adaptive Species Area	≥ 60%	

Notes:

- *The landscape here refers to soft landscaping, which includes only pervious vegetation.*
- *Landscape shall not be designed with monoculture plant species, since such species would not promote habitat and biodiversity.*
- *Drought tolerant species are those species that do not require supplemental irrigation. Generally accepted time frame for temporary irrigation is 1 - 2 years.*
- *Vertical Landscaping to the external walls can also be considered for this credit calculation.*
- *Potted plants shall not be considered as vegetation.*
- *Areas planted with turf should not exceed a slope of 25 percent (i.e. 4 to 1 slope).*

Exemplary Performance:

This credit is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, if

- The percentage of Site Area with Vegetation on the ground and/or over built structures is ≥ 40%.
- There is no turf in landscape designed and more than 80% of the landscaped area is planted with drought tolerant / native / adaptive species.

Heat Island Reduction, Non-Roof and Roof

SSP Credit 4 Points: 3

Intent:

Minimise heat island effect to reduce negative impact on micro-climate.

Compliance Options:

Case A: Non-roof Impervious Areas *(2 points)*

Provide one or combination of the following, for at least 50% of exposed non-roof impervious areas within the project site:

- Shade from existing tree cover/ newly planted saplings that can mature into grown-up trees with medium to large canopy in the next 5 to 8 years
- Open grid pavers or grass pavers
- Hardscape materials with SRI of at least 29 (and not higher than 64)

Points are awarded as below:

Non-roof Impervious Area as a Percentage of Total Non-roof Area	Points
≥ 50%	1
≥ 75%	2

Notes:

- *Non-roof impervious areas include, but not limited to, footpaths, pathways, roads, driveways, uncovered surface parking, and other impervious areas.*
- *SRI values of reflectance materials shall be as per ASTM Standards tested in NABL accredited labs.*
- *Exposed non-roof area need not include service areas such as DG sets, transformer, STP etc.,*

(And/ Or)

Case B: Roof Area *(1 point)*

Option 1: Use material with a high solar reflective index (and/ or) vegetation to cover at least 75% of the exposed roof area, including covered parking.

Percentage of roof area covered with High Reflective Material	Points
> 95%	1

(Or)

Percentage of roof area covered with Vegetation	Points
> 75%	1

Notes:

- *Material with high solar reflectance index (SRI) include white / light coloured broken China mosaic tiles or white cement tiles or other high reflective materials / coatings.*
- *Minimum Solar Reflective Index (SRI) values for different roof types are provided below:*

Roof Type	Slope	Minimum SRI Value	Maximum SRI Value
Low-sloped roof	< 2:12	82	-
Steep-sloped roof	> 2:12	29	64
Podium/ Basement Roof	-	29	64

Table 2 Solar Reflective Index (SRI) values for different roof types

- *All roof areas, including podium, covered surface parking, utility blocks and areas covered with elevated solar photovoltaic/ BIPV & solar water heaters, which are exposed to the sky (at and above ground level) shall be considered for this credit calculation.*
- *Projects with solar PV mounted in contact with the roof can include the area covered with Solar PV as a strategy to mitigate heat island effect.*
- *Exposed roof area need not include equipment platforms, skylights, driveways, roads, play areas, etc.*
- *The compliance for SRI value shall be for a newly coated paint.*
- *Artificial vegetation shall not be considered.*
- *SRI values of high reflectance materials shall be as per ASTM Standards. Broken China mosaic tiles are exempted from showing SRI value.*

Exemplary Performance:

This credit is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, if:

Case A: Non-roof Impervious Areas

95% of exposed non-roof impervious areas are under tree cover (and / or) with open grid pavers / grass pavers (and / or) hardscape materials with an SRI of at least 29 (and not higher than 64).

(Or)

Case B: Roof Area

95% of the exposed roof area is covered with vegetation only.

Outdoor Light Pollution Reduction

SSP Credit 5 Point: 1

Intent:

Reduce light pollution to increase night sky access and enhance the nocturnal environment.

Compliance Options:

Upward Lighting:

Design exterior lighting with fixtures that are fully shielded (or the photometric file clearly indicates zero upward lighting) to prevent light from escaping upward, typically by ensuring no light is emitted above the horizontal plane (including façade lighting)

- Upward Light Ratio (ULR) - The proportion of light emitted directly upwards must not exceed 0.5%.
- Colour Temperature - CCT of the light should not exceed 3000K. Use lower colour temperatures (warm light) minimizing glare.
- Fixed installation or limited adjustable angle - The installation method should be fixed to prevent changing the light's angle. If the fixture must be adjustable, the angle of adjustment should be limited to a maximum of ±10°.
- Adaptive Controls - Fixtures should be dimmable to reduce light levels during off-peak hours (optional)

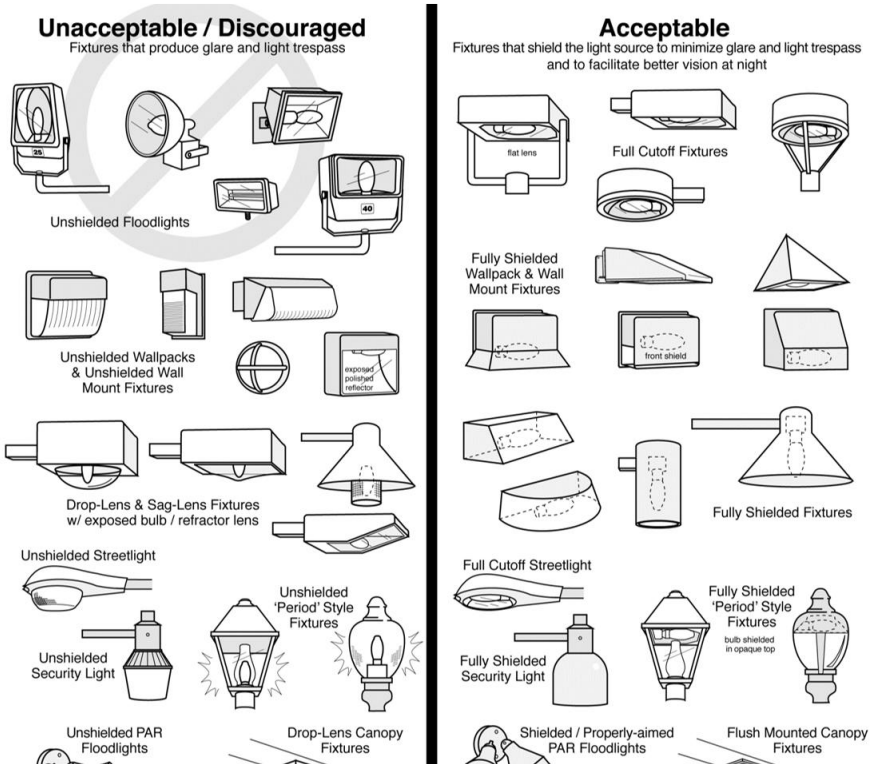

Figure 3

Source: Dark Sky Assessment Guide

Exemplary Performance:

This credit is not eligible for exemplary performance.

Sustainability Initiatives

SSP Credit 6 **Points: 2**

Intent:

Encourage integrated design approach to construct a high-performance building, thereby reducing negative environmental impacts. Organise awareness sessions and trainings during & pre-construction phase to ensure that all workforce members and stakeholders involved in the project are well-informed, responsible, and aligned with the organization's sustainability and compliance objectives.

Option 1: Design Stage & Construction Stage *(1 point)*

Compliance Options:

- **Case A: Integrated Design Approach**
  - Demonstrate that the project has involved team members from multi-disciplinary fields for effective decision-making and enhanced building performance, right from conceptual stage till completion of the project.
  - Ensure that the project owner involves the following project team members, as applicable, at each stage of the project:
    - Architect, Commissioning Authority, Energy Modeler, Facility Managers, General Contractor, Green Building Consultant, Interior Designer, Landscape Architect, MEP Consultant, Project Management Consultant, Structural Consultant, and other project team members.
  - Document at least three project meetings at different stages of the project.

(And)

- **Case B: Awareness Sessions for Labors and Sustainability training for Employees & Vendor Project Team**
  - Awareness sessions for construction workforce on health, safety, environmental protection, and social responsibility standards applicable to project activities
  - Awareness session for project team and vendors on green product procurement and sustainability principles, including resource efficiency, water & waste reduction, energy conservation, etc.
  - Display signages indicating envisaged green features

(And/ Or)

Option 2: Post Occupancy Stage *(1 point)*

Intent:

Promote green education by involving building occupants and visitors, to increase awareness levels on eco-friendly practices.

Compliance Options:

- Install permanent educational signage in common areas of the building with green concepts such as Go green, save earth; Water is precious, save it; Turn off lights, when not in use; Say no to mixed waste; Plant a tree, save the environment, etc.
- Install screen to showcase building performance dashboard and green features in the building.
- Project specific green building guidelines providing information that helps building occupants to implement and utilise the green features, post occupancy.

List of Credits applicable for Green Building Guidelines

- Sustainable Transportation
- Universal Design
- Water Efficient Plumbing Fixtures
- Alternate Water
- Water Metering and Management
- Energy Efficiency
- Eco-friendly Refrigerants
- Waste Management
- Sustainable Building Materials
- Organic Waste Management, Post occupancy
- Green Procurement
- Minimum Fresh Air Ventilation
- Tobacco Smoke Control
- IAQ Monitoring
- Daylighting an Views
- Occupant Well being
- Minimise Indoor & Outdoor Pollutants
- Low-emitting Materials

Note: The list is illustrative only.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Water Conservation
(Maximum: 20 Credit Points)

Rainwater Harvesting, Roof

WC Mandatory Requirement 1

Intent:

Enhance ground water table and reduce municipal water demand through effective rainwater management.

Compliance Options:

Case A: Rainwater Harvesting, Roof and Non-Roof

Design rainwater harvesting system to capture at least 'one-day rainfall*' runoff volume from roof and nonroof areas.

S No	Average Peak Month Rainfall (in mm)	One-day Rainfall (% of Average Peak Month Rainfall)
1	Upto 250	9%
2	251 – 350	7.5%
3	351 – 500	6%
4	501 – 700	4.5%
5	701 & above	3%

Table 3 Criteria to arrive at 'One Day Rainfall'

Case B: High Ground Water Table

In areas where the Central / State Ground Water Board does not recommend artificial rainwater recharge (or) if the groundwater table is less than 8 meters, the project is required to provide justification for not implementing rainwater harvesting system.

Notes:

Rainfall Information:

- *For rainfall information, refer Indian Metrological Department data → Customized Rainfall Information System (CRIS) → Rainfall Statistics → District Wise Rainfall Last 5 years*
  http://hydro.imd.gov.in/hydrometweb/(S(vcenta45dxa4dpbpffd3ud3q))/DistrictRaifall.aspx
  - *Choose the state and district from the dropdown boxes, to populate the rainfall data of the district (project's location)*
  - *To arrive at average peak month rainfall, consider an average of minimum last 5 years peak month rainfall (of the respective year).*
- *Runoff volume = Surface area x Runoff Coefficient x Rainfall*
- *Consider Rainwater Harvesting Guidelines from the National Building Code (NBC) of India 2016, Part 11 - Approach to Sustainability, Section 7.2 - Rainwater Harvesting-Surface Runoff.*
- *In areas where the water percolation is limited, collection tanks may be provided to meet the above requirement.*
- *Percolation can be calculated from Infiltration rates of soil or third-party percolation test report indicating the water percolated per day.*

- *Filtering of suspended solids/ sediments shall be ensured by providing suitable filtering media before letting the water into the collection tanks, water bodies, municipal storm water drains.*

Run-off co-efficient for typical surface types		
S No	**Surface Type**	**Run-off Co-efficient**
1	Cemented / Tiled Roof	0.95
2	Corrugated GI Sheets	0.95
3	Roof Garden (<100 mm thickness)	0.5
4	Roof Garden (100 – 200 mm thickness)	0.3
5	Roof Garden (201 – 500 mm thickness)	0.2
6	Roof Garden (> 500 mm thickness)	0.1
7	Turf, Flat (0 - 1% slope)	0.25
8	Turf, Average (1 – 3% slope)	0.35
9	Turf, Hilly (3 - 10% slope)	0.4
10	Turf, Steep (> 10% slope)	0.45
11	Vegetation, Flat (0 - 1% slope)	0.1
12	Vegetation, Average (1 - 3% slope)	0.2
13	Vegetation, Hilly (1 - 3% slope)	0.25
14	Vegetation, Steep (> 10% slope)	0.3
15	Concrete Pavement	0.95
16	Gravel Pavement	0.75
17	Open-grid Concrete Pavement	0.75
18	Open-grid Grass Pavement	0.5
19	Water Bodies (lined) Ex: Swimming Pool	0.95
20	Water Bodies (un-lined) Ex: Water Pond	0

Table 4 Run Off coefficient for typical surface types

Water Efficient Plumbing Fixtures

WC Mandatory Requirement 2

Intent:

Enhance efficiency of plumbing fixtures, thereby minimising potable water use.

Compliance Options:

Use water efficient plumbing fixtures (as applicable) whose flow rates meet the baseline criteria in aggregate. The total annual water consumption from the plumbing fixtures should not exceed the total base case water consumption computed.

Note:

Use of treated wastewater/ captured rainwater shall not be considered to show water savings.

The baseline criteria is as below:

Fixture Type	Maximum Flow Rate / Consumption	Duration	Estimated Daily Uses per FTE ***
Water Closets (Full flush)	4.84 LPF	1 flush	1 for male; 1 for female
Water Closets (Half-flush)	3 LPF	1 flush	2 for female
Urinals	1.89 LPF	1 flush	2 for male
Faucets / Taps*	1.89 LPM	15 seconds	4
Health Faucet*	5 LPM	15 seconds	1
Kitchen Faucet*	6.81 LPM	15 seconds	1
Showerhead / Handheld Spray**	7.57 LPM	8 minutes	0.1
Notes: *Reporting pressure for these fixtures shall be at 4 bar.* *** Reporting pressure for these fixtures shall be at 5.5 bar.* *** Full Time Equivalent (FTE) represents a regular building occupant who spends 8 hrs per day in the building. Part-time or overtime occupants have FTE values based on their hrs per day divided by 8.*			

Table 5 Baseline flow rates/Consumption for plumbing fixture

Source: Uniform Plumbing Code – India 2021

Notes:

- *Water fixtures do not include irrigation systems.*
- *Faucets / Taps installed for hand wash in rest rooms and canteen shall be considered, whereas, faucets / taps installed for dish washers and washing clothes need not be considered.*
- *Rain showers (if any) need to be considered in the calculations under Showerhead.*

- *If the project has residential/ equivalent space with showerheads, in such case the daily use per occupant shall be considered as 1.*
- *The baseline flows can be demonstrated at a flowing water pressure of 4.13 bar. Flowing water pressure of 3 bar does not mean that the water supply in the building is at 4.13 bar. The building fixtures can operate at lower pressures; however, to show compliance under this credit, the design flow rates are to be submitted at 4.13 bar.*
- *Default occupancy shall be considered as 50% for male and female.*
- *FTE occupancy shall be considered in the calculation, including visitors.*
- *Plumbing fixtures that are certified by CII under Green Product Certification Programme (GreenPro) or by a third-party agency approved by IGBC, can be used by the project to show compliance.*
- *In the absence of specific cutsheets use the following conversion formula to arrive at discharge at 4 bar pressure. The project team should submit the supplementary calculation to indicate the flowrates at 4 Bar pressure along with individual cutsheet of the water fixture. Project can use the following formula to calculate the approximate flowrates: Q2 =Q1 [square root of P2/P1] Where, Q1 & P1 are the known flow rate(Q1) and known pressure (P1). The resulting flow rate (Q2) is calculated for the pressure applied (P2).*
- *Hotel buildings must demonstrate water savings separately for guest rooms considering the daily uses for showerheads as 1.*

Water Use Reduction for Construction

WC Credit 1 Points: 1

Intent:

Enhance water use efficiency, thereby minimising the use of potable water for construction activities.

Compliance Options:

Demonstrate that the project has reduced at least 10% of the potable water required for construction activities (concrete mixing, plastering works and curing), as compared to national and international practices, for the building type being designed, with the use of:

- Treated Wastewater
- Admixtures & Curing compounds
- Any other innovative measures

Ensure that the quality of construction is not compromised by reducing potable water requirement or by reusing treated wastewater.

(And)

- The treated wastewater shall meet the quality standards suitable for reuse during construction, as prescribed by:
  - Bureau of Indian Standards (BIS) - Plain and Reinforced Concrete (Code of Practice) IS 456 : 2000, Section 2 - Materials, Workmanship, Inspection and Testing, 5.4 - Water, 'Table 1 - Permissible Limit for Solids'.

    (Or)
  - Central (or) State Pollution Control Board

Notes:

Treated wastewater from other sites / local authorities through permanent piped connections or other means can also be considered to show compliance.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Rainwater Harvesting, Roof and Non roof

WC Credit 2 Points: 4

Intent:

Enhance ground water table and reduce municipal water demand through effective rainwater management.

Compliance Options:

Option 1: Rainwater Harvesting, Roof

Design rainwater harvesting system to capture at least 'one-day rainfall*' runoff volume from roof and non roof areas.

Option 2: High Ground Water Table

Design rainwater harvesting system to capture at least 'one-day rainfall*' runoff volume from roof areas.

S No	Average Peak Month Rainfall (in mm)	One-day Rainfall (% of Average Peak Month Rainfall)		
		2 points	3 points	4 points
1	Upto 250	12%	15%	18%
2	251 – 350	10%	12.5%	15%
3	351 – 500	8%	10%	12%
4	501 – 700	6%	7.5%	9%
5	701 & above	4%	5%	6%

Table 6 Criteria to arrive at 'One-day rainfall'

Rainfall Information:

- *For rainfall information, refer Indian Metrological Department data → Customized Rainfall Information System (CRIS) → Rainfall Statistics → District Wise Rainfall Last 5 years*
  http://hydro.imd.gov.in/hydrometweb/(S(vcenta45dxa4dpbpffd3ud3q))/DistrictRaifall.aspx
  - *Choose the state and district from the dropdown boxes, to populate the rainfall data of the district (project's location)*
  - *To arrive at average peak month rainfall, consider an average of at least last 5 years peak month rainfall (of the respective year).*
- *Consider Rainwater Harvesting Guidelines (as and when available) from the National Building Code (NBC) of India 2016, Part 11 - Approach to Sustainability, Section 7.2 - Rainwater Harvesting-Surface Runoff.*
- *In high groundwater areas or areas where the water percolation is limited, collection tanks may be provided to meet the above requirement.*
- *Filtering of suspended solids/ sediments shall be ensured by providing suitable filtering media before letting the water into the collection tanks, water bodies, municipal storm water drains.*

Exemplary Performance:

This credit is eligible for exemplary performance under IP Credit 1 - Innovation in Design Process, if rainwater runoff from Roof & Non roof areas under Case A and from Roof areas under Case B is harvested, as listed below:

S No	Average Peak Month Rainfall (in mm)	One-day Rainfall (% of Average Peak Month Rainfall)
1	Upto 250	21%
2	251 – 350	17.5%
3	351 – 500	14%
4	501 – 700	10.5%
5	701 & above	7%

Table 7 Criteria to arrive at 'One-day Rainfall' for Exemplary Performance

Water Efficient Plumbing Fixtures

WC Credit 3 Points: 3

Intent:

Enhance efficiency of plumbing fixtures, thereby minimising potable water use.

Compliance Options:

Use water efficient plumbing fixtures (as applicable) whose flow rates are at least 4% less than the baseline criteria given Table - 4, in aggregate.

The baseline criteria is as below:

Fixture Type	Maximum Flow Rate / Consumption	Duration	Estimated Daily Uses per FTE ***
Water Closets (Full flush)	4.84 LPF	1 flush	1 for male; 1 for female
Water Closets (Half-flush)	3 LPF	1 flush	2 for female
Urinals	1.89 LPF	1 flush	2 for male
Faucets / Taps*	1.89 LPM	15 seconds	4
Health Faucet*	5 LPM	15 seconds	1
Kitchen Faucet*	6.81 LPM	15 seconds	1
Showerhead / Handheld Spray**	7.57 LPM	8 minutes	0.1

Notes:

Reporting pressure for these fixtures shall be at 4 bar.

*** Reporting pressure for these fixtures shall be at 5.5 bar.*

**** Full Time Equivalent (FTE) represents a regular building occupant who spends 8 hrs per day in the building. Part-time or overtime occupants have FTE values based on their hrs per day divided by 8.*

Table 8 Baseline flow rates/ Consumption for Plumbing fixtures

Source: Uniform Plumbing Code – India 2021

Points are awarded as below:

Water Efficient Plumbing Fixtures (Individually or in aggregate)	Points
2% less than baseline criteria	1
4% less than baseline criteria	2
6% less than baseline criteria	3
8% less than baseline criteria	4
10% less than baseline criteria	5

Notes:

- *Use of treated wastewater/ captured rainwater shall not be considered to show water savings.*
- *Water fixtures do not include irrigation systems.*
- *Faucets / Taps installed for hand wash in rest rooms and canteen shall be considered, whereas, faucets / taps installed for dish washing and washing clothes need not be considered.*
- *Rain showers (if any) need to be considered in the calculations under Showerhead.*
- *If the project is a mixed-use building and has residential space with showerheads, in such case the daily use per occupant shall be considered as 1.*
- *The baseline flows can be demonstrated at a flowing water pressure of 4.13 bar. Flowing water pressure of 4.13 bar does not mean that the water supply in the building is at 4.13 bar. The building fixtures can operate at lower pressures; however, to show compliance under this credit, the design flow rates are to be submitted at 4.13 bar and 5.5 bar for showerheads.*
- *Default occupancy shall be considered as 50% for male and female.*
- *FTE occupancy shall be considered in calculation, including visitors.*
- *In the absence of specific cutsheets use the following conversion formula to arrive at discharge at 4 bar pressure. The project team should submit the supplementary calculation to indicate the flowrates at 4 Bar pressure along with individual cutsheet of the water fixture. Project can use the following formula to calculate the approximate flowrates: Q2 = Q1 [square root of P2/P1] Where, Q1 & P1 are the known flow rate(Q1) and known pressure (P1). The resulting flow rate (Q2) is calculated for the pressure applied (P2).*

Exemplary Performance:

This credit is eligible for exemplary performance under IP Credit 1 - Innovation in Design Process, if water consumption is 12% lesser than the baseline criteria.

Irrigation Water Reduction

WC Credit 4 Points: 2

Intent:

Reduce water demand for irrigation through water efficient landscape design and management systems.

Compliance Options:

Irrigation Systems and Water Savings:

Demonstrate water savings achieved due to efficient landscape design and irrigation systems (Sprinkler, Drip, Segregation of bedding areas, Soil moisture sensor, timers), as compared to base design.

Methodology to calculate water consumption for irrigation:

Water Consumption for proposed case = (Monthly Evapotranspiration Rate * Landscape Area * Plant Factor) / Irrigation System Efficiency

Percentage of water savings achieved	Points
20%	1
30%	2

Kindly refer below table for the Plant factor and Irrigation System Efficiency:

Plant Species	Plant Factor
Lawns(On ground /podium)	0.85
Native/Naturalised shrubs (On ground/podium)	0.5
Exotic shrubs (newly planted)	0.7
Native Trees on Ground	0.5
Fully grown Existing Trees (native)	0.2
Native Trees on Podium	1.2
Exotic Trees on Podium	1.3

Table 9 Plant Factor

Source: FAO (Food and Agricultural Organization of the United Nations)

Irrigation Systems	

	Irrigation System Efficiency
Flood Irrigation (To be considered for base case)	0.65
Drip Irrigation	0.9
Sprinkler	0.85

Table 10 Irrigation systems efficiency

Source: Ministry of Water Resources Central Water Commission

Notes:

- *Design case water requirement must be considered as per the water requirement for the landscape species and irrigation system designed in the project.*
- *Refer to the link for evapotranspiration rates: https://indiawris.gov.in/wris/#/evapotranspiration*
- *The evapotranspiration rate is the amount of water lost from a unit area of land to the atmosphere per unit time due to the combined effects of evaporation and plant transpiration. It is usually expressed in millimetres per day (mm/day) or millimetres per year (mm/year).*
- *Irrigation System Efficiency is a coefficient used in irrigation planning to account for the portion of crop water requirements that needs to be supplied through irrigation, considering contributions from rainfall, soil moisture, and other water sources.*
- *Plant Factor (also called Crop Coefficient) is a dimensionless number that represents the water requirement of a specific crop or plant relative to a reference crop.*
- *To calculate the base case water consumption, the project team must consider the irrigation system efficiency as flood irrigation (0.65) for all types of species and plant factor as 0.85 (Lawns).*
- *Landscape area must remain constant in both base and proposed case*
- *For projects where irrigation systems other than that mentioned in Table 12 are used in the project, then the project team can define the system irrigation efficiency based on relevant source and demonstrate % reduction in irrigation efficiency.*

Exemplary Performance:

This credit is eligible for exemplary performance if the project team demonstrates potable water savings of more than 35% due to efficient landscape design and irrigation systems

Waste Water Treatment

WC Credit 5 **Points: 2**

Intent:

Ensuring responsible management of wastewater generated on-site by treating it to prescribed standards, thereby preventing contamination of natural water bodies and promoting safe discharge or reuse.

Compliance Options:

Waste Water Treatment: (2 points)

Provide an on-site wastewater treatment system to treat 100% of wastewater generated in the project, to the quality standards suitable for reuse as prescribed by Central (or) State Pollution Control Board, as applicable.

Notes:

- *Waste water here refers to both grey and black water.*
- *The credit point(s) can be claimed only if the waste water is treated in-situ and reused in-situ. In case the local authorities insist the project to divert waste water to a centralised / common waste water treatment plant, then the project can show compliance by reusing treated wastewater from the centralised / common / any other wastewater treatment plant.*

Exemplary Performance:

This credit is not eligible for exemplary performance.

Alternate Water Use

WC Credit 6 — Points: 4

Intent:

Encourage use of alternate water, thereby demonstrating commitment to reduce dependency on raw water.

Compliance Options:

Option 1: Alternate Water Use *(3 points)*

Demonstrate alternate water use for at least 25% of the total water consumption in the project for various applications including domestic, irrigation, cooling tower & water cooled DG make-up water etc.

$$\left\{\begin{array}{c}\%\ Use\ of\ Alternate\ water \\ (Water\ Performance\ Ratio)\end{array}\right\} = \left\{\frac{Alternate\ Water\ Consumption}{Total\ Water\ Consumption}\right\}$$

Points are awarded as below:

Application (in aggregate)	Percentage of Alternate Water to the Total Water Consumption	Points
Water Performance Ratio	≥ 20%	1
	≥ 35%	2
	≥ 50%	3

Notes:

- *Domestic water here includes water consumption for flushing, handwash, cooking, drinking, swimming pool, fountains, etc.*
- *The project team must treat rainwater in WTP to reuse water for handwash, etc. If alternate water is not used, the same must still be considered in the total water consumption.*
- *Treated wastewater sourced from other sites / local authorities through permanent piped connections or other means can also be considered to show compliance for 'wastewater reuse'.*
- *Use of alternate water includes the rainwater (captive use), condensate water or any purchased treated wastewater (water meter for tanker water).*
- *Water from sources such as bore wells, natural wells, municipal water systems is considered as potable water*
- *The water requirement for landscaping shall be considered as per WC Credit 3.*
- *Potted plants shall not be considered under vegetation.*

(And/ Or)

Option 2: Roadmap towards Zero Water Discharge (1 point)

Develop a comprehensive roadmap to achieve zero water discharge within the project, thereby minimizing dependence on potable water for meeting operational requirements.

The roadmap shall include strategies and timelines for achieving water neutrality based on the points outlined below:

1. Water Audit and Baseline Assessment (atleast once in 3 years)
2. Water use Demand Reduction
3. Waste water treatment and use of alternate water
4. Metering, Monitoring and Smart Management
5. Offset and Replenishment Initiatives

Exemplary Performance:

This credit is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, if the water performance ratio for the project is $\geq$ 65%.

Water Metering and Management

WC Credit 7 Points: 2

Intent:

Encourage sub-metering and continuous monitoring & management to identify improvement opportunities in the buildings' water performance, thereby reducing potable water consumption.

Compliance Options:

Option 1: Water Metering *(1 point)*

Demonstrate sub-metering through digital water meters for at least three of the following major water use applications, as applicable:

- Municipal water supply
- Bore water consumption
- Treated water
- Water consumption for landscape requirements
- Water consumption for flushing
- Water consumption for cooling tower make-up water requirements
- Stored rainwater consumption, if applicable
- Any other major source of water consumption

(And/Or)

Option 2: Water Management System *(1 point)*

Demonstrate integration of IoT-enabled water meters with a smart water management system for real-time monitoring of water consumption, including sensor-based control for irrigation systems, for any three applications, as applicable:

- Water level monitoring in tanks
- Water pump control
- Leak detection
- Smart irrigation system
    - Irrigation Scheduling
    - Disable/ manage irrigation during rains (based on moisture sensor)

Also, commit to provide the annual total building water consumption data to IGBC. The water data shall be provided for all the major water consuming systems.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Energy Efficiency
(Maximum: 29 Credit Points)

Eco-friendly Refrigerants

EE Mandatory Requirement 1

Intent:

Encourage use of eco-friendly refrigerants and halons in the building, thereby minimising negative impact on the ozone layer.

Compliance Options

CFC-free Refrigerants

Demonstrate that refrigerants used in the buildings Heating, Ventilation & Air-conditioning (HVAC) equipment are water based or HFO based or refrigerants that have no Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) less than 2100.

(And)

Halon-free Fire Suppression Systems

Demonstrate that fire suppression systems used in the building are free from Halons or any other ozone depleting substances.

Minimum Energy Efficiency

EE Mandatory Requirement 2

Intent:

Optimise energy consumption, to reduce negative environmental impacts from excessive energy use.

Compliance Options:

Design the building to comply with ECSBC 2024 (or) ASHRAE Standard 90.1-2022 (without amendments) through one of the following approaches:

- Option 1 - Performance based approach / Whole building simulation
- Option 2 - Prescriptive approach

The total annual energy consumption of the building should not exceed the total base case of energy consumption computed, as per ECSBC (or) ASHRAE Standard 90.1-2022.

Note:

Project with multiple buildings (including projects with common basement) must independently meet the Minimum Energy Performance criteria for each building.

- **Option 1 - Performance Based Approach / Whole Building Simulation**

Demonstrate compliance of the building performance by whole building simulation, as per the baselines outlined in ECSBC 2024 (or) ASHRAE Standard 90.1-2022 (without amendments), Appendix - G.

Notes:

- *In tenant-occupied buildings, if air-conditioning equipment is in tenant scope, the developer would mandate the installation of efficient air-conditioning equipment for to meet the minimum efficiency requirements (COP/ EER) as defined in green lease agreement.*
- *In tenant-occupied buildings, if lighting is in tenant scope, the developer would mandate the installation of efficient lighting systems to meet the LPD values as defined in the green lease agreement.*
- *Projects that use solar hot water systems can model the systems in the proposed case, as against electrical heaters in the base case, to show energy savings.*
- *Projects (such as laboratories, hospitals etc.,) which have process loads not related to building operations should be considered during simulation. While reporting, such loads can be excluded from the base case and proposed case annual energy consumption. The process loads which are excluded shall be justified with a narrative.*
- *For tenant occupied buildings, the project team must submit signed tenant lease agreement by owner and tenant for at least 50% of the spaces (by area) clearly indicating the green measures implementation mandated to the tenants*

- **Option 2 - Prescriptive Approach**

The project should meet the applicable criteria for the following compliances as established in the prescriptive measures of ECSBC 2024.

1) Building Envelope:

The project must ensure that the following building envelope measures meet the baseline requirements mentioned in ECSBC 2024, Chapter 5 – Building Envelope, Section 5.3.

Building Envelope Parameters					
Building Category	**Composite**	**Hot & Dry**	**Warm & Humid**	**Temperate**	**Cold**
Vertical Fenestration					
Maximum U-factor ($W/m^2.K$)	2.20	2.20	2.20	3.00	1.80
Maximum SHGC Non-North	0.25	0.25	0.25	0.25	0.62
Max SHGC North for latitude ≥ 15°N	0.50	0.50	0.50	0.50	0.62
Max SHGC North for latitude < 15°N	0.25	0.25	0.25	0.25	0.62
Wall Assembly					
All building types, except below	0.40	0.40	0.40	0.55	0.34
No Star Hotel < 10,000 m2 AGA	0.63	0.63	0.63	0.63	0.40
Business < 10,000 m2 AGA	0.63	0.63	0.63	0.63	0.40
School <10,000 m2 AGA	0.85	0.85	0.85	1.00	0.40
Roof Assembly					
All Buildings	0.26	0.26	0.26	0.26	0.20
Assembly & Hospitality (>10,000 m^2)	0.20	0.20	0.20	0.20	0.20

Notes:

For Climatic Zones of India, please refer Annexure - I.

**Low SHGC value can be achieved through chajjah or other sun shading devices or efficient fenestration or a combination of both. For details, refer ECSBC section 5.2.1 - Fenestration, Exception to ECSBC 5.2.1.*

2) Lighting:

The Lighting Power Density (LPD) in the building interior shall meet the LPD as outlined in the Building Area Method (under Chapter 7, Table 7.1) or Space by Space Method (under Chapter 7, Table 7.4) and exterior & parking areas (under Chapter 7, Table 7.7) of ECSBC 2024.

Notes:

- *Compliance for the lighting power density shall be shown either through Building Area Method or Space Function Method. If Building Area Method is considered, compliance for parking area lighting shall be shown separately.*
- *Exterior areas illuminated by lighting only should be considered for lighting power density calculations.*
- *The LPD should include power consumption of complete fixture, including lamps and ballasts.*

3) Space Conditioning Systems:

a) Chillers

Chillers should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.2.2.a - Space Conditioning Equipment.

HVAC	Requirements
Chiller	BEE 2-Star
Chilled water and condenser water pumps efficiency	70%
Motor Efficiency	IE3
Cooling Tower	0.3 kW/litre sec

Condition	Primary Chiller Type
If Cooling water / Recycled water is available	Water-Cooled
Building Cooling Load < 530 kW	Air-Cooled or Hybrid
Building Cooling Load ≥ 530 kW	Mainly Water-Cooled (Air cooled restricted to 33% of total plant capacity)

b) Unitary, Split, and Packaged Air-Conditioners

Unitary, Split, and Packaged Air-Conditioners should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.2.2.b - Unitary, Split, and Packaged Air-Conditioners.

Unitary, Split: >10.5 kW (BEE Star) and Packaged Unit		
Cooling Capacity (kWr)	**Water Cooled**	**Air Cooled**
< 10.5	NA	BEE 3 STAR
> 10.5	3.3 EER	2.8 EER

c) Variable Refrigerant Flow (VRF)

Variable Refrigerant Flow (VRF) should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.2.2.c - Variable Refrigerant Flow (VRF).

For Heating or Cooling or Both		
Type	**Size Category (kWr)**	**ISEER (W/W)**
VRF Air Conditioners, Air Cooled	<40	5.4
	≥ 40 and < 70	5.5
	≥ 70	5.6

4) Fans (Applicable for Non-Air-conditioned Owner-occupied buildings)

Fans installed in the building shall have an efficiency equivalent to BEE 3-star rating or more.

Notes:

- *Non-air-conditioned buildings are those which are not serviced and will not be serviced in the future, either through central air-conditioned systems or unitary air-conditioners.*
- *Air-conditioning may be considered for critical areas, not more than 10% of the total regularly occupied area.*
- *Spaces with unitary air-conditioners shall comply with IEQ Mandatory Requirement 1 - Fresh Air Ventilation, non air-conditioned buildings criteria.*

Commissioning Plan for Building Equipment & Systems

EE Mandatory Requirement 3

Intent:

Verify and ensure that the building's equipment & systems are commissioned to achieve performance as envisaged during the design stage.

Compliance Options:

The project shall comply with the following requirements:

- Demonstrate that the project owner has signed an agreement with third party commissioning authority, not involved in the design. The commissioning authority is also required to have at least 3 years prior experience in equipment & systems.

Notes:

- *Air-conditioned Buildings: Projects with less than 2,000 sq.m of built-up area, the owner or the designer can submit the commissioning plan.*
- *Non air-conditioned Buildings: For non air-conditioned projects, the owner or the designer can submit the commissioning plan.*

(AND)

- Document owners brief in terms of performance expectations from the building.
- Submit a plan to show how the building would be audited for its green building performance after occupancy, with regard to the following:
  - HVAC systems - chiller, VRV systems, primary & secondary water pumps, cooling tower, AHU fans, fresh air fans and flow settings, fresh air treatment units, heat recovery wheel, VFDs
  - Unitary air-conditioners
  - Temperature and RH measurements in individual spaces
  - Pumps & motors
  - Lighting systems
  - Renewable energy systems
  - CO_2 monitoring system
  - Energy & Water metering
  - Building management system
  - DG sets or Back-up systems
  - Sewage treatment plant
  - Any other equipment's and systems
- Report specific observations and variations identified by commissioning authority to the project owner, for each equipment & system, with respect to commissioning plan and how they were addressed.
- Submit measurement & verification plan for yearly reporting.
- Submit post-occupancy survey to verify occupant comfort (lighting levels, temperature, relative humidity, noise levels, etc.,).

- Report on green building performance of the equipment & systems listed in commissioning plan. The report for each of the equipment & systems should cover the following:
  - Equipment specifications
  - Test results with specific comments from the Commissioning Authority, at the time of commissioning
  - Key monitoring aspects to sustain performance
  - Estimated energy & water consumption
  - Scope for performance enhancing in future, and savings thereof.

Passive Design

EE Credit 1 Points: 2

Intent:

Adopt passive design features to minimise building loads through an iterative design process to optimise building energy performance.

Compliance Options:

Case A: Simulation Approach (Air-conditioned Buildings)

The project team can demonstrate the savings of at least 2%, by adopting passive design strategies against baseline as per the design process requirements stated below:

Percentage of Reduction in Building's Total Annual Energy through Passive Design Strategies	Points
≥ 2 %	1
≥ 4 %	2

Step 1: Goal Setting and Climate Analysis (Preparatory)

- Climate Analysis: Conduct a detailed climate analysis for the project to inform early design decisions. Analysis shall include solar radiation, temperature/humidity ranges, wind patterns, and rainfall.

Step 2: Conceptual Design Modelling (Establishing the Performance Baseline)

- Baseline Model Creation: Model the baseline as per the requirements of ECSBC 2024 / ASHRAE 90.1-2022 (Appendix-G) for the building envelope (e.g., U-values, SHGC, Window-to-Wall Ratio).
- Preliminary Goals: Analyse preliminary base case energy loads and identify the key passive design opportunities (e.g., Orientation, Zoning, Thermal massing, Shading devices or any other passive measures).

Step 3: Load Reduction Modelling (Quantifying Passive Design Impact)

- Parametric Analysis: Develop the Proposed Design Model by parametric analysis of different passive measures and indicate the reduction against the baseline.

Notes: The following must be constant in both proposed and base case:

- *HVAC system type and efficiency*
- *Lighting Power Density (LPD) and schedules*
- *Equipment Power Density (EPD) and schedules*
- *All other internal loads and operational schedules*

Case B: Prescriptive Approach (Non Air-conditioned Buildings)

Demonstrate that the project has implemented at least one of the following climate responsive passive measures that result in energy savings: (1 point for each measure; maximum 2 points)

Table 9: List of Climate Responsive Passive Design measures

Concept	Criteria
Orientation & Internal zoning	Zoning of buffer areas and regularly occupied areas as per the Sun path analysis.
Skylight	Skylights shall comply with the maximum U-factor and maximum SHGC requirements as prescribed in Energy Conservation Sustainable Building Code 2024 (ECSBC), Section 5.3.4-Skylights, Table 5.15: Skylight U-Factor and SHGC Requirements.
Courtyard	Design building with at least one courtyard. The courtyard's shorter side should not be more than 2.5 times the height of the abutting walls to ensure self-shading while permitting diffused light.
Shading corridors	Design corridors that are exposed to ambient climatic conditions so as to achieve 75% shading during daytime
Exterior Openings	At least 75% of the exterior openings (fenestration) have a Projection Factor* of 0.3 or more (with overhangs or vertical fins)
Windows (Punched/ Bay)	Design atleast 75% of the windows as per climatic zone and orientation
Light shelves	Design light shelves for 50% of the windows/ glazed areas, as per climatic zone and orientation
Walls	Design 75% of the external walls (Trombe wall, High thermal mass, Cavity walls, Hollow brick walls) by surface area as per climatic zone
Cross ventilation	Design 50% of the unconditioned regularly occupied spaces so as to achieve cross ventilation.
Passive Cooling / Heating Technologies	Wind tower, Earth tunnel, Geothermal technologies, etc.

Notes:

- *Roof area covered with Solar PV will not be considered as a passive design measure, for this credit*
- *Points to consider for Skylight:*
  - *SRR: Skylight Roof Ratio which is the ratio of the total skylight area of the roof, measured to the outside of the frame, to the gross exterior roof.*
  - *All enclosed roof areas, including podium/ basement areas can also be considered for credit calculations.*
  - *Covered surface parking and utility blocks need not be considered for this credit calculation.*
- *Point to consider for Exterior Openings:*
  - *Projection Factor is a ratio of the length of overhang projection divided by height from window sill to the bottom end of the overhang (must be permanent). For more details, please refer Energy Conservation Building Code (ECBC).*

- *Points to consider for Cross Ventilation:*
  - *The doors/ windows should not have any obstruction within 2 m from outside surface. In case the doors open into internal corridors, then such corridors should not be enclosed as there would not be air movement.*
  - *The opening considered should meet HWB Mandatory Requirement 1 – Minimum Fresh Air Ventilation, Case B: Non Air-conditioned Spaces criteria.*
  - *Regularly occupied spaces with an opening to the outdoors only in one orientation can also be considered for calculations, if there is a permanent opening to the adjoining room which meets cross ventilation criteria .*

Exemplary Performance:

This credit is not eligible for exemplary performance.

Enhanced Energy Efficiency

EE Credit 2 — Points: 1-13

Intent:

Optimise energy consumption to reduce negative environmental impacts from excessive energy use.

Compliance Options:

Option 1 : Air-conditioned Buildings:

Design the building to comply with ECSBC 2024 (or) ASHRAE Standard 90.1-2022 (without amendments) through whole building simulation approach or Normative Appendix – G Performance Rating Method.

Points are awarded based on energy performance saving as detailed below:

Percentage of Energy Savings over ESCBC 2024 Base Case			
Owner-occupied Buildings	**Tenant-occupied Buildings**	**Major Renovation Buildings**	**Points**
4%	4%	2%	1
6%	6%	4%	2
8%	8%	6%	3
10%	10%	8%	4
12%	12%	10%	5
14%	14%	12%	6
16%	16%	14%	7
18%	18%	16%	8
20%	20%	18%	9
22%	22%	20%	10
-	24%	22%	11
-	26%	24%	12
-	28%	26%	13

Percentage of Energy Savings over ASHRAE 90.1-2022			
Owner-occupied Buildings	**Tenant-occupied Buildings**	**Major Renovation Buildings**	**Points**
0.5%	0.5%	-	1
1%	1%	0.5%	2
1.5%	1.5%	1%	3
2%	2%	1.5%	4
2.5%	2.5%	2%	5
3%	3%	2.5%	6
3.5%	3.5%	3%	7

4%	4%	3.5%	8
4.5%	4.5%	4%	9
5%	5%	4.5%	10
-	5.5%	5%	11
-	6%	5.5%	12
-	6.5%	6%	13

Notes:

- *Project with multiple buildings (including projects with common basement) must independently meet the Minimum Energy Performance criteria for each building.*
- *Major renovation buildings are those where significant modifications have been made in the building envelope, mechanical and electrical systems.*
- *Deduction of renewable energy from the proposed case energy consumption shall not be considered to demonstrate compliance for energy saving.*
- *For tenant occupied buildings, the project team must submit signed tenant lease agreement by owner and tenant for atleast 50% of the spaces clearly indicating the green measures implementation mandated to the tenants*

Option 2 : Non-air-conditioned buildings: (Prescriptive Approach) (Maximum 10 points)

(Applicable for Owner-Occupied buildings only)

Owner-occupied non-air-conditioned buildings shall meet or exceed the following prescriptive measures, as applicable:

1) **Building Envelope *(3 points – 1 point for each measure)***

The project must ensure that the following building envelope measures meet the baseline requirements mentioned in ECSBC 2024, Chapter 5 – Building Envelope, Section 5.3.

Building Envelope Parameters					
Building Category	**Composite**	**Hot & Dry**	**Warm & Humid**	**Temperate**	**Cold**
Vertical Fenestration					
Maximum U-factor ($W/m^2.K$)	1.80	1.80	1.80	2.20	1.80
Maximum SHGC Non-North	0.20	0.20	0.20	0.20	0.62
Max SHGC North for latitude ≥ 15°N	0.50	0.50	0.50	0.50	0.62
Max SHGC North for latitude < 15°N	0.20	0.20	0.20	0.20	0.62
Wall Assembly					
All building types, except below	0.34	0.34	0.34	0.55	0.22

No Star Hotel < 10,000 m2 AGA	0.44	0.44	0.44	0.44	0.34
Business < 10,000 m2 AGA	0.44	0.44	0.44	0.55	0.34
School <10,000 m2 AGA	0.63	0.63	0.63	0.75	0.44
Roof Assembly					
All Buildings	0.20	0.20	0.20	0.20	0.20

2) Lighting: *(2 points)*

The Lighting Power Density (LPD) in the building interior shall be reduced by atleast 20% from the LPD as outlined in the Building Area Method (under Chapter 7, Table 7.2) or Space by Space Method (under Chapter 7, Table 7.5) and exterior & parking areas (under Chapter 7, Table 7.8) of ECSBC 2024.

Points are awarded as below:

Reduction in Lighting Power Density Points	Points
≥ 20%	1
≥ 30%	2

Notes:

- *Compliance for the lighting power density shall be shown either through Building Area Method or Space Function Method. If Building Area Method is considered, compliance for parking area lighting shall be shown separately.*
- *Exterior areas illuminated by lighting only should be considered for lighting power density calculations.*
- *The LPD should include power consumption of complete fixture, including lamps and ballasts.*

3) Lighting Controls: *(1 point)*

All non-emergency exterior & common area lighting such as façade, pathways, landscaping, surface and covered parking, street lighting, staircases should have at least one of the following:

- Daylight sensor
- Occupancy / Motion sensor
- Timer

4) Space Conditioning Systems: *(4 points)*

a) Chillers (2 points)

Chillers should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.3.2 - Chillers.

HVAC	Requirements
Water/ Air cooled Chiller	BEE 4-Star
Chilled water and condenser water pumps efficiency	75%
Motor Efficiency	IE4

(Or)

b) Unitary, Split, and Packaged Air-Conditioners (2 points)

Unitary, Split, and Packaged Air-Conditioners should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.3.7 - Unitary, Split, and Packaged Air-Conditioners.

Unitary, Split: >10.5 kW (BEE Star) or Packaged Unit		
Cooling Capacity (kWr)	**Water Cooled**	**Air Cooled**
< 10.5	NA	BEE 4 STAR
> 10.5	3.7 EER	3.2 EER

(Or)

c) Variable Refrigerant Flow (VRF) (2 points)

Variable Refrigerant Flow (VRF) should meet or exceed the requirements mentioned in ECSBC 2024, Chapter 6 - Comfort Systems and Controls, Section 6.3.8 - Variable Refrigerant Flow (VRF).

For Heating or Cooling or Both		
Type	**Size Category (kWr)**	**ISEER (W/W)**
VRF Air Conditioners, Air Cooled	<40	6.4
	≥ 40 and < 70	6.5
	≥ 70	6.6

d) Hot water production (for heating/reheating in HVAC Systems) (1 point)

A minimum BEE 3-star rated solar water heating system compliant with IS 12976, heat recovery systems that utilize waste heat from condensers, or air-to-water/water-to-water heat pumps. The use of electricity, gas, or oil-fired boilers is discouraged unless they are essential for a specific process or if by-product steam or hot water is available for this purpose.

5) Low Energy Comfort System: *(1 point)*

Alternative HVAC systems which have low energy use may be installed in place of (or in conjunction with) refrigerant-based cooling systems. Such systems shall be deemed to meet the minimum space conditioning equipment efficiency levels of Section 6.2.2 of ECSBC 2024 but shall comply with all other applicable mandatory provisions of Section 6.2 as applicable. Wherever applicable, requirements of Section 6.3 and 6.3.12 shall be complied with. The approved list of low energy comfort systems is given below:

- Evaporative cooling
- Desiccant cooling system
- Solar air conditioning
- Tri-generation (waste-to-heat)
- Radiant cooling system
- Ground source heat pump
- Adiabatic cooling system

- Under-floor Air distribution (UFAD) system

6) Space Heating Systems: *(1 Point)*

Projects having more than 150 Heating degree days** (HDD18) shall consider heating systems in proposed case to meet a base line COP of 2.5 (EER of 8.53), when heat pumps are installed in the building.

Notes:

- *** Degree day: The difference in temperature between the outdoor mean temperature over 24-hour period and a given base temperature.*
- ***Heating degree day base 18°C, (HDD 18): For any one day, when the mean temperature is less than 18°C, there are as many degree-days as degree centigrade temperature difference between the mean temperature for the day and 18°C.*
- *Annual heating degree-days (HDDs) are the sum of the degree-days over the calendar year.*

7) Fans (Applicable for Non-Air-conditioned Owner-occupied buildings) *(2 points)*

Fans installed in the building shall have an efficiency equivalent to BEE 5-star rating and BLDC motors.

Notes:

- *Non-air-conditioned buildings are those which are not serviced and will not be serviced in the future, either through central air-conditioned systems or unitary air-conditioners.*
- *Air-conditioning may be considered for critical areas, not more than 10% of the total regularly occupied area.*
- *Spaces with unitary air-conditioners shall comply with IEQ Mandatory Requirement 1 - Fresh Air Ventilation, non-air-conditioned buildings criteria.*

Exemplary Performance:

This credit (Case A - Air-conditioned Buildings) is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, if:

- **Owner-occupied buildings:** Energy cost savings are more than 12% in Owner-occupied buildings, when compared to the ASHRAE Standard 90.1-2022 Appendix – G or 24%, when compared to ECSBC-2024, base case.
- **Tenant-occupied buildings:** Energy cost savings are more than 14% in Tenant-occupied buildings, when compared to the ASHRAE Standard 90.1-2022 Appendix – G or 30%, when compared to ECSBC-2024, base case.
- **Major renovation buildings:** Energy cost savings are more than 14% in Tenant-occupied buildings, when compared to the ASHRAE Standard 90.1-2022 Appendix – G or 28%, when compared to ECSBC-2024, base case.

Renewable Energy

EE Credit 3 **Points: 6-10**

Intent:

Encourage the use of renewable technologies, to minimise the environmental impacts associated with the use of fossil fuel energy.

Compliance Options:

Demonstrate percentage savings through on-site (and/or) off-site renewable energy generation to offset total annual energy consumption of the building (interior & exterior areas).

Points are awarded as below:

- **Option 1 - On-site Renewable**

Percentage of On-site Renewable Energy Generated to the Total Annual Energy Consumption		Points
(Owner Occupied)	(Tenant Occupied)	
≥ 2 %	≥ 1 %	1
≥ 4 %	≥ 2 %	2
≥ 6 %	≥ 3 %	3
≥ 8 %	≥ 4 %	4
≥ 10 %	≥ 5 %	5
≥ 12 %	≥ 6 %	6
≥ 14 %	≥ 7 %	7
≥ 16 %	≥ 8 %	8
≥ 18 %	≥ 9 %	9
≥ 20 %	≥ 10 %	10

(Or)

- **Option 2 - Off-site Renewable Energy**

Percentage of Off-site Renewable Energy Generated to the Total Annual Energy Consumption of the Building	Points
≥ 50 %	2
≥ 75 %	4
≥ 95 %	6

(Or)

- **Option 3 - Combination of On-site Renewable & Off-site Renewable Energy**

Percentage of On-site & Off-site Renewable Energy Generated to the total annual energy consumption of the building		Points
(Owner Occupied)	(Tenant Occupied)	
≥ 10 %	≥ 5 %	1
≥ 20 %	≥ 10 %	2
≥ 30 %	≥ 15 %	3
≥ 40 %	≥ 20 %	4
≥ 50 %	≥ 25 %	5
≥ 60 %	≥ 30 %	6
≥ 70 %	≥ 35 %	7
≥ 80 %	≥ 40 %	8
≥ 90 %	≥ 45 %	9
≥ 100 %	≥ 50 %	10

Notes:

- *Renewable energy sources include solar energy, wind power, biomass, etc.*
- *Solar hot water systems cannot be considered as power generation source and cannot be subtracted from the total annual energy consumption of the proposed case.*
- *Type of renewable energy source shall be in compliance with the Ministry of New and Renewable Energy (MNRE), Government of India and respective State Regulatory Commissions.*
- *The total annual energy consumption can be arrived either through Performance based approach or Prescriptive approach.*
  - *Buildings following Prescriptive approach should estimate the total annual energy consumption of the building by calculating the energy consumption of all mechanical and electrical equipment & systems based on the number of hours of operation per day.*
- *Hydro power projects with 25 MW or lesser size shall only be considered under this credit.*
- *The project team shall have an agreement of 1 year at least with the Electricity Board for purchasing Green Power.*
- *Off-site renewable energy so generated shall be counted only once.*
- *Supply of Green Energy to the project under Green Tariff policy of the respective DISCOM is considered as an offsite Renewable Energy Source by IGBC. The calculation of % offset of the total annual energy consumption will be evaluated based on the certificate issued by the DISCOM/authority mentioning quantity of green energy supplied to the project.*
- *Unregulated RECs are not accepted by IGBC.*
- *IGBC would recognise only those Renewable Energy purchased/ RECs which are regulated by CERC, and the quantity of such Renewable Energy purchased must be:*
  - *Equal to or lower than the energy traded through Energy Exchange Platforms (IEX/ other CERC approved), and the same should reflect in the energy bill of the respective months.*

Exemplary Performance:

This credit is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, under Option 1, if on-site renewable energy generation is at least 14% of total annual energy consumption.

Energy Metering and Management

EE Credit 4 **Points: 1-2**

Intent:

Encourage sub-metering and continuous monitoring to identify improvement opportunities in building's energy performance.

Compliance Options:

Case A: Energy Metering: ***(1 point)***

Demonstrate sub-metering for at least five of the following energy use applications, as applicable:

- Interior & Common area lighting
- Exterior area lighting
- Municipal water pumping
- Ground water pumping
- Treated wastewater pumping
- Renewable energy generation
- Power backup systems (Generators sets, Gas turbines, etc.,)
- Elevators, Escalators, Travelators, etc.,
- BTU meter for chilled water consumption (*Applicable for tenant-occupied buildings only)*
- Any other energy consuming equipment and systems

(And / Or)

Case B: Building Management System: ***(1 point)***

Demonstrate that the building management system is in place to monitor and control the following systems, as applicable:

- Air-conditioning management system
- Lighting management system
- Renewable energy management system
- Elevator management system
- Fresh air monitoring system
- CO_2 control and monitoring system

Also, commit to provide the annual total building energy consumption data to IGBC. The energy data shall be provided for all the major energy consuming equipment and systems.

Exemplary Performance:

This credit is not eligible for exemplary performance

Building Material and Resources (Maximum: 13 Credit Points)

Waste Management, Post Occupancy

BMR Mandatory Requirement 1

Intent:

Facilitate segregation of waste post occupancy at source to encourage reuse or recycling of materials, thereby avoiding waste being sent to landfills.

Compliance Options:

Building-level & Centralized Facility

Provide separate bins to collect dry waste (paper, plastic, metals, glass, etc.,) and wet waste (organic), at all the floors and common areas of the building, as applicable. Divert the collected waste to a centralized facility and provide separate bins for safe disposal of hazardous waste.

Color Bin	Name of the Bin	Examples of Waste
	Biodegradable and Organic Waste	Food, fruits & vegetables, coffee/ tea grounds, flowers, etc
	Dry waste and Recyclable Items	Paper, cardboard, metal, disposables, glass
	Sanitary and Medical Waste	Sanitary napkins, diapers, medicine, bandages
	Hazardous waste	Pesticides, batteries
	Non-recyclable waste	Non-recyclable plastics

Table 11 Different types of waste

Notes:

- *The project must follow the Hazardous Waste Management Guidelines as prescribed by the Ministry of Environment & Forest (MoEF), Government of India.*
- *The project team must install permanent signages for bins provided at building and centralized facility.*

Organic Waste Management, Post-occupancy

BMR Mandatory Requirement 2

Intent:

Ensure effective organic waste management to avoid domestic or organic waste being sent to landfills and to improve sanitation and health.

Compliance Option:

Install an on-site waste treatment system for handling at least 50% of the organic (kitchen) waste generated in the building (including tenant-occupied areas). The generated manure or biogas shall be utilised as appropriate.

- Projects having an organic waste convertor in an enclosed room, then design such area with exhaust /mechanical ventilation system, self-closing door, deck-to-deck partition/ hard ceiling.

Notes:

- *For calculation, food waste to be considered as 0.05 kg per person per day for the total occupants & visitors or as prescribed by the local byelaw, whichever is more stringent.*
- *For calculations of food waste in hotels/ fully functional restaurants/food courts with kitchen, consider 0.1 kg per person per day of food waste for occupants catered in such facilities.*
- *Projects having built up area <2000 sq.m, the project authority may hand over the segregated organic waste to the concerned local body if the municipality has a wet waste pick-up mechanism in place.*

Building Reuse and Sustainable Materials

BMR Credit 2 Points: 4

Intent:

Encourage the use of building materials to reduce dependence on materials that have associated negative environmental impacts.

Compliance Options:

Option 1: Building Reuse *(1 Point)*

Ensure at least 50% (by area) of the structural and/or at least 25% (by area) of the non-structural (interiors) elements of the existing building are retained.

Building elements	Threshold	Points
Structural	≥ 50%	1
Non-Structural (Interiors)	≥ 25%	

Notes:

- *Building reuse is applicable only to those projects which extend the life of building by retaining the structural and non-structural (interiors) elements of the existing building after its life span.*
- *Structural elements include, columns, beams, floor slabs, exterior walls, structural glazing, etc.,*
- *Non-structural (interiors) elements include, interior walls, ceiling, flooring materials, doors, windows, etc.,*
- *The credit is applicable for major renovation projects. For other projects, project team can attempt Option 2 to show compliance.*

(And/ Or)

Option 2: Green Procurement in New Buildings:

(3 Points – Major Renovation Building; 4 points – New Buildings)

Ensure that the project uses green building materials, products, and equipment that are certified by CII under Green Product Certification Programme (GreenPro) or any other Ecolabel.

Points are awarded as below:

Category	Number of Certified Green Products used	Points
Civil Materials	2	1
	4	2
Electrical / Mechanical Systems and Equipment	2	1
Other Categories (e.g. Plumbing fixtures, housekeeping chemicals, furniture)	2	1

Notes:

- *Civil Materials include glazing, insulation, paints & coatings, adhesives & sealants, fly ash blocks, cement, concrete, false ceiling materials, wood, flooring materials, gypsum-based products, high reflective materials & coatings, etc.,*
- *Electrical systems include lighting systems & controls, pumps & motors, etc. and mechanical systems chillers, cooling towers, unitary air conditioners, etc.,).*
- *Materials/ Equipment's addressed in other credits cannot be considered to demonstrate compliance as it is already addressed in other credits. Eg – CRI certified carpet*
- *Materials that are not in developer's scope (Example- Housekeeping chemicals etc) cannot be considered to demonstrate compliance in tenant occupied building.*

Exemplary Performance:

This credit is not eligible for exemplary performance.

Embodied Carbon Assessment

BMR Credit 3 Points: 4

Intent:

Use materials with low carbon emissions during design & construction phase of the building, and report the embodied carbon associated with the building's materials & products portfolio.

Compliance Options:

- **Option 1: Embodied Carbon Analysis by High Impact Material *(2 points)***

  Calculate the embodied carbon associated with the project's civil materials (limited to high impact materials – Steel, Concrete, Building blocks, Glass and Aluminium), following LCA boundaries defined under this criterion.

  Material quantities used must be as per the Bill of Quantities (BOQ) and LCA result to be reported in $kgCO_2e$ per square meters of built-up area ($kgCO_2e/m^2$ BUA).

S.No.	Building Element	Indicative Civil Materials
1	**Substructure** • Foundation • Ground Beams & Slab • Basement Walls & Slab	• Concrete • Reinforcement & structural Steel *or any alternative civil material specified to serve an equivalent functional purpose.*
2	**Superstructure** • Frame (incl. columns & beams) • Structural Floors • Core Walls/Shear Walls • Roof Beams & Slab • Staircase	• Concrete • Reinforcement & structural Steel • Structural Timber *or any alternative civil material specified to serve an equivalent functional purpose.*
3	**External Envelope** • External Wall assembly (including insulation & outer-skin finish) • Windows • External Doors • Roof Covering (including insulation & exposed roof finish) • Curtain wall	• Glass • Bricks/Blocks • Aluminium framework *or any alternative civil material specified to serve an equivalent functional purpose*
4	**Internal elements** • Internal walls/partition	• Bricks/Blocks *or any alternative interior material specified to serve an equivalent functional purpose*

Table 12 High Impact Materials and Building element for Embodied carbon Analysis.

(Or)

- **Option 2: Life Cycle Embodied Carbon Analysis by Building Elements *(2 points)***

  Calculate the embodied carbon associated of the project's civil materials (listed in Table 14), following LCA boundaries defined under this criterion.

  Material quantities used must be as per the Bill of Quantities (BOQ) and LCA result to be reported in $kgCO_2e$ per square meters of built-up area ($kgCO_2e/m^2$ BUA).

S.No.	Building Element	Indicative Civil Materials
1	**Substructure** • Foundation • Ground Beams & Slab • Basement Walls & Slab	• Concrete • Reinforcement & structural Steel *or any alternative civil material specified to serve an equivalent functional purpose.*
2	**Superstructure** • Frame (incl. columns & beams) • Structural Floors • Core Walls/Shear Walls • Roof Beams & Slab • Staircase	• Concrete • Reinforcement & structural Steel • Structural Timber *or any alternative civil material specified to serve an equivalent functional purpose.*
3	**External Envelope** • External Wall assembly (including insulation & outer-skin finish) • Windows • External Doors • Roof Covering (including insulation & exposed roof finish) • Curtain wall	• Glass • Bricks/Blocks • Aluminium framework • Insulation • Metal Cladding *or any alternative civil material specified to serve an equivalent functional purpose*
4	**Internal elements (Owner Occupied only)** • Internal wall/ partition system • Internal windows & doors • Staircase finish & balustrades • Wall, floor & ceiling systems	• Bricks/Blocks for partition • Dry wall • Gypsum boards system (incl. stud systems where applicable) • Wooden/ UPVC / Aluminium frames for windows • Wooden/PVC doors, Laminates • Tiles, stones/ marble *or any alternative interior material specified to serve an equivalent functional purpose*

Table 13 Materials and Building element for Embodied carbon Analysis.

Key considerations for performing a Life Cycle Assessment (LCA)

1. **LCA Boundary: Life Cycle Stages/ Modules**

   The LCA should only report the embodied carbon ($kgCO_2e$) associated with the following Life-Cycle Stages:

   - A1–A3: Product stage (raw material supply, transport, manufacturing)
   - A4: Construction process stage (transport to site)

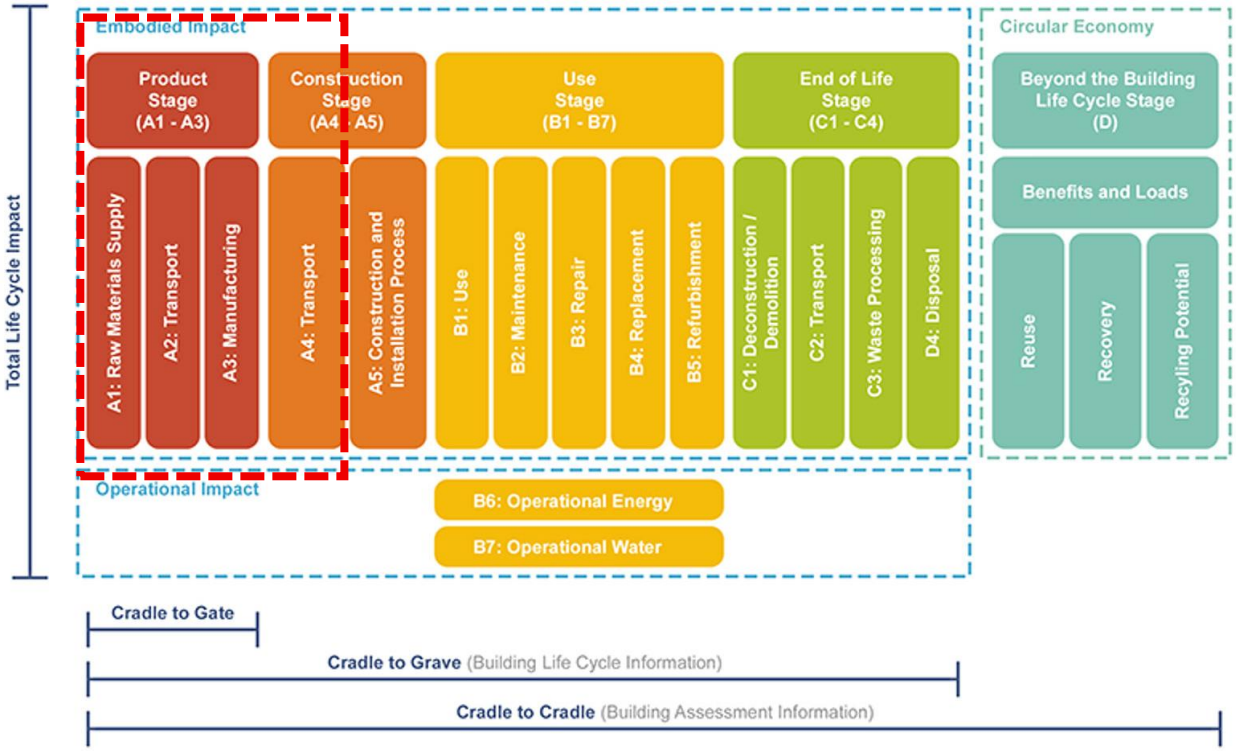

Figure 4 Life Cycle Stages

2. **LCA Boundary: Material and Building element**

   The LCA report should only include the embodied carbon (kgCO2e) associated with materials across the building elements listed in Table 13 for Route Option 1 and/or Table 14 for Route Option 2.

3. **Data Source**

   The embodied carbon factors of materials modelled within the defined scope of the LCA boundaries set under this criterion should be sourced from Environmental Protection Declarations (EPDs) or Eco-labelling programmes such as GreenPro or equivalent, where available. Where this is not available, the LCA should use third-party (independently) verified, or peer-reviewed carbon factors to ISO 14067, integrated into software databases.

Notes:

The embodied carbon impacts not addressed/included in this credit are:

- *Embodied carbon associated with interior and finishing material (as applicable), and equipment and systems, except when it is under developer scope.*
- *Embodied carbon associated with Module A5 which includes:*
  - *Emissions in construction stage from consumption of energy via use of electricity, DG sets, and other means.*

- *Emissions in construction stage from the transportation of any other activities, other than building materials & products, such as sourcing water for construction activities.*
- *Emissions in construction stage from the diversion of construction waste.*
- *Movement of labour and employees within or outside the project site.*

- *Embodied Carbon associated with Module B (Use Stage) and Module C (End-of-Life Stage)*

Exemplary Performance:

The credit is not eligible for exemplary performance.

Organic Waste Management, Post-occupancy

BMR Credit 1 Points: 2

Intent:

Ensure effective organic waste management to avoid domestic or organic waste being sent to landfills and to improve sanitation and health.

Compliance Options:

Option 1: On-site Waste Management Plant

Install an on-site waste treatment system for handling 100% of the organic waste generated in the building (including tenant-occupied areas) and landscape waste generated from the turf/lawn areas in the project. The generated manure or biogas shall be utilised as appropriate.

(Or)

Option 2: Waste to Energy Plant

Install a biogas plant to manage and convert 100% of the organic waste generated in the building (including tenant-occupied areas) and landscape waste generated from the turf/lawn areas in the project into biogas in compliance with solid waste management regulations.

Notes:

- *For calculation, food waste to be considered as 0.05 kg per person per day for the total occupants & visitors or as prescribed by the local byelaw, whichever is more stringent.*
- *For calculations of food waste in hotels/ fully functional restaurants/food courts consider 0.1 kg per person per day of food waste for occupants catered in such facilities.*
- *Projects having built up area <2000 sq.m, the project authority may hand over the segregated organic waste to the concerned local body if the municipality has a wet waste pick-up mechanism in place.*

Towards Zero Waste to Landfill

BMR Credit 5 **Points: 2**

Intent:

Ensure the project implements a comprehensive roadmap for source segregation of construction, demolition, and post-occupancy waste to promote reuse and recycling, minimizing landfill disposal.

Compliance Option:

Option1: Segregation and Management of Construction Waste, During Construction *(1 point)*

Demonstrate that at least 75% of waste generated during construction (as per owner / developer's scope) is diverted from landfills, for reuse or recycling.

- Non-Hazardous waste: Including but not limited to land clearing debris, Metals, Cement and Concrete, Masonry materials, Flooring, Ceiling, Roofing materials, Insulation materials, Cladding materials, Glass, Wood, etc.
- Packaging waste: Including but not limited to cement bags, Wooden crates and pallets, Cardboard boxes, Plastic wrapping and shrink wrap, Foam and bubble wrap, Strapping bands and steel wires, PE film or plastic sheeting, Plastic or metal drums/buckets/containers, Corrugated plastic sheets, specialized packaging etc.
- Construction Hazardous waste: Including but not limited to lead, tars, adhesives, sealants, broken glass.

Allocate a designated waste yard to segregate and store construction and demolition waste.

Notes:

- *Excavated earth & stones should not be considered under this credit, as these are natural resources.*
- *Temporary materials such as materials used for (1mwork, scaffolding etc., shall not be considered for credit calculations.*
- *No construction and demolition waste shall be littered or deposited to prevent obstruction to the traffic or the public or drains. (C&D Waste Management Rules, 2016).*
- *Some types of construction waste can be reused/repurposed on-site as fill material for levelling uneven terrain, filling excavated areas, or creating embankments, as a base or subbase material for road construction, for erosion control measures, constructing retaining walls, as bedding and backfill material for utility pipelines, etc.*
- *Use consistent metrics, either weight or volume, to show compliance.*

(And/ Or)

Option 2: Roadmap towards Zero Waste to Landfill, Post Occupancy *(1 point)*

Develop and implement a comprehensive roadmap outlining steps towards Zero Waste to Landfill.

- Formal contracts with authorized waste management agencies to ensure effective collection, and daily diversion of all recyclable and reusable waste streams.
- Prepare and implement a waste management action plan to address waste generated during renovation, refurbishment, and fit-out activities, ensuring maximum recovery and recycling of materials.
- Monitor and document waste diversion performance periodically to track progress, identify gaps, and continually improve waste reduction strategies.

Exemplary Performance:

Option 1: The project is eligible for exemplary performance under ID Credit 1 - Innovation in Design Process, if at least 95% of waste generated during construction (as per owner / developer's scope) is diverted from landfills, for reuse or recycling.

Indoor Environmental Quality

(Maximum points-14 points)

Minimum Fresh Air Requirements

IEQ Mandatory Requirement 1

Intent

Provide adequate outdoor air ventilation, so as to avoid pollutants affecting indoor air quality.

Compliance Options:

Demonstrate that the project has in place ventilation system for all regularly occupied spaces of the building to meet the criteria below:

Option 1: Mechanically Ventilated Spaces

Demonstrate that fresh air ventilation in all regularly occupied areas (owner-occupied and tenant-occupied) meets the minimum ventilation rates, as prescribed in ASHRAE Standard 62.1, 2022.

Notes:

- *Projects with unitary air conditioning system catering less than 10% of the total regularly occupied area can show compliance for minimum fresh air ventilation through the criteria defined for non-air-conditioned Spaces.*
- *Residential buildings in mixed-use developments (Residential + Commercial) can show compliance for minimum fresh air ventilation through the criteria defined in the respective rating system*
- *Exhaust outlets shall be located at a minimum height of 3 m away from ground level and away from doors, occupied area and operable windows.*
- *Fresh air intake shall be located at least 7.6 m away from exhaust stacks, cooling tower and/or any other polluting sources.*
- *In tenant-occupied buildings, if air-conditioning equipment is in tenant scope, then the developer shall mandate provision of fresh air ventilation for tenant occupied spaces in tenant agreement, specifying minimum fresh air ventilation requirements as per ASHRAE Standard 62.1 – 2022. During certification the fresh air system must be installed and operational in at least 50% of the regularly occupied areas. The fresh air system must be integrated with the HVAC system, based on the fresh air system installed.*
- *The fresh air system must be integrated with all the indoor units in the regularly occupied areas to distribute fresh air as per the fresh air cfm requirement in each space.*
- *Sizing of louvers/ opening provided in AHU room should be based on the face velocity, typically within the range of 2.0 to 2.5 m/s (400–500 FPM), as recommended by design standards such as ASHRAE and AHRI.*

(And / Or)

Option 2: Naturally Ventilated Spaces

Demonstrate that the project has operable windows and /or doors to the exteriors, in all regularly occupied areas, such that the operable area is designed to meet the criteria as outlined in the table below:

Category	Percentage of Openable Area to Total Carpet Area
Regularly Occupied Areas (< 100 sq.m)	8%
Regularly Occupied Areas (> 100 sq.m)	12%

Notes:

- *For sliding windows/ doors, only openable area to the exteriors shall be considered in calculations.*
- *Windows / doors should not have any obstruction within 2 m from the exterior surface. Shading devices can be excluded.*
- *Openings for fresh air intake shall be located at least 7.6 m away from exhaust stacks, parking areas, cooling tower and/or any other polluting sources.*

Tobacco Smoke Control

IEQ Mandatory Requirement 2

Intent

To minimize exposure of non-smokers to the adverse health impacts arising due to passive smoking in the building.

Compliance Options:

Option 1: No Smoking

Demonstrate that smoking is prohibited in the project and is in accordance with the regulations of Ministry of Health & Family Welfare, Government of India.

(And / Or)

Option 2: Outdoor Smoking Areas

In case the project has assigned outdoor smoking areas, demonstrate that such areas are located at a minimum of 7.6 meters from all outdoor air intakes (entrance doors, window openings etc.)

(And / Or)

Option 3: Designated Smoking Rooms

Alternately, compliance can be shown through designated smoking rooms which capture and remove tobacco smoke from the building.

Notes:

- *If smoking is not prohibited, the project shall provide designated space for smoking (space can be utilized for another purpose). Compliance can be shown through designated smoking rooms which capture and remove tobacco smoke from the building. At a minimum, the smoking room must be directly exhausted to the outdoors, away from air intakes and building entry paths, with no recirculation of tobacco smoke containing air to nonsmoking areas and enclosed with impermeable deck-to-deck partitions.*
- *The smoking room shall be completely sealed.*
- *The conditioned air entry into the smoking zone shall not return or be transferred to the air-handling units. This air shall be completely exhausted.*
- *The exhaust air louver / duct should be located at least 7.6 meters away from building entry or fresh air intakes.*
- *The ventilation requirements for smoking room shall be followed as per ASHRAE 62.1 2016.*

Indoor Air Quality Management, during Construction

IEQ Credit 1 Points: 1

Intent

Minimize construction-related air quality issues to protect worker and occupant health, ensuring the building is free of contaminants before occupancy.

Compliance Options:

IAQ Management during construction

Develop and implement an Indoor Air Quality (IAQ) management plan during construction and pre-occupancy phase, addressing the following measures, as applicable:

- **Scheduling**
  - Coordinate construction activities to minimise disruption of occupied spaces.
  - Carefully sequence construction activities to minimise IAQ issues.
  - Protect stored on-site and installed absorptive materials from moisture damage. Do not install moisture-damaged materials unless they have properly dried.

- **Electrical & Mechanical Equipment & Systems Protection**
  - Store equipment & systems in a clean, dry location.
  - Protect ducts and equipment by sealing openings.
  - Clean air plenums before use.

- **Housekeeping**
  - Implement practices to ensure a clean job site to control potential contaminants such as dirt, dust ad debris.
  - Clean up spills and keep work areas dry.

- **Isolate Clean Areas**
  - Isolate areas to prevent contamination of clean or occupied spaces using physical separation.

- **Source Control**
  - Avoid use of finish materials with high VOC and formaldehyde levels.
  - Isolate and ventilate, as appropriate, when using any toxic materials or creating exhaust fumes.
  - Implement measures to avoid the tracking of pollutants into the work area and occupied portions of the building.

Notes:

Consider 'During Construction Indoor Air Quality Management Guidelines' from National Building Code (NBC) of India, Part 7 - Constructional Management, Practices and Safety.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Low-emitting Materials

IEQ Credit 2 Points: 2

Intent

Encourage use of materials and systems with low VOC emissions, to reduce adverse health impacts on building occupants.

Compliance Options:

Demonstrate that the project complies with any two of the following categories:
(1Point for each measure)

Paints & Coatings: *(1 point)*

Use paints and coatings (including primers) with low or no VOC content as specified in Table 13 given below for 95% of interior wall and ceiling surface area.

Type of Paints & Coatings	VOC Limit (g/L less water)
Interior Non-flat (Glossy)	150
Interior Flat (Mat)	50
Exterior Flat (Mat)	200
Exterior Non-Flat (Mat)	100
Metallic/ Anti-corrosive/ Anti-rust	250
Clear Wood Finish: Varnish	350
Clear Wood Finish: Lacquer	550
Floor Coatings	100

Table 14 VOC Limits for Paints & Coatings

Adhesives & Sealants: *(1 point)*

For adhesives used within the interiors, ensure that the VOC content does not exceed the limits as specified in Table 14 given below:

Type of Adhesives	VOC Limit (g/L less water)
Glazing adhesives	100
Ceramic tile adhesives	65
Drywall and panel adhesives	50
Wood substrata adhesives	30
Wood flooring adhesives	100
HVAC duct insulation	350
Indoor Carpet adhesives	50

Multipurpose construction adhesives	70

Table 15 VOC Limits for Adhesives

Notes:

- *The Paints & Coatings and Adhesives certified by CII under Green Product Certification Programme (GreenPro) or by a third-party agency approved by IGBC can be used by the project to show compliance.*
- *Volatile organic compounds (VOCs) are carbon compounds that participate in atmospheric photochemical reactions (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate). The compounds vaporise at normal room temperatures.*
- *If the project has used small quantities of non-complying paints & coatings and / or adhesives, a VOC budget can be calculated to demonstrate that the weighted average VOC of all products (based on litres of each applied) is below the allowed limit, by each type.*

Carpets: *(1 point)*

All carpets installed in the building interior (as per owner / developer's scope) must comply with CRI Green Label Plus Carpet Programme.

Notes:

- *The Project is eligible for this credit point only if the carpet is installed in at least 10% of the project total carpet area.*
- *Carpets certified by CII under Green Product Certification Programme (GreenPro) can be used by the project to show compliance, as and when the certified materials are available.*

Exemplary Performance:

This credit is not eligible for exemplary performance.

Indoor Air Quality Monitoring and Management

IEQ Credit 3 Points: 4

Intent

To ensure a healthy and energy-efficient indoor environment by continuously monitoring air quality parameters and controlling ventilation based on occupancy levels for enhanced occupant comfort and well-being.

Compliance Options:

Option 1: IAQ Monitoring during Occupancy

Lobby and Common areas (1 point): Provide a continuous IAQ monitoring system along in 100% of the regularly occupied common areas and the lobby level to measure and display real-time values for at least three (3) of the following comfort parameters:

- Relative Humidity (RH)
- Temperature
- Particulate Matter ($PM_{2.5}$)
- Particulate Matter (PM_{10})
- Carbon Dioxide (CO_2)
- Total Volatile Organic Compounds (TVOCs)

(And/ Or)

Regularly Occupied Areas (1 point): Provide a continuous IAQ monitoring system in 75% of the regularly occupied areas of the building to measure and display real-time values for at least three (3) of the following comfort parameters:

- Relative Humidity (RH)
- Temperature
- Particulate Matter ($PM_{2.5}$)
- Particulate Matter (PM_{10})
- Carbon Dioxide (CO_2)
- Total Volatile Organic Compounds (TVOCs)

(And/ Or)

Option 2: Demand Control Ventilation: *(2 points)*

Demonstrate that the project has installed CO_2 sensors in the return air ducts to regulate outdoor air supply in regularly occupied areas, maintaining acceptable indoor CO_2 concentrations through automatic modulation of the outdoor air damper actuated by CO_2.

- CO_2 sensors shall be provided for more than 75% of regularly occupied areas.
- The ventilation control system shall maintain a maximum differential CO_2 concentration of 530 ppm above outdoor CO_2 levels.

Notes:

- *In tenant-occupied buildings, if installation of sensors/ system is not in the developer scope, then this credit cannot be attempted.*
- *Regularly occupied areas are those where people sit or stand as they work, irrespective of the number of days occupied in a year. Regularly occupied areas shall include only enclosed spaces.*
- *Regularly occupied areas include workstations, cabins, meeting rooms, conference rooms, waiting areas, cafeteria, etc.,*
- *Non-regularly occupied areas include toilets, storerooms, etc.*

Minimise Indoor and Outdoor Pollutants

IEQ Credit: 4 Points: 1

Intent

Minimise the exposure of building occupants and maintenance team to hazardous indoor and outdoor pollutants, which adversely affect indoor air quality and occupant health.

Compliance Options:

Demonstrate that the project complies with at least two of the following criteria, as applicable:

- **Entryway Systems**

  Install entryway systems of minimum 2 meters (6 feet) in length, at all the building main entrances.

- **Chemical Storage Rooms and Janitor Rooms**

  Isolate areas exposed to hazardous gases or chemicals from regularly occupied areas, as per owner / developer's scope. Also, design such areas with exhaust system*, self-closing door, deck-to-deck partition / hard ceiling. Additionally, use eco-friendly housekeeping chemicals to minimize adverse effects on the respiratory system.

- **Air Filtering Media**

  For mechanically ventilated buildings, install air filtering media after building flush-out, with at least MERV 13 (Minimum Efficiency Reporting Value) or EU 7 or equivalent, to treat fresh air.

- **Germicidal or UV Lamps**

  For mechanically ventilated buildings, install germicidal/ UV lamps in Air-Handling-Unit (AHU) cooling coils.

Notes:

The Chemical storage / Janitor rooms shall be a separate room and maintained at a negative pressure of 5 Pascals (0.00005 bar).

Exemplary Performance:

This credit is not eligible for exemplary performance.

Daylighting and Controls

IEQ Credit 5 **Points: 2- 4**

Intent

To ensure connectivity between the interior and exterior environment by providing adequate daylight and integrating lighting controls for improved comfort and energy efficiency.

Compliance Options:

Option 1: Daylighting: *(2 points)*

Using daylight simulation based on the Useful Daylight Illuminance (UDI) approach, demonstrate that regularly occupied areas maintain illuminance values within the range of 100 lux to 2,000 lux across the minimum required floor area as defined in Table below for at least 90% of the potential daylight hours.

Building Typology	Percentage of Regularly Occupied Areas with Daylighting	Credit Points
Owner Occupied Buildings	≥ 40 %	1
	≥ 50 %	2
Tenant Occupied Buildings	≥ 40 %	1

(And / Or)

Option 2: Daylight Controls: *(2 points)*

(Not Applicable for Tenant Occupied Buildings)

Demonstrate that daylight sensors are provided in 75% of regularly occupied areas to maintain illuminance levels within the range of 100–2000 lux.

Notes:

- *Regularly occupied areas are those where people sit or stand as they work, irrespective of the number of days occupied in a year. Regularly occupied areas shall include only enclosed spaces.*
- *Regularly occupied areas include workstations, cabins, meeting rooms, etc., whereas areas with audio-visual facilities such as auditoriums, conference rooms, etc., can be excluded from this credit calculation, with justification and supporting documents.*
- *Non-regularly occupied areas include toilets, storerooms, etc.,*
- *Regularly occupied areas which are used for multi-purposes, such as cafeteria-cum-meeting room, can be considered as separate spaces based on the function. The room boundary need not be a physical boundary.*
- *Project with multiple buildings (including projects with common basement) must independently meet the Daylighting criteria for each building.*
- *Refer the following notes for modelling:*

- *Measure illuminance at a work plane height of 0.8 m above the finished floor.*
- *Analysis period: minimum of 8 continuous hours/day*
- *Useful Daylight Illuminance (UDI) shall be assessed using a 1 m² grid across the floor area.*
- *Fenestration must be modelled using actual Visible Light Transmittance (VLT) values from material specifications.*
- *Daylight obstructions (natural or man-made) must be modelled if within 2× their height from the building façade. If surface reflectance is unknown: use 30% for man-made and 0% for natural obstructions.*
- *Interior surface reflectance shall follow actual material data, or default values if not available. (Walls - 50%, Floor – 20%, Ceiling – 70%)*

Exemplary Performance:

Option 1: Daylighting: Using daylight simulation based on the Useful Daylight Illuminance (UDI) approach, demonstrate that regularly occupied areas achieve illuminance levels between 100 lux and 2,000 lux over at least 60% of the floor area, for a minimum of 90% of the potential daylight hours.

Note: Exemplary performance is applicable to only owner-occupied buildings.

Occupant Well-being

IEQ Credit 6 Points: 2

Intent

To enhance occupant comfort and well-being by providing visual connection to the outdoors.

Compliance Options:

Option 1: Outdoor Views *(1 point)*

Achieve direct line of sight to vision glazing between 0.9 meters (3 feet) and 2.1 meters (7 feet) above the finished floor level, for building occupants in at least 75% of all regularly occupied spaces.

Also, the project shall comply with the following criteria:

- The building occupants must not have any obstruction of views at least 8 meters (26.2 feet) from the exterior vision glazing.

  (Or)

- The building occupants must have access either to sky or flora & fauna or both.

Notes:

- *Tenant-occupied buildings shall show compliance through feasible typical floor plans & sections.*
- *Regularly occupied areas are those where people sit or stand as they work, irrespective of the number of days occupied in a year. Regularly occupied areas shall include only enclosed spaces.*
- *Regularly occupied areas include workstations, cabins, meeting rooms, etc., whereas areas with audio-visual facilities such as auditoriums, conference rooms, etc., can be excluded from this credit calculation, with justification and supporting documents.*
- *Non-regularly occupied areas include toilets, storerooms, etc.,*
- *Regularly occupied areas which are used for multi-purposes, such as cafeteria-cum-meeting room, can be considered as separate spaces based on the function. The room boundary need not be a physical boundary.*
- *Internal courtyards with vegetation can be considered for this credit calculation.*
- *Project with multiple buildings (including projects with common basement) must independently meet the Outdoor Views criteria for each building.*

(And/ Or)

Option 2: Occupant Well-being Facilities (1 point)

Demonstrate that the project designs at least two of the following occupant well-being facilities to cater to at least 5% of building occupants, at a single point of time during the day.

- Wellness/ Quiet Room
- Yoga/ Meditation Room
- Dedicated Outdoor space for social gathering
- Spiritual space/ zone
- Gymnasium / Fitness Centre

- Rooftop Gardens / Sky Decks (e.g. Pergola, Gazebo etc.)
- Recreation Area - Indoor activities such as chess, carrom, etc.
- Library/ Art Corners

Exemplary Performance:

This credit is not eligible for exemplary performance.

Innovation & Decarbonisation In Buildings (Maximum: 13 Credit Points)

Innovation in Design

ID Credit 1 Points: 4

Intent:

Provide design teams and projects an opportunity to be awarded points for innovative performance in green building categories not specifically addressed by the IGBC Green New Buildings rating system and / or exemplary performance above the requirements set by the IGBC Green New Buildings rating system.

Compliance Options:

- **Case A: Innovation**

Identify the intent of proposed innovation credit, proposed requirement for compliance, and proposed documentation to demonstrate compliance, and the design approach used to meet the required measures.

(And/ Or)

- **Case B: Exemplary Performance**

The project is eligible for exemplary performance, if the design and / or construction measures greatly exceed the credit requirements of the IGBC Green Service Buildings rating system.

Note:

Refer Table – 18 for Illustrative list of credits eligible for innovation and list of base credits eligible for exemplary performance.

Illustrative List of Credits eligible for Innovation	
Innovation Credit	**Requirement**
Parking Optimisation	Minimise car to built-up area ratio by providing stack parking or other smart parking strategies.
Electric Vehicle Charging through solar to promote clean energy	Ensure at least 50% of the EV chargers installed at site is powered through on-site solar energy generation to promote clean and renewable mobility solutions.
Phytoremediation	Treat 100% wastewater generated on-site, through biological treatment, to avoid polluting the receiving streams by safe disposal.
Energy Storage	Store excess solar/wind generation for use when generation dips. Integrate onsite renewable energy sources (solar PV, wind) with energy storage systems (ESS), like batteries.
List of Base Credits eligible for Exemplary Performance	
Credit	**Requirement**
Site Planning and Design	
SSP CR 3: Sustainable Landscape	> 40% of site area is restored and/ or designed with vegetated spaces
SSP Credit 3: Heat Island Reduction, Non-Roof and Roof	95% of exposed non-roof impervious areas with open grid pavers / grass pavers (and / or) hardscape materials with an SRI of at least 29 (and not higher than 64). *Or* 95% of net roof area covered with vegetation
Water Conservation	
WC Credit 1: Rainwater Harvesting, Roof & Non-roof	Rainwater Harvesting, Roof & Non-roof (*as defined in credit*)
WC Credit 2: Water Efficient Plumbing Fixtures	≥ 12% reduction in potable water use
WC Credit 3: Irrigation Water Reduction	≥ 35% water savings through efficient landscape design and irrigation systems
WC Credit 5: Alternate Water Use	Use of alternate water for ≥ 70% of raw water demand
Energy Efficiency	
EE Credit 2: Enhanced Energy Efficiency	Enhanced Energy Performance as per ASHRAE 2022: • Owner-occupied Buildings: ≥ 12% • Tenant-occupied Buildings: ≥ 14% • Major Renovation Buildings: ≥ 14% Enhanced Energy Performance as per ECSBC 2024: • Owner-occupied Buildings: ≥ 24% • Tenant-occupied Buildings: ≥ 30% • Major Renovation Buildings: ≥ 30%
EE Credit 3: Renewable Energy	Option 1: On-site Renewable Energy

	≥ 14% of total annual energy consumption
Building Materials and Resources	

BMR Credit 2: Sustainable Building Materials	• Building Reuse:
	  ○ Structural > 75%
	  ○ Non-structural (Interiors) > 50%
	• Wood based Materials: > 95%

BMR Credit 5: Zero Waste to Landfill	Option1: Segregation and Management, during construction: ≥ 95%
Indoor Environmental Quality	
IEQ Credit 2: Daylighting and Controls	Option 1: Daylighting: > 60% of the floor area, for a minimum of 90% of the potential daylight hours

Table 16 *for Illustrative list of credits eligible for innovation and list of base credits eligible for exemplary performance.*

GHG Inventorisation and Roadmap

ID Credit 2 **Points: 3**

Intent:

To encourage organizations to demonstrate leadership in climate action by systematically measuring, managing, and reducing greenhouse gas (GHG) emissions across operations and the value chain.

Ensure organizations align with global Net Zero goals, establish a science-based decarbonization roadmap, and publicly disclose progress to enhance accountability and transparency.

Compliance Options:

Option 1: Decarbonisation at Building/ Project Level through Whole Building Life Cycle Analysis

Perform Whole Building Life Cycle Analysis (LCA) to estimate greenhouse gas emissions(GHG) as per ISO standard 14040, and report the following for the overall built-up area of the project:

- Embodied carbon in kg CO_2e per square meter of Built up area (kg CO_2e/m^2 BUA)
- Operational carbon in kg CO_2e per year considering a minimum building lifespan 50 years.

Notes:

- *LCA Study Period: 50 years*
- *Life Cycle Stages to be included:*
  - **Module A1–A3:** Product stage (raw material supply, transport, manufacturing),
  - **Module A4:** Construction process stage (transport to site)
  - **Module B4:** Replacement
  - **Module B6:** Operational Energy
- *The proposed case greenhouse gas (GHG) emissions (in kg of CO2e per square meter of built-up area) shall be calculated considering all the proposed civil materials as per the Bill of Quantities (BOQ). Refer to Building Elements listed in Table 14 defined in BMR Credit 3.*
- *Life Cycle Embodied carbon/GHG emissions can be considered from BMR Credit 3. The project team under these criteria needs to further calculate the GHG emissions due to replacement of materials/products within study period of building life (Module B4) and the building's total operational GHG emission from consumption of energy (Module B6) under this credit.*
- *Operational carbon (Module B6) shall include electricity and fuel consumption (such as petrol, diesel, CNG, LPG etc.) in building operations and its associated environment within the project boundary.*
- *The LCA shall be carried out using a standard recognised software tool with 'data-source' defined in BMR Credit 3.*

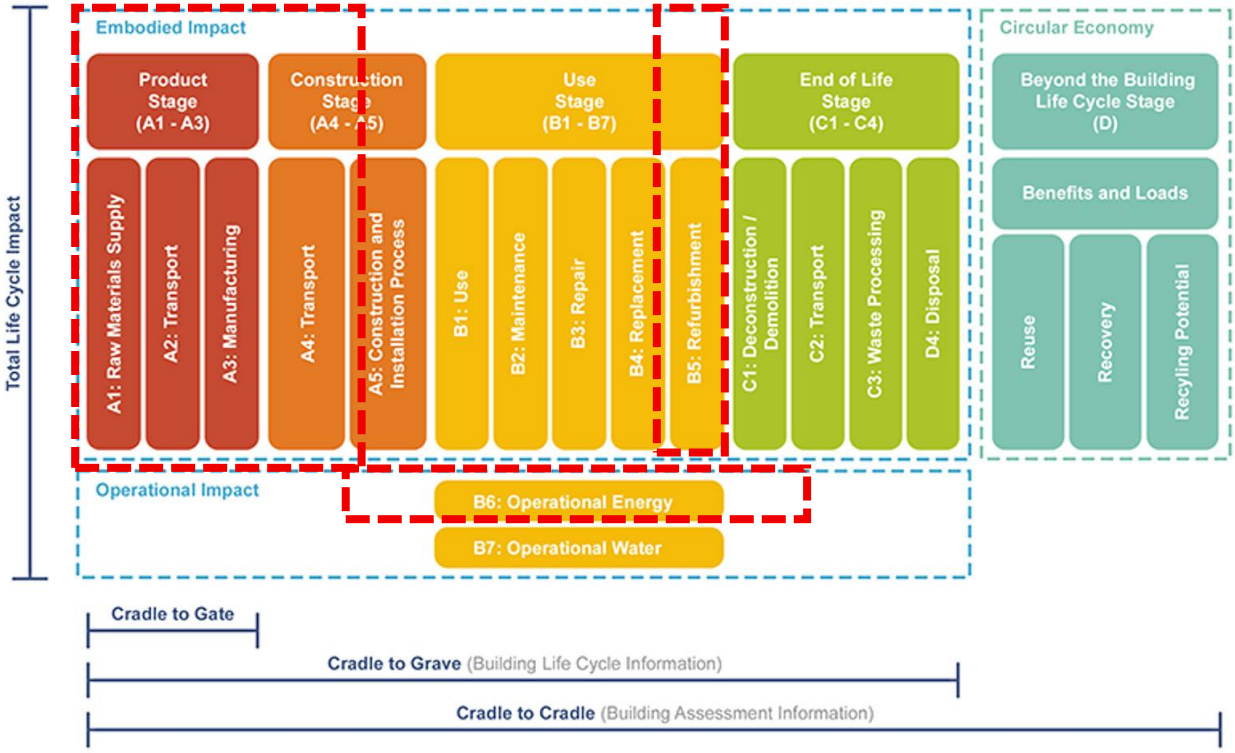

Figure 5 Life Cycle Stages

Methodology for Roadmap:

1. **Goal and Scope**
   - Define what the decarbonisation plan intends to achieve and its boundaries.
   - Set climate goals (e.g., Net Zero by 2040)
2. **Decarbonisation Strategy & Action Plan**

Based on the LCA, develop targeted carbon reduction interventions. The strategies can include:

- Renewable energy integration
- Operational efficiency, green transport, etc.
- Low-carbon materials for renovation/ operation or circular economy approaches

Notes:

Refer the building elements and data source from BMR Credit 3.

(Or)

Option 2: GHG Inventorisation and Decarbonisation at Organisation Level

The organization that owns the registered building shall demonstrate a comprehensive GHG inventory and a decarbonization roadmap that includes quantified targets, defined strategies, and transparent reporting mechanisms.

1. GHG Inventorisation - Quantify tentative Scope 1,2 and 3 emissions

The organization shall establish a detailed GHG inventory in accordance with the GHG Protocol Corporate Standard and other applicable frameworks (e.g., ISO 14064, IPCC Guidelines).

The inventory must include:

- Scope 1 and Scope 2 emissions (direct and indirect energy-related).
- Scope 3 emissions across relevant categories, along with clear explanations for any excluded categories.
- Defined base year and inventory for Scope 1, 2, and 3 for trend tracking.
- Documented methodology and data sources used for emission quantification.
- Annual tracking of both absolute emissions and emission intensity (tCO_2e/unit metric).
- Public disclosure of GHG data (e.g., in ESG, sustainability, or CDP reports).

2. Decarbonization Strategy and Targets

Establish measurable and time-bound emission reduction targets through the following:

- Define a Net Zero target year.
- Establish short-term (by 2030) and long-term (by 2050) emission reduction goals.
- Ensure targets are aligned with the requirements and validated (or in progress) by third party.
- Demonstrate organizational commitment in alignment with recognized third-party initiatives.
- Ensure public disclosure of GHG targets and progress (through annual reports, ESG disclosures, or corporate websites).

Environmental and Social Impact Drivers

ID Credit 3 Points: 4

Intent:

Promote long-term environmental resilience and social value, aligning the business growth with sustainable development goals (SDGs).

Compliance Options:

Demonstrate that the project/ organisation has implemented at least five of the following measures. *(1 point for each measure)*.

ID Credit 3.1 : Sustainable Supply Chain Framework

Intent

To promote responsible sourcing, ethical practices, and environmental stewardship across the supply chain by integrating sustainability principles into procurement, production, distribution, and end-of-life processes to minimize negative social and environmental impacts, enhance transparency, and support long-term economic resilience.

Compliance Option:

The organization shall design, adopt, and implement a Sustainable Supply Chain Framework (SSCF) that embeds environmental, social, and governance (ESG) considerations across its sourcing and procurement activities. The framework must demonstrate that the organization:

- Evaluate environmental, social, and governance practices of its suppliers.
- Integrate sustainability criteria and KPIs into procurement decisions.
- Monitor, audit, and disclose ESG performance across the supply chain.
- Aligns approach with global ESG standards and investor expectations.

Steps to Build a Sustainable Supply Chain ESG Framework

1. Map the Supply Chain
    - Identify Tier 1 suppliers, key vendors, and critical supply chain dependencies.
    - Map material and product flows to identify potential ESG risk points (environmental impacts, labor conditions, ethical concerns, etc.).
    - Conduct risk assessment by geography, category, or material type.

2. Develop ESG Criteria
    - Establish ESG policies and codes of conduct for suppliers covering:
    - Environmental management (energy, emissions, waste, and water)
    - Labor rights, diversity, and occupational safety
    - Anti-corruption and business ethics
    - Define minimum performance requirements and preferred certifications (e.g., ISO 14001, SA8000, FSC, Fair Trade).

3. Integrate ESG into Procurement
    - Embed sustainability clauses and scoring criteria in procurement policies and RFPs.
    - Apply ESG ratings, prequalification scores, or certification-based screening during supplier selection.
    - Define Key Performance Indicators (KPIs) for supplier ESG performance tracking.

4. Monitor and Audit
    - Implement regular supplier self-assessments, third-party audits, or site visits to verify compliance.
    - Establish a grievance redressal and corrective action mechanism for non-compliance.
    - Encourage supplier capacity-building through training and improvement programs.

5. Disclose Transparently
    - Report supply chain ESG performance metrics in sustainability or ESG disclosures.
    - Highlight key risks, mitigation strategies, and improvement progress.
    - Align reporting with frameworks such as GRI 308 (Supplier Environmental Assessment) and GRI 414 (Supplier Social Assessment).

6. Engage and Improve
    - Develop long-term supplier engagement programs to enhance sustainability performance.
    - Promote local sourcing, circular material flows, and shared value partnerships.
    - Recognize and incentivize high-performing suppliers on ESG metrics.

The framework should align with one or more global standards or principles such as:

- UN Global Compact (Principles 1–10)
- OECD Guidelines for Multinational Enterprises
- ISO 20400: Sustainable Procurement
- GRI 308 / 414 (Supplier Environmental & Social Assessment)
- CDP Supply Chain Program

ID Credit 3.2 : Climate Resilience

Intent

Ensure that buildings are designed, constructed, and operated to withstand, adapt to, and recover from the impacts of climate change and extreme weather events — while continuing to provide safety, functionality, and comfort for occupants over building's entire life cycle.

Compliance Option:

The project shall demonstrate the integration of climate resilience strategies addressing both physical and transition risks of climate change. Demonstrate compliance for any 3 features of the following:

Aspect	Description/ Example
Structural Resilience	**Design buildings to withstand physical climate hazards, including** • High wind loads, intense rainfall, flooding, and seismic activity • Implementation of resilient foundations, flood barriers, and structural anchoring systems as per local hazard maps and building codes
Thermal Resilience	**Maintain comfortable indoor environments during heatwaves and cold spells by:** Incorporating passive design strategies such as enhanced insulation, shading, reflective roofs, and natural ventilation.
Water Resilience	**Implement effective water management strategies to reduce vulnerability to droughts and flooding, such as:** • Rainwater harvesting, permeable paving, greywater recycling, and effective site/ flood drainage systems. • On-site storage or reuse capacity for critical operations.
Energy Resilience	**Reduce reliance on vulnerable energy grids by** • Integrating renewable energy (e.g., solar PV), energy storage systems, and demand-response mechanisms. • Ensuring redundancy and backup systems for critical energy loads.
Material Resilience	**Select durable and low-maintenance materials that resist climate-induced stresses:** Use corrosion-resistant steel, treated timber, moisture-resistant composites, and locally appropriate materials that endure high humidity, salinity, or temperature variation

Operational Resilience	**Ensure continuity of operations during adverse events by:** • Establishing emergency preparedness measures and response plans • Incorporating redundant systems for water, power, and communication. • Training facility teams for resilience and crisis management.
Social & Functional	**Design to maintain safety, accessibility, and functionality during and after extreme climate events:** • Ensure universal access routes, safe refuge areas, and clear evacuation strategies. • Prioritize occupant well-being and community integration during recovery phases.
Climate Risk and Opportunity Assessment	**To demonstrate comprehensive climate resilience, the organization or project proponent shall also ensure the following** Conduct a climate risk assessment identifying both physical (acute and chronic) and transition risks. Outline corresponding adaptation and mitigation opportunities to address identified vulnerabilities.

Table 17 Compliance paths for climate resilience

ID Credit 3.3 : Green Finance Framework

Intent

Integrate sustainability into financial and investment decision-making by establishing a structured Green / Sustainable Finance Framework.

Compliance Option:

Develop a framework should facilitate channelling of capital towards projects that contribute to environmental, social, and governance (ESG) goals, including climate action, resource efficiency, social well-being, and green building performance, while enhancing access to sustainable financial instruments such as green bonds, green loans, or sustainability-linked loans

To achieve this credit, the organization shall develop and implement a Sustainable Finance Framework that aligns with any globally recognized principles or standards, such as:

- ICMA Green Bond Principles (GBP)
- ICMA Sustainability-Linked Bond Principles (SLBP)
- LMA Green Loan Principles (GLP) or Sustainability-Linked Loan Principles (SLLP)
- UNEP FI Principles for Responsible Banking (PRB) or Principles for Responsible Investment (PRI)

The framework shall clearly outline the following components:

1. Use of Proceeds
    - Define eligible green project categories, including but not limited to energy-efficient buildings, renewable energy, water conservation, waste reduction, sustainable mobility, biodiversity enhancement, and climate resilience measures.
2. Process for Project Evaluation and Selection
    - Establish criteria and governance structure for identifying, selecting, and approving projects financed through green or sustainability-linked instruments.
    - Ensure alignment with the organization's ESG or sustainability strategy.
3. Management of Proceeds
    - Define transparent procedures to track, allocate, and manage proceeds from green financing instruments to eligible projects or assets.
4. Reporting and Transparency
    - Commit to annual reporting on the allocation of proceeds, environmental and social impact metrics, and key performance indicators (KPIs).
    - Disclose performance through sustainability or ESG reports accessible to stakeholders.
5. External Review and Verification (Optional)
    - Obtain an independent Second Party Opinion (SPO) or external verification to ensure alignment of the framework with global standards and to enhance credibility.

ID Credit 3.4 : Assurance

Intent

Implement 3rd party assurance to enhance the credibility, transparency, and reliability of environmental, social, and governance (ESG) data and sustainability disclosures of a company to further enhance credibility with stakeholders, reduce reputational risk, and help companies improve their internal data governance.

Compliance Option:

Implement an independent third-party assurance process for verifying ESG or sustainability-related disclosures associated with the project, portfolio, or organization. The assurance shall:

- Cover relevant ESG metrics, including but not limited to energy, water, waste, GHG emissions, health & safety, and social performance.
- Evaluate the accuracy, completeness, and consistency of reported data against established standards or frameworks.
- Be conducted by a qualified, independent assurance provider (e.g., accredited auditing or sustainability assurance firm).
- Result in a formal assurance statement or report published alongside the ESG or sustainability report.

The project or organization shall demonstrate any one of the following approach:

1. Option 1 – Limited Assurance
    - Engage an independent third party to perform limited assurance on ESG data and reporting processes.
    - The assurance statement must specify:
        - Scope of data verified
        - Methodology or assurance standard used (e.g., ISAE 3000, AA1000AS v3, GRI 13:2022)
        - Level of assurance and key findings

2. Option 2 – Reasonable Assurance
    - Obtain reasonable assurance, indicating a higher level of scrutiny and confidence in data accuracy.
    - The assurance should include on-site or system-based verification of data collection and management systems.

3. Option 3 – Comprehensive ESG Assurance
    - Secure assurance covering environmental, social, and governance domains comprehensively, along with assurance on taxonomy alignment (e.g., EU Taxonomy, SEBI BRSR Core, or other national frameworks).
    - Demonstrate that the assurance process has led to improved internal controls and data governance enhancements.

ID Credit 3.5 : Green Lease

Intent

Promote collaboration between building owners and tenants in achieving energy efficiency, water conservation, and improved indoor environmental quality through lease agreements that align with the building's sustainability goals.

Compliance Option:

Incorporate at least 4 measures from the list given below under the Green Lease Agreement:

1. Utility Accountability
    - Tenants shall be responsible for paying their electric, non-electric energy and water consumption to encourage efficient resource use.
    - . The lease shall include a cost-recovery clause that allows the Owner to recover verified costs of energy-efficiency upgrades that directly benefit tenants.

2. Energy and Water Submetering
    - Energy & Water: Submeter or metring all tenant spaces for electricity & water use

3. Disclosure and Transparency

- The Owner shall disclose to tenants' common area energy use, peak energy demand and common area water use.
- Tenants shall annually disclose their energy and water consumption data to the Owner to support whole-building performance monitoring.

4. Energy Efficiency and Cost Recovery
   - Tenants' fit-out design and equipment shall exceed or meet the EEMR2: Minimum Energy Efficiency requirement.

5. Water Efficiency
   - Tenant fit-outs shall demonstrate improvement beyond WC MR2: Water Efficient Plumbing Fixtures through installation of low-flow fixtures and efficient appliances.

ID Credit 3.6 : Basic Facilities for Service Staff

Intent

Promote welfare of the staff by providing safe and healthy work conditions.

Compliance Option:

Provide basic facilities for service staff to ensure dignity, well-being, and functionality for service personnel.

- Dedicated Rest Area – A clean, ventilated space where staff can rest during breaks.
- Toilet Facilities – Separate, hygienic restrooms for service staff, accessible during working hours.
- Changing Room/Locker Area – Secure area for changing clothes and storing personal belongings.
- Drinking Water Facility – Access to clean and safe drinking water.
- Dining Space or Pantry Access – A designated area where staff can eat meals comfortably

ID Credit 3.7 : Green Measures Beyond the Fence

Intent

Encourage green measures beyond the fence for social and well-being of occupants in nearby communities and villages, thereby improving the standard of living and reducing the associated negative environmental impacts.

Compliance Option:

Demonstrate that the project/ organisation has implemented at least one of the following green measures beyond the fence within 250 km radial distance from the project site.

Rainwater Harvesting

Install rainwater harvesting system in any public building such as government school / college, community centre, etc. to capture 100% of the runoff from roof areas of respective building.

Note: The approach and methodology to demonstrate compliance shall be as defined in WC MR1: Rainwater harvesting, Roof.

Sewage Treatment Plant

Install sewage treatment plant and maintain for a period of at least one year in any public building such as government school/ college, community centre, etc. to treat 100% of the waste water generated in the respective building.

Renewable Energy

Install renewable energy systems such as solar PVs, wind turbines, biogas plant, etc. in any public building such as government school/ college, community centre, etc., equivalent to or more than the total annual energy consumption of the respective building.

Notes:

- To demonstrate compliance for this credit, the green measures considered for one project cannot be shown for another project, unless the measures/ impacts are significantly higher than the credit requirement.
- In case the project/ organisation has already implemented green measures, document only those measures which have been implemented in the last 3 years from the date of project registration with IGBC.

ID Credit 3.8 : In-house canteen with nutrition-based diet

Intent

Encourage increased consumption of healthy nutritional options for improved health and well-being of the occupants.

Compliance Option:

The project team can provide the following:

- Provide healthy nutritional options as part of the menu, if the facility has a canteen.
- Eliminate food items having Trans fats
- Display nutritional facts of the food items provided/ sold

ID Credit 3.9 : Creche Facility

Intent

Provide safe, accessible, and inclusive childcare facilities within the building premises to support the working parents within the building, thereby promoting well-being, better work-life balance, and foster a more inclusive and family-friendly environment, particularly benefiting women in the workforce.

Compliance Option:

Establish a crèche (daycare) facility within the same campus/ building to accommodate employees' children. This facility should comply with all relevant statutory and welfare regulations, such as those outlined under the Maternity Benefit (Amendment) Act, 2017 in India, or any applicable local labour laws.

Key Requirements are outlined below:

- Location & Accessibility:

The crèche should be located within the office premises or building for easy access by employees. It should be safe, secure, and easily reachable for parents during working hours.

- Capacity & Age Group:
  The crèche must have sufficient capacity to accommodate the children of eligible employees. Typically, it should cater to children aged 6 months to 6 years.

- Infrastructure & Safety:
  The facility should include well-ventilated rooms, child-safe furniture, adequate lighting, sanitation, and play areas. All safety measures such as childproof locks, first-aid kits, fire safety equipment, and CCTV surveillance should be in place.

- Staffing:
  The crèche must be managed by qualified caregivers and trained attendants. Adequate staff-to-child ratios must be maintained (for example, one attendant per 10 children).

- Hygiene & Health:
  Maintain high standards of cleanliness, hygiene, and sanitation.
  Provide healthy meals or snacks as per the organization's policy

- Operational Guidelines:
  The facility should operate during office working hours and parents should be allowed periodic visits to check on their children.
  Records of attendance, health, and incidents should be properly maintained.
- Alternate Arrangement (if on-site is not feasible):
  If physical space constraints exist, the organization may tie up with an accredited external crèche located near the office premises, ensuring that the facility meets prescribed standards.

IGBC Accredited Professional

ID Credit 4 **Point: 1**

Intent:
Support and encourage involvement of IGBC Accredited Professional in the project, to integrate appropriate design, construction & operational measures and streamline the certification process.

Compliance Options:

At least three participants involved in the project from different teams (listed below) shall be IGBC Accredited Professional.

- Developer Team
- Green Building Consultant
- MEP Team