IGBC

Confederation of Indian Industry

IGBC Green Interiors Rating System

DETAILED REFERENCE GUIDE

VERSION 2.0

(For New and Existing Interiors Fit-outs)

November 2024

Copyright

Copyright© 2008 by the Indian Green Building Council. All rights reserved.

The Indian Green Building Council (IGBC) authorises you to view the IGBC® Rating system for Green Interiors Standard for your individual use. You agree not to sell or modify the IGBC Green Interiors Reference Standard or to reproduce, display or distribute IGBC® Rating system for Green Interiors standard in any way for any public or commercial purpose, including display on a website or in a networked environment. Unauthorized use of the IGBC® Rating system for Green Interiors Standard violates copyright, trademark and other laws and is prohibited.

Note that the National and local codes, norms, etc., used in the IGBC® Rating system for Green Interiors Version 2 are in the public domain. All other content in the IGBC® Rating system for Green Interiors Version 2 is owned by the Indian Green Building Council and are protected by copyright.

Disclaimer

None of the parties involved in developing the IGBC® Rating system for Green Interiors Standard, 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

Acknowledgements

The IGBC® Rating system for Green Interiors has been made possible through the efforts of many dedicated volunteers, staff members and others in the IGBC community. The Detailed Reference standard was developed by the IGBC® Rating system for Green Interiors Technical Committee and many other members. Indian Green Building Council places on record its sincere thanks to the participating companies and individuals who enthusiastically volunteered during the committee meetings

Ar. B R Ajit has led this initiative from the front. He has shown tremendous involvement, commitment and leadership in developing this standard. His uncanny ability to consult members of the committee and create a consensus was critical in closure of many of the key aspects.

Special thanks to Ar. Nitin Saolapurkar who supported the initiative during his tenure as National President, IIID. He has offered deep insights in shaping of this standard. We would like to place on record our appreciation and thanks for his contribution.

Ar. Leena Kumar, Chairperson, IIA, Karnataka chapter has richly contributed in developing this rating standard. Her help in mock-testing the standard in few of her projects has added strength to the rating.

Special thanks to, Ar. Anup Naik, Ar. Ankoor Sanghvi, Ar. Bhumika Chainani, Ar. Lohith, Ar. Snehal Shah and Ar. Vinay Babar for their rich and valuable inputs.

IGBC would like to thank the following Technical Core 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.

- Ar. B R Ajit, Chair, IGBC Rating system for Green Interiors, Chair-IGBC Kochi Chapter, Chair & CEO-Ajit Associates Architectural consultants Pvt. Ltd, Chair & Director-Asian School of Architecture & Design Innovations.
- Ar. Nitin Saolapurkar, Co-Chair, IGBC Rating system for Green Interiors, CEO – Saolapurkar & Associates, Bangalore
- Mr. V Suresh, Chairman, IGBC Policy and Advocacy Committee & Government Relations
- Ar. Leena Kumar, Chairperson, IIA Karnataka Chapter & Principal Architect – Kumar Consultants, Bangalore
- Ar. Anup Naik, Director, Co-Founder & Director Urban Frame Pvt. Ltd., Bangalore
- Ar. Ankoor Sanghvi, Principal Architect, Ankoor Sanghvi Architects, Rajkot
- Ar. Bhumika Chainani, Founder and Principal Designer, Eleganteriors, Indore
- Ar. Snehal Shah, MD & Design Director, ESSTeam Design Services LLP, Surat

- Ar. Ankur Kulkarni, Principal – Sustainable Consultant, KDS, Mumbai
- Dr. Anshul Gujarathi, Director, Eco Solutions, Pune
- Mr. Anuj Agarwal, Key Relationship Head-Government Schemes, ICICI bank, Mumbai
- Mr. Anurag Bajpai, Director, GreenTree Global, Noida
- Ar. Arpan Johari, Principal Architect, A W Design, Ahmedabad
- Ar. Ashish K Jain, Partner, AEON Integrated Building Design Consultants LLP, Noida
- Mr. Bhupendra, Director, Aeiforia Architects, New Delhi
- Ms Deepa Kumari, Manager – Energy Analyst, GreenTree Global, Noida
- Ar. Dhruv Futnani, Managing Director, Green by Dhruv Futnani, Bangalore
- Ar Gaurav Jain, Founder, Raivat, Surat
- Mr. Girish R Visvanathan, Sustainability Advisor, Earthonomic Engineers, Chennai
- Ms. Harsharan Kaur Gugnani, Surmount Energy Solutions Pvt. Ltd., Mumbai
- Ar. Jaideep Vivekanand, Co-Founder & Head, Green Evolution, Chennai
- Mrs. K. P. Shah, Mr. Purvesh Shah, Chief Executive Officer, Siddhi Green Excellence Pvt. Ltd., Ankleshwar
- Ar. Kamala Joshi Kulkarni, Green Building Consultant, Pune
- Mr. Kumar Ramaiah, Head of Sustainability Consulting West Asia, Jones Lang Lasalle (JLL), Bangalore
- Mr. Loveleen Garg, Chief Planner, GIFT City
- Mr. M. Selvarasu, Managing Director, LEAD Consultancy & Engineering Services, Bangalore
- Ms. Madhulika Pise, Principal – Founder Director, Freespanz Design Build Pvt Ltd., Mumabi
- Ms. Mounika Devaki, Founder – Principal Designer, Environ Design Studio, Hyderabad
- Mr Nitin Naik, Founder & Managing Partner, Dew Point, Goa
- Dr. Poorva Keskar, Director, VKe environmental, Pune
- Mr. Rakesh Bhatia, Senior Vice President, Ecofirst Services Limited- A TATA Enterprise, Mumbai
- Ar. Rajani Mall, Principal Architect, EcoStudio, Hyderabad
- Mr. Rishabh Kasliwal, Managing Director, Kamal Cogent Energy Pvt. Ltd., Jaipur

- Mr. Sudipta Ghosh, Senior Sustainability Manager, LEAD Consultancy & Engineering Services, Kolkata
- Ar. Udit Gaurav, Tecton Project Services, Ghaziabad

Indian Green Building Council Technical Team Members

- Mr. S Karthikeyan, Deputy Executive Director
- Ar. Naveen Akkina, Senior Counsellor
- Ms. Ayesha Syeda, Associate Counsellor
- Ar. Bhagya Sri Chimakurthy, Architect
- Ar. E. Sai Charan, Architect
- Ar. Prajakta Ghodchore, Architect
- Ar. Purvi Punamchande, Architect
- Ar. Shrinithy Ganesh, Architect
- Ar. Sivapriyaa Kumar, Architect

Contents

Foreword from the Indian Green Building Council (IGBC)

India is witnessing tremendous growth in infrastructure and construction development. The construction industry in India is one of the largest economic activities and is growing at a rapid rate. As the sector is growing rapidly, preserving the environment poses a host of challenges. To enable the construction industry to become environmentally sensitive, CII has established the Indian Green Building Council (IGBC) in 2001. IGBC is a consensus driven not-for-profit Council represents the building industry, consisting of more than 2,616 committed member organizations.

The Council encourages builders, developers, owners, architects and consultants to design & construct green buildings, thereby enhancing the economic and environmental performance of buildings. Thus far, the Council has been instrumental in enabling 15 billion sq. ft of green building projects in the country. The Council's activities have enabled market transformation regarding green building materials and technologies. IGBC continuously works to provide tools that facilitate the adoption of green building practices in India. The development of IGBC® Rating system for Green Interiors is another important step in this direction.

IGBC Membership

IGBC draws its strength from its members who have been partners in facilitating the Green Building Movement in India. The local chapters led by individual champions and committed members have been instrumental in reaching out the vision of the IGBC at the regional levels. IGBC is today seen as a leader in spearheading the Indian Green Building Movement. The Council is member-driven and consensus- based.

Contact:

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
Email: igbc@cii.in
Web: www.igbc.in

Introduction:

The building sector in India is growing at a rapid pace and contributing immensely to the growth of the National economy. The sector has embraced sustainable design & construction practices in the past decade and enabled India to be in the international map of green buildings and built environment. While the concept of green was initially adopted in commercial buildings, it is now extending to varied types of buildings and communities.

This augurs well for a country where the sector is expected to grow four-fold in the next two decades.

The green concepts and techniques in the building sector can help address National concerns like water efficiency, energy efficiency, reduction in fossil fuel use, handling of consumer waste and conserving natural resources. Most importantly, these concepts can enhance occupant health and well-being, which is assuming greater importance.

90% of the time people stay indoors. Therefore, indoor aesthetics, air quality and comfortable of paramount importance to occupants. World over, designers are exploring opportunities to construct interiors considering these key elements.

Against this background, the Indian Green Building Council (IGBC) has formed a technical committee to establish green interior standards for buildings. The committee, through various deliberations, has come up with a version 2 rating to establish standards in designing sustainable interiors. This has been developed considering the Indian context and the National priorities. Based on the learning from this version, the rating system will be updated with addendums.

Benefits of Green Interiors

Sustainable Interior design can result in multifold benefits:

- 30-40% Reduction in Energy Costs
- 20-30% Reduction in Water Requirements
- Enhanced Indoor Air Quality
- Use of Materials that are Non-Toxic
- Better Acoustics & Ergonomics
- Improved Health & Wellbeing of Occupants

National Benefits:

Green Interiors can also result in substantial National benefits:

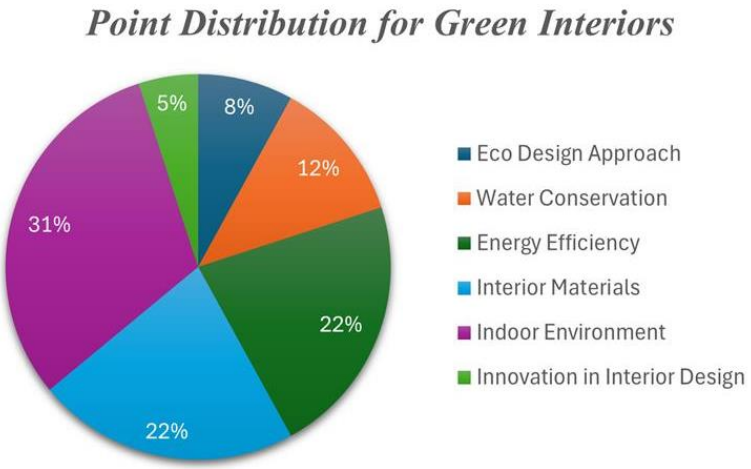
- Reduction in investment in Power & Water Infrastructure
- Conservation of Natural Capital Resources
- Extend the life of virgin materials

- Encourage locally manufactured materials
- Reduction in GHG emissions
- Better health & improved quality of life for citizens

IGBC Green Interiors

The sustainable aspects of green interior design are addressed in the IGBC Green Interiors rating system under the following modules:

- ❖ Eco Design Approach
- ❖ Water Conservation
- ❖ Energy Efficiency
- ❖ Interior Materials
- ❖ Indoor Environment
- ❖ Innovation in Interior Design



The guidelines detailed under each mandatory requirement & credit enable the design and construction of green interiors of all sizes and types. Different levels of green building certification are awarded based on the total credits earned. However, every Green Interiors project should meet certain mandatory requirements, which are non-negotiable.

The various levels of rating awarded are:

Certification Level	Recognition
Certified	Best Practices
Silver	Outstanding Performance
Gold	National Excellence
Platinum	Global Leadership

Scope of IGBC Green Interiors

The IGBC Green Interior Rating System is designed to address the requirements of tenant and owner-occupied interior spaces. The rating is ideally suited but not limited to office interior fit outs, malls, retail spaces, hotels, quick service restaurants, IT spaces, co working spaces, banks, healthcare (outpatient clinics) and other buildings. The rating is applicable for both new and existing interior fit outs.

Note:

- *In case the project is operational* for **less than a year,** the project shall be considered under IGBC Green **New** Interiors category.*
- *In case the project is operational for **more than a year**, then the project shall be considered under IGBC Green **Existing** Interiors category.*
- **One year can be calculated from the start of lease agreement date*

IGBC® Rating system for Green Interiors – Registration

Project teams interested in IGBC Green Interiors Certification for their project must first register with IGBC. Projects can be registered on IGBC website (www.igbc.in) under 'IGBC® Rating system for Green Interiors. Registration is the initial step which helps establish contact with IGBC and provides access to documents, templates, important communications and other necessary information.

IGBC® Rating system for Green Interiors – Certification

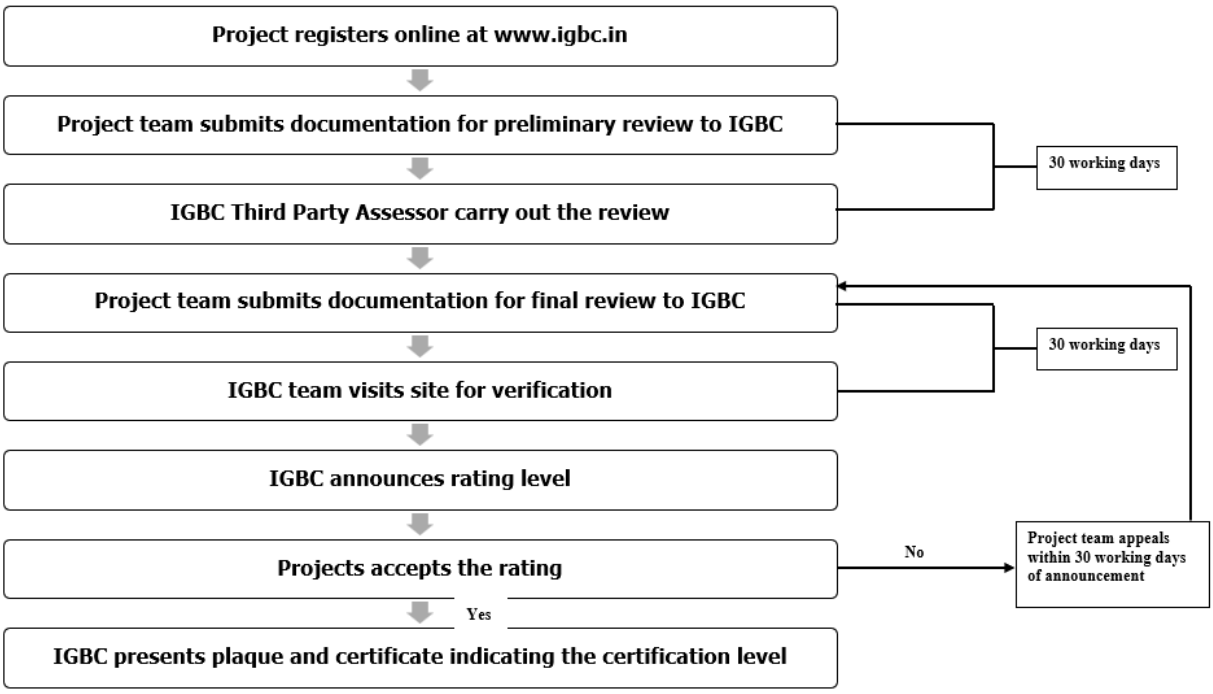
The certification of project will be carried out by a third-party assessor, trained by IGBC. The certification will comprise of two stages – assessment (preliminary and final review) followed by IGBC team site visit.

- ❖ The assessment will comprehensively evaluate both design & construction aspects when the project is nearer to completion.
- ❖ The assessment also will involve a site visit to verify that all green features have been implemented.

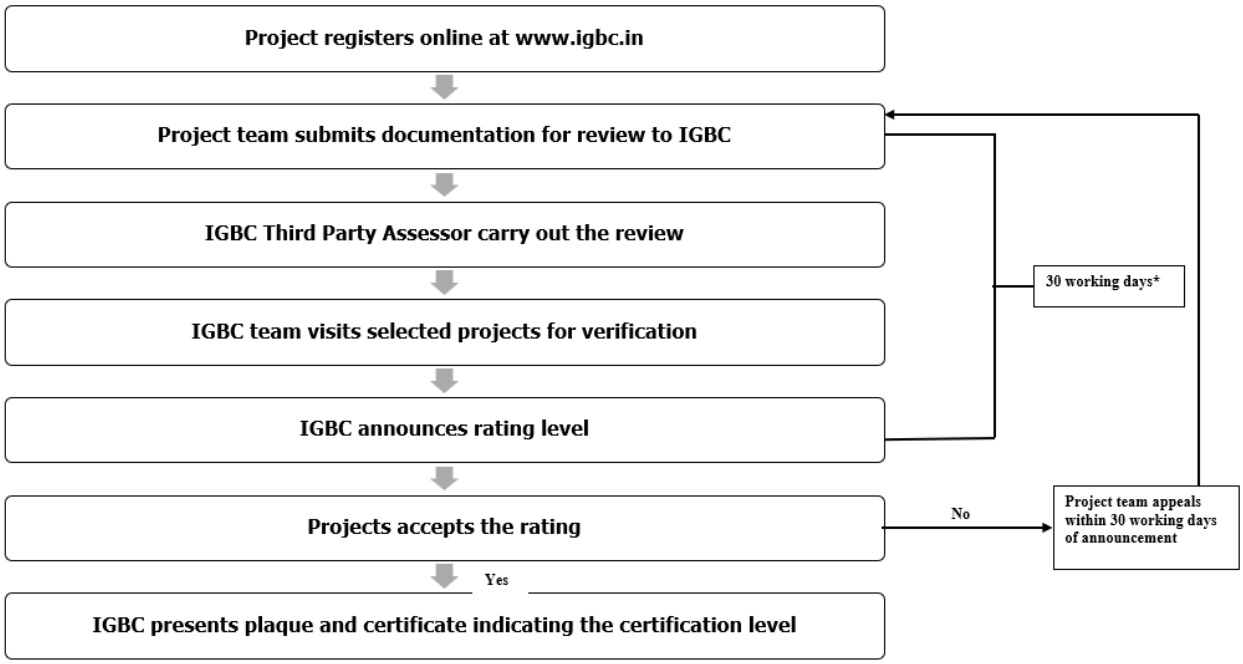
It is important to note that the mandatory requirements/ credits earned at the preliminary assessment are only considered as anticipated. These mandatory requirements/ credits are not awarded until the final documents are submitted, along with additional documents showing implementation. If there are changes after the preliminary assessment, such changes need to be submitted during the IGBC site visit.

IGBC will recognize Interior projects that achieve one of the rating levels with a certificate and a mountable plaque.

IGBC Green Interiors - Certification Flow Chart



Volume proposal financial institution's retail branches less than 500 sq.m.



For Volume proposal (for project size less than 500 sq.m.), the project team shall

- register at least 100 projects at a time
- submit the documentation for at least 15 projects at a time through a single point of contact (email id) from the project team. If projects are submitted individually, they would not be considered for the certification under volume proposal.

For Volume proposal (for project size greater than 500 sq.m.), the project team shall

- register at least 5 projects at a time
- submit the documentation through a single point of contact (email id) from the project team.

The 30-calendar-day timeline outlined in the IGBC process flow chart for Volume projects applies only when the project team submits complete and accurate documentation as per the IGBC Green Interior requirements. If the documentation does not meet these requirements, the project will be treated as a regular project, undergoing a two-stage review: preliminary and final.

Note: *The timeline of 30 calendar days allocated for projects is based on the quality of documentation meeting the required standards. Any gaps in the documentation may necessitate adjustments to the project schedule. To ensure smooth workflow, please ensure all documentation is accurate and comprehensive.*

IGBC® Rating system for Green Interiors - Documentation required

The project must satisfy all the mandatory requirements and minimum number of credit points. The following are the documents required:

1. General information of project including
   a. Project brief
      - Name of the project
      - Project address
      - Location coordinates: aerial map link and coordinates
      - Name of project's parent organization
      - Brief on project functionality
      - Occupancy date
      - Number of occupied floors
   b. Area statement:
      - Total lease area / Total built-up area including parking *(IGBC fee shall be calculated based on these areas)*
      - Total carpet area
      - Air conditioning area
      - Non-air conditioning area
      - Regularly occupied area

- Non-regularly occupied area

c. Occupant density
   - Permanent occupants (Sum of seating capacity, housekeeping staff and security staff)
   - Design Occupancy
   - Peak Occupancy
   - Visitors
   - FTE calculation

d. General drawings (in PDF* and CAD format)
   - All typical floor plans
   - Interior Elevations & Sections
   - Geo-tagged photographs

   **Kindly keep unnecessary layers/filters switched off*

2. Filled-in Green Interiors Master Template (in excel format)
3. The project team shall submit purchase invoices indicating the make & model, manufacturer cut sheets and material test reports for all the procured materials.
4. Time stamp short videos featuring the green measures implemented in the interior project

The detailed reference standard mentions the documentation required for each mandatory requirement & credits.

Physical Verification & Monitoring

Site visit by IGBC team is unique to IGBC's process. Before rating award, the IGBC team would visit in person or virtually based on IGBC team's availability and verify implementation of the green measures.

Credit Interpretation Ruling

In some instances, the design team can face certain challenges in applying or interpreting a mandatory requirement or a credit.

To resolve this, IGBC uses the process of 'Credit Interpretation Ruling' (CIR) to ensure that rulings are consistent and other projects can also get benefitted.

The following are the steps to be followed if a project team faces an issue not addressed in the IGBC Green Interiors Reference Guide:

- ❖ Consult the Detailed Reference Guide for description of the credit intent.
- ❖ Review the intent of the mandatory requirement/ credit and self-evaluate whether the project

satisfies the intent.

- ❖ Review the Credit Interpretation web page for previous CIR on the relevant mandatory requirement or credit.
- ❖ All projects registered under IGBC Green Interiors will have access to this page.
- ❖ If a similar CIR has not been addressed or does not address the issue sufficiently, submit a credit interpretation request (A CIR shall not exceed 600 words or 5,000 characters including spaces). Only registered projects are eligible to post CIRs. Two CIRs are answered without levying any fee and for additional CIRs beyond the first two CIRs, a fee is levied.
- ❖ The CIR Rulings for the earlier CIR raised by project teams is available in www.igbc.in

IGBC® Rating system for Green Interiors - Appeal Process

In rare cases, mandatory requirements or credits may be denied due to misinterpretation of the intent. On receipt of the final review, if a project team feels that sufficient grounds exist to appeal credit denied in the final review, the project has an option to appeal to IGBC for reassessment of denied mandatory requirements or credits. The documentation for the mandatory requirements or credit seeking appeal may be resubmitted to IGBC along with the necessary fee. IGBC will take 30 days to review such documentation.

If an appeal is pursued, please note that a different review team will assess the Appeal Documentation.

The following documentation should be submitted:

1. General information of project including
   a. Project brief
      - Name of the project
      - Project address
      - Location coordinates: aerial map link
      - Name of project's parent organization
      - Brief on project functionality
      - Occupancy date
      - Number of occupied floors
   b. Area statement:
      - Total lease area
      - Total carpet area
      - Air conditioning area
      - Non-air conditioning area
      - Regularly occupied area
      - Non-regularly occupied area

   c. Occupant density,

- Permanent occupants (Sum of seating capacity, housekeeping staff and security staff)
- Design Occupancy
- Peak Occupancy
- Visitors
- FTE calculation

d. General drawings (in PDF* and CAD format)
   - All typical floor plans
   - Interior Elevations & Sections
   - Geo-tagged photographs

   **Kindly keep unnecessary layers/filters switch off*

2. Filled-in Green Interiors Master Template (in excel format)
3. Original, resubmittal, and appeal documentation should be provided only for the mandatory requirements or credits under appeal. Additionally, include a narrative for each appealed mandatory requirement or credit, explaining how the submitted documents address the reviewers' comments and concerns.

Fee

Registration, Certification, Appeal and CIR fee details are available on IGBC website (www. igbc.in) or projects can write to IGBC (igbc@cii.in)

IGBC® Rating system for Green Interiors - Updates and Addenda

The rating system continues to improve and evolve, updates, addenda and errata to the Detailed Reference Guide and will be made available through the IGBC website. These additions will be incorporated in the next version of the rating system.

CHECKLIST

Checklist		Points Distribution	
		New Interiors	Existing Interiors
Eco Design Approach		**8**	**8**
EDA Credit 1	Optimize Circulation Spaces	2	2
EDA Credit 2	Eco-friendly commuting	1	1
EDA Credit 3	Occupancy in a Green Facility	1	1
EDA Credit 4	Commercial Lease Term (or) Ownership	2	2
EDA Credit 5	Awareness on Sustainability Concepts	2	2
Water Conservation		**12**	**12**
WC Credit 1	Water Efficient Plumbing Fixtures	10	10
WC Credit 2	Repurposing Rejected Water	2	2
Energy Efficiency		**22**	**22**
EE Mandatory Requirement 1	Eco-friendly Refrigerants & Halons	Required	Required
EE Credit 1	Enhanced Eco-friendly Refrigerants	2	2
EE Credit 2	Efficient Space Conditioning	5	5
EE Credit 3	Energy Efficient Lighting	4	4
EE Credit 4	Energy Efficient Appliances	1	1
EE Credit 5	Energy Metering & Management	4	4
EE Credit 6	On-site /Off-site Renewable Energy	6	6
Interior Materials		**22**	**6**
IM Mandatory Requirement 1	Segregation of Waste, Post Occupancy	Required	Required
IM Mandatory Requirement 2	Green Procurement Policy	Required	Required
IM Credit 1	Waste Management (During Installation)	2	NA
IM Credit 2	Local Materials	2	NA
IM Credit 3	Recycled Content Materials	2	NA
IM Credit 4	Eco-labelled products	2	NA
IM Credit 5	Salvaged Materials	2	NA
IM Credit 6	Re-use of Materials	2	NA
IM Credit 7	Eco Friendly Wood Based Materials	4	NA
IM Credit 8	Eco-certified Interior Furniture	4	4
IM Credit 9	Purchase of Green Consumables	2	2

Indoor Environment		**31**	**22**
IE Mandatory Requirement 1	Tobacco Smoke Pollution	Required	Required
IE Mandatory Requirement 2	Fresh Air Ventilation	Required	Required
IE Credit 1	Enhanced Fresh Air Ventilation	2	2
IE Credit 2	Daylighting	4	4
IE Credit 3	Thermal Comfort	1	1
IE Credit 4	Ergonomic Design	2	2
IE Credit 5	Air Quality Monitoring	3	3
IE Credit 6	Indoor Plants	2	2
IE Credit 7	Material Acoustic performance	3	NA
IE Credit 8	Outdoor Views	4	4
IE Credit 9	Minimize Indoor Pollutant Contamination	1	1
IE Credit 10	Low-Emitting Materials	4	NA
IE Credit 11	Indoor Air Quality Management, During Installation	1	NA
IE Credit 12	Interior Flush out	1	NA
IE Credit 13	Occupant Well-being Facilities	2	2
IE Credit 14	Dedicated Dining Spaces	1	1
Innovation in Interior Design		**5**	**5**
IID Credit 1.1	Innovation in Interior Design	1	1
IID Credit 1.2	Innovation in Interior Design	1	1
IID Credit 1.3	Innovation in Interior Design	1	1
IID Credit 1.4	Innovation in Interior Design	1	1
IID Credit 2	IGBC Accredited Professional	1	1
	Total Available Points	**100**	**75**

Certified Level	New Interiors	Existing Interiors	Recognition
Certified	50-59	37-44	Best Practices
Silver	60-69	45-52	Outstanding Performance
Gold	70-79	53-60	National Excellence
Platinum	80-100	61-75	Global Leadership

ECO DESIGN APPROACH

Introduction

The Eco Design Approach plays a pivotal role in green interior rating systems, guiding the integration of sustainable practices into both the design and operation of interior spaces. It focuses on minimizing environmental impact, enhancing occupant well-being, and promoting long-term sustainability.

This approach encourages designers, developers, and building owners to consider not only the materials and energy used within space but also broader social, economic, and environmental factors.

A key element of sustainable design is ensuring easy access to public transportation. By locating buildings near transit hubs, reliance on private vehicles is reduced, carbon emissions are lowered, and a more sustainable urban environment is promoted. Additionally, designs that encourage awareness of sustainable practices help occupants make environmentally responsible choices.

Policies such as promoting tenancy in eco-friendly facilities and establishing long-term agreements further support sustainability by fostering stable, environmentally conscious arrangements and reducing the need for frequent renovations.

This module, therefore, aims to establish a clear green direction for the project, complementing other planned sustainable features and streamlining their implementation to create a healthier, more responsible built environment.

Optimize Circulation Spaces

EDA Credit 1 Points: 2

Intent:

Design interiors to ensure optimum circulation space, thereby ensuring safety & wellbeing of occupants.

Compliance options:

Design the interior fit-out to ensure that the circulation area is at least 25% of the total carpet area of that space.

Points are awarded as below

Circulation space	Points
≥ 25%	1
≥ 30%	2

Notes:

- *Circulation area = Total carpet area – [Furniture area+ Equipment area+ Storage space]*
- *Furniture area shall include movable and immovable*
- *For movable furniture such as chairs, the project team shall consider 5 sq. ft per chair*
- *All the internal corridors, passages and internal staircases shall be considered towards the circulation space credit calculation.*
- *External staircase areas may not be considered for credit calculation.*
- *Regularly occupied areas are those where people sit or stand as they work, irrespective of the number of days occupied in a year for at least more than an hour continuously.*
- *Regularly occupied areas include workstations, cabins, meeting rooms, conference rooms, waiting areas, reception, cafeteria, dining area, pantry, BMS room, telephone booth, dormitories,*
- *Non-regularly occupied spaces include toilets, storerooms, service areas (UPS/Hub rooms/Electrical/Chiller room)*

Green Building Concerns:

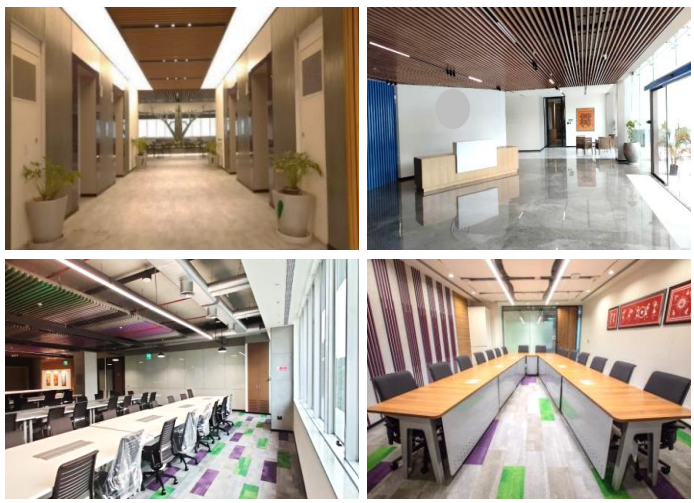
Inadequate or poorly designed circulation spaces impede safe and easy access within a fit-out. Lack of adequate circulation spaces may force occupants to be desk bound, which impacts their well-being. During emergencies, poorly designed circulation spaces can hamper safe and quick evacuation of occupants. Therefore, providing adequate and well- designed circulation spaces is key in ensuring the safety and well-being of occupants.

Approach and Methodology:

Circulation Space*:* To ensure the safety, well-being and comfort of occupants in the indoor environment, adequate barrier free circulation space needs to be provided for unrestricted movement, group interaction and privacy. Initial planning shall factor such spaces as part of design. Indoor spaces shall be designed such that the circulation space is at least 25% of the carpet area planned of all regularly occupied spaces.

Some design elements that can be used include:

- Break-out spaces: which provide opportunities for informal interaction away from regularly occupied workspaces.
- Spaces with vegetation: which provide fresh and toxin-free air to occupants in addition to making the space more interesting.
- Corridors and passages of adequate width: which ensure unrestricted movement of occupants and allow easy evacuation during emergencies.
- Well-designed vertical circulation spaces: such as internal staircases and elevators ensure safe and easy access within fit outs that occupy multiple levels (e.g. lofts and mezzanine levels) or multiple floors.



Interiors with ample circulation space at an office in Bengaluru

Related credits:

- EDA Credit 4: Commercial Lease Term/Ownership
- Energy efficiency Credit 2: Efficient Space Conditioning
- Energy efficiency Credit 3: Energy Efficient Lighting
- Energy efficiency Credit 4: Energy Efficient Appliances
- Indoor Environment Mandatory Requirement 2: Fresh Air Ventilation
- Indoor Environment Credit 1: Enhanced Fresh Air Ventilation
- Indoor Environment Credit 2: Daylighting
- Indoor Environment Credit 5: Air Quality Monitoring
- Indoor Environment Credit 6: Indoor plants
- Indoor Environment Credit 7: Material Acoustic Performance
- Indoor Environment Credit 8: Outdoor Views
- Indoor Environment Credit 13: Occupant Well-being Facilities
- Indoor Environment Credit 14: Dedicated Dining Spaces

Documentation Required:

1. Area statement in the formulae embedded excel sheet format indicating the following:
    a. Total lease area/ Total built-up area
    b. Total carpet area
    c. Air conditioning area
    d. Non-air conditioning area
    e. Regularly occupied spaces
    f. Non-regularly occupied spaces

2. Calculation in the formulae embedded excel sheet format indicating the percentage of circulation areas in each space

3. Interior layouts showing the circulation zones clearly indicating the passage dimensions, breakup of carpet areas and percentage of circulation areas in each space.

4. Geo-tagged photographs and short videos taken in different locations of the interior spaces showing circulation

Exemplary Performance

This credit is not eligible for exemplary performance.

Sample calculation

Description of spaces (e.g. core workstation, meeting room, electrical room, restroom etc)	Regularly / non regularly occupied spaces	Air conditioned / Non - Air conditioned spaces	Total carpet area (sq ft)	Total area of Furniture (sq ft)	Total Area of Storage (sq ft)	Circulation space (sq ft)
Workstation Area 1	Regularly occupied	Air conditioned	5326	1868	4	3454
Workstation Area 2	Regularly occupied	Air conditioned	490	203	0	287
Cafeteria	Regularly occupied	Air conditioned	692	320	22	350
Hand wash Area	Non regularly occupied	Non air conditioned	67	0	46	21
Dish wash Area	Non regularly occupied	Non air conditioned	47	0	37	10
Meeting Room	Regularly occupied	Air conditioned	742	400	0	342
Cabin	Regularly occupied	Air conditioned	325	170	0	155
UPS Room	Non regularly occupied	Air conditioned	95	24	18	53
AHU Room	Non regularly occupied	Air conditioned	279	0	0	279
Printer Room	Non regularly occupied	Air conditioned	43	10	6	27
Reception	Regularly occupied	Air conditioned	319	219	0	100
Phone Booth	Regularly occupied	Air conditioned	260	87	0	173
Lounge	Regularly occupied	Air conditioned	177	37	0	140
Server Room	Non regularly occupied	Air conditioned	82	6	0	76
Board Room	Regularly occupied	Air conditioned	524	243	7	274

Optimise Circulation Spaces	
Total carpet area (sq ft)	9,468.00
Total circulation area (sq ft)	5,741.00
Percentage of circulation area	**61%**

Eco-friendly commuting

EDA Credit 2 Points: 1

Intent:

Encourage eco-friendly transit facility to minimize environmental impacts associated with automobile use.

Compliance options:

Option 1: Public Transport

Demonstrate pedestrian access to mass transit facilities such as bus stations, metro, rail or water - ways within a walking distance of 800 meters from the site entrance.

(or)

Option 2: Shuttle Service

In-house pooling facility / shuttle services to the nearest public transit facilities.

Provide a dedicated shuttle service to cover 60% of the occupants/employees to nearest public transit access point.

Green Building Concerns:

The use of fossil fuel based private vehicles for commuting is one of the leading causes ofgreenhouse gas emissions in many cities. Increasing use of private vehicles also results in traffic congestion which in turn leads to lower mileage as well as longer travel times. This,in turn, speeds up the depletion of natural resources and adversely impacts commuters' health and well-being.

Approach and Methodology:

Locating the interior fit-out project in a building that is connected by pedestrian access to public mass transit facilities such as bus stops, suburban/metro rail stations or waterways greatly encourage occupants in adopting eco-friendly transport options. Mass public transitis usually less polluting and better able to use clean energy. Furthermore, public transit systems greatly help in reducing traffic congestion, which in turn helps control pollution and greenhouse gas emissions.

It is generally accepted that a reasonable walking distance to public transportation is up to 800 meters, which translates approximately to a 15-minute walk. Ideally the fit-out should be located within 800 meters of public transportation. Alternatively, the project can encourage occupants to use public transportation by providing shuttle services to the nearest public transit access point.

Related credits: None

Documentation Required:

Option 1 Public Transport

1. Provide an aerial map highlighting the walking distance of public transport (bus stations, metro, rail, waterways) from the main entrance of the building.
2. Geo-tagged photographs of the public transport (bus stop/metro).

Option 2: Shuttle Service

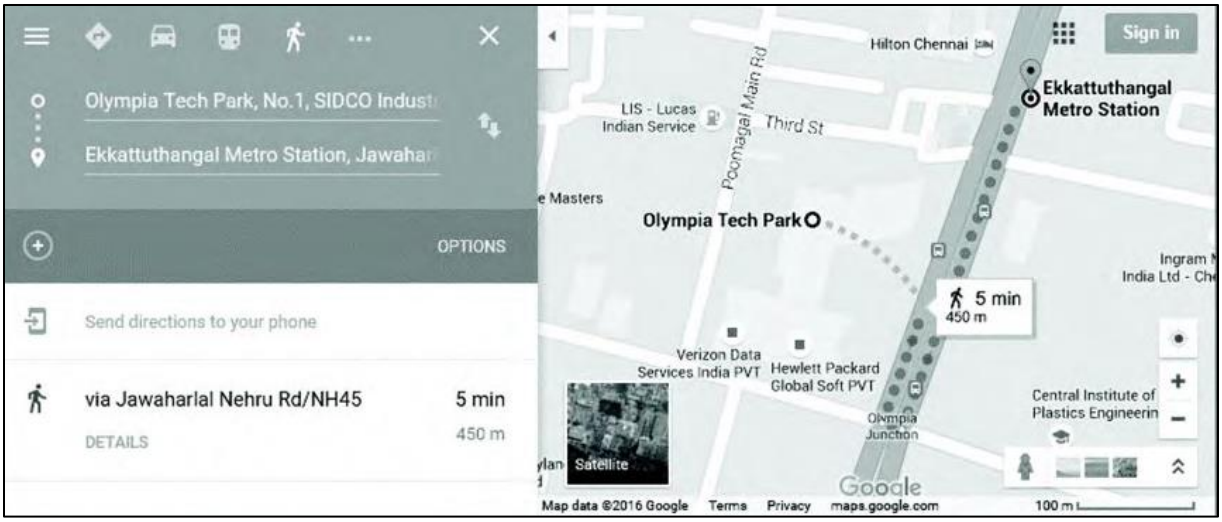
1. Submit a copy of a duly signed contract between client and shuttle service provider clearly indicating the contract tenure, type and quantity of vehicles (along with seating capacity)
2. Total occupancy of the building / project and details of number of bus or van pools carrying capacity along with their daily routes and frequency
3. Geo-tagged photographs of shuttle service.

Exemplary Performance

This credit is not eligible for exemplary performance.

Illustration

An interior fit-out is in a certified green office complex in Chennai which is located approximately 450 meters (5-minute walk) from the metro rail station. The nearest public bus stop is located at the entrance of the office complex. As per data provided by the fit-out,as many as 80% of the occupants use public transportation to commute



Snapshot of the map indicating the public transportation at walking distance of 450 m from project site

Sample agreement copy *(for shuttle service)*

Addendum No. 1 to Master Agreement

This Addendum No.1 is made on this 20th day of September 2023 between:

COMPANY AB, a Company registered under the Companies Act, 1956 and having its Corporate Office at 17-Y, Hart Complex, E City, Sector 98, Noida — 129015 Haryana (hereinafter referred to as "AB" which expression shall, unless repugnant to the context or meaning hereof, be deemed to mean and include its successors and assigns) of the First Part.

And

CAB COMPANY, a company registered under the Companies Act, 1956 bearing CIN, U723OODL2OO7PTC6 having its office at 16th Floor, Corp Park, Tower-A/2, Plot No.-21, Sector-15, Noida-267301 (hereinafter referred to as "Customer" which expression shall, unless it be repugnant to the context or meaning thereof, be deemed to mean and include all its successors and permitted assigns) of the Second Part.

Whereas AB and CAB COMPANY executed the Master Agreement dated 9th September 2022 for a term effective from 9th September 2022 and valid upto 4 September 2023 (collectively known as "Agreement") wherein Sa Hak agrees to provide Transportation Services to CAB COMPANY.

Whereas, COMPANY AB and CAB COMPANY have mutually agreed to extend the term of current master Agreement through this addendum in the manner set forth below.

- The Term of the Agreement to be renewed for another Two (2) years from 9th September 2023 to 8th September 2025.
- The consideration mentioned in clause 3 of the master service agreement is revised as per Appendix- I annexed **herewith**

The other terms & conditions shall remain the same as per the Master Agreement.

For and on behalf of	For and on behalf of
COMPANY AB	CAB COMPANY
Signature:	Signature:
Name:	Name:
Title: Director	Title:
Date: 26.9.2023	Date.:

FOR ILLUSTRATION PURPOSE ONLY

Occupancy in a Green Facility

EDA Credit 3 Points: 1

Intent:

Encourage tenants to occupy green spaces, thereby saving on resources and minimize environmental impacts.

Compliance options:

Occupy the interior office space in a certified green project.

Green Building Concerns:

The environmental sustainability of an interior fit-out and the effectiveness of the green features provided inside a fit-out can be heavily influenced by the facility in which the fit-out is located.

For instance, the energy efficiency of a fit-out may be greatly compromisedif the thermal efficiency of the facility's building envelope is poor. Therefore, selecting a facility which is environmentally sustainable is important to ensure the effectiveness of thegreen features implemented inside the fit-out.

Approach and Methodology:

Locating the interior fit-out project in a certified green building or campus allows the project to leverage the facility's green features and infrastructure to enhance occupant comfort and well-being as well as environmental sustainability inside the project's space. In other words, the interior fit-out can benefit from the green features which are typically implemented at the Core and Shell level.

Below are examples of benefits that an interior fit-out can avail from being located within a certified green facility:

Water Conservation

- **Reuse of harvested rainwater:** A facility having the provision of storing harvested rainwater can supply this water to the fit-out for various purposes thereby conserving municipal/bore-well sourced potable water.
- **Reuse of treated wastewater for flushing:** A facility having the provision of a waste water treatment system can reuse the treated waste water for flushing purposes inside the fit-out thereby conserving potable water.

Energy Efficiency

- **Thermally insulated building envelope:** enhance energy efficiency by limiting heat ingress into the fit-out spaces and thereby reducing energy cost for cooling.
- **Centralized HVAC systems** reduce cooling energy costs as the cooling efficiency of these large systems are much higher than smaller HVAC systems that are dedicated to individual fit-outs.
- **Renewable energy systems** deliver clean energy to the fit-out.

Indoor Environment Quality and Occupant Well-being

- **Tobacco smoke control** limits the exposure of the fit-out's occupants to harmful contaminants.
- **Access to natural light and views:** enhances the well-being and productivity of the fit-out's occupants.
- **Indoor pollutant source control** measures implemented at Core and Shell spaces (e.g. entry-way mats, air curtains and use of low VOC finishes in common areas) help limit the exposure of the fit-out's occupants to indoor pollutants.
- **Facilities for differently abled people** allow differently abled persons to access the fit-out easily.
- **Landscaping and amenities** on site enhance the quality of life of the fit- out's occupants by providing break-out spaces and by limiting vehicular use.Also, the tree cover and natural vegetation on site decreases the heat island effect.

Related credits:

- Water Conservation Credit 1: Water Efficient Plumbing Fixtures
- Energy Efficiency Credit 2: Efficient Space Conditioning
- Energy Efficiency Credit 3: Energy Efficient Lighting
- Indoor Environment MR 2 / Credit 1: Fresh Air Ventilation
- Indoor Environment Credit 2: Daylighting
- Indoor Environment Credit 8: Outdoor Views
- Indoor Environment Credit 13: Occupant Well-being Facilities

Documentation Required:

1. Narrative elaborating the green features of the base building
2. In case the base building is **pre-certified**, the project team can show credit compliance by submitting the certificate indicating the validity of the certification.

3. In case the base building is already **certified**, please submit copy of green building certificate clearly indicating the name of the base building and validity of certificate.
4. In case the base building is **undergoing certification**, please submit the project registration details, stage of certification, and expected date of completion of certification.
5. For any green features implemented by base building and project wants to claim them, the project team shall submit the complete documentation related to those credits.

***Note**:*

- *Green building certificate older than 3 years from the date of issuance will not be accepted for credit compliance*
- *The project undergoing dual certification under various IGBC rating systems are also eligible to attempt this credit. Few examples are illustrated below (not limited to)*
    - *IGBC Green New Buildings along with IGBC Green Interiors*
    - *IGBC Green Existing Buildings along with IGBC Green Interiors*
    - *IGBC Health & Wellbeing Rating along with IGBC Green Interiors*
    - *IGBC Net Zero Waste to Landfill along with IGBC Green Interiors*

Exemplary Performance

This credit is not eligible for exemplary performance

Illustration

A technology park in Bengaluru is a certified green commercial office complex which leases several interior fit-outs, some of which are also certified green fit-outs. Being located within a certified green facility, the fit outs can take advantage of the following green features implemented at the Core and Shell level:

- **Energy efficiency:** Efficient envelope, efficient common area lighting power density,efficient HVAC system meeting the ASHRAE 90.1 standard.
- **Water conservation:** Reduction of water consumption through water efficient fixtures, on-site wastewater treatment and reuse for flushing
- **Indoor environment quality:** Daylighting and provision of fresh air ventilation as per ASHRAE 62.1 standard

- **Site planning**: Access to basic amenities, site landscaping, adequate parking, storm water management and heat island mitigation – all of which serve to enhance quality of life of the occupants of the fit-out.

Sample Green Building Certificate

Commercial Lease Term (or) Ownership

EDA Credit 4 Points: 2

Intent:

Encourage long-term occupancy to reduce the materials consumption, thereby minimizing environmental impacts

Compliance options:

Tenant Occupied Areas

Occupancy agreement mentioning tenancy tenure for at least three or more years to reduce the environmental impacts associated with frequent refurbishment of fit-outs.

(or)

Owner Occupied Areas

The interior fit-out shall not be disturbed for at least three years. The fit-out may be refurbished after three or more years if required.

Notes:

- *In case, the project is operational for less than a year, the project shall be considered under IGBC Green **New** Interiors category.*
- *In case, the project is operational for more than a year, then the project shall be considered under IGBC Green **Existing** Interiors category.*

Points are awarded as below:

Tenure of Agreement	Points
3 years	1
5 years	2

Green Building Concerns:

Construction activity, even if executed in an environmentally sensitive way, will have environmental impacts on the interior fit-out as well as the facility where the fit-out is located. Some of the environmental impacts of interior refurbishment include:

- Construction waste generation and disposal
- Use of virgin material
- Indoor air quality deterioration due to construction
- Noise pollution due to construction
- Disturbances to occupants and disruption of normal activities due to construction

Approach and Methodology:

Ensuring a long-term tenancy lease is an effective way to avoid frequent changes to the fit-out. Interior fit outs are ideally recommended to sign leases of at least 5 years. If a long-term lease is not feasible, fit-outs can consider signing a lease of at least 3 years.

Related credits:

- Interior Material Credit 1: Waste Management (During Installation)
- Interior Material Credit 2: Local Materials
- Interior Material Credit 3: Recycled Content Materials
- Interior Material Credit 4: Eco-labelled products
- Interior Material Credit 5: Salvaged Materials
- Interior Material Credit 7: Eco Friendly Wood based Materials
- Interior Material Credit 8: Eco Certified Furniture
- Interior Material Credit 10: Purchase of Green Consumables
- Indoor Environment Credit 3: Thermal Comfort
- Indoor Environment Credit 7: Material Acoustic performance
- Indoor Environment Credit 10: Low-emitting materials
- Indoor Environment Credit 11: Indoor Air Quality Management, During Installation
- Indoor Environment Credit 12: Interior Flush Out
- Indoor Environment Credit 14: Dedicated Dining Spaces

Documentation Required:

Option 1 Tenant Occupied Project

1. Copy of lease agreement indicating the project name, lessor & lessee name, location, tenure, lease commencement date and lease area.
2. Declaration from project owner stating that interior fit outs shall be retained for at least 3 or more years

Option 2 Owner Occupied Project

1. Copy of property tax/energy bills indicating the name of project owner
2. Declaration from project owner stating that interior fit outs shall be retained for at least 3 or more years

Exemplary Performance

This credit is not eligible for exemplary performance.

Awareness on Sustainability Concepts

EDA Credit 5 Points: 2

Intent:

To create awareness about sustainability concepts among occupants, encouraging them to embrace and adopt sustainable practices

Compliance Options:

Demonstrate that the project complies with at least one of the following criteria as applicable

(1 point for each measure, max 2 points)

- Display permanent signages highlighting implemented green features at various locations of the interior fit-out. *(Refer Exhibit-A)*
- Install screen to showcase building performance dashboard and green features in the building.
- Awareness sessions for the occupants regarding sustainability concepts at least once every six months.

Note: Displaying only IAQ parameters (addressed under IE Credit 5 Air Quality Monitoring) shall not be considered under EDA Credit 5 Awareness on Sustainability Concepts as the intent of this credit is to highlight the various green measures implemented in the project holistically not limited to air quality only

Approach and Methodology:

The green features implemented in the project can be communicated to the occupants by provision of project specific permanent signages and environmental impact created by these measures. Signages can create awareness and responsibility among occupants and visitors.

Interactive approaches, such as audio-visual presentations, workshops, and activities, can further engage building occupants and promote lasting behavioral changes, reinforcing a culture of environmental stewardship.

Practical tips on energy-saving, waste reduction, and water conservation encourage eco-friendly practices at building occupant level.

Related Credits:

- *IE Mandatory Requirement 1: Tobacco Smoke Control*
- *IE Credit 5: Air Quality Monitoring*

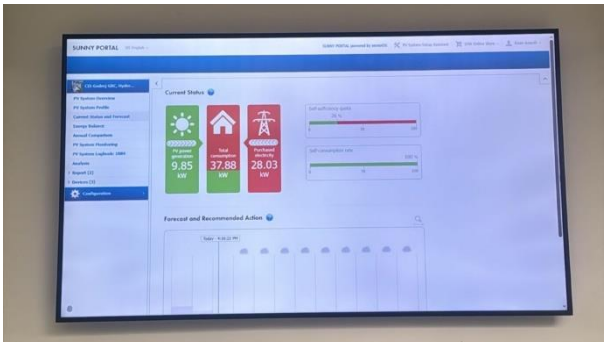
Documentation Required:

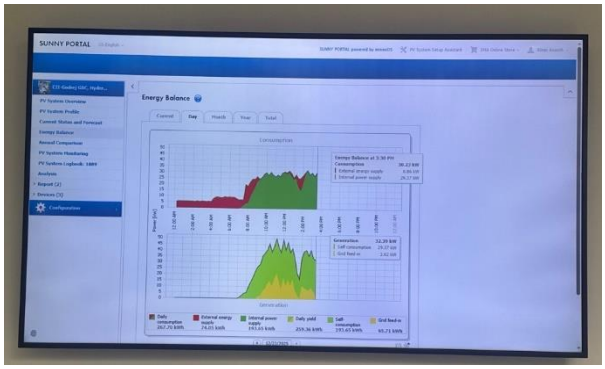
- Narrative elaborating the measures implemented for creating awareness on sustainability concepts.
- Geotagged photographs of the installed permanent signages highlighting implemented green features at various locations of the interior fit-out.
- A draft schedule or record of green awareness programs conducted, including topics covered and methods of delivery (e.g., workshops, presentations, webinars).
- Attendance records or feedback from at least one program conducted within the past 6 months to demonstrate active participation and engagement.
- Geotagged photographs of the awareness sessions conducted by the project team.

Exemplary Performance

This credit is not eligible for exemplary performance

Sample project specific permanent signages



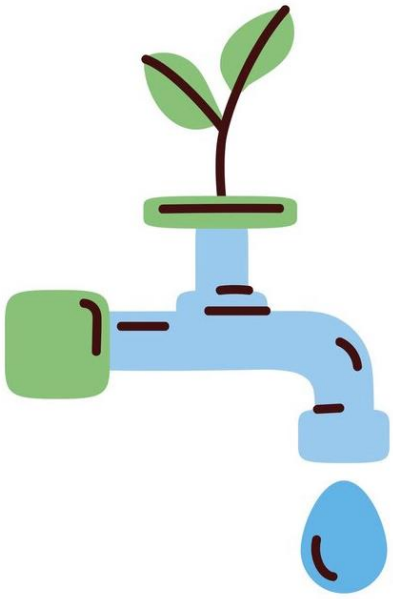


Sample photographs of screen showcasing building performance dashboard and green features in the building

Exhibit – A

- Proximity to public transport
- Installation of water efficient plumbing fixtures
- Energy efficient air conditioning system
- Avoid ozone depleting substances
- Use eco-friendly refrigerants
- On-site renewable energy
- Energy metering to monitor HVAC and lighting consumption
- Building Management System to monitor temperature, relative humidity and CO_2 levels
- Segregation of waste in color coded bins during post occupancy
- Use of GreenPro certified products
- Provision of organic waste converter
- During construction, diverted waste to authorized recycle vendors
- Use of certified green building materials, products & equipment
- Provision of fresh air by installation of mechanical fresh air system in all the regularly occupied air condition spaces
- Air Quality Monitoring
- More than 25% of regularly occupied spaces have access to daylighting
- More than 25% of regularly occupied spaces have access to unobstructed outdoor views
- Minimize indoor & outdoor pollutants
- Use of low VOC paints, adhesives & coatings
- Use of CRI/GreenPro certified carpets
- Use of Urea formaldehyde free Composite Wood
- Provision of occupant well-being facilities
- Indoor air quality testing, after construction and before occupancy indoor air quality management, during construction

***Note**: The list is illustrative only.*



WATER CONSERVATION

Introduction

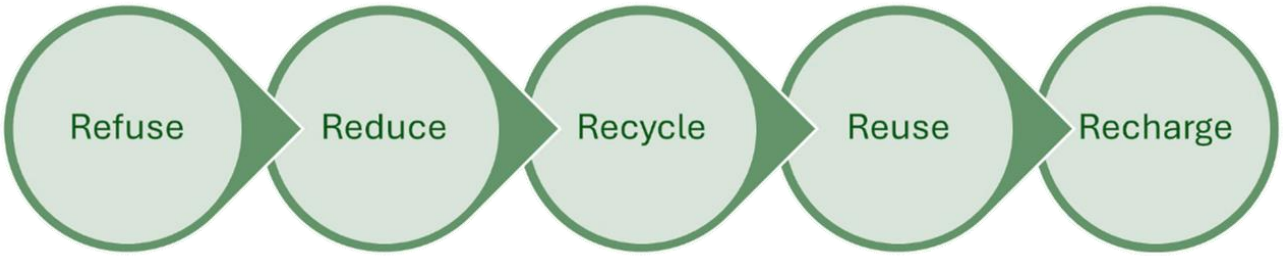
Water conservation has emerged as a critical concern in building design and management, given the escalating global water crisis. With growing populations and increasing urbanization, the demand for fresh water has surged, putting immense pressure on natural water resources.

Globally, by 2030, it is estimated that about 1.6 billion people lack access to safe drinking water, according to the World Health Organization.[1]

Day Zero is a stark symbol of the growing global water crisis, representing the day when cities are unable to provide adequate water supply to their populations, forcing severe rationing and creating significant sanitation challenges. Over the past two decades, water-related disasters have become more frequent and intense, with floods increasing by 134% and droughts by 29%. These conditions have left over two billion people without access to clean drinking water, while an estimated 2.7 billion individuals experience water scarcity at least once a year. Cities like Cape Town in South Africa and Mexico City in Mexico have already faced the brink of Day Zero, struggling with depleted reservoirs and strained water infrastructure. Other cities worldwide, including Bangalore in India, are also at high risk, highlighting the urgent need for sustainable water management practices to avert catastrophic shortages and ensure water security for future generations.[2]

According to the National Institution for Transforming India (NITI Aayog), by 2030, India's water demand is expected to be twice the available supply, potentially leading to a severe water crisis.[3]

Green Interiors encourages water usage in a self-sustainable manner through 5 R's – Refuse-Reduce-Recycle-Reuse-Recharge; primarily through water use reduction as typically infrastructure for water recycling and reuse are beyond the scope and control of most interior fit-outs. Infact, while the per capita water consumption in commercial buildings is considered as 45 liters, it can be reduced to as low as 20 liters in green projects.



[1] https://www.who.int/news/item/01-07-2021-billions-of-people-will-lack-access-to-safe-water-sanitation-and-hygiene-in-2030-unless-progress-quadruples-warn-who-unicef
[2] https://www.xprize.org/prizes/water/articles/water-scarcity-day-zero-crisis#:~:text=Around%20the%20world%2C%20%E2%80%9CDay%20Zero,dry%20and%20communities%20in%20crisis.
[3] Composite Water Management Index (CWMI)", published by NITI Aayog in June 2018

Water Efficient Plumbing Fixtures

WC Credit 1 Points: 10

Intent:

Minimize dependence on municipal and bore water, thereby conserving water resources

Compliance options:

Case 1: Install water efficient plumbing fixtures

Install water efficient plumbing fixtures (as applicable) whose flow rates are at least 10% less than the baseline criteria given as specified in the *Energy Conservation and Sustainable Building Code (ECSBC) 2024*.

Alternatively, trade-offs are allowed, in which design case compliance shall be shown by considering daily usages and flow duration as shown in the table below:

Baseline Flow Rates / Consumption for Plumbing Fixtures

Fixture Type	Maximum Flow Rate	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)	2.8 LPF	1 flush	2 for female
Urinals	2 LPF	1 flush	2 for male
Restroom Faucets / Taps*	6 LPM	15 seconds (0.25 minutes)	4
Cafeteria/Dining /Handwash Faucets/Taps*	6 LPM	15 seconds (0.25 minutes)	1
Health Faucet*	5 LPM	15 seconds	1
Handheld Spray /Showerhead*	8 LPM	8 Minutes	0.1

Source: Energy Conservation and Sustainable Building Code (ECSBC) 202

Notes

- ** Reporting pressure for these fixtures shall be at 4.1 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.*
- *The baseline flows can be demonstrated at a flowing water pressure of 4.1 bar. Flowing water pressure of 4.1 bar does not mean that the water supply in the building is at 4.1 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 4.1 bar.*
- *Full Time Equivalent (FTE) represents a regular building occupant who spends 8 hours per day in the building. Part-time or overtime occupants have FTE values based on their hours per day divided by 8.*
- *FTE occupancy shall be considered in calculation, including visitors*
- *When occupancy is not known default occupancy shall be considered as 50% men & 50% women*
- *In case, a kitchen sink faucet used to wash the utensils installed in the interior fit-out, the flow rate shall be below baseline (6 LPM) at 4.1 bar pressure. It may be excluded from water reduction calculations. And in such cases, credit compliance must be demonstrated separately through a technical specification indicating the flow rate.*
- *Rain showers (if any) need to be considered in the calculations under Showerhead*
- *Plumbing fixtures certified by GreenPro/ IAPMO (The International Association of Plumbing and Mechanical Officials) under Type 1 Eco-labeled certification program can also be installed to show compliance.*
- *Treated water from the on-site wastewater treatment shall not be considered towards the water reduction calculation,*
- *In the absence of specific cutsheets use the following conversion formula to arrive at discharge at 4 bar pressure. The project team shall submit the supplementary calculation to indicate the flowrates at 4.1 Bar pressure along with individual cutsheet of the water fixture.*

Project can use the following formula to calculate the approximate flowrates:

$$Q_2 = Q_1\sqrt{\frac{P_2}{P_1}}$$

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).

Sample calculation:

If the technical datasheet specifies that a water fixture delivers 4 LPM (Q1) at 3 bar(P1), the flowrate at 4.1 bar (P2) can be calculated using the formula:

$$Q_2 = Q_1\sqrt{\frac{P_2}{P_1}}$$

= 4 × 1.16

= 4.67 LPM

Flowrate at 4.1 bar ≈ 4.67 LPM

Points are awarded as below:

Water Efficient Plumbing Fixtures (Individually or in aggregate)	Points
15% less than the baseline criteria	1
17.5% less than the baseline criteria	2
20% less than the baseline criteria	3
22.5% less than the baseline criteria	4
25% less than the baseline criteria	5
27.5% less than the baseline criteria	6

30% less than the baseline criteria	7
32.5% less than the baseline criteria	8
35% less than the baseline criteria	9
37.5% less than the baseline criteria	10
40% less than the baseline criteria	Exemplary performance

Case 2: Rainwater Harvesting, Roof area

Design rainwater harvesting system to capture at least 'one-day rainfall*' run-off volume from entire base builder's roof areas.

** The quantity of 'one day rainfall' that needs to be harvested can be estimated based on the suggested percent of average peak month rainfall in the table given below:*

Criteria to arrive at 'One-day Rainfall'

Sr.no.	Average Peak Month Rainfall (in mm)	One-day Rainfall (% of Average Peak Month Rainfall)					
		2 Points	**4 Points**	**6 Points**	**8 Points**	**10 Points**	**Exemplary**
1.	Up to 250	9	11.5	14	16.5	19	21.5
2.	251 – 350	7.5	9.5	11.5	13.5	15.5	17.5
3.	351 – 500	6	7.5	9	10.5	12	13.5
4.	501 – 700	4.5	5.5	6.5	7.5	8.5	9.5
5.	701 & above	3	3.5	4	4.5	5	5.5

***Note**: To estimate the average peak month's rainfall, consider the average of at least last 5 years peak month's rainfall of the project location.*

The project may not implement the rainwater harvesting system:

i. If the Central/ State Ground Water Board does not recommend artificial rainwater recharge
ii. If the groundwater table is less than 8 meters

In such cases the project shall opt for Case 1: Install water efficient fixtures

Notes:

- *For rainfall information, refer Indian Meteorological Department data at http://www.imd.gov.in*
- *Percolation/ Infiltration rate should be as per soil type. (eg., clay soil, the percolation / infiltration rate is 1-5 mm/ hr; in case of sand, the percolation/ infiltration rate is 30 mm / hr)*
- *Runoff volume = Surface area x Runoff Coefficient x One day Rainfall.*
- *Consider Rainwater Harvesting Guidelines (as and when available) from the National Building Code (NBC) of India, Part 11 - Approach to Sustainability, Section 7.2 - Rainwater Harvesting Surface Run-off.*
- *In areas where the water percolation is limited, collection tanks / water bodies may be provided to meet the above requirement.*
- *Filtering of suspended solids shall be ensured by providing suitable filtering media before letting the water into the collection tanks, water bodies, municipal storm water drains.*

Runoff coefficients for Typical Surface Types		
Sr.no.	Surface Type	Runoff coefficient
1.	Cemented / Tiled Roof	0.95
2.	Roof Garden (< 100mm)	0.95
3.	Roof Garden (100 – 200 mm thickness)	0.3
4.	Roof Garden (201 – 500 mm thickness)	0.2
5.	Roof Garden (> 500 mm thickness)	0.1
6.	Turf, Flat (0 - 1% slope)	0.25
7.	Turf, Average (1 - 3% slope)	0.35
8.	Turf, Hilly (3 - 10% slope)	0.4
9.	Turf, Steep (> 10% slope)	0.45
10.	Vegetation, Flat (0 - 1% slope)	0.1
11.	Vegetation, Average (1 - 3% slope)	0.2
12.	Vegetation, Hilly (1 - 3% slope)	0.25
13.	Vegetation, Steep (> 10% slope)	0.3
14.	Concrete Pavement	0.95
15.	Gravel Pavement	0.75
16.	Open-grid Concrete Pavement	0.75
17.	Open-grid Grass Pavement	0.5
18.	Water Bodies (lined) e.g., Swimming Pool	0.95
19.	Water Bodies (un-lined) e.g., Water Pond	0

Infiltration rates for different soil types		
Sr.no.	Soil Type	Infiltration Rate (mm/hour)
1	Sand	Less than 30
2	Sandy Loam	20-30
3	Loam	10-20
4	Clay Loam	5-10
5	Clay	1-5

Green Building Concerns

Scarcity of water is a critical resource issue in most parts of Indian cities and towns. This hasbeen aggravated by the extraction of ground water and poor management of water resources. Today, most buildings purchase and transport water to meet domestic requirements.A building that is able to minimize water use and manage water resources efficiently can significantly reduce dependence on external sources of water and therefore reduce its operational cost.

Approach and Methodology

Conservation of water resources can be achieved through a variety of strategies such as:

- Reduction of water usage
- Treatment and reuse of wastewater
- Rainwater harvesting - collect runoff from roof & non-roof surfaces

The IGBC Green Interiors standard recognizes that most interior projects do not have control over building or campus level services such as rainwater harvesting or wastewater treatment and reuse. Therefore, the primary thrust of this credit is aimed at reducing waterusage within the spaces which are in the project's scope and control as described under Case 1: Install Water Efficient Plumbing Fixtures.

If the project team occupies the entire base building, they may opt for *Case 2:* ***Rain Water Harvesting, Roof area***

Case 1: Install Water Efficient Plumbing Fixtures

Reduction in water consumption is achieved by installing flow and flush fixtures which have been designed to minimize water consumption.

Water closets: Efficient dual flush water closets are widely available in the market and are typically available with the following flush volume options:

Large Flush Volume	Small Flush Volume	Reduction in water use
4.84 LPF	2.8 LPF	Meets baseline
4.5 LPF	2.5 LPF	Approx. 8% reduction
4 LPF	2 LPF	Approx. 21.5% reduction

Below are sample images of dual flush water closets / fixtures

Dual flush water closet cistern

Dual Flush Valves

Urinals: water efficient urinals are widely available in the market and are typically available in the following volume options:

Urinal type	Flush Volume	Savings in water over baseline
Urinal flush valves	1.5 LPF	25%
Sensor operated	0.35 – 0.75 LPF	62.5% - 82.5%
Waterless urinals	0 LPF	100% reduction

Below are sample images of various types of water efficient urinals:

Sensor type urinal

Waterless urinal

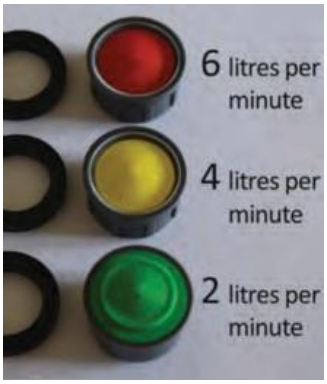
Flush valve

Faucets / taps / health faucets: Water efficient flow fixtures are commonly known as “low flow” fixtures and are typically fitted with aerators or flow restrictors. Alternatively, low-flow fixtures may have automatic controls to ensure minimal wateruse.

Faucet type	Flow Rate	Reduction in water use
With aerators or flow restrictors	1.5 LPM	Approx. 75% water savings
Sensor operated	0.1 Liter per second	High savings are expected
Press / push type	0.75 Liter per use	High savings are expected

Below are sample images of various types of low flow faucets and flow control technologies:

Aerator Faucet with aerator



Faucet flow restrictors

Sensor faucet

Showerheads: low-flow showerheads are also usually fitted with aerators or flow restrictors to conserve water.

Shower type	Flow Rate	Reduction in water use
With aerators or flow restrictors	6 – 8 LPM	Approx. 25% savings

Case 2: Rainwater Harvesting

Rainwater can be harvested in several ways as listed below:

- Stored in sumps, tanks or wells and reused later
- Percolated into the ground via recharge pits or trenches, wells or bore wells.
- Combination of both ways listed above.

Rainwater falling on the roof area is typically directed via down pipes into collection chambers containing filtration media that remove suspended impurities. A “first flush” provision, wherein the first rain of the season is let out so that the roof is washed, must also be made. From the filtering system, rainwater is either directed into storage sumps or wells for reuse or recharged into the ground. Recharging can be done using percolation pits or trenches. The recharge method used is based on the percolation capacity of the soil on site.

Below are sample images of the typical components of a rainwater harvesting system

Rainwater down pipe with filter & first flush valve

Rainwater collection chamber with filtration

Rainwater recharge pit

Rainwater recharge trench

Related Credits:

- EDA Credit 3: Occupancy in Green Facility

Documentation Required:

Narrative elaborating the measures adopted to demonstrate credit compliance

Case 1: Install Water Efficient Plumbing Fixtures

1. Water reduction calculations to demonstrate the savings achieved in the formula embedded excel sheet format
2. Summary sheet of the installed plumbing flow and flush fixtures with flowrates (at 4 bar pressure, for flow fixtures).
3. Manufacturer cut sheets/ brochures/declaration letter from manufacturer/test report indicating the flow rates of theinstalled plumbing flow and flush fixtures.
4. Purchase invoice of the installed plumbing flow and flush fixtures highlighting the make & model. *(Volume proposal projects can submit duly signed IGBC approved BOQ on organization letter head indicating the flow rates of the water fixtures installed in the project)*
5. Geo-tagged photographs of the installed water fixtures.
6. One-minute timed geotagged video of filling of a container (clearly indicating capacity in litres) demonstrating the flow rates of installed water fixtures (faucet, sink faucet, health faucet, showerheads).

Case 2: *Rainwater Harvesting, Roof area*

1. Declaration letter from the project owner stating that restrooms are not in the purview of the interior fit-out
2. Calculations highlighting the proposed quantity of rainwater (run-off volume) for harvesting.
3. Site drawing highlights external rainwater drainage system and location of rainwater harvesting system (e.g.: ponds, pits, storage tanks, etc.,), including cross-sectional drawings (as applicable), and capacity details.
4. Details of the rainwater harvesting system specifying harvesting pits capacity to capture/ harvest water**.** *Indicate the type of soil. Consider the percolation/ infiltration rate as per soil type.*
5. Submit the third-party report confirming the level of water table, if project's water table is less than 8 meters.

Case 3: *Wastewater treatment and reuse*

1. Narrative elaborating the measures adopted to treat and reuse the wastewater
2. Water balance sheet highlighting the use of the treated water
3. Technical specification sheet of the wastewater treatment plant indicating the capacity and efficiency
4. Third-party test report of the treated water meeting the pollution control norms
5. Geo-tagged photographs of the wastewater treatment plant indicating the capacity and efficiency

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors

Water Reduction > 40% against the baseline	*1 point*
Wastewater treatment and reuse	*1 point*

Case 1: Install efficient water fixtures

Demonstrate water reduction of more than 40% against the baseline.

Case 2: Rainwater Harvesting, Roof area

If rainwater run-off from roof is captured and/or recharged as listed below:

Criteria to arrive at 'One-day Rainfall' (for exemplary performance)

Sr.no.	Average Peak Month Rainfall (in mm)	One-day Rainfall (% of Average Peak Month Rainfall)
1.	Up to 250	24%
2.	251 – 350	20%
3.	351 – 500	16%
4.	501 – 700	12%
5.	701 & above	8%

Sample calculations

Case 1 Water efficient plumbing fixtures:

Fixture Type	Duration	Estimated Daily uses Per FTE	No: of occupants	Base Line		Proposed	
				Flow Rate / Capacity (LPF / LPM	Total daily Water	Flow Rate / Capacity (LPF / LPM)	Total Daily Water Use
Water Closets (Full flush)	1 Flush	1 Male	25	4.84 LPF	121	3 LPF	75
Water Closets (Half flush)		2 Female	25	2.8 LPF	140	1.5 LPF	75
Water Closets (Full flush)	1 Flush	1 Female	25	4.84 LPF	121	3 LPF	75
Urinals	1 Flush	2 Male	25	2 LPF	100	1.5 LPF	75
Restroom Faucets / Taps	0.25	4	50	6 LPM	300	2.5 LPM	125
Cafeteria/Dinin/ Handwash Faucets	0.25	1	50	6 LPM	75	2 LPM	25
Health Faucet	0.25	1	50	5 LPM	62.5	3 LPM	37.5
Handheld Spray	8	0.1	50	8 LPM	320	6 LPM	240
Showerhead	8	0.1	50	8 LPM	320	6 LPM	240
Daily Volume from Flush Fixtures (Black Water)					482		300
Daily Volume from Flush Fixtures (Grey Water)					1077.5		667.5
Total (in Liters)					1559.5		967.5
Percentage Reduction (%)						**38%**	

The water reduction calculation indicates that the project achieves water savings of approximately 38% over the baseline through efficient plumbing fixtures and project meets the intent and achieves 10 points.

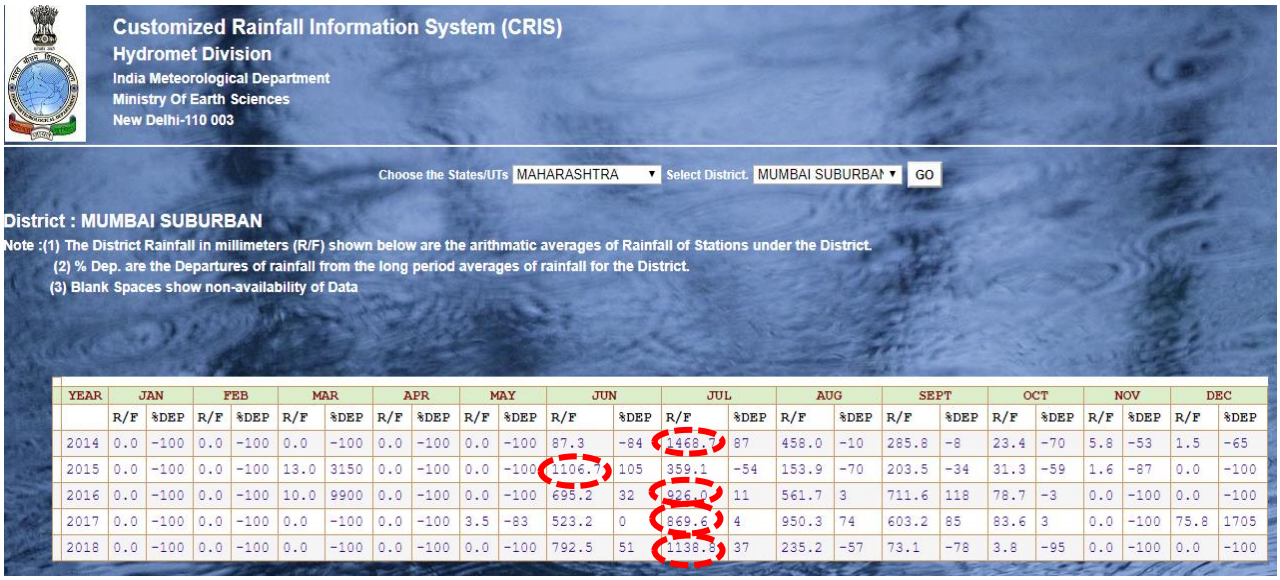
Case 2: *Rain Water Harvesting, Roof area*

Considering the project is in Mumbai, with the following attributes:

	Area (in sq.m.)
Total roof area	400
Cemented /Tiled Roof	300
Roof Garden	100

For surface run-off calculations:

Step 1: Calculate the average peak rainfall using rainfall data of last 5 years.



Customized Rainfall Information System (CRIS)
Hydromet Division
India Meteorological Department
Ministry Of Earth Sciences
New Delhi-110 003

Choose the States/UTs: MAHARASHTRA | Select District: MUMBAI SUBURBAN | GO

District : MUMBAI SUBURBAN

Note :(1) The District Rainfall in millimeters (R/F) shown below are the arithmatic averages of Rainfall of Stations under the District.
(2) % Dep. are the Departures of rainfall from the long period averages of rainfall for the District.
(3) Blank Spaces show non-availability of Data

YEAR	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEPT		OCT		NOV		DEC	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2014	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100	87.3	-84	1468.7	87	458.0	-10	285.8	-8	23.4	-70	5.8	-53	1.5	-65
2015	0.0	-100	0.0	-100	13.0	3150	0.0	-100	0.0	-100	1106.7	105	359.1	-54	153.9	-70	203.5	-34	31.3	-59	1.6	-87	0.0	-100
2016	0.0	-100	0.0	-100	10.0	9900	0.0	-100	0.0	-100	695.2	32	926.0	11	561.7	3	711.6	118	78.7	-3	0.0	-100	0.0	-100
2017	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.5	-83	523.2	0	869.6	4	950.3	74	603.2	85	83.6	3	0.0	-100	75.8	1705
2018	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100	792.5	51	1138.3	37	235.2	-57	73.1	-78	3.8	-95	0.0	-100	0.0	-100

IMD Weather Data File: Mumbai

Average Peak Month Rainfall = (1,468+1,106+926+869+1,138) / 5 = 1,101 mm = 1.101 m

Step 2: Arrive at 'One-day Rainfall' referring the table below

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%

Criteria for One-day Rainfall for 700 mm and above = 3%

Therefore, One day rainfall @ 3 % = 1.101 *(3/100) = 0.0330 m

Step 3: Calculation

	Area (in sq. m.)	Surface run-off coefficient
Total roof area	400	-
Cemented /Tiled Roof	300	0.95
Roof Garden	100	0.3

Runoff volume = Surface area x Runoff Coefficient x Rainfall

= (300 * 0.95 * 0.0330) + (100 * 0.3 * 0.0330)

= 10.4 cu.m.

Repurposing Rejected Water

WC Credit 2 Points: 2

Intent:

Minimise dependence on municipal and bore water, thereby conserving water resources

Compliance Option:

Demonstrate that project complies with at least one of the following measures

(1 points for each measure, max 2 points)

- Utilise rejected water from the project's air conditioning systems for non-potable applications such as not limited to landscape irrigation, cooling tower make-up, or housekeeping purposes.
- Use rejected water from water purifiers (RO units) for non-potable purposes such as landscaping, housekeeping, or flushing requirement in toilets.
- Any other measures.

Note: The rejected water shall be collected in the storage system and 100% of the water collected shall be reused within project premises.

Green Building Concerns

Processes like reverse osmosis and air conditioning generate significant amounts of rejected water, which is often discarded without being repurposed, leading to unnecessary water wastage and environmental harm. This overlooked potential for water conservation highlights the need for sustainable solutions to manage and reuse rejected water effectively. By repurposing this water, green buildings can reduce reliance on external water sources, minimize environmental impact, and address the growing challenge of water scarcity.

Approach and Methodology

Rejected water from RO systems and air conditioners can be effectively reused to save water and reduce costs. RO reject water, with its higher TDS content, can be used for housekeeping floors, parking areas, and outdoor spaces, which require regular maintenance. It is also suitable for flushing toilets, a major area of water usage in buildings with high footfall.

For landscaping, this water can irrigate salt-tolerant plants often found in green areas. Air conditioner condensate water, being relatively clean, can be repurposed for refilling cooling towers or as makeup water in HVAC systems. Minimal plumbing adjustments can allow storage and redirection of this water for washing vehicles or cleaning equipment.

Related Credits: *None*

Documentation Required:

1. Narrative describing the measures adopted for re-use of rejected water
2. Calculation indicating the total volume of rejected water generated by the RO process (and/or) Air conditioning system and repurposed for various applications with supporting documents.
3. Plumbing layout indicating the diversion of rejected water to the storage tank.
4. Geotagged photographs and short videos indicating the re-use of rejected water at the interior fit-out.

Exemplary Performance

This credit is not eligible for exemplary performance.

ENERGY EFFICIENCY

Introduction

Since the industrial revolution, the demand for energy has been incessant and has been powered primarily by means of fossil fuels such as coal, petroleum, diesel, etc. Globalizationand the urge to achieve a high standard of living has further fueled the demand for energy.This reliance on fossil fuel based energy resources have resulted in significant environmentalimpacts such as climate change, ozone layer degradation and the rapid depletion of naturalresources. While global energy supply has been on the rise, rapidly growing economies face persistent challenges such as chronic energy shortages and soaring energy costs. Addressing these issues becomes even more critical as the country strives to meet its net-zero targets, which demand a transition to cleaner and more sustainable energy sources while balancing affordability and reliability.

The United Nations Environment Programme (UNEP) estimates that 40% of the energy produced globally is consumed in buildings. Ensuring energy efficiency in buildings therefore achieves the dual goal of reducing energy demand and, as a result, reducing the negative environmental impacts of energy production. By lowering energy consumption, buildings contribute to reducing greenhouse gas emissions, a key step toward reaching net zero emissions. Adopting clean and renewable energy resources helps in reducing the energy demand-supply gap without the harmful impact on the environment.

Interior fit-outs consume energy for lighting, space conditioning and other appliances. Therefore, optimizing energy efficiency in green interior design is crucial to minimize its overall environmental footprint. This module therefore encourages the adoption of measures to achieve energy efficiency, to switch to clean energy sources and to eliminate the use of environmentally harmful substances. A multi-pronged approach is required to effectively combat the negative impacts of the relentless demand for energy.

Eco-friendly Refrigerants & Halons

EE Mandatory Requirement 1

Intent:

To encourage the use of eco-friendly refrigerants and ozone depleting gases thereby reducing environmental impacts.

Compliance options:

Eco-friendly Refrigerants:

Demonstrate that the project's Heating, Ventilation & Air-conditioning (HVAC) equipment and Unitary Air-conditioners installed in the building are Chloro FluoroCarbons (CFC) and Hydro Chloro Fluoro Carbons (HCFC) free.

(And)

Halon free fire suppression systems:

Demonstrate that fire suppression systems used in the building should be free from halons or any other ozone depleting substances.

Green Building Concerns:

CFC (e.g. R-11, R-12, etc.) and HCFC (e.g. R-22, R-123, etc.) refrigerants have a high Ozone Depletion Potential (ODP) and have been one of the contributors to the depletion ofozone in the earth's atmosphere. Halon or halogenoalkane refers to a group of chemicals consisting of alkanes with halogens. Specifically, halomethanes such as Halon 1301 / 13B1were used in fire suppression systems for classes A, B, C and K type fires. However, due to their ozone depletion potential (ODP), halons have been phased out in India.

Photograph indicating the refrigerant type and fire extinguisher type

Approach and Methodology:

To mitigate and, over time, eliminate ozone depletion, India phased out the use of CFCs in 2008 and has committed to phasing out HCFCs by 2030. Modern HVAC systems primarily use HFC (hydro fluoro carbons) refrigerants, which have zero ODP. Projects shall understand that even though HFC refrigerants have zero ODP, they have a significant Global Warming Potential (GWP). As a result, India hasproposed to phase out HFCs starting from 2031 and completing by 2050. While selecting an HVAC system, the project should check the ODP and GWP of the refrigerant. Ideally, the refrigerant should have zero ODP and a low GWP. The project team shall conduct a market survey and procure HVAC systems which do not use CFC / HCFC based refrigerants.

Similarly, while procuring fire extinguishing equipment, the project shall ensure that the equipment does not contain any halons. Replacements for halons include water, foam, dry powder, CEA 410 clean extinguishing agent, CO2 and wet chemical-based fire suppression systems.

Related Credits:

- Energy Efficiency Credit 1: GWP and ODP Calculation
- Energy Efficiency Credit 2: Efficient Space conditioning

Documentation Required:

1. Detailed narrative elaborating the following:
    a. List of the installed air conditioning systems, including the refrigerant types and the areas they serve, indicating that the installations are under client/developer scope.
    b. List indicating the type and quantity of the fire extinguishers and the areas they serve, indicate the installations are under client/developer scope.
2. Declaration letter from the project owner/ HVAC consultant/ manufacturer stating that CFC-free refrigerants and Halons free fire suppression systems are installed in the interior fit-out.
3. Manufacturer cut sheet/ brochure indicating the type of refrigerant used in the installed HVAC system(s) and type of the fire suppression system(s).
4. Geo-tagged photographs of HVAC system(s) indicating the type of refrigerant
5. Geo-tagged photographs of fire extinguisher(s) indicating the type of fire extinguisher

Exemplary Performance

This credit is not eligible for exemplary performance

Sample Calculation

Type of air conditioning system installed	Qty	Capacity (kWr)	Unit	Value	Refrigerant Type
Unitary Split AC	2	3.5	BEE Star Rating	4	R-32
VRV/VRF	2	13.4	EER	3.3	R410A
Water Cooled Chiller	3	13.4	COP	3.3	R134A

Enhanced Eco-friendly Refrigerants

EE Credit 1 Points: 2

Intent

To encourage use of eco-friendly refrigerant/substances which have significantly lower global warming impact, thereby reducing environmental impacts.

Compliance Options:

A. Demonstrating GWP is less than 1000

Demonstrate that refrigerants/ substances and Fire Suppression systems used in the building have and Global Warming Potential (GWP) less than 1,500.

Refrigerants/ Substances/ Fire Suppression Systems with % of GWP	Points
≤ 1,500	1
≤ 1,000	2

Table demonstrating the common refrigerants and their GWP value

Refrigerant	Type	GWP (100-yr)
R-22	HCFC	1810
R-410A	HFC Blend	2088
R-32	HFC	675
R-290 (Propane)	Hydrocarbon	~ 3
R-134a	HFC	1430
R-1234yf	HFO	< 1
R-1234ze(E)	HFO	< 1
R-454B	HFO Blend	466
R-452B	HFO Blend	676
R-407C	HFC Blend	1774

Green Building Concerns:

Global Warming Potential (GWP) is a critical concern in building design because it measures the long-term environmental impact of refrigerants and other chemicals used in building systems. Refrigerants with high GWP, such as HFCs and CFCs, contribute significantly to climate change by trapping heat in the atmosphere, exacerbating global warming. As green building practices focus on reducing carbon footprint and minimizing environmental harm, installing refrigerants with low GWP is essential for achieving sustainability and net-zero goals. The adoption of eco-friendly refrigerants not only helps green buildings meet regulatory standards, like those set by the Montreal Protocol and Kigali Amendment, but also plays a key role in reducing greenhouse gas emissions. By prioritizing low-GWP alternatives, green buildings can reduce their impact on the environment, support climate action, and align with global efforts to combat climate change.

Approach and Methodology:

Interior projects shall prioritize use of eco-friendly refrigerants to reduce environmental impact and align with global/ national sustainability goals. Traditional refrigerants, such as hydrofluorocarbons (HFCs), have high Global Warming Potential (GWP), contributing significantly to climate change. By choosing refrigerants with a GWP of 1500 or 1000, projects can significantly lower greenhouse gas emissions, supporting energy efficiency and regulatory compliance.

Lower GWP alternatives offer improved thermodynamic properties, reducing energy consumption and operational costs. The approach involves selecting HVAC systems designed for eco-friendly refrigerants, ensuring proper maintenance to prevent leaks. By adopting this strategy, interior projects can enhance sustainability, improve indoor air quality, and future-proof their designs against stricter environmental regulations.

Ozone Depletion Potential is the environmental impact that represents the reduction of ozone layer in the atmosphere, this process is due to the increase of concentration of halocarbons in the atmosphere as these gases dissociate the ozone molecules presented, reducing this layer. Reducing the use of refrigerants with low ODP reduces the harm of ozone depletion thereby protecting the earth from harmful UV radiation.

Related Credits:

- Energy Efficiency Mandatory Requirement 1: Eco-friendly refrigerants & Halons
- Energy Efficiency Credit 2: Efficient Space Conditioning System

Documentation required:

1. Narrative elaborating the list of refrigerants installed.
2. Letter from the manufacturer/project owner/HVAC consultant stating that any of the cooling systems having ODP shall be phased out within the certification timeline. Zero ODP and lower GWP based refrigerant shall be used in HVAC&R equipment and fire suppression system.
3. Purchase invoice of the installed air conditioning indicating the make and model.
4. Geotagged photographs indicating the type of refrigerant used in the installed air conditioning system

Exemplary Performance

This credit is not eligible for exemplary performance.

Sample Calculation

Type of air conditioning system installed	Qty	Capacity (kWr)	Unit	Value	Refrigerant Type	Refrigerant GWP
Unitary Split AC	2	3.5	BEE Star Rating	4	R-32	675
VRV/VRF	2	13.4	EER	3.3	R410A	2088
Water Cooled Chiller	3	13.4	COP	3.3	R134A	1430

Efficient Space Conditioning

EE Credit 2 Points: 5

Intent:

Enhance energy efficiency of space conditioning in the interior space, to optimise energy consumption andthereby reducing environmental impacts.

Compliance options:

A: Non Air-conditioned spaces

1. 90% of the total carpet area shall meet the following:

    a. Have door and window openings with at least 5% of the total regularly occupied area for ventilation. Such openings should be provided so as to be connected to exterior environment.

Points are awarded as below:

Openings in percentage	Points
5% openable area to the total carpet area	1
6% openable area to the total carpet area	2
7% openable area to the total carpet area	3
8% openable area to the total carpet area	4
10% openable area to the total carpet area	5
12% openable area to the total carpet area	Exemplary Performance

(or)

Efficiently air conditioned	Points
25% of the carpet area	1
30% of the carpet area	2
35% of the carpet area	3
40% of the carpet area	4
45% of the carpet area	5
50% of the carpet area	Exemplary Performance

b. Implement alternate efficient cooling methods like Evaporating cooling systems, Air Ambiators (25%,30%...50% of the carpet area)

Notes:

- Projects showing credit compliance through openable doors & windows should meet the IE Mandatory requirement Fresh air ventilation and IE Credit thermal comfort criteria
- Thermostatic controls must be provided for each space conditioning zone to control the supply of heating and cooling energy within that zone. Continuous monitoring should be carried out through thermostat and readings should be submitted for the critical months April-May & Nov-Dec (11.00 am to 3.00 pm) for existing interiors.

B: Conditioned spaces

Demonstrate that at least 55% of the total air-conditioned area is effectively air conditioned.

- **Split/ Window Air-conditioners:** Use Bureau of Energy Efficiency (BEE) 3 star[4] and above or equivalent Coefficient of Performance (COP) (or) Energy Efficient Ration (EER)[5]
- **Projects using packaged Air-conditioning system:** Meet the baselines specified in Energy Conservation Building Code (ECBC) 2017 – *refer Annexure B*
- **Projects using Variable Refrigerant Flow (VRF) / Variable Refrigerant Volume (VRV)**: Meet the baselines specified in Energy Conservation Building Code (ECBC) 2017– *refer Annexure B*
- **Projects using Centralized Air Conditioning system**: The chiller COP shouldmeet the baselines specified in ECBC 2017 *refer Annexure B*
- **Heating System**: For projects that require heating systems, install minimum BEE3 star rated heat pumps or systems that meet the COPs specified in ECBC *referAnnexure B*
- Project can show compliance through energy simulation, if the tenant is occupying more than 50% of the base building. *(Baseline for Interiors, as applicable can be obtained*

[4] Database of BEE rated equipment:
[5] For unitary air-conditioners: EER ≥ 2.90, For split air conditioners: EER 3.10

from ASHRAE 90.1, 2010)

- ❖ Install new cooling technologies like Wind Towers, Earth tunnel air conditioning, Geo-thermal Air conditioning.

Notes:

- Projects requiring cooling and heating may accordingly consider the above systems.
- In case, the project team installs air conditioning systems in the non-regularly occupied spaces such as server room, UPS, BMS, energy meter rooms and other critical rooms shall also meet the credit compliance to qualify for the exemplary performance.

Points are awarded as below:

Effectively air-conditioned spaces of regularly occupied areas	Points
55% of conditioned spaces of regularly occupied area	1
60% of conditioned spaces of regularly occupied area	2
65% of conditioned spaces of regularly occupied area	3
70% of conditioned spaces of regularly occupied area	4
75% of conditioned spaces of regularly occupied area	5
95% of conditioned spaces of regularly occupied area along with conditioned critical spaces	Exemplary Performance

C: Mix mode Ventilation

Project team shall demonstrate that 100% of the total carpet area shall be naturally ventilated / efficiently air conditioned.

Green Building Concerns

In building design, the use of star-rated air conditioning (AC) and ventilation systems is a significant consideration due to their direct impact on energy consumption, indoor air quality, and overall environmental sustainability. Star ratings (such as those from the Bureau of Energy Efficiency in India or Energy Star in the U.S.) provide an indication of the energy efficiency of these systems, with higher-rated products exhibit lower energy consumption while maintaining equivalent thermal comfort and operational performance. Green buildings prioritize reducing

carbon emissions and optimizing energy efficiency, by emphasizing on the implementation of energy-efficient HVAC (Heating, Ventilation, and Air Conditioning) systems to achieve these goals. By using star-rated systems, buildings can significantly lower electricity consumption, which, in turn, reduces greenhouse gas emissions, particularly when the electricity is sourced from fossil fuels.

Approach and Methodology

Interior fit-out projects can achieve energy efficiency in the interior spaces by adopting a multi-pronged strategy of ensuring energy efficiency in each of the following areas: thermal comfort, lighting and efficient appliances.

Thermal comfort in non-air-conditioned spaces

Option A : Adequate openings to the exterior environment The best way to achieve thermal comfort in a non-conditioned space is to ensure adequate circulation of air within the space. Providing adequate openings to the exterior environment increases air circulation while ensuring that the air inside the space remains fresh. Projects must ensure that the openable area to the exterior environment is at least 5% of the floor areas of each interior space. The project can also consider providing openings in multiple orientations to achieve cross ventilation, which is very effective in enhancing air circulation. Also, providing high ventilators enhances natural air flow by allowing warm air to exhaust while pulling cool air into the space at a lower level, which further enhances thermal comfort inside the space.

Space with adequate exterior openings and a high ventilator

Option B : Alternate efficient cooling systems

Fit-outs with non-air-conditioned spaces can also consider installing low energy cooling systems which operate on the principle of evaporative cooling. Desert coolers and air ambiators are examples of low energy cooling systems. Other low energy cooling systems include systems which use phase change materials that absorb or discharge heat as they change from one state to another.

Thermal comfort in conditioned spaces

Space conditioning is typically the highest source of energy consumption in buildings and energy use for space conditioning generally ranges from around 50% to as high as 70% of the

total energy consumption of buildings. Studies in India has indicated that air-conditioning can contribute to as much as 50% of the total peak electricity demand during summer, especially in urban regions. Therefore, fit outs which have conditioned spaces shall consider installing energy efficient air-conditioning systems to be energy efficient. The IGBC Green Interiors standard defines efficiency benchmarks for various types of air-conditioning systems:

- Unitary window / split systems: must be at least BEE 3 Star rated or must have an equivalent energy performance.
- Packaged air-conditioning systems: must meet efficiency benchmarks specified in ECBC (refer Annexure B)
- *Projects using Variable Refrigerant Flow (VRF) / Variable Refrigerant Volume (VRV)* shall meet the baselines specified in Energy Conservation Building Code (ECBC) 2017– *refer Annexure B*
- Centralized air-conditioning systems: must adhere to chiller efficiency benchmarks specified in ECBC (refer Annexure B)
- Heating systems: must be BEE 3 Star rated or adhere to efficiency benchmarks specified under ECBC (refer Annexure B)
- Projects can consider alternate low-cost cooling techniques such as geo- thermal cooling, earth tunnels, wind towers, etc. if feasible. Projects can also explore installing energy efficiency measures such as heat exchangers and energy recovery wheels to their air-conditioning systems to improve efficiency.

Energy efficient chillers installed in a certified green project.

Related Credits:

- Energy Efficiency Mandatory Requirement 1: Eco-friendly Refrigerants and Halons
- Energy Efficiency Credit 1: Enhanced Eco-friendly Refrigerants
- Energy Efficiency Credit 5: Energy metering and management
- Energy Efficiency Credit 6: On-site / Off-site Renewable Energy
- Indoor Environment Mandatory Requirement 2: Fresh Air Ventilation
- Indoor Environment Credit 1: Enhanced Fresh Air Ventilation
- Indoor Environment Credit 3: Thermal Comfort

Documentation Required:

A. Non-air-conditioned spaces

1. Narrative elaborating measures implemented to condition the space and maintain thermal comfort throughout the year.

2. Calculation indicating percentage of openable area vs carpet areas of space.

3. Floor plan indicating the door-window schedule.

4. For *new interior project*, latest *six months* data of temperature and relative humidity maintained.
5. For *existing interior project*, latest *one year data* of temperature and relative humidity maintained.
6. Geo-tagged photographs and short videos of the door & openings

B. Air-conditioned spaces

1. List of air conditioning systems installed in project & corresponding area served by each of them
2. Calculation indicating percentage of efficiently air-conditioned area (formulae embedded excel sheet)
3. HVAC layout indicating air conditioned and non-area conditioned area, fresh air supply duct, return air duct, fresh air intakes, location of air conditioning indoor & outdoor unit

along with fresh air system. *(Please keep all other irrelevant layers off)*

4. Purchase invoice of all installed air-conditioned system indicating make & model
5. Technical specification/ manufacturer cut-sheets/ brochures / declaration letter from the manufacturer of the installed air-conditioned system indicating COP value.
6. Geo tagged photographs and short videos of installed air-conditioned system indicating make & model and COP value.
7. Narrative elaborating the working of the passive technology installed.
8. Technical specifications and geotagged photographs & videos of the installed passive technologies such as Wind towers, Earth tunnel, Geo-thermal, etc.

Exemplary Performance

This credit is eligible for exemplary performance under ID Credit 2.

Compliance Option	Exemplary Performance
Non-Air-conditioned spaces	12% openable area to the total carpet area
Alternative efficient cooling methods	50% of the carpet area
Conditioned spaces	95% of conditioned spaces of regularly occupied area along with conditioned critical spaces

Sample Calculation

Conditioned spaces

Air-Conditioned Spaces	Type of air conditioner	Scope of air conditioner	Area of the space (sq ft)	Area Meeting the credit compliance
Workstation Area	Unitary Split AC	client	5326	5326
Workstation Area-JS	VRV/VRF	client	490	490
Café Area	Water Cooled Chiller	client	692	692
Meetings Room Area	Water Cooled Chiller	client	742	0
Cabins Area	Water Cooled Chiller	client	325	0
UPS Room Area	Unitary Split AC	client	95	0
AHU Room Area	Unitary Split AC	client	279	0
Reprographic/ Store Area	Unitary Split AC	client	43	0
Reception Area	Unitary Split AC	client	319	0
Phone Booths Area	Unitary Split AC	client	260	0
Lounge Areas	Unitary Split AC	client	177	0
Server Room	Unitary Split AC	client	82	0
Board Room	Unitary Split AC	client	524	0

Efficient Space Conditioning (Conditioned Spaces)	
Total air-conditioned area	9354
Total efficiently air-conditioned area	6508
Percentage of area efficiently air conditioned	70%

Non-air-conditioned spaces

Regularly occupied spaces (eg. Core workstation, meeting room, cabin etc)	Carpet area of regularly occupied space (sq m)	Openable Window Area- Towards Exterior (sq m)	Openable Door Area - Towards Exterior (sq m)	Total Opening Area (sq m)	% of opening area to total carpet area (Designed)
Open Office	494.80	111	1	112	22.64%
Conference room	45.52	1	3	4	8.79%
Café Area	64.29	2	1	3	4.67%
Meetings Room Area	68.93	1	3	4	5.80%

Total regularly occupied area with natural ventilation (sq m)	673.54
Minimum percentage of opening	4.67%

Energy Efficient Lighting

EE Credit 3 Points: 4

Intent:

Enhance energy efficiency by optimizing the lighting fixtures in the interior spaces, to reduce energy consumption andthereby reducing environmental impacts.

Compliance options:

1. **Lighting** *(Points available: 2)*

   Lighting Power Density (LPD): Demonstrate that the LPDs of the interiors space is reduced by at least 20% over baselines specified in ECBC 2017 *refer Annexure C*

   a. Building Area Method

   b. Space by Space function Method

Notes: The project team shall consider all types of lighting fixtures not limited to ambient lights, task lights, decorative lights, etc towards the credit calculation.

Points are awarded as below:

Lighting Power Density	Points
20%	1
25%	2

2. **Sensors** (*1 point for each measure, max 2 points)*

   - ❖ Minimise artificial lighting in atleast 25% of the regularly occupied spaces during the day. Project can consider strategies like Light pipes, other passive features

   (or / and)

   - ❖ Use daylight sensors, occupancy sensors in the interior space to cover atleast 75% of the regularly occupied areas

   (or / and)

   - ❖ Use motion sensors, occupancy sensors in the interior space to cover atleast 95% ofthe non-regularly occupied areas

Green Building Concerns:

Minimizing Lighting Power Density (LPD) is a critical focus in building design, as it directly influences energy efficiency, and overall environmental performance. LPD refers to the amount of power used per unit area for lighting, and by lowering it, buildings can significantly reduce their energy demand and carbon emissions, helping to meet sustainability goals.

Approach and Methodology

Strategies to reduce LPD include adopting energy-efficient lighting technologies like LEDs, maximizing daylighting through window design and skylights, and using smart lighting controls such as occupancy sensors and dimming systems to ensure lights are only used when necessary. These measures reduce energy consumption while also improving indoor environmental quality (IEQ) by optimizing lighting levels for comfort and productivity.

Energy efficiency in lighting can be achieved by avoiding over-design of lighting and by using energy efficient lighting fixtures and automatic lighting controls.

- ❖ **Optimal Lighting Design:** Optimal lighting design is achieved when lighting provided does not exceed the level required to safely and comfortably do the functions intended in the interior space. Excessive lighting is common and leads to unnecessary energy use. The Energy Conservation Building Code (ECBC) specifies the required lighting levels (in lux) for different functions and spaces to promote energy efficiency. The lighting design should

be formulated to provide the required lux level without exceedingit. Artificial lighting simulation can be conducted to ensure that the lux level achieved at the working plane in each space is as per the levels specified in ECBC.

- **Energy Efficient Lighting Fixtures:** Once the lighting design is formulated todetermine the number and types of light fixtures required to achieve the optimallux levels in a space, the project shall explore options for light fixtures which can produce the required lighting level with the least energy consumption. Projects can consider LED or BEE star rated energy efficient lighting fixtures to achieve therequired lighting levels. The project can then calculate the lighting power density (energy consumed per unit area) achieved by each design and compare it againstthe ECBC 2017 baseline (Annexure C). This analysis can help the project select appropriate fixtures that will achieve the targeted lighting power densityreduction.

Sensors

- **Automatic Lighting Controls:** Projects can also use automatic controls to ensure that artificial lighting is used only when required. Such controls can greatly helpin reducing energy consumption by automatically turning light fixtures on and off as required. Some of the commonly used lighting controls include:

- **Timer controls** automatically turn artificiallights on and off at pre-specifiedtimes based on the operating schedule of the project. For example, a timer control could be programmed to automatically turn lights on at 6:00 pm and turn lights off at 9:00 pm. Timer controls are often incorporated into building management systems which control a wide range of building systems and allow timer programs to be set by days of the week and by season.

- **Daylight / lux level sensors** can assess natural lighting levels in a space and adjust the artificiallighting to provide for any shortfall in the lighting level required in a space. While lux level sensors are typically used to turnartificial lights on or off, some sensors can also be programmed to adjust the lighting levels of the fixtures to deliver incremental lighting as required.

- **Occupancy sensors** can detect the presence or absence of people in a space and automatically turn lights on and off. Presence sensors are typically used in spaces which are occupied intermittently, e.g. meeting / conferencerooms, toilets, corridors, staircases,

etc. These controls are programmed to turn lights on as soon as a person is detected in a space and turn lights offwithin a specified time after the last person has left the space.

- **Combinations**: Some controls combine the functions of occupancy and luxlevel sensors in a single unit.

Photograph indicating occupancy sensor installed in the ceiling

Related Credits:

- Energy Efficiency Credit 5: Energy metering and management
- Energy Efficiency Credit 6: On-site / Off-site Renewable Energy

Documentation Required:

Lighting Power Density

1. Narrative elaborating the compliance option adopted and list of lighting fixtures installed.
2. Lighting layout indicating the wattage of lighting fixtures in pdf format floor plans (Please switch off the irrelevant layers)
3. Detailed LPD reduction calculation indicating the wattage of energy efficient lighting fixtures (formulae embedded excel sheet)
4. Purchase invoices of all the lighting fixtures indicating the make & model, quantity
5. Technical specification/ manufacturer cut-sheets/ brochures the installed lighting

fixtures indicating the wattage

6. Geo-tagged photographs of the installed lighting fixtures back panel indicating the wattage, make & model.

Sensors

1. Narrative elaborating the type of sensors installed and their working mechanism.
2. Layout indicating the location of sensors with clear legend in pdf format floor plans *(Please switch off the irrelevant layers)*
3. Calculation indicating the percentage of the area covered by sensors (*formulae embedded excel sheet)*
4. Purchase invoices of all the sensors indicating the make & model, quantity
5. Technical specification/ manufacturer cut sheets/ brochures the installed sensors indicating the sensitivity and area covered
6. Geo tagged photographs and short videos indicating the working of the installed sensors

Exemplary Performance

This credit is eligible for exemplary performance under ID Credit 2 *(Maximum 1 point)*.

- LPD reduction above 30% over baseline

(or)

- Installation of sensors in more than 95% of the total carpet area

Building Area Method

Description of spaces (e.g. core workstation, meeting room, electrical room, restroom etc)	Carpet Area (sq m)	Lighting fixtures			Total wattage
		Type (decorative, linear, CFL etc)	No. of lighting fixture	Wattage of each lighting fixture	
Workstation Area 1	494.80	LED linear lights	4	20	80
Workstation Area 2	45.52	LED troffer	4	15	60
Cafeteria	64.29	LED troffer	4	12	48
Hand wash Area	6.22	LED spotlights	2	6	12
Dish wash Area	4.37	LED linear lights	8	15	120
Meetings Room	68.93	LED decorative fixtures	1	30	30
Cabins	30.19	LED linear lights	2	30	60
UPS Room	8.83	LED linear lights	2	31	62
AHU Room	25.92	LED spotlights	2	45	90
Printer Room	3.99	LED spotlights	2	25	50
Reception	29.64	LED spotlights	3	6	18
Phone Booth	24.15	LED spotlights	4	6	24

Total carpet area (sq.m)		806.86
Total wattage (W)		654
Design LPD (W/sq.m)		0.81
Baseline LPD (W/sq.m)	Office Building	9.50
Percentage of LPD reduction		91.47%

Space Function method

Description of spaces	Type of Space	Carpet Area (sq m)	Lighting fixtures			Total wattage	Design LPD (W/sq m	Baseline LPD (W/sq.m)	LPD reduction (W/sq m)
			Type (decorative, linear, CFL etc)	No. of lighting fixture	Wattage of each lighting fixture				
Workstation Area 1	Business (Open Plan)	494.80	LED linear lights	4	20	80	0.16	10	98.38 %
Workstation Area 2	Business (Open Plan)	45.52	LED troffer	4	15	60	1.32	10	86.82 %
Cafeteria	Hotel Dining	64.29	LED troffer	4	5	20	0.31	9.1	96.58 %
Hand wash Area	Laundry/ Washing	6.22	LED spot lights	2	6	12	1.93	7.5	74.29 %
Dish wash Area	Laundry/ Washing	4.37	LED linear lights	8	5	40	9.16	7.5	-22.14 %
Meetings Room	Conference Meeting	68.93	LED decorative fixtures	1	2	2	0.03	11.5	99.75 %
Cabins	Business (Open Plan)	30.19	LED linear lights	2	2	4	0.13	10	98.68 %
UPS Room	Storage	8.83	LED linear lights	2	2	4	0.45	6.8	93.33 %
AHU Room	Electrical / Mechanical	25.92	LED spot lights	2	3	6	0.23	7.1	96.74 %
Printer Room	Electrical /	3.99	LED spot lights	2	2	4	1.00	7.1	85.90 %

	Mechanical								
Reception	Business (Open Plan)	29.64	LED spot lights	3	2	6	0.20	10	97.98 %
Phone Booth	Business (Open Plan)	24.15	LED spot lights	4	2	8	0.33	10	96.69 %

Total carpet area (sq m)	823.30
Percentage of LPD reduction	20.34%

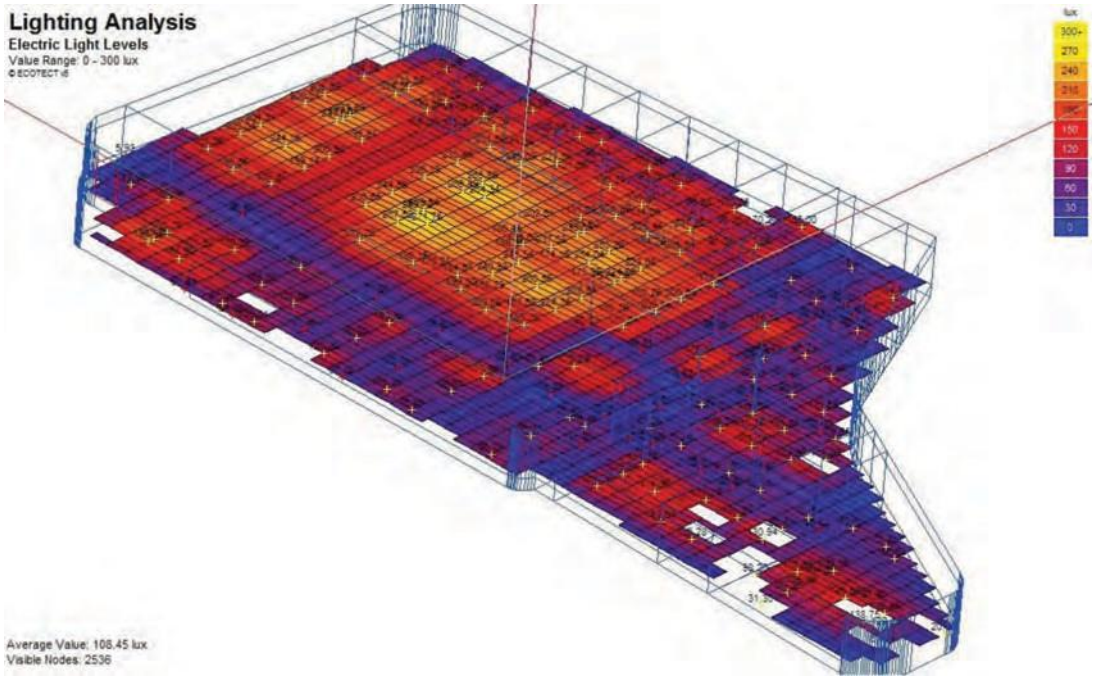
Sensors

Description of spaces (e.g. core workstation, meeting room, electrical room, restroom etc)	**Regularly / non regularly occupied spaces**	**Total carpet area (sq ft)**	**Area covered by daylight / occupancy / motion sensors (sq ft)**
Workstation Area	Regularly occupied space	5326	-
Workstation Area-JS	Regularly occupied space	490	-
Café Area	Regularly occupied space	692	-
Hand wash Area	Non regularly occupied space	67	-
Dish wash Area	Non regularly occupied space	47	-
Meetings Room Area	Regularly occupied space	742	742
Cabins Area	Regularly occupied space	325	325

UPS Room Area	Non regularly occupied space	95	-
AHU Room Area	Non regularly occupied space	279	-
Reprographic/ Store Area	Non regularly occupied space	43	43
Reception Area	Regularly occupied space	319	-
Phone Booths Area	Regularly occupied space	260	260
Lounge Areas	Regularly occupied space	177	-
Server Room	Non regularly occupied space	82	-
Board Room	Regularly occupied space	524	274

Energy Efficient Lighting (Sensors Regularly occupied spaces)	
Total regularly occupied area (sq ft)	8855
Total regularly occupied area covered by sensors (sq ft)	1601
Percentage of regularly occupied spaces covered by sensors	18%
Energy Efficient Lighting (Sensors Non - Regularly occupied spaces)	
Total non-regularly occupied area (sq ft)	613
Total non-regularly occupied area covered by sensors (sq ft)	43
Percentage of non-regularly occupied spaces covered by sensors	7%

Simulation Approach:



Snapshot showing the artificial lighting simulation analysis of a commercial office interior. The simulation demonstrates how the lighting design is aimed at delivering higher lux levels required above working areas and lower levels required in circulation spaces.

Energy Efficient Appliances

EE Credit 4 Points: 1

Intent:

Enhance energy efficiency in the interior spaces by installing energy efficient appliances, to optimise energy consumption andthereby reducing environmental impacts.

Compliance options:

Projects shall demonstrate that atleast 3 installed appliances are minimum BEE[1] 3 star rated / Energy Star[2] 3 star labelled appliances (e.g. Refrigerators, Photocopiers, Printers, Water coolers, UPS, Coffee vendingmachines, TVs, Fans, Ovens and others as appropriate)

Green Building Concerns:

Projects can further improve the energy efficiency of the interior spaces byopting for energy efficient appliances. The continual advances in appliance technology have resulted in significant reduction in energy consumption by appliances. The projects shall ensure that the appliances installed have been rated under one of these programmes: BEE Star rating (3 Star or above) and Energy Star rating. Projects shall understand that for some appliances (e.g. ceiling fans) there might be a wide range of efficiency levels within the same rating level (e.g. BEE 5 Star level). Therefore, projects shall understand the above-mentioned ratings to shortlist appliances and use additional parameters to select the most efficient appliances.

Photographs indicating the star rating of the appliances – energy star highlight

Approach and methodology

To promote sustainable practices and reduce environmental impact, projects shall prioritize the use of energy-efficient appliances with low environmental footprints. While selecting appliances, projects shall consider energy efficiency and also the lifecycle environmental impacts, including embodied energy and emissions associated with their manufacture and disposal. Regular maintenance and user education should complement the selection to maximize the appliances' efficiency and environmental benefits. Installation of appliances with advanced technologies to minimize resource use, contribute to indoor air quality, and support long-term sustainability and net-zero goals.

Related Credits:

- Energy Efficiency Credit 5: Energy metering and management
- Energy Efficiency Credit 6: On-site / Off-site Renewable Energy

Documentation Required:

1. List of energy efficient appliances installed in the project.
2. Purchase invoices of the energy efficient appliances indicating the make & model
3. Manufacturer cut-sheets/ brochures indicating the BEE 3-star rating/ 3-star Energy star rating of proposed appliances
4. Geo-tagged photographs of the energy efficient appliances indicating the BEE 3-star rating/ 3-star Energy star rating

Exemplary Performance

This credit is not eligible for exemplary performance

Case Study

The project team has installed energy efficient appliances such as computer monitors, printers and televisions which are Energy Star rated / minimum BEE 3 star rated. The project team has demonstrated the credit compliance by submitting the geotagged photographs indicating the star rating of the installed appliances and the technical specifications of the installed appliances.

Hence, this project qualifies for 1 point.

Energy Metering & Management

EE Credit 5 Points: 4

Intent:

Encourage sub-metering and continuous monitoring to implement energy efficiency measures, thereby reducing environmental impacts.

Compliance options:

1. Demonstrate sub-metering for atleast one of the following:

(1 point for each measure, max 2 points)

- Lighting circuits
- Power back up systems
- Elevators, escalators[6]
- BTU meter for chilled water consumption
- Meters measuring renewable energy (generation / consumption)
- Any other major equipment and systems

2. Demonstrate that the building management system (BMS) is in place to control and monitor atleast one of the following systems as applicable:

(1 point for each measure, max 2 points)

- Air-conditioning management system
- Lighting management system
- Elevator management system
- Fresh air monitoring system
- CO_2 control & monitoring system

(or)

[6] Shall be applicable for projects having multiple floors.

Projects less than 500 sq.m shall demonstrate the alternate compliance path.

Alternate Compliance path:

Projects shall demonstrate a system which enables continuous monitoring and controlling for more than two end use applications (not limited to) lighting, air conditioning (temperature, relative humidity), fans, CCTV, water meters, etc.

Green Building Concerns:

Nowadays, buildings as well as fit outs typically consist of a complex set of spaces and systems that have varying energy requirements and usage patterns. A space or system that is not energy efficient will adversely impact the overall energy efficiency of the fit-out. Corrective measures are difficult to identify and implement unless the energy use of specific systems and spaces (or groups of similar spaces) is independently monitored and tracked.

Approach and Methodology:

Monitoring and tracking energy use is key to optimizing energy use over the long-term and ensuring that energy conservation measures implemented in the fit-out are effective. In this regard it is essential that energy use is monitored and tracked in sufficient granularity i.e. by specific spaces and / or systems. This allows the project to evaluate the energy efficiency of each space / system and take measures to improve efficiency as required. Sub-metering allows projects to analyze energy use per space / system and optimize settings and schedules.

A fit-out may have spaces which are differentiated by function, location, occupants, etc. By tracking and monitoring energy use of each space, the project can optimize energy use in each space. Typically, a fit-out may have open office layouts for workstations, cabins, meeting rooms, toilets, storage rooms, etc., each with its own energy use pattern and level. By providing sub-meters for each space type, a project can monitor the individual spaces and take specific action to improved energy efficiency in each space. For instance, a fit-out might install occupancy sensors in meeting rooms and toilets and daylight sensors in large open offices to turn lights on and off as required. Similarly, a fit-out can provide sub-meters to separately monitor

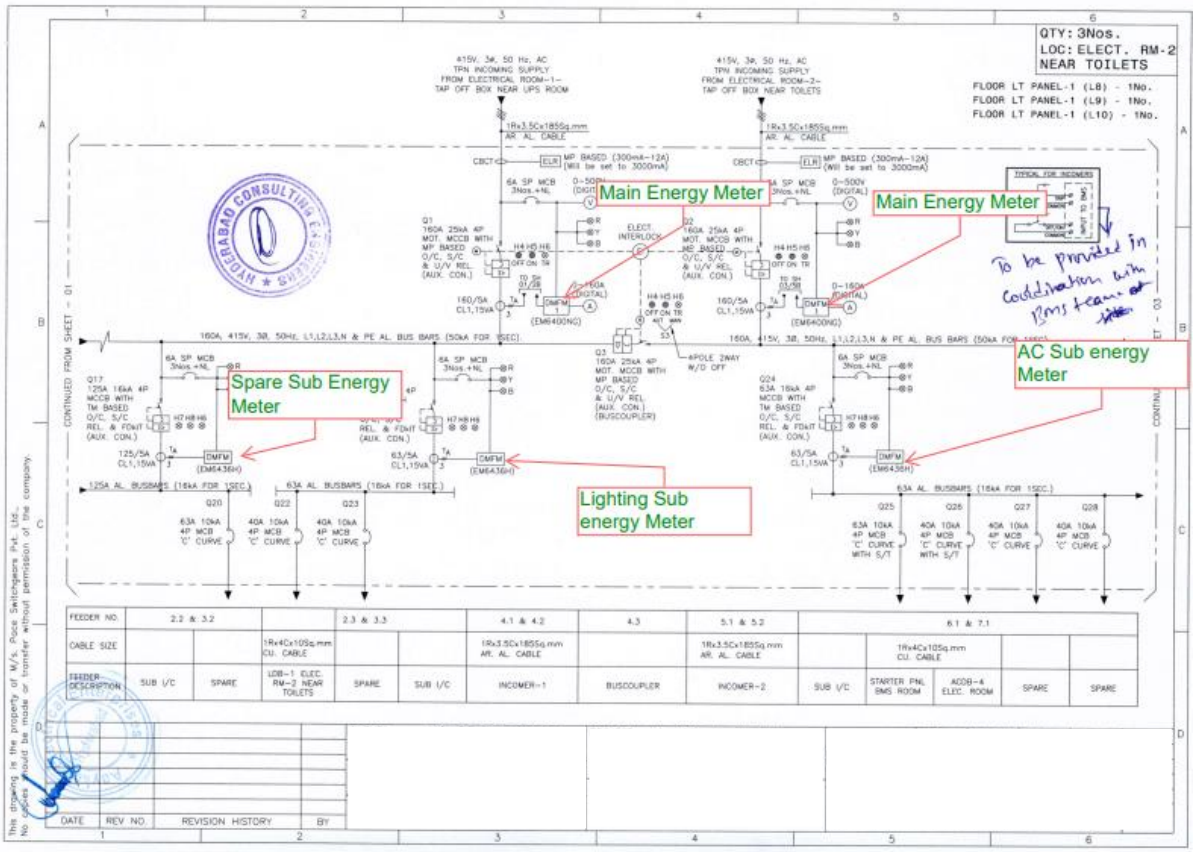
specific systems to monitor their energy use and take corrective action or additional energy conservation measures if required.

Following are examples of commonly implemented sub-metering:

- Sub-meters for various types of energy use such as lighting, air-conditioning and for specific systems.
- Sub-meters for spaces occupied by various departments or teams
- Sub-meters for exclusive elevators / escalators for use of specific floors
- BTU meters which monitor how much chilled water is used by each tenant

The project shall analyze its spaces and systems and identify those which are likely to have unique energy use patterns or levels. Such spaces and systems should be provided with sub-meters.

A dedicated sub-meter installed in a interior space for monitoring the energy consumption of space conditioning system and lighting system.

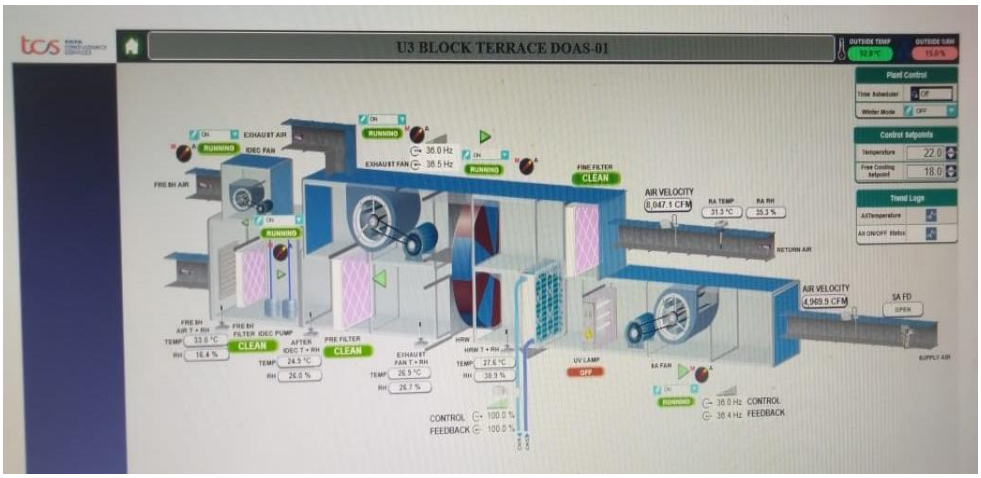


Sample illustration indicating the electrical single line diagram.

Building management systems (BMS) are used for monitoring and controlling various systems installed in a building such as lighting, air-conditioning, renewable energy systems and mechanical systems such as elevators. BMS typically collect data from sub-meters andsensors, which can be manually interpreted or automatically interpreted to take follow-up action. BMS allow easy monitoring of usage and performance of systems via dash boards and reports and allow projects to identify areas of energy wastage and take corrective actionwhere needed.

Following are examples of automatic controls which are typically part of BMS:

- CO_2 sensing and automatic fresh air inflow in HVAC systems,
- Precise control of schedule of lighting, air-conditioners, automatic blinds,
- Lux level sensing and automatic control of lighting systems to ensure that lighting levels required for various functions,
- Temperature settings that are used to automatically turn air-conditioning on / off to maintain temperature in a desired range.



Snapshots from BMS software installed in a building to monitor and control the working of the Air Handling units (AHU).

Related Credits:

- Energy Efficiency Credit 3: Efficient Space Conditioning
- Energy Efficiency Credit 6: On-site / Off-site Renewable Energy

Documentation Required:

Sub metering

1. Narrative describing the location of the sub-meters and end use applications being monitored
2. Single line diagram (SLD) indicating the locating of the sensors (pdf format floor plan)

3. Purchase invoice of the metering systems indicating the make and model.
4. Geo-tagged photographs and short videos of the installed sub-meters with permanent labelling indicating the kWh reading

Building Management System

1. Narrative describing the application of BMS in the project and end use applications being monitored
2. Purchase invoice of the BMS indicating the make and model.
3. Geo tagged photographs and short video of the installed BMS interface indicating the project name and end use applications being monitored
4. For *existing interior projects,* one year data of all the end use applications being monitored
5. For *new interior projects,* three months data of all the end use applications being monitored.

Exemplary Performance

This credit is not eligible for exemplary performance

Case Study

The project team has installed a BMS for monitoring and controlling HVAC (temperature and relative humidity, CO2) and Lighting. Also, the project team was able to monitor the temp, relative humidity and CO2 levels.

Hence, this project is eligible for 2 points.

Off-site/ On-site Renewable Energy

EE Credit 6 **Points: 6**

Intent:

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

Compliance options:

Demonstrate percentage savings through on-site (and/or) off-site renewable energy generation to offset total annual energy consumption of the interior fit-out project boundary

Option 1 Install On-site renewable energy systems

Percentage of On-site Renewable Energy Generated to the Total Annual Energy Consumption	Points
2% of total energy consumption	1
4% of total energy consumption	2
6% of total energy consumption	3
8% of total energy consumption	4
10% of total energy consumption	5
12% of total energy consumption	6

(or)

Option 2 Invest in Off-site renewable energy systems specific to project

2a. Power Purchase Agreement

2b. Green Tariff

*2c. Renewable Energy Certificates purchased from a central agency, National Load Dispatch center (NLDC) and regulated by Central Electricity Regulatory Commission (CERC)**.

Percentage of Off-site Renewable Energy Generated to the Total Annual Energy Consumption of the Building	Points
5% of total energy consumption	1
10% of total energy consumption	2
15% of total energy consumption	3
20% of total energy consumption	4
25% of total energy consumption	5
30% of total energy consumption	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
5% of total energy consumption	1
10% of total energy consumption	2
15% of total energy consumption	3
20% of total energy consumption	4
25% of total energy consumption	5
30% of total energy consumption	6

Notes:

- *Renewable energy sources include solar energy, wind power, biomass, etc.*
- *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.*
- *In case the base building owner provides on-site renewable energy that is shared with tenants, a formal agreement must be established between the owner and the tenants specifying the terms for distribution, allocation, metering, and use of the generated renewable energy*
- *The project team shall have an agreement of 1 year at least with the Electricity Board for purchasing Green Power with clauses mentioning for extension for tenure of two more years*
- *Off-site renewable energy 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 recognize 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 energy traded through Energy Exchange Platform (IEX/other CERC approved), and the same should reflect in the energy bill of respective months.*

Green Building Concerns:

Approximately 81% of the primary energy (raw power such as coal, crude oil, natural gas, etc.) and 70% of the electricity used in India are generated from non-renewable, fossil fuels such as coal, natural gas and crude oil[1]. This type of energy generation results in widespread environmental pollution that occurs duringthe extraction of raw materials as well as generation of power, depletion of resources and loss of bio-diversity.

Approach and Methodology:

Renewable energy mitigates environmental impact and the depletion of natural resources associated with fossil fuel energy use. India has a vast potential for renewable energy, solar as well as wind, which has largely been untapped as yet. The adoption of renewable energy is critical in combating climate change as well as ensuring that natural resources are available for future generations. A wide range of renewable energy systems are now available such as:

- Solar Photo-Voltaic systems (on or off-grid)
- Wind Turbines
- Solar PV-Wind Hybrid systems
- Small Hydro-electric Turbines

- Biomass
- Other types such as geo-thermal, fuel cells, etc. which are approved by theMinistry of New and Renewable Energy (MNRE)[7]

The project should estimate its annual energy consumption by conducting an energy simulation (Performance Method – suitable for new fit-outs) or by measuring its annual energy consumption (suitable for existing fit-outs). Please refer Annexure E for guidelinespertaining to the Performance Method. Projects may implement renewable energy systemson-site or offset energy use against renewable energy systems implemented off-site.

Related Credits:

- Energy Efficiency Credit 3: Efficient Space Conditioning
- Energy Efficiency Credit 5: Energy Metering and Management

Documentation Required:

Option 1 On-site Renewable Energy

1. Narrative elaborating the measures implemented
2. Calculation indicating the percentage of energy consumption met through RE energy
3. Layout indicating the PV panels location and capacity in pdf format floor plan (Please switch off the irrelevant layers)
4. Technical specifications / manufacturer brochure / declaration letter from the manufacturer indicating the capacity & efficiency
5. Purchase invoice indicating the make and model and capacity of RE System.
6. Renewable energy generation report
7. Annual energy consumption bills indicating the renewable energy units generated for atleast 1 year.
8. Geotagged photographs and short videos of the renewable energy plant indicating the capacity

Option 2a On-site Renewable Energy: Power Purchase agreement

1. Narrative elaborating the measures implemented
2. Calculation indicating the percentage of energy consumption met through RE energy
3. Power purchase agreement copy indicating the project name, vendor, capacity and tenure procured
4. Declaration letter from the owner that off-site renewable energy will be purchased for atleast next three years of the project
5. Annual energy consumption bills indicating the renewable energy units generated for atleast 1 year

Option 2b On-site Renewable Energy: Green Tariff

1. Narrative indicating the compliance option adopted
2. Annual energy consumption bills
3. Calculation indicating the percentage of energy consumption met through RE energy
4. Green Tariff application form indicating the project name, vendor, capacity and tenure procured
5. Green Tariff certificates
6. Declaration letter from the owner that off-site renewable energy will be purchased for atleast next three years of the project

Option 2c Renewable Energy Certificates purchased from a central agency, National Load Dispatch center (NLDC) and regulated by Central Electricity Regulatory Commission (CERC)*.

1. Narrative indicating the compliance option adopted
2. Annual energy consumption bills
3. Calculation indicating the percentage of energy consumption met through RE energy
4. REC certificates
5. Declaration letter from the owner that off-site renewable energy will be purchased for atleast next three years of the project

Exemplary Performance

This credit is eligible for exemplary performance under ID Credit 1 - Innovation in DesignProcess

Option 1: If project team install On-site renewable energy systems for more than 14% of annual energy consumption

(or)

Option 2: If project team invest in Off-site renewable energy systems for more than 35% of annual energy consumption

(or)

Option 3**:** If project team invests in combination of On-site & Off-site renewable energy systems for more than 35% of annual energy consumption

Case Study

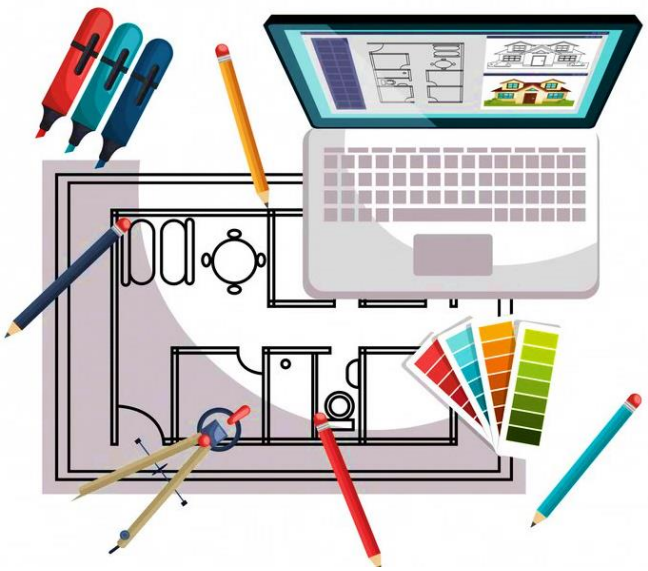
A small fit-out hosting an architecture firm with 10 employees has an annual energy consumption of approximately 5,000 KWh. The fit-out has installed a solar PV system of 180 Watts capacity which generates 0.9 KWh per day or approximately 270 KWh per year, amounting to 5.4% of the annual energy use of the fit-out.

Hence, the project qualifies for 2 points under this credit

Sample Calculation

S. No.	Month	Energy Consumption (as per bills) in kWh	On-Site Renewable Energy Generation (kWh)	Off-Site Renewable Energy Procured (kWh)
1	Jan-24	1000	900	100
2	Feb-24	1395	1168	1168
3	Mar-24	1400	1450	0
4	Apr-24	2535	1465	1243
5	May-24	2800	1500	600
6	Jun-24	2534	1465	700
7	Jul-24	2205	590	590
8	Aug-24	2700	915	915
9	Sep-24	2600	850	800
10	Oct-24	2610	124	124
11	Nov-24	1395	875	214
12	Dec-24	2670	900	300
Total		**25844**	**12202**	**6754**

Percentage of energy consumption met through on-site renewable energy	47%
Percentage of energy consumption met through off-site renewable energy	26%



INTERIOR MATERIALS

Introduction

Building and construction activities worldwide consume 40-50 percent of total global use World Green Building Council, and the sector is responsible for a significant portion of global greenhouse gas emissions, contributing around 37% of the total (UN Environment program). In India, the Construction sector contributes towards 8.91% of the Indian GDP and is expected to remain buoyant due to increased demand from real estate and infrastructure projects. As a result, the demand for raw materials from the construction sector in India is also expected to grow rapidly in the coming years. Interior fit-out projects also tend to be material intensive, which have wide ranging environmental impacts such as the depletion of natural resources, deforestation and pollution arising from extraction, manufacturing and transportation of construction materials.

Adopting sustainable practices is essential to tackle these challenges. A key strategy for sustainability is minimizing the use of virgin raw materials by emphasizing the reuse and recycling of existing materials, thereby contributing to net-zero waste goals. Life Cycle Analysis (LCA) further supports this approach by evaluating the environmental impacts of materials throughout their lifecycle, from extraction and transport to processing, installation, reuse, recycling, and disposal. Effective waste management during construction and the occupancy phase also plays a critical role in achieving these objectives. Green products and materials are therefore expected to have a much wider application and demand in the future. Major product and equipment manufacturers are taking innovative steps to respond to this growing demand and are increasingly providing certified green products and materials that meet specific environmental criteria.

This module encourages the use of low energy and certified green products / materials while discouraging the consumption of virgin raw materials. For instance, salvaged materials substitute new materials and help reduce emissions due to extraction of raw materials and extend the life of such materials. The use of materials extracted and manufactured locally reduces the energy required for transportation. The use of rapidly renewable materials like bamboo, eucalyptus and bagasse in interiors also help mitigate the depletion of non-renewable resources.

Segregation of Waste, Post Occupancy

IM Mandatory Requirement 1

Intent:

Facilitate segregation of waste at source so as to prevent such waste being sent to landfill.

Compliance options:

Provide color coded bins to collect different types of waste and handover to the appropriate authorized recycle vendor.

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

Green Building Concerns:

As urbanization has expanded globally, many communities have managed waste primarily by dumping it in landfills. Such practices have resulted in a range of environmental issues such as soil and water contamination, air pollution due to burning, fire hazards, health hazards, etc. Commingled waste, which refers to a mixture of various types of waste-such as plastics, metals, paper, and organic materials combined in a single stream, is particularly difficult to recycle and manage in an environmentally sensitive manner.

Approach and Methodology:

Effective waste management is heavily dependent on waste being segregated. If waste is separated at source, i.e. separately collected, then each type of waste can be processed in the most appropriate and environmentally sensitive manner.

The most efficient way to ensure separation of waste at source is to provide an adequate number of waste collection bins which are clearly marked for different waste types. Bins are typically color-coded and permanently labeled with descriptive images to denote the type of waste collected. Wastes which are collected separately can then be processed appropriately:

- ***Wet waste or organic waste***, such as food scraps, such as leftover food, fruit & vegetable peels and tea bags, can be composted to produce manure or processed through methanation to generate power in the form of biogas, which can be used for cooking or lighting.
- ***Recyclable waste*** such as paper, plastics, glass and metals can be sent to recycling plants via scrap dealers or recyclers.
- ***E-waste***, including electronic components, lamps, and batteries, can be highly polluting when disposed of in landfills and is best handled by certified e-waste recyclers.
- ***Hazardous waste***, including chemicals, solvents, paints, and medical waste, poses significant risks to human health & environment and must be handled with utmost care by authorized hazardous waste treatment facilities for safe disposal or processing.

Dell Hyderabad, Platinum

CII Hyderabad, Platinum

Related credits:

- Indoor Environment Credit 14: Dedicated Dining Spaces

Documentation Required:

1. Narrative describing the strategies implemented to segregate and divert dry, wet and e- waste.
2. Interior layouts highlighting the locations of centralized, designated areas for the temporary storage of segregated waste collected in the project (PDF-format floor plan with all irrelevant layers turned off).
3. Geo-tagged photographs and short videos of the bins with permanent labelling, temporary and centralized waste storage area.
4. Agreement copies of the dry waste recycle vendor and E-waste vendor

Exemplary Performance:

This credit is not eligible for exemplary performance.

Green Procurement Policy

Not applicable for existing interiors

IM Mandatory Requirement 2

Intent:

Encourage the procurement of green products and materials to reduce dependance on virgin materials, minimize waste sent to landfills, and reduce related environmental impacts.

Compliance options:

- ❖ Develop a green procurement policy at organizational level for procuring green products and materials for construction of buildings.

- ❖ Communicate the green procurement policy to the architectural firm involved in design for considering green products and materials by design. Architect to specify the green products and materials as part of BOQ.

- ❖ The project team to have combination of the following materials or any other green materials.

    - Eco-labelled Products: GreenPro or equivalent Type 1 Eco-labelled products.
    - Products and materials are made up of construction & demolition (C & D) waste.
    - Rapidly renewable materials: Wood based materials that can be harvested within a cycle of 5-10 years. E.g., bamboo, bagasse, eucalyptus.
    - Salvaged materials: Materials that have lived their life and are about to be sent to landfill.
    - Alternative materials: Alternative construction materials which conserve natural resources and thereby reduce environmental impacts. E.g.: M Sand Engineered wood.
    - Bio based materials: Materials made of Agri or Bio-waste. E.g., pulp and paper, agro-waste, coconut fibers.

Green Building Concerns:

A green procurement policy is central to addressing sustainability concerns in green building practices. It involves selecting materials, products, and services that minimize environmental impact throughout their lifecycle—from production and transportation to installation and disposal. Such policies encourage the use of renewable resources, energy-efficient systems, and low-emission materials while discouraging products that contribute to pollution or resource depletion. However, implementing a green procurement policy comes with challenges, such as higher upfront costs, limited availability of certified eco-friendly products, and the need for thorough supply chain transparency. Despite these hurdles, a well-designed policy ensures that sustainability is integrated into every stage of construction, fostering long-term environmental and economic benefits.

Related credits:

- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content Materials
- Interior Materials Credit 4: Use of Certified Green Building Materials, Products & Equipment
- Interior Materials Credit 6: Reuse of Materials
- Interior Materials Credit 7: Eco Friendly Wood Based Materials
- Interior Materials Credit 8: Eco-certified Interior Furniture
- Interior Materials Credit 10: Purchase of Green Consumables
- Indoor Environment Credit 7: Material Acoustic Performance
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

1. Green procurement policy for purchasing products and materials. The procurement policy can be an independent policy (or) part of the environment policy of organization from the highest authority of the organization (or) commitment through the annual reports
2. Signed BOQ from the architect/ owner highlighting green products and materials suggested for construction and their cost.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Waste Management (During Installation of Interior fit-out)

Not applicable for existing interiors

IM Credit 1 **Points: 2**

Intent:

Encourage practices to manage material waste during installation, to avoid such waste being sent to landfill.

Compliance options:

Ensure that the waste generated (either by weight or volume) during installation is minimized. The following measures can be implemented:

- Explore reusing the waste within the same premises / building
- Sell the waste to a local recycler/ hauler
- Donate the waste to other projects for reuse

Points are awarded as below:

Percentage of Waste reused / sold / donated (by weight/ volume)	Points
40%	1
60%	2

Note:

- *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***.**

Green Building Concerns:

Construction and demolition work generate enormous quantities of waste. The Ministry of Urban Development, Government of India estimates that 100 million tons[8] of debris is generated annually through construction activity. Construction waste directed to landfills results in several environmental impacts such as soil and water contamination, air pollution due to burning, fire hazards, health hazards including respiratory issues from inhaling toxic fumes, exposure to carcinogenic materials like asbestos, and the release of harmful particulate matter, etc.

Approach and Methodology:

Diversion to landfill sites is one of the major issues in handling construction waste. By proper management of construction waste, materials which are likely to be dumped in landfills can be converted into value added products.

A few guidelines that can help ensure effective construction waste reduction:

- **Planning for waste reduction**
  - Prefabricated materials / products reduce on-site interior material waste.
  - Optimal batch / lot sizes: reduce waste by avoiding the ordering of excess quantity of materials.

[8] 2018 report by the National Institute of Urban Affairs

- **Reuse of waste**
  - A construction waste reuse plan should be formulated to identify opportunities for reusing waste generated at various stages of construction. The reuse plan should be reviewed and updated regularly. Below are sample images that show reuse of construction waste in interior fit-outs:


Reuse of broken floor tiles for edges / transitions / to provide relief


Reuse of paint cans as storage units

Reuse of iron rod pieces as railings

- **Construction planning and staging**
  - Segregated waste collection: A well-maintained and segregated waste collection yard avoids mingling of waste and promotes the feasibility of reuse.
  - Storage of waste: A well-maintained storage area with sufficient space ensures efficient waste management and facilitates the reuse of waste when required.

- **Recycling waste**
  - Engaging recycling vendors / scrap dealers from the beginning of the project helps ensure that waste designated for disposal does not accumulate on-site. It is advisable to dispose of scrap materials identified for disposal on a weekly basis to maintain a clean and organized work environment.
  - Contractual agreements with specialized contractors / sub-contractors to include waste management ensure that materials which require special handling and processing are recycled safely and in an environmentally sensitive way, such as disposal of paint cans.
  - Donating waste materials in good condition or unused / excess materials to charitable organizations that require construction material is a socially responsible approach to waste management.

Related Credits:

- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content Materials
- Interior Materials Credit 4: Use of Certified Green Building Materials, Products & Equipment
- Interior Materials Credit 6: Reuse of materials
- Interior Materials Credit 7: Eco Friendly Wood Based Materials
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

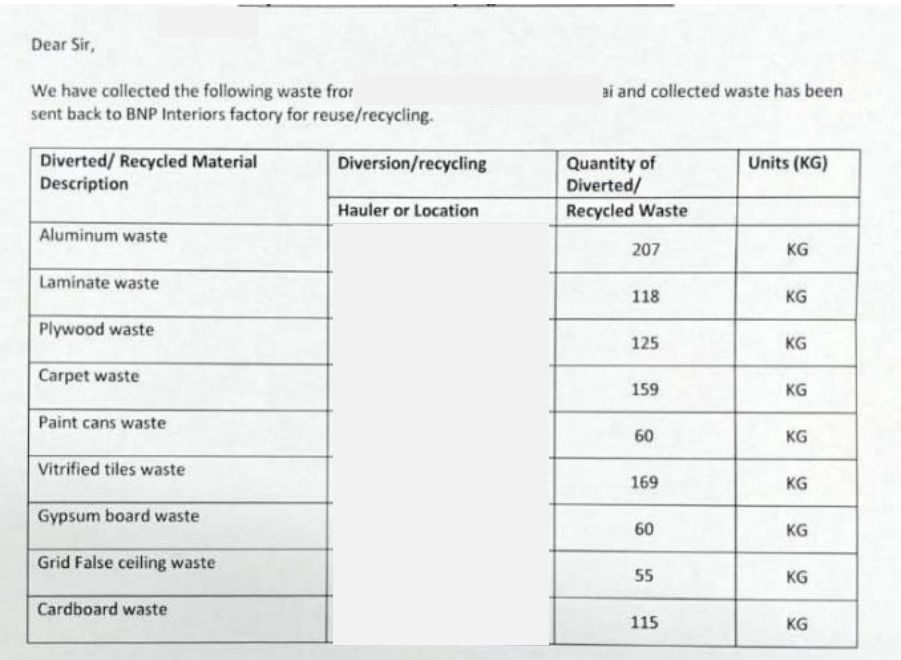
1. Narrative indicating comprehensive list of all materials and their respective waste generated and diverted from landfill, either by weight or volume.
2. Calculation of waste generated and diverted away from landfill, either by weight or volume in a formula embedded excel sheet.
3. Declaration letter/ challan from recycle vendors/ gate pass stating donation / sale of waste material
4. Geo-tagged photographs and short videos showing the waste management, segregation of waste materials during execution

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors, if more than 80% of the waste is diverted from being sent to landfills.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.



Dear Sir,

We have collected the following waste fror ai and collected waste has been sent back to BNP Interiors factory for reuse/recycling.

Diverted/ Recycled Material Description	Diversion/recycling Hauler or Location	Quantity of Diverted/ Recycled Waste	Units (KG)
Aluminum waste		207	KG
Laminate waste		118	KG
Plywood waste		125	KG
Carpet waste		159	KG
Paint cans waste		60	KG
Vitrified tiles waste		169	KG
Gypsum board waste		60	KG
Grid False ceiling waste		55	KG
Cardboard waste		115	KG

Declaration letter from vendor (For illustrative purpose only)

Local Materials

Not applicable for existing interiors

IM Credit 2 **Points: 2**

Intent:

Encourage use of locally available materials, thereby minimizing the associated environmental impacts.

Compliance options:

Ensure local materials are sourced within a road distance of 500 km for at least 20% of procured materials, by cost*. Source local materials for interior applications such as (but not limited to) partitions, workstations, flooring, ceiling, furniture etc.

Points are awarded as below:

Percentage of Local Materials	Points
40 %	1
50 %	2
60%	Exemplary

** Material Cost = Total Cost – (Labour Cost + Installation Cost)*

- If Labour and Installation cost is not known, the default material cost can be considered as 60% of the total cost of the component
- Cost of electrical, mechanical & plumbing - equipment, systems & appliances and movable materials & furniture should be considered in the total material cost
- Manufacturing refers to the final assembly of components into the building product that is furnished and installed by the tradesmen.

Alternative compliance path – Regional Priority

Projects in Tier 3 and Tier 4 cities that do not have access to local materials within a 500 km road shall show credit compliance by procuring materials within an 800 km road distance from the manufacturing unit to the project site.

Examples: Jammu & Kashmir, Leh, Northeast States, Hill stations, Andaman & Nicobar Islands Lakshadweep, Daman & Diu etc.,

Green Building Concerns:

Green building emphasizes sustainability, and one critical concern is minimising the environmental impact of construction materials, particularly in terms of transportation. Using local materials significantly reduces the carbon emissions associated with transporting goods over long distances, making it an eco-friendlier choice. Additionally, sourcing materials locally supports regional economies, promotes the use of resources suited to the climate, and ensures compatibility with the environment. However, challenges include limited availability of certain materials, potential overextraction of local resources, and the need to balance traditional construction methods with modern design requirements. Despite these concerns, prioritizing local materials remains a key strategy in achieving greener, more sustainable buildings.

Approach and Methodology:

The procurement of locally manufactured civil and interior materials will not only reduce environmental impacts due to transportation but will also reduce transportation costs for the interior fit-out. The availability of locally manufactured building materials is dependent on project location. In many cases, majority of building materials can be obtained within 500 km distance.

Survey and identify building materials which are in the specified distance, in early stages of project design. Prepare a master material data sheet listing out all the materials used in the project and then identify which of the materials are manufactured locally and specify the same. While selecting local materials, ensure that they perform better in terms of strength, maintenance and durability.

Note: Administrative offices, warehouses, stocking centers and minor fabrication centers should not be considered for measuring distance from the project site. The distance should be measured to the primary manufacturing facility of the material.

Related credits:

- Interior Materials Credit 1: Waste Management (During Installation)
- Interior Materials Credit 3: Recycled Content Materials
- Interior Materials Credit 4: Use of Certified Green Building Materials, Products & Equipment
- Interior Materials Credit 7: Eco Friendly Wood Based Materials
- Interior Materials Credit 8: Eco Certified Interior Furniture
- Interior Materials Credit 9: Life cycle assessment
- Interior Materials Credit 10: Purchase of Green Consumables
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

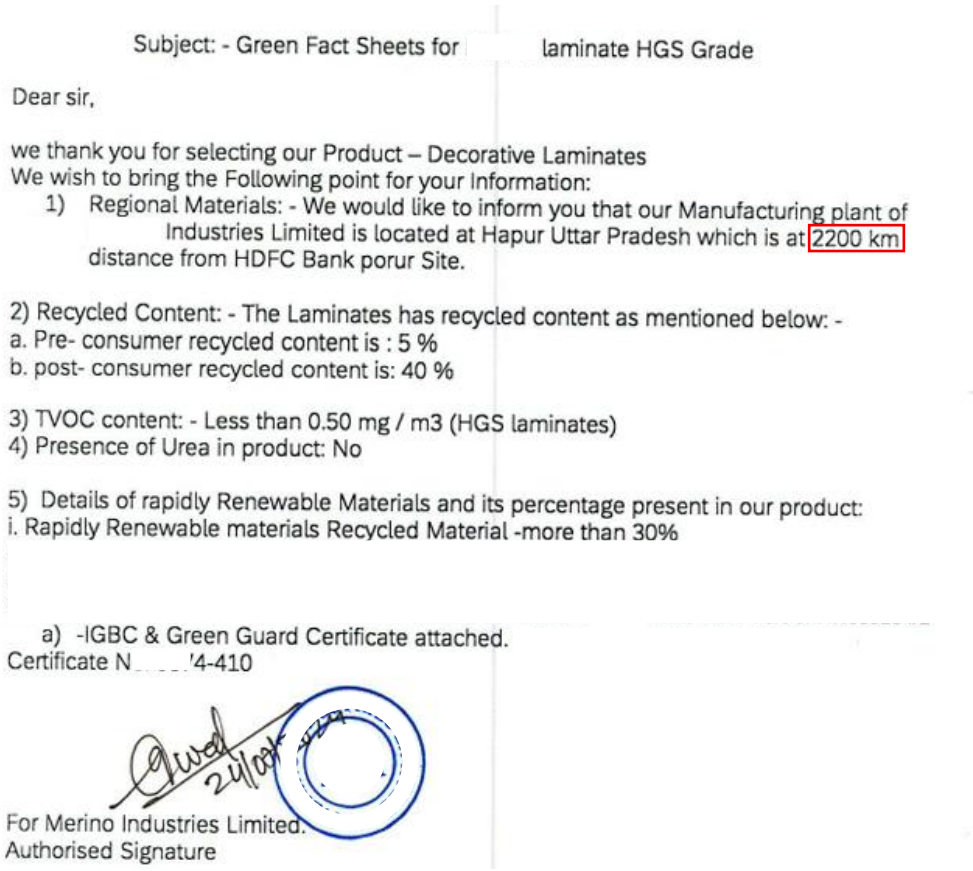
1. Narrative describing the strategies implemented to source local materials
2. Calculations indicating the percentage of local materials sourced (in terms of cost) with respect to the total materials cost of the project in IGBC template (formulae embedded excel sheet)
3. Purchase invoices indicating the make & model of all the claimed materials
4. Manufacturer letters or aerial maps indicating the distance between the manufacturing site and project location

Exemplary Performance:

This credit is eligible for exemplary performance under innovation in interiors, if more than 60% of the materials are sourced locally.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.



Subject: - Green Fact Sheets for laminate HGS Grade

Dear sir,

we thank you for selecting our Product – Decorative Laminates
We wish to bring the Following point for your Information:

1) Regional Materials: - We would like to inform you that our Manufacturing plant of Industries Limited is located at Hapur Uttar Pradesh which is at 2200 km distance from HDFC Bank porur Site.

2) Recycled Content: - The Laminates has recycled content as mentioned below: -
a. Pre- consumer recycled content is : 5 %
b. post- consumer recycled content is: 40 %

3) TVOC content: - Less than 0.50 mg / m3 (HGS laminates)
4) Presence of Urea in product: No

5) Details of rapidly Renewable Materials and its percentage present in our product:
i. Rapidly Renewable materials Recycled Material -more than 30%

a) -IGBC & Green Guard Certificate attached.
Certificate N '4-410

For Merino Industries Limited.
Authorised Signature

Declaration letter from vendor (For illustrative purpose only)

Recycled Content Materials

Not applicable for existing interiors

IM Credit 3 **Points: 2**

Intent:

Encourage use of materials that have a high recycled content, thereby minimising the associated environmental impacts

Compliance options:

Source materials that incorporate a high percentage of recycled content in their manufacturing (but are not limited to) for interior applications such as glazing, partitions, false ceilings, tiles, metal railings, etc, the recycled content value** is based on the cost of materials*.

Points are awarded as below:

Percentage of Materials with Recycled Content	Points
≥ 10%	1
≥ 15%	2

**Material Cost* = *(Cost of the product – Labor cost - Installation cost)*

***Recycled Content (RC) value* = *Material cost X Recycled content %*

Aggregate Recycled Content value = $\sum (RC_1 + RC_2 \ldots\ldots RC_N)$

Green Building Concerns:

A majority of materials typically used in construction projects, including interior fit-outs, are comprised of non-renewable, virgin materials. The raw material used in building materials are generally such that once mined or harvested, they can never be replenished (e.g. stone, petroleum, etc.) or require a long time for replenishment (e.g. hardwood). The rapidly growing demand for construction materials in recent years has resulted in an enormous depletion of natural resources, which if left unchecked, will leave future generations with minimal resources.

Approach and Methodology:

There is an increasing range of building materials with recycled content which can be considered for interior fit-outs. Formulate a procurement policy to ascertain the recycled content of materials and procure materials with high recycled content. The overall recycled content of the project can be calculated as the weighted average of the recycled content across all materials.

Following is a list of materials with recycled content which can be considered for use in interior fit-outs:

- Wall
  - AAC blocks
  - Fly ash bricks / blocks
- Partitions / interior walls / false ceiling
  - Gypsum boards
  - Cement boards
  - AAC panels
  - Glass
  - Bagasse / agri-fibre boards
  - Composite wood boards
- Flooring
  - Vitrified / ceramic tiles
  - Cement flooring using Pozzolana Portland Cement

- Engineered marble
- Engineered wood flooring

- Doors / windows
  - UPVC
  - Composite wood boards

Note: Some materials can have a wide range of recycled content even with the same make (and sometimes even model) based on the manufacturing location (i.e. proximity to availability of recycled raw material), product features / grade, etc. Hence, the procurement team should ascertain the recycled content of the specific material that will be shipped to the site.

Related credits:

- Interior Materials Credit 1: Waste Management (During Installation)
- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 4: Use of Certified Green Building Materials, Products & Equipment
- Interior Materials Credit 9: Life cycle assessment
- Interior Materials Credit 10: Purchase of Green Consumables
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

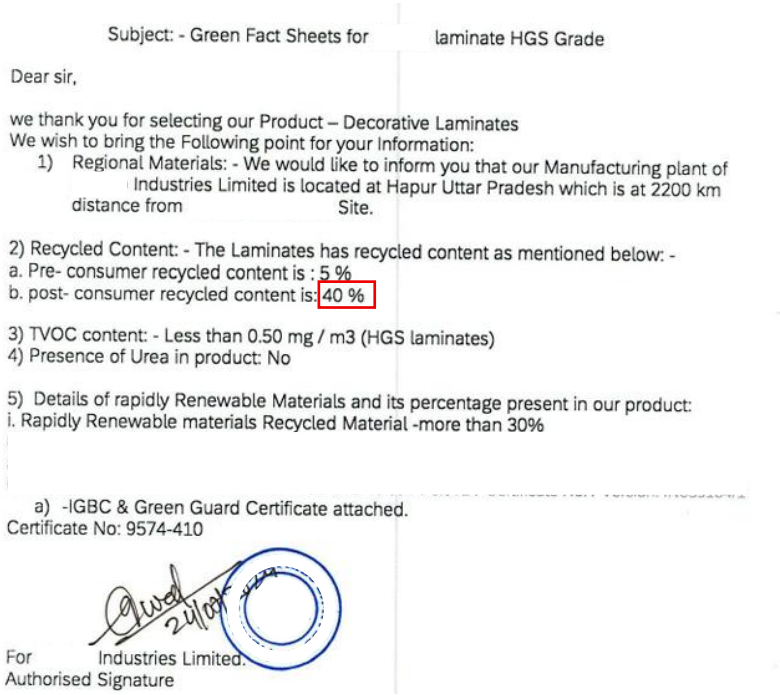
1. Narrative detailing the strategies implemented to source materials with recycled content.
2. Calculations indicating the percentage of recycled content (in terms of cost) with respect to the total materials cost of the project in IGBC template (formulae embed excel sheet)
3. Manufacturer declaration letters/ cut-sheets/ brochures/ technical datasheet indicating the percentage of recycled content in the materials sourced.
4. Purchase invoices indicating the make & model of the claimed materials
5. Geotagged photographs of all the claimed materials indicating the make & model

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors if materials sourced have recycled content more than 30%.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.



Subject: - Green Fact Sheets for laminate HGS Grade

Dear sir,

we thank you for selecting our Product – Decorative Laminates
We wish to bring the Following point for your Information:

1) Regional Materials: - We would like to inform you that our Manufacturing plant of Industries Limited is located at Hapur Uttar Pradesh which is at 2200 km distance from Site.

2) Recycled Content: - The Laminates has recycled content as mentioned below: -
a. Pre- consumer recycled content is : 5 %
b. post- consumer recycled content is: 40 %

3) TVOC content: - Less than 0.50 mg / m3 (HGS laminates)
4) Presence of Urea in product: No

5) Details of rapidly Renewable Materials and its percentage present in our product:
i. Rapidly Renewable materials Recycled Material -more than 30%

a) -IGBC & Green Guard Certificate attached.
Certificate No: 9574-410

For Industries Limited.
Authorised Signature

Declaration letter from vendor (For illustrative purpose only)

Eco-labelled Products

Not applicable for existing interiors

IM Credit 4 **Points: 2**

Intent:

Encourage the use of certified type 1 ecolabel materials, products, and equipment, thereby minimise ecological impacts throughout their lifecycle.

Compliance options:

Option 1: Ensure that the project uses at least four passive or active green building materials, products,

and equipment that are certified by CII under Green Product Certification Programme (GreenPro) or equivalent type 1 ecolabel.

(1 point for two certified product)

Notes:

• *Passive Products & Materials include glazing, insulation, paints & coatings, adhesives & sealants, flyash blocks, cement, concrete, composite wood, certified new wood, housekeeping chemicals, false ceiling materials, flooring materials, furniture, gypsum-based products, high reflective materials & coatings, etc.,*

• *Active Products include Electrical systems (Lighting Systems & Controls, Pumps & Motors, etc.,), Mechanical systems (unitary air conditioners, etc.,), Plumbing Fixtures (faucets, showers, etc.,)*

Option 2: Ensure that the project source GreenPro eco-labelled (or) any other Eco-labelled products

& materials for building construction. The purchased quantity of eco-labelled products to

be at least 10% of the total cost of products & materials used for construction.

Points are awarded as below:

% of Green products & materials used for construction	Points
10%	1
15%	2

Notes:

• **Material Cost = Total Cost – (Labour cost + Installation cost)*

• *If Labour and Installation cost is not known, the default material cost can be considered*

as 60% of the total cost of the component

• *Cost of electrical, mechanical & plumbing - equipment, systems & appliances and movable materials & furniture should not be considered in the total material cost.*

• *GreenPro certified or any other Eco labelled furniture shall be considered under IM Credit 8: Eco Certified Furniture only. They cannot be considered under IM Credit 4.*

Green Building concerns:

Eco-labelled products are a critical component of green building, offering assurance that materials meet specific environmental and sustainability standards. These labels guide architects, builders, and consumers toward choosing products with lower environmental footprints, such as reduced energy consumption, minimal waste generation, or sustainable sourcing. When selected carefully, these products significantly contribute to achieving green building certifications, reduce long-term operating costs, and foster a healthier environment for occupants.

Approach and Methodology:

The CII GreenPro or equivalent type 1 ecolabel certification evaluates products and materials on several parameters to ensure that the materials have been manufactured in an environmentally sensitive manner without compromising quality and performance. The parameters evaluated include product design, raw materials, energy and water use during the manufacturing process, transportation, performance during use and disposal/recycling process. The certification therefore ensures a life-cycle analysis of the product or material from a green perspective. This comprehensive and rigorous certification ensures that the certified products and materials are environmentally friendly.

Related credits:

- Interior Materials Credit 1: Waste Management (During Installation)
- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content Materials
- Interior Materials Credit 7: Eco Friendly Wood Based Materials
- Interior Materials Credit 8: Eco Certified Interior Furniture
- Interior Materials Credit 9: Life cycle assessment
- Interior Materials Credit 10: Purchase of Green Consumables
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

1. Narrative elaborating the strategies implemented to source materials with recycled content.
2. GreenPro/ equivalent type 1 ecolabel certificate of all the claimed products.
3. Purchase invoices indicating the make & model of the claimed materials.
4. Geotagged photographs of all the claimed materials indicating the make & model.

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors

if at least 6 GreenPro certified products are sourced

(or)

at least 20% of ecolabelled products are procured of the total cost of products & materials used for construction

GreenPro Directory:

Project can download the latest information

Link: https://ciigreenpro.com/ecolabelled-products/categories

Salvaged Materials

Not applicable for existing interiors

IM Credit 5 **Points: 2**

Intent:

Encourage the use of salvaged materials and products to reduce the demand for virgin materials, thereby minimising the environmental impacts

Compliance options:

Ensure at least 2.5% of the total building materials (by cost) used in interior application (as per owner /developer's scope) are salvaged. Salvaged materials can include (but not limited to) beams & posts, doors, frames, flooring, etc and the materials sourced must be permanently installed.

Points are awarded as below:

Percentage of Salvaged Materials	Points
≥ 2.5%	1
≥5%	2

Notes:

1. *Materials considered for this credit are those that have lived their life and almostabout to be sent to landfill.*
2. *Materials considered for Salvage materials credit are those that have been previously used and are being repurposed for new functions, extending their lifecycle and preventing them from ending up in landfills.*
3. *Equipment, appliances and fixtures should not be considered since older equipmentwill have low efficiency issues*

Green Building Concerns:

Most construction materials are derived from virgin raw materials, which are either non-renewable (such as stone and petroleum) or require extended periods to regenerate (like hardwood). The escalating demand for these materials in recent years has caused a substantial depletion of natural resources. If this trend persists without intervention, future generations may face severe resource scarcity.

Approach and Methodology:

Interior fit-out projects can consider a range of options to use salvaged materials. Materials such as used pillars and doors may be reusable with minimal refurbishment. India, with its rich cultural heritage, offers several possibilities for reuse of old or even antique pillars, doors, wall panels, etc., which can greatly enhance the aesthetic of the interior while preserving India's cultural heritage.

Some materials may require rework to make them applicable for a new function. For example, deal wood is commonly used to make shipping container boxes which are discarded after a few voyages. The wood from the discarded container boxes can be reused to make cabinets, shelves, workstations, furniture, etc. Similarly, discarded pallet wood and railway sleepers are often reused to make furniture.

Reliance Swadesh Hyderabad, Gold

Restaurant, Hyderabad

Related credits:

- Interior Materials Credit 7: Eco Friendly Wood Based Materials
- Interior Materials Credit 9: Life cycle assessment
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

1. Narrative detailing the strategies implemented to source and reuse salvaged materials.
2. Calculations indicating the percentage of salvaged materials (in terms of cost) sourced by the project in IGBC template (formulae embed excel sheet)
3. Declaration letters from vendors for salvaged material used.
4. Purchase receipts/ invoice from vendors for salvaged material used.
5. Geotagged photographs and videos showing the application of salvaged materials (before & after)

Exemplary Performance:

This credit is eligible for exemplary performance under innovation in interiors; for salvaged material applications which exceeds the threshold of 7.5% by cost of the total material cost.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.

Reuse of materials

Not applicable for existing interiors

IM Credit 6 **Points: 1**

Intent:

Encourage reuse of existing materials to minimise waste, reduce reliance on virgin resources, and lower the environmental impacts of material production.

Compliance options:

Ensure that a minimum of 2.5% of the total material cost for the interior application consists of reused materials. The materials must be permanently installed and can include a range of reused items such as (not limited to) flooring, windows, doors, furniture, etc.

Points are awarded as below:

Percentage of Re-use Materials	Points
≥ 2.5%	1
≥ 5%	2

Notes:

1. *Re-use / refurbished materials are products that could have been disposed of as solid waste. These products have completed their life cycle as consumer items and are then refurbished for reuse without substantial alteration of their form.*
2. *Equipment, appliances and fixtures should not be considered since older equipmentwill have low efficiency issues.*

Green Building Concerns:

Reusing materials in green building construction is an effective strategy for reducing environmental impact and promoting sustainability. It minimises the demand for new resources, decreases waste, and reduces the energy and emissions associated with manufacturing and transporting new materials. Reuse also helps lower construction costs in some cases, contributing to the economic feasibility of green projects. However, challenges include ensuring compatibility with modern building techniques, maintaining material quality,

and overcoming potential logistical barriers. By prioritising material reuse, green buildings can significantly contribute to resource conservation and a more sustainable construction industry.

Approach and Methodology:

Reusing existing materials is a key strategy to minimise waste generation, reduce the demand for virgin resources, and mitigate the environmental impacts associated with material production. By repurposing materials that are already available, projects can significantly decrease the extraction and processing of raw materials, which are often energy-intensive and contribute to pollution and greenhouse gas emissions. Additionally, reusing materials helps divert waste from landfills, conserves natural resources, and supports the circular economy by extending the lifecycle of products. Interior fit-out projects can consider a range of options to use refurbished materials such as furniture, repurposed metal fixtures, and reconditioned flooring tiles.

Related credits:

- Interior Materials Credit 1: Waste Management (During Installation)
- Interior Materials Credit 3: Local Materials
- Interior Materials Credit 3: Recycled Content Materials
- Interior Materials Credit 8: Eco Certified Interior Furniture
- Interior Materials Credit 9: Life cycle assessment
- Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

1. A narrative detailing the strategies implemented to source reused materials.
2. Calculations indicating the percentage of salvaged materials (in terms of cost) sourced by the project in formulae embed excel sheet.
3. Declaration letters from vendors for reused material used.
4. Purchase receipts/ invoice from vendors for salvaged material used.
5. Geotagged photographs and short videos showing the application of reused materials (before & after)

Exemplary Performance:

This credit is eligible for exemplary performance under innovation in interiors for reuse of material applications which exceeds the threshold of 7.5% by cost of the total material cost.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.

Eco Friendly Wood Based Materials

Not applicable for existing interiors

IM Credit 7 **Points: 4**

Intent:

Encourage use of eco-friendly, sustainable wood-based materials to minimize reliance on virgin wood products, thereby reducing deforestation and preserving natural ecosystems.

Compliance options:

Ensure new wood-based products (by cost) used in the building are:

- Rapidly renewable*

(And/ Or)

- Composite / Agri based wood** / Recycled waste wood

Points are awarded as below:

Percentage of cost of alternate wood products to the total cost of wood-based products ***	Points
30%	1
35%	2
40%	3
45%	4

Notes:

**Rapidly renewable materials are those that can be harvested and used within a ten-yearcycle. Example: Bamboo, Eucalyptus, Bagasse based materials, Jute based materials, cotton blinds; rubber wood*

***Composite / Agri based wood / Recycled Waste wood examples include (but not limitedto) MDF boards, particle boards, linoleum boards etc.*

**** For total cost of wood-based products, the project team shall consider all the products made of wood installed in the project. (for eg., door frames, window frames, loose furniture, wooden storage, window shutters, cupboards, cabinets, partitions, wooden flooring, wooden false ceiling, etc.*

Applications to consider:

The project team shall include all applications with respect to the wood viz., partition walls, flooring, false ceiling, doors & windows, furniture, and any other wood application (except for chairs)

Approach and Methodology:

Rapidly renewable materials: are natural, non-petroleum-based materials with harvest cycles of 10 years or less. Some examples of rapidly renewable building materials:

Bamboo / Cane / Rattan are widely used for furniture and interior partitions; compressed bamboo is used for flooring as an alternate to hardwood floors; bamboo mats are used for wall paneling; and bamboo boards are used as alternatives for plywood and particle boards.

Bamboo flooring

Bamboo blinds

- **Sugarcane waste (bagasse) / Jute / Straw:** are typically compressed into fiber-boards as alternatives for plywood and particle boards.
- **Linoleum (from linseed) / Cork:** are commonly used to produce flooring material
- **Eucalyptus / Acacia:** are examples of fast-growing trees which provide soft wood suitable for making furniture, interior woodwork, doors and windows. In fact, eucalyptus and acacia are considered invasive foreign species in India.

Harvest cycle times of commonly used rapidly renewable material:[9]

Rapidly renewable species	Harvest cycle
Acacia	8 – 10 years
Bagasse (sugarcane)	12 – 18 months
Bamboo	3 – 7 years
Cork	Typically, 9-year harvest cycle after initial 25 – 30-year period for reaching harvest age. Only the bark is harvested from the tree, which lives on.
Eucalyptus	4 – 8 years
Jute	4 months
Linseed	100 days
Rattan	5 years
Straw	Generally, under 1 year depending on the crop

Wood Substitutes:

- **Composite wood boards:** are typically made by compressing wood particles (typically waste wood dust) into boards as alternative for plywood.
- **Agri-fibre boards:** such as jute boards, bagasse boards and straw boards are also examples of rapidly renewable material.

[9] Wikipedia

Notes:

Certification	Key Focus	Materials Used	Example Products	Considered to show credit compliance
FSC	Sustainable forest management	Virgin wood from FSC-certified forests	Timber, logs	No
FSC Recycled	Fully recycled materials	Post-consumer or post-industrial fibres	Recycled paper, cardboard	Yes
FSC Reclaimed	Reclaimed or salvaged solid materials	Reclaimed wood, salvaged building materials	Furniture, flooring	Yes
FSC Mixed	Combination of FSC-certified, recycled, and controlled wood (non-certified but monitored to avoid controversial sources)	Certified and monitored mixed sources	Paper, furniture	Yes
BIFMA Level 4	Safety, durability, and sustainability of furniture	Furniture meeting ergonomic, safety, and environmental standards	Office furniture, seating	Will be accepted in IM Credit 8 and will not be considered under this credit.

Certification	Key Focus	Materials Used	Example Products	Considered to show credit compliance
GreenPro	Indian certification for eco-friendly products	Environmentally safe materials, energy efficiency, and recyclability	Paints, tiles, HVAC systems	GreenPro certificate + Technical datasheet with % of rapidly renewable wood
Green Guard	Indoor air quality certification	Low-emission materials that meet strict VOC limits	Paints, adhesives, furniture	Will be accepted in IE Credit 10 and will be considered under this credit.

Related credits:

- Interior Material Credit 1: Waste Management during installation of interior fit out
- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content materials
- Interior Materials Credit 4: Salvaged Materials
- Interior Materials Credit 8: Eco-certified Interior Furniture

Documentation Required:

1. Narrative describing the strategies implemented to source eco-friendly wood-based materials and list of applications in project
2. Calculation indicating the percentage of cost of eco-friendly wood-based materials to the total cost of wood-based materials installed in the project in a formula embedded excel sheet
3. Purchase invoices indicating the make & model of the claimed materials
4. Technical specification sheet/ manufacturer declaration/ brochure/ cut-sheet of the eco-friendly wood-based materials indicating the percentage of rapidly renewable material or Agri based or composite wood products or recycled waste wood
5. Geo tagged photographs indicating the applications of all the eco-friendly wood-based materials.

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors; if more than 50% of the new wood-based materials sourced are rapidly renewable or composite or agri based products.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.

Eco-certified Interior Furniture

IM Credit 8 **Points: 4**

Intent:

Encourage the use of eco-certified interior products that consider impacts through the life cycle, thereby resulting in lower environmental impacts

Compliance options:

Source eco-certified interior workstations, cabin furniture, chairs etc., that are certified by GreenPro (or) BIFMA Level 4.

Points are awarded as below:

Eco-certified Furniture as % of total furniture cost*	Points
10%	1
20%	2
30%	3
40%	4

Note:

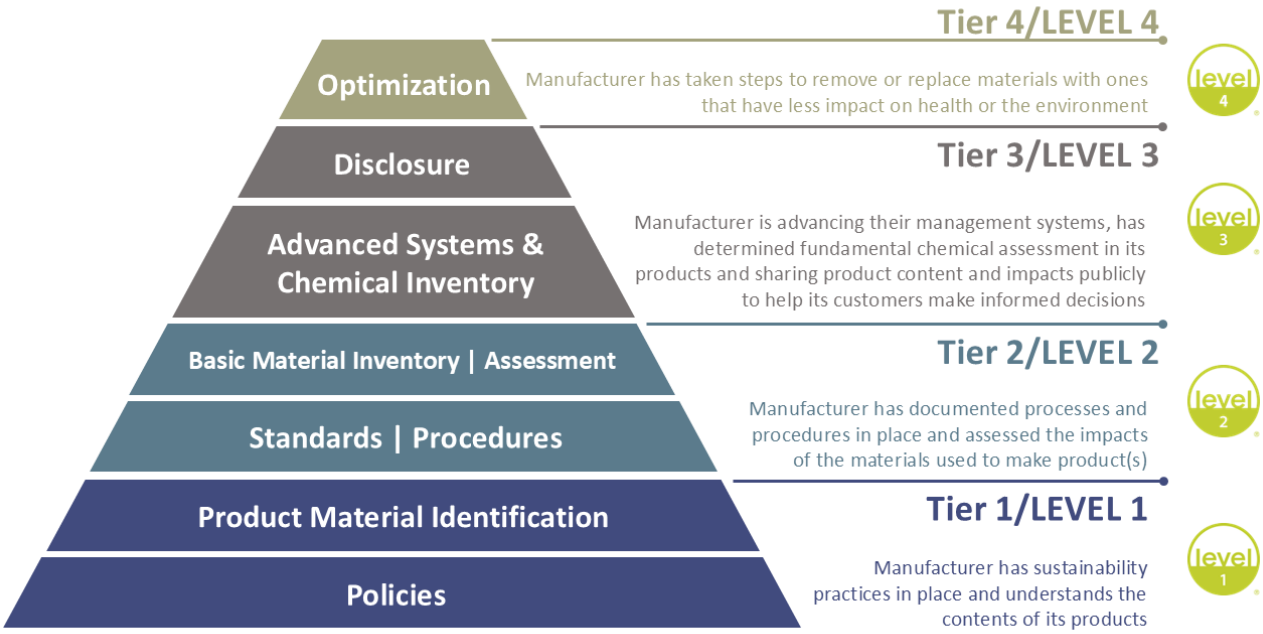
**Total furniture cost includes cost of all the furniture procured.*

Example: chairs, workstations, cabin furniture, meeting room/ conference room tables, cabinet pedestals, storage units & loose furniture (includes but not limited to sofa, tea table, side table, planter box, etc,.)

Approach and Methodology:

Interior fit-outs should survey the market and identify furniture which are certified under one of the referenced standards. Projects such as commercial office, banks, hotels, etc. which have intensive furniture requirement can procure furniture certified by one of the following standards.

The BIFMA[10] e3 Furniture Sustainability standard specifically pertains to business and institutional furniture and includes criteria for assessing a product's environmental sustainability across factors such as material selection, energy use during manufacture, human / ecosystem health and social responsibility.



The GreenPro[11] certification has a broader scope wherein products and materials are evaluated on several parameters like product design, product performance, manufacturing process, life cycle assessment and product stewardship to ensure that the materials have been manufactured in an environmentally sensitive manner without compromising quality and performance.

Related credits:

- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content materials
- Interior Materials Credit 4: Salvaged Materials
- Interior Materials Credit 7: Eco-friendly Wood Based Materials

[10] BIFMA certified products are listed here: https://www.bifma.org/page/level-certify-a-product
[11] GreenPro certification: http://www.greenbusinesscentre.com/site/ciigbc/greenpro - refer Annexure forGreenPro certified products

Documentation Required:

1. Narrative describing the strategies implemented to source eco-friendly furniture and list of eco-friendly furniture installed in the project
2. Calculation indicating the percentage of the cost of eco-certified interior furniture of the total cost of furniture procured in formulae embed excel sheet
3. GreenPro or BIFMA or Green Guard or equivalent type 1 ecolabel certificates of the proposed eco-certified interior product clearly indicating the make & model.
4. Purchase invoices of the eco-certified interior product indicating the make & model
5. Technical specifications/ manufacturer brochure/ cut-sheet of the eco-certified interior product installed in the project indicating the eco-labelled certification of the claimed product
6. Geo-tagged photographs of all the installed claimed furniture

Exemplary Performance

This credit is eligible for exemplary performance under innovation in interiors, if more than 50% of the new furniture is eco-certified by cost.

Sample documentation:

Please refer to Master Material sheet and calculation in Annexure - D.

Purchase of Green Consumables

IM Credit 9 Points: 2

Intent:

Encourage the use of green consumables in the interior space that have low impacts on human health and the environment

Compliance options:

- Source green consumables for the following applications

(1 point for each measure, max 2 points)

  - Use of recycled paper for more than 50% of the total consumption requirement; which includes (not limited to) printing requirement, tissue papers, paper napkins, etc
  - Use of green eco-friendly housekeeping cleaning products which are GreenPro/Green Seal certified
  - No use of plastics in interior fit-outs

Green Building Concerns:

The extent of environment sustainability of an interior fit-out is significantly dependent on its design and construction. However, the lifestyle and processes adopted by the occupants also have an impact on the fit-out's sustainability. For instance, careless use of new paper or rampant use of plastics or the use of harmful cleaning chemicals all contribute to a negative impact on the environment.

Approach and Methodology:

The intent of this credit is to promote an environmentally sustainable lifestyle within the fit-out, which complements the various eco-friendly features incorporated in the fit-out. Use of recycled paper instead of new paper helps combat deforestation.

Avoiding the use of plastics helps mitigate depletion of petroleum resources and reduces non-biodegradablewaste which cause immense pollution and adverse health impact. Use of eco-friendly cleaning supplies help enhance occupant well-being.

The project can survey the market for eco-friendly housekeeping chemicals which have been certified under the GreenPro[12] or the Green Seal[2] standard. Green Seal[13] has several categories that are relevant to the IGBC Green Interiors standard, such as GS 37, GS 41, GS 53, etc.

Documentation Required:

1. Narrative on the practices demonstrating the purchase of green consumables, post occupancy.
2. Purchase invoices of all the claimed consumables indicating the make & model for the last one year.
3. Technical specification sheet / certificates indicating the eco-friendly aspect of the procured consumables
4. Geo tagged photographs and short videos of the purchased green consumables certificates indicating the eco-friendly aspect of the procured consumables
5. Declaration letter indicating that green consumables will be procured for at least next three years.

Exemplary Performance:

This credit is not eligible for exemplary performance under innovation in interiors.

Sample Documentation:

Paper free from chlorine

[12] GreenPro certification: http://www.greenbusinesscentre.com/site/ciigbc/greenpro[2]

[13] Green Seal certification: http://www.greenseal.org/

INDOOR ENVIRONMENT

Introduction

As humans tend to spend as much as 90% of their time indoors, it is essential that the indoor environment is conducive to human health and well-being. Several studies have demonstrated the link between indoor environment quality & occupants health, happiness and productivity. Spending time in spaces with poor indoor environment quality often results in human health issues is referred as the ‘‘sick building syndrome’ (SBS). Therefore, good indoor environment quality is essential to the health, happiness and productivity of occupants. Ensuring the well-being and comfort of occupants is an essential parameter in the IGBC Green Interiors rating system.

There are several factors which impact the quality of the indoor environment such as:

- Access to daylighting
- Quality of the indoor air
- Availability of fresh air
- Thermal comfort
- Cleanliness and hygiene
- CO_2 monitoring
- Ergonomics & acoustics
- Connection to the outdoor environment

Access to adequate natural light and outdoor views is a key in establishing a connection with the exterior environment which promotes the well-being & productivity of occupants and use of non-toxic and non-emitting finishes helps enhance the air quality in interior spaces. Ergonomically designed furniture as well as ensuring good acoustic performance and providing access to recreational facilities helps to enhance the well-being and satisfaction levels of occupants.

Tobacco Smoke Pollution

IE Mandatory Requirement 1

Intent:

Minimise exposure of non-smokers to adverse health impacts from passive smoking

Compliance Options:

Option 1 Smoke free zone

Demonstrate that smoking is prohibited in the interior-fitout and is in accordance with the regulations of Ministry of Health & Family welfare, Government of India.

Option 2 Designated smoking area

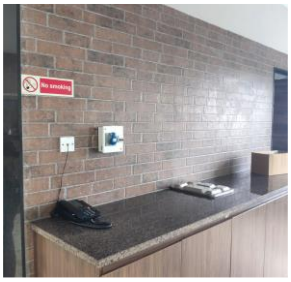
In case the project has assigned outdoor smoking areas, locate such areas at a minimum of 7.6 meters from all outdoor air intakes (entrance doors, window openings etc.) Alternately, compliance can be shown through designated smoking rooms which capture and remove tobacco smoke from the interior office floor.

Notes for designing a smoking room:
• The smoking room will be completely sealed.
• The conditioned air entry into the smoking zone shall not return back or be transferred to the air-handling units. This air shall be completely exhausted.
• The smoking room shall be maintained at a negative pressure of 5 Pascals (0.00005 bar).

Approach and Methodology:

Firstly, it is recommended to completely prohibit smoking within the premises or provide designated smoking areas/ smoking zones, 25 feet away from all fresh air intakes with signages. Secondly, if there is a need to have smoking room within the premises, the smoking room should have sealed deck-to-deck partition and maintained at negative pressure of 5 pascals. The 'No Smoking policy' should be clearly communicated to all the occupants.

:



Sample signages are shown below

Related credits:

- Indoor Environment MR 1 / Credit 1: Fresh Air Ventilation
- Indoor Environment Credit 5: Air Quality Monitoring
- Indoor Environment Credit 6: Indoor Plants
- Indoor Environment Credit 9: Minimise Indoor Pollutant Contamination
- Indoor Environment Credit 10: Low Emitting Materials
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Narrative elaborating the measures implemented to show the credit compliance.

Option 1 Smoke free zone

1. A declaration letter from the project owner stating that smoking will be prohibited in all the common areas of the building.
2. A plan showing the location of the educational signages.
3. Geotagged photographs showing the installed educative signages.

Option 2 Designated smoking area

1. A declaration letter from the project owner stating that smoking will be allowed only in the designated areas.
2. A plan showing the location of the educational signages and designated smoking areas.
3. Geotagged photographs showing the installed educative signages and designated smoking area.
4. Details of the exhaust installed in the designated smoking area.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Fresh Air Ventilation

IE Mandatory Requirement 2

Intent:

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

Compliance options:

Mechanical Ventilation:

Demonstrate that the fresh air ventilation in all regularly occupied air-conditioned spaces shall meet the minimum ventilation rates as prescribed in ASHRAE Standard 62.1-2010 (illustrative table below) via installation of mechanical fresh air systems and maintain the differential CO_2 levels below 530 ppm in all regularly occupied spaces at any given point of time.

Outdoor Air Rates for different Space types

Space Type	People Outdoor Air Rate (R_p) (cfm/person)	Area Outdoor Air Rate (R_a) (cfm/sq. ft)
Restaurant Dining rooms	7.5	0.18
Cafeteria/Fast food dining	7.7	0.18
Conference/meeting	5	0.06
Hotels-bed/living rooms	5	0.06
Office space/ reception area/ telephone/ data entry/ main entry lobby	5	0.06
Libraries	5	0.12
Retail Spaces	7.5	0.06
Super Market	7.5	0.06
Auditorium	5	0.06
Health Club	20	0.06
Corridors		0.06
Computer Lab	10	0.12

Notes:

- *Minimum ventilation rate required for meeting the mandatory credit compliance = (outdoor airflow rate/person x total occupancy) + (outdoor airflow rate/unit area x floor area)*
- *The project team shall consider the design occupancy or actual occupancy (whichever is higher) towards the credit calculation*

- *For financial institution project is recommended to consider the peak occupancy (including permanent employees, contract employees, housekeeping staff, visitors, etc) towards the credit calculation*
- *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.*
- *Inline fans shall be permitted for offices/ retail areas, etc. with regularly occupied areas less than 100 sqm.*
    - *The fresh air system (inline fans) 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)

Natural Ventilation

Provide operable windows or doors to the exteriors, in all regularly occupied non-air-conditioned areas, such that the operable area is designed to meet the criteria as outlined in the table below:

Design Criteria for Openable Windows and Doors to the Exteriors

Category	**Percentage of openable area to the total carpet area**
Regularly occupied area (≤ 100 sq.m)	8%
Regularly occupied area (≥ 100 sq.m)	10%

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 include workstations, cabins, meeting rooms, conference rooms, waiting areas, cafeteria, etc.,*
- *Non-regularly occupied spaces include toilets, storerooms, etc.*

- *Doors/ windows should not have any obstruction within 2 m from the exterior surface. Shading devices can be excluded.*
- *For sliding windows / doors, only openable area to the exteriors shall be considered in calculations.*
- *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.*

Green Building Concerns:

Poorly ventilated spaces result in a build-up of impurities and toxins inside the spaces and the indoor air becomes “stale”. Spending time in poorly ventilated spaces with stale air typically results in occupants suffering from ‘‘sick building syndrome”.

Approach and Methodology:

It is essential that indoor spaces are well ventilated, either through adequate openings to the exterior environment (natural ventilation) or by using well-designed mechanical ventilation systems. A well-designed fresh air ventilation system ensures thermal comfort and well-being of the occupants.

Mechanical Ventilation:

A well-designed mechanical ventilation system ensures an adequate supply of fresh air when needed while keeping out dust, impurities, allergens like pollen, and microbes by incorporating appropriate filters and microbial eliminators, such as UV lamps.

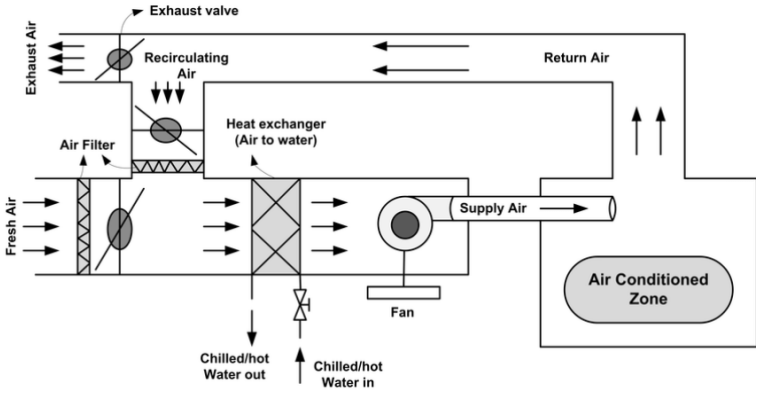
In contrast, air conditioning systems primarily condition the air within the premises without introducing fresh outdoor air. This limitation can lead to elevated CO_2 levels, contributing to the ‘Sick Building Syndrome’, which causes discomfort and health issues for occupants.

Since air conditioning systems are not designed to supply fresh outdoor air, it is highly recommended to integrate mechanical fresh air systems in such areas tailored to the project's scale and feasibility. These systems can include:

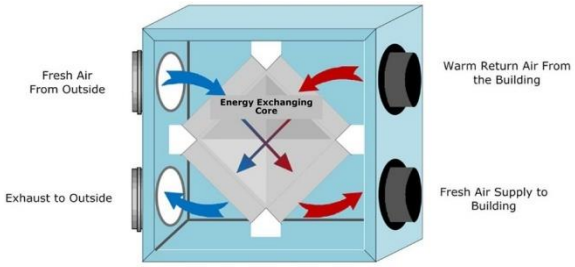
- Air Handling Unit (AHU)
- Cabinet Fans
- Energy Recovery Ventilator (ERV)
- Heat Recovery Ventilator (HRV)
- Treated Fresh Air Unit (TFAU)

Air Handling Unit room should have dedicated fresh air intake to show the credit compliance.

To ensure optimal performance and compliance, the mechanical ventilation system should be designed following the ASHRAE 62.1:2010 standard. Refer to the "Outdoor Air Rate" table under "Compliance Options" for specific requirements.



Air Handling Unit



Energy Recovery Ventilator/Heat Recovery Ventilator

Demand-Controlled Ventilation (DCV)

The project teams can explore integration of the Demand-Controlled Ventilation to maintain desirable indoor air quality and also achieve considerable energy savings.

Demand-controlled ventilation is a smart ventilation strategy that adjusts fresh air supply based on occupancy and helps to maintain the CO_2 levels as per the requirement.

Natural Ventilation:

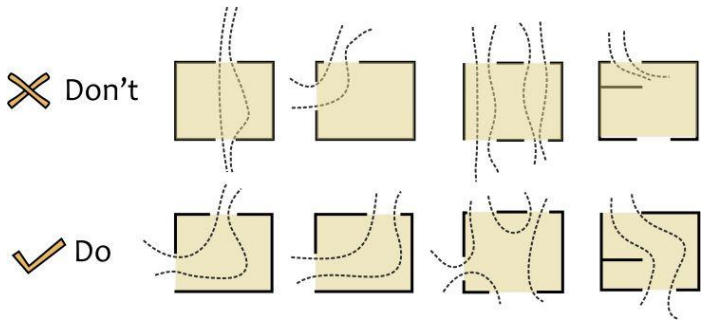
Ensure that the openable windows or doors to the exteriors in all regularly occupied areas, such as office areas, meeting rooms, conference rooms, etc., is designed as per the criteria.

Few strategies for enhancing the natural ventilation:

Casement versus sliding windows: Casement (hinged) windows provide more openable area for a given window size than sliding windows. For sliding windows to achieve the same openable area as casement windows, the window size must be larger, which increases the window-to-wall ratio (WWR) of the space and allows more heat to enter the space.

High ventilators: Providing openable ventilators close to the ceiling allows hot air to exhaust out and creates a natural draft inside the space which pulls in fresh air from the lower openings.

Cross ventilation: Providing openings to the exterior environment in different orientations (directions) results in cross ventilation which helps improve air circulation inside the space and helps brings in more fresh air.



Related credits:

- Energy Efficiency Credit 2: Efficient Space Conditioning
- Indoor Environment Mandatory Requirement: Tobacco Smoke Pollution
- Indoor Environment Credit 3: Thermal Comfort
- Indoor Environment Credit 5: Air Quality Monitoring
- Indoor Environment Credit 6: Indoor Plants
- Indoor Environment Credit 10: Low Emitting Materials
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Narrative elaborating the measures implemented to provide fresh air in the project.

Mechanical Ventilation:

1. Calculations indicating minimum ventilation rates in all regularly occupied areas considering area and occupancy as per ASHRAE 62.1 baseline in formulae embed excel sheet format.
2. Calculation indicating the design or actual or peak occupancy.
3. HVAC layout of the project indicating the location of fresh air intake, supply air duct, return air duct, fresh air system indicating the CFM *(Please keep all unnecessary layers switched off)*
4. Purchase invoices of all the fresh air ventilation systems installed in the project indicating the make and model
5. Technical specifications of all the fresh air ventilation systems installed in the project indicating the capacity in CFM
6. Geotagged photographs and short videos of all the fresh air ventilation systems installed in the project indicating the capacity of fresh air unit installed

Natural Ventilation:

1. Calculations indicating the percentage of openable area (i.e. window/ door) to the carpet area in each regularly occupied space.
2. Floor plans indicating the door and window schedules
3. Geotagged photographs and short videos indicating the openable spaces in the project

Exemplary Performance:

This credit is not eligible for exemplary performance.

Sample Calculation for Mechanical Ventilation System

Type of fresh air system	Capacity of fresh air system (CFM)
Inline fan 1	50
Inline fan 2	50
TFA 1	100

Regularly occupied Spaces (e.g. Core workstation, meeting room, cabin etc)	Carpet area of regularly occupied space (sq ft)	Space Type	Type of fresh air system	Outdoor Air Rate (CFM) / Unit area	Design Occupancy	Outdoor Air Rate (CFM) /Person	Minimum ventilation rate required (CFM) - Baseline	10% more than minimum ventilation rate required
Workstation Area	5326	Office space/ reception area/ telephone/ data entry/ main entry lobby	Inline fan 1	0.06	14	5	389.56	428.52
Workstation Area-JS	490	Conference/ meeting	Inline fan 1	0.06	3	5	44.40	48.84
Café Area	692	Conference/ meeting	Inline fan 2	0.06	9	5	86.52	95.17
Meetings Room Area	742	Office space/ reception area/ telephone/ data entry/ main entry lobby	TFA 1	0.06	2	5	54.52	59.97
Cabins Area	325	Cafeteria/Fast food dining	Inline Fan 3	0.18	3	7.7	81.60	89.76

The total fresh air provided for the design occupancy of 31 and regularly occupied space of 7,575 sq. ft is 656.6 CFM against the ASHRAE 62.1 baseline requirement of 200 CFM.

This meets the mandatory credit compliance.

Sample Calculation for Natural Ventilation

Regularly occupied spaces (eg. Core workstation, meeting room, cabin etc)	Carpet area of regularly occupied space (sq m)	Openable Window Area- Towards Exterior (sq m)	Openable Door Area - Towards Exterior (sq m)	Total Opening Area (sq m)	% of opening area to total carpet area (Designed)	Meets Mandatory (True/False)
Open Office	494.80	111	1	112	22.64%	True
Conference room	45.52	1	3	4	8.79%	True
Café Area	64.29	1	1	2	3.11%	False
Meetings Room Area	68.93	1	3	4	5.80%	True

Total regularly occupied area with natural ventilation (sq m)	673.54
Minimum percentage of opening	3.11%

The minimum percentage of opening provided is 3.11% for the total regularly occupied area of 673.54 sq.m.

Therefore, this does not meet the compliance with the mandatory requirement.

Enhanced Fresh Air Ventilation

IE Credit 1 Points: 2

Intent:

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

Compliance options:

For Mechanically Ventilated Spaces:

Demonstrate that the fresh air ventilation in all regularly occupied air-conditioned spaces shall surpass the minimum ventilation rates as prescribed in ASHRAE Standard 62.1-2010 (illustrative table below) via installation of mechanical fresh air systems and maintain the differential CO_2 levels below 530 ppm at any given point of time.

Outdoor Air Rates for different Space types

Space Type	People Outdoor Air Rate (R_p) (cfm/person)	Area Outdoor Air Rate (R_a) (cfm/sq.ft)
Restaurant Dining rooms	7.5	0.18
Cafeteria/Fast food dining	7.7	0.18
Conference/meeting	5	0.06
Hotels-bed/living rooms	5	0.06
Office space/ reception area/ telephone/ data entry/ main entry lobby	5	0.06
Libraries	5	0.12
Retail Spaces	7.5	0.06
Super Market	7.5	0.06
Auditorium	5	0.06
Health Club	20	0.06
Corridors		0.06
Computer Lab	10	0.12

Points are awarded as below:

Mechanically Ventilated Spaces	Points
≥ 5% more than baseline criteria	1
≥ 10% more than baseline criteria	2

Notes:

- *Minimum ventilation rate required for meeting the mandatory credit compliance = (outdoor airflow rate/person x total occupancy) + (outdoor airflow rate/unit area x floor area).*
- *The project team shall consider the design occupancy or actual occupancy (whichever is higher) towards the credit calculation.*
- *For financial institution project is recommended to consider the peak occupancy (including permanent employees, contract employees, housekeeping staff, visitors, etc.) towards the credit calculation.*

(And/ Or)

For Naturally Ventilated Spaces:

Provide operable windows 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:

Design Criteria for Openable Windows and Doors to the Exteriors

Category	Mandatory requirement	Percentage of openable area to the total carpet area	Points
Regularly occupied area (≤ 100 sq.m)	8%	10%,12%	1,2
Regularly occupied area (≥ 100 sq.m)	12%	12%,14%	1,2

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 include workstations, cabins, meeting rooms, conference rooms, waiting areas, cafeteria, etc.,*

- *Non-regularly occupied spaces include toilets, storerooms, etc.*
- *Doors/ windows should not have any obstruction within 2 m from the exterior surface. Shading devices can be excluded.*
- *For sliding windows / doors, only openable area to the exteriors shall be considered in calculations.*
- *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.*

Related credits:

- Energy Efficiency Credit 2: Efficient Space Conditioning
- Indoor Environment Mandatory Requirement: Tobacco Smoke Pollution
- Indoor Environment Credit 3: Thermal Comfort
- Indoor Environment Credit 5: Air Quality Monitoring
- Indoor Environment Credit 6: Indoor Plants
- Indoor Environment Credit 10: Low Emitting Materials
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Narrative elaborating the measures implemented to provide fresh air in the project.

Mechanical Ventilation:

1. Calculations indicating minimum ventilation rates in all regularly occupied areas considering area and occupancy as per ASHRAE 62.1 baseline in formulae embed excel sheet format.
2. Calculation indicating the design or actual or peak occupancy.
3. HVAC layout of the project indicating the location of fresh air intake, supply air duct, return air duct, fresh air system indicating the CFM *(Please keep all unnecessary layers switched off)*
4. Purchase invoices of all the fresh air ventilation systems installed in the project indicating the make and model
5. Technical specifications of all the fresh air ventilation systems installed in the project indicating the capacity in CFM
6. Geotagged photographs and short videos of all the fresh air ventilation systems installed in the project indicating the capacity of fresh air unit installed

Natural Ventilation:

1. Calculations indicating the percentage of openable area (i.e. window/ door) to the carpet area in each regularly occupied spaces.
2. Floor plans indicating the door and window schedules.
3. Geotagged photographs and short videos indicating the openable spaces in the project.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Daylighting

IE Credit 2 Points: 4

Intent:

Design interior spaces to enhance connectivity between the interior and exterior, creating a visually delightful experience for occupants.

Compliance options:

The project shall demonstrate that at least 25% of the regularly occupied spaces have minimum daylight of 300 lux by choosing any one of the following options or a combination, to demonstrate the credit compliance:

- Option 1 Measurement Approach
- Option 2 Simulation Approach

Option 1: Measurement Approach

- Demonstrate through daylight illuminance measurement that 25 % of the regularly occupied spaces in the building achieve daylight illuminance levels as per the table mentioned below.
- Measurements shall be taken after installation of furniture, equipment & systems at work plane height during 9 a.m. to 3 p.m., on a 10-foot square grid. The hourly average measurements between 9 a.m. to 3 p.m. shall be taken to demonstrate the credit compliance.

Option 2: Simulation Approach

- Demonstrate through computer simulation that 25 % of the regularly occupied spaces in the building achieve Useful Daylight Illuminance (UDI) within range of 300 lux to 2,000 lux at working plane.

Points are awarded as below:

Percentage of Regularly occupied Spaces with Daylight	Points
≥ 25%	1
≥ 50%	2
≥ 75%	3
≥ 95%	4

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 o 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%)

Illuminance Levels for Various Spaces

Space Type	Average Illuminance(in lux)
General Offices	300
Deep Plan General Offices	500
Computer Work Stations	300
Conference Rooms, Executive Offices	300
Computer and Data Preparation Rooms	300
Drawing Boards	500
Print Rooms	200
Counter, Office Areas	300
Super Markets/ Hyper Markets	300
Showrooms for Large Objects example Cars, Furniture	300
Hotel: Entrance Halls	50
Hotel: Reception/ Cashiers	200
Hotel: Bed room	30
Hotel: Bathrooms	50
Food Preparation & Stores, Cellars, Lifts & Corridors	100

**Reference: Bureau of Energy Efficiency Code: Lighting, 2006*

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 spaces include workstations, cabins, meeting rooms,conference rooms, waiting areas, cafeteria, etc.,
- Open / Private Office Spaces include, but not limited to, workstations, cabins, etc.,
- Shared/ Multi-occupied Spaces include, but not limited to, Meeting rooms,Conference rooms, Cafeteria, etc.,
- Regularly occupied spaces 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.

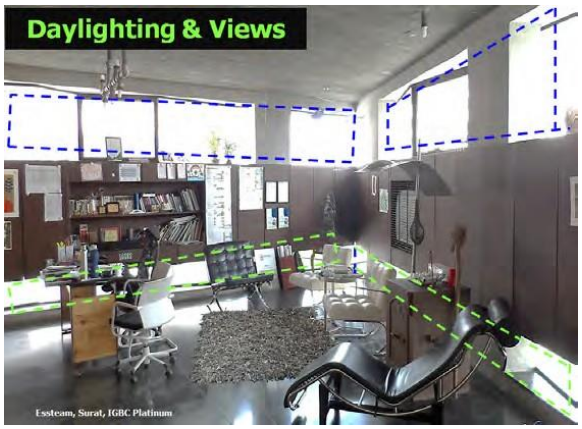
Green Building Concern:

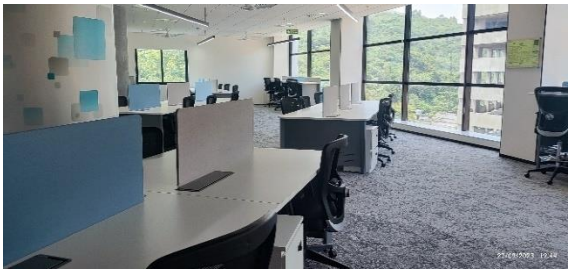
Interior spaces shall integrate daylighting as it enhances occupant well-being, energy efficiency, and environmental sustainability. The integration of natural light in interiors contributes to improved productivity, mood, and overall health by regulating the circadian rhythm, reducing eye strain, and alleviating stress. It also significantly decreases energy consumption by minimizing reliance on artificial lighting during daylight hours, resulting in cost savings and a reduced carbon footprint. Additionally, daylighting enhances visual comfort by creating a more balanced and dynamic lighting environment compared to artificial sources. A well-designed daylighting strategy also improves aesthetic appeal and fosters a stronger connection to the outdoors, thereby promoting a healthier and more enriching indoor experience.

Approach and Methodology:

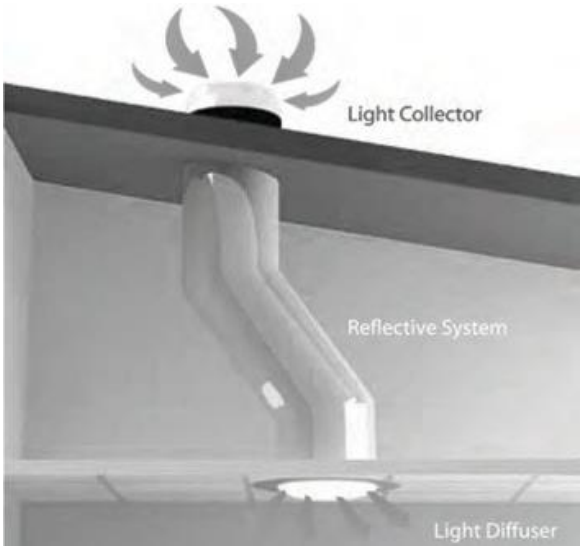
Ensuring adequate openings to the exterior environment is crucial for bringing natural light into interior spaces. It is also imperative to strike a balance between the light and heat that could be let into the buildings via these openings: especially in hot-dry and warm-humid climatic regions. Sensible planning of the orientation & sizes of window openings and the provision of adequate sun-shades can help reduce ingress of heatwhile allowing natural light. Solar control glass can also be used in the windows to reduceheat ingress while allowing natural light.

For large floor plates, to allow adequate penetration of natural light, horizontal openings such as skylights and courtyards can be planned to bring in light. Innovative products suchas light pipes can also be considered to bring natural light deep into areas.





Skylights and courtyards to bring in light.



Light pipes can be used to bring in natural light into interior spaces with large floor.

Related Credits:

- Eco Design Approach Credit 1: Eco Vision for Interior Design.
- Energy Efficiency Credit 3: Energy Efficient Lighting.
- Indoor Environment Credit 8: Outdoor Views.

Documentation Required:

Measurement Approach

- Narrative elaborating the measures adopted to provide daylight to the regularly occupied area with minimum of 300 lux.
- Detailed floor plans with window and skylight schedule.
- Calculation indicating the percentage of regularly occupied areas have minimum daylight of 300 lux.
- Measurement report indicating the space wise lux level in a excel format.
- Manufacturer brochure/ cut-sheet/ letter indicating the visual light transmittance (VLT) of the installed glass.
- Geotagged photographs and short videos indicating the measuring of daylight with the values in lux.

Simulation Approach:

- Narrative elaborating the measures adopted to provide daylight to the regularly occupied area with minimum of 300 lux.
- Detailed floor plans with window and skylight schedule.
- Daylighting simulation report stating the sky conditions (such as date & month; time; ambient lux levels; wall, floor & roof reflectance properties; etc.,) and showing the daylight analysis for all regularly occupied in the project. During simulation, consider shading devices and 'shadow effect' of adjacent neighboring buildings.
- Manufacturer brochure/ cut-sheet/ letter indicating the visual light transmittance (VLT) of the installed glass.
- Geotagged photographs and short videos indicating the daylight in the interior spaces.

Exemplary Performance

This credit is not eligible for exemplary performance

Case Study:

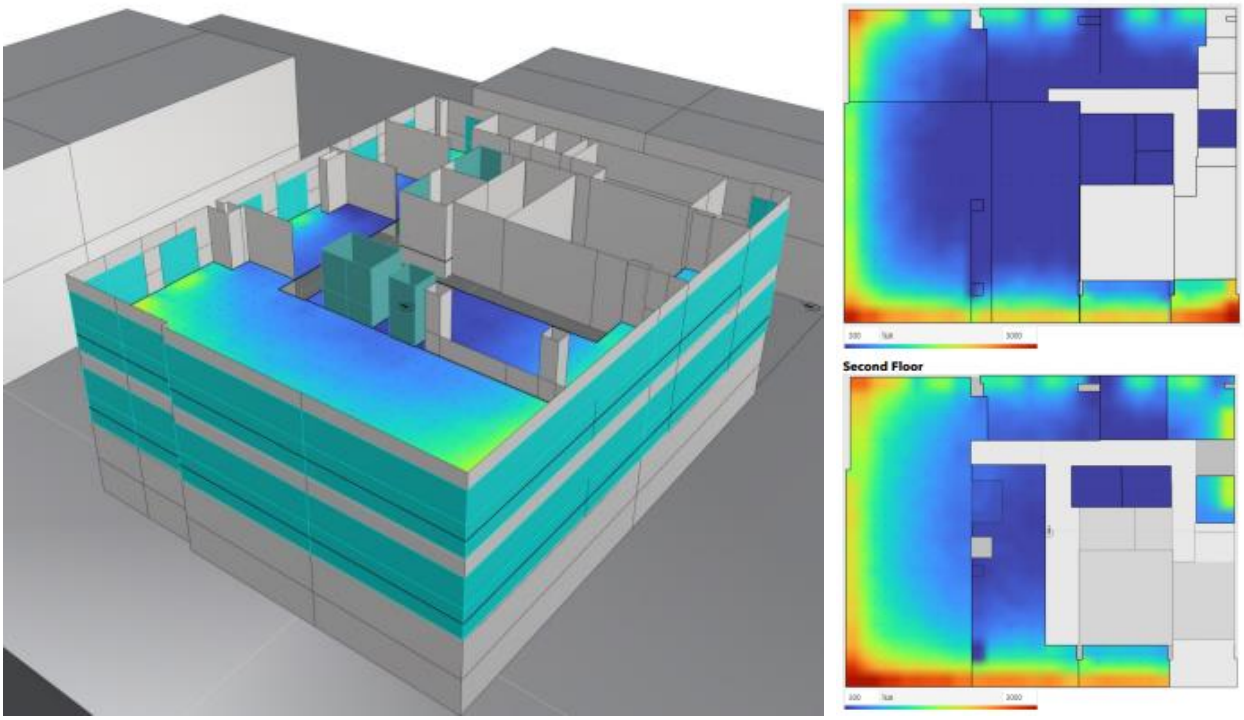
An existing interior fit-out in Kolkata conducted lux level measurements of the regularly occupied spaces. The measurements are tabulated below:

Description of spaces (e.g. core workstation, meeting room, electrical room, restroom etc)	Total carpet area (sq. ft)	Daylighting			
		Space type Drop down details to be taken from adjacent setup table	Daylight Benchmark Lux Level Baseline value to be taken from adjacent setup table	Simulated lux level	Daylight Compliant Area (sq. ft)
Workstation area	329.49	Deep Plan General Offices	300	301	329.49
BM Cabin	100.86	Deep Plan General Offices	300	400	100.86
reception	20	Deep Plan General Offices	300	300	20

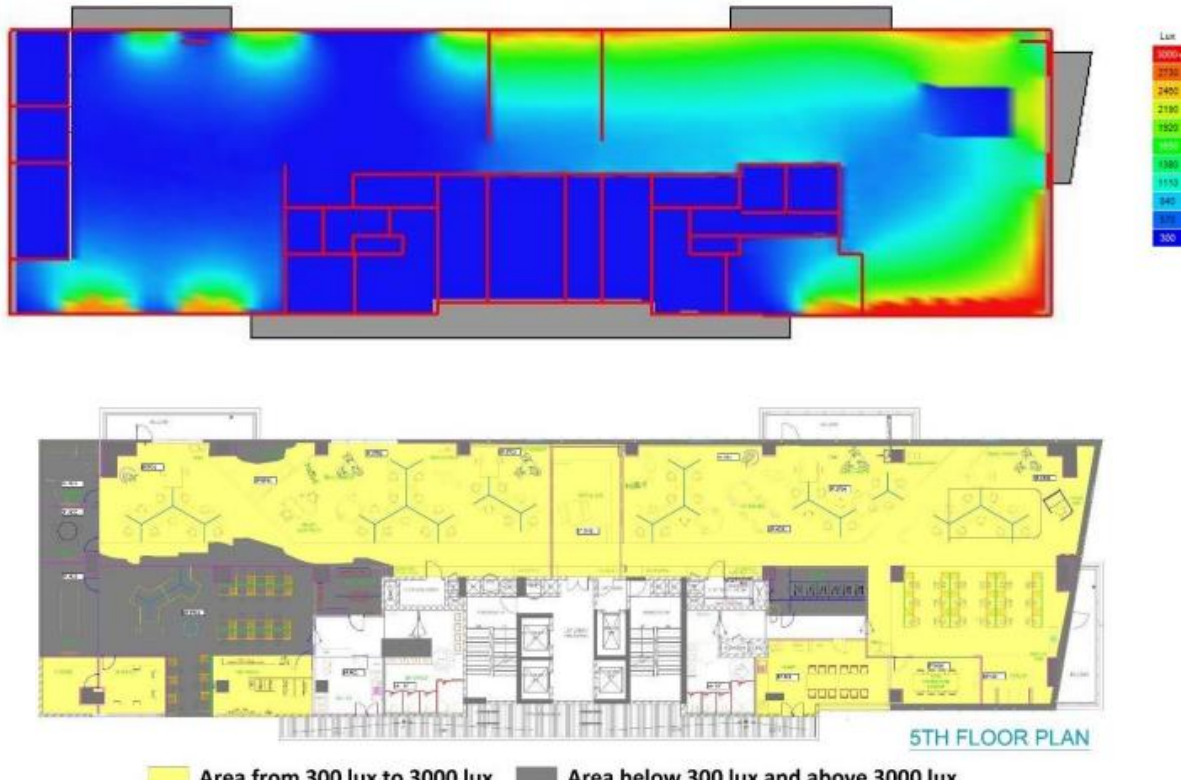
In this fit-out, 1900 SQM out of a total regularly occupied area of 2900 SQM achieves adequate daylight (65%).

Hence, the project is eligible for 2 points under this credit.

Simulation Approach



Snapshots from the simulation software indicating the site context has also been considered for the daylight simulation.



Thermal Comfort

IE Credit 3 Point: 1

Intent:

Provide comfortable indoor thermal environment, so as to enhance the productivity and health & well-being of the occupants.

Compliance options:

Demonstrate that more than 75% of the regularly occupied spaces meet the thermal comfort goals.

Temperature		Humidity
Summer	Winter	30% - 70%
24.5 + 2.5	22.0 + 3.0	

Note:

The project team shall install thermostat to monitor the temperature & relative humidity throughout the year.

Green Building Concerns:

Thermal comfort refers to a person's state of mind in terms of whether they feel too hot or too cold. Thermal comfort depends on a range of factors such as temperature, humidity and air flow inside the environment to factors such as the type of clothing worn and the physical exertion required of the work. People working in uncomfortably hot or cold conditions are less likely to function are their full potential as their ability to perform tasks and make decisions suffers.

Approach and Methodology:

Studies have shown that providing thermal comfort for occupants enhances productivity and satisfaction levels. Thermal comfort is achieved through the right combination of temperature, humidity and air flow. Maintaining a comfortable temperature and humidity range (as specified under the section "Compliance Options") inside the interior spaces enables the occupants to achieve an acceptable level of thermal comfort. Thermal comfort can be achieved by natural or mechanical means depending on whether the interior space is conditioned or not.

There are many solutions that can be deployed to achieve thermal comfort i.e. temperature range of 26 + 2 degree C and Relative humidity between 50 - 60%. Thermostats can be used in conditioned spaces to ensure that the temperature is maintained within the desired range. Adequate air flow can

be achieved by using fans or blowers of adequate capacity or by providing adequate openings to the exterior. Humidity can be controlled by using dehumidifiers.

Related credits:

- Energy Efficiency Credit 2: Efficient Space Conditioning
- Indoor Environment Mandatory Requirement: Fresh Air Ventilation

Documentation Required:

- Narrative elaborating the measures adopted to demonstrate thermal comfort in regularly occupied spaces throughout the year.
- For *existing interiors project*, latest one year data of temperature and relative humidity maintained in the premises.
- For *new interiors project*, latest six months data of temperature and relative humidity maintained in the premises.
- Calculation indicating more that 75% of the regularly occupied spaces meet thermal comfort requirement.
- Geotagged photographs and short videos of the installed thermostat indicating the temperature and relative humidity values.

Exemplary Performance

This credit is not eligible for exemplary performance

Case Study:

Sample calculation indicating the temperature and relative humidity record.

Date	Temperature (°C)			Relative Humidity (%)		
	Morning	Afternoon	Evening	Morning	Afternoon	Evening
01/01/2025	24.2	24.8	24.1	55	58	54
02/01/2025	24.5	25.2	25.1	56	61	62
03/01/2025	24.6	24.3	24.8	51	48	52
04/01/2025	25.1	24.8	24.1	51	49	50
05/01/2025	24.6	24.4	24.3	54	60	67
06/01/2025	24.6	26.0	25.7	56	53	58
07/01/2025	24.9	25.3	24.6	49	44	49

Ergonomic Design

IE Credit 4 Points: 2

Intent:

Encourage ergonomic design to address occupants' health and well-being

Compliance Option

Ensure that the Interior fit-out meets the following ergonomic standards as per ISO TC159 (or) Metric Handbook: Planning & Design Data (or) equivalent reference standard to design interior spaces based on the function.

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

(1 point for each measure, max 2 points)

1. Ergonomic Chairs

The project team must provide ergonomic chairs that:

- Are designed to support the human body with a focus on comfort, health, and posture.
- Include adjustable features such as lumbar support, seat height, armrests, and reclining mechanisms.
- Ergonomic chairs should be provided in the following areas (not limited to):
    - Workstation Areas
    - Cabins
    - Meeting Rooms
    - Training Rooms
    - Conference Rooms
    - Cafeteria chairs are excluded from this provision.

2. Height Adjustable Workstations

- All workstation desk and cabin desks must be height-adjustable to accommodate different user preferences.
- Adjustable desks should allow sitting and standing work positions.

3. Monitor Arms

All workstations and cabins must be equipped with ergonomically adjustable monitor arms with:

- Height adjustment
- Angle, tilt, and rotation adjustment

Provision of laptops cannot be considered under this credit compliance.

4. Additional Ergonomic Features

Any other ergonomically adjustable feature that enhances user comfort and efficiency should be considered.

Green Building Concern

These days, most jobs involve prolonged desk work, making a sedentary lifestyle the norm. This shift has led to several negative consequences, affecting the overall well-being of employees:

Poor Posture & Spinal Problems: Long hours of sitting with improper support contribute to back pain and spinal misalignment.

Increased Health Risks: Higher chances of neck strain, joint pain, and repetitive strain injuries.

Reduced Productivity & Efficiency: Discomfort and pain lead to frequent breaks and distractions, lowering work performance.

Higher Medical Costs & Absenteeism: Employees may require medical attention due to strain-related injuries, increasing healthcare expenses and work absences.

Investing in ergonomically designed furniture is essential for promoting employee well-being, enhancing productivity, and reducing long-term costs. Neglecting ergonomic solutions can result in serious health issues, decreased efficiency, and financial burdens for both employees and organizations.

Approach and Methodology:

Ergonomically designed workspaces can greatly enhance the comfort and well-being of the occupants. The furniture design should meet the needs of the people occupying the fit-out. For instance, a task that requires a person to frequently access manuals or records should be supported by easily accessible cabinets.

Sedentary tasks should be supported by chairs that offer good lumbar support and height can be adjusted. In general, providing adjustable furniture (chairs, task lights, keyboard trays, etc.) that allows people to set the furniture as per their individual needs can greatly enhance workplace comfort.

Monitor arms provide excellent flexibility and adjustability to adapt to the needs of individual users. One key aspect of this adjustability is the ability to change the height and depth of the monitor. This allows users to find their optimal viewing position, minimising strain on the neck, back, and eyes.

Another notable feature of monitor arms is the ability to control the angle, tilt, and rotation of the screen. This enables users to customise their monitor position for specific tasks or ergonomic comfort.

For example, a graphic designer might need to adjust the angle and tilt of their monitor for more accurate colour representation and visibility, while a developer writing code might find it beneficial

to rotate their screen to a vertical orientation for easier reading. Offering such versatility gives users more control over their workstation setup.

It is recommended to use certified furniture which normally complies with ergonomics standards

Related credits:

- Eco Design Credit 1: Optimise Circulation Space
- Interior Materials Credit 8: Eco-Certified Interior Furniture
- Indoor Environment Credit 10: Low Emitting Materials

Documentation Required:

1. Narrative elaborating the ergonomic features provided in the project
2. Purchase invoice of the ergonomic features furniture indicating the make & model
3. Technical specification sheet of the ergonomic features furniture indicating the working of the furniture
4. Multiple geo-tagged photographs and short videos of the furniture indicating the availability of ergonomic adjustment feature.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Air Quality Monitoring

IE Credit 5 Points: 3

Intent:

Monitor indoor air quality thereby enhancing the awareness amongst occupants on the impacts of air pollutants

Compliance option:

Monitoring IAQ Parameters (2 points)

Monitor IAQ parameters in all regularly occupied spaces and ensure that 80% of the measurements are well within the threshold values.

Parameters	Threshold values	Frequency of Monitoring
CO_2	Max 500 ppm above ambient	Daily Monitoring
PM 2.5	< 25 µg/m³	
PM 10	< 100 µg/m³	
TVOC * (equivalent to isobutylene)	< 400 µg/m³	Quarterly Monitoring
Formaldehyde	< 100 µg/m³	
SO_2	< 80 µg/m³	
NO_2	< 80 µg/m³	
O_3	< 100 µg/m³	
Total microbial count	Indoor = ambient	

Inputs from 'IGBC Rating Guidelines' and 'Indoor Environment Quality Standard, ISHRAE Standard - 10001:2019'

Points are awarded as below:

Frequency of Monitoring	Points
Daily Monitoring	1
Daily Monitoring & Quarterly Monitoring	2

Notes:

- *The measurement methodology for IAQ parameters shall be as per Annexure-II. The project can also adopt Chemical methods as per IS 5182 Part 2 for SOx, IS 5182 Part 6 for NOx and IS 5182 Part 9 for O3*
- *The minimum resolution and accuracy of the instruments shall be as per Table 10- 'Specifications of the instruments to be used for measuring IEQ parameters' of Indoor Environment Quality Standard, ISHRAE Standard - 10001:2019. Refer Annexure-III for details*
- *For continuous monitoring of temperature, relative humidity, CO2, $PM_{2.5}$ & PM_{10}, the sampling frequency should be at least once every 5 minutes. Monitoring of these parameters should be done on a 24-hour basis to establish a trend. This provides insights into indoor air quality, leading to possible actions for improvement.*
- *The sensors installed for the continuous monitoring shall be installed in breathing zone (3 feet to 6 feet from finished floor level) for accurate readings.*
- *Every enclosed place, such as cabins or meeting rooms shall have dedicated monitoring devices.*
- *Sensors/monitoring devices should be installed at least 0.9 m from exits, window openings, any heat source and from air conditioning vents.*
- *Sampling locations for quarterly monitoring must be representative of occupied spaces and should be located in the breathing zone. Testing should be carried out under regular building conditions. Any test conducted without occupants or when the occupancy is considerably lower than on regular days shall be avoided*

Display: **(1 point)**

Display the parameters that are monitored on a daily basis in a prominent location such as entrance, waiting lounges, work areas etc, to create awareness amongst the occupants and visitors.

- CO_2
- CO
- PM 2.5
- PM 10
- TVOC
- O_3

Green Building Concerns

We spend 90% of our lives indoors, where air pollution is 2 to 5 times worse than outdoors. Key indoor pollutants include:

Airborne particles (PM 2.5 & PM 10):

rom diesel exhaust, dust, smoke and other sources

- Respiratory issues (asthma, bronchitis, lung infections).
- Increased cardiovascular risks (heart disease, stroke).
- Reduced indoor air quality, affecting overall well-being.
- Long-term exposure can cause chronic lung diseases and reduced life expectancy.

Carbon Dioxide (CO_2)

- Generated from exhalation and cooking.
- High levels cause drowsiness, headaches, and reduced concentration.
- Poor ventilation lowers workplace productivity.

Carbon Monoxide (CO)

- Generated from gas powered cooktops, smoking, generators
- Causes nausea, dizziness, confusion, and can be fatal in high concentrations.

Total Volatile Organic Compounds (TVOCs)

- Emitted from furniture, building materials, and smoking.
- Leads to eye, nose, and throat irritation.
- Some VOCs are carcinogenic and contribute to Sick Building Syndrome (SBS).

Ozone (O_3)

- Comes from outdoor air infiltration.
- Causes breathing difficulties, coughing, and worsens asthma.
- Long-term exposure damages lung function

Failure to monitor these pollutants can lead to serious health risks, reduced productivity, and unsafe indoor environments.

Approach and Methodology

To enhance the indoor environment quality, the project team can explore following

Provision of fresh air: Consider installing fresh air ventilation systems to improve airflow, reduce indoor pollutants and help to dilute of CO_2, CO levels and other airborne particles.

Prohibit smoking in indoor spaces which will significantly reduce TVOCs, CO, and other harmful pollutants.

Use of low emitting materials during construction and occupancy will also help in reducing TVOC levels.

Continuous monitoring Regular data collection ensures the system is performing optimally and allows for timely adjustments.

Sensor in breathing zone: Install IAQ sensors in the breathing zone (3 to 6 feet from the floor) for accurate CO_2 and particulate matter measurements.

These sensors should operate daily to monitor fluctuating pollutant levels in real-time.

Quarterly monitoring for other parameters: TVOCs, O_3, SO_2, NO_2, Formaldehyde, and microbial count should be measured quarterly.

These parameters should be assessed in potential contamination zones, such as kitchens, bathrooms, and areas near combustion appliances.

This approach will help maintain optimal IAQ and ensure the health and comfort of building occupants.

Related credits:

- Indoor Environment Mandatory Requirement 1 and Credit 2: Fresh Air Ventilation
- Indoor Environment Credit 6: Indoor Plants
- Indoor Environment Credit 10: Low Emitting Materials
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Narrative elaborating the measures adopted to maintain the indoor environment quality
2. Purchase invoice of IAQ sensors installed indicating the make & model
3. Technical specification sheet of the IAQ indicating the range and sensitivity
4. Multiple geo-tagged photographs and short videos of the sensors indicating the measurements.
5. Air quality report of quarterly monitored parameters
6. For *existing interior projects*, one year data of all the daily IAQ parameters being monitored.
7. For *new interior projects*, six months data of all the daily IAQ parameters being monitored.

Exemplary Performance:

This credit is eligible for exemplary performance under Innovation in Design credit, if 80% of the IAQ measurements monitored in all the regularly occupied spaces are well within the threshold values.

Parameters	Threshold values	Frequency of Monitoring
CO_2	Max 350 ppm above ambient	Daily Monitoring
PM 2.5	< 15 µg/m³	
PM 10	< 50 µg/m³	
TVOC * (equivalent to isobutylene)	< 200 µg/m³	Quarterly Monitoring
Formaldehyde	< 30 µg/m³	
SO_2	< 40 µg/m³	
NO_2	< 40 µg/m³	
O_3	< 50 µg/m³	
Total microbial count	Indoor = ambient	

Indoor Plants

IE Credit 6 Points: 2

Intent:

Encourage usage of indoor plants to enhance indoor air quality, thereby improving the health and wellbeing of occupants

Compliance options:

Select indoor plant species suitable to indoor environment. The requirement is to have atleast one plant in every 100 sq. ft of total regularly occupied area.

Plants like these help in absorbing toxins include not limited to formaldehydes, toxins, VOC, benzene, trichloroethylene etc. This can improve the indoor air quality inside the space, besides enhancing the aesthetics.

Points are awarded as below:

Indoor Plants in total regularly occupied area %	Points
50%	1
95%	2

Note:

1. *Please refer to examples of indoor plants illustrated in Annexure: A*
2. *Potted plants of height more than 1 feet (measured from the soil surface) are to be considered towards credit compliance.*

Green Building Concerns:

Volatile organic compounds (VOCs) such as formaldehydes, benzene, trichloroethylene, etc. are the most common contaminants that are often present in enclosed spaces which causes common short-term effects namely irritation of the eye, nose, allergies, headaches and nausea[1]. Long-term effects include damage to the liver, kidney and the central nervous system.

[1] https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality

Approach and Methodology:

Studies indicate that indoor plants can improve the indoor air quality inside the space by absorbing VOCs besides enhancing aesthetic values. A list of indoor plants identified for improving the indoor air quality are listed in Annexure- A.

Related credits:

- Indoor Environment MR 2 / Credit 1: Fresh Air Ventilation
- Indoor Environment Credit 5: CO2 Monitoring
- Indoor Environment Credit 10: Low Emitting Materials

Example of indoor plants

Documentation Required:

1. Narrative indicating comprehensive list of all indoor plants.
2. Calculation indicating the number of plants required for every 100 sq. ft of total regularly occupied area.
3. Purchase invoice indicating the list of indoor plant species procured in the project
4. AMC indicating the maintenance of the procured plants and period of contract.
5. Geotagged photographs short videos showing the indoor plants taken at different interior locations.

6. Declaration letter from project owner indicating that plants will be maintained for minimum period of 3 years.

Case study with sample calculations:

An office fit-out with floor area of approximately 2,400 sq. ft in a commercial building. the project has 15 indoor plants which comprises of money plant, areca palm plant, snake plant and aloe vera.

Considering 1 plant per 100 sq. ft, the project is able to demonstrate 63% of the regularly occupied space with indoor plants. Hence, the project achieves 1 point under the credit.

Total Regularly Occupied area (sq. ft)	2400
Number of Indoor Plants	15
Total regularly occupied area with plants (sq. ft)	1500
Percentage	**63%**

Material Acoustic Performance

IE Credit 7 Points: 3

Intent:

Enhance acoustical experience for the occupants to promote productivity and wellbeing.

Compliance options:

Design all regularly occupied spaces in the building to meet the acoustical, sound insulation and noise control requirements as per NBC part 8, Building Services Section 4 - Acoustics Sound Insulation and Noise Control.

Acoustic design should meet the following criteria: (1 point for each measure, max 3 points)

Type of Material	Criteria	Levels
Ceiling Systems	Noise Reduction Coefficient (NRC)*	≥0.65
Flooring Systems	Noise Reduction Coefficient (NRC)	≥0.3
Office Type 1. Enclosed offices 2. Open office	Noise Criteria (dB)	≤ 35 ≤ 40

**Noise Reduction Coefficient (NRC) is a single figure descriptor of the sound absorption property of a material*

Note: *Ceiling Systems, Partition Systems, Flooring systems can be certified by agencies like GBC, Blue Angel, Carpet & Rug Institute (CRI) etc.*

Green Building Concerns:

Noise interruptions impact concentration levels of occupants and can be disruptive to concentration and productivity.

Approach and Methodology:

Interior fit-outs should also give due importance to acoustics in the indoor spaces. The possible examples like double glazed fenestration, partitions with glass wool/ rockwool infill, masonry with air gaps, acoustic panel insulation, acoustic ceiling and flooring tiles & carpets.

The fit-out project should select flooring and false ceiling materials which comply with the noise reduction co-efficient limits specified under “Compliance Options”. The project should also measure noise levels in open office areas as well as enclosed offices and ensure compliance with the noise level limits specified under “Compliance Options”.

Ceiling acoustic panels high NRC value at Hero Electric, Delhi office.

Related Credits:

1. Interior Materials Credit 2: Local Materials
2. Interior Materials Credit 3: Recycled Content Materials
3. Indoor Environment Credit 10: Low-Emitting Materials

Documentation Required:

1. Narrative on approach to acoustical design in the interiors with respect to ceiling systems, partitions, flooring and list of acoustical materials installed in the interior fitout.

Ceiling System

1. Technical data sheet clearly indicating the NRC value of ceiling system.
2. Calculation on percentage of area with different types of ceiling system.
3. Floor plan highlighting areas with acoustical ceiling system with clear legend indicating ceiling type.
4. Geotagged close and long shot photographs of interior fitout indicating acoustical ceiling systems.

Flooring System

1. Technical data sheet clearly indicating the NRC value of flooring system.
2. Calculation on percentage of area with different types of flooring system.
3. Floor plan highlighting areas with acoustical ceiling system with clear legend indicating flooring type.
4. Geotagged close and long shot photographs of interior fitout indicating acoustical flooring systems.

Noise Measurement

1. Consolidated list of noise levels measured against the baseline criteria measured in different spaces within the interior fitout with 80% occupancy during measurement.
2. Geotagged photographs and short videos captured during measurement of noise levels in the interior fitout highlighting occupancy & surroundings.

Exemplary Performance

This credit is not eligible for exemplary performance

Sample documentation:

Name of the regularly occupied spaces	Carpet Area (sq. ft)	Office type	Baseline maximum Value (dB)	Measured Value (dB)	Compliant area (sq.ft)	Meets credit compliance
Cabin	60	Enclosed	35	30	60	Yes
Workstation area	40	Open	40	35	40	Yes
Conference room	30	Enclosed	35	36	0	No
Meeting Room	35	Enclosed	35	32	35	Yes
Lounge/ Recreation	45	Open	40	36	45	Yes
Meets noise criteria requirements for all regularly occupied spaces						**No**

The project team should demonstrate acoustic comfort in all regularly occupied spaces.

Outdoor Views

IE Credit 8 **Points: 4**

Intent:

Design interiors to provide connectivity between the interior and exterior spaces

Compliance options:

Demonstrate at least 40% of the regularly occupied areas achieve direct line of sight to vision glazing between 0.9 meters (3 feet) and 2.1 meters (7feet) above the finished floor level.

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.

Points are awarded as below

Percentage of regularly occupied spaces having outdoor views	Points
≥ 40%	1
≥ 50%	2
≥ 60%	3
≥ 70%	4

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 spaces include workstations, cabins, meeting rooms,conference rooms, waiting areas, cafeteria, etc.,*
- *Open / Private Office Spaces include, but not limited to, workstations, Cabins, etc.,*
- *Shared/ Multi-occupied Spaces include, but not limited to, Meeting rooms, Conference rooms, Cafeteria, etc.,*

- *Regularly occupied spaces which are used for multi-purposes, such as cafeteria-cum meeting room, can be considered as separate spaces based onthe function. The room boundary need not be a physical boundary.*
- *Internal courtyards with vegetation can be considered for this credit calculation*
- *Non-regularly occupied spaces include toilets, store rooms, etc.*

Green Building Concern:

Visual connection to nature has been shown to reduce stress, improve mood, and enhance cognitive function, making spaces more comfortable and stimulating. Access to outdoor views also helps regulate the circadian rhythm, promoting better sleep patterns and overall health. Additionally, natural views provide a sense of openness, preventing feelings of confinement, especially in enclosed environments. From a sustainability perspective, integrating outdoor views often aligns with daylighting strategies, reducing reliance on artificial lighting and improving energy efficiency. Overall, incorporating outdoor views into interior design fosters a healthier, more inspiring, and productive indoor environment.

Sample photographs indicating the outdoor views from the regularly occupied areas.

Approach and Methodology

Recent research indicates that outdoor views to greenery, blue sky, water bodies, landscape shall enhance the well-being and productivity of building occupants. Access to long distance views allow eyes to refocus away from computer screens and work planes which helps reduce fatigue, eye strain and headaches.

The design of the interior layout of a fit-out also plays a key role in providing access to views to building occupants. For providing effective access to exterior views, the workstation height shall not be more than 1050 mm from the finished floor or shall have transparent partition for better views. It is always recommended to have open office seating arrangement all around the periphery and have meeting rooms, conference rooms, storage units centrally located, which will help in hindrance free views.

It is also important to ensure that windows which provide views of the exterior environment, has no obstructions for at least 8 meters away from the glazing which allows adequate distance for the eyes to refocus.

Related credits

- Indoor Environment Credit 2: Daylighting

Documentation Required

- Narrative elaborating the measures adopted to achieve access to outdoor views.
- Calculation indicating the percentage of the regularly occupied areas having access to outdoor views
- Floor plan indicating the doors and windows schedule indicating the line of sight, connectivity between the interior and exterior spaces.
- Section and elevation of the interiors indicating the finished floor level, furniture, ceiling and glazing levels respectively.
- Geotagged photographs and short videos of the interiors indicating the outdoor views from the regularly occupied spaces.
- Geotagged photographs and short videos of (N, S, E & W) elevations and views indicating the installed glazing.

Exemplary Performance

This credit is eligible for exemplary performance under Innovation in Design credit, if more than 80% of the regularly occupied spaces achieves direct line of sight to vision glazing.

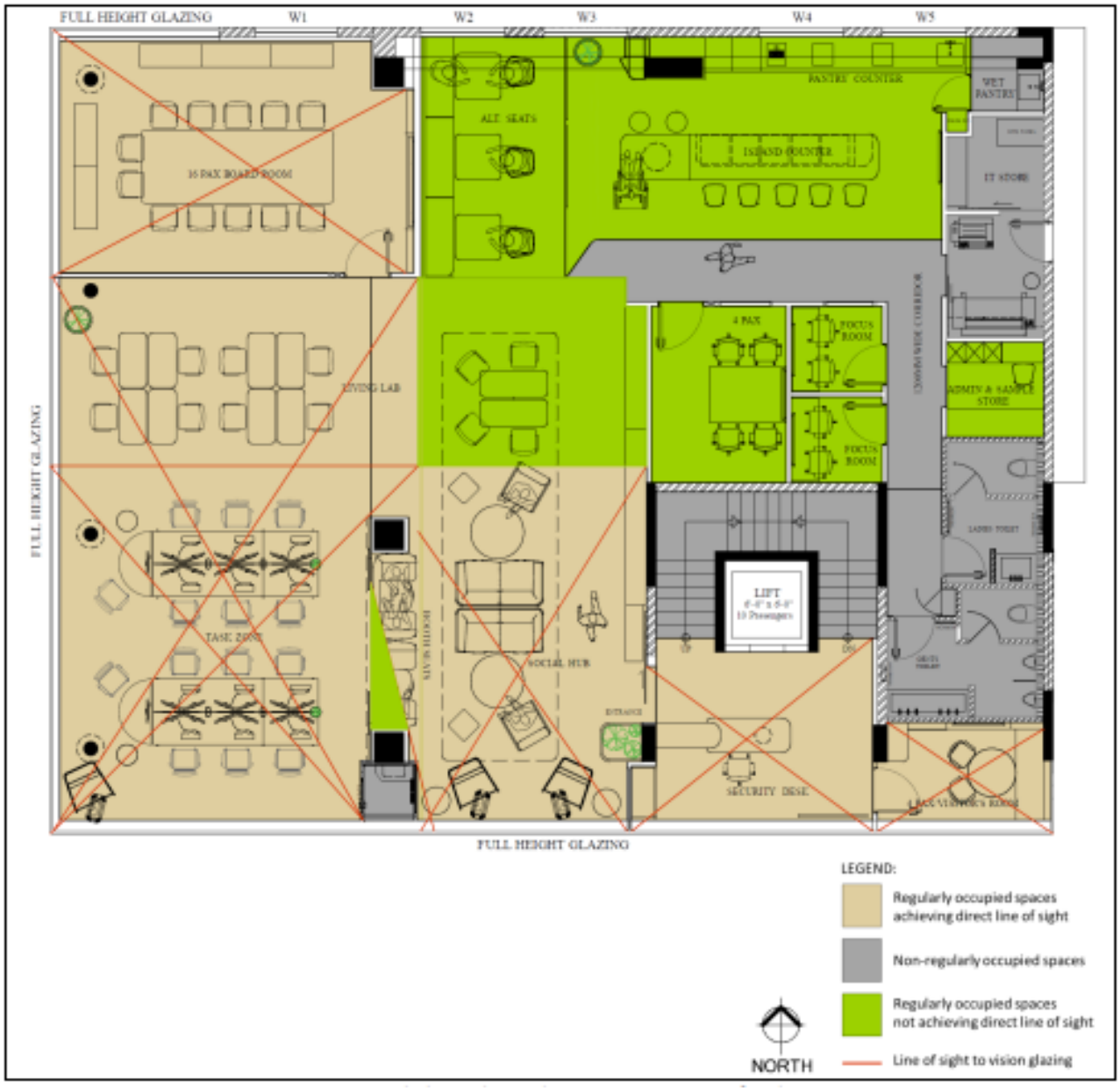
Case Study

An interiors fit-out project has a regularly occupied area 1000 sq..m. The fit-out primarilyconsists of open office layouts with no partitions or partitions of low height. The project has optimised the windows to cater 65% of the regularly occupied area has a direct line of sight to peripheral windows with external views. Hence, the project will qualify for 3 points under this credit.

S.No	Space Type	Compliant Area (Sq.ft)
1	Open Office	400
2	Cabin 1	50
3	Cabin 2	50
4	Printer room	0
5	Reception Area	100
6	Lounge Area	0
7	Board Room	0
8	Phone Booth Area	0
9	Café Area	100
10	Storage Area	0

Total regularly occupied area	1000
Total regularly occupied area with access to outdoor views	650
Percentage of regularly occupied areas with access to outdoor views	65%

Sample Layout



Sample floor plan indicating the areas having access to external views

Minimise Indoor Pollutant Contamination

IE Credit 9 Points: 1

Intent:

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

Compliance options:

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

(1 point for two measures, maximum 1 points)

- ❖ Fresh air supply should be at least 25 feet away from any source of contamination to ensure fresh air supply.
- ❖ Install entryway systems (grates or slots / grilles/ rollout mats which allow for easy cleaning) of minimum 6 feet in length, at all the main entrances.
- ❖ Isolate areas exposed to hazardous gases or chemicals (such as printer rooms, chemical storage rooms, janitor rooms) from regularly occupied areas, as per owner / developer's scope. Also, design such areas with an exhaust system, self-closing door, deck-to-deck partition.
- ❖ Clean air conditioning ducts, filters (at least once a year).
- ❖ Green housekeeping products for daily applications.

Notes:

- *Printers/ Copier machines: Floor-mounted printers/ copier machines shall be considered to show compliance, whereas tabletop printers/ copier machines need not be considered.*
- *The Printer / Chemical storage / Janitor rooms shall be maintained at a negative pressure of 5 Pascal's (0.00005 bar).*

6 feet Entryway mat

Printer Room

Green Building Concerns:

Common pollutants which pervade interior spaces include dust, smoke, housekeeping / cleaning chemicals, chemicals used in printers. Such pollutants cause a range of health issues such as allergies, shortness of breath, watering of eyes, etc.

Approach and Methodology:

Interior fit-out projects can implement the following measures to ensure that they are common. pollutants are kept out of the indoor environment:

Entryway systems such as mats, grilles or grates can be used at the primary entrances into the fit-out to ensure that dirt and dust from footwear is scrapped off. This keeps dust and dirt from pervading into the fit-out. Ideally, such entryway systems must be installed at the building entrances so that dust and dirt do not enter the indoor environment. Entryway systems must have a minimum length of 6 feet to ensure that dust and dirt are adequately removed.

Isolated spaces which independently and directly ventilate into the exterior environment are ideal for use as copiers / printer rooms or for storing hazardous chemicals or chemicals which are used for housekeeping, printing, etc. Such spaces should have self-closing doors and floor to ceiling partitions which will seal these spaces effectively. It is also recommended that such spaces are provided with exhaust systems.

Locating designated smoking areas at least 25 feet away from windows (for naturally ventilated fit-outs) and fresh air intakes (for mechanically ventilated fit-outs) can greatly help in keeping tobacco smoke out of the fit-out. As tobacco smoke has a wide range of negative health impacts, including being carcinogenic, minimizing the exposure of the fit-out's occupants to tobacco smoke is critical in ensuing their long-term well-being.

The project can also consider adopting eco-friendly, certified housekeeping cleaning chemicals which do not affect human health or well-being. The project can identify housekeeping chemicals which have been certified under the Green Seal or GreenPro or an equivalent standard. The list of GreenPro certified products can be referred to under Annexure-F.

Related credits:

- Indoor Environment MR 2 / Credit 1: Fresh Air Ventilation
- Indoor Environment Credit 10: Low Emitting Materials

Documentation Required:

Narrative describing the strategies adopted to minimise the indoor pollutant contamination.

1. **Fresh air supply location**
    a. Floor plan indicating location of fresh air intake and source of contamination.
    b. Geotagged videos indicating the distance between fresh air supply and source of contamination.
2. **Entry way mats:**
    a. Geotagged photographs and short videos of the entry way mat installed.
3. **Isolating areas:**
    a. Floor plan indicating isolation of areas exposed to hazardous gases or chemicals (such as printer rooms, chemical storage rooms, janitor rooms) from regularly occupied areas.
    b. Geotagged photograph and short videos of measures undertaken for isolation (such as exhaust system, self-closing door, deck-to-deck partition, etc.)
4. **Air conditioning ducts:**
    a. Copy of AMC for cleaning air-conditioning ducts and filters (at least once in a year)
    b. Geotagged photograph and short videos of measures undertaken for air conditioning ducts (such as ducts, diffuser.)
5. **Green Housekeeping Products**
    a. Technical specification sheet / certificates indicating the eco-friendly aspect of the procured consumables
    b. Geo tagged photographs and short videos of the purchased green consumables certificates indicating the eco-friendly aspect of the procured consumables
    c. Declaration letter indicating that green consumables will be procured for at least next three years
    d. Purchase invoice for at least one year. *(for existing interior fit-outs)*

Exemplary Performance

This credit is not eligible for exemplary performance.

Low-Emitting Materials

Not applicable for existing interiors

IE Credit 10 **Points: 4**

Intent:

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

Compliance options:

Demonstrate that the project complies with the following criteria, as applicable:

(1 point for each measure, maximum 4 points)

- **Paints & Coatings: (1 point)**

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

VOC Limits for Paints & Coatings

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

Note: Paints & Coatings certified by GreenPro can be used by the project to show compliance, as and when the certified materials are available.

❖ **Adhesives: (1 point)**

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

VOC Limits for Adhesives

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	850
Indoor Carpet adhesives	50
Multipurpose construction adhesives	70

Note: Adhesives certified by GreenPro can be used by the project to show compliance, as and when the certified materials are available.

Notes for Paints & Coatings and Adhesives:

- *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 vaporize 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.*

❖ **Flooring Systems: (1 point)**

Project installing below flooring systems should meet the relevant standards:

1. Wooden flooring: GreenPro/ Floorscore or equivalent Type 1 Ecolabel
2. Carpets - GreenPro or CRI Green Label Plus
3. Vinyl flooring - GreenPro or equivalent Type 1 Ecolabel

Note: Projects opting for flooring system, should install in atleast 10% of the total carpet area to qualify.

❖ **Composite Wood: (1 point)**

Composite wood and Agri-fibre materials used in the building must not contain added urea-formaldehyde resins.

Notes:

- *Composite wood consists of wood or plant particles or fibres bonded together by a synthetic resin or binder. Examples include plywood, particle board, and medium-density fibreboard (MDF).*
- *Composite wood certified by GreenPro can be used by the project to demonstrate credit compliance.*
- *The GREENGUARD certification focuses on ensuring that products and materials used in interior spaces comply with VOC emission limits; however, it does not explicitly address the no added urea-formaldehyde requirement*

Green Building Concerns:

Exposure to VOC's cause short- and long-term health issues, commonly known as the "Sick Building Syndrome". Some of the common short-term effects of VOCs include irritation of the eye and nose, allergies, headaches and nausea[1]. Long-term effects include damage to the liver, kidney and the central nervous system.

Approach and Methodology:

VOCs are most often found in paints, adhesives, resins, solvents, wood preservatives, air fresheners, insect repellents, etc., and tend be concentrated in indoor spaces. Therefore, keeping indoor spaces free from VOCs plays a major role in quality of indoor environment. An effective way to control VOC contamination is to select finishes, furnishings and furniture used in interior spaces which has zero or very low concentration of VOCs.

The project should carry a market survey of all products which have zero or low VOC content. For example, select GreenPro certified paints or adhesives which indicate low VOC on their tins, use flooring systems which are GreenPro certified with low VOC adhesive, particle boards for workstation should use resins which are free from urea formaldehyde. They can be based on melamine-based resins.

Related credits:

- Interior Materials Credit 2: Local Materials
- Interior Materials Credit 3: Recycled Content materials
- Interior Materials Credit 7: Eco-friendly Wood Based Materials

- Indoor Environment MR 2 / Credit 1: Fresh Air Ventilation
- Indoor Environment Credit 6: Indoor Plants
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Narrative describing the strategies implemented to source low emitting materials and list of applications in project.
2. List of all low VOC content materials procured in interior fitout i.e. paint & coatings, adhesives, carpets, composite wood & new wood furniture.

Paints & coatings

1. Purchase invoice/ payment receipts of all the low VOC paints & coatings
2. Manufacturer brochures/ cut-sheets/ Material Safety Data Sheet indicating the VOC content of all paints & coatings used in the interior fitout.
3. GreenPro certificate of claimed material.

Adhesives

1. Purchase invoice/ payment receipts of all the adhesives procured.
2. Manufacturer brochures/ cut-sheets/ Material Safety Data Sheet indicating the VOC content of all adhesives used in the interior fitout.
3. GreenPro certificate of claimed material.

Flooring systems

1. Calculation indicating percentage of area covered with carpet/wooden flooring/vinyl flooring
2. Floor plan highlighting areas with different flooring system with clear legend indicating flooring type.
3. Purchase invoice/ payment receipts of all the flooring system installed in the interior fitout.
4. GreenPro/CRI certificate of claimed material.

Composite wood

1. Purchase invoice/ payment receipts of all the composite wood procured.
2. Manufacturer brochures/ cut-sheets/ Material Safety Data Sheet highlighting it is free from urea-formaldehyde resins.
3. GreenPro certificate of claimed material.

Exemplary Performance:

This credit is not eligible for exemplary performance

Sample documentation:

GREEN LABEL PLUS
INDOOR AIR QUALITY TESTING PROGRAM
THIS CERTIFIES THAT

[redacted]a

HAS MET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM FOR CATEGORY:

[redacted]

Private Office Range of Total VOCs: 0.5 mg/m³ or less
School Classroom Range of Total VOCs: 0.5 mg/m³ or less
Type of Product: Modular Tile

Russ DeLozier, President
The Carpet and Rug Institute, Inc.

[redacted]i4
l24

To view all GLP-Certified products visit https://carpet-rug.org/glpproducts
Page 1 of 1

CRI
THE CARPET AND RUG INSTITUTE
100 S HAMILTON STREET
DALTON, GA 30720-4612
UNITED STATES

GREEN LABEL +PLUS
Indoor Air Quality Testing Program
carpet-rug.org

GLP1263

This product complies with California DPH Section 01350 Version 1.2

A USGBC® recognized third party certification program for LEED v4.1 EQ Credit Low-Emitting Materials.

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#0754

CRI certificate

This is to certify that the Volatile Organic Compounds (VOC) level of the products as given below has been calculated as per the ASTM D 6886 method as specified by the GS-11 Standard. The Volatile Organic Compounds generally have a boiling point lower than or equal to 250^0 C. The VOC level is a theoretical value, calculated from the formulation of the same, taking into accurate account all the constituents in the formulation that contribute to VOC. It is to be noted that VOC can vary for shades, depending on the nature and quantity of tinters used.

The trailing materials are supplie iors for tl ai.

Product	Coating Type	Category	VOC (g/L)
INTERIOR GLOSSY	Non Flat	Interiors Topcoat	32.90
INTERIOR MATT	Flat	Interiors Topcoat	32.90
PU INTERIOR MATT	Flat	Interiors Topcoat	44.65

VOC levels of Paints (For illustrative purposes only)

Indoor Air Quality Management, During Installation

Not applicable for existing interiors

IE Credit 11 Points: 1

Intent:

Reduce indoor air quality problems resulting from construction activities and promote comfort and well-being of construction workers and building occupants.

(1 point for two measures, max 1 points)

Compliance options:

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.


Protect ducts and equipment by sealing

❖ Housekeeping

- Provide protective dust masks for workforce
- Implement practices to ensure a clean job site to control potential contaminants such as dirt, dust and 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.
- Debris Management plan should be integral part of interior construction, and manage the debris generated during installation.

❖ 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 occupying portions of the building.

Note: *Consider 'During Construction Indoor Air Quality Management Guidelines' from National Building Code (NBC) of India 2016, Part 7 - Constructional Practices and Safety.*

Green Building Concerns

Green designs aim to provide healthier indoor environments, but indoor air quality (IAQ) management during installation poses unique challenges. During construction or renovation, activities like painting, sealing, and installing adhesives and finishes can release volatile organic compounds (VOCs) and particulate matter into the air, compromising IAQ. Without proper ventilation, these pollutants can accumulate, affecting workers and future occupants. Additionally, improper storage of materials can expose them to moisture, leading to mold growth, further degrading air quality. Additionally, managing moisture levels to avoid mold growth and implementing rigorous cleaning protocols are essential to maintaining IAQ throughout the installation process.

Approach and Methodology:

The negative impacts of indoor construction can be mitigated by carefully planning and managing construction activities. Projects can adopt the strategies and guidelines listed under "Compliance Options" to minimise pollution arising from construction activities.

For projects, undergoing renovation, strategies to achieve this include scheduling construction activities after working hours and on weekends and holidays. Proper construction planning and staging can also help contain disruptions and pollution. For instance, isolating construction areas from the other work areas and providing separate access ways for construction workers are strategies that can be considered.

Providing dedicated spaces for storing construction material and construction waste also help minimize pollution. Hazardous construction material should be stored in isolated spaces with direct ventilation to the exterior environment. Ventilation provision should be made for construction equipment and tools which operate on fossil fuels.
Protecting equipment, furniture and materials within the fit-out is also essential to minimize pollution and contamination due to construction activities. HVAC equipment, especially ducts and grilles, should be properly covered and sealed.

Equipment should be cleaned before reuse and, specifically, HVAC filters should be replaced at the end of construction. Furniture and materials which are porous and prone to absorbing moisture should be properly covered until the end of construction. Conducting a flush out of the fit-out and the HVAC system are essential in ensuring that pollutants and contaminants are cleared from interior spaces.

Related credits:

- Eco Design Approach Credit 4: Commercial Lease Term / Ownership
- Interior Materials Credit 1: Waste Management (During Installation)
- Indoor Environment Credit 10: Low Emitting Materials
- Indoor Environment Credit 12: Interior Flush Out

Documentation Required:

1. Submit narrative stating the measures implemented.
2. Geotagged photographs and videos taken at different stages of interior installations addressing the compliance options.

Exemplary Performance:

This credit is not eligible for exemplary performance.

Interior Flush out

Not applicable for existing interiors

IE Credit 12 Points: 1

Intent:

Avoid occupants' exposure to indoor airborne contaminants before occupying the premises, to reduce the adverse health impacts on building occupants.

Compliance Options:

Perform a building flush-out for ten days by keeping all windows open before the building is occupied. Flushing is to be carried out after installing interior fit-outs and applying paints & coatings.

(or)

If the project team prefers to carry out the flush-out using forced ventilation systems, the flush-out can be carried out for five days.

Green Building Concerns:

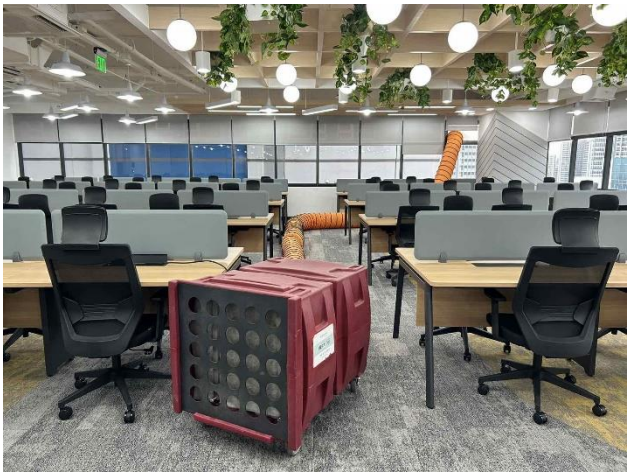
It is inevitable that pollutants are released during the construction or renovation of fit outs. These pollutants are typically emitted by paints, solvents, adhesives and other finishes. Indoor pollution also happens due to construction activities themselves where dust and waste are generated.

Approach and Methodology:

In order to clear the interior spaces from the pollutants generated and accumulated during construction, it is essential to flush out the interior spaces after the completion of all interior works, just before occupancy. The project can conduct a flush-out by keeping all the windows open for ten days before the building is occupied.

Alternatively, if the fit-out has a mechanical ventilation system, the flush out should be carried out by conducting a dry run of the mechanical ventilation system for five days, preferably using MERV filter 7 or 8. It is essential that flushing is carried out after installing all interior fit-outs and applying paints, coatings, adhesives, sealants and other finishes.

Building flush-out by keeping windows open prior to occupancy



Building flush-out using forced ventilation systems prior to occupancy (Source:

Related credits:

- Eco Design Approach Credit 4: Commercial Lease Term / Ownership.
- Interior Materials Credit 1: Waste Management (During Installation).
- Indoor Environment Credit 10: Low Emitting Materials.
- Indoor Environment Credit 11: Indoor Air Quality Management, During Installation.

Documentation Required:

- Narrative stating the flush-out procedure followed.

Case 1: Natural Ventilation Flush-out

a. Declaration letter from the owner/ developer indicating the dates and number of days for completing flush-out.
b. Geo-tagged photographs and short videos taken during flush out period.

Case 2: Mechanical Ventilation Flush-out

a. Declaration letter from the owner/ developer indicating the dates and number of days for completing flush-out.
b. Geo-tagged photographs and short videos taken during flush out period.
c. Technical datasheet, highlighting the rating of the MERV filter (MERV 7 or higher).

Occupant Well-being Facilities

IE Credit 13 Point: 2

Intent:

Promote occupant well-being to enhance physical, emotional and spiritual well-being of building occupants

Compliance Option:

Have recreational / multipurpose space to accommodate activities for employees such as indoor games, yoga, meditation, or any other games catering to at least 5% of building occupants.

Points are awarded as below

Recreational spaces for building occupants	Points
5%	1
10%	2

Green Building Concerns:

Long working hours, low physical activity and increasing stress levels have compounded the risk factors faced by working adults to physical and mental chronic diseases. There is also a wealth of research that shows that employee satisfaction and productivity suffer if employee health and well-being is not maintained.

Approach and Methodology:

Studies have demonstrated that providing recreational opportunities for building occupants offers numerous benefits, such as mental relaxation, reduced stress, improved concentration, and better overall health, self-esteem, and morale. These benefits lead to greater job satisfaction, which, in turn, enhances employee productivity and customer retention. Consequently, recreational facilities not only promote occupant well-being and happiness but also contribute to the project's economic advantages.

Interior fit-out projects can include facilities like a gymnasium, meditation or yoga hall, indoor games area, or a reading lounge/library, catering to at least 5% of the fit-out's permanent occupants. Furthermore, a designated section of a cafeteria or a multipurpose room can also be equipped with recreational amenities, maximizing the efficient use of available spaces.

Note:

- *For project size exceeding 5,000 sq. ft., credit compliance can be demonstrated by providing indoor games like table tennis, snooker, foosball, or gaming consoles. However, board games such as chess, ludo, and carrom are not eligible.*
- *For project size less than 5,000 sq. ft., 50% of the credit compliance (1 point) can be demonstrated by providing board games and the remaining (1 point) shall be demonstrated through indoor games.*

Related credits:

- Eco Design Approach Credit 1: Optimise Circulation Spaces

Sample photographs

Recreational facilities provided in interior fit-outs for the well-being of

Documentation Required:

1. Narrative outlines the various recreational amenities provided in the interior fit-out.
2. Calculations indicating the percentage of occupants with access to recreational facilities at any given time, in a formula embedded excel sheet.
3. Floor plan highlighting the location of the recreational facilities in the interior fit-out.
4. Geotagged photographs & videos of the recreational facilities provided.

Sample Calculation:

S.No	Occupant wellbeing facilities provided	No of occupants served by each facility	No of facility	Total occupants
1	Table tennis	2	4	8
2	Carrom	1	4	4
3	Foosball	1	2	2
4	Gym	1	10	10

Total number occupants with access to occupant wellbeing facilities	**24**
Permanent Occupancy	**31**
Percentage of occupants with access to recreational facilities at any given point of time	**77%**

Dedicated Dining Spaces

Not applicable for New Interiors

IE Credit 14 **Point: 1**

Intent:

Encourage people not to dine in working areas so as to avoid contamination of indoor spaces, thereby enhancing health and hygiene.

Compliance Option:

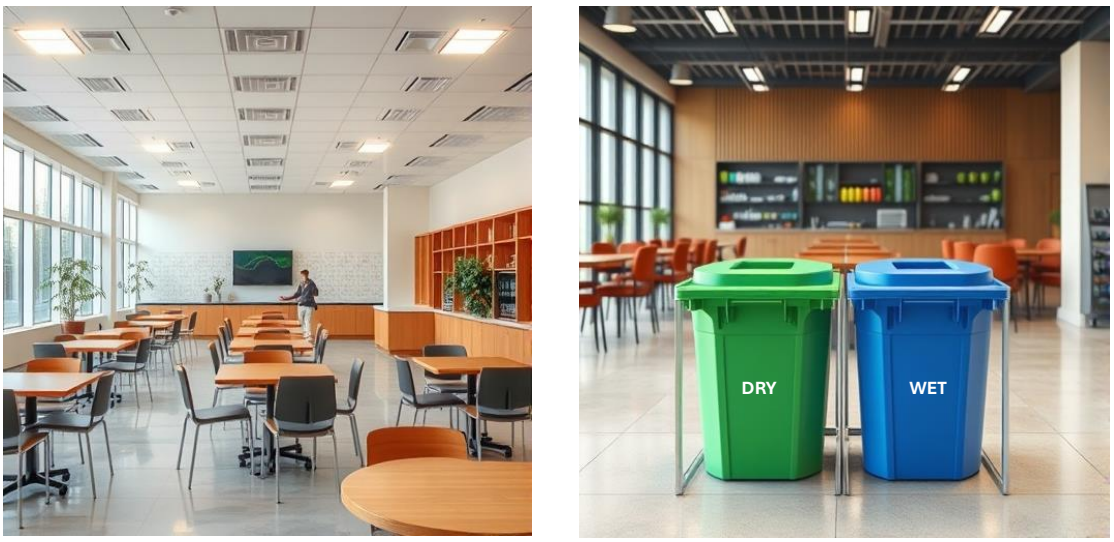
Provide a dedicated dining space for the employees / occupants within the interior space.

Green Building Concerns:

Leftover food and spilt morsels can easily result in the contamination of indoor spaces. Contamination typically occurs in the form of bacterial / fungal growth which results in bad odor and causes health issues such as allergies and infections. Contamination also occurs in the form of infestation of insects such as cockroaches, ants, etc.

Approach and Methodology:

Existing fit-outs should assign dedicated spaces to be used for dining purposes. The project should also consider using materials and furniture which are easy to clean and/or have anti- microbial properties. A well-designed segregated waste collection system can also help in maintaining cleanliness and hygiene.



Dedicated dining spaces provided with dual bins for effective waste segregation

Related Credits:

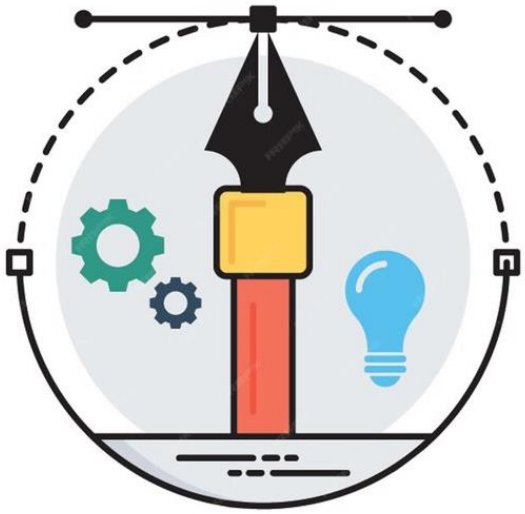
- Eco Design Approach Credit 1: Optimize Circulation Spaces
- IM Mandatory Requirement 1: Separation of Waste, Post Occupancy

Documentation Required:

1. Layout indicating the location of the dedicated dining space in the interior fit-out.
2. Geotagged photographs of the dedicated dining space.

Exemplary Performance

This credit is not eligible for exemplary performance.



INNOVATION IN DESIGN

Innovation in Interior Design

IID Credit 1.1 - 1.4 Points: 1- 4

Intent:

Provide design teams with an opportunity to innovate and implement measures that demonstrate reduced environmental impacts.

Compliance option:

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.

i. 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

Documentation Required:

- Menu of the canteen highlighting the healthy nutritional options.
- Permanent displays highlighting nutritional facts of the food items provided/ sold

(Or)

ii. **Access to Clean Drinking Water**

Intent: To provide access to safe and sufficient potable water for occupants, thereby promoting their health and overall well-being.

Compliance Option:

- Water Quantity: Provide minimum 2 liters of drinking water per person per day
- Accessibility (location, distance): Provide minimum one water fountain/ dispenser per floor
- Municipal / Borewell Water Points: Demonstrate that the water is treated to meet the following drinking water specifications as per IS 10500- 2012 'Drinking Water- Specification Standard':

Characteristic	Requirement (Acceptable Limit)
Physical Parameters	
Colour, Hazen units	5
Odour	Nil
pH value	6.5 – 8.5
Turbidity, NTU	1
Total dissolved solids, mg/l	500

Documentation Required:

- Total number of occupants and the quantity of drinking water made available per day for their consumption.
- Highlight the number of water fountain/ dispenser/ bubblers provided per floor along with sample photographs.
- Quarterly test reports of potable water

(Or)

iii. **Embodied Carbon Assessment**

Intent: Encourage project team to carry out life cycle analysis to improve performance of interior projects and reduce carbon emissions by using low carbon materials and technologies

Compliance Option:

Calculate the embodied carbon associated with the project's civil materials (Steel, Concrete, cement, Building blocks, Glass, Aluminium, Gypsum, Metal, Wood, Tiles, RMC, Stone/ Marble, UPVC or listed in Table 1, as applicable), as defined under this criterion.

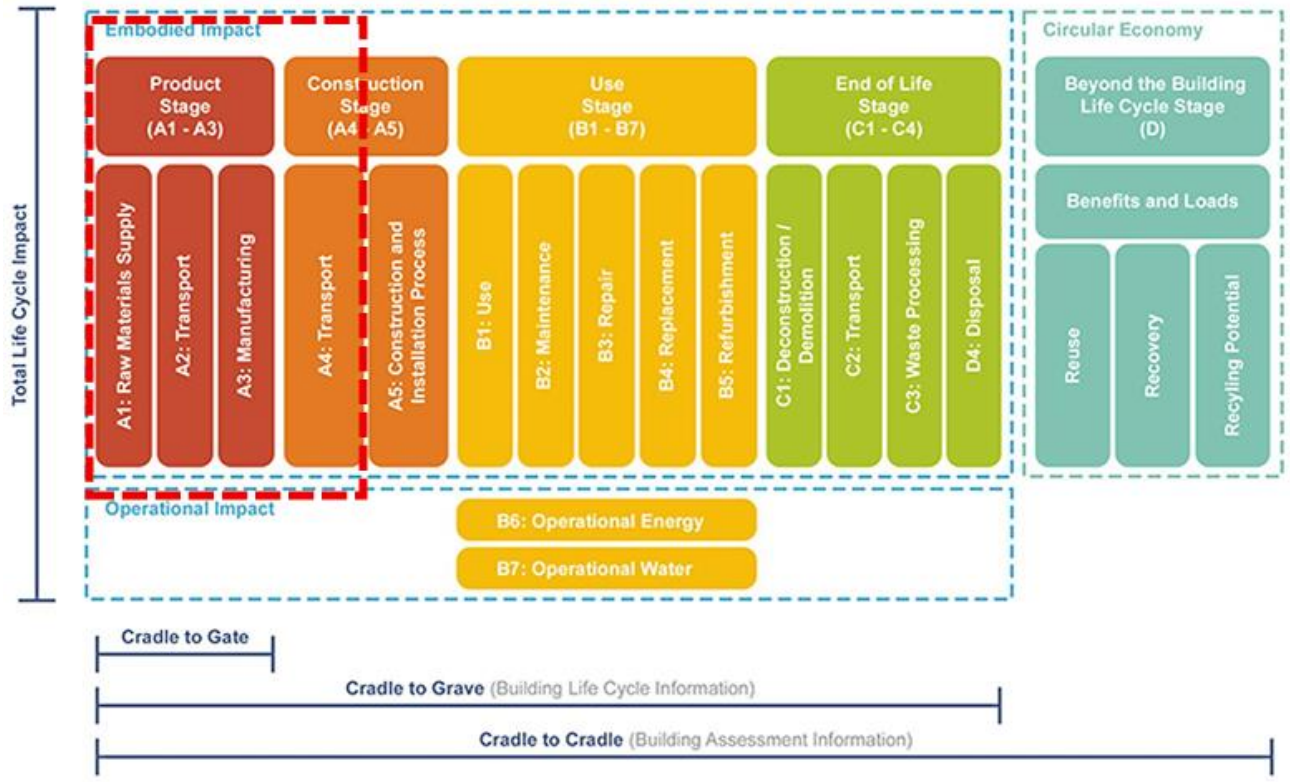
Material quantities used must be as per the Bill of Quantities (BOQ) and LCA result to be reported in kgCO2e per square meters of built-up area (kgCO2e/m2 BUA).

S. No.	Building Element	Indicative Civil Materials
1	**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 1 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 (kgCO2e) associated with the following Life-Cycle Stages:
   - A1–A3: Product stage (raw material supply, transport, manufacturing)
   - A4: Construction process stage (transport to site)



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 1.

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 programs 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 labor and employees within or outside the project site.*

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

Documentation Required:

- List of materials with their respective embodied carbon and their source.
- Calculation indicating embodied carbon in kg CO2e per sq.m
- Detailed report of the LCA analysis.

(And/Or)

Case B: Exemplary Performance The project is eligible for exemplary performance, if the design measures greatly exceed the credit requirements of the IGBC Green Interiors Rating System.

Illustrative List of Credits eligible for exemplary performance.

Innovation Credit	Requirement
Water Conservation	
Case 1 Water Efficient Plumbing Fixtures	Water reduction ≥ 40% less than the baseline criteria
	Wastewater treatment and reuse
Case 2 Rainwater Harvesting, Roof area	Rainwater Harvesting, Roof (as defined in credit)
Energy Efficiency	
EE Credit 2 Efficient Space Conditioning	
Option 1A: Non-Air-Conditioned spaces (Door & Window Openings)	≥ 12% openable area to the total carpet area
Option 1B: Non-Air-Conditioned (Alternate efficient cooling methods)	≥ 50% of the carpet area

Option 2: Conditioned spaces	≥ 95% of conditioned spaces of regularly occupied area along with conditioned critical spaces
EE Credit 3 Energy Efficient Lighting	
Lighting Power Density	≥ 30% reduction in lighting power density
Sensors	≥ 95% of the total carpet area
EE Credit 6 On-site /Off-site Renewable Energy	
On-site renewable energy systems	≥ 14% of total energy consumption
Off-site renewable energy systems	≥ 35% of total energy consumption
Combination of On-site & Off-site renewable energy systems	≥ 35% of total energy consumption
Interior Materials	
IM Credit 1 Waste Management (During Installation)	≥ 80% of waste reused / sold / donated (by weight/ volume)
IM Credit 2 Local Materials	≥ 60% of local materials of the total material cost
IM Credit 3 Recycled Content Materials	≥ 30% of recycled content materials of the total material cost
IM Credit 4 Eco-labelled products	
Option 1: Eco-labelled products	at least 6 GreenPro certified products are sourced
Option 2: Total cost of products & materials used for construction	≥ 20% of ecolabelled products are procured of the total cost of products
IM Credit 5 Salvaged Materials	≥ 7.5% of salvaged materials of the total material cost
IM Credit 6 Reuse of materials	≥ 7.5% of reused materials of the total material cost
IM Credit 7 Eco Friendly Wood Based Materials	≥ 50% of cost of alternate wood products of the total wood cost
IM Credit 8 Eco-certified Interior Furniture	≥ 50% of total furniture cost

Indoor Environment	
IE Credit 5 Air Quality Monitoring	Enhanced Daily and Quarterly Monitoring (as defined in credit)
IE Credit 8 Outdoor Views	≥ 80% of regularly occupied spaces having access to outdoor views

IGBC Accredited Professional

IID Credit 2 Point: 1

Intent:

Encourage involvement of a green design professional to facilitate incorporating sustainable measures and thereby reduce environmental impacts.

Compliance Options:

At least one participant in the project team shall be an IGBC Accredited Professional.

Documentation Required:

A copy of IGBC Accredited Professional certificate of the participant

ANNEXURES

Annexure – A

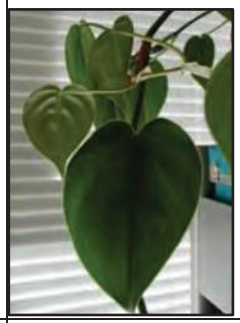
Indoor Plants				
S No.	**Botanical Name**	**Common name**	**Photo**	**Benefits**
1	Dypsis lutescens	Bamboo palm/ Areca palm		1. Cleans air borne toxins 2. Removes formaldehydes, benzene, trichloroethylene
2	Raphis excelsa	Lady Palm		1. Improves Indoor air Quality 2. Resistant to pathogens
3	Ficus elastica	Rubber Plant		1. Emits high oxygen 2. Removes formaldehydes, benzene, trichloroethylene
4	Spathiphyllum wallisii	Peace Lily		1. Removes air pollutants 2. Removes formaldehydes, benzene, trichloroethylene Removes household chemicals & carcinogens

5	Ficus Alii	Ficus A1 Gold		1. Overall air purifier Resistance to insects
6	Chlorophytum comosum	Spider Plant		Removes formaldehydes, and xylene
7	Gerbera daisy	Daisy plant		1. Absorbs Carbon dioxide 2. Gives off Oxygen during night Removes benzene
8	Epiremnum aureum	Money plant		Removes formaldehydes, benzene, benzene
9	Howea forsteriana	Kentia palm		1. Removes VOC concentrations 2. Removes benzene and n- hexane from indoor air

10	Schefflera actinophylla	Queensland Umbrella		1. Removes benzene and carcinogenic substances from air
11	Dracaena deremensis	Janet Craig		1. Removes trichloroethylene from the air, emitted by photocopier Absorbs VOC concentrations
12	Nephrolepis exaltata	Boston fern		1. Removes formaldehydes Adds humidity to indoor environment
13	Sansevieria trifasciata	Snake Plant/ Mother in law's tongue		1. Absorbs toxins such as nitrogen oxides & formaldehyde

14	Aloe barbadensis	Aloe Vera		1. Sun loving succulent helps clear formaldehyde & benzene
15	Aglaonema sp	Chinese Evergreen		1. Emits high oxygen & purifies indoor air 2. Removes formaldehydes, benzene
16	Epipremnum aureum syn. Scindapsus aureus	Golden Pothos		1. Removes formaldhyde Removes Carbon monoxide and increases indoor air quality
17	Dracaena marginata	Marginata or Dragon tree		1. Purifies air from carcinogen, benzene Removes formaldehyde, xylene from paints & varnishes

18	P. cordatum, P.scandens or P. selloum	Philodendron		1. Removes formaldehydes especially higher concentrations
19	Chrysanthemum sp. or Chrysanthemum morifolium	Mums		1. Removes benzene and carcinogenic substances from air
20	Gerbera sp. or Gerbera jamesonii	Gerbera Daisy		1. Removes benzene Absorbs Carbon dioxide and gives oxygen during night - helps in improving sleep
21	Hedera helix	English Ivy		1. Removes benzene, pesticides and off-gasing of other synthetic materials Removes formaldehyde

22	Philodendron oxycardium	Heart leaf philodendron		1. Removes all kinds of VOCs, particularly from particle board
23	Ficus benjamina	Weeping fig		1. Filters pullutants from carpeting, furniture
24	Dracaena deremeusis or Dracanea deremensis warneckei	Warneckii or Dracanaena warneckei		1. Removes trichloroethylene from the air, emitted by photocopier
25	Phoenix roebelenii	Pygmy date, miniature date palm		1. Removes formaldehyde, xylen and tolune
26	Dracaena fragrans	Corn or cornstalk plant		1. Removes benzene, formaldehyde, xylene Purifies environment

27	Gerbera Jamesonii	Gerbera Daisy		Removes tricholorethylene, benzene from air
28	Dracaena Marginata	Dragon Tree		Reduces benzene, formaldehyde, xylene and toluene from air

Annexure – B

Air Conditioning Systems

1. Projects using Centralized Air Conditioning System

Chiller Type	Compressor Type	Capacity Range (tons)	Minimum COP (Full Load)	Minimum IPLV
Air-Cooled, Electrically Operated	Scroll (typical)	< 75	2.90	3.40
	Scroll (typical)	≥ 75	3.00	3.55
Water-Cooled, Electrically Operated, Positive Displacement	Scroll or Rotary Screw	< 75	4.20	5.00
	Scroll or Rotary Screw	≥ 75 and < 150	4.65	5.40
	Rotary Screw	≥ 150 and < 300	5.00	5.70

Source: Table 5-12, 5-13 ECBC 2017

Notes

- **Units:** COP (Coefficient of Performance) and IPLV (Integrated Part Load Value) are metrics used to evaluate chiller efficiency.
- **Test Standards:** These values are based on standard test conditions as per AHRI 550/590, which ECBC references

2. Projects using VRF systems

Type	Size Category (kWr)	EER (W/W)	IEER (W/W)
VRF Air Conditioners, Air Cooled	< 40	3.28	4.36
	≥ 40 and < 70	3.26	4.34
	≥ 70	3.02	4.07

Source: Table 5-2: Minimum Efficiency Requirements for VRF Air Conditioners, ECBC 2017

Notes: The revised EER and IEER values as per the forthcoming Indian Standard for VRF systems will supersede these values upon publication.

3. Projects using Unitary, Split, Packaged Air Conditioners

Cooling Capacity (kWr)	Water-Cooled Systems	Air-Cooled Systems
≤ 10.5	Not Applicable	BEE 3-Star Rating
> 10.5	3.3 EER	2.8 EER

Table 5-1: Minimum Requirements for Unitary, Split, Packaged Air Conditioners, ECBC 2017

Annexure – C

Lighting

1. Interior Lighting Power – Building Area Method

Building Type	LPD (W/m^2)	Building Area Type	LPD (W/m^2)
Office Building	9.5	Motion picture theater	9.43
Hospitals	9.7	Museum	10.2
Hotels	9.5	Post office	10.5
Shopping Mall	14.1	Religious building	12.0
University and Schools	11.2	Sports arena	9.7
Library	12.2	Transportation	9.2
Dining: bar lounge/ leisure	12.2	Warehouse	7.08
Dining: cafeteria/ fast food	11.5	Performing arts theater	16.3
Dining: family	10.9	Police station	9.9
Dormitory	9.1	Workshop	14.1
Fire station	9.7	Automotive facility	9.0
Gymnasium	10.0	Convention Center	12.5
Manufacturing facility	12.0	Parking Garage	3.0

Table 6-1: Interior Lighting power – Building Area Method, ECBC 2017

2. Interior Lighting Power – Space Function Method

Category	LPD (W/m^2)	Lamp Category	LPD (W/m^2)
Common Room Space Types			
Restroom	7.7	Stairway	5.5
Storage	6.8	Corridor/Transition	7.1
Conference/Meeting	11.5	Lobby	9.1
Parking Bays (covered/ basement)	2.2	Parking Driveways (covered/ basement)	3.0
Electrical/Mechanical	7.1	Workshop	17.1
Business			
Enclosed	10.0	Open Plan	10.0
Banking Activity Area	12.6	Service/Repair	6.8

Category	LPD (W/m^2)	Lamp Category	LPD (W/m^2)
Healthcare			
Emergency Treatment	13.7	Emergency	22.8
Nurse Station	9.4	Recovery	8.6
Patient Room	7.7	Laundry/Washing	7.5
Pharmacy	10.7	Medical Supply	13.7
Physical Therapy	9.3	Corridor/Transition	9.1
Radiology/Imaging	9.1		
Hospitality			
Hotel Dining	9.1	Hotel Lobby	10.9
Bar Lounge/Registration	14.1	Model Dining	9.1
Hotel Guest Rooms	9.1	Motel Guest Rooms	7.7
Shopping Complex			
Mall Concourse	12.8	For Family Dining	10.9
Sales Area	18.3	Bar Food Preparation	12.1
Motion Picture Theatre	9.6	Bar Lounge/Dining	14.1
Educational			
Classroom/Lecture	13.7	Card File & Cataloguing	9.1
For classrooms	13.8	Stacks (Lib)	18.3
Laboratory	15.1	Reading Area (Library)	10.0
Assembly			
Dressing Room	9.1	Seating Area – Performing Arts Theatre	22.6
Exhibit Space – Convention centre	14.0	Lobby - Performing Arts	21.5
Seating Area - Gymnasium	14.0	Seating Area – Convention area	6.4
Fitness Area - Gymnasium	13.7	Seating Religious Building	16.4
Museum - General Exhibition	16.4	Playing Area - Gymnasium	18.3
Museum - Restoration	18.3		

Table 6-4: Interior Lighting power – Building Area Method, ECBC 2017

Annexure – D

S.No	Category Give below options as drop down option	Sub - Category Give below options as drop down specific to the material selected in Category column	Material Quantity	Unit	Rates	Total material Cost	Manufacturer Details	*Manufacturing Unit Location*	*Distance from Manufacturing Unit Location to project site (km)*	Cost of Local Materials Procured	Salvaged Material (Y/N)	Salvaged Material Cost	*Reuse Material (%)*	Reuse Material Cost	Eco-Labelled Material (Y/N)	Eco-Labelled Material Cost	Recycled Content (%)	Recycled Material Cost	Rapidly Renewable wood (%)	*Composite wood (%)*	Eco-friendly/ Rapidly Renewable Wood Cost	*Eco-Certified interior furniture (Y/N)*
1	Wall	AAC	200	Cu.m	2000	400000	XYZ	YU	300	400000	N	0	50.00%	200000	Y	400000	20%	80000	0%	0	0	N
		Flyash				0				0				0				0			0	
		Red brick				0				0				0				0			0	
		Other				0				0				0				0			0	
2	Cement	Cement	500	Bags	400	200000	MIA	TR	1000	0	N	0	0.00%	0	Y	200000	13%	26000	0%	0	0	N
		Other				0				0				0				0			0	
3	Wood	Plywood	100	sq m	1000	100000	CXX	WT	500	100000	N	0	20.00%	20000	Y	100000	26%	26000	12%	0	12000	N
		MDF				0				0				0				0			0	
		Laminate				0				0				0				0			0	
		Other				0				0				0				0			0	
4	Flooring	Vitrified Tile	300	sq m	800	240000	YYY	RR	1600	0	N	0	0.00%	0	Y	240000	0%	0	0%	0	0	N
		Granite				0				0				0				0			0	
		Carpet				0				0				0				0			0	
		RCC				0				0				0				0			0	
		Raised flooring modular				0				0				0				0			0	
		Laminate				0				0				0				0			0	
		Tile				0				0				0				0			0	
		Dado				0				0				0				0			0	
		Wooden				0				0				0				0			0	
		VDF				0				0				0				0			0	
		Other				0				0				0				0			0	
5	Paint	Emulsion	600	sq m	80	48000	RRI	EEE	600	48000	N	0	0.00%	0	Y	48000	0%	0	0%	0	0	N
		Primer				0				0				0				0			0	
		Enamel				0				0				0				0			0	
		Texture				0				0				0				0			0	
		Putty				0				0				0				0			0	
		Other				0				0				0				0			0	
6	Furniture	Workstation	50	No's	50000	2500000	TTT	WWW	1300	0	N	0	0.00%	0	Y	0	0%	0	0%	0	0	Y
		Chair				0				0				0				0			0	
		Storage unit				0				0				0				0			0	
		Meeting room table				0				0				0				0			0	
		Cabin table				0				0				0				0			0	
		Loose furniture				0				0				0				0			0	
		Sofa				0				0				0				0			0	
		Other				0				0				0				0			0	
7	Partition	Glass	200	sq m	300	60000	EFT	NNN	100	60000	N	0	20.00%	12000	N	0	0%	0	0%	0	0	N
		Wood				0				0				0				0			0	
		Aluminium				0				0				0				0			0	
		Gypsum with insulation				0				0				0				0			0	
		Sliding & folding				0				0				0				0			0	
		Other				0				0				0				0			0	
8	Door	Wooded door	3	No's	8000	24000	GHH	PIU	300	24000	N	0	10.00%	2400	N	0	0%	0	0%	0	0	N
		Glass door				0				0				0				0			0	
		Other				0				0				0				0			0	
9	Wall panelling	Plywood	100	sq m	600	60000	FCG	GHU	200	60000	Y	60000	0.00%	0	N	0	0%	0	0%	0	0	N
		Acoustic panel				0				0				0				0			0	
		Other				0				0				0				0			0	
10	Ceiling	Grid false ceiling	200	Sqq m	500	100000	tyy		500	100000	N	0	0.00%	0	Y	100000	0%	0	0%	0	0	N
		Gypsum false ceiling				0				0				0				0			0	
		Baffle ceiling				0				0				0				0			0	
		Other				0				0				0				0			0	
11	Soft Furnishing	Blinds for openings				0				0				0				0			0	
		Signage				0				0				0				0			0	
		Writing board				0				0				0				0			0	
		Hardware for furniture				0				0				0				0			0	
		Other				0				0				0				0			0	

S.No	Category Give below options as drop down option	Sub - Category Give below options as drop down specific to the material selected in Category column	Material Quantity	Unit	Rates	Total material Cost	Manufacturer Details	Manufacturing Unit Location	Distance from Manufacturing Unit Location to project site (km)	Cost of Local Materials Procured	Salvaged Material (Y/N)	Salvaged Material Cost	Reuse Material (%)	Reuse Material Cost	Eco-Labelled Material (Y/N)	Eco-Labelled Material Cost	Recycled Content (%)	Recycled Material Cost	Rapidly Renewable wood (%)	Composite wood (%)	Eco-friendly/ Rapidly Renewable Wood Cost	Eco-Certified interior furniture (Y/N)
12	Plumbing fixtures	Water closet				0				0				0				0			0	
		Health faucet				0				0				0				0			0	
		Urinal				0				0				0				0			0	
		Faucet/Tap				0				0				0				0			0	
		Kitchen / Pantry faucet				0				0				0				0			0	
		Showerhead				0				0				0				0			0	
		Handheld shower spray				0				0				0				0			0	
		Others				0				0				0				0			0	
13	Indoor plants	Snake plant	20	No's	200	4000	PPO	IOP	100	4000	N	0	0.00%	0	N	0	0%	0	0%	0	0	N
		Peace lily				0				0				0				0			0	
		ZZ plant				0				0				0				0			0	
		Other				0				0				0				0			0	
14	Air conditioning	Air conditioning high side				0				0				0				0			0	
		Air conditioning low side				0				0				0				0			0	
15	Electrical	Wires				0				0				0				0			0	
		Cables				0				0				0				0			0	
		MS/ GI pipes / Conduits - Fire hydrant system				0				0				0				0			0	
		Raceways				0				0				0				0			0	
		Lighting - Square light (12W)				0				0				0				0			0	
		Lighting - Square light (22W)				0				0				0				0			0	
		Lighting - Decorative light (22W)				0				0				0				0			0	
		Lighting - Recessed light (6W)				0				0				0				0			0	
		Sensors				0				0				0				0			0	
		Switch boards				0				0				0				0			0	
		Switches/ controls				0				0				0				0			0	
		Electrical Panels				0				0				0				0			0	
		Switch gear				0				0				0				0			0	
		Energy sub-meter				0				0				0				0			0	
		Appliances - Refrigerator				0				0				0				0			0	
		Appliances - Printer				0				0				0				0			0	
		Appliances - UPS				0				0				0				0			0	
		Other				0				0				0				0			0	
	Others (not included in the above list)		2273			3736000				796000		60000		234400	7	1088000		132000			12000	

Total material Procured	3736000
Percentage of local materials procured	21%
Percentage of recycled content materials procured	4%
Number of type I eco-labelled products procured	7
Percentage of salvaged materials procured	2%
Percentage of total cost of eco-friendly wood based material procured	0%
Percentage of eco-certified interior furniture procured	67%
Percentage of reused materials procured	6%

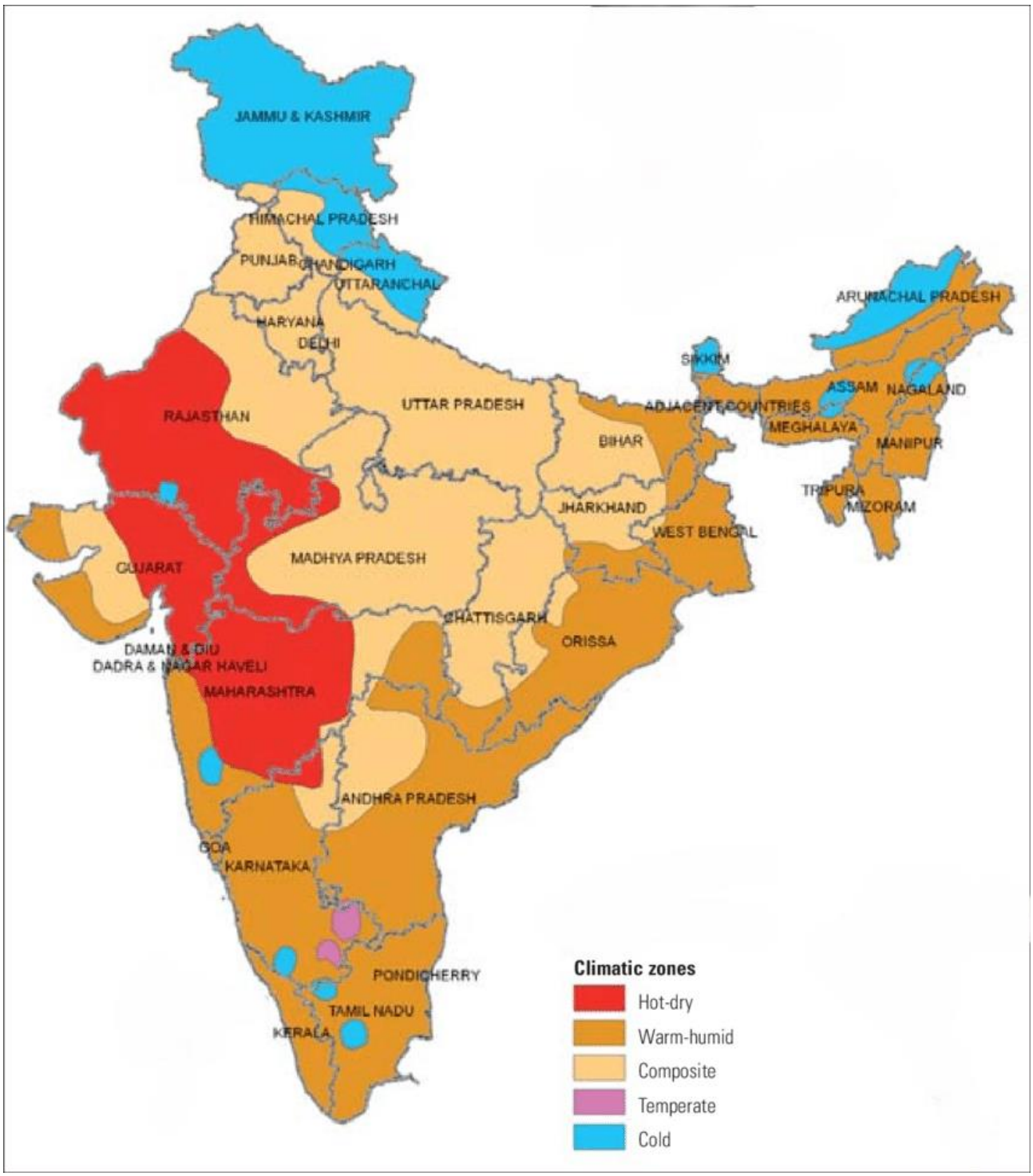
ANNEXURE - E

Standards referred in IGBC Rating system for Green Interiors

- IGBC: Indian Green Building Council
- NBC: National Building Code
- BEE: Bureau of Energy Efficiency
- ECBC: Energy Conservation Building Code
- ECSBC: Energy Conservation and Sustainable Building Code (ECSBC)
- IAPMO: The International Association of Plumbing and Mechanical Officials: Developed Plumbing Code of India along with Indian Plumbing Association
- GreenPro Ecolabel (India): GreenPro encourages the product manufacturers to implement green measures in areas including product design, raw materials, manufacturing process, product performance during use, recycling/disposal, etc. Focus areas of GreenPro include - green building products, industrial products, technologies, consumer products and services); www.ciigreenpro.in
- Green Guard: Certification to verify air contaminants for furniture and seating
- BIFMA: Standard to verify indoor air contaminants for furniture and seating
- MNRE: Ministry of New and Renewable Energy
- ASHRAE: American Society of Heating, Refrigerating, and Air-Conditioning Engineers
- ASHRAE 62.1.2010: Standard for Fresh Air Ventilation
- ASHRAE 90.1.2010: Standards for Energy Efficiency
- Green Seal Standard 36 (GS-36): Regulates VOC content for Commercial adhesive
- Green Seal Standard 11 (GS -11): Regulates VOC content for architectural paint
- Green Seal Standard 3 (GS -03): Regulates VOC content for anti-corrosive paint and anti-rust paint
- South Coast Air Quality Management District (SCAMQMD) Rule 1168: Regulates VOC content for: adhesives, sealants, sealant primers, tile setting adhesive and grout.
- Carpet and Rug Institute Green Label Plus: Regulates indoor air contaminants for carpet

Annexure – F

Climate classification of India



Source: Eco-Niwas Samhita 2018

About CII

(Confederation of Indian Industry)

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society through advisory and consultative processes.

Founded in 1895 and celebrating 130 years in 2025, India's premier business association has more than 9,700 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 365,000 enterprises from 318 national and regional sectoral industry bodies.

With 70 offices, including 12 Centres of Excellence in India, and 9 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with about 250 counterpart organisations in almost 100 countries, CII serves as a reference point for Indian industry and the international business community.

About IGBC

(Indian Green Building Council)

The Indian Green Building Council (IGBC), part of the Confederation of Indian Industry (CII) was formed in the year 2001. The vision of the council is, "To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2030".

The council offers a wide array of services which include developing new green building rating programmes, certification services and green building training programmes. The council also organises Green Building Congress, its annual flagship event on green buildings.

The council is committee-based, member-driven and consensus-focused. All the stakeholders of construction industry comprising of architects, developers, product manufacturers, corporate, Government, academia and nodal agencies participate in the council activities through local chapters. The council also closely works with several State Governments, Central Government, World Green Building Council, bilateral multi-lateral agencies in promoting green building concepts in the country.

Contact Us:

Confederation of Indian Industry

CII – Sohrabji Godrej Green Business Centre

Indian Green Building Council

Survey No 64, Kothaguda Post

Near HITEC City, Hyderabad – 500 084

Tel : +91 40 4418 5111

Fax : +91 40 4418 5189

Email: igbc@cii.in Website: www.igbc.in