

SHAPING INDIA'S BUILT FUTURE

Buildings Taxonomy Report

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ASIA LOW CARBON BUILDINGS TRANSITION

*Life Cycle Assessment for Transitioning
to a Low-Carbon Economy* | **PROJECT**

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List of Abbreviations

The following table lists all abbreviations used in the main body of this report, presented in alphabetical order. Abbreviations appearing exclusively in the Annexes are not included here.

Abbreviation	Full Form
ACVA	Accredited Carbon Verification Agency
ADB	Asian Development Bank
AFD	Agence Française de Développement (French Development Agency)
ALCBT	Asia Low Carbon Buildings Transition
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BD+C	Building Design and Construction (LEED rating pathway)
BEE	Bureau of Energy Efficiency
BIS	Bureau of Indian Standards
CCC	Carbon Credit Certificate
CCTS	Carbon Credit Trading Scheme
CDM	Clean Development Mechanism
CERC	Central Electricity Regulatory Commission
CII	Confederation of Indian Industry
ECBC	Energy Conservation Building Code
ECSBC	Energy Conservation and Sustainable Building Code
EDGE	Excellence in Design for Greater Efficiencies
ENS	Eco Niwas Samhita
EPD	Environmental Product Declaration
EPI	Energy Performance Index
ESCerts	Energy Saving Certificates
ESG	Environmental, Social and Governance
FAR	Floor Area Ratio
GBCI	Green Business Certification Inc.
GCI	Grid Controller of India
GHG	Greenhouse Gas
GRIHA	Green Rating for Integrated Habitat Assessment
HVAC	Heating, Ventilation and Air Conditioning
ICM	Indian Carbon Market
IFC	International Finance Corporation
IGBC	Indian Green Building Council
IKI	International Climate Initiative (Internationale Klimaschutzinitiative)
ISO	International Organization for Standardization
JDA	Jaipur Development Authority
kgCO ₂ e	Kilogram of Carbon Dioxide Equivalent
KMC	Kolkata Municipal Corporation
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
LEED	Leadership in Energy and Environmental Design
MEPI	Model Energy Performance Index
MNRE	Ministry of New and Renewable Energy
MoEFCC	Ministry of Environment, Forest and Climate Change
MoF	Ministry of Finance
MoHUA	Ministry of Housing and Urban Affairs
MRV	Monitoring, Reporting and Verification

MSME	Micro, Small and Medium Enterprise
NBC	National Building Code
NBSC	National Building Sustainability Code
NDC	Nationally Determined Contribution
NHB	National Housing Bank
NKDA	New Kolkata Development Authority
NSCICM	National Steering Committee for Indian Carbon Market
PAT	Perform, Achieve and Trade
PES	Percentage Energy Savings
PMAY	Pradhan Mantri Awas Yojana
PSL	Priority Sector Lending
RBI	Reserve Bank of India
RETV	Residential Envelope Transmittance Value
SBI	State Bank of India
SEBI	Securities and Exchange Board of India
SIDBI	Small Industries Development Bank of India
SSP	Supplementary Cementitious Product
SUNREF	Sustainable Use of Natural Resources and Energy Finance
TERI	The Energy and Resources Institute
UDA	Urban Development Authority
USGBC	United States Green Building Council
WBLCA	Whole Building Life Cycle Assessment
WLCA	Whole Life Cycle Assessment

Executive Summary

India's building sector stands at an inflection point. Driven by rapid urbanisation, a population exceeding 1.4 billion, and major government programmes including PMAY and AMRUT, the country faces a construction surge unprecedented in scale. Building sector energy demand is projected to triple by 2050, cooling loads to grow eight-fold, and commercial floor area to expand from 1,160 million m² to 3,090 million m² by 2037–38. The decisions made now will determine whether India locks in decades of high-carbon infrastructure or establishes a credible pathway to net-zero by 2070.

India already has substantial policy infrastructure governing the building sector – ECSBC 2024, ENS 2024, the NBC Draft Revision 2025, GRIHA and IGBC rating systems, a Draft Climate Finance Taxonomy, and the emerging Carbon Credit Trading Scheme. Each contributes meaningfully, yet they operate largely in parallel with no common performance language connecting regulatory compliance, green certification, and climate finance. Critically, embodied carbon appears across all frameworks only as a voluntary disclosure item, never a compliance threshold. The Draft Climate Finance Taxonomy identifies buildings as a priority sector but lacks building-specific technical screening criteria, leaving lenders and investors without a nationally consistent basis for classifying green building assets. This report evaluates India's current regulatory frameworks to inform building taxonomy development. Analysis identifies critical gaps: absence of sector-specific thresholds in the Climate Finance Taxonomy; voluntary sustainability provisions in the NBC; limited embodied carbon integration in ECSBC and ENS where reporting exists but does not function as a threshold-determining parameters within compliance or incentive structures; limited whole-life carbon assessment across rating systems; and evolving verification mechanisms in the carbon market framework.

The proposed taxonomy framework

This report develops a building taxonomy structured around three interconnected components designed to bridge these gaps.

The first is a **building classification system** built on four parameters that no existing Indian framework currently applies in combination: climate zone; construction typology (new construction versus retrofit); building function and sub-typology (to reflect variations in occupancy and energy intensity); and density parameters including Floor Area Ratio, occupancy levels, and built-up area, with specific differentiation between high-rise and low-rise developments.

The second is a **Key Performance Indicator framework** derived from the reviewed national frameworks. Operational carbon KPIs include the Annual Energy Performance Index (kWh/m²/year), the Modelled Energy Performance Index (MEPI), and Percentage Energy Savings (PES). For embodied and whole-life carbon, the taxonomy draws on two methodological approaches present in existing frameworks: ECSBC 2024 mandates disclosure of upfront embodied carbon at kgCO₂eq/m² (stages A1–A3 under EN 15978). The taxonomy elevates whole-life carbon from a voluntary disclosure item to a threshold-determining parameter, using the NBC's WBLCA methodology as the technical foundation and grounding performance thresholds in empirical data from the BEAT database and certified project repositories.

These KPIs underpin a **red-amber-green performance classification system** that serves as both a regulatory compliance tool and a financial screening mechanism. Green-tier buildings are aligned with best practice; amber buildings are in transition; red buildings are non-compliant and require intervention. Existing certifications – GRIHA, IGBC, LEED, EDGE, and ECSBC – can be mapped to corresponding tiers, ensuring the taxonomy is certification-neutral and immediately applicable regardless of which rating system a project has used.

The third component is an **implementation framework** built around five priority interventions: establishing typology-specific carbon intensity baselines across all climate zones using the BEAT database and certified project data; developing the red-amber-green classification system with empirically grounded thresholds; building centralised digital infrastructure for data submission, performance tracking, and verification; creating enforcement mechanisms within existing institutional structures; and integrating the taxonomy with ECSBC compliance systems and the CCTS.

Governance and institutional architecture

The taxonomy's impact depends on embedding it within a clear governance mandate. This report recommends establishing a **Building Taxonomy Technical Secretariat anchored within the Bureau of Energy Efficiency (BEE)** under the Ministry of Power, with a formal coordination mandate linking it to the Ministry of Finance, MoHUA, BIS, SEBI, and RBI. BEE is the natural anchor: it administers ECSBC 2024 and ENS 2024, it is the designated CCTS administrator, and its State Designated Agency network provides a ready-made subnational channel for data collection and compliance monitoring.

Unlocking low carbon building finance

On finance, the taxonomy's most immediate value is as a unified screening tool across India's financial system. It provides the technical basis for a green sub-category within RBI's Priority Sector Lending guidelines, a common performance floor for green bond and ESG debt eligibility under SEBI's framework, and verified metrics for sustainability-linked instruments – replacing the current fragmentation in which each mechanism relies on separate, certification-dependent eligibility definitions. It enables capital mobilised through RBI's Green Deposits Framework to be reliably directed toward the building sector, and supports tiered blended finance structuring for green and affordable construction. It also supplies the asset-level carbon performance data that banks need to classify building loans by climate risk under RBI's Climate-related Financial Risks Disclosure Framework – relevant given the significant share of housing and commercial real estate in total bank credit. With construction designated for Phase II of the Carbon Credit Trading Scheme, the taxonomy further provides the technical methodology for registering building projects as offset activities under India's emerging carbon market.

Carbon market readiness

With construction designated for Phase II of the CCTS, the taxonomy also prepares the building sector for formal participation in India's carbon market. It provides the technical methodology for registering green-tier building projects as offset activities, defines baseline scenarios against which emission reductions can be measured, and establishes the MRV requirements necessary for credit issuance. A phased approach is recommended: recognising operational carbon reductions as the primary qualifying activity in the near term, while investing in the data infrastructure – through the BEAT tool and an expanded Environmental Product Declaration programme for Indian construction materials – that will allow embodied carbon reductions to qualify in a subsequent phase.

Conclusion

A unified building taxonomy provides the integrating architecture that currently does not exist: a single performance language connecting regulatory compliance, green certification, climate finance, and carbon market participation. By establishing India-specific baselines grounded in empirical data, elevating embodied carbon to a threshold-determining parameter, and creating the institutional and digital infrastructure that makes performance verifiable rather than assumed, this taxonomy lays the foundation for a built environment that is energy-efficient, financially credible, and aligned with India's long-term net-zero commitments.

1. Introduction

India's building sector stands at a transformative crossroads. Over the next three decades, India is expected experience immense construction demand—an infrastructure expansion unprecedented in scale and speed. This construction surge, driven by rapid urbanization, population growth exceeding 1.4 billion, and government initiatives including the Pradhan Mantri Awas Yojana (PMAY) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT), will fundamentally shape India's economic trajectory and environmental future. The scale of upcoming construction represents not only a development opportunity but also a critical financial decision point that will determine the carbon intensity of India's built environment for decades to come.

The actions taken to decarbonize the buildings sector will determine whether India locks in decades of high-carbon infrastructure or establishes a pathway toward climate-resilient, low-carbon development. Globally, buildings and construction account for approximately 34% of energy-related CO₂ emissions, including both operational emissions and embodied emissions associated with materials and construction processes, decarbonising the sector is one of the most cost-effective ways to mitigate the worst effects of climate breakdown¹. By 2050, India's building sector energy demand is projected to reach three times its 2020 levels, with cooling loads alone expected to increase eight-fold as temperatures rise and air conditioning becomes more accessible.² The commercial sector floor area is projected to grow from 1,160 million m² (2017-18) to 3,090 million m² by 2037-38—a 2.7-fold increase—while air-conditioned area surges from 26% to 54%, dramatically amplifying energy consumption.³ Without deliberate intervention, this expansion will place unsustainable pressure on energy systems, exacerbate climate change, and undermine India's commitments under the Paris Agreement. This trajectory would also risk misalignment with India's updated Nationally Determined Contributions (NDCs) and its commitment to achieve net-zero emissions by 2070, increasing transition risks for both public and private investments in the built environment.

At the national level, multiple policy instruments govern the building sector. These include: (i) regulatory codes such as the Energy Conservation and Sustainable Building Code (ECSBC 2024), Eco Niwas Samhita (ENS 2024), and the National Building Code (NBC);, (ii) voluntary green building rating systems including GRIHA, IGBC, LEED, EDGE, and other market-recognized certification frameworks; and (iii) financial classification frameworks such as India's emerging Climate Finance Taxonomy. While each instrument plays an important role, they, largely operate in parallel, resulting

¹ United Nations Environment Programme (2025). *Global Status Report for Buildings and Construction 2024/2025: Not just another brick in the wall – The solutions exist. Scaling them will build on progress and cut emissions fast*. Paris. <https://wedocs.unep.org/20.500.11822/47214>

² NITI Aayog. (2026). *Scenarios Towards Viksit Bharat and Net Zero - Sectoral Insights: Buildings* (Vol. 5), <https://niti.gov.in/publications/division-reports>

³ Alliance for an Energy Efficient Economy (AEEE). (n.d.). *Building stock modelling: Key enabler for driving energy efficiency at national level – Building sector in India*. Retrieved from <https://www.aeee.in/wp-content/uploads/2018/09/Building-Stock-Modeling-Revised-pager.pdf>

in fragmented guidance for states, developers, and financial institutions navigating the transition toward sustainable construction. The aim of this building taxonomy is to:

A common language for classifying buildings by climate zone, typology, scale, construction system, and performance characteristics — providing a shared reference framework that enables consistent communication and decision-making across government agencies, financial institutions, developers, and industry bodies

Standardized metrics and benchmarking for both operational carbon (energy consumption) and **embodied carbon** (materials and construction processes) — elevating embodied carbon from a reported disclosure metric to a threshold-defining parameter that supports finance screening, green bond eligibility, and integration with financial and market mechanisms.

Clear climate-zone-sensitive and typology-specific performance thresholds, expressed through a red-amber-green classification system, that distinguish taxonomy-aligned buildings from transitional and non-compliant construction — enabling targeted policy interventions, preferential lending and green bond eligibility, blended finance structuring, and integration with India's Carbon Credit Trading Scheme

Implementation pathways that leverage existing institutional capacity, particularly the Bureau of Energy Efficiency (BEE), Bureau of Indian Standards (BIS), Ministry of Housing and Urban Affairs (MoHUA), and Ministry of Finance, while identifying necessary regulatory reforms and governance mechanisms.

By establishing a unified taxonomy, India can bridge fragmented policy instruments and create a coherent framework for sustainable construction. This common language will not only accelerate the decarbonization of the building sector but also unlock investment, innovation, and resilience at scale. By providing a common performance framework, this building taxonomy can also function as a screening tool for climate-aligned investments, supporting green bond eligibility, preferential lending frameworks, blended finance instruments, and alignment with India's Climate Finance Taxonomy and Carbon Credit Trading Scheme. As India enters the Amrit Kaal period of rapid development, the taxonomy provides a decisive tool to ensure that growth is both climate-aligned, financially resilient, and people-centred—laying the foundation for a built environment that is energy-efficient, economically competitive, and aligned with India's long-term net-zero pathway.

2. India's Current National Frameworks Analysis and Key Takeaways

The following key documents were reviewed in depth to extract relevant metrics that will shape India's transition toward low-carbon buildings. These references were selected because they represent the most authoritative and comprehensive frameworks currently guiding India's building sector—spanning regulatory codes, financial instruments, rating systems, and market mechanisms. Collectively, they provide the foundation for defining classifications and key performance indicators (KPIs), thereby supporting the establishment of building taxonomy values aligned with national targets and policies:

The review covers three categories of instruments:

- **Financial Frameworks:** Draft Climate Finance Taxonomy (Ministry of Finance, Department of Economic Affairs, June 2025)
- **Regulatory Codes:** National Building Code (Draft Revision 2025, BIS); Energy Conservation and Sustainable Building Code (ECSBC 2024); Eco Niwas Samhita (ENS 2024)
- **Voluntary Rating Systems:** GRIHA and IGBC
- **Market Mechanisms:** National Carbon Market Framework

2.1 Draft Framework of India's Climate Finance Taxonomy (Ministry of Finance, Department of Economic Affairs, June 2025)

The Indian Climate Finance Taxonomy, designed as a living document, provides structured guidance for channelling sustainable investments in alignment with India's Nationally Determined Contributions (NDCs) and Sustainable Development Goals (SDGs). Its objective is to facilitate resource flows toward climate-friendly technologies and activities, supporting the national vision of achieving net-zero emissions by 2070 while ensuring long-term energy security and affordability. To maintain credibility and prevent greenwashing, the taxonomy will undergo periodic review to reflect evolving requirements and expand sectoral coverage. It employs a hybrid framework that integrates qualitative and quantitative criteria, ensuring scientific rigor, inclusivity, and adaptability across diverse investment contexts. The taxonomy is organized around the objectives of mitigation, adaptation, and transition in hard-to-abate sectors, and is underpinned by seven core principles with tiered sectoral focus. However, the taxonomy currently lacks building-sector-specific technical screening thresholds, creating uncertainty for lenders and investors seeking to classify green building assets. For a detailed context for objectives and principles of the climate finance taxonomy refer to Figure 4.

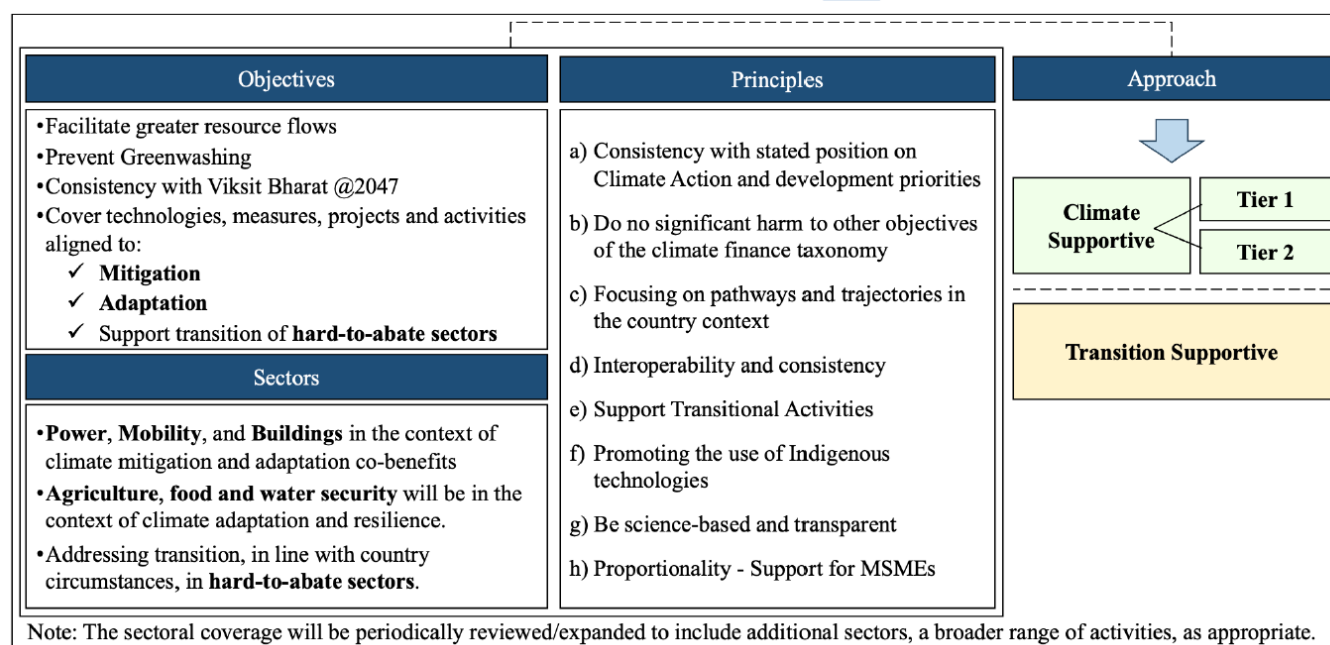


Figure 4 Structure of Indian climate finance taxonomy (Source: Draft Framework of India's Climate Finance Taxonomy, Government of India, Ministry of Finance, Department of Economic Affairs).

Strategic Priorities for the Building Sector Outlined in the Document

As part of the initial phase of implementation, the Government of India has identified the building, steel, and cement sectors as priority areas for intervention. Within the building sector, the following strategic measures have been outlined:

- Resource Efficiency through Design and Technology**
 Emphasis is placed on minimizing energy and material consumption in the construction and operation of buildings by promoting sustainable design principles and the adoption of advanced technologies.
- Adoption of green building ratings norms (GRIHA and IGBC)**
 All government construction projects are required to adhere to the Green Rating for Integrated Habitat Assessment (GRIHA) standards to ensure environmental sustainability and energy efficiency. Alignment with recognised rating systems can accelerate decarbonization; however, for climate finance purposes, performance thresholds must be harmonized across certification platforms.
- Finance Taxonomy for Net Zero Alignment**
 To advance India's Net Zero objectives, a climate finance taxonomy will be introduced to classify activities, projects, and interventions based on their potential to reduce emissions intensity. This framework will guide investment decisions and policy formulation toward: Sustainable construction practices, Deployment of energy-efficient technologies and Implementation of climate adaptation measures to enhance resilience against extreme weather events.
- Financing Hard-to-Abate Sectors such as Steel and Cement**
 Support will be extended for developing indigenous low-emission technologies, scaling

mature climate solutions, and strengthening domestic expertise to enable a gradual transition to low-emission pathways. Initial focus will be on the iron, steel, and cement industries, with periodic reviews to address evolving needs and progressively include other hard-to-abate sectors such as fertilizers, aluminium, and beyond.

Key takeaways

Although buildings and construction are recognized as a critical area within the climate finance agenda, the taxonomy remains in its early stages. Developing a dedicated buildings taxonomy in parallel is therefore essential to ensure integration and alignment with national decarbonization goals. Key observations from the draft framework, with a focus on the building and construction sector, are outlined below:

- i. **Lack of Sector-Specific Thresholds & insufficient adaptation metrics**
The taxonomy does not yet define technical screening criteria for critical sectors such as agriculture, transport, and manufacturing. This gap may hinder consistent classification. As a living framework, thresholds are expected to evolve in alignment with the national carbon market mechanism. While mitigation areas are well defined & prioritised, adaptation lacks robust indicators and performance benchmarks.
- ii. **Limited Private Sector Engagement**
Consultations have been predominantly government-led. Greater participation from financial institutions and industry bodies is required to ensure practicality and stakeholder buy-in.
- iii. **Data and Disclosure Gaps**
Effective implementation will require stronger climate-related financial disclosures and data infrastructure, which remain underdeveloped in India.
- iv. **Absence of Enforcement Mechanisms**
Currently, taxonomy alignment is not referenced in RBI lending guidelines, SEBI disclosure requirements, or any private sector compliance obligation, making adoption voluntary. For capital markets, this creates a critical gap: without a mandatory national performance floor, green finance instruments risk inconsistent application and greenwashing.
- v. **Fragmented Governance**
While MoF holds the taxonomy mandate, effective implementation requires coordination across SEBI, RBI, MoHUA, and BEE — none of which are currently aligned to a single governing authority. Without a cross-institutional coordination mechanism, the taxonomy risks producing inconsistent signals for developers, lenders, and investors.
- vi. **No Integration with Existing Disclosure Norms**
India does not yet have an existing ESG taxonomy into which the Climate Finance Taxonomy can be embedded. However, climate-related disclosure frameworks — including SEBI's Business Responsibility and Sustainability Reporting (BRSR) requirements — operate independently of the taxonomy, with no cross-referencing between them. This means reporting entities must navigate two parallel systems, creating duplication and uncertainty about which disclosures satisfy which requirements.

2.2 National Building Code (Draft Revision 2025, Bureau of Indian Standards)

The National Building Code (NBC) of India, published by the Bureau of Indian Standards (BIS), serves as a comprehensive framework governing building design, construction practices, material specifications, and typologies across the country.

In its latest draft revision, the NBC introduces a dedicated chapter on sustainability, signalling a growing national commitment to environmental responsibility in the built environment. A key feature of this new section is the requirement for building material manufacturers to disclose the carbon footprint of their products—an important step toward greater transparency and accountability in construction.

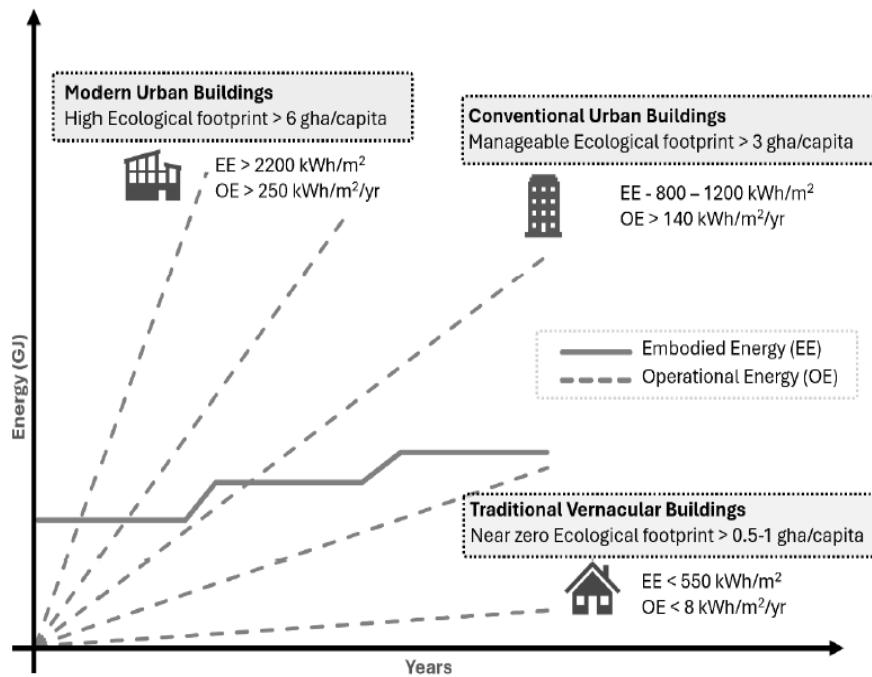


Figure 5 Various Building Typologies & Associated Embodied, Operational Energy, and Ecological Footprint (source: National Building Sustainability Code, 2025)

Part 11 of the latest revised code introduces a forward-looking framework for sustainable development in buildings and construction. It addresses critical issues such as climate change, ecological disruption, environmental toxicity (including endocrine disruptors, persistent chemicals, and micro/nano plastics), and social inequities in access to safe and healthy living environments. The section outlines best practices for sustainable building design and construction, recommends the adoption of whole-life cycle analysis, and proposes a voluntary reporting mechanism for building materials to disclose project-level carbon emissions (Annex A).

Table 1 Whole-Building Metrics, Benchmarked and Simulated Per Climate Zone to Achieve about 75 Percent Savings from Business-As-Usual (source: National Building Sustainability Code, 2025)

Simulated, Per Climate Zone							
SI No.	Whole-Building Metric		Benchmarked (Measure d)	Temperature (Bangalore)	Hot Dry (Jaipur)	Warm Humid (Mumbai)	Composite (New Delhi)
1	Annual energy use EPI [kWh/m2/year]	Standard	242	232	280	253	268
		Better	140	125	146	144	146
		Best	65(30) ¹	53	78	69	80
		Savings %	74%	77%	72%	73%	70%
2	Peak energy use [W/m2]	Standard	90	100	123	95	110
		Better	40	39	56	45	56
		Best	19	16	29	22	30
3	Annual energy use/ occupant [kWh/ person/ year]	Standard	2250	2320	2800	2530	2680
		Better	1460	1250	1460	1440	1460
		Best	620	540	780	690	800
1 An EPI of 30 is the best practice target achievable in mixed-mode buildings.							

The latest revision of the National Building Code introduces Whole Building Life Cycle Assessment (WBLCA) as a key metric for evaluating building performance. While not mandated, its application is strongly encouraged as a guideline for achieving sustainability objectives. Without mandatory adoption or performance thresholds linked to embodied carbon, its impact on market transformation and climate-aligned finance remains constrained. In addition, the code outlines best practices and performance metrics that support sustainable construction, with the recommended methodology summarized in the Table 2 below.

Table 2 WBLC assessment Methodology

Whole Building Life Cycle Assessment Methodology (as suggested in NBC)	
Best practice standards to be followed	IS/ISO 14040 : 2006 Environmental management – Life cycle assessment – Principles and framework (first revision) IS/ISO 14044 : 2006 Environmental management – Life cycle assessment – Requirements and guidelines
Defining goal and scope	The intended application, b) The reasons for carrying out the study, c) The intended audience, i.e. to whom the results of the study are intended to be communicated, and d) Whether the results are intended to be used in comparative assertions intended to be disclosed to the public.
Reference units	

Reference study period System boundary	Material carbon emission factor (kgCO2e/ functional unit)			
	Building carbon emission factor for (kgCO2e/sq.m)			
	In years(specific years not defined)			
Physical Scope of the building elements	For embodied carbon, best practice is to include (at a minimum) stages A1-A5, B2-B4, and C1-C4			
	Physical Scope			
	Level 1	Element Group	Level 2	Element Group
	1	Substructure	1.1	Substructure
	2	Superstructure	2.1	Frame
			2.2	Upper floors
			2.3	Roofs
			2.4	Stairs and ramps
	2	Façade	2.5	External walls
			2.6	Windows and external doors
2	Internal walls and partitions	2.7	Internal walls and partitions	
		2.8	Internal doors	
3	Internal finishes	3.1	Wall finishes	
		3.2	Floor finishes	
		3.3	Ceiling finishes	
4	FF&E	4.1	Fittings, furnishings and equipment	
5	Building services	5.1	Building services	
Inventory Data Collection	- Types and quantities of materials that are part of the physical scope defined in the previous step. Quantities can be extracted from bill of quantities. - Environmental impact factors of materials – Impact factors such as carbon emission factors for materials can be derived from various LCI databases, EPDs, product manufacturer declaration, LCA tools etc. - Additional information such as transportation scenarios & emissions, material replacement frequencies (service life)			
Data methodology	Reporting	Refer Annex A		

Key takeaways

- i. **Draft Status and Unclear Roadmap:** The revised National Building Code (NBC) remains in draft form and, as of October 2025, the sustainability chapter is still under public review. While draft chapters have been issued by the Bureau of Indian Standards (BIS) for stakeholder feedback, final adoption and enforcement timelines are not defined.
- ii. **Voluntary Nature of Provisions:** Sustainability measures, including embodied carbon disclosure and life cycle data reporting, are encouraged but remain voluntary. Without mandatory compliance, the impact on construction practices is likely to be limited. This represents a significant limitation for taxonomy alignment: until embodied carbon is

elevated from a voluntary reporting metric to a threshold-defining compliance parameter, the NBC cannot serve as a credible technical foundation for screening taxonomy-eligible buildings or structuring climate finance instruments

- iii. **Whole Life Carbon Assessment with Prescribed Reporting Framework:** Whole life carbon assessment is currently voluntary; however, the NBC prescribes standardized reporting mechanisms for project-level carbon disclosure. This provides a consistent framework for documentation and evaluation.
- iv. **Climate-Specific Energy Performance Benchmarks:** The NBC sets ideal values for Energy Performance Index (EPI), peak energy demand, and annual energy consumption per occupant, tailored to India's diverse climate regions. These benchmarks support region-specific net zero transition pathways.
- v. **Building Function Classification and Need for Typology-Specific Standards:** The code introduces function-based building classifications, offering foundational guidance. However, typology- and density-specific carbon consumption thresholds are absent. Developing such standards would enable precise evaluation frameworks, establishing carbon budgets and performance cut-offs aligned with distinct building categories.
- vi. **Data and Disclosure Infrastructure Gaps:** Clause E outlines methodologies for data collection and reporting but does not propose a centralized repository. The absence of integrated data infrastructure limits benchmarking and real time performance tracking. Current reporting mechanisms rely on manual formats (e.g., spreadsheets) rather than streamlined digital tools. Establishing a national building performance database would significantly strengthen taxonomy calibration and carbon market integration.

2.3 ECSBC 2024 and ENS 2024

The Energy Conservation and Sustainable Building Code (ECSBC 2024) and the Eco Niwas Samhita (ENS 2024) are flagship regulatory frameworks developed by the Bureau of Energy Efficiency (BEE) under the Ministry of Power, Government of India. ECSBC 2024 applies to commercial and office buildings, while ENS 2024 targets residential buildings. Together, they aim to enhance energy efficiency, thermal comfort, and environmental sustainability in India's built environment.

These codes introduce updated technical benchmarks for building envelope design, lighting systems, HVAC performance, and renewable energy integration. ENS 2024 emphasizes passive design strategies such as natural ventilation, daylighting, and thermal insulation to improve indoor comfort in residential settings. ECSBC 2024 builds upon the earlier ECBC framework, expanding its scope to include sustainability indicators and broader environmental considerations.

For effective implementation of ECSBC, dedicated State Designated Agencies and energy efficiency cells have been established across all states to drive compliance, facilitate data collection, conduct capacity-building programs, and promote widespread awareness and adoption of the code. Furthermore, these cells directly report the collected data to the Bureau of Energy Efficiency (BEE), enabling centralized monitoring and oversight. By serving as a vital link between central and state

agencies, these cells play a crucial role in coordinating efforts, streamlining communication, and promoting consistent adoption of the code across jurisdictions.

2.3.1 ECSBC

The Energy Conservation and Sustainable Building Code (ECSBC) 2024 provides a structured framework for improving energy efficiency in commercial buildings. Compliance is achieved through either the Integrative Compliance Method (ICM), based on whole-building energy simulation, or the Standardized Compliance Method (SCM), which follows prescriptive requirements. The code defines three performance tiers—ECSBC (baseline), ECSBC+ (enhanced), and Super ECSBC (advanced)—with progressively stringent benchmarks across nine thematic areas: building envelope, HVAC, lighting, electrical systems, renewable energy, water and waste management, sustainable sites, and indoor environmental quality. The detailed benchmark under each thematic is detailed in Annex D.

All buildings must meet mandatory provisions, while higher tiers require additional performance targets, including Percentage Energy Savings (PES) ranging from 9–34% depending on climate zone and building type. The code also introduces the Minimum Energy Performance Index (MEPI) and PES as key metrics for assessing emission reductions.

The Energy Conservation and Sustainable Building Code (ECSBC) introduces two key metrics for assessing emission reductions through building performance:

$$MEPI = ((Total\ Annual\ Energy\ Consumption\ (kWh/year)) / Net\ Built-up\ area(m^2))$$

Here, the Net built-up area (m^2) is the total built-up area ($sqmt.$) excluding the following areas:

- a) Unconditioned basement area (m^2)
- b) Unconditioned refuge area (m^2)
- c) Stilt Parking Area (m^2)

and,

$$PES = [(MEPI_{Baseline} - MEPI_{Proposed}) / MEPI_{Baseline}] * 100$$

Minimum MEPI requirement is defined in the table below for ECSBC buildings

Building Type	MEPI requirement
ECSBC	$MEPI_{Baseline} = MEPI_{Proposed}$
ECSBC+	$MEPI_{Proposed} < MEPI_{Baseline}$
Super ECSBC	$MEPI_{Proposed} < MEPI_{Baseline}$

The detailed PES requirements according to climate and building typology is detailed in Annex F.

Key takeaways

1. **Absence of Digital Infrastructure and Verification Mechanisms:** The lack of a centralized digital platform or registry for ECSBC-compliant projects hinders transparency,

- stakeholder confidence, and alignment to norms. Without robust digital tools for reporting, verification, and analysis, scalability and accountability remain limited.
2. **Primary Focus on Operational Energy Metrics:** While the three-tier compliance system (ECSBC, ECSBC+, Super ECSBC) incentivizes progressive energy performance, it focuses more on operational energy efficiency. Broader sustainability indicators—such as embodied carbon, water efficiency, and material sustainability—are not as efficiently integrated, resulting in an incomplete assessment of environmental impacts.
 3. **Insufficient of Life Cycle and Material Impacts:** The framework emphasizes operational parameters like HVAC efficiency, lighting density, and renewable energy integration but overlooks embodied carbon emissions from material production, transport, and construction. Although disclosure of embodied energy is mandated and reporting format is provided, it remains disconnected from rating mechanisms and incentive structures, limiting its effectiveness as a driver of sustainable practices.
 4. **Building Attribute-Based Classification Gap:** The framework does not classify buildings by critical attributes such as area, occupancy, height (high-rise vs. low-rise), or density. These parameters are essential for tailoring performance benchmarks and ensuring equitable evaluation across diverse building types.
 5. **Limited Applicability to New Commercial Construction:** ECSBC currently applies only to newly constructed commercial and office buildings that have a connected load of 100 kW or greater or a contract demand of 120 kVA. Renovations, extensions, and other building categories remain outside its scope, reducing its broader relevance.
 6. **Uniform Weightage and Voluntary Whole-Building Performance:** The framework assigns equal weightage to all Key Performance Indicators (KPIs), without prioritization based on climate impact or sustainability criticality. Whole-building performance evaluation is positioned as a voluntary criterion under Super ECSBC, rather than a universal compliance requirement, limiting its broader adoption.
 7. **Single-Metric Dependence on MEPI and Simulation-Based Compliance:** Dependence on MEPI and modelled performance risks divergence from actual operational outcomes. Incorporating post-occupancy performance verification would enhance credibility and carbon accounting accuracy.

2.3.2 ENS 2024

Eco Niwas Samhita (ENS) 2024 is India's national energy conservation building code for residential buildings, developed by the Bureau of Energy Efficiency (BEE) under the Ministry of Power. ENS establishes energy performance standards and sustainability requirements specifically for the residential sector, complementing the Energy Conservation and Sustainable Building Code (ECSBC) which covers commercial buildings. ENS employs a comprehensive point-based certification framework (170 total points) distributed across eight sustainability categories with thematic weightage for each theme showcase in Figure 6.

The code applies to three primary residential typologies: (1) one- or two-family private dwellings with sleeping accommodation for ≤ 20 persons, (2) apartment houses providing living quarters for

≥3 families with independent cooking facilities, and (3) mixed-use buildings with specific compliance rules based on floor area percentage thresholds.

ENS establishes a three-tier compliance structure—ENS (baseline), ENS+ (30% of maximum incremental points), and Super ENS (50% of maximum incremental points)—enabling progressive adoption of energy efficiency and sustainability measures. The code emphasizes practical, prescriptive metrics such as Residential Envelope Transmittance Value (RETV), window-to-wall ratios, and water demand reduction targets, making compliance accessible for the residential construction sector. For the detailed benchmarks under each thematic of ENS, refer to Annex E.

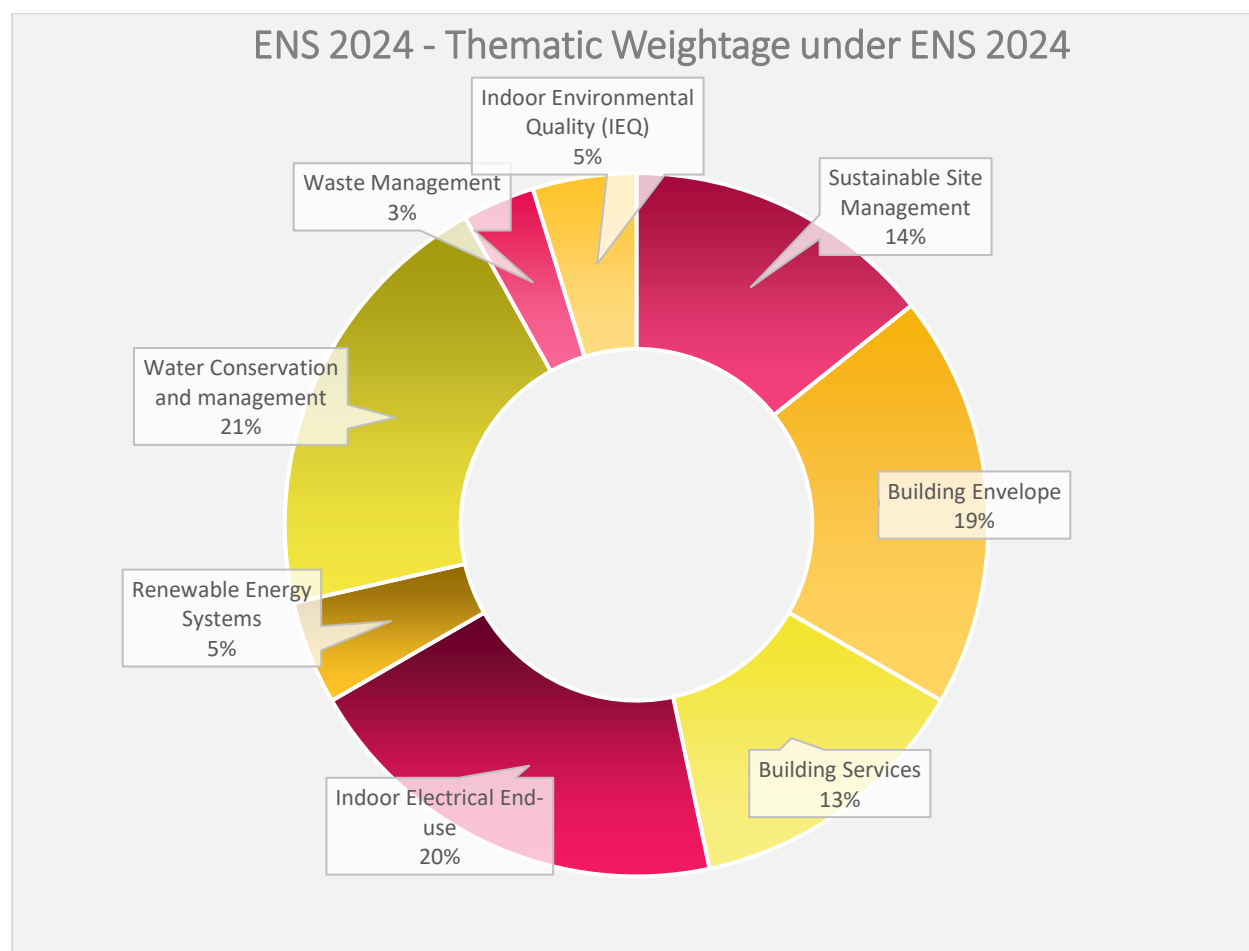


Figure 6 Thematic weightage under ENS 2024

Key takeaways

1. **Structured and Transparent Evaluation Metrics:** ENS 2024 introduces a clearly defined point and weightage-based system, making compliance straightforward. Most parameters are expressed as cut-off values, supported by simple, easy-to-calculate indicators such as the Residential Envelope Transmittance Value (RETV). This enhances accessibility and ease of adoption for stakeholders.

2. **Absence of Building Attribute Consideration:** Key parameters such as built-up area, occupancy levels, energy load, and density are not factored into classification. These attributes are particularly critical in high rise, high density residential buildings, where energy intensity and service demand vary significantly by scale and occupancy patterns.
3. **Ambiguity in Mixed-Use Building Compliance:** Compliance for mixed-use buildings is determined primarily by percentage thresholds of floor area. This approach may create uncertainty in cases where residential and commercial functions are closely integrated, leading to inconsistencies in classification and enforcement.
4. **Limited Integration of Construction Materials and Methods:** ENS 2024 does not incorporate the role of construction materials or building techniques into its compliance framework. This omission overlooks their influence on durability, embodied energy, and long-term sustainability outcomes.

2.4 Green Buildings rating

India's green building movement is supported by two major indigenous rating systems: GRIHA (Green Rating for Integrated Habitat Assessment), and the Indian Green Building Council (IGBC) rating system. In addition to these indigenous systems, international certification platforms such as LEED and EDGE operate within the Indian market and influence private sector investment decisions. A national taxonomy must therefore ensure interoperability across certification systems. These frameworks encourage sustainable construction by assessing buildings across parameters such as energy efficiency, water conservation, material use, waste management, and indoor environmental quality.

Importantly, certification under these systems is voluntary and conceived as a process that begins at the design stage and continues through post-occupancy, ensuring that sustainability considerations are embedded throughout the building life cycle. While certification requirements can be resource-intensive and may pose challenges for smaller projects, these rating systems have played a pivotal role in mainstreaming green building practices in India. Strengthening alignment across frameworks and expanding focus on life cycle impacts, including embodied carbon, would further enhance their contribution to national sustainability goals.

2.4.1 GRIHA

GRIHA is India's national green building rating system, developed by The Energy and Resources Institute (TERI) and endorsed by the Ministry of New and Renewable Energy (MNRE). It evaluates the environmental performance of buildings across their entire life cycle—from design and construction to operation.

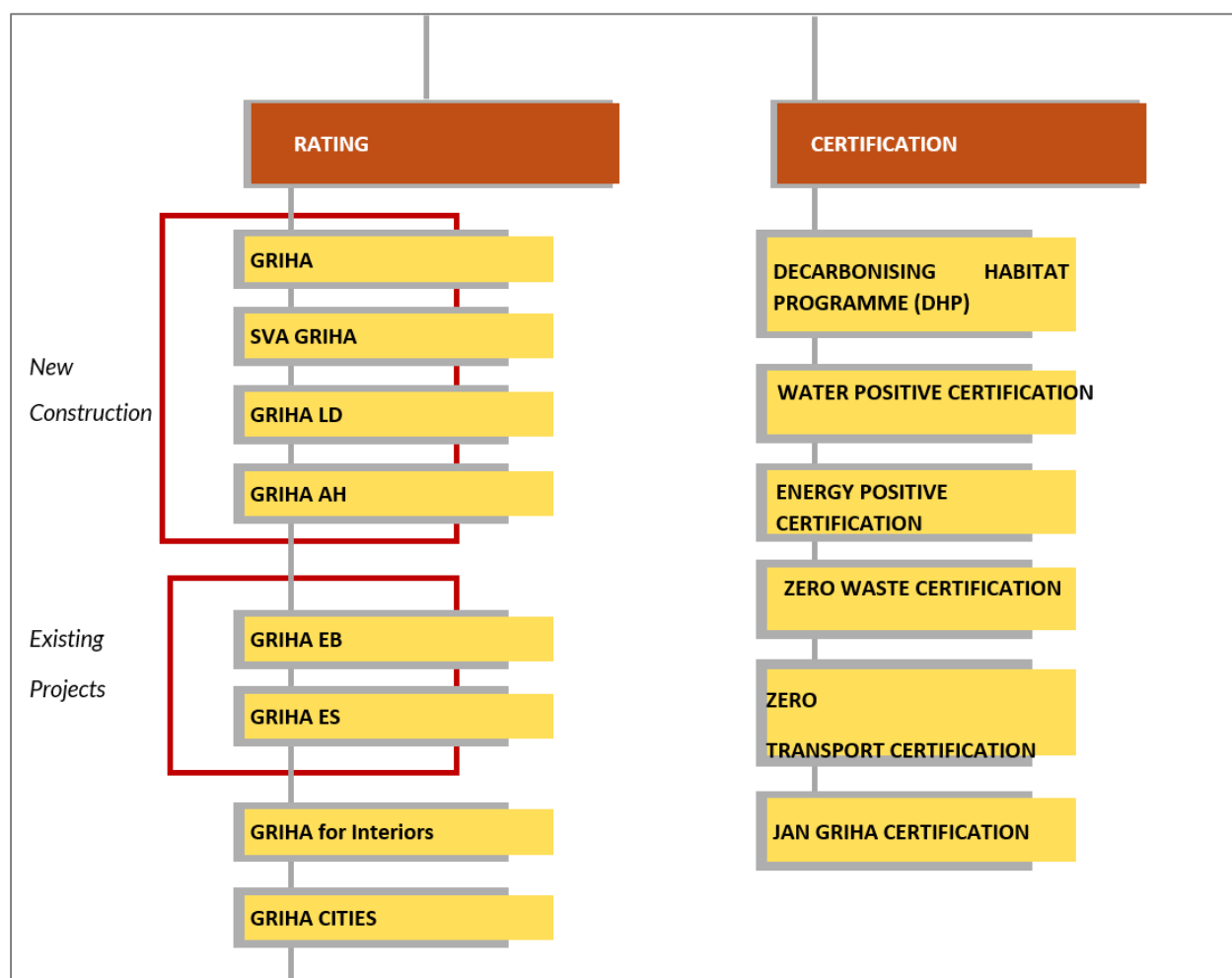


Figure 7 Various Ratings and Certifications under GRIHA rating system

The framework assesses parameters such as energy efficiency, water management, waste handling, renewable energy integration, and occupant comfort. By assigning points across these categories, GRIHA provides a standardized benchmark for sustainable building practices and promotes resource-efficient, climate-responsive development in India. GRIHA follows a star-based rating system, awarding buildings up to five stars depending on the score achieved. The weightage assigned to each thematic area under GRIHA v2019 is illustrated in Figure 8. For detailed performance benchmarks, refer to Annex G, which outlines the criteria and evaluation methods for each thematic category. The assessment is based on both descriptive indicators and cutoff variations defined within the framework.



Figure 8 Weightage for each thematic criteria under GRIHA v.2019 (Source: GRIHA)

It covers various typologies and verticals as shown in figure covering an ecosystem for the built environment green transition GRIHA classifies buildings based on area and function, to evaluate the performance for green building accordingly as shown in Table 3.

Table 3 Eligibility of various GRIHA rating typologies

Rating	Eligibility
GRIHA v.2019	All new construction projects with built up area more than 2500 m ² (excluding parking, basement area, and typical buildings)
SVA GRIHA	All new construction projects with built up area $100 \text{ m}^2 \leq x \leq 2500 \text{ m}^2$
GRIHA LD	- Large (mixed-use) townships: - Housing complex by builders - Housing complexes by urban development organizations - Housing board and Public Sector Undertaking Townships - Plotted developments with part construction by the developer - Educational and institutional campuses - Medical colleges and Hospital complexes (eg: AIIMS) - Special economic zones
GRIHA AH	All the upcoming projects that have approval/sanction letter issued by government agency (Central/State) confirming that the project is being developed as per Pradhan Mantri Awas Yojana (PMAY) are eligible for GRIHA AH rating All the upcoming projects that are in compliance with the Reserve Bank of India's "Master Directions – Priority Sector Lending (PSL) – Targets and

	Classification" released in September, 2020 and its amendments thereon with reference to a dwelling unit's carpet area.
GRIHA EB	All operational buildings having a built-up area greater than 50 sq. m. are eligible for certification GRIHA for Existing Buildings rating. The typology of buildings include: offices, retail spaces, institutional buildings, hotels, hospital buildings, healthcare facilities, residences, and multi-family high-rise buildings.

Incentives linked with GRIHA rating

Projects that have GRIHA rating are provided regulatory and financial incentives to encourage green building transition, detailed out in Table 4.

Table 4 Incentives linked to GRIHA rating (Source :GRIHA)

Authority	Incentive
Central Government Incentives	
Ministry of Urban Development	1%–5% additional ground coverage and FAR (free of cost) for GRIHA-registered projects above 3,000 sqm plot size, scaled to star rating achieved
Ministry of Environment, Forest and Climate Change (MoEFCC)	Accepts GRIHA pre-certification for fast-track environmental clearance
Small Industries Development Bank of India (SIDBI)	Concessional interest rate (0.5% reduction) on loans to buildings certified by accredited rating agencies, including GRIHA
State Bank of India (SBI)	Processing fee waiver on home loans for GRIHA-certified projects
State level initiatives	
Haryana	Additional FAR of up to 15% (3%, 6%, 9%, 12%, 15% for 1–5 star respectively)
NOIDA Authority (Uttar Pradesh)	Additional FAR for GRIHA 4- and 5-star projects
West Bengal / Kolkata Municipal Corporation	10% additional FAR for green buildings on GRIHA pre-certification
Pimpri Chinchwad MC (Maharashtra)	Up to 50% rebate on development premium + property tax rebate
Pune Municipal Corporation	Discounts on premium charges based on star rating
Rajasthan (Jaipur Development Authority)	Additional 5% FAR for 4 or 5 star projects on plots exceeding 5,000 sqm
Punjab	5% additional FAR free of charge for GRIHA or BEE certified buildings
Gujarat (Ahmedabad Urban Development Authority)	Incentives under Comprehensive Development Plan 2021
Andhra Pradesh	25% subsidy on fixed capital investment for MSMEs and large industries with green rating
Financial institutions	
SUNREF India (AFD via National Housing Bank)	Financing at competitive interest rates for eligible green housing projects certified under GRIHA Green

Authority	Incentive
	Homes rating; reimburses certification costs for qualifying projects
GRIHA 4 & 5 Star (SUNREF eligibility)	Specifically qualify for SUNREF concessional finance incentives

Key takeaways

- i. **Granular Building Classification:** GRIHA adopts a detailed classification framework that considers both functional distribution and habitable area. This approach ensures clearer differentiation of building types and usage patterns, while making usable space a central factor in sustainability assessment.
- ii. **Recognition of Existing and New Structures:** The framework distinguishes between newly constructed and existing buildings, acknowledging their unique challenges. Within these categories, further division by construction type and scale adds depth to the classification system, though additional parameters may be required for comprehensive sustainability assessment.
- iii. **Integration with National Codes:** GRIHA awards points for compliance with NBSC, ECSBC, and ENS parameters, reinforcing its role as a complementary framework that aligns with national regulatory codes and standards.
- iv. **Priority Areas in Rating:** Within its rating system, energy optimization receives the highest credit, followed by water management and sustainable material use. This prioritization reflects the framework's emphasis on operational efficiency and resource conservation. The framework aligns with national regulatory codes such as ECSBC and NBC while also incentivizing performance beyond minimum compliance benchmarks.
- v. **Limited Focus on Carbon Accounting:** Direct carbon accounting is minimal, with only five points allocated to embodied carbon disclosure. The relatively low weightage assigned to building material choices and life cycle impacts in both GRIHA and IGBC indicates limited integration of embodied carbon considerations, leaving scope for strengthening holistic sustainability assessment.
- vi. **Points for Use of Recycled Construction Materials:** The rating system awards points for recycled material usage as a practical alternative to complex life cycle analysis methodologies. This approach lowers adoption barriers for builders by using straightforward, measurable metrics rather than requiring comprehensive LCA declarations. However, this simplification may not ensure equivalent reductions in total embodied carbon, as buildings can achieve high scores through recycled materials alone without addressing life cycle impacts of other structural elements.
- vii. **Regulatory Incentives Without a Unified Financial Architecture:** GRIHA benefits from a range of FAR uplifts, premium rebates, fast-track clearances, and concessional finance through SIDBI and SUNREF India. However, these are fragmented across states with no single national institution having structured a green loan product around GRIHA certification

2.4.2 IGBC rating system

The Indian Green Building Council (IGBC), established by the Confederation of Indian Industry (CII), promotes sustainable building practices in India through its voluntary rating systems. IGBC ratings provide a framework for evaluating buildings on parameters such as energy efficiency, water conservation, waste management, use of sustainable materials, and indoor environmental quality. The system is designed to guide architects, developers, and policymakers in adopting environmentally responsible construction practices, thereby contributing to reduced resource consumption and enhanced occupant well-being.

The system provides more than 20 types of ratings, categorized by rating type and building typology, thereby facilitating the classification of approval criteria. Detailed benchmark-based criteria for commercial new buildings are presented in Annex H. Furthermore, a thematic weightage distribution for the same rating system is illustrated in Figure 7, highlighting that energy efficiency carries the highest weightage, followed by water conservation, indoor environmental quality, and site selection and planning.



Figure 9 Various ratings under IGBC banner

Table 5 Rating based on building functions under IGBC

IGBC GREEN Residential	
1. IGBC Green Homes	2. IGBC Green Residential Societies
3. IGBC Green Affordable Housing	4. IGBC NEST
IGBC GREEN Commercial	
IGBC Green new Buildings	IGBC Green existing Buildings
IGBC Health & Well being	IGBC green Healthcare

IGBC Data Center	IGBC green Service Building
IGBC Green Resorts	IGBC Green Interiors
IGBC Green Factory Buildings	IGBC Green Logistics Parks and Warehouses
IGBC GREEN Built Environment	
IGBC Green Townships	IGBC green Cities
IGBC Green existing cities	IGBC Green Hill habitat
IGBC Green Railway Stations	IGBC Green High Speed Rail
IGBC Green Landscapes	IGBC Green Villages
IGBC Green mass Rapid transit system	IGBC Green Existing Mass Rapid Transit System
IGBC Net Zero	
IGBC Net Zero Water Buildings	IGBC Net Zero Waste Rating System
IGBC Net Zero Carbon Guidelines	
Other Building Typologies	
IGBC Green Schools	IGBC Green Campus
IGBC Green Place of Worship	

THEMATIC WEIGHTAGE UNDER IGBC RATING

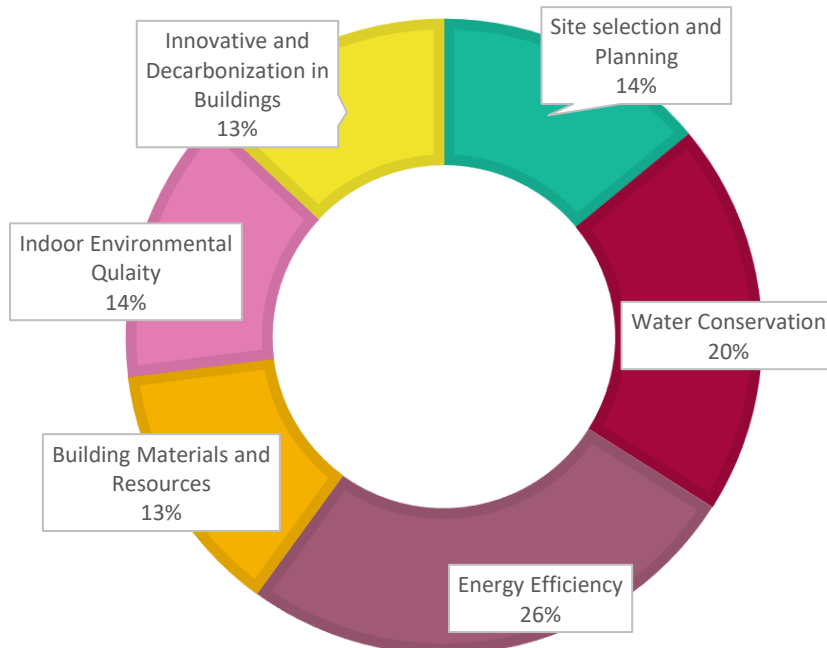


Figure 10 thematic weightage of points under IGBC new commercial buildings ratings

Incentives linked with IGBC

Table 6 Incentives linked to IGBC rating (Source :IGBC)

Authority	Incentive
Central Government Incentives	
Ministry of Environment, Forest and Climate Change (MoEFCC)	Accepts IGBC pre-certification for fast-track environmental clearance
Small Industries Development Bank of India (SIDBI)	All IGBC-rated green building projects in the MSME sector are eligible for financial assistance at concessional rates from SIDBI
State level initiatives	
Punjab	Additional 5%, 7.5%, and 10% FAR free of charge with 100% exemption of building scrutiny fee for Silver, Gold, and Platinum respectively
Haryana	Additional FAR of 5% to 15% for Gold or Platinum certified projects
West Bengal (KMC)	Additional 10% FAR for projects pre-certified or provisionally certified as Gold or above
West Bengal (NKDA)	Additional 10% FAR for Gold or above pre-certification
Andhra Pradesh	25% subsidy on total fixed capital investment (excluding land) for MSME and large industries obtaining IGBC green rating
Telangana	Discounts on Impact Fees for multi-storied buildings (above 15m) rated under IGBC; 20% reduction on stamp duty surcharge if sold within three years of Occupancy Certificate
Rajasthan	MSME enterprises eligible for 50% reimbursement of plant costs (excluding civil work) for adopting green building measures under IGBC, up to ₹50 lakh, one-time
Gujarat (Tourism)	50% reimbursement of IGBC certification fee up to ₹10 lakh for hotels and wellness resorts; IGBC industrial buildings eligible for up to 50% of consulting charges up to ₹2.5 lakh; Climate Change Department reimburses up to ₹3 lakh or 50% of IGBC certification fee whichever is lesser
Assam	Additional FAR of 3%, 6%, and 9% for Silver, Gold, and Platinum respectively

Key Takeaways

- i. **Energy-Centric Credit Distribution with Limited Carbon Accounting:** Energy optimization receives the highest credit allocation within IGBC ratings, followed by water management and sustainable site development. Direct carbon accounting receives minimal emphasis, with only limited points allocated to embodied carbon considerations. The relatively low weightage assigned to material selection and construction impacts in both GRIHA and IGBC indicates limited integration of embodied carbon considerations, leaving scope for strengthening holistic sustainability assessment.
- ii. **Integration with National Codes:** IGBC awards points for compliance with ECSBC, ENS, and NBC parameters, reinforcing its role as a complementary framework that aligns with national regulatory codes and standards. However, this integration does not extend to mandatory whole-life carbon assessment requirements.
- iii. **Building Classification Without Contextual Parameters:** IGBC classifies buildings based on functional use and project scale, enabling differentiated assessment criteria. However, classification does not account for critical parameters such as climate zone variations, density (FAR, occupancy), or construction type (new vs. retrofit)—attributes essential for context-sensitive carbon benchmarking.
- iv. **Voluntary Whole Life Cycle Analysis:** IGBC includes lifecycle assessment as a voluntary credit opportunity through Environmental Product Declarations (EPDs), material transparency, and use of low-carbon materials.
- v. **Broad Incentive Coverage but Structurally Fragmented:** IGBC attracts incentives across states — including FAR uplifts, stamp duty reductions, MSME capital subsidies, certification fee reimbursements, and SUNREF India refinancing for Gold and Platinum Green Homes projects. Coverage is particularly strong in hospitality. Incentives remain state-specific and project-type specific rather than a coherent national green finance framework, limiting their scalability.

2.4.3 LEED building rating

LEED (Leadership in Energy and Environmental Design) is one of the most widely adopted international green building rating systems, developed and administered by the U.S. Green Building Council (USGBC). In India, LEED certification is extensively used in the commercial and institutional building sectors, particularly among multinational corporations, IT parks, and large-scale commercial developments seeking globally recognized sustainability credentials.

BD+C — Building Design and Construction			New construction & major renovation
New Construction Offices, retail, institutional, mixed-use, data centres, warehouses	Core and Shell Speculative commercial; developer controls base building, tenant fit-out excluded	Schools K–12 academic buildings and campuses	
Healthcare Hospitals, clinics, inpatient/outpatient facilities	Hospitality Hotels, resorts, serviced accommodation	Data Centres / Retail / Warehouses Specialist adaptations under BD+C framework	
ID+C — Interior Design and Construction			Tenant fit-out and interior renovation
Commercial Interiors Office fit-outs, tenant spaces in commercial buildings	Retail Interior fit-out of retail spaces and stores	Hospitality Interior renovation of hotels and restaurants	
O+M — Operations and Maintenance			Existing buildings in operation
Existing Buildings Any occupied commercial or institutional building seeking performance certification	Schools Operational performance of existing K–12 facilities	Hospitality / Retail Operational certification for hotels and retail buildings	
Residential BD+C Homes and multifamily housing		ND — Neighbourhood Development Districts, communities, urban areas	
Single Family Homes — detached/attached, up to 4 units Multifamily Homes — 2+ units, any number of stories Multifamily Core and Shell — exterior shell only, fit-out incomplete		Plan — master planned developments at design stage Built Project — completed neighbourhood developments	

Figure 11 Various Rating systems under LEED rating

The rating system evaluates buildings across seven credit categories: Integrative Process, Planning and Assessments (IP); Location and Transportation (LT); Sustainable Sites (SS); Water Efficiency (WE); Energy and Atmosphere (EA); Materials and Resources (MR); and Indoor Environmental Quality (EQ). A Project Priorities (PR) category provides supplementary credits. The total possible points are 110 for both New Construction and Core and Shell pathways. Energy and Atmosphere carries the highest point allocation (33 points for New Construction), followed by Materials and Resources (18 points) and Location and Transportation (15 points), as illustrated in Figure 12.

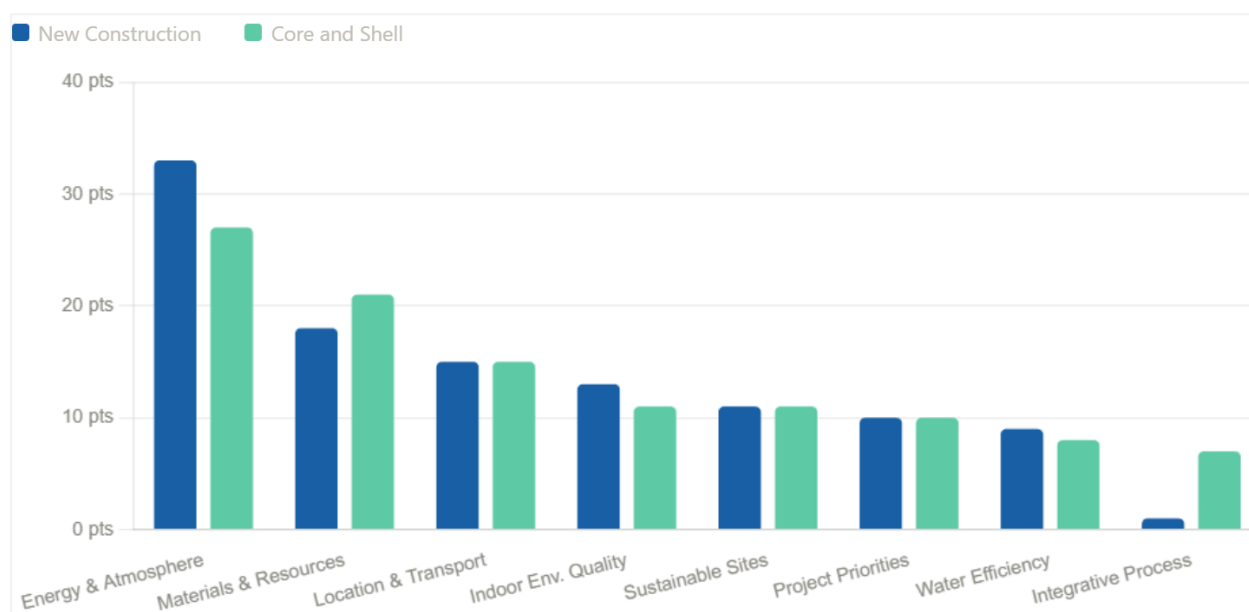


Figure 12 Thematic credit weightage under LEED v5 BD+C rating

LEED v5 awards certification at four levels: Certified (40–49 points), Silver (50–59 points), Gold (60–79 points), and Platinum (80+ points). Platinum certification additionally carries mandatory performance requirements, including full electrification, a minimum 20% reduction in embodied carbon, and 100% renewable energy sourcing. LEED BD+C covers two primary project pathways: New Construction and Core and Shell, as summarised in Figure 11. Both pathways cover 110 total possible points. Platinum certification under either pathway carries additional mandatory requirements: full electrification credits, 20% embodied carbon reduction, and 100% renewable energy sourcing.

Key Takeaways

- i. **Strong Emphasis on Operational and Embodied Carbon Accounting** LEED v5 mandates both an Operational Carbon Projection and Decarbonization Plan and whole-building embodied carbon quantification as prerequisites — making carbon accounting mandatory rather than optional, unlike GRIHA and IGBC.
- ii. **Electrification as a Core Decarbonisation Strategy** Electrification is a dedicated credit category, and mandatory at Platinum level. This aligns with ECSBC 2024 directions, though India's mixed fuel-use context across climate zones limits its immediate applicability.
- iii. **Climate Resilience as a Mandatory Prerequisite** A Climate Resilience Assessment covering heat, flooding, and drought risks is required for all projects — a useful model for embedding climate adaptation criteria into India's taxonomy classification framework.
- iv. **Limited Contextualisation for Indian Climate Zones** Performance thresholds reference ASHRAE and international standards rather than NBC or ECBC baselines, meaning a LEED-certified building in India may not meet locally defined efficiency benchmarks. Direct comparability with GRIHA and IGBC is therefore limited.

- v. **Indirect Integration with National Codes** Unlike GRIHA and IGBC, LEED v5 does not award credits for compliance with ECSBC, ENS, or NBC, requiring additional interpretation to align with India's regulatory framework.
- vi. **Strong Embodied Carbon Credit Structure but Limited Local LCA Data** Reduce Embodied Carbon credit (up to 10 points) uses LCA methodology and EPDs — a credible international approach — but its applicability in India is constrained by the limited availability of LCA data for local construction materials.
- vii. **Building Classification Without Climate or Density Parameters** LEED classifies projects only by construction type (New Construction vs. Core and Shell), with no differentiation by climate zone, FAR, occupancy, or building scale — limiting its direct use in India's context-sensitive taxonomy without additional adaptation.

2.4.4 Edge rating

EDGE (Excellence in Design for Greater Efficiencies) is a green building certification system developed by the International Finance Corporation (IFC), a member of the World Bank Group, specifically designed for emerging markets. Unlike GRIHA, IGBC, and LEED — which use complex multi-criteria credit frameworks — EDGE operates on a simple pass/fail model with a single quantifiable threshold: a minimum 20% reduction in energy use, water use, and embodied energy in materials, each measured against a locally benchmarked standard building. This simplicity is deliberate; EDGE was designed to be fast, affordable, and scalable for markets like India where green building adoption has historically been constrained by the cost and complexity of certification processes.

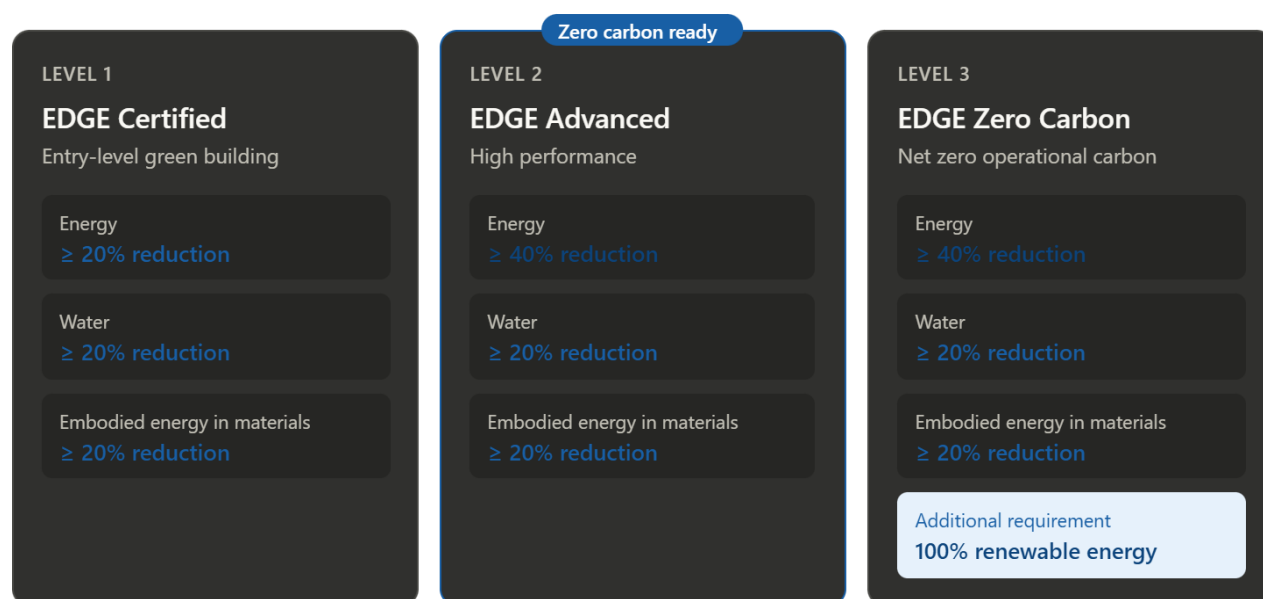


Figure 13 EDGE certification levels and performance thresholds (Source: GBCI/IFC EDGE v3)

In India, GBCI (Green Business Certification Inc.) is the exclusive certification provider for all EDGE projects, operating under a formal arrangement with IFC. EDGE certification in India is available across all major building typologies — residential (homes and apartments), commercial offices, hotels and hospitality, healthcare facilities, and retail — making it one of the broadest-coverage

systems in terms of typology eligibility. The EDGE App, a free web-based software tool, allows developers and design teams to model resource savings and identify the most cost-effective combination of design measures before committing to certification. Registration for projects in India is fixed at ₹23,000, with certification fees calculated on built-up area, making it significantly more affordable than GRIHA or IGBC for smaller projects.

Table 7 Building Typologies eligible under EDGE certification

Typology	Applicable sub-types
Residential	Homes, apartments, multifamily housing
Commercial offices	Offices, business parks, mixed-use commercial
Hospitality	Hotels, resorts, serviced apartments
Healthcare	Hospitals (public, private, multi-specialty), clinics, diagnostic centres, eye and dental care
Retail	Shopping malls, department stores, supermarkets, big box retail

Key takeaways

- i. **Simple, Quantifiable Pass/Fail Framework** Unlike credit-based systems, EDGE operates on a single binary threshold – 20% reduction in energy, water, and embodied energy in materials against a locally benchmarked baseline. This makes performance outcomes directly measurable and well-suited to taxonomy classification.
- ii. **Local Baseline Benchmarking** EDGE benchmarks against a locally defined standard building, accounting for local climate and construction norms. However, the baseline is set at conventional construction practice rather than ECSBC compliance, meaning EDGE certification and regulatory code compliance need to be mapped independently for taxonomy alignment.
- iii. **Financial Linkage as a Distinguishing Feature** EDGE is the only rating system reviewed that was explicitly designed as a financial instrument alongside a technical standard. IFC's active linkage of EDGE certification to green mortgages, construction finance, and impact investment vehicles – including the \$1 billion H-DREAM Fund – creates a direct and operational pathway from building performance to capital markets.
- iv. **Strong Fit for Affordable and Residential Housing** EDGE has been explicitly positioned for India's affordable and mid-income housing market, a segment largely underserved by GRIHA and IGBC. Given that India's housing deficit is concentrated in this segment, EDGE offers the taxonomy a credible pathway to cover building stock that would otherwise fall outside established green certification frameworks.
- v. **Limited Embodied Carbon Scope** EDGE covers embodied energy in materials through a simplified selection tool rather than full LCA or EPD-based methodology. This limits its applicability for the taxonomy's higher embodied carbon performance tiers.
- vi. **No Integration with Indian National Codes** EDGE does not reference ECSBC, ENS, or NBC compliance criteria. A building could be EDGE-certified while remaining below ECSBC thresholds in some areas, and vice versa – making independent mapping necessary rather than assumed equivalence.

2.5 Indian Carbon Markets

The Government of India has proposed establishing a Carbon Credit Trading Scheme (CCTS) to operationalize the Indian Carbon Market (ICM). The primary objective is to support India's

Nationally Determined Contributions (NDCs) under the Paris Agreement by enabling both compliance-based mechanisms for obligated entities and voluntary participation from non-obligated sectors. A secondary goal is to stimulate demand for surplus Energy Saving Certificates (ESCs) generated under the Perform, Achieve and Trade (PAT) program, thereby enhancing market liquidity and incentivizing wider adoption of energy efficiency and emission reduction measures. Indian industries bring substantial experience from compliance-based mechanisms—such as PAT and Renewable Energy Certificates (RECs)—as well as voluntary offset programs like the Clean Development Mechanism (CDM).

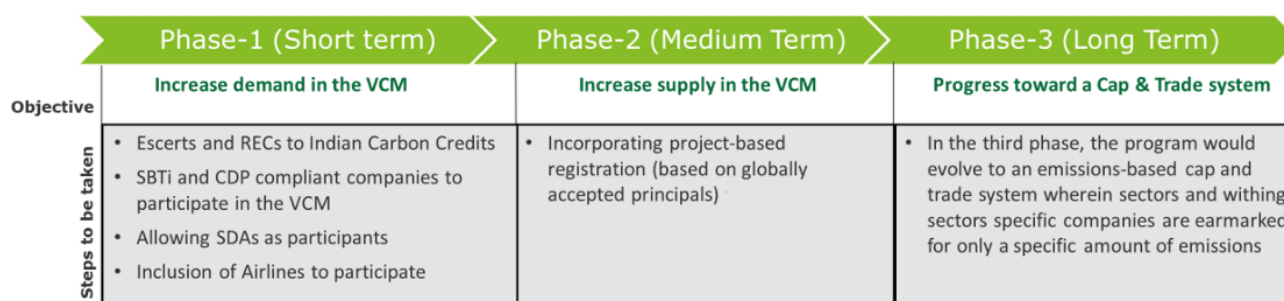


Figure 14 Phase-wise implementation of the Carbon Credits Scheme for India

India's Carbon Credit Trading Scheme operates under a multi-tiered institutional structure: National Steering Committee for Indian Carbon Market (NSCICM), Chaired by the Secretary, Ministry of Power, and co-chaired by the Secretary, Ministry of Environment, Forest and Climate Change, NSCICM includes representatives from key ministries and agencies. Its functions include:

- Recommend procedures, rules, and emission targets to the Bureau of Energy Efficiency (BEE)
- Advise on international trading guidelines and certificate issuance
- Monitor market operations and establish supporting committees
- Undertake additional functions as directed by the Central Government

Bureau of energy efficiency (BEE) in the scheme administrator and responsible for the following

- Identifying sectors and setting emission trajectories
- Accrediting verification agencies and issuing Carbon Credit Certificates (CCCs)
- Developing market stability mechanisms, data protocols, and IT infrastructure
- Conducting capacity-building and maintaining secure databases

Grid Controller of India (GCI) will manage the ICM registry, including

- Entity registration and credit accounting
- Facilitating transactions and maintaining the national meta-registry

The Central Electricity Regulatory Commission (CERC) will regulate the trading through

- Approving exchange regulations
- Overseeing market conduct and enforcing corrective actions

Accredited Carbon Verification Agencies (ACVA) -ACVAs validate and verify projects in line with BEE accreditation procedures. There will be 2 types of compliance mechanisms for the systems as follows:

- **Compliance Mechanism:** Targets energy-intensive sectors with mandatory GHG emission intensity limits. Entities exceeding targets earn Carbon Credit Certificates (CCCs); those falling short must purchase or surrender equivalent credits. The PAT scheme will transition into this mechanism, initially covering nine sectors including cement, steel, and fertilisers.
 - **Offset Mechanism:** Allows non-obligated entities to register voluntary emission reduction projects for CCC issuance. Projects follow a defined cycle and eligibility criteria. Sectors will be phased in, starting with energy, agriculture, waste, forestry, and transport, followed by construction, fugitive emissions, solvent use, and carbon capture.
- **Phase I: Energy, Industries, Agriculture, Waste handling and disposal, Forestry, Transport**
 - **Phase II: Fugitive emissions, Construction, Solvent use, Carbon capture, utilization and storage of CO₂ and other removals**

Significantly, the construction sector is included in Phase II, positioning buildings for integration into India's carbon trading framework in the medium term. Under the scheme the government has released a gazette for the GHG emissions targets for the cement industry on APRIL 17, 2025⁴

Key takeaways

I. Verification and Accreditation Still Under Development

The role of Accredited Carbon Verification Agencies (ACVAs) is defined, but eligibility criteria and accreditation procedures are still pending finalization. This may delay project registration and credit issuance, especially under the offset mechanism.

II. Strong Institutional Architecture, But Fragmented Roles

The framework establishes a multi-agency structure involving BEE (administrator), NSICM (steering), GCI (registry), and CERC (regulator). However, coordination mechanisms between these bodies remain unclear, risking delays and inefficiencies in implementation.

III. Digital Infrastructure and Meta-Registry Still Evolving

GCI is designated as the meta-registry operator, but technical specifications, interoperability with global registries, and data transparency protocols are not yet disclosed.

IV. Implications for the building sector

With construction included in Phase II of the Carbon Credit Trading Scheme, establishing standardised operational and embodied carbon benchmarks through a building taxonomy will be essential to enable credible project-level crediting.

⁴https://beeindia.gov.in/sites/default/files/Greenhouse_Gases_Emission_Intensity_Target_Rules_2025.pdf

2.6 Conclusion

The review of India's current national frameworks — spanning the Draft Climate Finance Taxonomy, National Building Code, ECSBC 2024, ENS 2024, GRIHA, IGBC, LEED, EDGE, and the Carbon Credit Trading Scheme — reveals a rich but fragmented policy landscape. Each instrument contributes meaningfully to building sustainability, yet they operate largely in parallel, with limited cross-referencing and no common performance language that ties regulatory compliance, green certification, and climate finance together. Critically, none of the frameworks reviewed provides a complete, India-contextualised whole-life carbon metric that accounts for both operational and embodied carbon across building typologies and climate zones — the foundational requirement for a credible building taxonomy.

Several structural gaps are consistent across frameworks: the absence of mandatory embodied carbon accounting, limited differentiation by climate zone and building density, voluntary rather than mandatory adoption pathways, and a lack of verified post-occupancy performance data. At the same time, the frameworks collectively offer significant assets that the taxonomy can build on — GRIHA and IGBC's alignment with national codes and established certification infrastructure, LEED v5's advanced carbon accounting methodology, EDGE's financial linkage and local baseline benchmarking, and the CCTS's emerging verification architecture.

Defining what constitutes a low-carbon building in India cannot be adapted directly from international standards, as performance thresholds are inherently dependent on local conditions — climate zone, grid emission factors, construction typology, and material supply chains. The taxonomy must therefore use these reviewed frameworks as inputs rather than benchmarks, drawing on the KPIs identified across them and grounding performance thresholds in data collected through tools such as BEAT. This foundation sets the basis for the building classification system and performance tier structure developed in the subsequent sections of this report.

3. Adapting Building Taxonomy for India

Building upon the policy landscape analysed in Section 3, this section translates key findings into a practical framework for adapting a building taxonomy to India's context.

The taxonomy development presented here is structured around three interconnected workstreams. First, a building classification system is proposed that organises India's diverse building stock along four critical parameters – location and climate zone, construction typology, building function, and density – ensuring that performance expectations are context-sensitive rather than applied uniformly. Second, Key Performance Indicators are identified from the reviewed national frameworks, providing the measurable metrics through which building carbon performance can be assessed and compared. Third, a way forward is outlined for taxonomy operationalisation, drawing from the Building Taxonomy Blueprint developed under the HEAT framework and adapted to India's specific institutional landscape, data infrastructure, and policy priorities. Together, these workstreams lay the foundation for a red-amber-green performance classification system that can accommodate existing certification frameworks while establishing clear thresholds for non-compliant, transitional, and best practice buildings across India's building sector.

3.1 Developing a Building Classification System

Developing a robust classification system for buildings is essential to ensure accurate benchmarking, effective carbon accounting, and consistent sustainability assessments. Such a system provides the foundation for defining appropriate performance thresholds and incorporating critical parameters such as typology, functional usage, density, and external environmental factors, which together determine emission thresholds and performance standards. In preparing this framework, existing documents—including the Energy Conservation and Sustainable Building Code (ECSBC) and established green rating systems such as GRIHA and IGBC—were carefully studied. These references offered valuable insights into current practices and gaps, enabling the development of a more comprehensive and structured categorization methodology tailored to diverse building contexts.

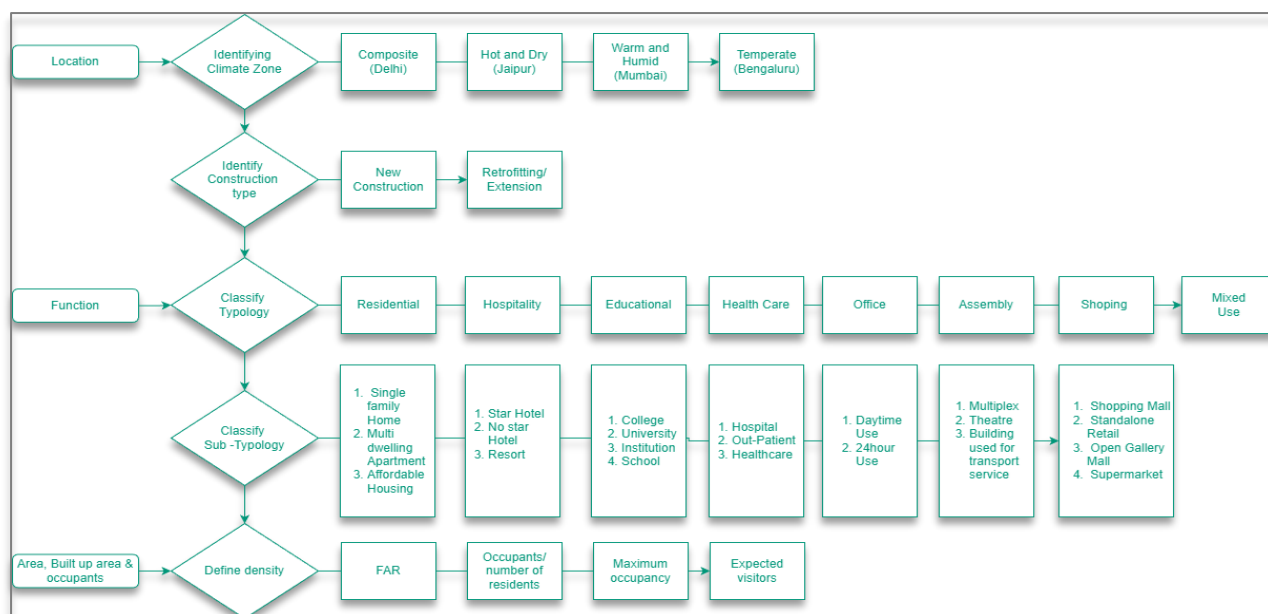


Figure 15 The Proposed Building Classification and identification for the taxonomy

To accurately identify benchmarking for whole life carbon of a building, the following key parameters were identified:

- **Location and Climate Zone:** In accordance with the National Building Code (NBC) and the Energy Conservation Building Code (ECBC), India is divided into five primary climate zones. Correctly identifying the location ensures that benchmarking reflects the climatic conditions relevant to the building.

- **Construction Typology:** Benchmarking must distinguish between new construction and retrofitting projects. Performance expectations and evaluation criteria differ significantly depending on whether the building is newly constructed or an existing structure undergoing upgrades.

- **Building Typology and Sub-Typology:** Classification by function is essential, as occupancy patterns and energy consumption vary across different building types. Identifying both the typology and sub-typology provides a more precise basis for performance assessment.

- **Density Parameters:** Density should be assessed in terms of Floor Area Ratio (FAR), occupancy levels, built-up area, and service demand intensity. Differentiating between high-rise and low-rise developments, as well as high- and low-density typologies, is critical for calibrating carbon intensity benchmarks and infrastructure demand projections.

Based on observations from national-level documents, this classification methodology was proposed to strengthen the benchmarking process. It provides a more accurate representation of the building's life-cycle performance and supports the development of robust, context-specific sustainability benchmarks.

Together, these four parameters — climate zone, construction typology, building function, and density — form a classification matrix that no existing Indian framework currently applies in combination. ECSBC classifies by energy load, GRIHA and IGBC by function and scale, and the NBC by occupancy type, but none integrates all four dimensions into a unified baseline. This matters because a high-rise commercial building in a composite climate zone carries a fundamentally different carbon profile than a low-rise residential block in a warm humid zone and applying uniform performance thresholds across them produces benchmarks that are neither credible nor actionable. By anchoring the taxonomy to this four-parameter classification system, performance thresholds can be made context-sensitive across India's diverse building stock — enabling meaningful differentiation between red, amber, and green performance tiers, supporting typology-specific carbon intensity baselines, and providing the structured foundation on which the KPIs identified in the following section can be accurately applied.

3.2 Establishing Key Performance Indicators (KPIs)

Identifying Key Performance Indicators (KPIs) with consideration for local context is essential to ensure that evaluation metrics reflect the terminology, regulatory frameworks, and stakeholder understanding specific to India's building sector. Without locally grounded KPIs, buildings risk being assessed against international benchmarks that do not account for India's climate diversity, grid emission factors, or material supply chains — creating transition risk for investors and lenders who may unknowingly finance assets that are misaligned with India's evolving regulatory and carbon market requirements.

All KPIs were derived from the policy documents reviewed in Section 3 — spanning the Climate Finance Taxonomy, NBC, ECSBC, ENS, GRIHA, IGBC, and the CCTS — ensuring that performance metrics are calibrated against India's existing regulatory thresholds rather than imposed from external frameworks.

It is important to clarify how this differs from existing green building rating systems such as GRIHA, IGBC, LEED, and EDGE. Those systems award certification based on design-stage compliance across a broad range of sustainability criteria, with points allocated across energy, water, materials, and indoor quality. The taxonomy's KPI framework, by contrast, is narrowly focused on carbon performance — operational and embodied — and is designed to produce a binary determination of taxonomy alignment rather than a graduated certification score. Where a green building rating answers "how sustainable is this building overall," the taxonomy answers "does this building meet the performance threshold required for climate finance eligibility." The two are complementary: existing rating certifications can be mapped to taxonomy performance tiers, but the taxonomy establishes a performance floor that is certification-neutral and applicable regardless of which rating system a project has used.

These KPIs underpin a red–amber–green performance classification system that serves as both a regulatory compliance tool and a financial screening mechanism for identifying taxonomy-aligned assets — enabling preferential lending qualification, green bond eligibility assessment, and carbon market readiness to be determined from a single, consistent performance framework.

Table 8 Enlisting Identified KPIs from the study

Document Name	KPIs identified (reported in order of weightage)					
NBC (Part 11 - Sustainability)	Annual energy use EPI [kWh/m2/year] reduction	Whole Building Life Cycle Assessment (kgCO2e/sq.m)				
ECSBC	MEPI(Modelled energy performance intensity)	PES(percentage energy savings)	Embodied Carbon (kgCO ₂ -eq/Sqm) The reporting of the embodied carbon is limited to the A1, A2 and A3 life stage as defined in EN 15978. (Note: Reporting limited to upfront embodied carbon stages A1-A3; excludes use-phase and end-of-life impacts.)			
ENS	Water Demand reduction and treated reuse	OPENABLE WINDOW-TO-FLOOR AREA RATIO, Window to wall Ratio and VLT	RESIDENTIAL ENVELOPE TRANSMITTANCE VALUE (RETV)			
GRIHA	Annual Energy use EPI [kWh/m2/year] Reduction	Water Demand Reduction and treated reuse	UHIE reduction through reduction in hard paved surfaces	Recycled or EPD declared material use especially for cement	LCC (life cycle cost) analysis and GHG emissions reduction through Life Cycle Assessment (LCA).	
IGBC	Annual Energy use EPI [kWh/m2/year] Reduction	Water Demand Reduction and treated reuse	UHIE reduction through reduction in hard paved surfaces	Maintaining indoor environmental quality	Whole Building Life Cycle Analysis (ISO 14040)	Retain ≥50% of structural elements (by area) OR ≥25% of non-structural/interior elements.

3.3 Way Forward for Adopting Building Taxonomy for India

Drawing from the Building Taxonomy Blueprint for ALCBT Countries shared by HEAT and aligned with sectoral observations detailed in this report, the following framework outlines India's pathway for taxonomy adoption. This approach leverages existing institutional capacity (BEE, BIS, MoHUA, and the Ministry of Finance) while aligning regulatory compliance, financial classification, and carbon market integration.

Following are the observations for next steps for India's adoption of the aligned structure for taxonomy provided by HEAT:

3.3.1 Defining Baseline Values and Performance Thresholds

While KPIs have been identified through the review of national frameworks (Section 2), India currently lacks systematically defined baseline values and performance thresholds necessary for taxonomy operationalization. Without credible baselines derived from actual building performance data, the taxonomy cannot establish context-sensitive benchmarks or differentiate between compliant and non-compliant construction across diverse typologies and climate zones.

- Extract baseline performance data from BEAT database, NBC sustainability metrics, and GRIHA/IGBC certified project databases based on identified KPIs
- Calculate typology-specific carbon intensity baselines ($\text{kgCO}_2/\text{m}^2/\text{year}$) for operational and embodied emissions across all five climate zones
- Develop emission factors for commonly used construction materials based on regional data
- Establish benchmark thresholds that define cut-off criteria within the taxonomy framework, accounting for functional characteristics, occupancy patterns, climate zone variations, and construction type distinctions (new vs. retrofit, high-rise vs. low-rise)
- Compile lifecycle inventory data from EPDs and Bills of Quantities (BOQs) for Indian construction materials, systems, and assemblies and define baseline, target, and aspirational WLCA ranges for each building typology
- Ensure baselines are context-sensitive and adaptable to local conditions while maintaining national consistency

3.3.2 Performance Classification System

Metrics identified from national regulatory documents must be systematically categorized within a red-yellow-green performance classification system for the identified buildings. This structure enables clear differentiation between non-compliant, intermediate, and best practice standards across diverse building typologies. Such classification ensures transparency and provides stakeholders with an intuitive framework for evaluating compliance and performance. Mapping voluntary rating systems—including GRIHA, IGBC, LEED, EDGE, and equivalent frameworks—into this structure allows for immediate applicability while ensuring that taxonomy performance tiers remain certification-neutral and performance-based.

- Define criteria for Green (fully aligned/best practice), Amber (transitioning/intermediate), and Red (non-aligned/non-compliant) categories based on operational carbon (MEPI/PES) and embodied carbon metrics relative to established baselines
- Map GRIHA, IGBC, LEED, EDGE and ECSBC ratings to corresponding performance red-yellow-green tiers
- Establish threshold values derived from empirical datasets (BEAT data, national repositories, certified project databases) and aligned with India's carbon market emission trajectories.
- Create mechanism for periodic updates based on changes in rating systems, baseline data evolution, or national targets
- Validate classification logic through stakeholder consultation with industry bodies and building authorities
- Ensure classification accounts for climate zone variations and construction type distinctions

3.3.3 Implementation Framework

India has strong institutional anchors (BEE, MoHUA, state urban bodies) but lacks coordinated deployment and digital infrastructure for transitioning into low carbon buildings. Voluntary green building programs offer outreach capacity and existing databases that can accelerate adoption of this building taxonomy. The taxonomy must be structured to support financial decision-making by banks, NBFCs, DFIs, and capital market actors. This requires alignment with India's Climate Finance Taxonomy, disclosure norms, and the Indian Carbon Market to enable risk classification, preferential lending, green bond eligibility, and standardised climate-related reporting.

The following points to be identified for implementation Integrate digital platforms for data submission and tracking

- Identify a central coordinating authority for maintaining the database and adoption of the building taxonomy at central government
- Develop digital platforms for centralized data submission, performance tracking, and verification using existing tools (BEAT, MRV frameworks)
- Define standardized data fields, reporting formats, and verification protocols compatible with current systems
- Create implementation checklists and conduct stakeholder consultations with practitioners, building officials, and financial analysts
- Establish enforcement mechanisms leveraging existing institutional structures identified in stakeholder mapping
- Integrate taxonomy methodology with ECSBC compliance systems and National Carbon Market mechanisms
- Extend the role of State Designated Agencies under ECSBC implementation for enhanced data collection and regional coordination

By integrating classification logic, calibrated baselines, performance thresholds, and institutional coordination, the proposed building taxonomy can function as a unifying architecture that bridges regulatory compliance, climate finance, and carbon market participation. This integration is essential to ensure that India's building sector transitions in a manner that is environmentally credible, financially robust, and aligned with national net-zero commitments.

4. Operationalizing the Taxonomy: Institutional and Finance Alignment

India's building taxonomy will only deliver its intended impact if it is embedded within the country's financial architecture and governed through a clear institutional mandate. The frameworks reviewed in Section 3 of this report collectively demonstrate that India has the policy intent, the regulatory instruments, and the emerging market infrastructure to support a low-carbon building transition – but these elements currently operate in silos. Section 4 identified the next steps to translate those findings into a building classification system, KPI framework, and red-amber-green performance tiers. This section outlines how the taxonomy can serve as the connective tissue between building performance, climate finance, and carbon markets, and proposes the institutional arrangements necessary to make that connection operational and durable.

4.1 Governance anchor

The most significant structural risk to the taxonomy's adoption & implementation is the fragmentation of institutional responsibility across the agencies that govern India's building sector. As the framework review in Section 3 showed, no single body currently has the mandate, technical capacity, and cross-sectoral authority to own a building taxonomy. BEE administers ECSBC and leads the carbon market. BIS owns the National Building Code. MoHUA governs urban development and housing policy. MoF leads the Climate Finance Taxonomy. SEBI regulates green bonds. RBI governs lending norms. Each institution holds a piece of the puzzle, but none holds the whole.

This report recommends establishing a **Building Taxonomy Technical Secretariat anchored within BEE under the Ministry of Power**, with a formal coordination mandate linking it to MoF, MoHUA, BIS, SEBI, and RBI. BEE is the natural anchor for three reasons: it already administers ECSBC 2024 and ENS 2024; it is the designated CCTS administrator, making it the logical interface between building performance and carbon markets; and its existing State Designated Agency network – established under ECSBC implementation – provides a ready-made subnational channel for data collection, compliance monitoring, and regional coordination.

The Technical Secretariat's core functions would include maintaining and periodically updating the taxonomy's performance thresholds; coordinating the mapping of GRIHA, IGBC, LEED, EDGE, and ECSBC certifications to taxonomy performance tiers; managing the building performance data repository; providing technical guidance to financial regulators on green building eligibility criteria; and liaising with the CCTS governance structure on building sector carbon credit methodologies. A formal inter-ministerial coordination mechanism – modelled on the National Steering Committee for the Indian Carbon Market – should be established to ensure that taxonomy updates are

consistently reflected across the financial, regulatory, and urban governance systems that depend on it.

Three international precedents offer direct lessons. The EU Taxonomy shows that thresholds must be subject to periodic review with transparent stakeholder consultation – when the European Commission diverged from its own Technical Expert Group's recommended buildings threshold, it created immediate uncertainty for green bond issuers. The Singapore-Asia Taxonomy, developed by MAS's Green Finance Industry Taskforce with banks and asset managers as co-leads, achieved rapid market adoption because thresholds were calibrated against what financial institutions could

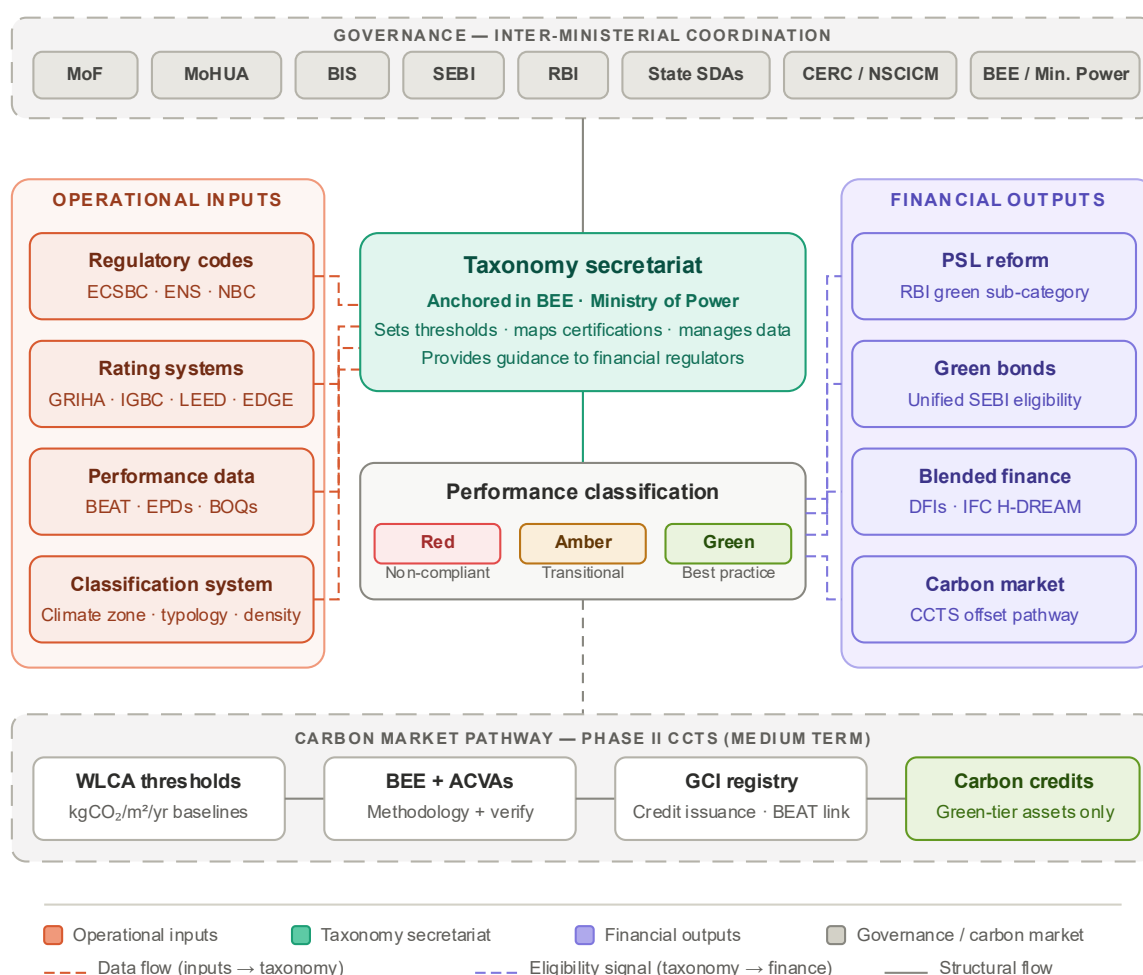


Figure 16 Suggested Coordination under the Building taxonomy framework

operationalise from day one – India should embed RBI, SEBI, and domestic lenders in threshold-setting from the outset, not treat them as downstream recipients. The ASEAN Taxonomy Board's staged versioning approach – launching with defined activities and expanding through successive numbered versions – maps directly to India's situation, where the taxonomy can launch covering new construction under ECSBC and ENS and expand to retrofits and embodied carbon in subsequent versions.

4.2 Finance use case

The taxonomy's most immediate application is as a screening and eligibility tool within India's financial system. PSL guidelines, green bond frameworks, blended finance vehicles, and the carbon market each currently require separate eligibility definitions for green buildings, perpetuating the fragmentation identified in Section 3 and creating transition risk for lenders and investors financing assets whose carbon performance cannot be verified against a national standard. The taxonomy resolves this by providing a single, certification-neutral performance reference that all mechanisms can draw on simultaneously.

- i. **Priority sector lending reform:** RBI's PSL guidelines include affordable housing as an eligible category but do not distinguish between conventional and green construction. The taxonomy provides the technical basis for a green sub-category, defining performance thresholds a building must meet to qualify for preferential lending rates. SUNREF India already uses GRIHA and IGBC ratings as loan qualification criteria through NHB's refinancing operations. The taxonomy would generalise this across all rating systems and establish a consistent national performance floor applicable to all lenders.
- ii. **Green bond and ESG debt verification:** India's cumulative GSS+ debt issuance reached USD 55.9 billion by December 2024, yet green building eligibility continues to rely on individual rating system certifications without a common performance floor. Critically, India's sovereign green bond framework does not yet include buildings as an eligible use-of-proceeds category, making framework expansion an immediate priority alongside performance standard-setting. For the corporate market, the taxonomy provides a unified screening criterion aligned with the Climate Bonds Initiative's Buildings Criteria and supports SEBI's June 2025 ESG debt securities framework.
- iii. **Sustainability-linked instruments:** SEBI's June 2025 ESG debt framework introduces sustainability-linked bonds, which tie financial terms to predetermined performance targets rather than use of proceeds. The taxonomy's KPIs provide the verified, nationally grounded metrics that sustainability-linked instruments in the building sector require. Without taxonomy-defined thresholds, such instruments cannot be structured with credible, measurable targets.
- iv. **Green deposits:** RBI's Green Deposits Framework, introduced in April 2023, allows regulated entities to accept deposits earmarked for green financing. The taxonomy provides the building-sector eligibility criteria currently absent from the framework, without which capital mobilised through this channel cannot be reliably directed toward the building sector at scale.
- v. **Blended finance structuring:** Green construction carries a cost premium that India's affordable housing market has not yet fully absorbed. The taxonomy's red-amber-green classification enables tiered blended finance vehicles. IFC's H-DREAM Fund, launched in August 2025 with a USD 1 billion target corpus using EDGE certification as its performance criterion, provides a working template the taxonomy can generalise across rating systems.
- vi. **Climate risk disclosure:** RBI's draft Disclosure Framework on Climate-related Financial Risks, published in 2024 with implementation set for 2025-26, requires regulated entities

to disclose climate risks in their loan portfolios. With housing and commercial real estate loans constituting approximately 17% of total bank credit in India, the taxonomy provides the asset-level carbon performance data banks need to classify building loans by climate risk, calculate financed emissions, and demonstrate portfolio alignment with national decarbonisation trajectories.

- vii. **Broader incentive landscape:** This taxonomy also provides the performance floor needed to unlock incentives that currently operate in isolation: SIDBI's concessional interest rate reduction for certified green buildings, state-level FAR uplifts and property tax rebates across fourteen states, and IREDA's concessional loan programmes. Formalising these linkages through the Secretariat's guidance function would convert India's fragmented incentive landscape into a coherent financial architecture tied to verified building performance.

4.3 Carbon market integration

Construction is designated for Phase II of India's Carbon Credit Trading Scheme, meaning its formal entry into the compliance mechanism is a medium-term prospect. However, this building taxonomy has an important role to play in preparing the building sector for that participation – and in ensuring that when construction enters the CCTS, it does so with a credible, India-contextualised methodology. Three specific issues require resolution.

Defining How WLCA Thresholds Generate Carbon Credits

The taxonomy's whole-life carbon assessment framework – measuring both operational carbon ($\text{kgCO}_2/\text{m}^2/\text{year}$) and embodied carbon across the building lifecycle – provides the technical basis for calculating emission reductions relative to a baseline. For carbon credit generation, four elements need to be specified: the baseline scenario against which reductions are measured; the boundary of carbon accounting, covering whether embodied emissions from materials and construction are included alongside operational emissions; the methodology for converting energy and materials savings into tCO_2e reductions; and the MRV requirements a project must satisfy to register credits. These elements should be developed as a formal CCTS methodology document, drawing on the KPIs established in Section 4, and submitted for approval through BEE's accreditation process.

Clarifying Interaction with the CCTS

Under the current CCTS framework, the offset mechanism allows non-obligated entities – which includes most building sector participants – to register voluntary emission reduction projects for Carbon Credit Certificate issuance. The taxonomy should define the specific pathway through which a green-tier building project can register as an offset project: which performance thresholds must be met, what documentation is required, how the BEAT tool interfaces with the CCTS registry, and whether design-stage taxonomy certification can be used to pre-register a project before construction is complete.

Embodied Carbon as a Qualifying Activity

A critical unresolved question in the current CCTS framework is whether embodied carbon reductions — from the use of low-carbon construction materials, design optimisation, or waste reduction during construction — qualify as eligible offset activities. The taxonomy's materials KPIs provide a framework for quantifying them, but India currently lacks a national lifecycle inventory database for construction materials, making rigorous verification difficult at scale. The taxonomy should therefore adopt a phased approach: recognising operational carbon reductions as the primary qualifying activity in the near term, while simultaneously investing in the data infrastructure — through BEE's BEAT tool and an expanded EPD programme for Indian construction materials — that would allow embodied carbon reductions to qualify in a subsequent phase.

4.4 Conclusion

The governance, finance, and carbon market arrangements outlined in this section address the structural conditions necessary for the taxonomy to function beyond a classification exercise. Establishing a Technical Secretariat within BEE resolves the fragmentation of institutional responsibility that has prevented any single body from owning a coherent building performance standard. Embedding the taxonomy across green finance instruments replaces the current reliance on individual certification systems with a single, nationally consistent performance floor. And defining the building sector's pathway into the Carbon Credit Trading Scheme ensures that the embodied and operational carbon metrics established through the taxonomy directly enable project-level credit generation as construction enters Phase II. Taken together, these arrangements mean that the building classification system and KPI framework developed in Section 4 are not technical outputs awaiting adoption — they are the foundation of a verifiable, finance-ready, and institutionally supported performance standard for India's built environment.

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Annex A Building Classification according to National Building Code

Group A	Residential	A1	Lodging & rooming houses
		A2	One- or two-Family private dwellings
		A3	Dormitories
		A4	Apartment Houses
		A5	Hotels
		A6	Starred Hotels
Group B	Educational Buildings	B1	Schools up to senior secondary buildings
		B2	All other institutional buildings
Group C	Institutional Buildings	C1	Hospitals and sanatoria
		C2	Custodial Institutions
		C3	Penal and metal institutions
Group D	Assembly Buildings	D1	Buildings having a theatrical or motion picture or any other stage and fixed seats for over 1 000 persons.
		D2	Buildings having a theatrical or motion picture or any other stage and fixed seats up to 1 000 persons.
		D3	Buildings without a permanent stage having accommodation for 300 or more persons but no permanent seating arrangement.
		D4	Buildings without a permanent stage having accommodation for less than 300 persons with no permanent seating arrangement.
		D5	All other structures including temporary structures designed for assembly of people not covered by Subdivisions D-1 to D-4, at ground level.
		D6	Buildings having mixed occupancies of assembly and mercantile (for example, shopping malls providing facilities such as shopping, cinema theatres, multiplexes, and restaurants/food courts).
		D7	Underground and elevated mass rapid transit system.
Group E	Business Buildings	E1	Offices, banks, professional establishments, like offices of architects, engineers, doctors, lawyers, post offices and police stations
		E2	Laboratories, outpatient clinics, research establishments, libraries, and test houses

		E3	Electronic data processing centres, computer installations, information technology parks and call centres
		E4	Telephone exchanges
		E5	Broadcasting stations, T.V. stations, and air traffic control towers
		E6	Data Centres
Group F	Mercantile Buildings	F1	Shops, stores, departmental stores, markets (any with covered area up to 500 m ²)
		F2	Shops, stores, departmental stores, markets (any with covered area more than 500 m ²)
		F3	Underground shopping centres Storage and service facilities incidental to the sale of merchandise and located in the same building shall also be included under this group.
Group G	Industrial Buildings	G1	Buildings used for low hazard industries
		G2	Buildings used for moderate hazard industries
		G3	Buildings used for high hazard industries
Group H	Storage Buildings		
Group J	Hazardous Buildings		
Mixed use Buildings			

Construction Material Details					
(Clause E-1) Column Headers	Final Construction Material*	Type/Category*	Brand*	Product Name*	Material Specifications*
[H]	[I]		[J]	[K] [L01 - L100]	
Description	Refers to the material for which data is being collected.	This field refers to the further classification of the material based on its specifications / raw material variation/ purpose etc.	Refers to the manufacturer/ brand of the material.	Refers to the name of the product as mentioned on the catalogue/ package.	Refers to the material specifications.
Data Entry Type	Select from the below mentioned 'predefined options' mentioned in Table 32**	Select from the 'predefined options' mentioned in Table 32**	Alphanumeric	Alphanumeric	Alphanumeric
	**If the material is not covered in the options, the Contributor should proceed to type it out.	**If the type is not covered in the options, the Contributor should proceed to type it out.	Enter the manufacturer/ brand name here.	Enter the product name here.	The material specifications corresponding to the relevant materials are mentioned in Table 32
NOTE – [J] – Please note that for all materials except sand, the material manufacturer or brand, and not the material supplier, should be entered in [J]. Materials like sand and aggregate are recognized by the river and quarry from where they are mined; the contributor is encouraged to mention the name of the respective river basin and quarry in [J] along with the manufacturer/Supplier.					
Finished Construction Materials, Their Types, and Specifications					
(Clause E-1) Sl. No.	Finished Construction Material	Type/Category	Material Specifications		
-1	-2	-3	-4		

i)	Cement	Ordinary Portland cement (OPC)	High-alumina cement	Raw material proportion [L01]
		Portland pozzolana cement (PPC)	White cement	Density (kg/m3) [L02]
		Rapid-hardening cement	Coloured cement	28-Day compressive strength (N/m2) [L03]
		Extra-rapid-hardening cement	Air-entraining cement	
		Quick-setting cement	Expansive cement	
		Low heat cement	Hydrographic cement	
		Sulphate resisting cement	Portland - limestone cement (PLC)	
		Blast furnace slag cement	Limestone calcined clay cement (LC3)	
ii)	Sand	Natural (river) sand	Pit Sand (coarse sand)	Density (kg/m3) [L02]
		M-Sand	M-Sand	Specific gravity [L04]
		Concrete Sand		Zone [L05]
iii)	Aggregate	Smaller than 10 mm	between 20 and 40 mm	Density (kg/m3) [L02]
		between 10 and 20 mm		Specific gravity [L04]
iv)	Steel (Rebar)	Mild steel bar	Thermo-mechanically treated (TMT) bar	Diameter (mm) [L06]
		Carbon steel bar	Cold rolled steel bar	Grade [L07]

		Stainless steel bar	Twisted steel bar	Yield Strength (N/m2) [L08]
				Tensile Strength (N/m2) [L09]
v)	Structural Steel	Carbon steel	Forged steel	Grade [L07]
		High-strength low-alloy steel	Quenched and tempered alloy steel	Yield strength (N/m2) [L08]
				Tensile strength (N/m2) [L09]
vi)	Bricks/Blocks	Burnt clay bricks	Rammed earth blocks	Dimensions – L*B (m2) [L10]
		Flyash bricks	Laterite blocks	Thickness (mm) [L11]
		Autoclaved aerated concrete (AAC) blocks	Compressed stabilized earth (CSEB) blocks	Density (kg/m3) [L02]

Metadata										
(Clause E-1) Column Headers	Data Type*	Data Aggregation Level*	Data Review by Third Party	Data Collection Beginning*	Data Collection Ending*	Data Availability Level*	Final Construction Material Quantity	Final Construction Material Unit	Final Construction Material Quantity	
									(kg)	
[M]	[N]	[O]	[P]			[Q]			[R]	[S]
Description	Refers to the nature of the	Refers to the level of aggreg	Indicates whether	Refers to the date when	Refers to the date when	Refers to the lifecycle	Refers to the quantity of	Refers to the unit in which	Refers to the quantity of the	

	data – Whether it was measured or estimated.	ation of the reported data.	the data has been reviewed by a third party or not.	data collection began, expressed as	data collection ended, expressed as	stages for which data is available and being reported.	finished construction material for which the embodied energy and carbon data is being reported.	the finished construction material quantity is expressed.	finished construction material, as expressed in kg.
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Annex B Voluntary Carbon deceleration project wise according to NBC

(Clause E-1) Column Headers	Contributor Background*	Contributor Affiliation*	Contributor Email Address*	Has the data been published in a peer- reviewed article?*	Corresponding Author	Publication Title	Publication Link
[A]	[B]	[C]	[D]	[E]	[F]	[G]	
Description	Refers to the contributor's background or line of work.	Refers to the contributor's affiliation	Refers to the contributor's email address.	If the data has been published in a peer-reviewed article, report, or EPD, please select Yes, else No.	If the data has been published, then the name of the corresponding author should be entered here.	If the data has been published, then the publication title should be entered here.	If the data has been published, then the publication link should be entered here.
Data Entry Type	Select from the below-mentioned 'predefined options'	Alphanumeric	Alphanumeric	Select from the below-mentioned 'predefined options'	Alphanumeric	Alphanumeric	Alphanumeric
	☐ Researcher/ PhD Scholar ☐ Material manufacturer ☐ EPD or LCA consultant ☐ Govt. official ☐ Other**	Enter the organization the Contributor is affiliated with.	Enter an operational email address where the Contributor can be reached.	☐ Yes ☐ No	Enter the name of the corresponding author here.	Enter the publication title here.	Enter the publication link here.

(Clause E-1) Column Headers	Contributor Background*	Contributor Affiliation*	Contributor Email Address*	Has the data been published in a peer- reviewed article?*	Corresponding Author	Publication Title	Publication Link
	**If the Contributor's background does not match the options, they should select 'Other' and proceed to type out their background.						
NOTE – [D] – Please note that if [D] is marked as 'No,' then [E], [F], and [G] will remain empty/ blank. On the other hand, if [D] is marked as 'Yes' and the publication mentions an organization							
	Measured data refers to data that was monitored by means of equipment records or similar methods. Estimated data are based on the best professional judgment or other	If a contributor can provide individual measurements, then the data is said to be unaggregated. If the contributor has collected data for months or a year, then the data is said to be temporally averaged. Moreover, if the data is representative of a single plant or all manufacturing plants owned by the contributor, the data is said to educated guesses.		'dd-mmm-yyyy'	'dd-mmm-yyyy'		

Annex C building Classification according to ECSBC and ENS

Hospitality	Star Hotel
	No star Hotel
	Resort
Educational	College
	University
	Institution
	School
Health Care	Hospital
	Out-Patient Healthcare
Business	Daytime Use
	24hour Use
Assembly	Multiplex
	Theatre
	Building used for transport service
Mixed Use Building	If different classification and is less than 10% of the total above grade floor area, the mixed-use building shall show compliance based on the building sub-classification having higher percentage of above grade floor area. If a part of the mixed-use building has different classification and one or more sub-classification is more than 10% of the total above grade floor area, the compliance requirements for each sub- classification, having area more than 10% of above grade floor area of a mixed-use building shall be determined by the requirements for the respective building classification

One- or two-family private dwellings: these shall include any private dwelling, which is occupied by members of one or two families and has a total sleeping accommodation for not more than 20 persons.

Apartment houses: these shall include any building or structure in which living quarters are provided for three or more families, living independently of each other and with independent cooking facilities. this also includes 'Group housing'.

Mixed-use building: In a mixed-use building, having both commercial and residential building use, each category of a building use must be classified separately, and –

If a part of the mixed-use building classification (residential or commercial) is less than 10% of the total above grade floor area, the mixed-use building part shall show compliance based on the building sub-classification having higher percentage of above grade floor area.

If a part of the mixed-use building has different classification (residential or commercial) and one or more sub-classification is more than 10% of the total above grade floor area, the compliance requirements for each sub-classification, having area more than 10% of above grade floor area of a mixed-use building, shall be determined by the requirements for the respective building classification.

Annex D Provisions under ECSBC 2024

Section	Provisions	ECSBC Mandatory	ECSBC +(additional)	Super ECSBC (Additional)
4,2/4.3	Sustainable Sites & Planning	• Preserve topsoil 150-200mm	• Sedimentation basin at stormwater exit	• 100% shade for paved areas
		• Tree protection or 1:3 compensation	• Preferential parking for differently-abled (1/100, then 1/250)	• Cool roof/vegetation for 95% roof
		• Comply with local bylaws/UDPF	• Access to ≥4 amenities within 800m	• Bicycle lanes & parking for 10% (campuses >100,000m ²)
		• Min 1 accessible entrance/elevator/restroom	• Public transport within 800m OR shuttle for 25% occupants	
		• Paved areas ≤30% site area		
5.2/5.3	Building Envelope	• U-factors per ISO standards	U-factors (W/m².K):	U-factors (W/m².K):
		• WWR ≤40%, VLT ≥0.27	• Roof: 0.20	• Roof: 0.18
		• Seal joints/openings	• Wall: 0.22-0.63	• Wall: 0.22
		• Daylighting: 40-50% floor area with UDI	• Fenestration: 1.80-2.20	• Fenestration: 1.80-2.20
		• Cool roof: SR ≥0.70, E ≥0.75	• Daylighting: 50-55% floor area	• SHGC: 0.20 (non-North)

Section	Provisions	ECSBC Mandatory	ECSBC +(additional)	Super ECSBC (Additional)
				• Daylighting: 60-65% floor area
6.2/6.3	Comfort Systems & Controls	• Ventilation per NBC 2016	Equipment Efficiency:	Equipment Efficiency:
		• DCV for OA >5400 m ³ /hr	• Chillers: 4-star	• Chillers: 5-star
		• Timeclock, temp, occupancy controls	• AC/VRF: 4-star, 6.4-6.6 ISEER	• AC/VRF: 5-star, 7.4-7.6 ISEER
		• Piping insulation R: 1.5 (hot), 1.5 (cold)	• Fans: 70% mech, IE4 motor	• Fans: 75% mech, IE4 motor
		• System balancing >500m ²	• Pumps: CHW 16.9 W/kWr, 75% eff	• Pumps: CHW 14.9 W/kWr, 80% eff
		• Variable flow HVAC >7.5kW	• CT approach: ≤2.8°C	• CT approach: ≤1.7°C
			• Zone temp/fan/pump optimization	• Set-point correction, fenestration/occupancy/plant controls
			• 60% solar DHW (hospitality/healthcare)	• 100% solar DHW (hospitality/healthcare)
7.2/7.3	Lighting & Controls	• Lighting per IS 3646-Part 1	Interior LPD:	Interior LPD:
		• ≥90% auto shutoff (scheduled/occupancy)	• Building Area: 5.7-13.0 W/m ²	• Building Area: 3.5-8.2 W/m ²
		• Space control ≤250m ² zones	Exterior LPD:	Exterior LPD:
		• Daylight control in daylit areas	• Entrance (canopy): 8.0 W/m ²	• Entrance (canopy): 5.0 W/m ²
		• Exterior: photo/astro control	• Façade: 4.0 W/m ²	• Façade: 2.5 W/m ²
		• Exit signs ≤5W/face	• Parking: 1.3 W/m ²	• Parking: 0.8 W/m ²
			• Efficacy: 110 lm/W	• Efficacy: 120 lm/W
			• Centralized monitoring & control	• 100% workstations meet illuminance

Section	Provisions	ECSBC Mandatory	ECSBC +(additional)	Super ECSBC (Additional)
8.2/8.3	Electrical & Renewable Energy	• Transformers: 3-star	• Transformers: 4-star	• Transformers: 5-star
		• Motors: IE3	• Motors: IE4	• Motors: IE5
		• DG: 3-star (>20,000m ²)	• DG: 4-star	• DG: 5-star
		• Voltage drop: Feeders ≤2%, Branch ≤3%	• Power factor: 0.98	• Power factor: 0.99
		• Metering: Building (0.2s) + sub-meters	• Losses <2%	• Losses <1%
		• Power factor: 0.97	• Renewable: 7.5% demand	• Renewable: 15% demand
		• Distribution losses <3%	• Grid harmonization: 7.5% reduction	• Grid harmonization: 10% reduction
		• UPS: 93-96%	• EV charging: 25% parking	• EV charging: 35% parking
		• Renewable: 4% demand OR 50% roof	• Lifts: Class B	• Lifts: Class A
			• Escalators: Class A++	• Escalators: Class A+++
9.2/9.3	Water management	• Water quality per IS 10500	• Rooftop rainwater (1-day), treated for potable	• Grey water treated to IS 10500 for potable
		• RO recovery ≥65%	• HVAC condensate for flushing/landscape	• RO recovery ≥85%, reject treated to ≤2100 TDS
		• Pumps: 60% eff, IE3/IE2	• RO recovery ≥75%, monitoring (pH, TSS, TDS)	• Pumps: 70% eff, IE4
		• Metering per IS 779	• Pumps: 65% eff, IE3+	• IR indicators, PLC/BMS
		• Float switches	• Solenoid controls, pressure transmitters	• 100% solar DHW (H/HC)
		• Hot water: HP COP ≥3.5 OR 40% solar (H/HC)	• 60% solar DHW (H/HC)	• Piping insulation R: 1.0-1.3
		• Piping insulation R: 0.7	• Piping insulation R: 0.8	• Fixtures: 3-star (WC ≤4 lpf, shower ≤6.8 lpm)

Section	Provisions	ECSBC Mandatory	ECSBC +(additional)	Super ECSBC (Additional)
		• Fixtures: 1-star (WC ≤ 6 lpf, shower ≤ 10 lpm)	• Fixtures: 2-star (WC ≤ 4.8 lpf, shower ≤ 8 lpm)	• Grey to IS 10500 for non-potable
		• STP: 100% capacity, flow meters	• Separate grey/black treatment	• Zero fresh water dependency
		• Rainwater harvesting per CPWD 2019	• 100% rooftop harvested, recharge pits	
10.2/10.3	Waste Management	• Designated segregation areas	• $\geq 75\%$ non-hazardous construction waste reused/recycled	• $\geq 95\%$ non-hazardous construction waste reused/recycled
		• $\geq 50\%$ non-hazardous construction waste reused/recycled	• $\geq 75\%$ organic waste composted on-site	• $\geq 95\%$ organic waste composted on-site
		• 100% packaging to recyclers		
		• 100% construction waste diverted from landfills		
		• Centralized area with ≥ 4 color-coded bins		
		• Organic composting: $\geq 50\%$ on-site ($\geq 5000\text{m}^2$) OR 1 kg/150m ² BUA/day ($< 5000\text{m}^2$)		
11.2/1..3	Indoor Environmental Quality	• Air filters per IS/ISO 16890	• CO ₂ sensors for ventilation control	• Integrated sensors with controls
		• Design ventilation per 6.2.1	• Low-VOC materials (ISO 16000-9, UL 2818/2819)	• RH: 30-70% (summer & winter)
		• Operative temp: 23 $\pm$ 3°C (summer), 19 $\pm$ 4°C (winter)	• RH: 30-70% (summer)	• Radiant asymmetry, vertical temp diff, floor temp controls
		• Max 300 unmet hours	• $\geq 90\%$ workstations meet illuminance	• 100% workstations meet illuminance

Section	Provisions	ECSBC Mandatory	ECSBC +(additional)	Super ECSBC (Additional)
		Lighting per IS 3646, ≥90% workstations meet illuminance		Sound insulation: NIC 40-60, Rw/STC 35-55
12	Whole Building Performance	MEPI_Baseline = MEPI_Proposed	MEPI_Proposed < MEPI_Baseline	MEPI_Proposed < MEPI_Baseline
		PES = NA	PES: 9-27% (climate/building dependent)	PES: 18-34% (climate/building dependent)

Annex E Provisions according to ENS 2024

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
4.2/4.3	Sustainable Site Management	30	9	15	Site Preservation: Protect mature trees or 1:3 compensation, preserve topsoil 150-200mm, avoid water bodies/utilities	
					Universal Accessibility: Per Model Building Bylaws 2016	
					Landscaping: Min 20% vegetated, max 30% turf, min 30% native species, 1 tree/80m ² (plots >5000m ²)	

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
					Heat Island: Max 25% paved area, min 50% pervious paving	
4.3.1	Landscaping	16				Vegetated Area: 30% (6 pts), 40% (8 pts)
						Turf Reduction: Max 20% (2 pts), Max 15% (4 pts)
						Native Plants: Min 40% (2 pts), Min 50% (4 pts)
4.3.2	Heat Island Mitigation	14				Paved Area: ≤20% of site (4 pts), ≤15% (6 pts)
						Pervious Paving: ≥60% (5 pts), ≥70% (8 pts)
5.2.1/5.3.1	Building Envelope	40	12	20	WFRop: Composite 12.5%, Hot-Dry 10%, Warm-Humid 16.66%, Temperate 12.5%, Cold 8.33%	
					VLT: Per WWR (0.27 to 0.11 based on WWR 0-70%)	
					U-roof: Max 1.2 W/m ² K	
					RETV: Max 15 W/m ² (Hot/Warm/Temperate)	
					U-envelope: Max 1.8 W/m ² K (Cold)	
5.3.1.1	Roof	4				U-roof: 0.28-1.2 W/m ² K (up to 4 pts), <0.28 (4 pts)

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
5.3.1.2/3	Envelope (except roof)	36				RETV: 12-15 W/m ² (6 pts), 6-12 (up to 36 pts), <6 (36 pts)
						U-envelope (Cold): 1.32-1.8 (6 pts), 0.36-1.32 (up to 36 pts), <0.36 (36 pts)
5.2.2/5.3.2	Building Services	28	8	14	Power Factor: 0.97 or DISCOM guidelines	
					Energy Monitoring: Separate metering for services/end-use/generation	
					Electrical: Max 3% distribution losses, 2% voltage drop	
					Common Lighting: Max 3.0 W/m ² corridor, 1.0 W/m ² parking OR min 95 lm/W	
					Elevators: 95 lm/W, auto shut-off, IE3 motors, group control	
					Pumps: 60% efficiency OR BEE 4-star	
					Transformers: BEE 4-star minimum	
5.3.2.1	Lighting	6				105 lm/W + L70B10: 3 pts total 115 lm/W + L80B10 + controls: 6 pts total
5.3.2.2	Elevators	9				VVVF drives: 4 pts

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
						Regenerative drives: 3 pts
						IE4 motors: 2 pts
5.3.2.3	Pumps	8				BEE 5-star: 5 pts
						Hydro-pneumatic ≥70%: 3 pts
5.3.2.4	Electrical	5				Oil transformers BEE 5-star: 5 pts
5.2.3/5.3.3	Indoor End-Use	42	13	21	Indoor Lighting: Min 95 lm/W all fixtures	
					Ceiling Fans: BEE 3-star minimum	
					ACs: Unitary 5-star, Split 3-star, VRF 3.28 EER, Chiller 3-star	
5.3.3.1	Indoor Lighting	8				All dwelling units: >105 lm/W + L70B10 (3 pts), >115 lm/W + L80B10 (8 pts)
5.3.3.2	Comfort Systems	34				Ceiling Fans: BEE 4-star (1 pt), 5-star (4 pts)
						ACs: 4-star (9 pts), 5-star (30 pts)
5.2.4/5.3.4	Renewable Energy	10	3	5	Solar Water Heating OR PV: Min 10% of plot area with BEE 3-star	
5.3.4.1/2	Solar Water/PV	10				13% of plot area with BEE 3-star: 4 pts
						16% of plot area: 10 pts

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
6.2/6.3	Water Conservation	43	13	22	Site Water: Min 40% irrigation from recycled/rainwater, 8 L/m ² /day, min 70% drip for beds, min 60% sprinkler for turf	
					Building Water: 1-star fittings/ware (IS 17650), bulk flow meters	
					Rainwater: Min 80% roof harvest, quality testing	
					Wastewater: 50% recycled (≥ 1 lac sq.ft), on-site treatment	
6.3.1	Site Water Reduction	17				Recycled irrigation: $\geq 60\%$ (5 pts), $\geq 80\%$ (8 pts)
						Drip: $\geq 80\%$ (3 pts), $\geq 90\%$ (5 pts)
						Sprinkler: $\geq 70\%$ (2 pts), $\geq 80\%$ (4 pts)
6.3.2	Building Water Reduction	26				Wastewater reclaimed: $\geq 70\%$ (6 pts), $\geq 90\%$ (10 pts)
						Fittings: 2-star (5 pts), 3-star (8 pts)
						Ware: 2-star (5 pts), 3-star (8 pts)

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
7.2/7.3	Waste Management	7	2	4	Construction: Segregation areas, min 50% non-hazardous reused, 100% packaging to recyclers, 100% diverted from landfill	
					Post-Occupancy: 4-bin collection (dry/organic/sanitary/hazardous), min 50% organic composted (BUA $\geq 5000\text{m}^2$)	
7.3.1	Construction Waste	2				Non-hazardous reuse/recycle: 75% (1 pt), 95% (2 pts)
7.3.2	Post-Construction	5				Centralized segregation: 6 categories (1 pt), 8 categories (2 pts)
						Organic composting: 75% (2 pts), 95% (3 pts)

Section	Provisions	Max Points	ENS+ (30%)	Super ENS (50%)	Mandatory Requirements	Incremental Requirements
8.2/8.3	Indoor Environmental Quality	10	3	5	Ventilation: Meet WFRop requirements	
					Low VOC: Paints ≤ 50 g/L	
					Parking: Min 6 ACH enclosed areas	
					Kitchen/Bath: Exhaust openings	
					Daylight: Meet VLT requirements	
					Lighting: Min lux per NBC	
					CRI: Per space type	
					Thermal: Meet RETV/U-value	
8.3.1	Cross Ventilation	4				Regularly occupied spaces: 50% (2 pts), 75% (3 pts), 90% (4 pts)
8.3.2	Daylight (UDI)	4				UDI compliance (90% daylight time): 40% (2 pts), 50% (3 pts), 60% (4 pts)
8.3.3	Parking Air Quality	2				CO sensors for demand control: 2 pts

Annex F Requirement for minimum PES reduction for ESCBC compliance under whole building performance

	Building Typology	ECSBC+	Super ECSBC
Composite Climate	Hotel (No Star and Star)	9%	19%
	Resort	12%	24%
	Hospital	15%	23%
	Outpatient	15%	25%

	Building Typology	ECSBC+	Super ECSBC
	Assembly	14%	23%
	Office (Regular Use)	14%	22%
	Office (24 Hours)	12%	24%
	Schools and University	23%	34%
	Open Gallery Mall	15%	24%
	Shopping Mall	14%	26%
	Supermarket	19%	30%
	Strip retail	18%	32%
HOT AND DRY	Hotel (No Star and Star)	10%	19%
	Resort	12%	24%
	Hospital	16%	24%
	Outpatient	15%	25%
	Assembly	14%	22%
	Office (Regular Use)	14%	22%
	Office (24Hours)	12%	24%
	Schools and University	23%	34%
	Open Gallery Mall	15%	23%
	Shopping Mall	16%	28%
	Supermarket	27%	31%
	Strip retail	18%	32%
Temperate Climate	Hotel (No Star and Star)	10%	20%
	Resort	12%	25%
	Hospital	18%	27%
	Outpatient	15%	25%
	Assembly	15%	24%
	Office (Regular Use)	15%	25%
	Office (24Hours)	13%	26%
	Schools and University	23%	34%
	Open Gallery Mall	17%	26%
	Shopping Mall	16%	29%
	Supermarket	19%	31%
	Strip retail	19%	33%
WARM & HUMID	Hotel (No Star and Star)	9%	19%
	Resort	12%	25%
	Hospital	14%	23%
	Outpatient	14%	24%

	Building Typology	ECSBC+	Super ECSBC
	Assembly	12%	20%
	Office (Regular Use)	14%	24%
	Office (24Hours)	12%	24%
	Schools and University	23%	34%
	Open Gallery Mall	14%	23%
	Shopping Mall	15%	28%
	Supermarket	18%	30%
	Strip retail	17%	32%
COLD CLIMATE	Hotel (No Star and Star)	9%	18%
	Resort	12%	25%
	Hospital	12%	20%
	Outpatient	15%	25%
	Assembly	13%	19%
	Office (Regular Use)	12%	20%
	Office (24Hours)	13%	25%
	Schools and University	15%	27%
	Open Gallery Mall	18%	27%
	Shopping Mall	4%	7%
	Supermarket	20%	32%
	Strip retail	20%	34%

Annex G Provisions according to GRIHA rating

Section	Criterion No.	Criterion Name	Max. Points	
1. Sustainable Site Planning	1	Green Infrastructure	5	- Conformity with master plan and regional development plans. - Tree preservation measures implemented on site. - Basic amenities available within walking distance. - Alternative vehicle parking available (electric vehicles/bicycles).
	2	Low Impact Design	5	Ensure low impact strategies – such as passive design in site planning etc.
	3	Design to Mitigate UHIE	2	Reduce Urban Heat Island Effect by minimum 1.5°C from the project baseline.

Section	Criterion No.	Criterion Name	Max. Points	
2. Construction Management	4	Air and Soil Pollution Control	1	- Minimize air and soil pollution during construction as per baseline good practices. - Soil erosion channels created on site.
	5	Top Soil Preservation	1	Topsoil from disturbed areas preserved and 100% reused within site.
	6	Construction Management Practices	2	- Adopt construction management practices and ensure safe disposal of waste generated. - Minimize water consumption during construction.
3. Energy Efficiency	7	Energy Optimization	12	- Ensure ECBC compliance. - Peak heat gain below threshold as per GRIHA table/benchmark. - Reduce EPI by 10–50% from the GRIHA benchmark. - Install BEE star label compliant equipment. - Maintain exterior lighting efficacy at 80 lm/W throughout, as per GRIHA threshold.
	8	Renewable Energy Utilization	5	Offset part of annual energy consumption of internal artificial lighting, HVAC, and domestic hot water systems through renewable sources (5 % minimum)
	9	Low ODP and GWP Materials	1	CFC and HCFC free installation for HVAC and building envelope insulation refrigerant used for hvac system is CFC and HCFC free halon free fire extinguish system in project ensure insulation used in building
4. Occupant Comfort	10	Visual Comfort	4	- Ensure mean DA requirement (<3000 lux) as per GRIHA baseline. - Meet SHGC compliance as per GRIHA threshold. - Skylight-to-roof ratio $\leq 5\%$ and SHGC ≤ 0.35 as per GRIHA limits. - Ensure UDI compliance as per GRIHA benchmark. - Artificial lighting levels as per NBC 2016 baseline.
	11	Thermal and Acoustic Comfort	2	- Comply with NBC 2016 or ASHRAE 55 thermal comfort baseline. - Indoor noise levels measured and within NBC 2016 Part 8 limits.

Section	Criterion No.	Criterion Name	Max. Points	
	12	Maintaining Good IAQ	6	- Meet CPCB minimum requirements. - Comply with ASHRAE Standard 62.1-2010. - Monitor CO₂, CO, temperature, and RH levels against IAQ baseline.
5. Water Management	13	Water Demand Reduction	3	- Reduce total water demand by 10–30% from the GRIHA baseline. - Reduce landscape water demand by 50–75% from the baseline.
	14	Wastewater Treatment	3	- Segregate grey and black water. - Treat 100% wastewater on site.
	15	Rainwater Management	5	Manage stormwater runoff within site and reused.
	16	Water Quality and Self-Sufficiency	5	- Water quality meets BIS 10500:2012 standards. - Irrigation and discharge comply with CPCB norms. - Reduce Water Performance Index (WPI) as per GRIHA benchmarks.
6. Solid Waste Management	17	Waste Management-Post Occupancy	4	- Comply with government waste management rules. - Provide dedicated segregation and collection area. - Tie-ups with recyclers for 100% recyclable waste generated.
	18	Organic Waste Treatment On-Site	2	Convert 100 % of organic waste generated to useful resource
7. Sustainable Building Materials	19	Utilization of Alternative Materials in Building	5	- Ensure 20–50% replacement of OPC (Ordinary Portland Cement) by weight with BIS-recommended materials for structural concrete - Ensure minimum 5% replacement of aggregate with alternative materials - Walls constructed using alternative materials such as AAC blocks, hollow clay blocks, rammed earth, or C&D waste blocks instead of red clay fired bricks - Ensure minimum 30% replacement of OPC with BIS-recommended waste by weight for masonry cement
	20	Reduction in GWP through Life Cycle Assessment	5	- Reduction in GWP values in building superstructure from 10–15% - Reduction in GWP values in building interior and finishes from 10–30%

Section	Criterion No.	Criterion Name	Max. Points	
	21	Alternative Materials for External Site Development	2	Ensure 70% of all roads and vehicular pathways and 100% of foot pathways use the following: • Bituminous pavement with 6% plastic waste by weight of bitumen • Cast-in-situ concrete with minimum 30% fly ash content • Concrete blocks with 40% fly ash content by weight • Paver blocks with minimum 10% C&D waste by weight
8. Life Cycle Costing	22	Life Cycle Cost Analysis	5	Discounted payback time for the project is less than 10 years minimum
9. Socio-Economic Strategies	23	Safety and Sanitation for Construction Workers	1	• Ensure compliance with NBC 2016 for safety equipment for construction • Provide clean drinking water and hygienic living conditions • Provide crèche facility for children of construction workers • Provide services like grocery store/canteen for labor at their accommodation
	24	Universal Accessibility	2	Compliance with Harmonised Guidelines and Space Standards for Barrier-Free Environment for Persons with Disability and Elderly Persons - 2016
	25	Dedicated Facilities for Service Staff	2	Provide dedicated resting spaces and toilets for service staff at site
	26	Positive Social Impact	3	• Ensure on-site awareness programs for environmental issues • Conduct programs for environmental awareness annually
10. Performance Metering and Monitoring	27	Commissioning for Final Rating	7	Third-party commissioning to be ensured for HVAC, lighting, electrical systems, water, and waste management performance.
	28	Smart Metering and Monitoring	0	Ensure metering for all parameters for energy and water supply and consumption

Section	Criterion No.	Criterion Name	Max. Points	
	29	Operation and Maintenance Protocol	0	• Ensure O&M protocol development, manual, and team training • Building systems established for facility management
Total Points			100	
11. Innovation	30	Innovation	5	Adopting or implementing innovative strategies to enhance sustainability at site
Grand Total Points			100 + 5	

Annex H provisions under IGBC

Credit name		Points	Description
Site selection and Planning		14	
SSP mandatory 1	Local Building Regulations	Mandatory	Approved site/building plans; completion & occupancy certificates; environmental clearance (MoEFCC/SEIAA)
SSP mandatory 2	Soil Erosion	Mandatory	Control topsoil erosion; provide workforce facilities exceeding <i>Building & Other Construction Workers Act, 1996 & Rules, 1998</i> .
SSP mandatory 3	Accessible Design	Mandatory	Design per NBC India 2005 for differently abled & senior citizens.
SSP Credit 1	Proximity to Essential services	1	Access ≥ 7 amenities within 800 m of entrance/public transport.
SSP Credit 2	Sustianble Transportation	2	1. Operate non-fossil fuel vehicles for $\geq 20\%$ occupants. 2. Provide $\geq 10\%$ EV parking with charging.

Credit name		Points	Description
SSP Credit 3	Sustainable landscape	5	- Retain 20% vegetation OR 100% water bodies/rocks OR 75% trees. - Vegetated spaces $\geq 20\%$ site area. - Plant 1 tree/80 sq.m. site. - Turf $< 20\%$; $\geq 60\%$ drought-tolerant/native/adaptive species.
SSP Credit 4	Heat Island Reduction, Roof & non Roof	3	- Shade/grass pavers/SRI 29–64 for $\geq 50\%$ non-roof impervious area. - Cover $\geq 75\%$ roof with high-reflective materials
SSP Credit 5	Outdoor Light Pollution reduction	1	Design exterior lighting with ULR $< 0.5\%$; CCT $\leq 3000\text{K}$; fixed angle $< 10^\circ$; dimmable controls.
SSP Credit 6	Sustainable Initiatives	2	Integrated design; labour safety & sustainability training; green education for visitors/occupants.
Water Conservation		20	
WC mandatory 1	Rainwater Harvesting, Roof & Non-roof	Mandatory	Harvest ≥ 1 -day rainfall from roof/non-roof (except high water table) wherein 1 day rainfall is minimum 9% of peak monthly rainfall
WC mandatory 2	Water Efficient Plumbing Fixtures	Mandatory	Use efficient Fixtures with flow rates per IGBC baseline.
WC Credit 1	Water Use Reduction for Construction	1	$\geq 10\%$ potable water reduction via treated water/admixtures/curing compounds.
WC Credit 2	Rainwater Harvesting, Roof & Non-roof	4	Harvest ≥ 1 -day rainfall from roof/non-roof (except high water table) wherein 1 day rainfall is minimum 12% of peak monthly rainfall
WC Credit 3	Water Efficient Plumbing Fixtures	5	use efficient Fixtures with flow rates $\geq 4\%$ more efficient than IGBC baseline

Credit name		Points	Description
WC Credit 4	Irrigation Water Reduction	2	≥20% landscape water savings via efficient systems/native species.
WC Credit 5	Wastewater Treatment	2	Treat 100% wastewater onsite through installed systems
WC Credit 6	Alternate Water Use	4	≥20% water from alternate sources; roadmap to net-zero discharge.
WC Credit 7	Water Metering & Management	2	Meter all inlets/outlets; IoT-enabled real-time monitoring
Energy Efficiency		26	
EE mandatory 1	Eco-friendly Refrigerants	Mandatory	HVAC refrigerants: water/HFO, ODP=0, GWP<2100; fire suppression free of Halons/ODS.
EE mandatory 2	Minimum Energy Efficiency	Mandatory	Annual energy ≤ base case (ECSBC/ASHRAE 90.1-2022)
EE mandatory 3	Commissioning Plan for Building Equipment & Systems	Mandatory	Third-party authority (≥3 yrs experience, not design-involved).
EE Credit 1	Passive Design Measures	2	≥2% savings via passive strategies
EE Credit 2	Enhanced Energy Efficiency	12	≥4% reduction (ECSBC 2024) OR ≥0.5% (ASHRAE 90.1-2022).
EE Credit 3	Renewable Energy	10	≥2% onsite savings; ≥50% offsite renewable
EE Credit 4	Energy Management	2	Metering + BMS for HVAC, lighting, renewables.
Building Materials and Resources		13	
BMR Mandatory 1	Waste Management	Mandatory	Separate bins for dry, wet, and hazardous waste; centralized disposal.
BMR Mandatory 2	Organic Waste Management, Post-occupancy	Mandatory	Onsite treatment for ≥50% kitchen waste; reuse manure/biogas.

Credit name		Points	Description
BMR credit 1	Sustainable Building Materials	5	Retain $\geq 50\%$ of structural elements (by area) OR $\geq 25\%$ of non-structural/interior elements.
BMR credit 2	Embodied Carbon Assessment	4	Conduct Life Cycle Embodied Carbon Analysis of building elements
BMR credit 3	Organic Waste Management, Post-occupancy	2	Treat 100% of organic waste (kitchen + landscape). Options: - Onsite treatment system. - Biogas plant converting all organic waste into usable biogas.E42
BMR credit 4	Towards Zero Waste to Landfill	2	Divert $\geq 75\%$ of construction waste from landfills through reuse/recycling. Develop a detailed roadmap for achieving Zero Waste to Landfill in future operations
Indoor Environmental Quality		14	
IEQ Mandatory 1	Minimum Fresh Air Ventilation	Mandatory	Ensure all regularly occupied areas meet ASHRAE 62.1-2022 minimum fresh air and ventilation rates.
IEQ Mandatory 2	Tobacco Smoke Control	Mandatory	Smoking prohibited across the project, aligned with Ministry of Health & Family Welfare regulations.
IEQ Credit 1	Indoor Air Quality Management During Construction	1	Implement an Indoor Air Quality (IAQ) plan during construction and pre-occupancy to protect workers and future occupants.
IEQ Credit 2	Low-emitting Materials	2	Use paints, adhesives, sealants, and systems with low VOC emissions, complying with IGBC limits to safeguard occupant health.
IEQ Credit 3	Indoor Air Quality Monitoring and Management	1	Install continuous IAQ monitoring in $\geq 75\%$ of regularly occupied areas. Display real-time values for transparency.
IEQ Credit 4	Minimise Indoor and Outdoor Pollutants	4	Reduce exposure by: - Entryway systems (dust control). - Isolated chemical storage areas. - Air filters rated MERV 13 or EU 7

Credit name		Points	Description
IEQ Credit 5	Daylighting and Controls	4	- $\geq 40\%$ of regularly occupied areas achieve 100–2000 lux for $\geq 90\%$ daylight hours. Sensors in $\geq 75\%$ areas maintain optimal illuminance (100–2000 lux).
IEQ Credit 6	Occupant Well-being	2	Provide direct line of sight to vision glazing (0.9–2.1 m height) in $\geq 75\%$ occupied spaces. Ensure access to sky, flora, and fauna for psychological comfort.
Innovative and Decarbonization in Buildings		13	
ID Credit 1	Innovation in Design	4	Demonstrate unique or advanced performance in green building categories beyond standard requirements.
ID Credit 2	GHG Inventorisation and Roadmap	3	- Perform Whole Building Life Cycle Analysis (ISO 14040) covering stages A1–A4, B5, B6. Establish a GHG inventory per GHG Protocol Corporate Standard, ISO 14064, and IPCC Guidelines.
ID Credit 3	ESG Impact Drivers	5	Align project outcomes with Sustainable Development Goals (SDGs). Showcase long-term resilience, environmental stewardship, and social value creation.
ID Credit 4	IGBC Accredited Professional	1	Engage an IGBC Accredited Professional

About ALCBT Project

The Asia Low Carbon Buildings Transition (ALCBT) Project seeks to significantly reduce GHG emissions by catalyzing nationwide transition towards low-carbon buildings in Cambodia, India, Indonesia, Thailand, and Vietnam. The project is led by the Global Green Growth Institute (GGGI), in partnership with the ASEAN Centre for Energy (ACE), Energy Efficiency Services Limited (EESL), and HEAT GmbH. It is funded by the Government of Germany's Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN) via the International Climate Initiative (IKI).

In India, the project operates under the guidance of the Ministry of Housing and Urban Affairs (MoHUA). Capacity building efforts in the country will benefit over 2,000 individuals, including government officials, architects, engineers, building developers and owners, ESCOs, financial institutions, material manufacturers, and technology providers, to promote low carbon building design and sustainable practices.

About GGGI

Global Green Growth Institute (GGGI), headquartered in Seoul, Republic of Korea is a treaty-based international, inter-governmental organization dedicated to supporting and promoting strong, inclusive and sustainable economic growth in developing countries and emerging economies.

About ACE

The ASEAN Centre for Energy (ACE) is an intergovernmental organization within the Association of Southeast Asian Nations' (ASEAN) structure that represents the 11 ASEAN Member States' (AMS) interests in the energy sector.

About EESL

Energy Efficiency Services Limited (EESL) is a super energy service company under the India's Ministry of Power. It seeks to unlock energy efficiency market in India through innovative business models and has expanded its operations in other Asian countries.

About HEAT GmbH

HEAT International is an independently acting consulting firm with 30 years of experience in the field of climate, heating & cooling, and transport. HEAT's goal is to support countries in their effort to mitigate emissions and to implement transformative pathways towards zero GHG emission solutions.

IKI Complaint Mechanism

Any person who believes they may be harmed by an IKI project or who wish to report corruption or the misuse of funds, can lodge a complaint to the IKI Independent Complaint Mechanism at IKI-complaints@z-u-g.org. The IKI complaint mechanism has a panel of independent experts who will investigate the complaint. In the course of the investigation, we will consult with the complainant so as to avoid unnecessary risks for the complainant.



ASIA LOW CARBON BUILDINGS TRANSITION Life Cycle Assessment for Transitioning to a Low-Carbon Economy | PROJECT

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