IGBC

Confederation of Indian Industry

*Date: 28 June 2025*

# IGBC Green Homes Rating System – Version 3.0

## Addendum on Mixed-use Residential Buildings

***This will include predominantly residential projects where the commercial built-up area constitutes less than 20% of the total built-up area of the project. The commercial development is limited to office spaces, shops, showrooms, restaurants and service apartments only.***

**The following Credits will differ from the existing rating guidelines under this scope:**

1. **SD Credit 5:** Green Parking Facility
2. **WC Mandatory Requirement 1 & CR 1:** Water Efficient Plumbing Fixtures
3. **WC Credit 4:** Water Reuse
4. **EE Mandatory Requirement 2 & CR 1:** Energy Efficiency
5. **MR Credit 8**: Organic Waste Management, Post-occupancy
6. **RHW Mandatory Requirement 1 & CR 1**: Daylighting
7. **RHW Mandatory Requirement 2 & CR 2:** Ventilation Design

## Green Parking Facility — SD Credit 5

*The credit compliance applies exclusively to the residential area. All facilities and features must be demonstrated specifically for the residential area to meet the credit requirements.*

The project must adhere to the requirements in the IGBC Green Homes Ver 3.0 for credit compliance.

**Documentation Required:**

***Precertification Level***

1. Narrative describing the strategy to this credit to show compliance.
2. Conceptual parking plans illustrating the placement of CO sensors, axial fans, electric charging stations/rapid charging systems, and bicycle parking spaces, specifically within the residential area.
3. Tentative calculations demonstrating the percentage of parking spaces equipped with electric charging points and bicycle parking facilities, along with layouts clearly highlighting these features for residential and commercial areas separately.
4. Fresh air ventilation calculation for basements (if applicable).
5. Manufacturer cutsheet of the CO sensors, axial fans and EV charging points.
6. Extract from the local building byelaws specifying the parking requirements.

***Certification Level***

Submit the same documents mentioned in precertification level. Additionally, submit photographs and purchase invoices of the CO sensors, axial fans, electric charging stations/ rapid charging systems.

## Water Efficient Plumbing Fixtures

***WC Mandatory Requirement 1 & Credit 1***

The project must separately calculate the occupancy for the residential and commercial areas. Subsequently, water consumption calculations should be performed independently for each use case - residential and commercial. The overall water savings will then be evaluated for credit compliance.

The baseline criterion for residential and commercial use is as below:

**Table 1 - Baseline Flow Rates / Capacity for Plumbing Fixtures in Residential Spaces**

| Fixture Type | Maximum Flow Rate / Capacity | Duration | Daily Uses per Person/ Day |
|---|---|---|---|
| Water Closets | 6 LPF (High flush) | 1 Flush | 1 |
| | 3 LPF (Low flush) | 1 Flush | 4 |
| Health Faucet/ Bidet, Hand-held spray* | 6 LPM | 15 Seconds | 1 |
| Faucet* | 6 LPM | 15 Seconds | 8 |
| Kitchen Sink* | 6 LPM | 15 Seconds | 6 |
| Showerhead* / Hand-held Spray* | 10 LPM | 8 Minutes | 1 |

*Source: Uniform Plumbing Code – India*

** At a design pressure of 4 bar*

**Table 2 - Baseline Flow Rates / Capacity for Plumbing Fixtures in Commercial spaces**

| Fixture Type | Maximum Flow Rate / Capacity | Duration | Estimated Daily Uses per FTE ** |
|---|---|---|---|
| Water Closets | 6 LPF (High flush) | 1 Flush | 1 for male; 1 for female |
| | 3 LPF (Low flush) | 1 Flush | 2 for female |
| Urinal | 4 LPF | 1 flush | 2 for male |
| Health Faucet/ Bidet, Hand-held spray* | 6 LPM | 15 Seconds | 1 |
| Faucet* | 6 LPM | 15 Seconds | 4 |
| Showerhead* / Hand-held Spray* | 10 LPM | 8 Minutes | 0.1 |

*Source: Uniform Plumbing Code – India.*

** At a design pressure of 4 bar*

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

Points are awarded as below:

| Water Efficient Plumbing Fixtures | Points |
|---|---|
| ≤ 10% less than baseline criteria | 1 |
| ≤ 15% less than baseline criteria | 2 |
| ≤ 20% less than baseline criteria | 3 |
| ≤ 25% less than baseline criteria | 4 |
| ≤ 30% less than baseline criteria | 5 |
| ≤ 35% less than baseline criteria | 6 |

**Documentation Required:**

***Precertification Level***

- Water Saving calculation in excel format embedded with formulae.
- Summary sheet of the proposed list of plumbing fixtures (flow and flush), with respective make & model.
- Manufacturer cutsheets of the individual plumbing fixtures indicating flow rates at 4 Bar pressure.

  *Note: In the absence of cutsheet for 4 bar pressure. The project team should submit the supplementary calculation to indicate the flowrates at 4 Bar pressure along with individual cutsheet of the water fixture.*

  *Project can use the following formula to calculate the approximate flowrates based on fluid dynamics:*

  *Q2 =Q1 [square root of P2/P1]*

  *Where, Q1 & P1 are the known flow rate(Q1) and known pressure (P1). The resulting flow rate (Q2) is calculated for the pressure applied (P2)*

***Certification Level***

Submit documents same as mentioned in precertification level. Additionally, submit a copy of the purchased order and photographs of the installed water efficient flush & flow fixtures.

**WC Credit 4**

## Recycle & Reuse of Waste Water

*The credit compliance applies for the overall project. All facilities and features must be demonstrated for the overall project including the commercial and residential area to meet the credit requirements.*

The project must adhere to the requirements in the IGBC Green Homes Ver 3.0 for credit compliance.

**Documentation Required:**

***Precertification Level***

- Narrative describing the proposed on-site wastewater treatment system, along with quality standards of the wastewater to be treated and reused.
- Submit annual water balance for entire project.
  *Note: The water balance shall include calculations (approximate) showing quantity of wastewater generated & treated; water demand for landscaping, flushing & other applications, and quantity of wastewater reused for such applications.*
- Site plan highlighting the location of proposed on-site wastewater treatment system.
- Submit schematic drawing showing proposed dual plumbing lines, if treated wastewater is reused for flushing and other requirements.

***Certification Level***

Same as precertification level documentation. Additionally, provide photographs showing the on-site wastewater treatment system installed.

## Minimum Energy Efficiency

## EE Mandatory Requirement 2 & Credit 1

*The credit compliance applies for the overall project. All facilities and features must be demonstrated for the overall project including the commercial and residential area to meet the credit requirements.*

The project must show compliance using the performance-based method only (Simulation Approach).

**Compliance Options:**

***For Commercial blocks/zones:***
The project must adhere to the baselines and requirements set forth by IGBC New Building Rating system (Ver 3.0.) under EE Mandatory Requirements 1 and relevant addendums and annexures.

***For Residential blocks/zones:***
The project must adhere to the baselines and requirements set forth by IGBC Green Homes Rating system (Ver 3.0.) under EE Mandatory Requirements 1 and relevant addendums and annexures.

The project must perform simulation for the residential and commercial areas separately. The overall cumulative Energy savings will then be evaluated for credit compliance.

**Documentation Required:**

***Precertification Level***

- Detailed Energy Simulation Report.
- Narrative stating the climate zone and the list of proposed Energy Conservation Measures (ECMs) to be implemented.
- Comparison of the baseline building parameters as per IGBC Green Homes and IGBC New Building for Envelope, Roof Assembly, LPD and Air-conditioning systems.
- Details of proposed glazing along with the list of identified manufacturers and respective specifications of glazing (SHGC value, U-value and VLT). Also, specify window-to-wall ratio (WWR) for each building.
- Construction details of proposed roof (including roof insulation material, etc.,) along with the U-value of the overall roof assembly.
    - Sectional drawings of roof assembly.
- Details of the proposed lighting system including list of interior and exterior lighting fixtures, with make and model.
    - Proposed LPD calculations for interior, exterior, common and parking areas, in owner's/ developer's scope, separately.
    - Conceptual lighting layout of interior and common areas for each typical floor, as applicable
    - Conceptual exterior lighting layout
- Details of the proposed air-conditioning system indicating the COP/ EER values or BEE star rating along with make and model.

- Manufacturer brochures/ cut-sheets/ letters indicating the efficiency parameters for glazing (SHGC value, U-value and VLT), roof insulation materials, lighting fixtures and air conditioning system, as applicable.

***Certification Level***

Same as precertification level documentation. Additionally, provide timestamped and geotagged photographs of wall and roof construction alongwith tax invoice of the materials used.

**MR Credit 8**

## Organic Waste Management, Post-occupancy

*The credit compliance applies for the overall project. All facilities and features must be demonstrated for the overall project including the commercial and residential area to meet the credit requirements.*

**Compliance Options:**

Install on-site waste treatment system for treating atleast 50% organic waste generated from the building(s). The output from such systems like manure, power, etc., should be reused *in-situ*. Biogas can be considered to show credit compliance.

| Percentage of Treated Organic Waste | Points |
|---|---|
| ≥ 50% | 1 |
| ≥ 75% | 2 |
| ≥ 95% | 3 |

*Notes:*

- *Occupancy calculation for the residential and commercial spaces must be arrived on separately. The overall organic waste generated from residential and commercial spaces will then be evaluated for credit compliance.*
- *Default organic waste quantity per person per day can be considered as 0.25 kgs (for residential)/ 0.1 kgs (for commercial) or as prescribed by the local byelaw, whichever is more stringent.*
- *Projects could consider manure from treated organic waste for on-site consumption or donate or sell.*

**Documentation Required:**

***Precertification Level***

- Narrative describing the proposed organic waste treatment system.
- Site plan highlighting the location of proposed on-site organic waste treatment system.
- Tentative calculations indicating the amount of organic waste (kitchen waste) generated and treated.
- Narrative describing the proposed strategies to handle garden waste, as applicable.
- Manufacturer brochure of the proposed organic waste treatment system, as applicable.

***Certification Level***

Submit documents same as mentioned in precertification level. Additionally, provide purchase invoice/ payment receipts of the installed organic waste treatment system. Also, submit photographs showing the installed organic waste treatment system.

## Minimum Daylighting

## RHW Mandatory Requirement 1 & CR 1

*The mandatory credit compliance applies for the overall project including the commercial and residential area to meet the mandatory requirements. However, the credit points will be awarded based on the compliance demonstrated in the residential area only.*

***For Residential Spaces:***
The project must adhere to the requirements in the IGBC Green Homes Ver 3.0 for credit compliance using Option 1 (Prescriptive Approach) or Option 2 (Simulation Approach)

***For Commercial Spaces:***
The project must adhere to the requirements in the IGBC Green Homes Ver 3.0 for credit compliance using Option 2 (Simulation Approach) only.

**Documentation Required:**
***Precertification Level***

**Prescriptive Approach**

- Glazing factor calculations for each typical dwelling unit with room dimensions.
- Conceptual site/ master plan showing all the buildings.
- Drawing(s) showing the angle of obstruction between the buildings within the project and the adjacent neighbouring buildings.
- For clubhouse and other common amenities, submit daylight calculations & plans separately.
- Conceptual floor plans with door & window schedules.
- Cut sheets of the glass showing the visual light transmittance (VLT).

**Simulation Approach**

- Conceptual site/ master plan showing all the buildings.
- Conceptual floor plans with window and skylight schedule.
- For commercial, clubhouse and other common amenities, submit daylight calculations & plans separately.
- Daylighting simulation report stating the sky conditions (such as date & month; time; ambient lux levels; wall, floor & roof reflectance properties; etc.,) and showing the daylight analysis for each typical dwelling unit in the project. During simulation, consider shading devices and 'shadow effect' of adjacent neighbouring buildings.
- Cut sheets of the glass showing the visual light transmittance (VLT).

*Note:*
*Compliance for this mandatory requirement can also be shown with combination of both prescriptive and simulation approach.*

***Certification Level***
**Prescriptive Approach**
Submit documents same as mentioned in precertification level. Additionally, submit photographs showing the building elevations (all sides).

**Simulation Approach**
Submit documents same as mentioned in precertification level. Additionally, submit photographs showing the building elevations (all sides).

## Fresh Air Ventilation

## RWH Mandatory Requirement 2 & CR 2

*The mandatory credit compliance applies for the overall project including the commercial and residential area to meet the mandatory requirements. However, the credit points will be awarded based on the compliance demonstrated in the residential area only.*

**Compliance Options:**

**Commercial spaces:**

**Case A: Mechanically Ventilated Spaces**

Demonstrate that the fresh air ventilation in all regularly occupied areas (owner-occupied and tenant-occupied) to meet the minimum ventilation rates, as prescribed in ASHRAE Standard 62.1 - 2010.

*Note:*

- *Tenant-occupied buildings should show compliance through feasible typical floor plans & occupancy.*
- *In tenant-occupied buildings, if air-conditioning equipment is in tenant scope, then the developer shall mandate provision of fresh air ventilation for tenant occupied spaces in tenant agreement, specifying minimum fresh air ventilation requirements as per ASHRAE Standard 62.1 - 2010.*

(And/or)

**Case B: Non-Air-conditioned Spaces**
***(Applicable only for Owner-occupied buildings)***

Provide operable windows and / or Doors to the exteriors, in all regularly occupied areas, such that the operable area is designed to meet the criteria as outlined in the Table below:

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

*Note: Windows / doors should not have any obstructions within 2 m from the exterior surface. Shading devices can be excluded.*

***General Notes:***

*• Regularly occupied areas are those where people sit or stand as they work, irrespective of the number of days occupied in a year. Regularly occupied areas shall include only enclosed spaces.*
*• Regularly occupied areas include workstations, cabins, meeting rooms, conference rooms, waiting areas, cafeteria, etc.,*
*• Non-regularly occupied areas include toilets, storerooms, etc.,*

**Residential Spaces:**

**Case A: Naturally Ventilated Spaces**

Provide openable windows or doors to the exteriors in all regularly occupied spaces of each dwelling unit such that the openable area is designed to meet the criteria as outlined in the table below:

**Option 1: Less than 5 floors**

**Design Criteria for Openable Windows and Doors to the Exteriors**

| **Space Type** | **Openable area as a percentage of total carpet area** | |
|---|---|---|
| | Mandatory | Credit |
| Living Spaces | 10% | 12% |
| Kitchen | 8% | 10% |
| Bathroom* | 4% | 5% |

**Option 2: More than 5 floors**

**Design Criteria for Openable Windows and Doors to the Exteriors**

| **Space Type** | **Openable area as a percentage of total carpet area** | |
|---|---|---|
| | Mandatory | Credit |
| Living Spaces | 8% | 10% |
| Kitchen | 6% | 8% |
| Bathroom* | 4% | 5% |

***Notes:***

- *Regularly occupied spaces include living room, bedrooms, dining room, study room & kitchen.*

- *For sliding windows / doors, only openable area to the exteriors shall be considered in calculations.*
- **Compliance for bathrooms can also be shown through exhaust system and/ or louvers. The exhaust system in toilets shall meet 50 cfm in 50 sq.ft (4.6 sq.m)of area.*

**Alternative option: Approach through CFD Analysis**

If a project intends to apply the mandatory or credit requirement through CFD analysis, the guidelines specified in NBC norms Part 8: Building Services (Section 1: Lighting & Ventilation) with 3-6 ACH* could be followed for Living spaces. Hence, 6 ACH can be demonstrated for mandatory requirement and 8-10 ACH to meet the Enhanced Fresh Air Ventilation.

The submittals must however include modelling data wherein all buildings and contours within 200m radius are modelled, weather file specific to the region with wind data is made available and output files from the software be shared to authenticate the work done.

**ACH – Air changes per hour*

**Case B: For Air-Conditioned Spaces**

Design mechanical ventilation system to supply minimum 5 cfm per person (Mandatory)/ 6.5 cfm per person (Credit compliance) in each of the habitable spaces.

***Note:***

- *Projects installing unitary air conditioning system(s) for a limited period in a entire year can show compliance by providing openable windows & doors. Projects installing centralised air-conditioning system(s) should meet the fresh air requirement of 5 cfm per person in each of the conditioned spaces.*

**Documentation Required:**

***Precertification Level***

***Naturally Ventilated Spaces***

- *Fresh air calculation for each commercial spaces indicating the openable area (i.e. window/ door) as a percentage of carpet area in each of the regularly occupied spaces.*
- *Fresh air ventilation calculations in each living room of each dwelling unit indicating the openable area (i.e. window/ door) as a percentage of carpet area in each of the regularly occupied spaces and bathrooms.*
- *Floor plans with door and window schedule.*
- *For clubhouse and other common amenities, submit fresh air ventilation calculations & plans separately.*

- *If the project is attempting for compliance using the CFD analysis, submit the relevant documents required.*

***Air-conditioned Spaces***

- *A narrative stating the proposed building ventilation design and fresh air intake volumes for commercial and residential spaces separately.*
- *Calculations indicating fresh air intake volumes in all regularly occupied spaces, for each commercial units and each typical dwelling unit.*
- *Calculations indicating fresh air intake volumes in all regularly occupied spaces, for each typical dwelling unit.*
- *Manufacturer cutsheet of the proposed fresh air ventilation system.*
- *For Commercial spaces, clubhouse and other common amenities, submit fresh air ventilation calculations & HVAC plans separately.*
- *If commercial spaces are within tenant scope, the project must mandate provision of fresh air ventilation for tenant occupied spaces in tenant agreement, specifying minimum fresh air ventilation requirements as per ASHRAE Standard 62.1 - 2010. Also submit the tentative calculations & HVAC plans separately.*

***Certification Level***

Submit documents same as mentioned in precertification level. Additionally, submit photographs of the building and tax invoices of the procured systems (as applicable).