IGBC Green Residential Society Rating System

Green Residential Society Rating System

For Existing Multi-Dwelling Communities

Pilot Version

Abridged Reference Guide

October 2015

Confederation of Indian Industry
CII-Sohrabji Godrej Green Business Centre

Indian Green Building Council

Copyright

Disclaimer

None of the parties involved in developing the IGBC® Green Residential Society Rating System reference guide, including the Indian Green Building Council assume any liability or responsibility, to the user or any third parties for any injuries, losses or damages arising out of such use.

Indian Green Building Council
C/o Confederation of Indian Industry
CII – Sohrabji Godrej Green Business Centre
Survey No. 64, Kothaguda Post
Near Kothaguda Cross Roads, Ranga Reddy (Dt)
Hyderabad – 500 084
INDIA

Foreword from the Indian Green Building Council (IGBC)

A substantial part of the built environment in India is in the form of residential developments. After Construction, residential facilities are handed over to the Societies / Associations to operate and maintain. There are millions of residential facilities where tremendous opportunities exist to enhance energy and water efficiency, thereby reducing the maintenance costs.

Resident welfare communities can also be vibrant by providing good outdoor spaces, vegetation, recreational facilities, tot lots and other facilities.

Against this background, the Indian Green Building Council (IGBC) has launched 'IGBC Green Residential Society Rating System®. This rating program is a set of guidelines for Residential societies to implement measures that will reduce the consumption of natural resources. The main objective to launch IGBC Green Residential Society Rating System is to develop as many green societies as possible. This program is structured and designed to have a very simple approach. It would enable existing residential developments to incorporate and monitor the environmental friendly concepts that would result in tangible and intangible benefits to the residents.

Contact:

Indian Green Building Council
C/o Confederation of Indian Industry
CII – Sohrabji Godrej Green Business Centre
Survey No. 64, Near HITEC City
Kothaguda Post, Ranga Reddy District
Hyderabad – 500 084, India
Ph: +91 40 4418 5111
Fax : +91 40 44185139
Email: igbc@cii.in
Web: www.igbc.in

I. Introduction:

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

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

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

Today the existing residential stock is a significant consumer of resources. It also presents tremendous opportunities to enhance efficiency of resource use. There are millions of Residential Societies which can address resource efficiency coupled with enhancing the quality of life.

Against this background, the Indian Green Building Council (IGBC) has formed a Technical committee to establish Green Residential Society rating system for existing multi dwelling residential buildings. The committee, through various deliberations has come out with a Pilot rating to establish standards in designing sustainable Residential Society. This has been developed considering the Indian context and the National priorities. The Pilot will be operational for the next two years. Based on the learning from the Pilot, the rating system will be further streamlined.

II. Benefits of Green Residential Society Rating System

- 20-30% reduction in Energy cost
- 30-50% reduction in Water requirement
- Improved health & wellbeing of occupants

III. National Benefits:

Green Residential Societies can also result in substantial National benefits:

- Water Conservation
- Handling of House -hold Waste
- Energy Efficiency
- Reduced Use of Fossil Fuels
- Reduced Dependency on Virgin Materials

The sustainable aspects of Residential Society are addressed in the IGBC Green Residential Society rating system under the following modules:

- Facility Management
- Sustainable Water Practices
- Energy Conservation
- Waste Management
- Innovative Practice

The guidelines detailed under each credit enables the design and construction of green Residential Societies of all sizes and types. Different levels of green building certification are awarded based on the total credits earned.

The various levels of rating awarded are:

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

IV. Scope:

The IGBC Green Residential Society Rating is designed to address the specific requirements of existing Multi Dwelling residential buildings.

V. IGBC Green Residential Society Registration

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

VI. IGBC Green Residential Society Certification

Certification of project will be carried out by IGBC team. The certification will comprise of two stages - Assessment & Building audit

It is important to note that the credits earned at the assessment stage are only considered as anticipated. These credits are not awarded until the building audit, along with additional documents showing implementation are done. If there are changes after the assessment, such changes need to be submitted during the final assessment.

IGBC will recognise Green Residential Society projects that achieve one of the rating levels with a formal letter of certification and a mountable plaque.

VII. IGBC Certification Process

VIII. Documentation required for Rating

The project must satisfy all the credit requirements and minimum number of credit points.

The project team should provide supporting documents during the submission.

The following are the documents required:

1. Registration form with General information of project including
2. Filled-in Green Residential Society Master Template (in excel format)
3. Other documents mentioned in the reference guide

The pilot rating standard mentions the documentation required for each credit.

IX. Physical Verification & Monitoring

Physical audit is unique to IGBC's processes. Before award of rating, the IGBC team would physically audit and verify implementation of the green measures.

X. Credit Interpretation Ruling

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

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

The following are the steps to be followed if a project team faces an issue not addressed in the IGBC Green Residential Society rating reference guide:

- Consult the pilot rating for description of the credit intent
- Review the intent of the credit and self-evaluate whether the project satisfies the intent.
- Review the Credit Interpretation web page for previous CIR on the relevant credits. All projects registered under IGBC Green Residential Society will have access to this page.

If a similar CIR has not been addressed or does not address the issue sufficiently, submit a credit interpretation request (A CIR shall not exceed 600 words or 5,000 characters including spaces). Only registered projects are eligible to post CIRs. Two CIRs are answered without levying any fee and for additional CIRs beyond the first two CIRs, a fee is levied.

The CIR Rulings for the earlier CIR raised by project teams is available in www.igbc.in

XI. Appeal Process

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

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

The following documentation should be submitted:

1. General information of project including
   a) Concept brief, area calculations, number of floors, occupant density.
   b) General drawings (in PDF format only):
      - Typical floor plan
      - Siteplan
      - Photographs
2. Filled-in Letter Template for respective credits.
3. Original, re-submittal, and appeal submittal documentation for only those credits that the project is appealing for. Also include a narrative for each appealed credit to describe how the documents address the reviewers` comments and concerns.

XII. Fee

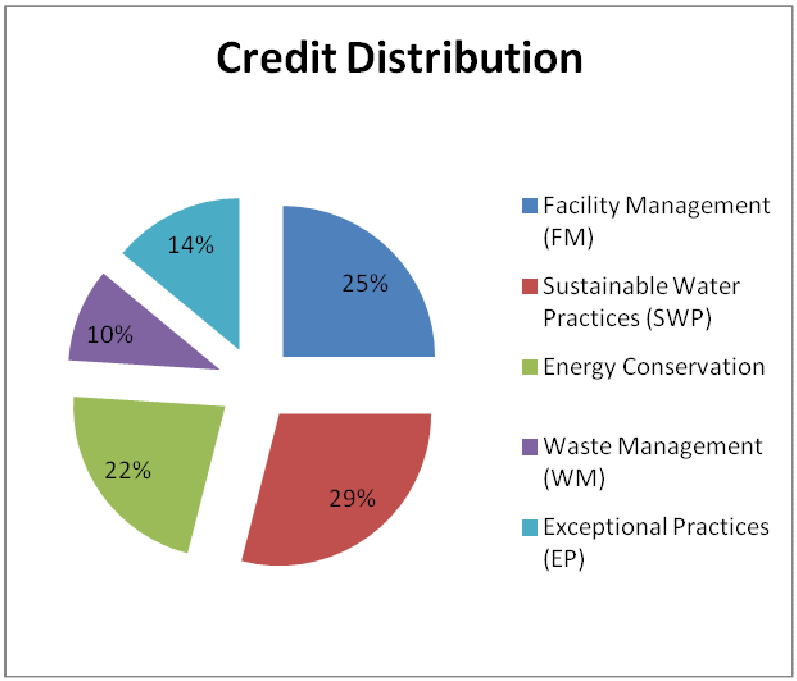
Registration, Certification, Appeal and CIR fee details are available on IGBC website (www.igbc.in) or projects can write to IGBC (igbc@cii.in)

XIII. Updates and Addenda

This is the Pilot version of IGBC Green Residential Society Reference Standard. As the rating system continues to improve and evolve, updates, addenda and errata to the Reference Standard will be made available through the IGBC website. These additions will be incorporated in the next version of the rating system.

IGBC Green Residential Society Rating System – CHECKLIST		
Credits		**Points**
Facility Management		
FM Credit 1	No Smoking in Common Areas	3
FM Credit 2	Maintenance of Facility	4
FM Credit 3	Basic Amenities	2
FM Credit 4	Green Housekeeping in common areas	1
FM Credit 5	Green Education for Occupants	1
FM Credit 6	Minimize Heat Exposure – Roof: 30, 40, …… 80%	6
FM Credit 7	Covered External Lighting Fixtures : 50, 75, 95%	3
FM Credit 8	Design for Differently Abled	3
FM Credit 9	Facilities for Health & Wellbeing	2
	TOTAL	**25**
Sustainable Water Practices (SWP)		
SWP Credit 1	Rain Water Harvesting : 10, 20, ……100%	10
SWP Credit 2	Landscape Areas: 20, 25, …… 40%	5
SWP Credit 3	Water Sub Metering	4
SWP Credit 4	Water Efficient Fixtures : 40, 50, …… 90%	6
SWP Credit 5	On-Site STP: 50, 75, 95%	3
SWP Credit 6	Automatic water level controllers	1
	TOTAL	**29**
Energy Conservation		
EC Credit 1	CFC Free Appliances	3
EC Credit 2	Efficient Lighting Fixtures: 25, 50, 75, 95%	4
EC Credit 3	Solar power for street & Common Area Lighting: 20, 30 ……. 80%	7
EC Credit 4	Energy metering	2
EC Credit 5	Solar Water Heating Systems: 20, 30. …… 70%	6
	TOTAL	**22**
Waste Management (WM)		
WM Credit 1	Waste Segregation	4
WM Credit 2	Organic Waste Management - 20, 40, 60, 80, 90%	5
WM Credit 3	E-waste Management	1
	TOTAL	**10**

Exceptional Green Practices (EGP)		
EP Credit 1	Install Water Meters for Dwelling units (50, 75, 100%)	3
	Reuse of treated waste water for landscaping	1
	Install Fresh water treatment plant	1
	Provide Electric charging points for vehicles in common areas (2.5%, 5%)	2
	Use LPG/CNG Gas geysers for water heating (20, 40%)	2
	Install Day-Light / Motion Sensors in common areas	1
	Involve IGBC AP in the society	1
	Other Innovative practices with reduced environmental impacts	3
	TOTAL	**14**
Total Number of Points		**100**



The threshold criteria for certification levels are as under:

Certification Level	Points	Recognition
Certified	30 – 39	Best Practices
Silver	40 – 49	Outstanding Performance
Gold	50 – 64	National Excellence
Platinum	65 & above	Global Leadership

Facility Management

No Smoking in Common Areas

FM Credit 1 **Points: 3**

Intent:

Minimise exposure of non-smokers to the adverse health impacts arising due to passive smoking in the society.

Requirements:

- Adopt following measures:
  - Declaration letter from the Resident's association describing the "No Smoking" policy
  - Provide descriptive measures for non-smoking policy in the green guidelines document.
  - Display 'no smoking zone' signage boards in all common areas in the project.
    - ✓ Informative signage to educate users about adverse effects due to smoking.

Benefits:

- Reduces health hazards caused due to passive smoking.
- Improves air quality thereby improving health of community as a whole.

Documents required:

- Photographs of signage boards installed
- Green Guidelines.
- Declaration letter

Guidelines & Examples:

(These guidelines are illustrative)

- Identify various common spaces and educate users on various adverse effects due to smoking.

No Smoking Campus

Maintenance of Facility

FM Credit 2 **Point(s): 4**

Intent:

Verify and ensure that the building equipment & systems are sustained to achieve performance as envisaged at the design stage.

Requirements:

- Demonstrate that the residential site has a contract with an agency which provides efficient building management practices.

(And/Or)

- Have in place an operation and maintenance personnel for any four of the following systems

  - Electrical
  - Plumbing
  - Landscaping
  - Housekeeping
  - Lifts/Elevators
  - Fire suppression systems
  - DG Sets

Benefits

- Reduced energy consumption.
- Improved lifespan of equipment used in the building.

Documentation required:

- Narrative with relevant photographs
- Copy of the maintenance, as applicable

Basic Amenities

FM Credit 3 **Point(s):2**

Intent:

Ensure access to basic amenities to reduce negative impacts caused to the environment from automobile use.

Requirements:

Select a site with access to at least three basic house-hold amenities, within a distance of 1 km from the building entrance (1 point for every 3 basic amenities; 2 points max).

Benefits

- Minimises the negative environmental impacts resulting from the use of automobiles
- Saving of fuel used in commuting
- Encourages people to walk or cycle, thereby improving health
- Promotes community level interaction and better quality of life

Documentation required:

- Relevant photographs with distance from site

Guidelines & Examples

(These guidelines are illustrative)

1 Grocery Store

2 School

3 Bank ATM

4 Medical Clinic and Pharma store

5 Laundry Service

6 Restaurant

Green Housekeeping in Common Areas

FM Credit 4 **Point(s): 1**

Intent:

Encourage the use of eco-friendly housekeeping chemicals so as to reduce adverse health impacts on residents.

Requirements:

- ❖ Demonstrate housekeeping chemicals that are certified by GPSC (Green Pro) or European/ Green seal standard (GD-37) or equivalent standards are being used for all building common area cleaning applications.

Benefits

- ➢ Reduces adverse health impacts on residents.

Documentation required:

- List of all building applications where housekeeping chemicals are used
- Purchase invoices of eco-friendly housekeeping chemicals procured

Green Education for Occupants

FM Credit 5 **Point(s): 1**

Intent:

Provide occupants with descriptive guidelines that educate and help them implement and maintain green design features

Requirements:

- Publish green guidelines / brochure to help residents implement the green features

Benefits

- Educates the residents about the green building features.
- Enables better maintenance throughout the building's lifespan.

Documentation required:

- A copy of the guidelines circulated amongst the residents.

Minimise Heat Exposure – Roof

FM Credit 6 **Point(s): 6**

Intent:

Reduce heat islands to minimize impact on micro climate, human and local biodiversity.

Requirements:

- At least 30% of exposed areas (roof) must be covered with (or) in combination of the following:
  - White colored china mosaic tiles
  - Painted white
  - Vegetation

% of covered roof area	Points
30%	1
40%	2
50%	3
60%	4
70%	5
80%	6

Benefits

- Reduction in local temperatures.
- Encourages Biodiversity of the region.
- Aesthetic Delight

Documents required:

- Details of area covered with tiles/ paint/ vegetation etc.
- Photographs of the measures adopted.

Guidelines & Examples

(These guidelines are illustrative)

Guideline 1: Cover the exposed roof area with light coloured paint or china mosaic tiles or vegetation

Description	Units
Total Roof Area in Sq.m	1,000
Net Exposed Roof Area (Deducting Utilities) in Sq.m	850
Total Exposed Area Covered by Vegetation in Sq.m	150
Total Exposed Area Covered with light coloured China Mosaic tiles in Sq.m	250
Total Exposed Area Covered with White Paint in Sq.m	250
Total Net Exposed area covered to minimise heat exposure in Sq.m	150+250+250 = 650
Percentage of Exposed roof area covered by Vegetation, China mosaic tiles , White Paint	(650/850) x 100 = 76 %

The society is eligible for 5 points under this credit.

Roof Garden

China mosaic tiles installed on Roof

Heat insulating white tiles

Covered External Lighting Fixtures: 50, 75, 95%

FM Credit 7 **Point(s): 3**

Intent:

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

Requirements:

- ❖ Ensure external lighting fixtures installed with a dome/cover to reduce light pollution into the sky
- ❖ Install Bollard fixtures with a height less than 3 feet.

Benefits:

- ➢ Enhances nocturnal environment

Documents required:

- ➢ Photographs of the installed lighting fixtures.

Guidelines & Examples

(These guidelines are illustrative)

Bollard Light Fixture

Covered Dome Light Fixture

Design for Differently Abled

FM Credit 8 **Point(s): 3**

Intent:

Ensure that the building caters to differently abled and senior citizens thereby enhancing the quality of life.

Requirements:

Ensure that following provisions for differently abled people are incorporated (Any 3 measures, 1 point for each measure):

- ❖ Uniform flooring
- ❖ Non-slippery ramps with hand rails on at least one side at all entrances
- ❖ Rest rooms (toilets) in common areas designed for differently abled people
- ❖ Braille and audio assistance in lifts for visually impaired people
- ❖ Designated parking facility near lift lobby

Documents required:

- ➢ Photographs of the installed features.

Guidelines & Examples

(These guidelines are illustrative)

Design features for Differently Abled and senior Citizens

Facilities for Health & Wellbeing

FM Credit 9 **Point(s): 2**

Intent:

Promote occupant well-being facilities so as to enhance physical, emotional and spiritual well-being.

Requirements:

Have recreational facilities such as: (Any 2 measures, 1 point for each measure):

- Gymnasium
- Yoga / Meditation Center
- Indoor games
- Swimming Pool
- Outdoor Sports

Documents required:

- Photographs of the facility

Guidelines & Examples

(These guidelines are illustrative)

Facilities for Health and Wellbeing

Sustainable Water Practices

Rain Water Harvesting: 10, 20…… 100%

SWP Credit 1 **Point(s): 10**

Intent:

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

Requirements:

- Provide rainwater harvesting system to capture atleast 10% of run-off volumes from roof and non-roof areas.

  A table showing the Percentage of minimum rainwater to be harvested for a given total site area, to achieve credit points is provided below.

% of Rainwater Harvested	Points
≥ 10 %	1
≥ 20 %	2
≥ 30 %	3
≥ 40 %	4
≥ 50 %	5
≥ 60 %	6
≥ 70 %	7
≥ 80 %	8
≥ 90 %	9
≥ 100 %	10

Considerations for the rainwater harvesting calculations:

- *Surface Runoff coefficient for total site considered as 0.5*
- *Average normal rainfall for India considered as 30mm*
- *Amount of Rainwater Harvested = Total site area (Sq.m) X Surface runoff coefficient (0.5) X Average normal rainfall India in metres (0.03m)*

Requirements:

- **Case 1:**

  Provide rainwater harvesting system to capture rain water as mentioned in the table above for run-off volumes from roof and non-roof areas.

- **Case 2:**

  In areas where the Central/ State Ground Water Board does not recommend rain water recharge (or) if the groundwater table is less than 4 m, the projects can have rain water harvesting storage tanks for a minimum of 5% (1 points) and a maximum of 14% (10 points) of the total run-off volumes of roof surfaces to show compliance .

Documents required:

- Details of the rainwater harvesting system specifying storage / harvesting capacity of system.
- Photographs of the implemented measures.
- Document supporting the case 2 to demonstrate the water table level.

Guidelines & Examples

(These guidelines are illustrative)

Guideline 1: Recharge or store Rainwater for reuse

Description	Units
Total Site Area in Sq.m	6660
Surface Runoff Coefficient	0.5
Average Normal Rainfall for India (in mm)	30
Total Run off Volume available from the Site (in cum)	6660 x 0.5 x 0.03 = 99.9 Cum
Total Rainwater Harvested by Project team (in Cum)	50
Percentage of Rainwater Harvested	(50/99.9) x 100 = 50 %

The society is eligible for 5 points under this credit.

Rainwater Harvesting System

Landscape Areas: 20, 25, 30, 35, 40%

SWP Credit 2 **Point(s): 5**

Intent:

Encourage greenery within the site, thereby preserving the local habitat and promoting biodiversity.

Requirements:

- Demonstrate that at least 20% of site area is covered with vegetation on ground/ podiums/ walls / roof areas or combination of the above

% of greenery	Points
≥ 20 %	1
≥ 25 %	2
≥ 30 %	3
≥ 35 %	4
≥ 40 %	5

Note: 1. Playgrounds & Artificial water bodies should be excluded from this credit calculation.

2. Potted plants spread over a minimum area of 50 sq.ft can be considered for landscaping

Benefits:

- Increased Green cover
- Conserves local and regional potable water resources and helps in conserving water for our future generations.
- Reduces the stress on the ground water table
- Promotes local bio-diversity.

Documents required:

- Calculation sheet describing total site area & area with vegetation.
- Photographs of vegetated area provided in the residential site.

Guidelines & Examples

(These guidelines are illustrative)

- Guideline 1: A vegetative space includes areas with shrubs, trees, ground covers and lawn.
- Guideline 2: For calculations, let us consider following assumptions:

  Total Area of site is 1500 sq.m.
  - Building foot print is 750 sq.m.
  - Vegetated space is 300 sq.m.
    - Lawn area is 100 sq.m
    - Area with native species is 100 sq.m
    - Area with drought tolerant species is 50 sq.m.
    - Other Species area is 50 sq.m.
  - Non-roof impervious area is 350 sq.m.
  - Water body is 100 sq.m.

Greenery in site (Trees, Shrubs)

- Guideline 3: The area excluding building footprint, non-roof impervious area & water body is 300 sq.m. For meeting this credit, at least 20% of total site area i.e., 300 sq.m of the area should be provided with vegetation.

Water Sub Metering

SWP Credit 3 **Point(s): 4**

Intent:

Encourage continuous monitoring to enhance water performance of the residential society, thereby save potable water.

Requirements:

- Provide water meters or a system in place to measure Water Consumption from Municipal, Bore, Tanker water, Treated waste water and any other sources. (1 point for each measure; 4 points maximum)

Benefits

- Water meters can help measure any deviations that can always be diagnosed and corrected thereby reducing additional water costs.

Documents required:

- List of water meters installed with supporting photographs.

Guidelines & Examples

(These guidelines are illustrative)


Water Sub Metering

Water Efficient Fixtures

SWP Credit 4 **Point(s): 6**

Intent:

Enhance efficiency of water fixtures, thereby minimizing potable water use.

Requirements:

- Retrofit in common area rest rooms
  - Aerators for taps – 1 point
  - Shower heads with aerators – 1 point
  - Water closets with dual flush – 1 point
- Retrofit in Individual dwelling unit rest rooms
  - Aerators for taps – 1 point
  - Shower heads with aerators – 1 point
  - Water closets with dual flush – 1 point

Benefits

- Ensures 20-30% water saving by installing low flow fixtures
- Less dependency on potable water for flushing requirements by using treated waste water
- Reduces the load on the wastewater treatment facilities and the need for wastewater treatment infrastructure

Documents required:

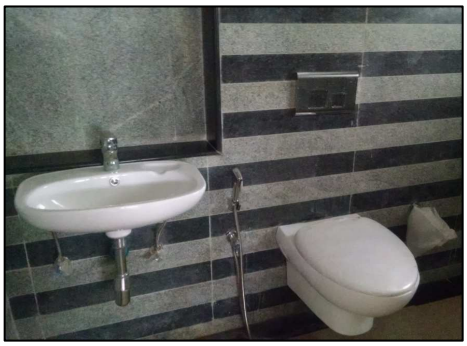
- Photographs and Invoices of replaced / retrofitted fixtures.

Guidelines & Examples

(These guidelines are illustrative)

Water Efficient Fixture

Faucet fitted with Aerator



Water Closet with Dual Flush

On-Site STP: 50%, 75%, 95%

SWP Credit 5 **Point(s): 3**

Intent:

Treat waste water generated on-site, so as to avoid polluting the receiving streams by safe disposal and reduce the burden on centralised municipal water treatment plants.

Requirements:

Provide an on-site treatment system to treat at least 50% of waste water generated in the site

Benefits

- Avoids aquifer contamination problems
- Brings self-sufficiency with respect to water needs.
- The local aquifer is conserved as a water resource for future generations.

Documents required:

- Details of the total waste water generated.
- Details of treatment plant installed.
- Photograph of the treatment plant.

Guidelines & Examples

(These guidelines are illustrative)

Guideline 1: Estimate the waste water generated by the occupants per day as shown in the table:

Description	Units
Total Dwelling units	100
Average occupants in each dwelling	4
Total Occupancy	400
Average water consumption per person (litres/day)	135
Average waste water generated per person (in litres)	90% of water consumption = 122
Total waste water generated by all occupants per day (in KLD)	400 x 122 = 48,800 litres = 48.8
On-site STP with minimum capacity of waste water treatment required	50% = 24.4 KLD

Guideline 2: Install STP with a minimum capacity of 25 KLD to meet the minimum criteria

On-Site STP for treating waste water

Automatic water level controllers

SWP Credit 6 **Point(s): 1**

Intent:

Encourage continuous monitoring to conserve water consumption, thereby reducing associated adverse environmental impacts.

Requirements:

Install Water level Controllers on the overhead tanks

Benefits

- Reduction in water & energy consumption

Documents required:

- Supporting photographs of the water level controllers installed.

Guidelines & Examples

(These guidelines are illustrative)

Automatic Water Level Controllers for Over Head Tanks

Energy Conservation

CFC Free Appliances

EC Credit 1 **Point(s): 3**

Intent:

Avoid use of ozone depleting refrigerants and gases which have negative impact on the environment.

Requirements:

- Zero use of chlorofluorocarbon (CFC) refrigerants in Heating, Ventilation & Air-conditioning (HVAC) equipment and Unitary Air-Conditioners installed in the building(s)

And

- Use minimum BEE 3 star rated Air Conditioners in Common Areas Viz., Club House, Gym, Community Hall or other appropriate areas(one point for each common area – 3 points max)

Benefits:

- Reduces adverse health impacts
- Protects the ozone layer from further depletion

Documents required:

- Photographs/ Purchase invoice of the installed CFC-free, BEE 3 star rated appliances.

Guidelines & Examples

(These guidelines are illustrative)

CFC Free and BEE 3 Star Air Conditioners in Common Areas

Efficient Lighting Fixtures : 25, 50, 75, 95%

EC Credit 2 **Point(s): 4**

Intent:

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

Requirements:

- Select CFLs/ LEDs/ T5s for atleast 25% of all street & common area lighting

% Street and Common Area Lighting	Points
25 %	1
50 %	2
75 %	3
95%	4

Benefits:

- Reduced energy bills.
- Energy cost savings with payback time of 1-2 years.
- Reduced environmental impacts.

Documents required:

- Photographs of the installed lighting fixtures.

Guidelines & Examples

(These guidelines are illustrative)

Guideline 1: Estimate the lighting fixtures with wattages to calculate the loads as shown in the table:

Description	Quantity in Nos	Consumption in Watts
Total Dwelling units	100	
No of CFL lights with 16 W (efficient fixture)	100	1600
No of Tube lights – 26 W (efficient fixture)	10	260
No of Day light fixtures – 500 W	2	1000
Total power consumption for common area lighting		2860

Total power consumption of efficient fixtures		1860
Percentage of efficient lighting fixtures		1860/2860 x 100 = **65%**



Energy Efficient Lighting Fixtures for Street lights and Common Areas

Solar Power for Street/common Area Lighting: 20, 30, 40, 50, 60, 70, 80%

EC Credit 3 **Point(s): 7**

Intent:

Promote self sufficiency in energy through renewable technologies, to minimise the environmental impacts associated with the use of fossil fuel energy.

Requirements:

- Install centralized or Local Solar PV system to cater atleast 20% of street/common area lighting

% Street and Common Area Lighting	Points
20 %	1
30 %	2
40 %	3
50%	4
60%	5
70%	6
80%	7

Benefits:

- Reduced energy bills.
- Energy cost savings with payback time of 1-2 years.
- Reduced environmental impacts.

Documents required:

- Photographs, purchase invoices of the installed solar Photo Voltaic system.

Guidelines & Examples

(These guidelines are illustrative)

Guideline 1: Estimate the lighting fixtures with wattages to calculate the loads as shown in the table:

Description	Quantity in Nos	Consumption in Watts
Total Dwelling units	100	
No of CFL lights with 8 W	20	160
No of Tube lights – 26 W	4	104
No of Day lights – 500 W	2	1000
Total power consumption for outdoor/street lighting		1264
Installed photo voltaic – 1kW		
Percentage of photo Voltaic for street lighting = Installed PV X 100/Total		1000/1264 x 100 = **79%**

power consumption		

Guideline 2: The project is eligible for 6 points under this credit.

Stand Alone Solar-PV Street Lights

Centralized Solar-PV system for Street and common area lighting

Energy Metering

EC Credit 4 **Point(s): 2**

Intent:

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

Requirements:

Provide energy meters for any two of the following, as applicable *(one point for every measure, max two points)*:

- Common area lighting
- Equipment
- Street lighting
- Measuring power consumption in Club house

Benefits

- Reduction in energy consumption, thereby reducing associated adverse environmental impacts.

Documents required:

- List of Energy meters installed with supporting photographs.

Guidelines & Examples

(These guidelines are illustrative)

Energy Meters measuring Common Area Loads

Energy Meters measuring Lighting and Equipment Loads

Solar Water Heating Systems: 20, 30, 40, 50, 60, 70%

EC Credit 5 **Point(s): 6**

Intent:

Encourage use of alternative sources of energy for water heating applications, to minimize the environmental impacts of using fossil fuels.

Requirements:

- Provide solar water heating (SWH) system to cater hot water requirements for domestic usage (Individual, Common or Combination of both).

Capacity of Solar Hot water to be installed (liters/day)	Points
20 %	1
30 %	2
40 %	3
50%	4
60%	5
70%	6

Benefits:

- Helps in substantially reducing energy bills and mitigating carbon emissions.

Documents required:

- Details on total hot water requirement of the occupants and percentage of water heated through the solar water heating system.
- Photographs and invoices of the solar water heating systems installed in the project.

Guidelines & Examples

(These guidelines are illustrative)

Example:

Estimate the hot water consumption per person as 20 liters per day to calculate the loads as shown in the table:

Description	
Total Dwelling units	100
Average occupants in each dwelling	4
Total Occupancy	400
Average Hot water consumption per person	20 liters/day
Average Hot water consumption by society / day	400 x 20 = 8000 liters / day
SWH systems installed for the capacity	4500 liters / day

Percentage of SWH system installed	4500/8000 x 100 = 56%

The society can claim 4 points under this credit

Centralized Solar Hot Water System

Individual Solar Hot Water System

Waste Management

Waste Segregation

WM Credit 1 **Point(s): 4**

Intent:

Facilitate segregation of waste at source to encourage reuse or recycling of materials, thereby avoiding waste being sent to land-fills.

Requirements:

- Provide at least two separate bins to collect dry waste and wet waste (organic waste) in each dwelling unit (2 points).
- Provide a separate bin for medical waste in the common area (1 point)
- Provide centralised / common storage and hauling space for the waste collected (1 point).

Benefits:

- Reduces the burden on landfills
- Encourages the manufacturing industry to re-utilize waste materials
- Facilitates local municipal corporations to generate power from waste.

Documents required:

- Photographs of bins for waste segregation at dwelling unit level and common area.

Effective waste management

Waste segregation bins provided

Organic Waste Management - 20, 40, 60, 80, 90%

WM Credit 2 **Point(s):5**

Intent:

Ensure effective organic waste management, so as to prevent such waste being sent to land-fills.

Requirements:

- Have facility for Composting of Organic Waste at the flat level or centrally

Capacity of Organic Waste Converter to be installed (in Kgs / day)	Points
20 %	1
40 %	2
60 %	3
80%	4
90%	5
70%	6

Benefits:

- Reduces the requirement for fertilizers
- Minimizes transportation of such waste to long distance landfill sites

Documents required:

- Details on quantity of organic waste generated and treated in the project.
- Photographs of the organic composts.

Guidelines & Examples:

(These guidelines are illustrative)

- Guideline 1: Organic waste includes the waste which can be treated biologically like food items.
- Guideline 2: Organic waste generated can be treated through composting or mechanical processes. The manure generated through these processes can be used as an organic fertilizer for plants.

Organic waste conversion with perforated pots

Organic waste generation and reuse

Mechanical organic waste converter

Example:

Estimate the organic waste generated per person as 0.25 Kg per day to calculate the organic waste generated in the societies as shown in the table:

Description	
Total Dwelling units	100
Average occupants in each dwelling	4
Total Occupancy	400
Organic waste generated per person	0.25 kg /day
Organic waste generated by society / day	400 x 0.25 = 100 kgs / day
Organic waste converter installed to treat organic waste	100 kgs / day
Percentage of OWC system installed	100/100 x 100 = 100%

The society can claim 6 points under this credit

Sell or Donate E-waste in the RWA to PCB listed haulers

WM Credit 3 **Point(s): 1**

Intent:

Encourage recycling / effective disposal to E-waste, so as to prevent such hazardous waste being sent to land-fills.

Requirements:

- Identify and have a contract in place with a PCB listed hauler for collection and disposal of E-waste, at least once in three months from the society

Benefits:

- Reduces the burden on landfills
- Encourages the manufacturing industry to re-utilize waste materials

Documents required:

Copy of the contract and relevant photographs.

Innovative Practices

Exceptional Green Practices

EP Credit 1 **Point(s): 14**

Intent:

Provide an opportunity for the societies to be awarded points for exceptional practices or innovative performance in green building categories not specifically addressed by the Green Residential Society Rating System.

Compliance Option:

a) Install Water Meters for Dwelling units (50, 75, 100%) **(3 points)**

- Install individual water meters for at least 50% of the total dwelling units

% Dwelling Units	Points
50 %	1
75 %	2
100 %	3

- Documents Required : Purchase invoice with Photographs

b) Reuse of treated waste water to meet atleast 50% of Landscaping demand **(1 point)**

- The project may consider using the treated water from the adjoining projects or from the centralised STP in the same locality
- Documents Required : Estimate the landscaping demand and submit relevant photographs

Guideline 1: Estimate the water water generated by the occupants per day as shown in the table:

Description	
Total Landscaped Area in Sq m	1000
Average Water Consumption for landscaping 1 Sq m / Day (in litres)	6
Total Water Requirement for Landscaping (litres/day)	1000 x 6 = 6,000
Amount of Treated Waste Water from STP (litres/day)	5000
Amount of Treated Waste Water used for Landscaping (litres/day)	4000
Percentage of Landscape Demand met by treated waste water	(4000/5000)x 100 = 80 %

Society is eligible for 1 point

c) Install Fresh water treatment plant **(1 point)**

- Documents Required : Purchase invoice with Photographs

d) Provide Electric charging points for vehicles in common areas (2.5%, 5%) **(2 points)**

- Provide electric charging points to cater to at least 2.5 % of the total parkings provided

% of Parkings with Electric Charging	Points
2.5	1
5	2

- Documents Required : Photographs of the installed charging points
- Sample Calculations

Description	
Total Dwelling Units	100
No of Parking Space Provided	100
Number of Parking Spaces with Electric Charging Points Provided	38
Percentage of Parking Space Provided with Electric Charging points	(7/100) x 100 = 7%

The society is eligible for 2 points under this credit

e) Use LPG/CNG Gas geysers for water heating (20, 40%) **(2 points)**

Capacity of LPG based Hot Water systems to be installed (liters/day)	Points
20 %	1
40 %	2

- Documents Required : Purchase invoice with Photographs
- Sample Calculations

Description	
Total Dwelling units	100
Average occupants in each dwelling	4
Total Occupancy	400
Average Hot water consumption per person	20 liters/day
Average Hot water consumption by society / day	400 x 20 = 8000 liters / day
Capacity of LPG based Hot water systems	4500 liters / day
Percentage of SWH system installed	4500/8000 x 100 = 56%

The society is eligible for 2 points under this credit.

f) Install Day-Light / Motion Sensors in common areas **(1 point)**

- Install Daylight / motion sensors for common area lighting such as façade, pathways, landscaping, surface and covered parking, street lighting
- Documents Required : Purchase invoice with Photographs

g) Involve IGBC AP in the society **(1 point)**

- Identify an IGBC Accredited Professional who has expertise in IGBC rating systems and green building concepts. The Accredited Professional understands the importance of integrated design and considers synergy amongst various requirements
- Documents Required : IGBC AP certificate

h) Other Innovative practices with reduced environmental impacts **(3 points)**

- Identify the intent of the proposed innovation credit, the proposed requirement for compliance and the proposed documentation to demonstrate compliance and the design approach used to meet the required elements. (1 point for each measure)

  Notes:

  - *Innovative strategies or measures not covered by the rating system*
  - *Measures must be voluntary. Measures that are mandated by the local bye-laws and addressed in the rating system are not eligible for Innovation.*
- Documents Required: photographs, illustrations etc., as applicable

For any clarifications, please write to:

Confederation of Indian Industry
CII-Sohrabji Godrej Green Business Centre
Survey No. 64, Kothaguda Post, Near HITEC City
R.R Dist., Hyderabad – 500 084
Phone: 040-44185119 Fax: 040 - 44185189
Web: www.igbc.in