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Building a Better Tomorrow

# Eco-housing Assessment Criteria

## Version-II 2009

### Abridged Version

IMPLEMENTED BY



IIEC

TECHNICAL & FINANCIAL SUPPORT BY



UNIVERSITY OF PUNE



SCITECH PARK

PROGRAM IMPLEMENTING PARTNERS

CEE

Centre for Environment Education



BNCA

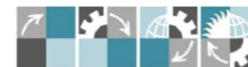
NIASA

SUPPORTING ORGANISATIONS

# Eco-housing Assessment Criteria

Version-II  
2009

Abridged Version



IIEC

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## THE ECO HOUSING MAINSTREAMING PARTNERSHIP

The Eco-housing partnership was launched in September 2004 in response to the unchecked and resource intensive housing construction boom in India, especially in urban and peri-urban areas.

Eco-housing policy and fiscal incentives, demonstration projects, capacity building and the development of a sustainable institutional mechanism to mainstream Eco-housing practices.

This initiative implemented by the International Institute for Energy Conservation (IIEC) with support from United States Agency for International Development (USAID) and the Global Development Alliance (GDA), addresses the challenge of containing the ever-increasing demand for resources through interventions spanning policy and market development.

The program has been characterized by specific interventions, including the development of Eco-Housing performance assessment tool, integration of

## THE ECO-HOUSING ASSESSMENT CRITERIA

### 1. SCOPE

The Eco-housing Assessment Criteria are applicable to all residential building/building complexes, and single-family residences in all climatic zone in India.

### 2. OVERVIEW

A set of Eco-housing assessment criteria have been developed to promote environmentally sensible housing. Designed to serve as a design and performance assessment tool, the criteria help quantify the environmental performance of a building.

A voluntary five star rating and certification mechanism developed around the Eco-housing assessment criteria serves as a baseline to quantify the environmental performance of projects.

The criteria have also been developed as a web based assessment tool and are available online at [www.ecohousingindia.org](http://www.ecohousingindia.org). The tool provides the user with the flexibility to assess the eco-performance of a project and gauge its rating based on the number of measures being complied with.

## ECO-HOUSING ASSESSMENT CRITERIA VERSION - I

Version I of the criteria was developed specifically for Pune city by the International Institute for Energy Conservation (IIEC) in association with the Science and Technology Park (STP) and The Energy Resources Institute (TERI) in 2006. Its application was tested in several residential complexes in Pune City. A modified version of the criteria was also drafted to assist in retrofitting of existing housing complexes in Municipal Corporation of Greater Mumbai (MCGM) jurisdiction.

## ECO-HOUSING ASSESSMENT CRITERIA VERSION -II

Recognizing the need for a more long-term and sustained effort to create a permanency in eco - housing practices and education of the stakeholders the second phase of this initiative was launched. The key tool for scale-up of the program was the development of Version II of the Assessment Criteria, which addresses the variable design requirements of different climatic zones in the country.

The National Building Code specifies five climatic zones for design consideration. These zones are - 1) Hot and Dry, 2) Warm and Humid, 3) Moderate, 4) Composite, 5) Cold (this zone comprises of cold & cloudy, and cold & sunny)

The design principles for Version II of the criteria are (a) Ease of use (b) Applicability across all the climatic zones in India and (c) Parity in application across the climatic zones.

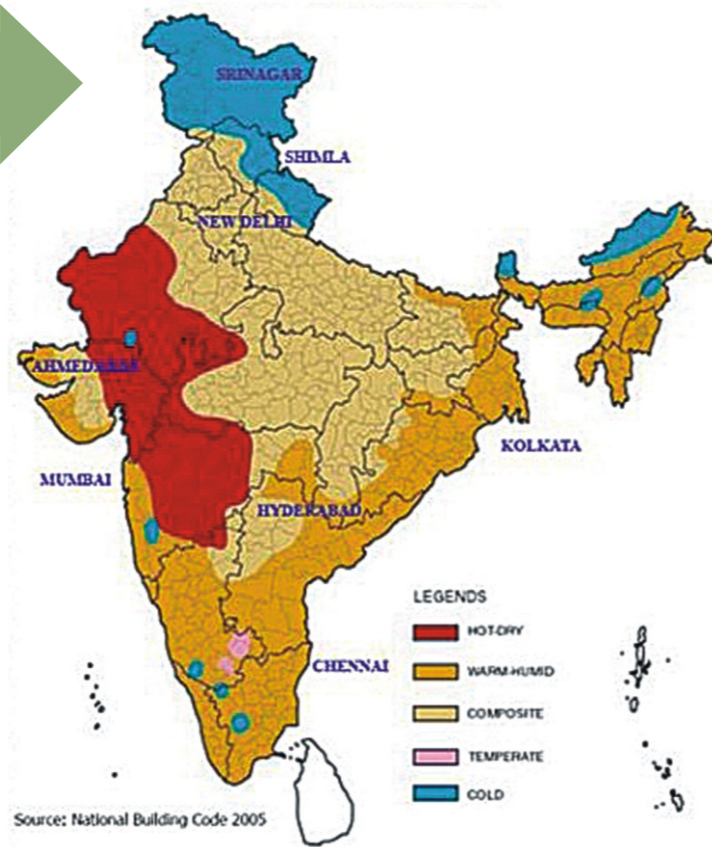
The criteria have been developed and finalised through a consultative process with the engagement of architects, engineers, technical experts and key stakeholders.

Version II of the Eco-housing criteria provides a carefully organised set of simple prescriptive and performance based norms and practices to be applied easily and consistently across the climatic zones in India.

The assessment criteria comprise of 77 measures spread over the 7 focus areas viz: site planning, environment architecture, energy conservation and management, efficient building materials, water conservation, solid waste management and other measures. The maximum achievable points are 1000 and the project has to get a minimum of 500 points to qualify for Eco- housing rating. Of the 77 criteria, 40 are mandatory comprising of 450 points and the remaining 37 non mandatory criteria comprise of 550 points. Each criterion has a submittal requirement and the necessary documentation should be enclosed with the Eco-housing proposal to show compliance with the criteria being attempted.

**Climatic Zones of India,  
Source – National  
Building Code 2005**

Focus areas	Mandatory	Non-Mandatory	Total
Site Planning	90	50	140
Environmental Architecture	50	30	80
Energy Conservation	65	175	240
Efficient Building Materials	30	160	190
Water Conservation	95	55	150
Solid Waste Management	75	45	120
Innovative Measures	45	35	80
<b>Total</b>	<b>450</b>	<b>550</b>	<b>1000</b>



**ECO-HOUSING CERTIFICATION**

The Eco-housing Certification process will be administered by a joint certification body comprising of the International Institute for Energy Conservation and the principle implementing partners i.e. Science and Technology Park, Pune and the Centre for Environmental Education, Ahmedabad.

Any residential project wishing to apply for Eco-housing certification, will need to first register with the Eco-housing certification body. On acceptance of the registration, the project promoters/developers will have to submit the required documentation at various stages of the project implementation as per the Eco-housing certification tracking format.

Based on the performance of the project in the evaluation and validation process, the final eco-housing rating and certificate will be awarded to the project.

TOTAL POINT	RATING
500 - 600	★
601 - 700	★ ★
701 - 800	★ ★ ★
801 - 900	★ ★ ★ ★
>900	★ ★ ★ ★ ★



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**ECO-HOUSING ASSESSMENT CRITERIA - VERSION II**  
ABRIDGED CRITERIA

## Eco-housing Assessment Criteria - Format

Every Eco-housing assessment criterion has been assigned points depending on its impact on the environment and its relevance to local conditions. For all criteria, the objective (intent), implementation strategies and submittal requirements are summarized as shown in the example below

### Sample Criteria Format

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
1.2	<b>Mandatory</b>	<b>Site Selection- Access to basic amenities</b>	<b>10</b>
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To discourage use of vehicles for common chores thus saving fuel energy on transport.</li> <li>Ensure emergency healthcare facilities</li> <li>Convenience</li> </ul>	
	<b>Strategy:</b>	<ul style="list-style-type: none"> <li>a. Locate eco housing site so that basic amenities namely – i) Bank/ATM, ii) childcare, iii) park, iv) convenience grocery are within 1 km of housing</li> <li>b. In case of large projects with more than 200 dwelling units in addition to the above provide basic amenities namely i) Convenience shopping ii) healthcare facility (with provisions for first aid, doctor with scheduled timings), iii) community hall within site premises</li> </ul>	
	<b>Submittal Requirement:</b>	<ol style="list-style-type: none"> <li>Site plan showing site and the facilities within 1 Km radius</li> <li>If applicable site plan with location of these facilities on site</li> </ol>	
	<b>Comments / References:</b>	<i>In case of projects with less than 200 dwelling units, 2.5 points for each of 4 specified facilities which are within 1 km, and in case of large projects with more than 200 dwelling units, 1.5 points for each of 4 specified facilities which are within 1 km and 1.33 points for each of the 3 facilities which are provided within the site premises</i>	

The following pages are an abridged version of the Eco-housing Assessment Criteria- Version II, stating only the criteria title and intent.

## 1. SITE PLANNING

Every site is unique in terms of existing landforms, topography, vegetation and other environmental conditions. Eco-housing envisages integration of the design of the built form with the unique characteristics of the site, so as to cause minimum negative impact to the site and surrounding environment.

SITE PLANNING			
Type - Mandatory/ Non Mandatory	General	Climate Sensitive	Grand Total
Mandatory	65	25	90
Non Mandatory	50		50
Grand Total	115	25	140

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
1.1	Mandatory	<b>Site Selection - Ecological Considerations</b> <b>Intent:</b> <ul style="list-style-type: none"> <li>To protect parkland, forest, coastal belt from disturbance due to construction</li> <li>To protect biodiversity</li> </ul>	20
1.2	Non Mandatory	<b>Site Selection - Access to basic amenities</b> <b>Intent:</b> <ul style="list-style-type: none"> <li>To discourage use of vehicles for common chores thus saving fuel energy on transport.</li> <li>Ensure emergency healthcare facilities</li> <li>Convenience</li> </ul>	10
1.3	Mandatory	<b>Protecting and Conserving Site Vegetation and Biodiversity</b> <b>Intent:</b> <ul style="list-style-type: none"> <li>Biodiversity Conservation and Preservation</li> <li>Protect vegetation</li> <li>Carbon Sequestration</li> </ul>	30



1.3.1		<ul style="list-style-type: none"> <li>Reduce soil erosion</li> <li>Compensate for the removed vegetation</li> </ul>	15
1.3.2		<b>Conserve existing vegetation on site</b>	15
1.3.2		<b>Conserve land that is rich in bio diversity</b>	15
1.4	<b>Non Mandatory</b>	<b>Topsoil conservation and /or rejuvenation</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To preserve and reuse nutrient rich topsoil for landscaping</li> <li>To encourage organic landscaping and waste recycling</li> </ul>	
1.5	<b>Mandatory</b>	<b>Site Drainage</b>	15
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To minimize erosion</li> <li>Design with minimum disruption of site</li> <li>Drainage following existing slopes/contours would minimize addition pumping costs, to avoid local flooding problems</li> </ul>	
1.6	<b>Non Mandatory</b>	<b>Managing site-runoff during construction</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To prevent contamination of ground water during construction</li> </ul>	
1.7	<b>Non Mandatory</b>	<b>Spill prevention and control during construction</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To stop spillage of hazardous material on site</li> </ul>	
1.8	<b>Non Mandatory</b>	<b>Utility Corridor</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To facilitate easy maintenance and minimize site disruption</li> </ul>	
1.9	<b>Mandatory - Climate Sensitive</b>	<b>Mitigating Heat Island effect</b>	15
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To reduce micro climate temperature rise</li> </ul>	

1.10	<b>Mandatory - Climate Sensitive</b>	<b>Preventing soil erosion and restricting surface Run-off</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>Prevent soil erosion by proper storm water management</li> <li>To facilitate ground water recharge</li> <li>Restrict run off to mitigate local flood problems</li> </ul>	

## 1. SITE PLANNING 140

## 2. ENVIRONMENTAL ARCHITECTURE

The term Environmental Architecture encompasses architectural design and practices that are environmentally sustainable i.e. a building which is 1.)Energy efficient, 2.)Utilizes all the site features, like light, air and other physical surroundings, 3.) Designed to make optimal use of building materials, 4.) Designed to suit the local climate and is less affected by the climate and weather conditions 5.)Maintains a certain degree of comfort condition without use of any mechanical means, and 6.) Makes optimal use of sunlight during day, its cooling and heating loads are

relatively low and it requires minimum mechanical means for ventilation.

ENVIRONMENTAL ARCHITECTURE			
Type - Mandatory/ Non Mandatory	General	Climate Sensitive	Grand Total
Mandatory		50	50
Non Mandatory	15	15	30
Grand Total	15	65	80

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
2.1	Non Mandatory	<b>Design Team</b> <b>Intent:</b> To ensure integrated design approach	5
2.2	Mandatory - Climate Sensitive	<b>CLIMATE RESPONSIVE DESIGN</b>	65
2.2.1	Mandatory - Climate Sensitive	<b>Design Strategies for Thermal Comfort</b> <b>Intent:</b> To enable energy efficiency, thermal and visual comfort	45

	2.2.1.1	Minimizing Convective heat gain in summer	
	2.2.1.2	Facilitate Air Movement and Ventilation in appropriate orientations	
	2.2.1.3	Roof and Terrace Design	
2.2.2	Non Mandatory - Climate Sensitive	Day lighting	15
	Intent:	Adequate and glare free daylight	
2.2.3	Mandatory - Climate Sensitive	Protection from Rains	5
	Intent:	Adequate and glare free daylight	
2.3	Non Mandatory	Computer Simulation	10
	Intent:	To ensure thermal comfort in regularly occupied spaces	

## 2. ENVIRONMENTAL ARCHITECTURE

80

## 3. ENERGY CONSERVATION AND MANAGEMENT

The Eco-housing criteria address energy conservation through, use of efficient equipment, products and systems, use of automation and control systems and use of renewable energy such as solar, wind, biomass and geothermal energy.

ENERGY CONSERVATION AND MANAGEMENT			
Type - Mandatory/ Non Mandatory	General	Climate Sensitive	Grand Total
Mandatory	65	0	65
Non Mandatory	150	25	175
Grand Total	215	25	240

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
<b>SITE LIGHTING</b>			
3.1	Mandatory	<b>Design of street / site lighting</b> Intent: To reduce energy usage for site lighting	5
3.2	Mandatory	<b>Luminaire Efficacy</b> Intent: To reduce energy usage for site lighting	10
3.3	Non Mandatory	<b>Luminaire Shielding</b> Intent: To prevent light pollution of night sky and light trespass into adjacent property	10
3.4	Mandatory	<b>Automation of lighting fixtures</b> Intent: To minimize wastage of lighting during un needed hours	20
<b>SITE LIGHTING</b>			
3.5	Mandatory	<b>Luminaire Efficacy in common areas</b>	10

	<b>Intent:</b>	To reduce energy usage for common area lighting	
<b>3.6</b>	<b>Non Mandatory</b>	<b>Pre-wiring for CFL's/LED's</b>	<b>15</b>
	<b>Intent:</b>	To prevent later retrofit with GLS lamps	
<b>INDOOR LIGHTING</b>			
<b>3.7</b>	<b>Non Mandatory</b>	<b>Lighting power density to be restricted to a maximum of 7.5 W/sq.mt.</b>	<b>10</b>
	<b>Intent:</b>	To ensure efficiency in lighting (indoor)	
<b>3.8</b>	<b>Non Mandatory</b>	<b>Efficacy of lighting fixtures provided</b>	<b>10</b>
	<b>Intent:</b>	To ensure energy efficiency in installed lighting	
<b>3.9</b>	<b>Mandatory</b>	<b>Demonstration of energy efficiency in sample flat</b>	<b>10</b>
	<b>Intent:</b>	To ensure efficiency in lighting (indoor) and promote energy efficiency	
<b>3.10</b>	<b>Non Mandatory</b>	<b>Pre-wired CFL/ LED fixtures</b>	<b>15</b>
	<b>Intent:</b>	To ensure that CFL is not replaced by GLS lamp in future	
<b>ELECTRICAL SYSTEMS</b>			
<b>3.11</b>	<b>Non Mandatory</b>	<b>Efficiency of electrical systems</b>	<b>5</b>
	<b>Intent:</b>	Energy efficiency	
<b>3.12</b>	<b>Non Mandatory</b>	<b>Charging points for electric vehicles</b>	<b>5</b>
	<b>Intent:</b>	To promote use of battery operated vehicles within the site	

<b>USE OF RENEWABLE ENERGY AND WATER HEATING SYSTEMS</b>			
<b>3.13</b>	<b>Non Mandatory</b>	<b>Renewable energy for external and common area lighting systems</b>	<b>30</b>
	<b>Intent:</b>	To promote use of clean/green sources of energy	
<b>3.14</b>	<b>Non Mandatory</b>	<b>Renewable energy for electric consumption</b>	<b>15</b>
	<b>Intent:</b>	To promote use of clean/green sources of energy	
<b>3.15</b>	<b>Mandatory</b>	<b>Power Factor &gt;0.9</b>	<b>10</b>
	<b>Intent:</b>	To promote energy efficiency	
<b>3.16</b>	<b>Non Mandatory - Climate Sensitive</b>	<b>Renewable energy for water heating</b>	<b>25</b>
	<b>Intent:</b>	To reduce conventional energy demand for water heating	
<b>3.17</b>	<b>Non Mandatory</b>	<b>Non electric boosters for water heaters with COP &gt;3</b>	<b>10</b>
	<b>Intent:</b>	To reduce use of conventional electric energy for backup heating	
<b>3.18</b>	<b>Non Mandatory</b>	<b>Hot water plumbing with HDPE/MDPE insulation</b>	<b>5</b>
	<b>Intent:</b>	To make provision for future integration of solar water heating system	
<b>3.19</b>	<b>Non Mandatory</b>	<b>Energy efficient ceiling fans and HVAC systems</b>	<b>20</b>
	<b>Intent:</b>	To promote energy efficiency	

## 3. ENERGY CONSERVATION AND MANAGEMENT 240

## 4. EFFICIENT BUILDING MATERIALS

This focus area provides guidelines for choosing building materials and technology, taking into consideration techno-economic feasibility (affordability, local availability and technical capacity) along with minimization of environmental and socio-economic impacts occurring during the material life cycle.

EFFICIENT BUILDING MATERIALS			
Type - Mandatory/ Non Mandatory	General	Climate Sensitive	Grand Total
Mandatory	15	15	30
Non Mandatory	122	38	160
Grand Total	137	53	190

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
4.1	Mandatory - Climate sensitive	<b>Base Materials for R.C.C and Steel Systems - I</b>  <b>Intent:</b> To reuse /recycle waste products and prevent landfills.	5
4.2	Non Mandatory	<b>Base Materials for R.C.C. and Steel Systems -II</b>  <b>Intent:</b> To reuse /recycle waste products	6
4.3	Non Mandatory	<b>Base Materials for PCC, paving and bedding</b>  <b>Intent:</b> To reuse /recycle waste products and prevent landfills.	10
4.4	Non Mandatory - Climate Specific	<b>Reducing Site Wastage and Use of Alternative Structural System</b>	16

	<b>Intent:</b>	To use lesser quantities of materials and to reduce site wastages, thus reducing the amount of resource extraction and to promote use of traditional / vernacular construction techniques.	
4.4.1	<b>Ferro cement and / or Precast components<sup>1</sup> for columns, beams, slabs, staircases, lofts, balconies, roofs etc, or;</b>		16
4.4.2	<b>Ready Mix Concrete, or;</b>		16
4.4.3	<b>Ready Mix Concrete<sup>b</sup>. Regional /Vernacular/Alternate structural system</b>		16
4.5	<b>Non Mandatory - Climate sensitive</b>	<b>Masonry</b>	12
	<b>Intent:</b>	To prevent topsoil denudation as a result of manufacture of clay bricks and moderate internal temperature. To promote the use of locally available building materials	
4.6	<b>Mandatory</b>	<b>Mortar –I</b>	5
	<b>Intent:</b>	To reuse /recycle waste products and prevent landfills.	
4.7	<b>Non Mandatory</b>	<b>Mortar –II</b>	10
	<b>Intent:</b>	To reuse waste material and prevent dredging of water bodies for sand.	
4.7.1		<b>Sand from crushed debris and / or sintered flyash<sup>1</sup></b>	5
4.7.2		<b>Increase of Pozzolana Material<sup>1</sup> content in BPC to 30- 40% by direct addition of raw Pozzolana Material</b>	5
4.8	<b>Non Mandatory - Climate sensitive</b>	<b>Plastering</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>▪ To reuse /recycle waste products</li> <li>▪ Prevent landfills</li> <li>▪ To reduce heat gain</li> </ul>	

4.9	<b>Mandatory - Climate sensitive</b>	<b>Roofing and Ceiling</b>	10
	<b>Intent:</b>	To use energy efficient building material and material from renewable sources	
4.10	<b>Non Mandatory</b>	<b>Flooring, paving and road work</b>	15
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>▪ To reuse /recycle waste products as building material</li> <li>▪ To use energy efficient building materials.</li> </ul>	
4.11	<b>Non Mandatory</b>	<b>Door and Window openings</b>	5
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>▪ To use lesser quantities of material</li> <li>▪ To reduce site wastages</li> <li>▪ To recycle waste products and prevent landfills.</li> </ul>	
4.12	<b>Non Mandatory</b>	<b>Door and Window Frames</b>	10
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>▪ To use lesser quantities of material</li> <li>▪ To reduce site wastages</li> <li>▪ To recycle waste products and prevent landfills.</li> </ul>	
4.13	<b>Non Mandatory</b>	<b>Shutters and Panels and Internal wood work - Use of Renewable Timber</b>	10
	<b>Intent:</b>	To protect rainforest from excessive logging.	
4.14	<b>Non Mandatory</b>	<b>Shutters and Panels and Internal wood work - Alternative material</b>	8
	<b>Intent:</b>	To protect rainforest from excessive logging, and to reuse waste as building products.	
4.15	<b>Non Mandatory</b>	<b>Electrical Systems</b>	24

**Intent:** To use energy efficient products and products having higher recycling properties (unplasticized PVC). To use recycled products of non-biodegradable components.

**4.16 Mandatory Water supply, Sanitary and Plumbing System -I 5**

**Intent:** To prevent lead and asbestos contamination of water.

**4.17 Non Mandatory Water supply, Sanitary and Plumbing System -II 10**

**Intent:**

- To use energy efficient products and products having higher recycling properties (unplasticized PVC).
- To use recycled products of non-biodegradable components

**4.18 Mandatory Water proofing chemicals, additives, sealants and adhesives 5**

**Intent:** To use chemical with low VOC emissions.

**4.19 Non Mandatory Water proofing chemicals, additives, sealants and adhesives 4**

**Intent:** To use efficient building materials.

**4.20 Non Mandatory Painting, Polishing, Priming and similar surface finishing 10**

**Intent:** To use efficient building materials and chemical with low VOC emissions

## 4. EFFICIENT BUILDING MATERIALS

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## 5. WATER CONSERVATION AND MANAGEMENT

Water conservation implies the preservation and efficient management of available water resources. The Eco-housing Criteria for water management focus on conserving existing sources of water, minimizing wastage and optimizing recycling and reuse of waste water.

WATER CONSERVATION AND MANAGEMENT			
Type - Mandatory/ Non Mandatory	General	Climate Sensitive	Grand Total
Mandatory	75	20	95
Non Mandatory	55	25	55
Grand Total	130	20	150

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
5.1	Non Mandatory	<b>Water Supply Pressure</b> <b>Intent:</b> Reduce water consumption	10
5.2	Non Mandatory	<b>Flow rate of faucets and fixtures</b> <b>Intent:</b> To reuse /recycle waste products	10
5.3	Mandatory	<b>Dual Flush System</b> <b>Intent:</b> Reduce water consumption	10
5.4	Mandatory - Climate Sensitive	<b>Rain Water Harvesting</b> <b>Intent:</b>	20
		<ul style="list-style-type: none"> <li>▪ Preserve the available water resource</li> <li>▪ Utilise the available resource effectively and minimise load on storm water drain and sewage treatment plant at city level</li> <li>▪ Scientific methods for collection and recharge of water from public health point of view.</li> </ul>	

<b>5.5</b>	<b>Mandatory</b>	<b>Treatment of Grey water</b>	<b>45</b>
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To improve environmental conditions and adopt scientific methods for collection</li> <li>Storage of water from public health point of view.</li> </ul>	
<b>5.6</b>	<b>Non Mandatory</b>	<b>Treatment of grey and black waste water</b>	<b>15</b>
	<b>Intent:</b>	To improve environmental conditions and adopt scientific methods for designs of collection /storage tanks from public health point of view.	
<b>5.7</b>	<b>Mandatory</b>	<b>Reuse of treated grey water</b>	<b>10</b>
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To improve environmental conditions and adopt scientific methods for collection</li> <li>Storage of water from public health point of view.</li> </ul>	
<b>5.8</b>	<b>Non Mandatory</b>	<b>Minimising water use during construction</b>	<b>5</b>
	<b>Intent:</b>	To reduce the potable water demand	
<b>5.9</b>	<b>Non Mandatory</b>	<b>Landscaping</b>	<b>15</b>
	<b>Intent:</b>	Reduce water consumption for gardening	
<b>5.10</b>	<b>Mandatory</b>	<b>Landscape irrigation</b>	<b>10</b>
	<b>Intent:</b>	Reduce water consumption for outdoor use	

## 5. WATER CONSERVATION

**150**

## 6. SOLID WASTE MANAGEMENT

Buildings are the biggest producers of waste - during their whole life span, and even after use. The Eco-housing criteria for solid waste management focus on appropriate collection and segregation, recycling and reuse of waste including construction waste, onsite treatment of organic waste and energy recovery.

SOLID WASTE MANAGEMENT		
Type - Mandatory/ Non Mandatory	General	Grand Total
Mandatory	75	75
Non Mandatory	45	45
Grand Total	120	120

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
<b>6.1</b>	<b>Mandatory</b>	<b>Segregation of waste at source</b>	<b>15</b>
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To efficiently manage the wastes and recover resources</li> <li>Segregation of waste at source/ Reduce the quantity of waste to be collected by the local urban body</li> <li>To adopt scientific methods for designs of collection /storage bins from public health point of view.</li> </ul>	
<b>6.2</b>	<b>Non Mandatory</b>	<b>Collection and transportation of recyclable Materials</b>	<b>10</b>
	<b>Intent:</b>	To efficiently manage the wastes and recover resources	
<b>6.3</b>	<b>Mandatory</b>	<b>Onsite Treatment of Organic waste</b>	<b>30</b>
	<b>Intent:</b>	<ul style="list-style-type: none"> <li>To promote ' Zero Wet Waste' concept</li> <li>To efficiently manage the wastes and recover resources</li> </ul>	
<b>6.4</b>	<b>Non Mandatory</b>	<b>Energy recovery and reuse</b>	<b>35</b>



**Intent:** To promote ' Zero Wet Waste' concept and Recover resources

**6.5 Mandatory Manure Recovery 15**

**Intent:** Recover resources

**6.6 Mandatory Debris recycling and reuse in redevelopment 15**

**Intent:** To efficiently manage the wastes and recover resources for reuse on the site.

## 6. SOLID WASTE MANAGEMENT 120

## 7. OTHER MEASURES

The eco-housing criteria for "Other Measures" encourage implementation of associated practices which can affect the overall performance of the residential activity.

OTHER MEASURES		
Type - Mandatory/ Non Mandatory	General	Grand Total
Mandatory	45	45
Non Mandatory	35	35
Grand Total	80	80

NO.	TYPE AND CONTENT	DESCRIPTION	POINTS
7.1	Mandatory	<b>Construction Safety Measures</b> <b>Intent:</b> To ensure construction safety measures and noise mitigation measures at construction sites.	10
7.2	Non Mandatory	<b>Control of SPM and RPM during construction</b> <b>Intent:</b> To reduce air pollution loads	10
7.3	Mandatory	<b>Earthquake Resistant Construction</b> <b>Intent:</b> To verify essential component of safe construction practices and assess the compliance of BIS	10
7.4	Mandatory	<b>On-Site Sanitation during construction</b> <b>Intent:</b> To prevent contamination of water table and provide minimum standard of living for construction workers	5
7.5	Mandatory	<b>Handicap Facilities</b> <b>Intent:</b> To provide unobstructed movement for handicapped persons	10
7.6	Mandatory	<b>Vector Control Engineering Measures</b>	10

**Intent:** To adopt scientific methods for designs of collection /storage and treatment facilities from public health point of view.

<b>7.7</b>	<b>Non Mandatory</b>	<b>Swimming Pool Facility</b>	<b>5</b>
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**Intent:** To reduce energy and water consumption

<b>7.8</b>	<b>Non Mandatory</b>	<b>Other innovative eco friendly measures</b>	<b>10</b>
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**Intent:** To encourage innovative eco-friendly measures

<b>7.9</b>	<b>Non Mandatory</b>	<b>Maintenance manual and public awareness programs for individuals in eco-housing societies</b>	<b>10</b>
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**Intent:** To encourage public awareness and interest

## 7. OTHER MEASURES

**80**