



**ARCASIA COMMITTEE ON GREEN & SUSTAINABLE ARCHITECTURE
(ACGSA)**

ACGSA Archives

Green Building Rating Tools of Member Institutes

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Chairman ACGSA-2017-18

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CONTENT



1) INDIA

- 1.1 Introduction
- 1.2 Building Credits
- 1.3 Certification Level



2) SRI LANKA

- 2.1 Introduction
- 2.2 Building Credits
- 2.3 Certification Level



3) INDONESIA

- 3.1 Introduction
- 3.2 Building Credits
- 3.3 Certification Level



4) SINGAPORE

- 4.1 Introduction
- 4.2 Building Credits
- 4.3 Certification Level



5) THAILAND

- 5.1 Introduction
- 5.2 Building Credits
- 5.3 Certification Level



6) MALAYSIA

- 6.1 Introduction
- 6.2 Building Credits
- 6.3 Certification Level



7) BANGLADESH

- 7.1 Introduction
- 7.2 Building Credits
- 7.3 Certification Level



8) BHUTAN

- 8.1 Introduction

INDIA



Indian Green Building Council



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INTRODUCTION:

The building sector in India is growing at a rapid pace and contributing immensely to the growth of the economy. This augurs well for the country and now there is an imminent need to introduce green concepts and techniques in this sector, which can aid growth in a sustainable manner.

The green concepts and techniques in the building sector can help address national issues like water efficiency, energy efficiency, reduction in fossil fuel use in commuting, handling of consumer waste and conserving natural resources. Most importantly, these concepts can enhance occupant health, happiness and well-being.

IGBC Green New Buildings rating system® addresses green features under the following categories:

- Sustainable Architecture and Design
- Site Selection and Planning
- Water Conservation
- Energy Efficiency
- Building Materials and Resources
- Indoor Environmental Quality
- Innovation and Development

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

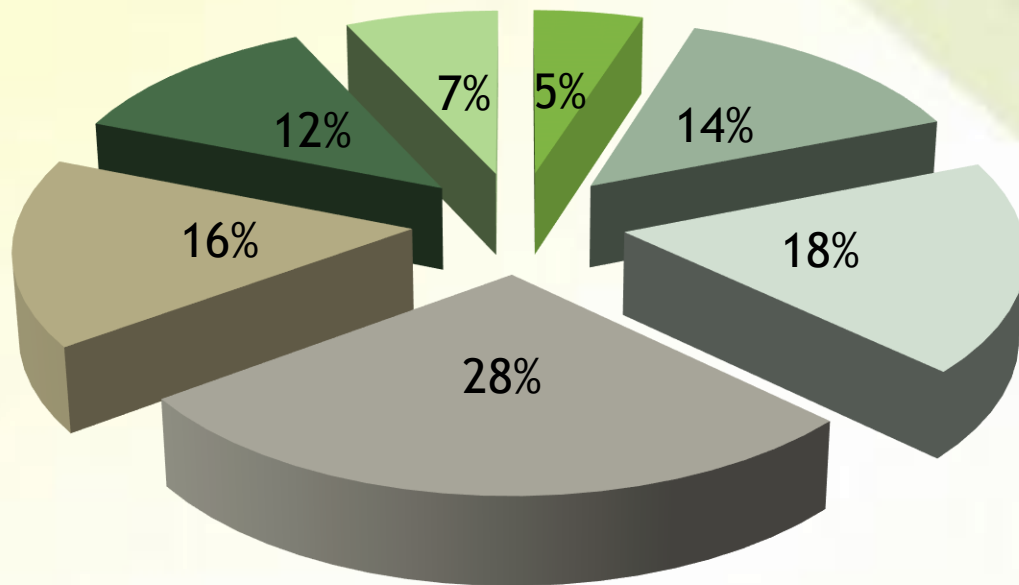
For more information kindly refer the following link :

<https://igbc.in/igbc/redirectHtml.htm?redVal=showratingSysnosign>



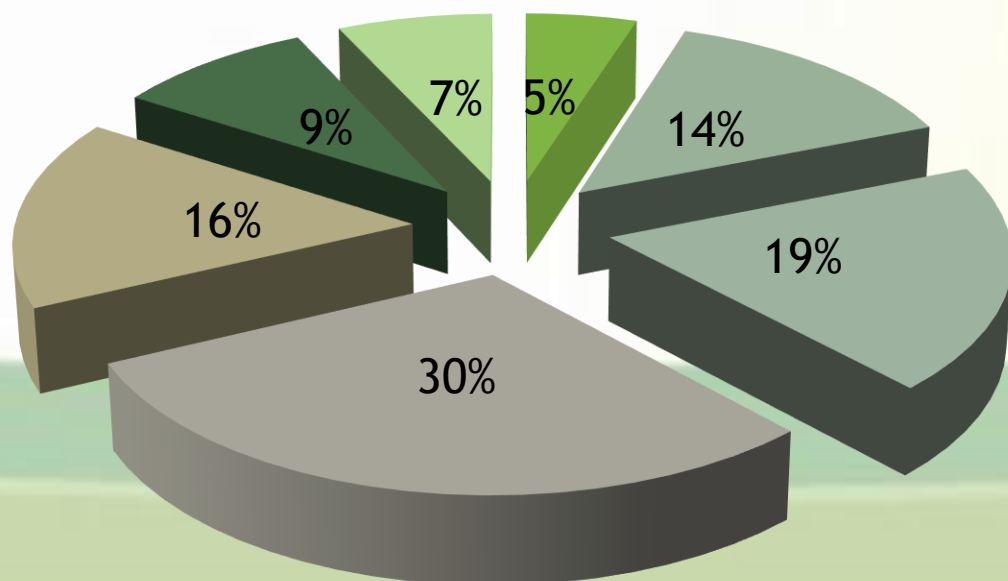
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OWNER OCCUPIED BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Sustainable site Development	5
	Site Selection & Planning	14
	Water Efficiency	18
	Energy and Atmosphere	28
	Building Material and Resources	16
	Indoor Environmental Quality	12
	Innovation & design process	7
	TOTAL	100

TEENANT OCCUPIED BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Sustainable site Development	5
	Site Selection & Planning	14
	Water Efficiency	19
	Energy and Atmosphere	30
	Building Material and Resources	16
	Indoor Environmental Quality	9
	Innovation & design process	7
	TOTAL	100

CERTIFICATION LEVELS:

The threshold criteria for certification/pre-certification levels are as under:

Certification Level	Owner-occupied Buildings	Tenant-occupied Buildings	Recognition
Certified	40 - 49	40 - 49	Best Practices
Silver	50 - 59	50 - 59	Outstanding Performance
Gold	60 - 74	60 - 74	National Excellence
Platinum	75 - 100	75 - 100	Global Leadership

SRI LANKA



Green Building
Council of Sri Lanka

INTRODUCTION:

Green building is an integrative effort to transform the way the built environments are designed, constructed and operated. This concept should be applied from individual infrastructure to entire communities. The scope of green building reaches from the earliest stages of planning to beyond the end of a structure's life. It runs up and down in manufacturing and supplying chain. It encompasses the production and fate of every substance that goes into or out of a green project. Therefore, scope of green building requires an interdisciplinary approach.

The certification approach used by the Sri Lanka green building council and its **GREEN^{SL}** rating system for built environment. **GREEN^{SL}** is a tool that helps to create a high-performance, more sustainable built environment by providing a framework for design, construction, and evaluation. It is up to green building professionals to use this tool as part of an integrated planning and design process to achieve real results on the ground.

The heart of this rating is an introduction to the eight categories used in **GREEN^{SL}** namely,

- Management (MN)
- Sustainable sites(SS)
- Water efficiency(WE)
- Energy & atmosphere (EA)
- Material & Resources (MR)
- Indoor environment quality (EQ)
- Innovation & design process (ID)
- Social & cultural awareness(SC)

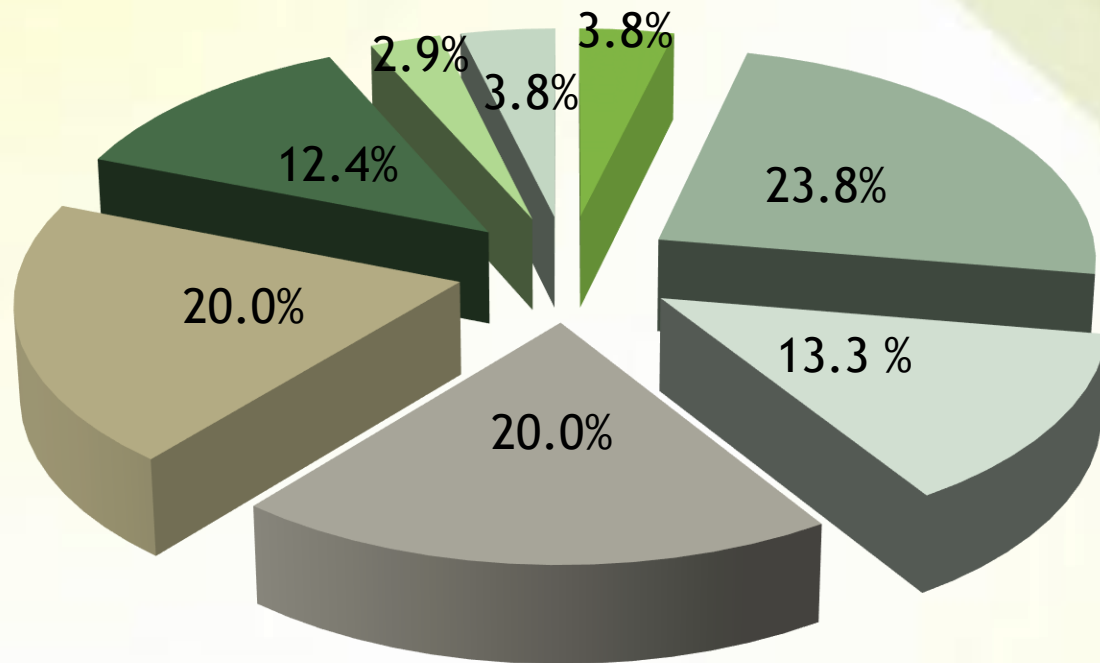
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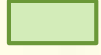

<http://srilankagbc.org/Rating%20System%20for%20Built%20Environment.html>



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BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Building Environment Management	4
	Sustainable site Development	25
	Water Efficiency	14
	Energy and Atmosphere	21
	Building Material and Resources	21
	Indoor Environmental Quality	13
	Cultural and social awareness	3
	Innovation & design process	4
	TOTAL	105

CERTIFICATION LEVELS:

The rating system of the GBC^{SL} consists four categories. The categories are determined based on the marks (points) that are obtained by the project. The total points available are 100. The four rating categories and required points to obtain a rating are as follows.

- Platinum – 70 points or above
- Gold – 60~69 points
- Silver – 50~59 points
- Certified – 40-49 points

INDONESIA



GREENSHIP

INTRODUCTION:

GBC Indonesia Is being certified by Ministry of Environment Indonesia as institution for Green Building Certification.

The **GREEN SHIP** rating system is divided into six areas.

- Appropriate Site Development
- Energy Efficiency and Conservation
- Water Conservation
- Material Resources & Cycle
- Indoor Air Health & Comfort
- Building Environment Management

CERTIFICATION LEVELS:

Platinum(minimum 73% achieved points),

Gold (minimum 57%),

Silver (minimum 46%),

Bronze (minimum 35%)

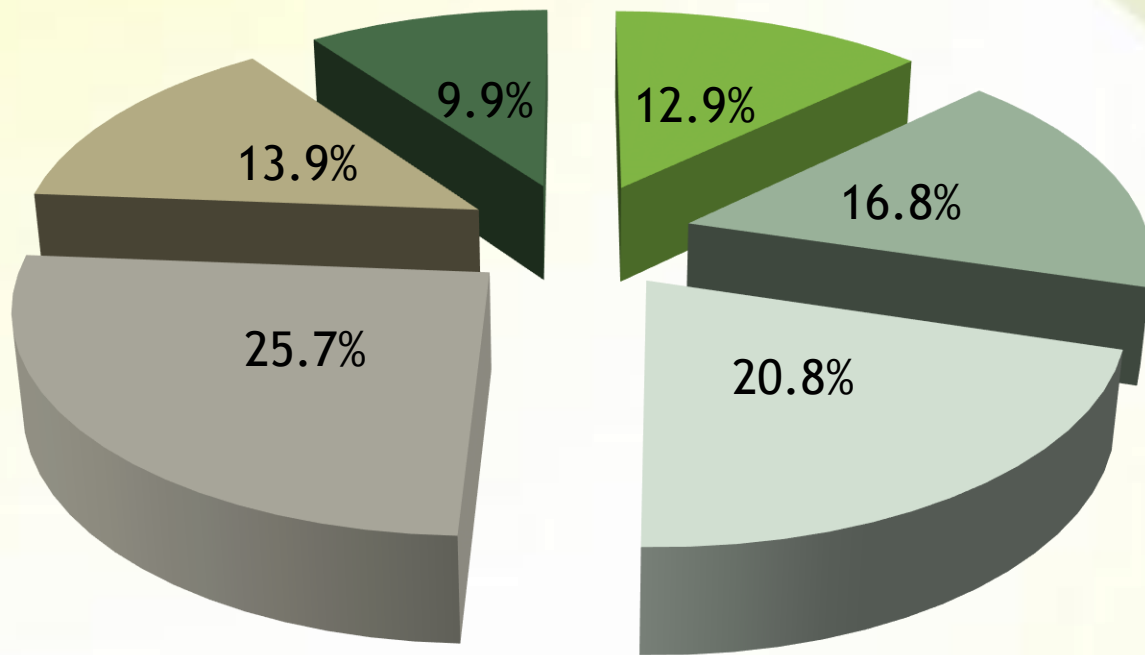
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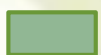




<http://www.gbcindonesia.org/greenship/ratingtools/summary>



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BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Building Environment Management	13
	Sustainable site Development	17
	Water Efficiency	21
	Energy and Atmosphere	26
	Building Material and Resources	14
	Indoor Environmental Quality	10
	TOTAL	101

SINGAPORE



SINGAPORE
GREEN
BUILDING
COUNCIL



BCA GREEN MARK

INTRODUCTION:

BCA Green Mark is a green building rating system to evaluate a building for its environmental impact and performance. It provides a comprehensive framework for assessing the overall environmental performance of new and existing buildings to promote sustainable design, construction and operations practices in buildings.

Under the assessment framework for new buildings, developers and design teams are encouraged to design and construct green, sustainable buildings which are more climatic responsive, energy effective, resource efficient, smarter and have healthier indoor environments.

The assessment criteria evaluates :

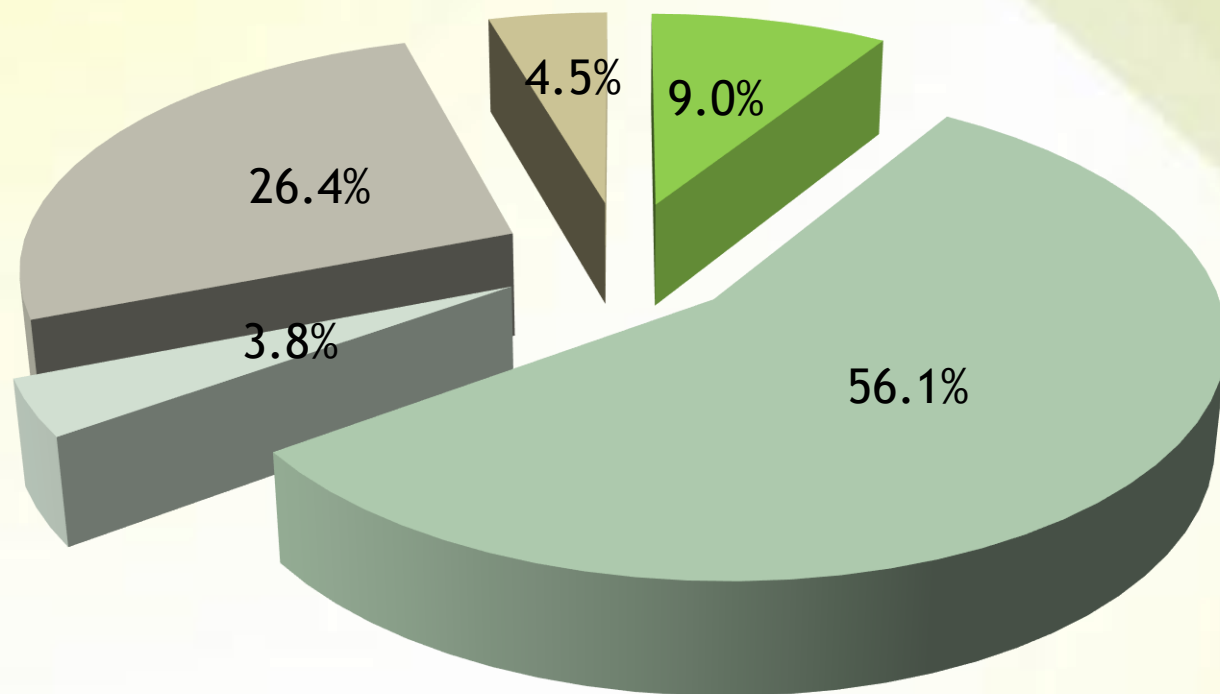
- Energy efficiency,
- Water efficiency,
- Environment protection,
- Indoor environmental quality and
- Other green/innovative features of districts, parks, infrastructure and building interiors.






The total number of points obtained will provide an indication of the environmental friendliness of the building design and operation. Depending on the overall assessment and point scoring, the building will be certified to have met the respective Green Mark rating.

For more information kindly refer the following link :

https://www.bca.gov.sg/greenmark/green_mark_buildings.html

BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Water Efficiency	14
	Energy and Atmosphere	87
	Indoor Environmental Quality	6
	Environment protection	41
	Green Features of districts, parks, infrastructures & building	7
	TOTAL	155

CERTIFICATION LEVELS:

Green Mark Score	Green Mark Rating
90 and above	Green Mark Platinum
85 to < 90	Green Mark Gold ^{Plus}
75 to < 85	Green Mark Gold
50 to < 75	Green Mark Certified

THAILAND



INTRODUCTION:

TREES (Thai's Rating of Energy and Environmental Sustainability) is a newer system specifically modified for Thailand. As with LEED, TREES buildings have positive environmental impacts and bring cost savings to building owners.

The TREES system is point based with projects being awarded points based on the categories and the sustainable measures that have been chosen.

The TREES system currently only has a New Construction category but is expanding to include other project types in the near future.

These categories include:

- Building Management
- Site and Landscape
- Water Conservation
- Energy and Atmosphere
- Materials and Resource
- Indoor Environmental Quality
- Environmental Protection

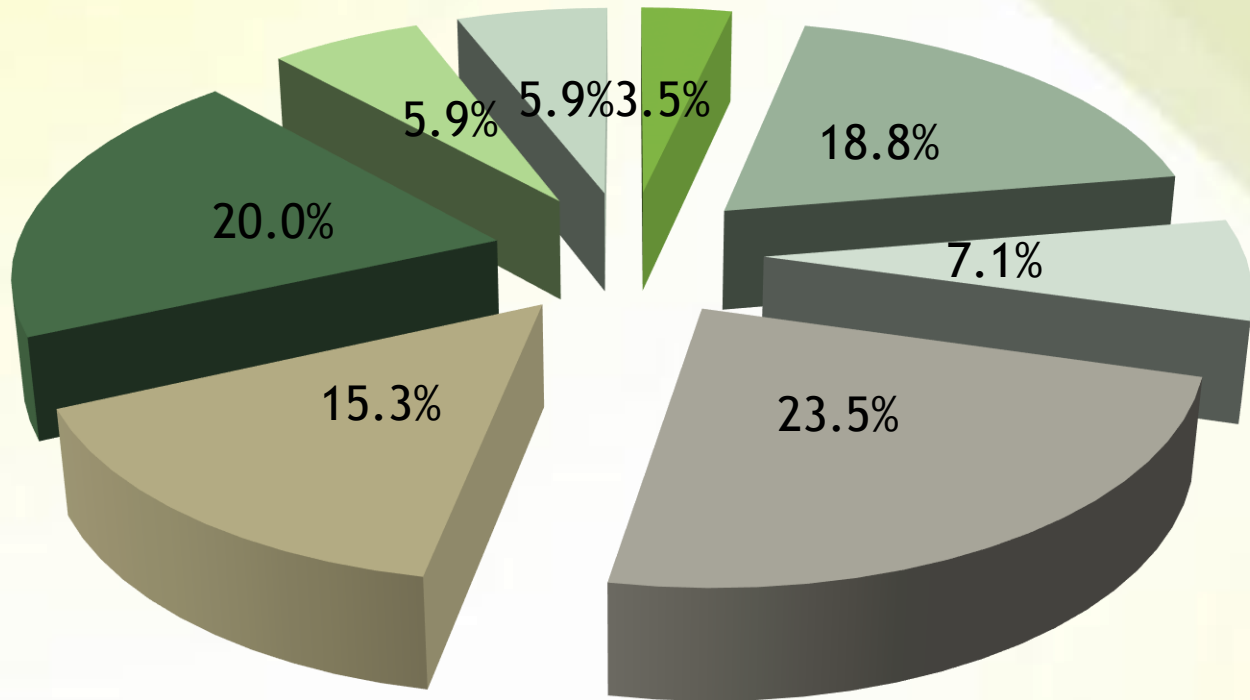
For more information kindly refer the following link :









<http://www.tgbi.or.th/intro.php>



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BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Building Environment Management	3
	Sustainable site Development	16
	Water Efficiency	6
	Energy and Atmosphere	20
	Building Material and Resources	13
	Indoor Environmental Quality	17
	Innovation & design process	5
	Environment protection	5
	TOTAL	85

CERTIFICATION LEVELS:

Certified
30-37 scores

Silver
38-45 scores

Gold
46-60 scores

Platinum
61 and above scores

MALAYSIA



INTRODUCTION:

As like many other countries around the world, construction industry functions as a key economic driver in Malaysia, contributing to the country's development agenda through supporting social development and meeting the needs of basic infrastructure requirements in a host of other economic sectors.

Malaysia has developed its very own green building rating tools, which are Green Building Index (GBI) (2009), GREEN PASS (Green Performance Assessment System) (2012), PH JKR (Skim Penilaian Penarafan Hijau JKR) (2012), and GreenRE (Green Real Estate) (2013). Each of these tools has demonstrated its capacity in showing the sustainability level of a building.

Green Building Index (GBI) is formed under the initiative of Malaysian Institute of Architect (PAM) and Association of Consulting Engineer Malaysia (ACEM), as to promote sustainability in the built environment and raise awareness among the industry players about environment issues. GBI provides an opportunity for developers and building owners to design and construct green, sustainable buildings that can provide energy savings, water savings, a healthier indoor environment, better connectivity to public transport and the adoption of recycling and greenery for their projects and reduce our impact on the environment.

Building will be awarded GBI Malaysia rating score based on six key criteria including:

- Energy efficiency
- Indoor environment quality
- Sustainable site planning
- Material and resources
- Water efficiency
- Innovation

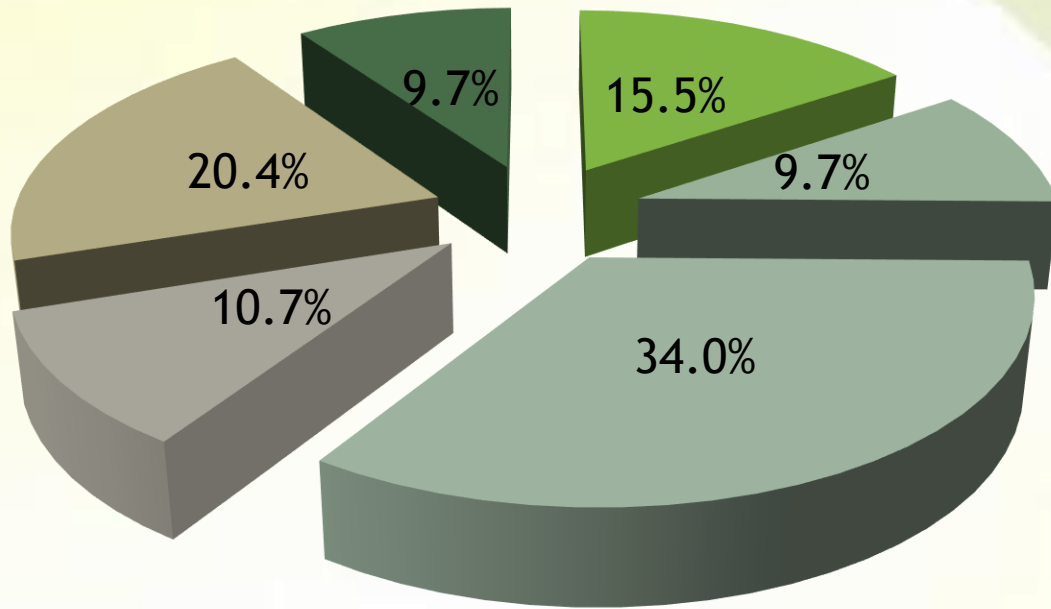
For more information kindly refer the following link :







<http://new.greenbuildingindex.org/tools>



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BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Sustainable site Development	16
	Water Efficiency	10
	Energy and Atmosphere	35
	Building Material and Resources	11
	Indoor Environmental Quality	21
	Innovation & design process	10
	TOTAL	103

CERTIFICATION LEVELS:

- 86+ points = Platinum
- 76-85 points = Gold
- 66-75 points = Silver
- 50-65 points = Certified

BANGLADESH

BANGLADESH GREEN BUILDING COUNCIL

INTRODUCTION:

Buildings are labelled or rated 'green' based on an accepted system, evaluating 'green-ness' and certifying it under different categories or levels. What is green for one region, may not be so for another. This paper examines the process of greening buildings in the context of Bangladesh. As the **Leadership in Energy and Environmental Design (LEED)** rating system is the most commonly cited and applied building rating system in use presently in Bangladesh, whenever the issue of greening buildings arises, the discussion below focuses mainly on this assessment tool, to the exclusion of others.

It is seen therefore, that though LEED exists side-by-side in much of the World at present, every nation is trying to work in the local context, so as to get a rating system that fits the immediate needs of the locality. This is to take into account that, LEED has not been created with the level of adaptability that is required to fit with different legislation and contexts, as it is fixed to ASHRAE(American Society of Heating, Refrigerating and Air-Conditioning Engineers)standards and the US way of thinking (BSRIA-building services research and information association, 2009). Clearly, any blind adoption of the US based LEED rating in the Bangladesh context cannot remain unquestioned.

- Sustainable site Development
- Water Efficiency
- Energy and Atmosphere
- Building Material and Resources
- Indoor Environmental Quality
- Innovation & design process
- Green features of districts, parks, infrastructures & building interiors.

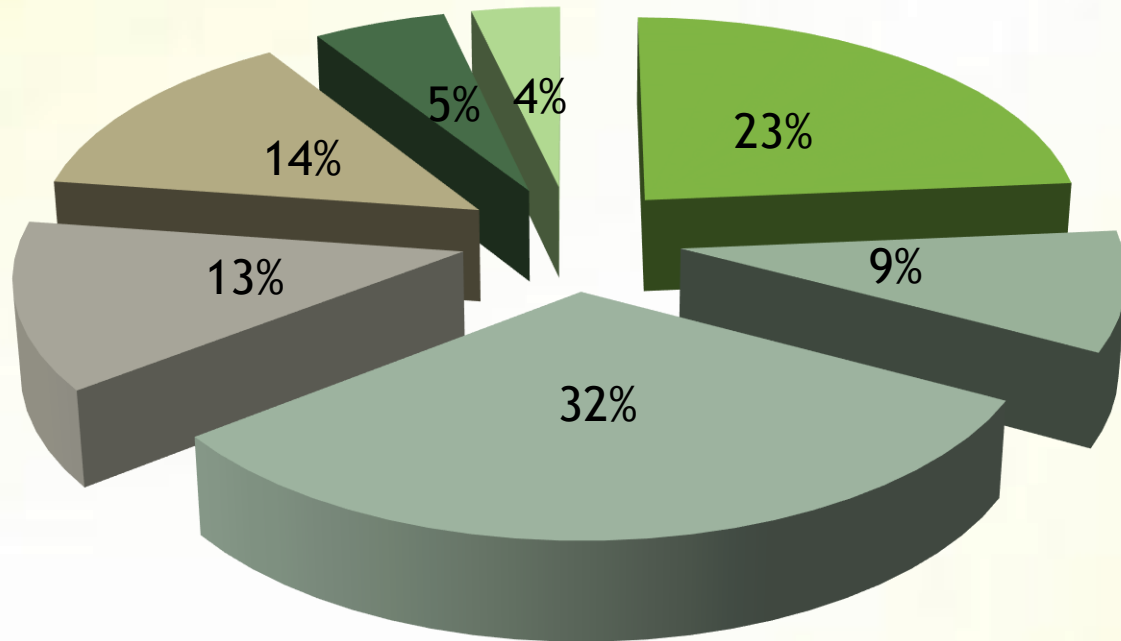
For more information kindly refer the following link :

<http://in.usgbc.org/leed>



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BUILDING CREDITS:



	CRITERION	CREDIT POINT
	Sustainable site Development	26
	Water Efficiency	10
	Energy and Atmosphere	35
	Building Material and Resources	14
	Indoor Environmental Quality	15
	Innovation & design process	6
	Regional Priority	4
	TOTAL	110

CERTIFICATION LEVELS:

LEED Certified (40-49 points),
 Silver (50-59 points)
 Gold (60-79 points)
 Platinum (80-110 points)

INTRODUCTION:

The Bhutan Green Building Guidelines has been developed by the **Ministry of Works and Human Settlements** in line its strategies of positive design and construction in Bhutan that protects environmental conservation. This Guideline supports Bhutan's development principles inspired by Gross National Happiness (GNH) which ensure the integration of equitable economic development with environmental and cultural conservation.

The offices identified under the Ministry of Works and Human Settlements will be responsible for the formulating the assessment routes and rating systems for Green Buildings design and construction in Bhutan.

- Pre-design for sustainability
- Planning and design
- Sustainable site development
- Green materials and resources
- Energy efficiency in design
- Water efficiency and conservation in buildings
 - Indoor environmental quality
- Green construction management
- Management of waste from construction
- Operation and maintenance

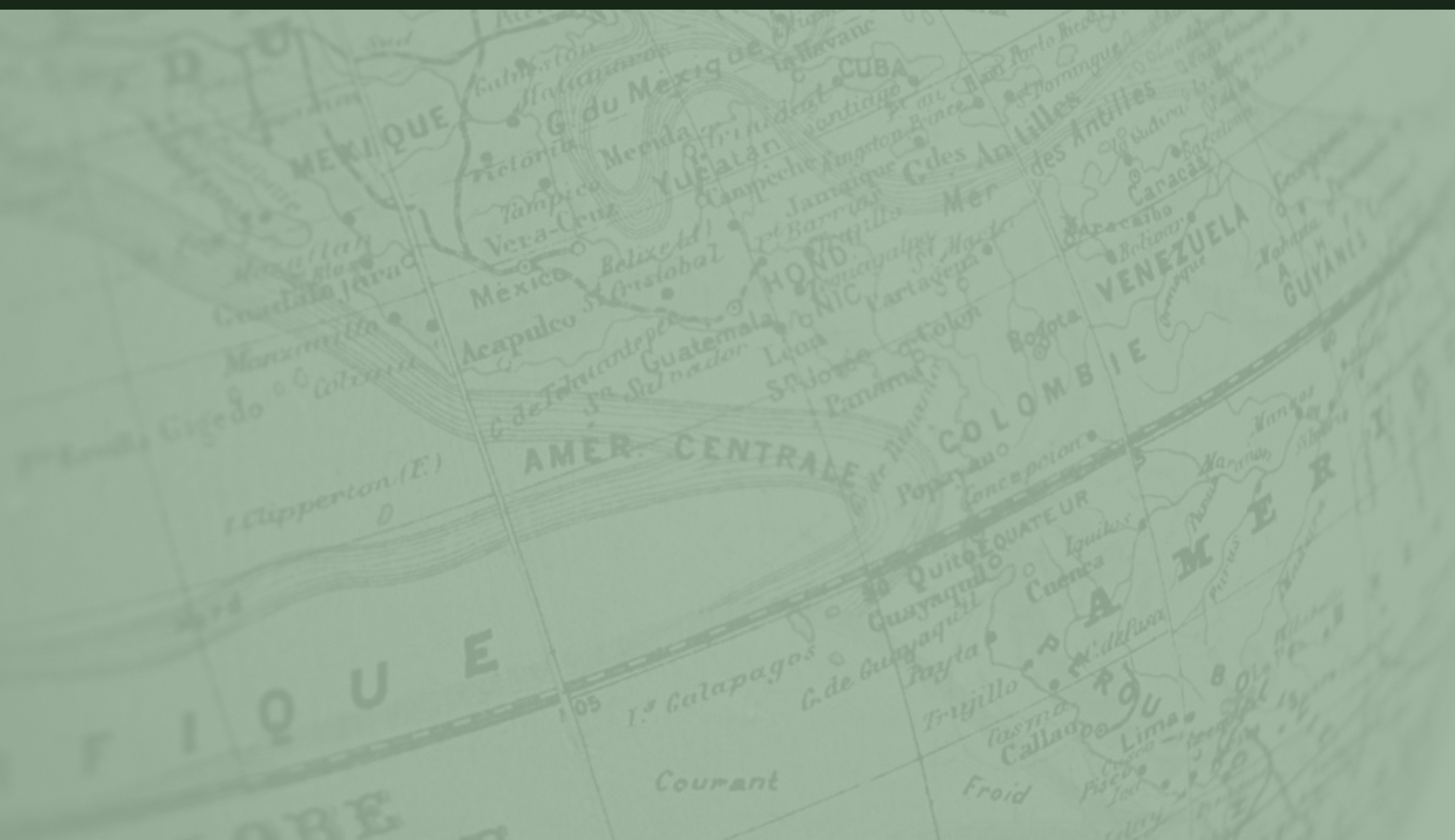
For more information kindly refer the following link :

<http://www.mowhs.gov.bt/>



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COMPARATIVE ANALYSIS



	COUNTRY	INDIA		SRI LANKA	INDONESIA	SINGAPORE	THAILAND	Malaysia	BANGLADESH	BHUTAN
S.No.	Criteria	IGBC		GREEN	GREEN SHIP	BCA GREEN MARK	TREES	GBI	LEED	Ministry of Works and Human Settlements Guidelines
		Owner Occupied	Tenant Occupied							
1	Pre-Design for Sustainability									Specified
2	Building Environment Management	Not specified	Not specified	4	13	Not specified	3	Not specified	Not specified	Specified
3	Sustainable site Development	5	5	25	17	Not specified	16	16	26	Specified
4	Site Selection & Planning	14	14	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	Specified
5	Water Efficiency	18	19	14	21	14	6	10	10	Specified
6	Energy and Atmosphere	28	30	21	26	87	20	35	35	Specified
7	Building Material and Resources	16	16	21	14	Not specified	13	11	14	Specified
8	Indoor Environmental Quality	12	9	13	10	6	17	21	15	Specified
9	Cultural and social awareness	Not specified	Not specified	3	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified
10	Innovation & design process	7	7	4	Not specified	Not specified	5	10	6	Not specified
11	Environment protection	Not specified	Not specified	Not specified	Not specified	41	5	Not specified	Not specified	Not specified
12	Regional Priority	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	4	Not specified
13	Green features of districts, parks, infrastructures & building interiors.	Not specified	Not specified	Not specified	Not specified	7	Not specified	Not specified	Not specified	Not specified
14	Management of waste from construction									Specified
15	Operation and maintenance									Specified
TOTAL		100	100	105	101+5 (BONUS)	155	85	103	110	