MyCREST

MALAYSIAN CARBON REDUCTION & ENVIRONMENTAL SUSTAINABILITY TOOL

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RATIONALE OF LOGO

MyCREST

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MyCREST's main objective, as depicted by the logo, is to create sustainable development practices, with emphasis on Malaysia. The logo symbolises the nation's overall realisation to achieve the pinnacle of success in its effort to reduce carbon emission for the benefit of its populace and the world at large.

The parallelograms and trapezoids signify four major areas in the National Green Technology Policy, namely:

i. Energy
ii. Environment
iii. Economy
iv. Social

Leaf shape reflects the practice of green technologies that become major synthesis for life and well-being of the environment. Vertically-positioned leaf symbolizes the efforts / ongoing commitment towards ensuring that every aspect of life is imbued with spirit of sustainable development in line with the current aspiration for green living.

The five (5) leaves represent the aims/objectives of the National Green Technology Policy, namely:

i. Minimise degradation of the environment
ii. Zero / low greenhouse gas emission
iii. Provide safe and healthy environment
iv. Conserve the use of energy and natural resources
v. Promote use of renewable resources

Light green colour is used as the main colour; a symbol of the effort to practise sustainable development and apply it in continuous and refreshing manner at every stage of the building life cycle.

Free-hand pattern / organic design symbolises the importance of conservation and sustainable environment.

MyCREST word along with two (2) horizontal lines reflect the criteria contained in the evaluation process as the foundation / basis for sustainable development.

CR in bold letters emphasise important of carbon reduction in the assessment.

INTRODUCTION

This Green Building Rating Tool is designed as a sustainable building rating system or tool that aims to quantify, hence reduce built environment's impact in terms of carbon emissions and environmental implication while taking into account a more holistic life-cycle view of the built environment. It also aims to integrate socio-economic considerations relating to the built environment and urban development.

WHAT IS MyCREST?

The Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST) is a tool that guides construction industry players and stakeholders to design, construct and operate buildings that integrate low carbon and sustainable practices. A building that subscribes to MyCREST will be given certification based on points achieved.

MyCREST was developed by taking into account the whole building life cycle starting from pre-design up to demolition stage.

INTRODUCTION TO THE SYSTEM
PREFACE: WHY INTEGRATE CARBON REDUCTION AND SUSTAINABILITY INDICATORS?

Recent developments in climate change have made it more urgent for us as nation networks and communities to shift the gear of sustainability from idealism to action. Currently, we need a direct response to the climate change, which has inadvertently moved from an idle threat to a global phenomenon. Climate change is a global problem requiring action on a global scale which has the capacity to offset all of mankind's past economic achievements and reduce our socio-economic conditions. Humanity is faced with grim prospect of downgrading our living standard and economic progress, or even a looming disaster in the upcoming era of future generations.

Buildings consume approximately 50% of electricity produced in the world. As a result, buildings, whether commercial, institutional or residential, are responsible for approximately 30% of greenhouse gas emissions in the world. Majority originate from burning of fossil fuels to operate the buildings, while others originate from manufacturing of buildings materials as well as operations and long-term maintenance.

Hence, the primary objective of this system is to create a built environment that can respond to the need in minimising carbon emission and even 'zero-rise' net carbon emissions of the built environment. It is also intended to address the net benefits of the socio-economic aspects of sustainability in a more holistic manner.

In developing the system, the need for performance-based approach to address building design and construction towards sustainability has been recognised by providing a framework linking sustainability indicators to performance-based index. The system is founded on the principle that a model standard must address building performance beyond those captured by the current rating systems or other evaluation guides. Therefore, it shall be useable and adoptable to be effective in the construction industry.

The main principle of the system is that economic growth should be spurred in ways that minimise environmental impacts of the built environment. Implementation of the energy efficient and sustainable practices in building design, construction and maintenance, will result in the increase of prosperity in a clean and safe environment.

AIMS

1. To integrate carbon assessment criteria and reduction strategies into the matrix of a combined sustainable assessment rating system of the built environment.
2. To provide a more holistic rating system by integrating and extending the present criteria into life cycle–linked performances and issues.
3. To extend the present green building assessment into life-cycle impacts and its quantification.
4. To combine both carbon emission and sustainable performance factors into a combined criterion linked to design, construction, commission and operation of a building.
5. To be in line with the National Green Technology Policy and the aims of Low Carbon Cities Framework (LCCF).

OBJECTIVES

1. To quantify the environmental impacts of the built environment in both carbon reduction and sustainability terms.
2. To ensure the environmental best practices in accordance with target, global and local stands.
3. To maintain and improve a database of impacts and best practice case studies in order to reduce carbon emissions in design and building life-cycle impacts.
4. To raise awareness of building life-cycle impacts caused by the built environment and its components.
5. To balance robustness with ‘durability’ and practicality and ease of use.
6. To produce a tool flexible enough to be used by all stake holders, consultants and contractors for all building types and scenarios .
7. To balance long and short term targets.
8. To balance environmental and ‘human’ socio–economic issues.

KEY DEFINITIONS

A non-exhaustive list of definitions, as found in the system, is as follows:

1) Certification Phase – the three certification awards which have their own scorecards for the three main phases of the system Design, Construction and Operation & Maintenance.
2) Criteria –the 'category' or 'group' of points.
3) Sub-criteria – the term which means 'point'
4) Scorecard – the list of maximum points or sub-criteria in the system (S, CR and CI sub-criteria), which an applicant can choose from.

This list of definitions will be improved through addition and amendment from time to time.

CRITERIA

There are 11 CRITERIA in the system:

These criteria are then implemented according to three certification phases: DESIGN, CONSTRUCTION AND OPERATION & MAINTENANCE. Depending on each phase, the criteria are adjusted for different requirements and relevance according to that particular phase.

DESIGN STAGE

1. Pre Design (PD)
2. Infrastructure and Sequestration (IS)
3. Energy Performance Impacts (EP)
4. Occupant & Health (OH)
5. Lowering The Embodied Carbon (EC)
6. Water Efficiency Factors (WE)
7. Social & Cultural Sustainability (SC)
8. Sustainable & Carbon Initiatives (IN)
9. Demolition & Disposal Factors (DP)

CONSTRUCTION STAGE

1. Infrastructure and Sequestration (IS)
2. Energy Performance Impacts (EP)
3. Occupant & Health (OH)
4. Lowering The Embodied Carbon (EC)
5. Water Efficiency Factors (WE)
6. Social & Cultural Sustainability (SC)
7. Demolition & Disposal Factors (DP)
8. Sustainable & Carbon Initiatives (IN)

OPERATION & MAINTENANCE STAGE

1. Infrastructure and Sequestration (IS)
2. Energy Performance Impacts (EP)
3. Occupant & Health (OH)
4. Lowering The Embodied Carbon (EC)
5. Water Efficiency Factors (WE)
6. Waste Management & Reduction (WM)
7. Sustainable Facility Management (FM)
8. Sustainable & Carbon Initiatives (IN)

THE RATING SYSTEM: FEATURES & HIGHLIGHT

The following summary and key points give an overview of the key features, characteristics and highlights of the system, including its scorecards and calculators.

1. The structure of the system is based on total points accumulated and weighted from list of criteria which covers the site, energy, water & material consumption and indoor environment. The total points are based on a broad and in-depth study of the weightage given to similar criteria in various international green systems in the world. These include LEED, CEPAS, HKBEAM, GRIHA, GBI, BREEAM and GREENMARK. The scoring weightage reflects the average weightage from the combination of these various green building and sustainable rating systems.

2. As Malaysia is yet to have a carbon intensity database or carbon index of buildings and master plan, the present system converts points to carbon emission values. However, key points such as energy and water are based on the award of 'percentage savings on emissions above a baseline value'. These savings are converted to points and reconverted to carbon emission value in the system total carbon summation page.

3. Many of the features, ratings and emphasis are taken from a combination of GreenPASS carbon assessment system developed by CIDB and pHJKR developed by the Jabatan Kerja Raya Malaysia.

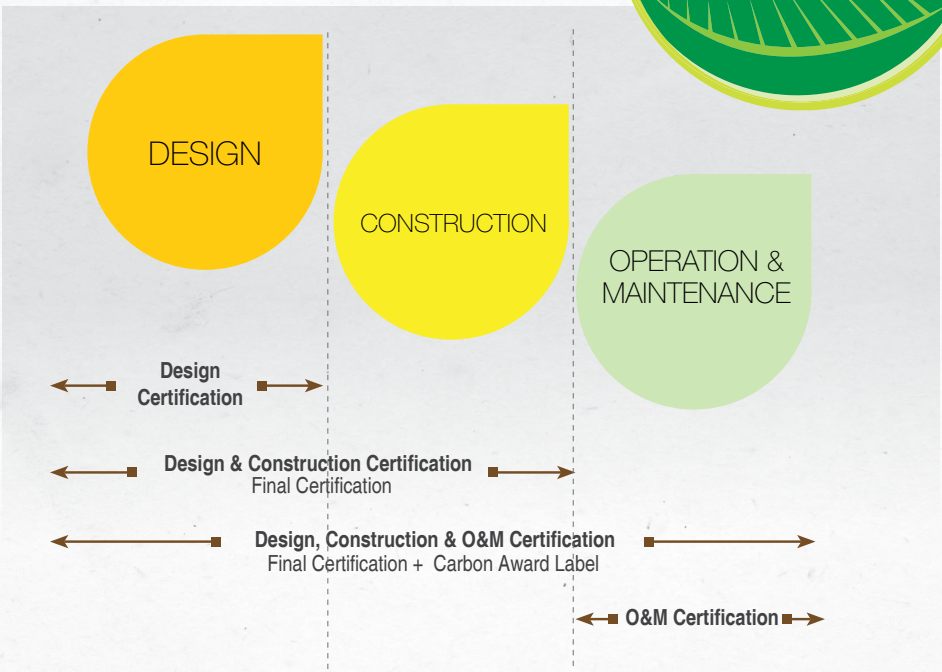
RATING CLASSIFICATION

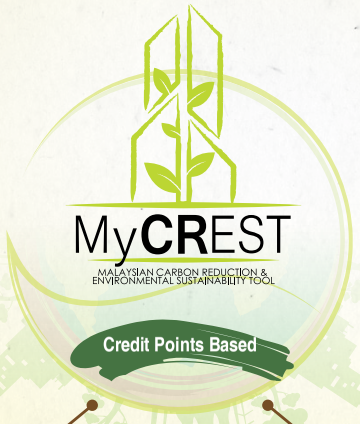
Table below shows the score and the star rating awarded:

MYCREST RATING	Percentage SCORE (%)
★★★★★	80-100
★★★★	70 – 79
★★★	60 – 69
★★	50 – 59
★	40 - 49

In the system, every development will have three types of certification awarded at each stage (Design, Construction and Operation & Maintenance).

Certification shall be given based on the following stages:





Assessment Criteria

Carbon Calculators

Credit Points

Carbon Reduction (CR)
Consist minimum of 50% of total points

Carbon Impact (CI)
Consist minimum of 10% of total points

Sustainability (S)
Consist of less than 40% of total points

Method of Assessment

Carbonised Items
- Energy
- Water
- Life Cycle Analysis (LCA)
- Carbon Sequestration
- Waste Management

Carbon Impact (CI)
Non-quantified carbonized items

Sustainability (S)
Brundtland Commission

SUSTAINABLE DEVELOPMENT
- Economic Growth
- Environmental Protection
- Social Equality

Method of Assessment

Embodied Carbon Calculator

Operational Carbon Calculator

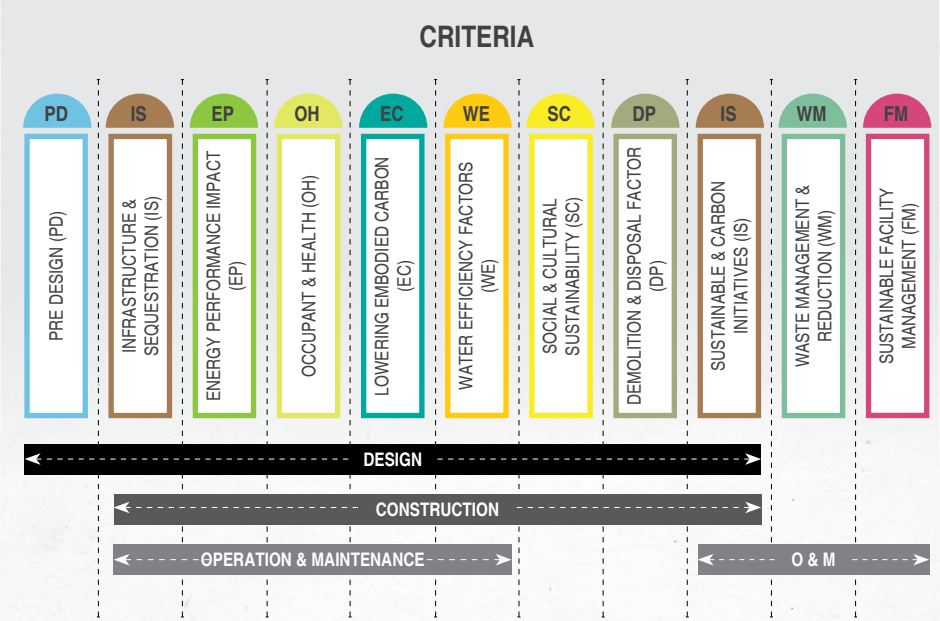
Carbon Sequestration

Carbon Offset

MyCREST COMPONENTS

Scorecard

MyCREST is created to be a versatile scorecard which consists of 3 tools. Each phase has its own criteria as listed below:



Carbon Calculators

Every sub-criterion identified as 'Cr' point will be assessed for carbon emission reduction using carbon calculators. The Carbon Calculators are as follows:

a) Operational Calculator:
- ✓ Energy
- ✓ Water

b) Embodied Carbon Calculator
- ✓ Life Cycle Analysis (LCA) (cradle to gate)
- ✓ Material Transportation (gate to site)
- ✓ Construction Machinery
- ✓ Construction Waste Management (CWM)

c) Carbon Sequestration

d) Carbon Offset

ACKNOWLEDGEMENT

MyCREST is developed through joint effort by KKR, JKR & CIDB as main partners, under the authority of the Honourable Minister of Works, together with other related stakeholders. Deepest appreciation and gratitude to all parties involved:

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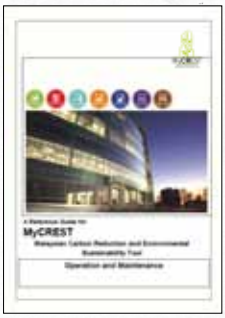
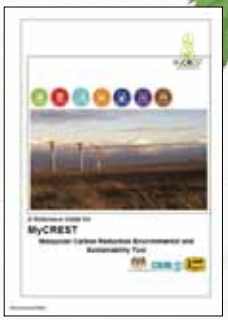
Reference Guide





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