AN INTEGRATED CARBON AND SUSTAINABILITY TOOL FOR GREEN BUILDINGS IN THE TROPICS

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Integrated Carbon Sustainability Tool

**Carbon Calculators**
- Carbonized Items
  - Energy
  - Water
  - Lifecycle Analysis
  - Carbon Sequestration
  - Waste Management

**Credit Points Based**
- Methods of assessment
  - Energy
  - Water
  - Lifecycle Analysis
  - Carbon Sequestration
  - Waste Management

**Carbon Calculators**
- Carbon Reduction (CR)
- Carbon Impact (CI)
- Sustainability (S)

**Credit Points**
- Carbon Impact (CI)
- Sustainability (S)

**Carbonized Items**
- Non-quantified carbonized items

**Sustainability (S)**
- Brundtland Commission
- SUSTAINABLE DEVELOPMENT
  - Economic Growth
  - Environmental Protection
  - Social Equality

**Methods of assessment**
- Embodied Carbon Calculator
- Operational Carbon Calculator
- Carbon Sequestration
- Carbon Offset
The Tools

Summary

Each tool consists of several criteria:

**Design**
- Pre Design
- Infrastructure & Sequestration
- Energy Performance Impact
- Occupant & Health
- Lowering the Embodied Carbon
- Water Efficiency Factor
- Social & Cultural Sustainability
- Demolition & Disposal Factors
- Sustainable & Carbon Initiatives

**Construction**
- Infrastructure & Sequestration
- Energy Performance Impact
- Occupant & Health
- Lowering the Embodied Carbon
- Water Efficiency Factors
- Social & Cultural Sustainability
- Demolition & Disposal Factors
- Sustainable & Carbon Initiatives

**O&M**
- Infrastructure & Maintenance Management
- Energy Performance Impact
- Occupant & Health
- Lowering the Embodied Carbon
- Water Efficiency Factors
- Waste Management & Reduction
- Sustainable Facility Management
- Sustainable & Carbon Initiatives
The Rating System & Elements

Any new building that do not go for design and construction stage are not eligible to apply for O&M certification.

New building is considered as a building that are newly constructed.

At this scenario this building is not considered as existing building.
Carbon-related Calculators

**List of Carbon Calculators Credit Points**

**PRE-DESIGN**
- IS Req1 Plant Inventory on Greenery
- ISINV01
- IS2 Carbon Accounting on Site (For Greenfield or Graded Land)
  - ISCAL01
  - IS6 Urban Heat Island Mitigation
  - ISCAL02
- EP11 Building Energy Efficiency Performance
  - EPCAL01
- EC6 Lifecycle Analysis (LCA) - Structural Elements
  - ECCAL01
- WE1 Water Conservation Strategies
  - WECAL01

**DESIGN STAGE**
- IS9 Carbon Accounting on Site (For Greenfield or Graded Land)
  - ISCAL02
- IS12 Emission Reporting-Construction Machinery
  - ISCAL03
- EP17 Metered Electricity Usage During Construction
  - EPCAL02
- EP20 Building Energy Efficiency Performance - Verification
  - EPCAL03
- EC11 Construction Waste Management
  - WMCA01
- EC13 Lifecycle Analysis (LCA) - Structural Elements
  - ECCAL02
- EC15 Construction Materials Transportation
  - ECCAL03
- WE5 Water Conservation Strategies On Site
  - WECAL02
- WE7 Water Conservation Strategies - Verification
  - WECAL03

**CONSTRUCTION STAGE**
- IS15 Conserve Natural Ecology of Landscape Element
  - ISCAL04
- IS16 Stormwater Management Plan
  - ISCAL05
- EP24 Improving Energy Performance
  - EPCAL04
- WE10 Assessing Water Efficiency Performance
  - WECAL04
- WM2 Solid Waste Management - Ongoing Consumables
  - WMCA02

**OPERATIONS AND MAINTENANCE**
- IS15 Conserve Natural Ecology of Landscape Element
  - ISCAL04
- IS16 Stormwater Management Plan
  - ISCAL05
- EP24 Improving Energy Performance
  - EPCAL04
- WE10 Assessing Water Efficiency Performance
  - WECAL04
- WM2 Solid Waste Management - Ongoing Consumables
  - WMCA02

**DISPOSAL**