

# CONSTRUCTION INDUSTRY COUNCIL

## CIC GREEN PRODUCT CERTIFICATION

### *Assessment Standard*

## Variable Refrigerant Flow Split Type System



**CIC GREEN**  
PRODUCT CERTIFICATION

(Version 2.0)

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## **VARIABLE REFRIGERANT FLOW SPLIT TYPE SYSTEM**

### *Summary of Assessment Criteria*

#### **CORE CRITERIA**

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
Product Information	Provide following information with delivered products or made accessible to public: <ul style="list-style-type: none"> <li>Country of origin</li> <li>Basic product specifications</li> <li>Installation method</li> <li>Instructions for consumer product disposal</li> <li>Operation &amp; Maintenance Manual</li> </ul>	Documentation including but not limited to product catalogue, technical datasheet, webpages	5	-	4.1.1
<b>ENVIRONMENT</b>					
Human Toxicity and Ecosystem Impact	Plastic Parts: Products shall not contain any halogenated plastic parts contained in the outdoor and indoor unit.  The concentration of the phthalates outlined in 4.4.3.2 in the plastic parts of the outdoor and indoor unit shall below 0.1% by weight of the product.	Laboratory test report(s)	5	-	4.4.3.2
	Noise Level: Noise level of both outdoor and indoor units shall be complied with the requirement specified in Table 2.	Documentation including, but not limited to product catalogue and test reports	10	-	4.4.3.3
	Refrigerant Safety Management: Products shall conduct the leakage testing and the refrigerant. (10 Basic)  Incorporated a leak detection system and send the alert to the Building Management System for the leakage. (+5 Bonus)	Documentation including, but not limited to product catalogue and test reports and written declaration	10	+5	4.4.3.4
<b>PERFORMANCE</b>					
Efficiency Metrics	Energy Efficiency: Product shall demonstrate the COP at full load that exceeds requirements of the latest Building Energy Codes	Documentation including, but not limited to, product catalogue and test reports	15	+5/ +10/ +15/ +20	4.5.1.1

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
Product Life	Serviceability: Quality, durability and performance properties of the product shall be demonstrated through at least FIVE testing items outlined in Section 4.5.2.1.	Documentation including, but not limited to, product catalogue and test reports	5	-	4.5.2.1
		<b>Subtotal:</b>	<b>50</b>	+25	

## NON-CORE CRITERIA

Criteria	Requirements	Verification	Points	Index
			+Bonus	
CARBON				
CFP quantification/ EPD Report	Provide a life cycle assessment report with the carbon footprint of products (CFP), covering at least A1 to A3 endorsed by a third-party critical review OR provide an Environmental Product Declaration (EPD).	CFP quantification report <b>OR</b> Environmental Product Declaration	+5	4.2.1
RESOURCE				
Circularity	Recyclability: Shall develop a recycling programme for the product and declared options for reuse, recycling, recovery and disposal.	Recycling plan	+5	4.3.1.1
	Packaging Requirement: The packaging materials shall meet the requirements listed.	Documentation on packaging materials used	+5	4.3.1.2
	Design For Disassembly: <ul style="list-style-type: none"><li>The fans and motors shall be demountable from enclosure for cleaning, repair, replacement or maintenance purpose.</li><li>Fan impeller scroll casing shall be removable for fan blades cleaning.</li></ul>	Documentation including but not limited to product label, product catalogue, and written declaration with date-stamped photographs	+5	4.3.1.3
Waste Management	Waste Management Plan: Implement waste management policies, procedures and/or program covering manufacturing operations. Documentation should be included.	Waste management programme	+5	4.3.2.1
Water Management	Option A: Water Consumption Reporting: Report both potable and non-potable water usage in the production process of the past year.	Water consumption report	+5/ +10	4.3.3.1
	Water Recycling Program: Develop and implement water recycling program during the manufacturing process.	Documentation on water recycling		4.3.3.2
	Option B: Water Management System: Process valid certificate under ISO 14046: Water Footprint Assessment	ISO 14046 Certificate issued by accredited certification body		4.3.3.3
Energy Management	Option A: Energy Management Plan: Implement effective energy management policies and procedures and/or an energy management programme.	Energy management plan	+5/ +10	4.3.4.1

Criteria	Requirements	Verification	Points	Index
			+Bonus	
	Option B: Energy Management System: Possess valid certificate under ISO 50001: Energy management systems.	ISO 50001 Certificate issued by accredited certification body		4.3.4.2
<b>ENVIRONMENT</b>				
Human Toxicity and Ecosystem Impact	Hazardous Substance: Product shall meet the requirements for paints used (+5 Bonus) and flame retardant (+5 Bonus)	Laboratory test report(s)	+10	4.4.3.1
Environmental Management	Environmental Management System: Manufacturer shall possess valid certification of ISO 14001 OR EU Eco-Management and Audit Scheme (EMAS).	ISO Certificate or EMAS Certificate	+5	4.4.1.1
Regional Product	Regional Manufactured Equipment: The manufacturing location should be located within an 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.	Document to prove the location of the manufacturer plant	+5	4.4.2.1
<b>INNOSMART</b>				
Innovations & Additions	Incorporating various smart technologies to improve efficiency, reduce energy consumption, and optimize performance	Documentation of smart features such as product catalogue	+5	4.6.1
		<b>Subtotal:</b>	+70	

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# **1. INTRODUCTION**

## **1.1 PURPOSE**

The CIC Green Product Certification Scheme (the “Scheme”) is a green product labelling scheme, owned by the Construction Industry Council (CIC) and implemented by the Hong Kong Green Building Council (HKGBC). The primary goal of the scheme is to support Hong Kong’s transition to a low-carbon economy by encouraging the adoption of environmentally friendly construction practices.

With the Green Product Certification, various stakeholders, including consumers, building professionals, construction practitioners and policymakers, can easily and unequivocally identify environmentally preferable construction materials and building products. This certification serves as a reliable indicator of a product’s sustainability, helping to drive market demand for greener options.

To ensure the credibility and effectiveness of the certification, the CIC and the HKGBC has jointly developed this Technical Assessment Standards (the “Standard”), which sets out the assessment criteria and their benchmarks to govern the application and award of a label under the Scheme. The comprehensive assessment evaluates the overall sustainability of construction materials and building products across multiple dimensions. These dimensions include environmental impact, resource efficiency, technical performance, and the use of smart manufacturing technologies.

The Standard is divided into two main parts:

- General Requirements (Refer to General Requirements provided in separate document). This part introduces Scheme's framework, outlines the application procedure, and details the grades.
- Technical Requirements (This document refers). This part defines the principles, requirements and guides for quantifying and reporting the products’ carbon footprint (CFP), along with other sustainability assessment criteria and scoring standards.

This Standard neither modifies nor supersedes laws and regulations. Compliance with this Standard is not a substitute for, and does not assure, compliance with any applicable laws or regulations. Compliance with all applicable laws and regulations is a prerequisite for the manufacturing and marketing of the product.

## 1.2 BACKGROUND

Variable refrigerant flow split type system can place a significant burden on the environment, from raw material extraction to potential health hazards in the use phase. With increasing environmental claims of variable refrigerant flow split type system in the market, a more comprehensive and systematic approach to assess the environmental impacts of the variable refrigerant flow split type system shall be developed. The aim of this Standard is to help designers and end-users choosing greener products by conserving resources, reducing the amount of waste disposal in landfills and reducing the impact to human health throughout the life cycle of the variable refrigerant flow split type. The development of the assessment criteria in this Standard has made references to worldwide relevant eco-labelling schemes and some existing life cycle assessment (LCA) studies.

## 2. SCOPE

The Standard applies to the air conditioning system configurations that meet the definition and condition of a Variable Refrigerant Flow (VRF) system. A VRF system is an air conditioning system with a single outdoor condensing unit connected to multiple indoor units in order to control the amount of refrigerant flowing to the multiple evaporators (indoor units) and to enable the use of many evaporators of different capacities and configurations for individualized comfort control, simultaneous heating and cooling in different zones and heat recovery from one zone to another.

**ONE** application is only eligible for **ONE** product series. All the related products have to be listed on the submitted documents.

Note:

Each application should specify the product code / serial number.

## 3. DEFINITIONS

*Applicant:* Organisation which apply for the label under the CIC Green Product Certification of the Construction Industry Council

*ASTM:* American Society for Testing and Materials

*BS:* British Standards

*BMS:* Building Management System

*CIC:* Construction Industry Council

*COP:* Coefficient of Performance

*CNAS:* China National Accreditation Service for Conformity Assessment

*HKAS:* Hong Kong Accreditation Service



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<i>HKGBC:</i>	The Hong Kong Green Building Council Limited
<i>HOKLAS:</i>	The Hong Kong Laboratory Accreditation Scheme
<i>IARC:</i>	International Agency for Research on Cancer
<i>ISO:</i>	International Organisation for Standardisation
<i>MSDS:</i>	Material safety data sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old
<i>US EPA:</i>	United States Environmental Protection Agency
<i>VRF:</i>	Variable Refrigerant Flow Split Type System
<i>MiMEP:</i>	Multi-trade integrated Mechanical, Electrical and Plumbing

## 4. EVALUATION CRITERIA

A product to be assessed shall meet all the minimum requirements of the “Core Criteria” in order to be awarded a “Green” (i.e. a “pass” grade) Label under the Scheme. Bonus points may be awarded if the product meets the “Non-core Criteria”. “Bronze”, “Silver”, “Gold” or “Platinum” Label will be awarded according to the total points accumulated, as shown in Table 1.

*Table 1 Benchmarks for grading*

<b>Points achieved</b>	<b>Grade to be awarded</b>
90 or above	Platinum
80 – 89	Gold
70 – 79	Silver
60 – 69	Bronze
50 – 59	Green
Below 50	No label

All submissions and documentations shall be endorsed by the Chief Executive Officer or other authorised persons of the Applicant to demonstrate conformance to the assessment criteria. All certification, laboratory report and documentation must be valid during the assessment process and labelling period. The validity of all laboratory report and documentation shall be within 5 years from the date of issue. The chemical tests should be conducted by either a third party or the manufacturer, providing that they have obtained ISO 17025 certification or relevant national accreditations, such as HOKLAS or CNAS.

## **4.1 BASIC INFORMATION**

### **4.1.1 Product Information- Core Criteria**

*The Applicant is required to achieve 5 Basic Points under this section.*

#### Requirements

5 Basic Points for providing the following product information the following product information for compliance:

- Country of origin
- Basic product specifications
- Installation method
- Instructions for consumer product disposal
- Operation & Maintenance Manual

#### Verification

Documentation including, but not limited to, product label, product catalogue, MSDS, and written declaration

## **4.2 CARBON**

### **4.2.1 CFP quantification/ EDP Report -Non-core Criteria**

*The Applicant can achieve maximum 5 Bonus Points under this section.*

#### Requirements

5 Bonus Points for providing life cycle assessment report for quantifying and reporting the carbon footprint of products (CFP), covering at least A1 (raw material supply), A2 (transport) and A3 (manufacturing process). This can be achieved by either of the following:

Conduct CFP study report in accordance with ISO 14067:2018, CIBSE TM 65 or equivalent.

#### **OR**

Provide the product's CFP value from a product level EPD issued in accordance with ISO 14067:2018, ISO 21930:2017, GB/T 24067-2024 or BS EN 15804:2012+A2:2019.

#### Verification

CFP quantification report endorsed by a third-party critical review or Environmental Product Declaration fulfilling the above requirement

## **4.3 RESOURCE**

### **4.3.1 Circularity**

*The Applicant can achieve maximum 15 Bonus Points under this section.*

#### **4.3.1.1 Recyclability – Non-core Criteria**

##### Requirements

5 Bonus Points for demonstrating that the manufacturer has developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal. The plan shall include the following and made available to public.

- Designate all homogeneous materials in the product as being intended for technical and/or biological cycles and define the intended cycling pathway(s) for each material.
- Identify potential partners for product reuse, recycling, recovery in accordance with the intended cycling pathway(s).
- For products and materials intended for municipal recycling, the product and/or material must be compatible for municipal cycling systems (e.g., painted plastics and plastic laminated paper are not currently compatible for municipal recycling).
- Instructions for how to cycle the product shall be made publicly available.

##### Verification

Documentation of reuse, recycling and waste management of products including, but not limited to, product catalogue, MSDS and written declaration.

#### **4.3.1.2 Packaging Requirement – Non-core Criteria**

##### Requirements

5 Bonus Points for minimizing the wastage from all primary packaging materials. The packaging materials shall achieve either of the followings:

The packaging materials shall not contain halogenated plastics

**OR**

The packaging materials shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials

**OR**

The packaging shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.

The packaging requirements are relevant to all primary packaging materials, i.e. those being used to envelop the product and hold it. The primary packaging materials are

usually in direct contact with the contents and shall be in the minimal amount of distribution and /or use as they may eventually be disposed by the consumers.

Verification

Documentation describing the packaging materials used as well as their chemical composition (if any and where applicable), treatment process and recyclability.

**4.3.1.3 Design For Disassembly – Non-core Criteria**

Requirements

5 Bonus Points for the VRF incorporated design for disassembly features, specifically:

- The fans and motors shall be demountable from enclosure for cleaning, repair, replacement or maintenance purpose.
- Fan impeller scroll casing shall be removable for fan blades cleaning.

Verification

Documentation including but not limited to product label, product catalogue, and written declaration with date-stamped photographs

**4.3.2 Waste Management**

*The Applicant can achieve maximum 5 Bonus Points under this section.*

**4.3.2.1 Waste Management Plan – Non-core Criteria**

Requirements

5 Bonus Points for implementing effective waste management plan detailing the policies, procedures and/or a waste management program covering manufacturing operations. The waste management plan should include but not limited to the following information:

- Initiatives taken to reduce waste generation and improve recovery/recycling of waste; and
- Initiatives implemented for recovery of post-consumer and/or pre-consumer waste that can be re-introduced into the manufacturing process; and
- Other environmental benefits or constraints associated with waste minimisation objectives and processes.

Verification

Detailed policies, procedures, programs and/ or plans of waste management.

### **4.3.3 Water Management**

*The Applicant can achieve maximum 10 Bonus Points under this section.*

*The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points. Each option is eligible for a maximum 10 Bonus Points.*

#### **Option A:**

#### **4.3.3.1 Water Consumption Reporting – Non-core Criteria**

##### Requirements

5 Bonus Points for reporting both potable and non-potable water usage in the production process of the past year.

##### Verification

Water consumption report, support by water usage data acquired from water meter, water sub-meter, water bill or other equivalent documents.

#### **4.3.3.2 Water Recycling Program – Non-core Criteria**

##### Requirements

5 Bonus Points for developing and implementing water recycling program during the manufacturing process.

##### Verification

Documentation demonstrating the implementation of water recycling program, support by drawings, water usage data acquired from water sub-meter or other equivalent documents.

#### **Option B:**

#### **4.3.3.3 Water Management System – Non-core Criteria**

##### Requirements

10 Bonus Points for possessing valid certificate under ISO 14046: Environmental management – Water footprint – Principles, requirements and guidelines.

ISO 14046 is a framework for assessing the water footprint of products, processes, and organizations. It provides principles, requirements, and guidelines for conducting and reporting water footprint assessments. It helps organizations evaluate and improve their water management practices.

##### Verification

A valid ISO 14046 certificate issued by accredited certification body.

#### **4.3.4 Energy Management**

*The Applicant can achieve maximum 10 Bonus Points under this section.*

*The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points.*

##### **Option A:**

##### **4.3.4.1 Energy Management Plan – Non-core Criteria**

###### Requirements

5 Bonus Points for implementing effective energy management policies and procedures and/or an energy management programme, including but not limited to the following items:

- Energy efficiency initiatives: Manufacturer should undertake specific initiatives to reduce energy use and improve energy efficiency throughout their operations. This could include upgrading to more efficient equipment, optimizing production processes, or implementing energy-saving technologies
- Supplier requirements: Manufacturers should extend their energy management efforts to their supply chain by establishing requirements or initiatives for suppliers and contract manufacturers to improve their energy performance where possible

###### Verification

Energy Management Plan detailing the above.

##### **Option B:**

##### **4.3.4.2 Energy Management System – Non-core Criteria**

###### Requirements

10 Bonus Points for possessing valid certificate under ISO 50001: Energy management systems — Requirements with guidance for use.

ISO 50001 provides a framework for organizations to establish, implement, maintain, and improve an Energy Management System. The goal is to help organizations improve their energy performance, increase energy efficiency, and reduce energy costs and greenhouse gas emissions. By achieving ISO 50001 certification, manufacturers can demonstrate their commitment to energy efficiency and sustainability

###### Verification

A valid ISO 50001 certificate issued by accredited certification body.

## **4.4 ENVIRONMENT**

### **4.4.1 Environmental Management**

*The Applicant can achieve maximum 5 Bonus Points under this section.*

#### **4.4.1.1 Environmental Management System – Non-core Criteria**

##### Requirements

5 Bonus Points for possessing valid certificate under ISO 14001: Environmental management systems — Requirements with guidance for use or EU Eco-Management and Audit Scheme (EMAS).

The target of the environmental management system shall be set to reduce the environmental impacts during the manufacturing process which include but not limited to the reduction of hazardous substance emissions, energy consumption, CO<sub>2</sub> emissions, secondary environmental load, waste management, water management, etc.

ISO 14001 is the international standard which provides an outline of how to meet the environmental policy and objectives for the business of the applicant.

Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage and continuously improve their environmental performance.

##### Verification

A valid ISO 14001 or EMAS Certificate issued by accredited certification body.

### **4.4.2 Regional Product**

*The Applicant can achieve maximum 5 Bonus Points under this section.*

#### **4.4.2.1 Regional Manufactured Equipment – Non-core Criteria**

##### Requirements

5 Bonus Points for products that are manufactured within 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation. The distance is measured by the direct distance, not by actual travel distance.

##### Verification

Documents demonstrating the location of the manufacturer and a map showing the distance between the manufacturer and HKSAR.

### **4.4.3 Human Toxicity and Ecosystem Impact**

*The Applicant is required to achieve 35 Basic Points under this section. Additionally, the Applicant can achieve maximum 10 Bonus Points under this section.*



#### ***4.4.3.1 Hazardous Substances – Core Criteria***

##### **Requirements**

10 Basic Points are awarded if the product meets the requirements for paints used.

5 Bonus Points are awarded if the product meets the requirements for flame retardant.

##### **Paints Used – Core Criteria**

Limit the concentration of Lead, Cadmium, Chromium (VI), Mercury or their compounds in paint below 0.01% by weight.

Limit the concentration of VOC content in paint below 250g/L.

##### **Flame Retardant – Non-core Criteria**

Concentration of the flame-retardants in the product shall be below 0.1% by weight of the product. The restricted fire retardants including the following types:

- Polybrominated diphenyl ether
- Polybrominated biphenyls
- Short-chained chlorinated paraffin
- Halogenated organic compound
- Hexabromocyclododecane

Products shall be tested based on the requirement as stated in BS 62321:2009 (or latest version); other related testing methods are also acceptable with justification provided by the applicant.

BS EN 62321:2009 specifies the determination of the levels of brominated flame retardants, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) contained in electrotechnical products.

##### **Verification**

Laboratory test report(s) or self- declaration letter.

Test report(s) shall be compiled according to the National and International test methods including but not limited to IEC 62321.

#### ***4.4.3.2 Plastic Parts – Core Criteria***

##### **Requirements**

5 Basic Points are awarded if the product meets the following plastic parts requirements:

Products shall not contain any halogenated plastic parts contained in the outdoor and indoor unit. (i.e. such as PVC for the plastic case parts and the halogenated compounds containing in the plastic parts)

The concentration of the following phthalates in the plastic parts of the outdoor and indoor unit shall below 0.1% by weight of the product.

- Bis(2-ethylhexyl) phthalate (DEHP)
- Dibutyl phthalate (DBP)
- Benzylbutylphthalate (BBP)
- Diisononylphthalate (DINP)
- Diisodecylphthalate (DIDP)
- Di-n-octylphthalate (DNOP)

#### Verification

Laboratory test report(s).

### **4.4.3.3 Noise Level – Core Criteria**

#### Requirements

10 Basic Points are awarded if the product's noise levels for both outdoor and indoor units meet the following requirements.

*Table 2 Noise level requirement of both outdoor and indoor units.*

Nominal Cooling Capacity (kW)	Limit [dB (A)]	
	Indoor	Outdoor
<2.5	≤40	-
≥2.5 to ≤4.0	≤45	-
≥4.0 to ≤10.0	≤50	≤60
≥10.0 to ≤35.0	≤55	≤65
≥35.0	≤55	≥70

#### Verification

Detail report(s) on noise evaluation shall be conducted in accordance with the AHRI Standard 575 – 2008 Method of Measuring Machinery Sound Within an Equipment Space; other related testing methods are also acceptable with justification provided by the applicant.

### **4.4.3.4 Refrigerant Safety Management – Core Criteria**

#### Requirements

10 Basic Points are awarded for conducting the leakage testing for the refrigerant. Additionally, 5 Bonus Points are granted for incorporating a leak detection system.

### **Leakage Testing**

10 Basic Points shall be awarded for achieving a refrigerant leakage rate of 1.0% or less of the total refrigerant charge:

- Product shall conduct the leakage testing that prove the refrigerant leakage shall be equal to or less than 1.0% of full refrigerant charge.
- Manufacturer shall provide a factory testing report including the information of testing methodology and all calculation details leading to the end result of refrigerant leakage rate.

### **Leak detection system**

5 Bonus Points are granted for incorporating a leak detection system:

- Product shall be incorporated a leak detection system and send the alert to the Building Management System (BMS) for the leakage.
- The leakage detection system shall be able to communicate with Building Management System (BMS) via an open standard communication interface including but not limited to BACnet, ZigBee and LonWorks.

### Verification

Laboratory test report(s) and any relevant documentation on the refrigerant used, refrigerant leakage rate, loss and charge. The leak testing method(s) shall be selected in accordance with the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 15-2024 (Safety Standard for Refrigeration Systems), Section 9.13.6.

Documentation demonstrating the incorporation of leak detection system.

## **4.5 PERFORMANCE**

### **4.5.1 Efficiency Metrics**

*The Applicant can achieve 15 Basic Bonus Points under this section. Additionally, the Applicant can achieve maximum 20 Bonus Points under this section.*

#### **4.5.1.1 Energy Efficiency – Core Criteria**

##### Requirements

Points are awarded for the products fulfil the requirements below:

Product shall demonstrate the COP at full load that exceeds requirements of the latest Building Energy Codes:

- at least 5% (15 Basic)
- at least 8% (+5 Bonus)
- at least 10% (+10 Bonus)

- at least 12% (+15 Bonus)
- at least 15% (+20 Bonus)

Standard rating condition shall be referred to the latest Building Energy Codes.

#### Verification

Documentation including, but not limited to, test reports, product catalogue and MSDS

### **4.5.2 Product life**

*The Applicant is required to achieve 5 Basic Points under this section.*

#### **4.5.2.1 Serviceability – Core Criteria**

##### Requirements

5 Basic Points are awarded for the quality, durability and performance properties of the product shall be demonstrated through at least **FIVE** testing items including, but not limited to, the followings:

*Table 3: Testing Items for Demonstrating the Quality, Durability, and Performance Properties of the Product.*

Testing items	Relevant Types/ Conditions
Reference SEER/SEERon	--
Reference SCOP/SCOPon/ SCOPnet	
Strength pressure test	
Tightness test	Before installation
Functional test	
Conformity test	
Rating capacity test	After installation
Power consumptions	
Air flow rate measurement	
Heat recovery test	
Starting test	Operating requirements
Freeze-up test	
Condensate draining and enclosure sweat test	
Defrosting test	
Tightness test	Tightness performance of components and joints
Torque test	
Pressure-temperature vibration tests (PTV)	
Freezing test	
Vacuum test	
Compatibility Screening test	
Fatigue test	

Verification

Documentation including, but not limited to, test reports, product catalogue and MSDS

**4.6 INNOSMART**

*The Applicant can achieve maximum 5 Bonus Points under this section.*

**4.6.1 Innovations & Additions – Non-core Criteria**

Requirements

5 Bonus Points for achieving significant, measurable environmental performance using new practices, technology and strategy not addressed in this Standard.

Products shall be able to adopt with Multi-trade Integrated MEP (MiMEP) via technologies to facilitate including but not limited to BIM, Virtual Reality. RFID and Augmented Realty for improving efficiency and streamline manufacturing processes from MiMEP

**OR**

Incorporating various smart technologies to improve efficiency, reduce energy consumption, and optimize performance as, exemplified by the following examples:

- Event-Driven Optimal Control
- IoT Integration and Data Analytics
- Multi-Objective Optimization

Verification

Report with a maximum length of 1,000 words, outline the objectives, solution and evaluation of the performance achieved by proposed Smart and Innovative Technologies.

**AND**

Include attachments that provide evidence of implementation, along with relevant technical specification that support the claims made in the report.

## 5. SCORING

The points for meeting each criterion stated in this Standard are summarized below.

*Table 4: Points to be awarded under the assessment criteria of this Standard*

Label	Evaluation criteria		Points		Related BEAM Plus Credits
			Basic	+Bonus	
	Product Information [CORE]		5	-	
Carbon	CFP quantification/ EPD report		-	+5	MW 10
Resource	Circularity	Recyclability	-	+5	
		Packaging Requirement	-	+5	
		Design For Disassembly	-	+5	
	Waste Management	Waste Management	-	+5	
	Water Management	Water Consumption Reporting	-	+5/+10	
		Water Recycling Program			
		Water Management System			
	Energy Management	Energy Management Plan	-	+5/+10	
		Energy Management System			
Environment	Environmental Management	Environmental Management System	-	+5	
	Regional Product	Regional Manufactured Equipment	-	+5	
	Human Toxicity and Ecosystem Impact	Hazardous Substances		+5/ +10	
		Plastic Parts [CORE]	5	-	
		Noise Level [CORE]	10	-	SS 5
		Refrigerant Safety Management [CORE]	10	+5	
Performance	Efficiency Metrics	Energy Efficiency [CORE]	15	+5/ +10/ +15/ +20	EU 2
	Product Life	Serviceability [CORE]	5	-	
InnoSmart	Innovations & Additions		-	+5	IA
Total:			50	+95	

Related BEAM Plus Credits refer to these relevant credits under BEAM Plus New Buildings Version 2.0, as listed below.

- SS 5: Noise Control for Building Equipment
- MW 10: Life Cycle Assessment
- EU 2: Reduction of CO2 Emissions
- EU 3: Peak Electricity Demand Reduction
- MW 9: Use of Green Products
- Innovations & Additions