CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Technical Requirements

Variable Refrigerant Flow Split Type System

(Version 2)

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 be made accessible to public: • Country of origin • Basic product specifications • Installation method • Instructions for consumer product disposal • Operation & Maintenance Manual	Documentation including, but not limited to, product catalogue, technical datasheet, and webpages	**5**	-	4.1.1
ENVIRONMENT					
Human Toxicity and Ecosystem Impact	Plastic Parts: Products shall not contain any halogenated plastic parts 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 be 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 comply with the requirement specified in Table 2.	Documentation includes, but not limited to product catalogue, technical datasheets and test report(s).	**10**	-	4.4.3.3
	Refrigerant Safety Management: All products shall meet the basic requirement of conducting the leakage testing and the refrigerant leakage shall be equal to or less than 1.0% of full refrigerant charge. 5 bonus points will be granted if product incorporates a leak detection system and send the alert to the Building Management System (BMS) for the leakage.	Laboratory test report(s) and documentation on the refrigerant leakage rate, loss, and charge Drawing or product catalogues demonstrating the leak detection system	**10**	+5	4.4.3.4
PERFORMANCE					
Efficiency Metrics	Energy Efficiency: Achieve at least 5% energy efficiency improvement in COP than BEC as the basic requirement.	Documentation including, but not limited to test reports, product catalogue,	**15**	+5/ +10/ +15/ +20	4.5.1.1

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
	Bonus points will be granted according to requirements outlined in Table 3 of Section 4.5.1.1.	technical datasheet.			
Product Life	Serviceability: Quality, durability, and performance properties of the product shall be demonstrated through at least FIVE testing items outlined in Table 4 of Section 4.5.2.1.	Documentation including, but not limited to, product catalogue and test reports	**5**	-	4.5.2.1
		Subtotal:	**50**	+25	

NON-CORE CRITERIA

Criteria	Requirements	Verification	Points +Bonus	Index
CARBON				
CFP Quantification	Provide a 3rd party endorsed life cycle assessment report with the carbon footprint of products (CFP), covering at least A1 to A3 OR a product level Environmental Product Declaration (EPD).	CFP quantification report **OR** Environmental Product Declaration	+10	4.2.1
RESOURCE				
Circularity	Recyclability: Develop a recycling plan 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 not contain halogenated plastics; *OR* Shall be comprised of 100% recycled materials, readily recyclable materials, or decomposable materials: *OR* Shall not be impregnated, labelled, coated, or otherwise treated in a manner which would prevent or significantly limit recycling	Documentation on packaging materials used	+5	4.3.1.2
	Design for Disassembly: • The fans and motors shall be demountable from enclosure for cleaning, repair, replacement or maintenance purpose; and • Fan impeller scroll casing shall be removable for fan blades cleaning.	Documentation including but not limited to product label, product catalogue, manuals and written declaration.	+5	4.3.1.3
Waste Management	Waste Management Plan: Implement effective waste management plan detailing the policies, procedures, and/or a waste management program covering manufacturing operations.	Waste management plan	+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	ISO 14046 Certificate issued by accredited certification body		4.3.3.3

Criteria	Requirements	Verification	Points +Bonus	Index
	Footprint Assessment.			
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
	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
ENVIRONMENT				
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: 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.	Location map with distance between manufacturer and HKSAR	+5	4.4.2.1
Human Toxicity and Ecosystem Impact	Hazardous Substances: Product shall meet the requirements for paints used (+5 Bonus) and flame retardant. (+5 Bonus)	Laboratory test report(s), or self-declaration letter	+5/+10	4.4.3.1
INNOSMART				
Innovations & Additions	Achieving significant, measurable environmental performance using new practices, technology, and strategy not addressed in this Standard. OR Incorporating various smart technologies to improve efficiency, reduce energy consumption, and optimize performance.	Narrative with supporting documents	+5	4.6.1
		Subtotal:	+75	

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1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification (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 grade 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.

The Scheme is owned by the Construction Industry Council (CIC), 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong; and operated by Hong Kong Green Building Council (HKGBC), 1/F, Jockey Club Environmental Building, 77 Tat Chee Avenue, Kowloon Tong, Hong Kong, Phone: +852 3994 8888, Email: cicgpc@hkgbc.org.hk

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 choose 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 system. 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:	Organisations which apply for the label under the CIC Green Product Certification of the Construction Industry Council
AHRI:	Air Conditioning, Heating and Refrigeration Institute
ASHRAE:	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BEC:	Building Energy Code
Biological Cycle:	The cycle by which materials or parts are released to, and ideally reprocessed in, the environment via composting, biodegradation, nutrient extraction, or other biological metabolic pathways
BS:	British Standards
BMS:	Building Management System

CIC:	Construction Industry Council
Coefficient of performance (COP):	A ratio of the cooling capacity in watts (W) to the total power input, in watts (W) at any specified set of standard rating conditions, expressed in watts / watts (W/W)
CNAS:	China National Accreditation Service for Conformity Assessment
HKAS:	Hong Kong Accreditation Service
HKGBC:	The Hong Kong Green Building Council Limited
HOKLAS:	The Hong Kong Laboratory Accreditation Scheme
IARC:	International Agency for Research on Cancer
ISO:	International Organisation for Standardisation
MSDS:	Material safety data sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old
MiMEP:	Multi-trade integrated Mechanical, Electrical and Plumbing
Refrigerant:	The working fluid of a vapour-compression heat transferring system. The refrigerant transfers heat from one location to another by boiling and condensing
Technical Cycle:	The cycle by which a product's materials or parts are reprocessed for a new product use cycle via recycling, repair, refurbishment, remanufacturing, or reuse
US EPA:	United States Environmental Protection Agency
VRF:	Variable Refrigerant Flow Split Type System
VOC:	Volatile organic compounds. VOCs are organic chemical compounds that have high enough vapour pressures under normal conditions to significantly vaporize and enter the atmosphere. VOCs are major contributors or precursors to the formation of ozone and smog.

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) grade under the Scheme. Bonus points may be awarded if the product meets the "Non-core Criteria". "Bronze", "Silver", "Gold", or "Platinum" grade will be awarded according to the total points accumulated, as shown in Table 1.

Table 1: Benchmarks for grading

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

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 reports, and documentation must be valid during the assessment process and labelling period. The date of issue of all laboratory reports and documentation shall be within 5 years from the first application submission date.

If the certification expires during the labelling period or upon renewal, the applicant is required to provide an updated and valid certification. Failure to resubmit the required certification will result in the revocation of CIC Green Product Certificate without compensation.

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 for compliance:

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

Verification

Documentation showing the product information and instructions including, but not limited to, product catalogue, technical datasheet, webpages, and/or any other information freely accessible by customers.

4.2 CARBON

4.2.1 CFP Quantification – Non-core Criteria

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

Requirements

10 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, GB/T 24067-2024, CIBSE TM 65, or equivalent.

OR

10 Bonus Points for providing the product's CFP value from a product level EPD issued in accordance with ISO 14067:2018, ISO 21930:2017, GB/T 24067-2024, GB/T 24025-2009, or BS EN 15804:2012.

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 be made available to the 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; and
- Identify potential partners for product reuse, recycling, and recovery in accordance with the intended cycling pathway(s); and
- 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); and
- Instructions for how to cycle the product shall be made publicly available.

Verification

Documentation of recycling plan 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 following:

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 envelope 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; and
- Fan impeller scroll casing shall be removable for fan blades cleaning.

Verification

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

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 an effective waste management plan detailing the policies, procedures, and/or a waste management program covering manufacturing operations. The waste management plan should include, but should not be 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

Documentation of waste management plan detailing the above, supported by organizational policy or other equivalent documents.

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.

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, supported 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, supported 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; and
- 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

Documentation of energy management plan detailing the above, supported by organizational policy or other equivalent documents.

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 are not limited to, the reduction of hazardous substance emissions, energy consumption, CO_2 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 can achieve maximum 40 Points under this section.

The Applicant is required to achieve 25 Basic Points under this section. Additionally, the Applicant can achieve maximum 15 Bonus Points under this section.

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

Paints Used

5 Bonus Points are awarded if the product meets the requirements for paints used.

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

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

Flame Retardant

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

Concentration of the flame-retardants in the product shall be below 0.1% by weight of the product. The restricted fire retardants include 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 IEC 62321-4:2013, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 (or the latest version). Other related testing methods are also acceptable with justification provided by the Applicant.

Verification

Laboratory test report(s) or self-declaration letter. The test report(s) shall be compiled according to IEC 62321 or other equivalent standards

4.4.3.2 Plastic Parts – Core Criteria

Requirements

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

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

Products shall be tested based on the requirement as stated in IEC 62321-8:2017 (or the latest version). Other related testing methods are also acceptable with justification provided by the Applicant.

Verification

Laboratory test report(s) compiled according to IEC 62321 or other equivalent standards.

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

Documentation demonstrating the noise evaluation is 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. Documentation includes, but not limited to product catalogue, technical datasheets and test report(s).

4.4.3.4 Refrigerant Safety Management – Core Criteria

Requirements

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 proves 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 incorporate a leak detection system that sends alerts to the Building Management System (BMS) for leakage.
- The leakage detection system shall be able to communicate with the 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 ASHRAE Standard 15-2024 (Safety Standard for Refrigeration Systems), Section 9.13.6.

Documentation demonstrating the incorporation of leak detection system, including but not limited to drawings, product catalogues.

4.5 PERFORMANCE

4.5.1 Efficiency Metrics

The Applicant can achieve maximum 35 Points under this section.

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 demonstration compliance of COP at full load as listed below:

Table 3: Points Awarded for Meeting COP Requirements at Full Load

Points	Percentage improvement in COP at full load
15 Basic	+5%
15 Basic + 5 Bonus	+8%
15 Basic + 10 Bonus	+10%
15 Basic + 15 Bonus	+12%
15 Basic + 20 Bonus	+20%

Note:

The product shall exceed the minimum COP at full load as specified in BEC 2021, Table 6.12a (Part 2).

Verification

Documentation including, but not limited to test reports, product catalogue, technical datasheet.

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 which shall be demonstrated through at least **FIVE** testing items including, but not limited to, the following:

Table 4: Examples of Testing Items

Testing items	Relevant Types/ Conditions
Seasonal Energy Efficiency Ratio (SEER)	--
Seasonal Coefficient of Performance (SCOP)	
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, technical datasheet.

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.

OR

Incorporating various smart technologies to improve efficiency, reduce energy consumption, and optimize performance.

Examples include the following:

- Multi-trade Integrated MEP (MiMEP)
- 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 the proposed Smart and Innovative Technologies.

AND

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

5. SCORING

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

Table 5: 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		-	+10	
Resource	Circularity	Recyclability	-	+5	
		Packaging Requirement	-	+5	
		Design for Disassembly	-	+5	
	Waste Management	Waste Management Plan	-	+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	MW 8
	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	MW 7
Performance	Efficiency Metrics	Energy Efficiency [CORE]	15	+5/ +10/ +15/ +20	EU 2 / EU 3
	Product Life	Serviceability [CORE]	5	-	
InnoSmart	Innovations & Additions		-	+5	IA
		Total:	**50**	**+100**	

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

- MW 7: Ozone Depleting Substances
- MW 8: Regional Materials
- MW 9: Use of Green Products
- SS 5: Noise Control for Building Equipment
- EU 2: Reduction of CO_2 Emissions
- EU 3: Peak Electricity Demand Reduction
- Innovations and Additions