IT-FLEX

Evaluation of the contributions to the LEED prerequisite credits

This document describes the main requirements relating to the product range **IT-FLEX C1**, useful for achieving the main credits of the **LEED** v4 and v4.1 certification.

The evaluation of the main contributions is reported below:

LEED categories		Credits	LEED requirements	Points	IT-FLEX C1 compliance or contribution
EA	Prerequisites Minimum energy performance	Option 1 Energy for the whole building, simulation	Reduce the environmental and economic impact due to excessive energy consumption. The energy calculation is carried out by using a dynamic simulation model based on the ANSI / ASHRAE / IESNA 90.1-2010 standard, Appendix G with errata. Compared to the base building of reference, an improvement of 5% is required for new construction projects, 3% for major renovations and 2% for core and shell projects. Compliance with the mandatory provisions of the ASHRAE 90.1-2010 standards is also required	—	**IT-FLEX C1** contributes to the energy performance of the building as part of the construction systems relating to the insulation of ducts and pipes. **IT-FLEX C1** contributes directly, with thermal conductivity parameters that vary according to the thickness of the product: from λ 0.034 W/mK to λ 0.036 W/mK assessed at a temperature of 0 °C to satisfy the requirements shown in tables 6.8.2 A and B and 6.8.3.
	Energy performance optimization		The credit requires demonstrating the improvement of the designed building compared to the reference baseline. The number of points awarded depends on the percentage of improvement obtained: 1 to 18 points are available with improvement percentages ranging from 6% to 50% for new buildings.	18	
MR	Building Product Disclosure and Product Optimization - Environmental Product Declarations	Option 1 Product with The Environmental Product Declaration (EPD)	Encourage the use of materials for which life cycle information is available and which guarantee a better economic and environmental impact. In order to comply with the credit requirement it is necessary to use at least 20 materials from 5 different manufacturers with EPD certification compliant with the standards: ISO 14025, ISO 14040, ISO 14044 and EN 15804, with Indipendent Supervision	1	**IT-FLEX C1** provides for its range of products the EPD certification with external verification issued by EPD Italy. The certification complies with ISO 14025 and EN 15804 standards.
EQ	Thermal Comfort	Thermal comfort design Option 1 ASHRAE Standard 55-2010 Option 2 ISO and CEN standards	Provide an adequate level of thermal comfort to promote occupant productivity, comfort and well-being. The building should provide for the design of HVAC systems according to ASHRAE 55-2010 with assessment of the thermal environmental conditions for humans and employment. Alternatively, an analysis of thermal comfort is required in accordance with the standards: ISO 7730: 2005 and EN 15251: 2007.	1	**IT-FLEX C1** has an indirect impact on the achievement of credit. It contributes by protecting the pipes and ventilation channels by ensuring an acceptable range of operating temperature and humidity. Therefore it prevents condensation of the humidified air. It also has a resistance to the diffusion of water vapour which depends on the thickness of the product is: from μ 7000 to μ 10 000.
EQ	Acoustic performance	HVAC Background noise	Provide, through careful acoustic design, spaces that promote occupant well-being, productivity and communications. The background noise levels of HVAC systems should comply with the standards: 2011 ASHRAE Manual, HVAC Applications, Chapter 48, Table 1 or AHRI 885-2008 standard, table 15 or equivalent room. The sound transmission class and reverberation time must comply with the tables specified in this number.	1	**IT-FLEX C1** could contribute and influence the acoustic insulation relating to the background noise of HVAC systems through the insulation of the ventilation channels.

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Evaluation of contributions to BREEAM credits

This document describes the main requirements relating to the product range **IT-FLEX C1**, useful for achieving the main **BREEAM** certification credits

The evaluation of the main contributions is reported below:

BREEAM categories		BREEAM requirements	Points	IT-FLEX C1 compliance or contribution
Man 02	Life cycle costs and useful life planning.	The credit requires an analysis of the cost of the life cycle and of the planning of the service life of the components and elements of the building in order to obtain their complete information throughout the life cycle.	3	**IT-FLEX C1** life cycle information can be part of the building's LCC analysis. The following data may be useful for the study: ● useful life:> 50 years as the useful life of the system and building systems ● technical considerations: insulation thicknesses are available for all common pipe diameters up to an external diameter of 168 mm for pipes; temperature range: from -50 °C to + 110 °C ● costs: during installation and use (no costs during use) ● comparison with natural rubber: better temperature resistance - less heat / cold losses and quality extremely constant
Hea 04	Environmental design.	The credit requires an analysis in order to assess that the internal environment maintains comfortable conditions for users of the building according to ISO 7730: 2005.	3	**IT-FLEX C1** contributes to the energy performance of the building as part of the construction systems relating to the insulation of ducts and pipes. **IT-FLEX C1** contributes, with thermal conductivity parameters that vary in relation to the thickness of the product: from λ 0.034 W/mK to λ 0.036 W/mK evaluated at the temperature of 0° C.
Hea 05	Acoustic performance	The credit requires specific acoustic requirements to be met using a qualified technician for the design and post-construction phases.	4	**IT-FLEX C1** contributes by isolating plant components such as pipes and ducts, benefiting the acoustic insulation of energy systems.
Mat 01	Life cycle impacts	The credit requires an LCA study of the building to be carried out considering the contribution of the various construction materials used.	5	Useful data for life cycle assessment (LCA) can be found within the EPD certification. **IT-FLEX C1** provides for its range an EPD type III product certification according to ISO 14025 standard.
		The credit requires that at least five products out of ten categories of materials, including insulating products, have Environmental Product Declarations (EPDs). The EPD must comply with ISO 14025, ISO 21930 or EN 15804.	2	The use of **IT-FLEX C1** insulators can contribute to credit maintenance. **IT-FLEX C1** in fact has products certified with EPD compliant with ISO 14025 and ISO 15804
Mat 03	Responsible procurement of buildings	Building materials must demonstrate responsible provenance by considering the entire supply chain and key production processes.	4	**IT-FLEX C1** confirms the responsible origin of its materials by purchasing raw materials from ISO14001 certified suppliers for: ● supply chain process (polymer) ● key process (production of insulators)
Mat 06	Material efficiency	In order to minimize the environmental impact, it is necessary to use more efficient materials during the design, procurement, construction, maintenance and end-of-life of buildings.	1	**IT-FLEX C1** as part of the building's energy system has the following efficiency characteristics: ● a service life of over 50 years ● it can only be damaged by extraordinary impacts or during installation ● various packaging: suitable dimensions and type of packaging (2 m tubes, tubes and sheets). Packaging waste is reduced
Ene 01	Reduction of energy consumption and carbon emissions	Credit requires you to design buildings to minimise primary energy demand and CO_2 emissions. A simulation is required energy to evaluate the energy consumption of the building.	15	**IT-FLEX C1** contributes to the improvement of energy performance thanks to the optimal thermal conductivity of its products. The face depends on the thickness of the product and varies from λ ≤ 0.034 W/mK to λ ≤ 0.036 W/mK evaluated at the temperature of 0 °C
Ene 05	Energy efficient cold storage rooms	The greenhouse gas emissions of cold storage systems should be reduced by improving their energy efficiency.	3	The insulation of the cold room pipes contributes to the improvement of the energy efficiency of the system