

Paroc Support Building Certification according to BREEAM

Refers to BREEAM EUROPE COMMERCIAL 2009
<http://www.scribd.com/doc/64282928/BREEAM-Europe-Commercial-2009>

BREEAM is the world's leading design and assessment method for sustainable buildings. Paroc as stone wool insulation manufacturer supports BREEAM building certification in the below listed rating areas starting with the special demands set out for insulation and continuing with other supportive credits;

Insulation credits

Mat 04 Insulation

Target:

To recognize and encourage the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.

One insulation credit is given when fulfilling Green Guide ratings for thermal insulation found at:

www.thegreenguide.org.uk

Another insulation credit is given when fulfilling Environmental Management System (EMS) criteria for insulation products alternatively input material

Stone wool, glass & cellular glass made using < 50% recycled input	Product manufacture	Any quarried or mined mineral over 20% of input
--	---------------------	---

Paroc Position:

Paroc support scoring one credit by fulfilling the Insulation Index demand to be same as or greater than 2.

Moreover Paroc is in the process of certifying quarried/mined material that represents over 20% of input. Target is support scoring in 2013.

Paroc aim at presenting a Environmental Product Declaration (EPD) during 2013 increasing the contribution to the building's Mat 04 performance.

Paroc production being certified for ISO 9001 and ISO 14001 supports the one point credit given by having at least 80% by volume of the thermal insulation used in the building responsibly sourced.

<http://www.paroc.com/tools-and-documents/certificates-and-approvals>

Additional credits that Paroc insulation support

Man 3 Construction site impacts

Target:

To recognize and encourage construction sites managed in an environmentally sound manner in terms of resource use, energy consumption and pollution.

By monitoring and recording data on transport resulting from delivery of the majority of construction materials to site and construction waste from site one point can be gained.

Paroc Position:

Paroc product supports, upon request, scoring a point by informing carbon emission generated from delivery – Paroc site to building site.

Hea 02 Indoor Air Quality

Target:

To recognize and encourage a healthy internal environment through the specification and installation of appropriate ventilation equipment and finishes.

Paroc Position:

Paroc insulation is generally “built in” the construction and emission to indoor air is not expected.

Paroc products pass the most stringent demands in Finnish M1 system certifying emission to indoor air.

<https://www.rakennustieto.fi/index/english/emissionclassificationofbuildingmaterials.html>

Paroc acoustic products (suspended ceiling tiles) pass the E1 formaldehyde requirement.

Ene 01 Energy efficiency

Target:

To recognize and encourage buildings designed to minimize operational energy demand, consumption and CO2 emissions.

Paroc Position:

Through right choice of insulation – U- value – Paroc stone wool support giving highest credits for the building to be certified.

Mat 01 Life Cycle Impact (Material environmental impact)

Target:

To recognize and encourage the use of construction materials with a low environmental impact (including embodied carbon) over the full life cycle of the building.

Paroc Position:

Paroc stone wool support credits by providing relevant data.

Paroc can upon request provide a generic mineral wool EPD reflecting environmental impact from European produced insulation. Moreover Paroc has an unofficial LCA which will act as basis for the generic LCA/EPD expected to be available at early 2013.

Mat 03 Responsible sourcing of material

Target:

To recognize and encourage the specification of responsibly sourced materials for key building elements.

Paroc position:

Paroc production is certified under ISO 9001 and ISO 14001 thus supporting the target for buildings having 80% of input construction material certified.

Wst 1 Construction waste management

Target:

To promote resource efficiency via the effective management and reduction of construction waste.

Paroc Position:

Paroc support credits to divert from landfill by offering “recycling” possibilities of clean non contaminated insulation

Agreement is needed.

Beatrice Rantanen
Manager, Environment and Sustainability
Paroc Oy Ab
beatrice.rantanen@paroc.com

Mat 04 Insulation

No. of credits available:	2
Minimum standards:	No

Aim

To recognise and encourage the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.

Assessment Criteria

This issue is split into three parts;

Pre-requisite

Embodied impact (1 credit)

Responsible sourcing (1 credit)

The following is required to demonstrate compliance for:

Pre-requisite

Any new insulation specified for use within the following building elements must be assessed:

External walls

Ground floor

Roof

Building services

Embodied impact

One credit

The Green Guide rating for the thermal insulation materials must be determined. Green Guide ratings for thermal insulation can be found at: www.thegreenguide.org.uk (please refer to the Compliance notes for guidance where specific insulation has been assessed within an element for BREEAM issue Mat 01).

The Insulation Index for the building insulation is the same as or greater than 2.

The Insulation Index is calculated using the BREEAM Mat 04 calculator which uses the following calculation methodology:

For each type of thermal insulation used in the relevant building elements, the volume weighted thermal resistance provided by each type of insulation is calculated as follows:

$(\text{Area of insulation (m}^2\text{)} \times \text{thickness(m)}) / \text{Thermal Conductivity (W/ m.K)}$ OR

$\text{Total volume of insulation used (m}^3\text{)} / \text{Thermal conductivity (W/m.K)}$

The volume weighted thermal resistance for each insulation material is then multiplied by the relevant Green Guide point(s) from the following table to give the Green Guide Rating corrected value:

Table 11-1 Green Guide rating points/element

Green Guide Rating	Points/element
A+	3
A	2
B	1
C	0.5
D	0.25
E	0

To calculate the Insulation Index, the sum of the Green Guide rating corrected values for all insulating elements is divided by the sum of the volume weighted thermal resistance values (an example calculation is provided in the Additional Information section).

Note: Where an independently verified third-party Environmental Product Declaration (EPD), covering part of or the whole life cycle, is available for an insulating material/product, this can be used to increase the contribution of that material/product to the building's Mat 04 performance (for more detail refer to the Calculation procedures in the Additional Information section).

Responsible sourcing

One credit

At least 80% by volume of the thermal insulation used in the building elements identified in Item 1 must be responsibly sourced i.e.

each insulation product must be certified in accordance with either tier levels 1, 2, 3, 4, 5 or 6 as described in BREEAM issue Mat 03.

The table below shows the key processes and supply chain processes required for common insulation products.

Table 11-2 EMS criteria for insulation products

Material	Key Process	Supply chain processes
Foam Insulation	Insulation manufacture	Principal Polymer production, e.g. Polystyrene, MDI , Phenolic resin or equivalent
Stone wool, glass & cellular glass made using < 50% recycled input	Product manufacture	Any quarried or mined mineral over 20% of input
Wool	Product manufacture	Wool scouring
Products using > 50% recycled content except those using timber	Product manufacture	Recycled content by default
Timber-based insulation materials including those using recycled timber	Product manufacture	Recycled timber by default, all other timber from one of the recognised timber certification schemes in BREEAM issue Mat 03.
Other renewable-based insulation materials using agricultural by-products (e.g. straw)	Product manufacture	By-product manufacture by default
Any other product	Product manufacture	1 or 2 main inputs with significant production or extraction impacts should be identified
Compliance notes		
Shell only	It is envisaged that the majority (80%+) of fabric/services insulation will be specified/installed in the shell and core building. Where the shell only developer is not installing the majority of insulation, compliance with this BREEAM issue for the tenanted areas of the building can be demonstrated via one of the following means: Option 1 – Use of a tenancy lease agreement between the developer and tenant/s (full value of available credits) Option 2 – A Green Building Guide for tenant fit outs (half the value of the available credits) Option 3 – Developer/Tenant collaboration (full value of available credits) Refer to the Scope section of this Scheme Document (section 2) for further description of the above options.	
Insulation incorporated as part of an off-site manufactured element	If the insulation is incorporated as a component of an element that has been manufactured offsite (in order to maximise material optimisation) e.g. a wall or roof, and that element has been assessed as part of Mat 01, then for the purpose of assessing the insulation for this BREEAM issue, a Green Guide rating of A+ should be used. The same rule applies to insulation that has a significant additional function, such as providing supporting structure e.g. structural insulated panels (SIPS). In the Green Guide the actual insulation will be listed within the element title, rather than under the generic insulation category.	
Awarding credits	Both credits can be awarded independently of each other - i.e. it is not a requirement of the second credit that the first is achieved, and vice-versa.	
Element consisting of more than one insulation type	Where more than one insulation type is present for a given element, the rating, area and conductivity for each insulation type should be entered into the BREEAM Mat 04 calculator and an average is calculated (by volume).	
Finding exact Green Guide Ratings	Where no similar insulation can be found assessors should seek guidance from BRE on the appropriate rating.	
Environmental Profile Certification of products	Refer to BREEAM issue Mat 01 Compliance notes.	

Schedule of Evidence

Req	Design Stage	Post Construction Stage
1-4	Design drawings AND/OR relevant section/clauses of the building specification or contract confirming: The location of insulating materials. The area (m ²) and thickness (m) or volume (m ³) of insulation specified. Manufacturer's technical details confirming the thickness and thermal conductivity of the insulating materials specified. A copy of the output from the BREEAM Mat 04 calculator. The Green Guide rating and element number for the assessed insulation specifications. And if relevant: Copies of Environmental Product Declarations A link/reference to the EPD's Product Category Rules	'As built' drawings and, where relevant, written design team confirmation of any changes to the materials specification.

Req Design Stage		Post Construction Stage
	Online Green Guide calculator output Environmental Profile certificate(s) (or certificate number)	
5	Evidence as outlined in BREEAM issue Mat 03 confirming compliance for the insulating materials.	Evidence as outlined in BREEAM issue Mat 03 confirming compliance for the insulating materials.

Additional Information

Relevant definitions

Environmental Product Declaration: Refer to BREEAM issue Mat 01.

Green Guide: Refer to BREEAM issue Mat 01.

Green Guide Element Number: Refer to BREEAM issue Mat 01.

Insulation Index: A measure of performance used in BREEAM that seeks to assess the thermal properties of insulation products used in the building relevant to the embodied impact of that insulating material.

BREEAM Mat 04 calculator: A spreadsheet based tool used by the BREEAM assessor to determine the Insulation Index and therefore, whether the BREEAM credit is achieved.

Materials optimisation: Material optimisation means adopting a resource efficient approach to design which results in less material being used in the design (i.e. lean design), and/or less waste is produced in the construction process, without compromising the design concept. Whilst this assessment issue is focused on the embodied impact and sourcing of the insulation material specified, the design team should consider solutions that optimise the use of the material and therefore minimise construction waste.