

PAROC® products in BREEAM certification

PAROC® products in BREEAM certifications

BREEAM®  **PAROC**®



PREFACE

This document is an assessment of the compliance of PAROC® products with BREEAM environmental rating system requirements. The aim is to present the environmental qualities of PAROC® products as well as highlight the essential PAROC® sustainable best practices. The features have been presented in a way that contributes to meeting the requirements of global environmental certifications.

This document applies to all PAROC® products produced in Sweden, Finland, Lithuania and Poland.

The following environmental rating systems for buildings are assessed:

- BREEAM International New Construction 2016 (NC 2016)
- BREEAM International New Construction Version 6 (NC v6)
- BREEAM International Refurbishment and Fit-Out 2015 (RFO 2015)



The document focuses on providing information on how well PAROC® products follow BREEAM's guidelines in different categories. Especially in categories Materials (MAT 01 & MAT 03), Waste (WST 01), Health and wellbeing (HEA 02), Energy (ENE 04). Additionally, PAROC® products do have a contribution towards MAT06 Material efficiency, where the goal is to improve the material efficiency of the building and towards ENE 01 Reduction of energy use and carbon emissions, where the goal is to manage building's CO2 emissions from energy consumption and towards ENE 05 Energy efficient cold storage, where the goal is to reduce greenhouse gas emissions from refrigeration systems and towards HEA 04 Thermal comfort, where the goal is to ensure appropriate thermal comfort levels and towards HEA 05 Acoustic performance, where the goal is to ensure the building's acoustic performance. Separate documents are not required to prove these categories' requirements.

All the necessary certificates can be found on the PAROC® website or be provided upon request via customer service.

TABLE OF CONTENTS

GENERAL CONTRIBUTION.....	4
CREDITS THAT REQUIRE DOCUMENTATION OF PAROC® PRODCUTS	5
MATERIALS.....	5
MAT 01 LIFE CYCLE IMPACTS.....	5
MAT 03 RESPONSIBLE SOURCING OF CONSTRUCTION PRODUCTS	7
WASTE.....	9
WST 01 CONSTRUCTION WASTE MANAGEMENT.....	9
HEALTH AND WELLBEING	11
HEA 02 INDOOR AIR QUALITY	11
ENERGY	13
ENE 04 LOW CARBON DESIGN.....	13
CREDITS THAT DON'T REQUIRE DOCUMENTATION OF PAROC® PRODUCTS.....	14
HEALTH AND WELLBEING	14
ENERGY	14
MATERIALS.....	15

General contribution

The table below shows BREEAM assessment categories that PAROC® products contribute to. In some credits the criteria's requirements can't be met with only one product, or credit awarding depends on many other aspects too without any link on the products. Therefore, the "Total credits available" on the level of a building, is the same or higher than only the number of credit contributions by using PAROC® products.

MATERIALS		Total credits available	Contribution
	MAT01 Life cycle impacts	6 (+1)	1 (+1)
	MAT03 Responsible sourcing of construction products	4 (+1)	2 (+1)
	MAT06 Material efficiency	1	1
WASTE		Total credits available	Contribution
	WST01 Construction waste management	6 (+1)	2
HEALTH & WELLBEING		Total credits available	Contribution
	HEA02 Indoor air quality	7	1 (+1)
	HEA04 Thermal comfort	3	1
	HEA05 Acoustic performance	4	1
ENERGY		Total credits available	Contribution
	ENE01 Reduction of energy use and carbon emissions	23	1
	ENE04 Low carbon design	6	1
	ENE05 Energy efficient cold storage	3	1

Note: The +1 in the table means that there is an exemplary performance credit available if the credits exemplary level criterion is met

CREDITS THAT REQUIRE DOCUMENTATION OF PAROC® PRODUCTS

Materials



MAT 01 LIFE CYCLE IMPACTS

Paroc practices in brief

- EPD's according to **ISO 14025, ISO 21930** and **EN 15804**
- EPDs contain information on the **CO₂, CFC-11, SO₂, phosphate and ethene (C₂H₄)** emissions

BREEAM INTERNATIONAL NC 2016 & RFO 2015

Paroc contribution	<p>All Paroc's Building Insulation products have a product specific type III EPD. Technical Insulation will have product specific type III EPDs publicly available early 2022 latest.</p> <p>Paroc's products have EPD's per EN 15804. Therefore, using Paroc products may contribute to achieving at least one credit out of 10 exemplary credits.</p>
Assessment	<p>One credit can be achieved if at least 5 products used in the building construction have an EPD that is in accordance with either ISO 14025, ISO 21930 or EN 15804. A maximum of 2 EDPs per product group may be included in the calculations.</p> <p>The exemplary level credit can be achieved when the Mat01 calculator has been completed and at least 10 products used in the building construction are in accordance with at least one of the before mentioned standards. Again, a maximum of 2 EDPs per product group may be included in the calculations.</p>
Documents	<p>Product specific EPDs from company's website</p>

PAROC PRACTICES IN DETAIL

- Paroc EPDs for Finland and Sweden follow the ISO 14025, ISO 21930 and EN 15804 standards. They include all products produced in the Finnish and Swedish factories and that have no facing or other features other than stone wool on them. The EPDs have been based on the density of the products (products with a density of less than 70 kg/m³, 70–120 kg/m³ and more than 120 kg/m³).
- Paroc also has three international EPDs that cover all production plants in Finland, Sweden, Poland and Lithuania. These EPD's also cover products with no facing and have been divided into three groups based on the same density categories as the Finland and Sweden specific EPD's. There are international EPD's for products with an average density of 35 kg/m³, 93 kg/m³ and 144 kg/m³ which are equivalent with the less than 70 kg/m³, 70–120 kg/m³ and more than 120 kg/m³ categories. These EPDs are self-declarations done in accordance with the EN 15804 standard.
- EPDs are in accordance with the ISO 21930 standard with information on the amounts of emissions in the following categories:
 - CO₂-e
 - CFC-11 eq
 - SO₂e
 - Phosphate
 - Ethene (C₂H₄)
- Paroc is currently working on EPDs that follow ISO 14025, ISO 14040 and ISO 14044 as well as ISO 21930 and EN 15804 standards for all its products including both products with and without various coatings in all factories all over Europe.

MAT 03 RESPONSIBLE SOURCING OF CONSTRUCTION PRODUCTS

Paroc practices in brief

- **Self-reporting according to GRI** (Global Reporting Initiative) guidelines
- **BES 6001 certification** (Responsible Sourcing of Construction Products) for supply chain management
- **REWOOL®** system for Extended Producer Responsibility (EPR)
- **ISO 14001 and ISO 9001** certifications for all production sites

BREEAM INTERNATIONAL NC 2016 & RFO 2015

Paroc contribution	BES 6001 certification secures 5 points in the "Mat 03 Responsible Sourcing of Materials" calculator which is the best possible rating for new materials.
Assessment	<p>The credit requires products with a responsible supply chain to be used in the construction. With the BES 6001 certification, Paroc products earn 5 point scores in the "Mat 03 Responsible Sourcing of Materials" calculator. Only reusing structures entirely could earn the project a higher point score.</p> <p>Proving compliance with ISO 14001 is another option. As the BES 6001 provides a higher score in the Mat 03 Calculator (5 points) than ISO 14001 (1 point or 2 points if the producers of the main ingredients also have the ISO 14001), compliance path using BES 6001 is recommended.</p> <p>The minimum requirement for this credit is achieve $\geq 10\%$ responsible sourcing points in NC 2016 and $\geq 18\%$ in RFO 2015. ISO 14001 is the minimum requirement for the products. $\geq 10\%$ will be achieved when all of the timber is responsibly sourced and 80% of the products in the three product groups have been procured responsibly. Paroc's products belong to product group "Stone and aggregate".</p> <p>In NC system additional 1-2 points or exemplary credit can be awarded if $\geq 20\%$ or 36% or 54% responsible sourcing points are achieved.</p> <p>In RFO system additional 1-2 points or exemplary credit can be awarded if $\geq 36\%$ or 54% or 70% responsible sourcing points are achieved.</p>
Documents	<p>BES 6001 -certification document from company's website</p> <p>ISO 14001 -certification document from company's website</p> <p>Owens Corning Sustainability Report from company's website</p> <p>REWOOL® information from company website</p> <p>Recycled content document given upon request</p>

PAROC PRACTICES IN DETAIL

- When it comes to corporate sustainability reporting (CSR), Paroc does self-reporting and follows the guidelines of GRI (Global Reporting Initiative) providing information on the company's sustainable practices and principles. The report is verified by SCS Global Services according to AccountAbility's AA1000 Principles.
- To control the sustainability of the entire product supply chain, Paroc has a BES 6001 certification (Responsible Sourcing of Construction Products) with a performance rating "Pass". All raw material suppliers and sub-producers are included in the reporting scope. Paroc has a "Code of Conduct for Suppliers and Subcontractors" based on the BES 6001 standard requirements. The BES 6001 certification includes all Paroc stone wool production sites in Sweden, Finland, Lithuania and Poland.
- In order to minimize environmental impacts and the amount of stone wool ending up in landfills from construction sites, Paroc also has created an Extended Producer Responsibility (EPR) system called REWOOL®. In short, Paroc takes back pure and recyclable excess stone wool from construction sites which is then directed back to the Paroc production line and used to produce new Paroc products.
- All Paroc factories and management all over Europe including the factories in Finland, Sweden, Lithuania and Poland, are both ISO 14001 and ISO 9001 certified.

Waste



WST 01 CONSTRUCTION WASTE MANAGEMENT

Paroc practices in brief

- The Paroc stone wool products are **recyclable**
- Paroc has the **REWOOL® system in Finland and Sweden** (available for Paroc customers)

BREEAM INTERNATIONAL NC 2016 & RFO 2015

Paroc contribution	Paroc stone wool is recyclable and can help the constructor to meet their recycling targets. Paroc insulation products fulfil the criteria for the key waste group "insulation". Paroc has a REWOOL® system in place to take back recyclable stone wool.
Assessment	Construction site or demolition waste has to be separated into at least five key waste groups. Insulation products are considered as one of these key groups. Actual points are awarded based on the final recycling rate of all waste accumulated on-site during the construction or demolition process. REWOOL® system must be used in construction site to contribute to achieve this credit.
Documents	REWOOL® information from company's website Recycled content document given upon request

PAROC PRACTICES IN DETAIL

- The stone wool products can be reused. Waste from newly produced stone wool can be reused on the site. It can, for example, be used as a base layer when insulating attic floors before a blowing wool installation is carried out or by being turned into blowing wool.
- Paroc has a REWOOL® system in place to collect recyclable stone wool from construction sites. The goal is to maximize the amount of stone wool that can be recycled. With the REWOOL® system, surplus insulation is recycled and turned into new stone wool insulation, instead of being disposed of as waste. The REWOOL® system involves the collection and transport of waste wool to produce new stone wool. A small fee is charged for collecting the waste wool, as well as for transport costs, thus avoiding the need for landfill disposal.

Health and Wellbeing



HEA 02 INDOOR AIR QUALITY

Paroc practices in brief

- **Finnish M1 classifications** for nearly all products
- Eurofins "**Indoor Air Comfort GOLD**" product certifications for several technical insulation products

BREEAM INTERNATIONAL NC 2016

Paroc contribution	Several Paroc products have the Finnish M1 emission classification which is compliant with the credit requirement. M1 meets also the exemplary level requirement.
Assessment	Ceiling, wall, and acoustic and thermal insulation materials must fulfil the following criteria: <ul style="list-style-type: none"> - Formaldehyde max. 0.06 mg/m³ - TVOC (total volatile organic compounds) max 1.0 mg/m³ - 1A and 1B carcinogens max 0.001 mg/m³ The Finnish M1 emission classification fulfils the criteria listed above.
Documents	<ul style="list-style-type: none"> - M1 classifications: http://m1.rts.fi/en/ - M1 classifications also available on company's website - Indoor Air Comfort GOLD certifications from company's website

BREEAM INTERNATIONAL RFO 2015

Paroc contribution

Several Paroc products have the Finnish M1 emission classification which is compliant with the credit requirement. M1 meets also the exemplary level requirement.

The Paroc products contribute to low VOC and formaldehyde levels in the overall indoor air since the products have the M1 certifications and include no added formaldehyde.

Assessment

Suspended ceiling tiles must fulfil the following criteria:

- Formaldehyde E1 class
- Formaldehyde level of 0.1 mg/m³

The Finnish M1 emission classification fulfils the criteria listed above.

Documents

- M1 classifications: <http://m1.rts.fi/en/>
 - M1 classifications also available on company's website
-

PAROC PRACTICES IN DETAIL

- Several Paroc products have a Finnish M1 emission (version 22.11.2015) classification. A list of Paroc products with a M1 classification can be found on the Finnish Rakennustieto website at <http://m1.rts.fi/en/>.

Energy



ENE 04 LOW CARBON DESIGN

Paroc practices in brief

- Paroc's insulation products can improve passive ways to decrease building's energy demand

BREEAM INTERNATIONAL NC 2016 & RFO 2015

Paroc contribution	Paroc has several products for thermal insulation. Their products can improve passive ways to decrease building's energy demand and help to accomplish the requirement of passive design that reduce energy demand.
Assessment	<p>The possibilities of implementing design solutions that reduce the energy demand of a building are identified.</p> <p>The building uses passive design measures to reduce the overall building energy demand, primary energy consumption or CO₂ emissions by at least 5 %, in line with the findings of the passive design analysis.</p>
Documents	No documents needed

PAROC PRACTICES IN DETAIL

- Examples of Paroc product's features:
 - Natura Lana: Thermal conductivity: 0,036 W/mK, Thickness: 50, 100, 125, 150 mm
 - eXtra: Thermal conductivity: 0,036 W/mK, Thickness: 30, 45, 50, 66, 70, 100, 125, 150, 175, 200, 225 mm
 - UNM 37: Thermal conductivity: 0,037 W/mK, Thickness: 30 or 50 mm

CREDITS THAT DON'T REQUIRE DOCUMENTATION OF PAROC® PRODUCTS

PAROC® products have a general contribution towards following categories and credits. Products can be used in systems that have effect on the credit but by themselves have no effect whether the credit is achieved or not. Therefore, no documentation is needed to prove credit compatibility.

HEALTH AND WELLBEING

HEA 04 – Thermal comfort

Aim is to ensure that appropriate thermal comfort levels are achieved through design, and controls are selected to maintain a thermally comfortable environment for occupants within the building.

PAROC® stone wool products are used to improve the energy efficiency of the entire building envelope and technical installations. Good energy efficiency evens out the building's thermal conditions, creating pleasant living conditions and thermal comfort.

The use of PAROC® stone wool products therefore effect on the credit calculations.

HEA 05 – Acoustic performance

Aim is to ensure the building's acoustic performance, including sound insulation meets the appropriate standards for its purpose.

PAROC® stone wool products are excellent sound absorbers. The porous composition of stone wool dampens sound and thus improves the sound insulation of structures.

The use of PAROC® stone wool products therefore effect on the credit calculations.

ENERGY

ENE 01 – Reduction of energy use and carbon emissions

Aim is to recognise and encourage buildings to minimise operational energy demand, primary energy consumption and CO₂ emissions.

PAROC® stone wool products are excellent thermal insulators, the use of which reduces heat loss through the building envelope. Reducing heat losses substantially reduces the building's heating and cooling energy need and the carbon dioxide emissions generated during use of the building.

The use of PAROC® stone wool products therefore effect on the credit calculations.

ENE 05 – Energy efficient cold storage

Aim is to recognise and encourage the installation of energy efficient refrigeration systems, therefore reducing operational greenhouse gas emissions resulting from the system's energy use.

The insulating element of PAROC® stone wool products is clean air that remains in place between the fiber structure, which provides excellent insulation in both hot and cold temperatures. Consequently, stone wool also favorably improves the energy efficiency of cold buildings and equipment.

The use of PAROC® stone wool products therefore effect on the credit calculations.

MATERIALS

MAT 06 – Material efficiency

Aim is to recognise and encourage measures to optimise material efficiency in order to minimise the environmental impact of material use and waste without compromising on structural stability, durability or service life of the building.

PAROC® stone wool insulation is made from natural stone. The raw materials have been responsibly sourced, and the amount of virgin raw material has been minimized by recycling side streams back into the product. Stone wool, which retains its thermal insulation properties throughout the building's lifetime and is maintenance-free, can be reused or recycled.

The use of PAROC® stone wool products therefore effect on the credit calculations.

PAROC® products in BREEAM certification

**BREEAM New Construction 2016 and Version 6 (NC) &
Non-domestic Refurbishment 2015 (RFO) material
requirements – Appendix 1**

BREEAM®  **PAROC®**



PREFACE

This document is an assessment of the compliance of PAROC® products with BREEAM environmental rating system requirements. The aim is to present the environmental qualities of PAROC® products as well as highlight the essential Paroc sustainable best practices. The features have been presented in a way that contributes to meeting the requirements of global environmental certifications.

This document applies to all Paroc products produced in Sweden, Finland, Lithuania and Poland.

The following environmental rating systems for buildings are assessed:

- BREEAM International New Construction 2016 (NC 2016)
- BREEAM International New Construction Version 6 (NC v6)
- BREEAM International Refurbishment and Fit-Out 2015 (RFO 2015)



Energy



**Health and
Wellbeing**



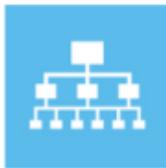
Innovation



Land Use



Materials



Management



Pollution



Transport



Waste



Water

The document focuses on providing detailed information on credits that need documentation.

All the necessary certificates can be found on the Paroc website or be provided upon request via customer service.

BREEAM New Construction 2016 & v6

Credit	Paroc contribution	Credits
MAT 01 Lice Cycle Impacts	All Paroc's Building Insulation products have a product specific type III EPD. Technical Insulation will have product specific type III EPDs publicly available early 2022 latest. Paroc's products have EPD's per EN 15804.	1 credit requires four other products with EPD from different manufacturers. 1 exemplary credit requires 9 other products with EPD from different manufacturers.
MAT 03 Responsible Sourcing of Materials	Paroc has BES 6001 certification (Responsible Sourcing of Construction Products) for supply chain management and ISO 14001 and ISO 9001 certifications for all production sites.	<p style="text-align: center;">1–3 credits (+ 1 exemplary credit)</p> Achieve ≥ 10 % responsible sourcing points in NC 2016. ISO 14001 is the min. requirement for the products. ≥ 10 % will be achieved when all timber is responsibly sourced and 80 % of the products in the three product groups have been procured responsibly. This is a requirement for one credit. Additional 1-2 points or exemplary credit can be awarded if ≥ 20 % or 36 % or 52 % responsible sourcing points are achieved. Paroc's products belongs to product group "Stone and aggregate".
MAT 06 Material efficiency	Paroc insulation solutions are good choice in terms of material efficiency, thanks to their recyclability and content of recycled materials.	1 credit requires meetings with design team and developer. Meetings' aim is to identify opportunities to material efficient construction and design. Paroc insulation products are a good choice to take into consideration in material efficiency meetings.
WST 01 Construction Waste Management	Paroc stone wool is recyclable and can help the constructor to meet their recycling targets. Paroc insulation products fulfil the criteria for the key waste group "insulation".	<p style="text-align: center;">2 credits</p> If criteria 9–11 is achieved. Paroc contributes to criterion 10.

	Paroc has a REWOOL® system in place to take back recyclable stone wool.	Construction site or demolition waste must be separated into at least five key waste groups. Insulation products are considered as one of these key groups. Actual points are awarded based on the final recycling rate of all waste accumulated on-site during the construction or demolition process. REWOOL® system must be used in construction site to contribute to achieve this credit.
HEA 02 Indoor Air Quality	Several Paroc products have the Finnish M1 emission classification which is compliant with the credit requirement. M1 also meets the exemplary level requirement. Paroc also have Eurofins "Indoor Air Comfort GOLD" product certifications for several technical insulation products.	1 credit requires that Indoor air quality plan has been done and at least four product types meet the emission limits. 1 exemplary credit requires that first credit requirements are met and at least four product types meet the stricter emission limits.
HEA 04 Thermal comfort	Paroc products can be used as a part of building envelope, which influences the thermal conditions of the building, and therefore effect on the credit calculations.	1 credit requires thermal modelling. Paroc products can influence the thermal conditions.
HEA 05 Acoustic performance	Paroc products can also be used as an acoustic insulation material.	1 credit requires hiring an acoustician and to follow acoustic performance standards.
ENE 01 Reduction of energy use and carbon emissions	Paroc products can be used as a part of building envelope, which influences the thermal conditions of the building, and therefore effect on the credit calculations.	1 credit ENE 01 criterion is split into several parts. Criterion requires, for instance, energy performance calculations.
ENE04 Low Carbon Design	Paroc has several products for thermal insulation. Their products can improve passive ways to decrease building's energy demand and help to accomplish the requirement of passive design that reduce energy demand.	1 credit requires that criteria 1-3 is achieved. Paroc's products contributes to criterion 3.
ENE 05 Energy efficient cold storage	Paroc have several products for thermal insulation. Their products can improve energy efficiency of cold storage.	1 credit One credit consists of several parts. Paroc products can help to minimize heat loads because of their thermal insulation features.

BREEAM Non-Domestic Refurbishment 2015

Credit	Paroc contribution	Credits
MAT 01 Lice Cycle Impacts	All Paroc's Building Insulation products have a product specific type III EPD. Technical Insulation will have product specific type III EPDs publicly available early 2022 latest. Paroc's products have EPD's per EN 15804.	1 credit requires four other products with EPD from different manufacturers. 1 exemplary credit requires 9 other products with EPD from different manufacturers.
MAT 03 Responsible Sourcing of Materials	Paroc has BES 6001 certification (Responsible Sourcing of Construction Products) for supply chain management and ISO 14001 and ISO 9001 certifications for all production sites.	1–3 credits (+ 1 exemplary credit) Achieve min. $\geq 18\%$ responsible sourcing points. ISO 14001 is the minimum requirement. $\geq 18\%$ achieved when all the timber is responsibly sourced and 80% of the products in 3 product groups have been procured responsibly. Additional 1-2 points or exemplary credit can be awarded if $\geq 36\%$ or 54% or 70% responsible sourcing points are achieved. Paroc's products belongs to product group "Stone and aggregate".
MAT 06 Material efficiency	Paroc insulation solutions are good choice in terms of material efficiency, thanks to their recyclability and content of recycled materials.	1 credit requires meetings with design team and developer. Meetings' aim is to identify opportunities to material efficient construction and design. Paroc insulation products are a good choice to take into consideration in material efficiency meetings.
WST 01 Construction Waste Management	Paroc stone wool is recyclable and can help the constructor to meet their recycling targets. Paroc insulation products fulfill the criteria for the key waste group "insulation". Paroc has a REWOOL® system in place to take back recyclable stone wool.	2 credits if criteria 9–11 is achieved. Paroc contributes to criterion 10. Construction site or demolition waste must be separated into at least five key waste groups. Insulation products are considered as one of these key groups. Actual points are awarded based on the final recycling rate of all waste accumulated on-site during the construction or demolition process. REWOOL® system must be used in construction site to contribute to achieve this credit.

HEA 02 Indoor Air Quality	<p>Several Paroc products have the Finnish M1 emission classification which is compliant with the credit requirement. M1 also meets the exemplary level requirement.</p>	<p>1-2 exemplary credits requires that criterion 8 is achieved and 7 tabulated product groups meet the emission level requirements. Product groups' product can contain max. 0,06 mg/m³ B-F formaldehyde.</p> <p>2 credits are achieved when the content is max. 0,01 mg/m³.</p>
HEA 04 Thermal comfort	<p>Paroc products can be used as a part of building envelope, which influences the thermal conditions of the building, and therefore effect on the credit calculations.</p>	<p>1 credit requires thermal modelling. Paroc products can influence the thermal conditions.</p>
HEA 05 Acoustic performance	<p>Paroc products can also be used as an acoustic insulation material.</p>	<p>1 credit requires hiring an acoustician and to follow acoustic performance standards.</p>
ENE 01 Reduction of energy use and carbon emissions	<p>Paroc products can be used as a part of building envelope, which influences the thermal conditions of the building, and therefore effect on the credit calculations.</p>	<p>1 credit</p> <p>ENE 01 criterion is split into several parts. Criterion requires, for instance, energy performance calculations.</p>
ENE 04 Low Carbon Design	<p>Paroc has several products for thermal insulation. Their products can improve passive ways to decrease building's energy demand and help to accomplish the requirement of passive design that reduce energy demand.</p>	<p>1 credit requires that criteria 1-3 is achieved. Paroc's products contributes to criterion 3.</p>
ENE 05 Energy efficient cold storage	<p>Paroc have several products for thermal insulation. Their products can improve energy efficiency of cold storage.</p>	<p>1 credit</p> <p>One credit consists of several parts. Paroc products can help to minimize heat loads because of their thermal insulation features.</p>