Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Wood wool cement board

Sonablock Fiber

EPD of multiple products, based on a representative product
Natural and *Painted WWCB* are included
Products not yet on the market – results of this EPD shall be used with care as the LCI data is not yet based on 1 year of production which may result in increased uncertainty.

From

Stiga RM

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0031288:001
Version date:	2026-04-15
Revision date:	2026-04-23
Validity date:	2031-04-14 *An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com*

GENERAL INFORMATION

Programme Information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *Construction Products, PCR 2019:14 Version 2.0.1*
PCR review was conducted by: *The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair - Rob Rouwette, co-chair - Noa Meron*

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: *Elisabet Amat Guasch, GREENIZE* Approved by: International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD:
Stiga RM SIA

Address:
"Loka ceļš septiņi A"
Smārdes pagasts
Tukuma novads
LV-3129

Contact:
Jānis Orbidāns, Quality specialist
+371 25739009, janis.orbidans@stigarm.lv

Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable:
Bureau Veritas Latvia SIA, riga@bureauveritas.com

Description of the organisation:
Stiga RM is one of the leading timber companies in Latvia, uniting six group companies under a single brand, successfully operating in several areas – logging, woodworking, metalworking, as well as timber transportation, and real estate development. By implementing targeted investments in development and high-value-added products, we have made it one of our priorities to modernize production and introduce new technologies at all levels of the group, which will guarantee also future growth. Continuous improvement and automation of production processes also ensure better working conditions and a modern working environment for factory workers.

Product-related or management system-related certifications:
STIGA RM Group maintains all relevant certifications for forest management and wood products, ensuring sustainability and responsibility throughout its operations.

STIGA RM holds the PEFC Forest Management Certificate (certificate number: TT-PEFC-FM023), the FSC® Forest Management Certificate (license number: FSC-C118458), the FSC® Chain of Custody Certificate (license number: FSC-C124635), as well as the PEFC Chain of Custody Certificate (license number: PEFC/12-31-071).

STIGA RM Distribution holds the FSC® Chain of Custody certificate (license number: FSC-C141055) and the PEFC Chain of Custody for Forest and Tree-Based Products certificate (license number PEFC/12-31-072).

- EN 13168:2012+A1:2022 Thermal insulation products for buildings. Factory made wood wool (WW) products. Specification
- EN 13172:2024 Thermal insulation products- common evaluation rules
- EN 13964:2014 Suspended ceilings- Requirements and test methods

PRODUCT INFORMATION

Product name:
Wood wool cement board (WWCB)
Sonablock Fiber 1.0
Sonablock Fiber 1.5
Sonablock Fiber 2.0

Numbers in the product name refer to the different widths (mm) of wood wool.

This EPD covers 25mm thick Natural and Painted wood wool cement boards and is based on the results of the representative product – Natural WWCB. Natural WWCB is selected as the representative product because both variants share identical core manufacturing processes, with the only difference being the added layer of paint. Using Natural WWCB version as the basis allows EPD users to transparently apply a simple conversion factor to derive results for the Painted WWCB. Paint layer adds 0.15kg to the total mass of Natural WWCB, otherwise – product contents are the same for both products.

Conversion factor, that is based on the impact assessment of declared unit for each variant is as follows:

	Natural WWCB	Painted WWCB
Mass of declared unit, kg/m²	10,50	10,65
Conversion factor	1,00	1,11

Product identification:
Natural wood wool cement board, 25mm thickness
Painted wood wool cement board, 25mm thickness

UN CPC code:
37520 - Boards, blocks and similar articles of vegetable fibre, straw or wood waste agglomerated with mineral binders

Product description:
Wood wool cement boards are construction boards made from wood shavings (wool), cement and additives. Mineral bound wood wool boards are used in a wide range of applications, incl. thermal insulation, acoustic insulation, interior design etc.
Sonablock Wood Wool Acoustic panels are produced in according with EN 13168 and/or EN 13964, manufactured from wood wool and mineral binding agents.

Application:
Typical areas of application for WWCB panels are:

- Acoustic & fire-resistant (ceiling and/or wall) boards
- Decorative WWCB
- Roofing boards
- Permanent Shuttering & Construction boards
- Sound barriers

Technical specification of the product[1]

	Natural WWCB	Painted WWCB
Wood wool width (mm)	1-2	
Dimensions (mm)	595x595, 600x600, 600x1200, 600x2400	
Weight (kg/m²)	10.50	10.65
Type of cement used	White and grey	
Thermal conductivity	0.070 W/m·K , EN 13168	
Moisture content	5-10%	
Fire safety class	B-s1, d0 per EN 13501-1	

Name and location of production site(s):
"Loka ceļš septiņi A", Smārdes pagasts, Tukuma novads, LV-3129

References to any relevant websites for more information or explanatory materials:
https://stigarm.lv/en/wood-wool-cement-board-wwcb/

[1] Both Natural and Painted WWCB are *Products not yet on the market* – results of this EPD shall be used with care as the LCI data is not yet based on 1 year of production which may result in increased uncertainty.

CONTENT DECLARATION

Product content and packaging materials in the Tables below are displayed per Declared unit of the representative product – 1 m^2 of Natural WWCB with 25mm thickness. Paint layer adds 0.15kg to the total mass of the declared unit, i.e., 1 m^2 of Painted WWCB with 25mm thickness is 10.65 kg.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material	
			mass-% of product	kg C/DU
Wood	4,38	0%	46%	1,99
Cement	5,12	0%	0%	0
Limestone	0,90	0%	0%	0
Additive	0,10	0%	0%	0
TOTAL	**10,50**	**0%**	**19%**	**1,99**

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/DU
Wooden pallets	0,280	2,67%	0,13
Cardboard	0,067	0,64%	0,03
Plastic strapping bands	0,003	0,03%	0
Stretch film	0,012	0,11%	0
TOTAL	**0,362**	**3,45%**	**0,16**

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has not been used in a percentage higher than 0,1% of the weight of the product.

LCA INFORMATION

Declared unit:
1 m^2 of Natural wood wool cement board with 25mm thickness. Conversion factor to mass – 0.095

Reference service life:
RSL of the products considered in this EPD has not been defined, as it depends on the service life of the building (60 years).

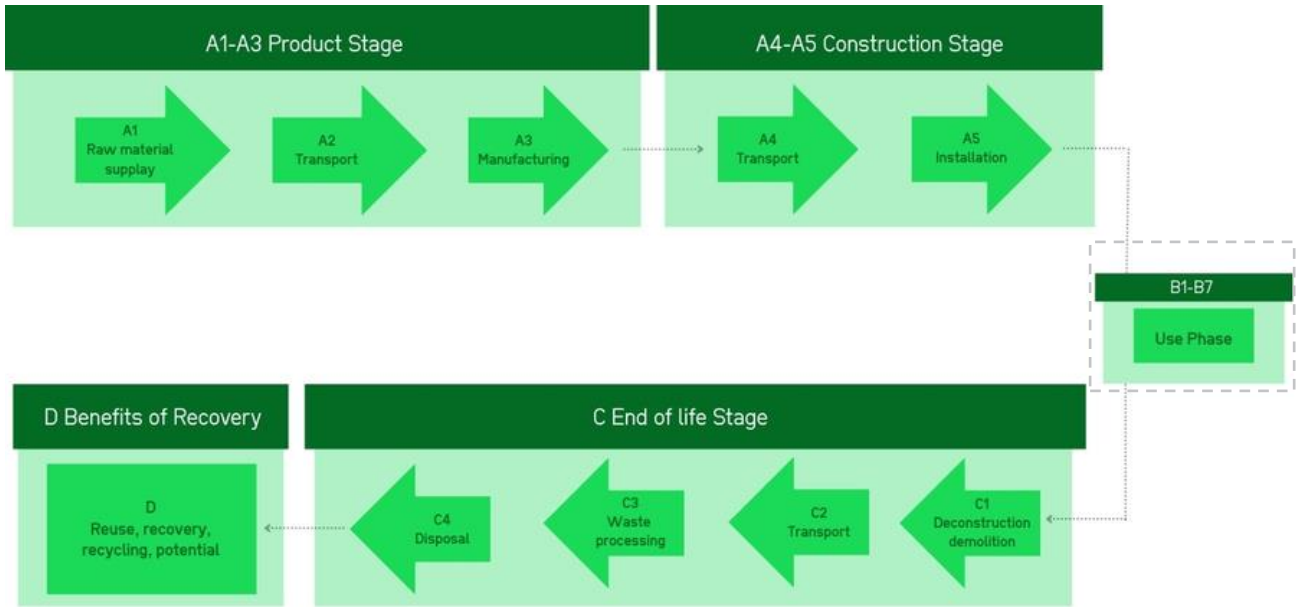
Time representativeness:
Data that represents the manufacturing of the product is engineering data. Products have been tested in laboratory conditions and product contents are based on BOM. Use of resources, consumables and waste flows are based on engineering data. The database used for proxy data is Ecoinvent v3.11. This database data is compiled in March 2025.

Geographical scope:
This EPD has European scope.

Database(s) and LCA software used:
Ecoinvent v3.11 has been used to conduct the quantitative evaluation in this study. This database provided the background system's life cycle inventory data for raw and processed materials. The LCA software used - SimaPro Craft 10.3.

Description of system boundaries:
This LCA study has been performed as “Cradle to gate with options, modules C1–C4, module D and with optional modules”, also considering Transportation module A4 and Installation module A5.

Process flow diagram:
Use stage B1-B7 excluded (dotted line) from system boundaries.



Data quality:
The foreground data has been collected internally, considering the available average planned production amounts and measurements during production tests. Data regarding waste processing has been taken from waste scenarios for closest locations in Ecoinvent v3.11. The quality level in this study is qualified as Good. Data quality rating procedure has been performed using a rating system where "1" means Excellent quality, and "5" means Poor quality. Data quality information used in this EPD is compliant with EN 15941.

Technological Representativeness, TeR	Geographic representativeness, GeR	Time Representativeness, TiR	Precision, P	**Average DQR**
1.4	1.7	3.0	2.4	**2.1**

Process	**Source type**	**Source**	**Reference year**	**Data category**	**Share of primary data, of GWP-GHG results for A1-A3**
Transport of raw materials and packaging to the production site	Collected data	EPD owner, Ecoinvent v3.11	2024-2025	Secondary data	0%
White cement	EPD	Confidential	2024	Primary data	58,7%
Manufacturing of product	Collected data	EPD owner	2025	Secondary data	0%
Generation of electricity used in manufacturing of product	Database	Ecoinvent v3.11	2024		
Production of packaging	Database	Ecoinvent v3.11	2024		
Other processes	Database	Ecoinvent v3.11	2024		
Total share of primary data, of GWP-GHG results for A1-A3					**58,7%**

Cut-off criteria:
To LCA practitioner knowledge there is no missing data for processes within the system boundaries. All the materials and processes which have been accounted for by the manufacturing company for the relevant manufacturing process are included in the LCI. The cut-off in LCA is according to PCR:" General cut-off criteria are given in standard EN 15804:2012+A2, clause 6.3.6.
The processes related to infrastructure, construction, and production of equipment, as well as tools that are not directly consumed in the production process, have been excluded. Personnel-related activities, such as transportation to and from work, have also been excluded.

Allocation:
General allocation principles have been applied according to ISO 14044:2006 4.3.4 and in line with the provisions of EN 15804:2012+A2. Inputs and outputs are allocated equally among all products using production volumes. The methodological choices for allocation for reuse, recycling and recovery have been set according to the polluter pays principle (PPP).

Stages and Production description

Product Stage

In **module A1** extraction and processing of raw materials and generation of electricity and heat from primary energy resources, which are used to produce these raw materials, are included. Raw materials used in production are softwood (spruce) logs, cement, limestone, paint and additives.

For **module A2**, the transportation of raw materials and product's packaging materials to the production plant has been considered. As per data provided by the manufacturing company, EURO5 3.5-7.5t and EURO6 >32t lorries have been used for the supply of raw material to the production site. One raw material also requires the use of Sea ferry.

Manufacturing (**module A3**) considers production process done at manufacturing site in Latvia:

1. Softwood (spruce) received from the local forests and is debarked.
2. Debarked logs are then cut to specific length in order for the processing equipment to start making wood wool.
3. Conveyor system transports wood wool to the mixing stage where it is mixed with water, cement and additives based on a specific recipe.
4. Continuous wood wool mat with other ingredients is placed on the continuous line of reusable moulds that are being oiled prior to this.
5. Wood wool mat is then cut to specific length and moulds with WWCB are stacked for setting purpose. Initial curing takes up to 24 hours.
6. Moulds are then removed and WWCB undergo another setting step.
7. WWCB are then transported to automatic dryer, dried, cut and profiled to desired dimensions and painted, if necessary, and packed for distribution.

Electricity consumed during manufacturing is modelled as National residual grid mix of Latvia (market-based approach). GWP-GHG of this dataset is 0.665 kg CO_2eq/kWh. Waste treatment of the packaging of raw materials is also considered in module A3, following manufacturer's declared scenarios and national waste scenarios per each waste type. Bark and wood residue are used to produce heat for the drying process. Small share of product residue is partially disposed of in a landfill, assuming the most conservative scenario, and partially recycled. Additionally, diesel has been considered for internal transportation.

Construction process Stage

Table below describes scenarios considered in **module A4** for European market. Sea ports have been assumed as a final destination for routes that require the use of sea ferry in addition to road transport.

Vehicle	Mass, kg	Distance, km	Fuel consumption, l/tkm	Value, l/t
Lorry 16-32t, EURO5	6,06E+00	68	0,0441	3,00
Sea Ferry		885	0,0298	26,36
Lorry 16-32t, EURO6	1,38E+00	1263	0,0431	54,45
Lorry 16-32t, EURO6		68	0,0431	2,93
Sea Ferry		800	0,0298	23,83
Lorry >32t, EURO5	1,65E+00	1905	0,0226	42,96
Lorry 16-32t, EURO5	5,51E-01	68	0,0441	3,00
Sea Ferry		428	0,0298	12,75

Installation and waste treatment of product's wastage and packaging are declared in **Module A5**. Installation of WWCB requires the use of electrical or manual hand tools. In the declared scenario consumption of electricity for pilot hole drilling and steel screw driving has been considered. If necessary, the panels are sawn before assembly, e.g., diffusers, lighting fixtures etc. Product wastage has been considered at 5% level. Product wastage and packaging materials are considered to be processed and disposed of in accordance with EU-27 municipal waste treatment scenario in ecoinvent.

The scenarios considered are as follows:

Material	Recycling	Incineration	Disposal
WWCB	n/a	n/a	100%
Plastics	41.0%	31.2%	27.8%
Cardboard	82.3%	9.3%	8.4%
Wood	n/a	100%	n/a

Use Stage:

Modules B1-B7, that define use stage of the product, are not declared for this study – these are not mandatory for LCA "Cradle-to-gate with options" form.

End of Life Stage:

Modules C1-C4 and Module D are mandatory for considered EPD type, therefore, have also been considered for the purpose of this study. Default data for modelling modules C1-C4 has been considered in accordance with PCR 2019:14 v.2.0.1. Environmental performance results for alternative scenarios of End-of-Life stage have not been considered.

De-construction in **module C1** is assumed to be carried out using electrical tools, considering same consumption of electricity as in Installation stage.

WWCB is assumed to be sent (**module C2**) to the closest waste treatment facilities, assuming 80km distance, i.e., for products/materials not to be incinerated, covered by 16-32t EURO5 Freight lorry.

Since the product is considered to be fully disposed of in a landfill, **module C3** waste processing has no impact.

Disposal of the product has been assumed to be conducted via landfilling in **module C4**. Energy, that is necessary for the compacting of the waste in the landfill, has been considered in accordance with PCR 2019:14 v2.0.1, i.e., 1.6 kWh/t.

Benefits and loads beyond the system boundaries:

Module D considers the benefit of the recycling of plastic and cardboard packaging, and the benefit of recovered energy from incineration of plastic, cardboard and wood packaging, i.e., respective shares of the product packaging waste flows declared in Installation module A5. Energy generated from Incineration activities has been considered as follows:

- Electric energy - 3.93 MJ/kg for plastic, 1.99 MJ/kg for cardboard and 1.74 MJ/kg for wood
- Natural gas as thermal energy - 7.67 MJ/kg for plastic, 3.99 MJ/kg for cardboard and 3.50 MJ/kg for wood.

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	LV	EU	EU	ND	ND	ND	ND	ND	ND	ND	EU	EU	EU	EU	EU
Share of primary data	>58%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	+10,7%[2]			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

[2] Since GWP-GHG variation is above 10%, A-C variation for each impact indicator results of included products is provided in section "Additional LCA results".

ENVIRONMENTAL PERFORMANCE

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Mandatory impact category indicators according to EN 15804 (EF 3.1 reference package)

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	6,96E+00	1,33E+00	5,99E-01	6,12E-03	1,29E-01	0,00E+00	3,71E-01	-1,20E-01
GWP-fossil	kg CO_2 eq.	6,95E+00	1,33E+00	5,73E-01	6,08E-03	1,29E-01	0,00E+00	1,01E-01	-1,19E-01
GWP-biogenic	kg CO_2 eq.	6,21E-03	5,13E-05	2,57E-02	1,41E-05	4,47E-06	0,00E+00	2,70E-01	-1,19E-03
GWP-luluc	kg CO_2 eq.	4,38E-03	3,51E-05	3,49E-04	1,85E-05	2,04E-06	0,00E+00	2,88E-05	-2,94E-04
ODP	kg CFC 11 eq.	1,26E-07	2,39E-08	8,82E-09	9,22E-11	2,92E-09	0,00E+00	3,14E-09	9,32E-08
AP	mol H^+ eq.	5,20E-02	2,43E-02	4,45E-03	2,96E-05	3,32E-04	0,00E+00	9,94E-04	-2,56E-04
EP-freshwater	kg P eq.	7,70E-05	9,56E-07	1,23E-05	6,08E-07	7,95E-08	0,00E+00	2,25E-06	-6,39E-06
EP-marine	kg N eq.	9,20E-03	6,22E-03	9,37E-04	3,87E-06	1,27E-04	0,00E+00	3,41E-04	-7,29E-05
EP-terrestrial	mol N eq.	1,43E-01	6,91E-02	1,23E-02	4,35E-05	1,39E-03	0,00E+00	3,31E-03	-5,34E-04
POCP	kg NMVOC eq.	4,19E-02	1,93E-02	3,63E-03	1,40E-05	5,50E-04	0,00E+00	1,25E-03	-2,00E-04
ADP-minerals&metals*	kg Sb eq.	1,15E-05	2,14E-08	1,02E-06	4,06E-10	3,36E-09	0,00E+00	2,37E-08	8,66E-09
ADP-fossil*	MJ	7,42E+01	1,69E+01	6,38E+00	1,46E-01	1,71E+00	0,00E+00	2,39E+00	-2,32E+00
WDP*	m^3	5,59E-01	5,70E-03	-1,35E-02	1,31E-03	5,60E-04	0,00E+00	-1,49E+00	-3,08E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.*

Biogenic carbon leaving the product system in module A5 has been balanced out already in modules A1-A3.

Additional mandatory and voluntary impact category indicators

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[3]	kg CO_2 eq.	6,96E+00	1,33E+00	5,97E-01	6,11E-03	1,29E-01	0,00E+00	3,46E-01	-1,20E-01
PM	Disease inc.	5,67E-07	5,84E-08	4,30E-08	6,69E-11	8,56E-09	0,00E+00	1,82E-08	2,36E-10
IRP	kBq U-235 eq.	5,01E-01	1,43E-03	2,87E-02	1,33E-03	1,64E-04	0,00E+00	7,86E-04	-1,01E-02
ETP-fw	CTUe	7,60E+00	5,79E-01	1,33E+00	1,17E-02	6,12E-02	0,00E+00	1,27E+00	-4,89E-01
HTP-c	CTUh	9,68E-09	1,46E-10	6,28E-10	6,54E-13	8,68E-12	0,00E+00	2,63E-11	-6,73E-12
HTP-nc	CTUh	3,92E-07	5,80E-09	2,22E-08	3,17E-11	8,53E-10	0,00E+00	2,20E-09	-4,58E-10
SQP	dimensionless	4,05E+02	2,16E-02	2,08E+01	1,65E-02	2,18E-03	0,00E+00	5,71E+00	6,60E+00
Acronyms	PM = Particulate matter emissions; IRP = Ionising radiation, human health; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer effects; HTP-nc = Human toxicity, non-cancer effects; SQP = Potential Soil quality index								

Resource use indicators

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,13E+00	3,31E-02	2,09E-01	3,60E-02	3,86E-03	0,00E+00	2,35E-02	-2,26E-01
PERM	MJ	6,59E+01	2,91E-03	3,31E+00	3,29E-03	3,49E-04	0,00E+00	4,85E-03	1,03E+00
PERT	MJ	6,70E+01	3,61E-02	3,52E+00	3,93E-02	4,21E-03	0,00E+00	2,84E-02	8,05E-01
PENRE	MJ	7,42E+01	1,69E+01	6,38E+00	1,46E-01	1,71E+00	0,00E+00	2,39E+00	-2,32E+00
PENRM	MJ	3,58E-03	1,44E-05	2,49E-04	3,11E-07	2,01E-07	0,00E+00	7,89E-05	-1,11E-03
PENRT	MJ	7,42E+01	1,69E+01	6,38E+00	1,46E-01	1,71E+00	0,00E+00	2,39E+00	-2,32E+00
SM	kg	1,04E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,78E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,65E-02	3,19E-04	3,08E-04	8,99E-05	3,31E-05	0,00E+00	-3,32E-02	-1,24E-03
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

[3] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5,34E-04	9,60E-05	4,24E-05	2,71E-07	1,14E-05	0,00E+00	1,58E-05	-1,18E-05
Non-hazardous waste disposed	kg	1,82E-01	4,16E-04	5,50E-01	8,98E-05	5,66E-05	0,00E+00	1,05E+01	-8,08E-04
Radioactive waste disposed	kg	1,37E-04	8,40E-07	9,34E-06	1,08E-06	1,03E-07	0,00E+00	4,94E-07	-8,21E-06

Output flow indicators

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,49E-02	0,00E+00	6,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	5,48E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	5,30E-05	0,00E+00	5,44E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	1,04E-04	0,00E+00	1,09E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

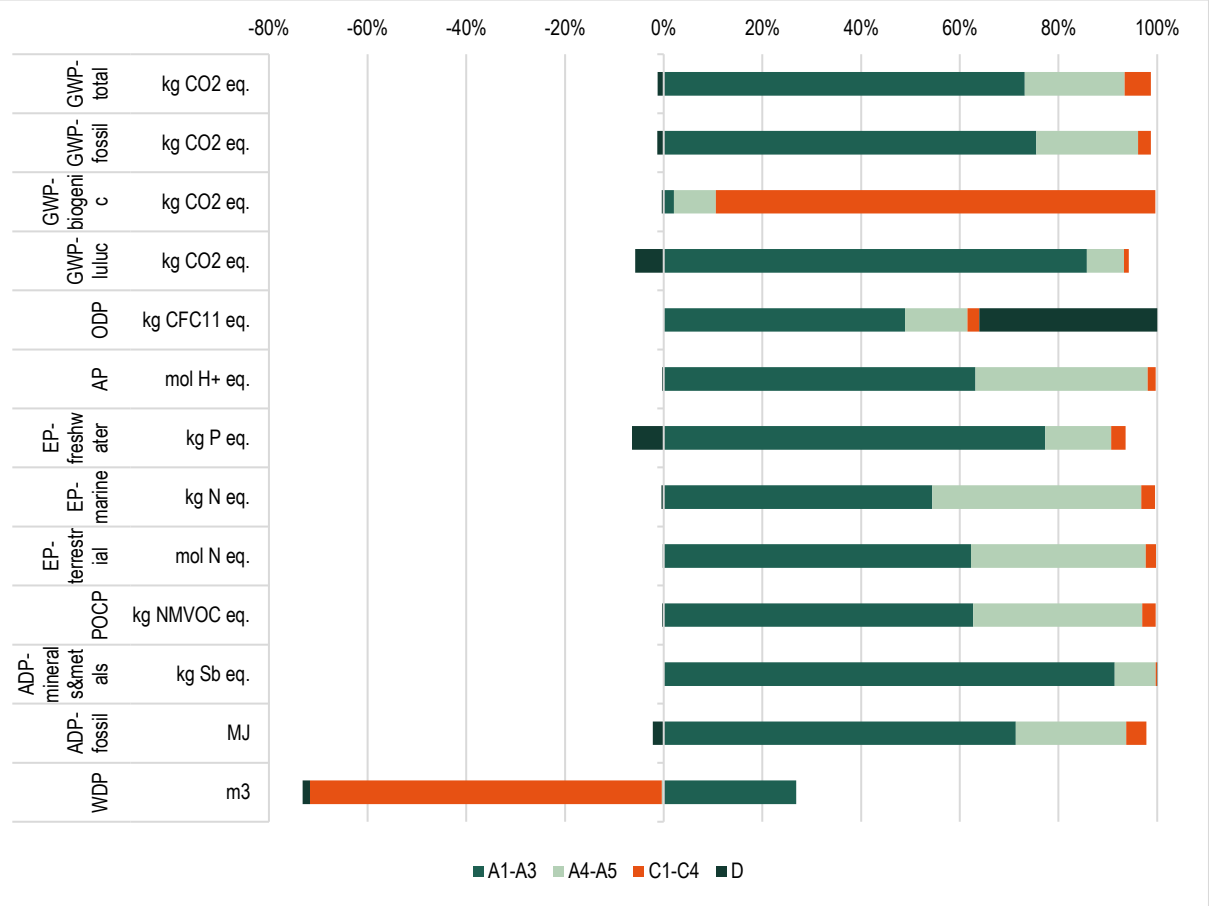
Biogenic carbon content

Results per declared unit – 1 m² of Natural WWCB with 25mm thickness	
Biogenic carbon content	**Quantity**
Carbon content in product, kg C	1,99E+00
Carbon content in accompanying packaging, kg C	1,61E-01

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO_2

LCA Interpretation

The estimated impact assessment results are only relative statements that do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins, or risks.
Contribution to environmental impact per each module for the declared unit of **1 m² of Natural WWCB with 25mm thickness** is displayed in following Figure:



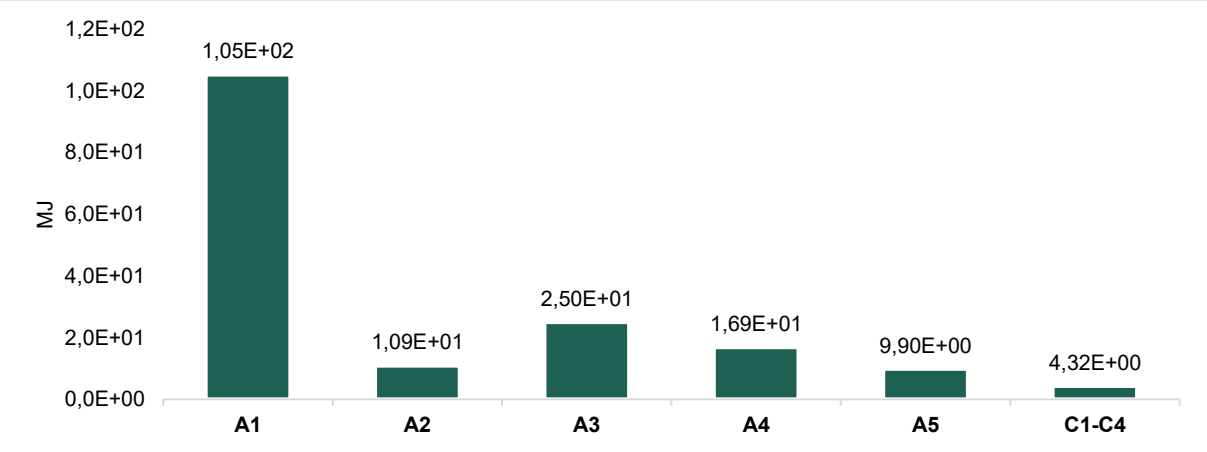
Contribution to the environmental impact, per Stage, for 1 m² of Natural WWCB with 25mm thickness

Regarding Climate change, the highest impact is generated in Raw material module A1 and Transport module A4, resulting in respective 53.9% and 14.1% shares of the total impact, while the whole **Product stage A1-A3 is generating 74.1%**. In total Installation stage A4-A5 is generating less significant impact than Product stage A1-A3 – 20.5% of Global warming potential, with major share resulting in Transport module A4. End-of-Life stage C1-C4 in terms of GWP is insignificant, generating impact only in Transport module C2 and Waste disposal module C4. With exclusion of GWP-biogenic and WDP, **Product stage A1-A3 is the main driver** for all considered impact categories.

Nevertheless, it is necessary to note that there is some positive impact of module D, especially in such impact categories as Global warming potential, Abiotic depletion potential (fossil) and Eutrophication potential. Module D accounts for avoided impact of generated energy, both Electric and Thermal, from incineration of packaging materials (A5) and recycling of some share of the packaging.

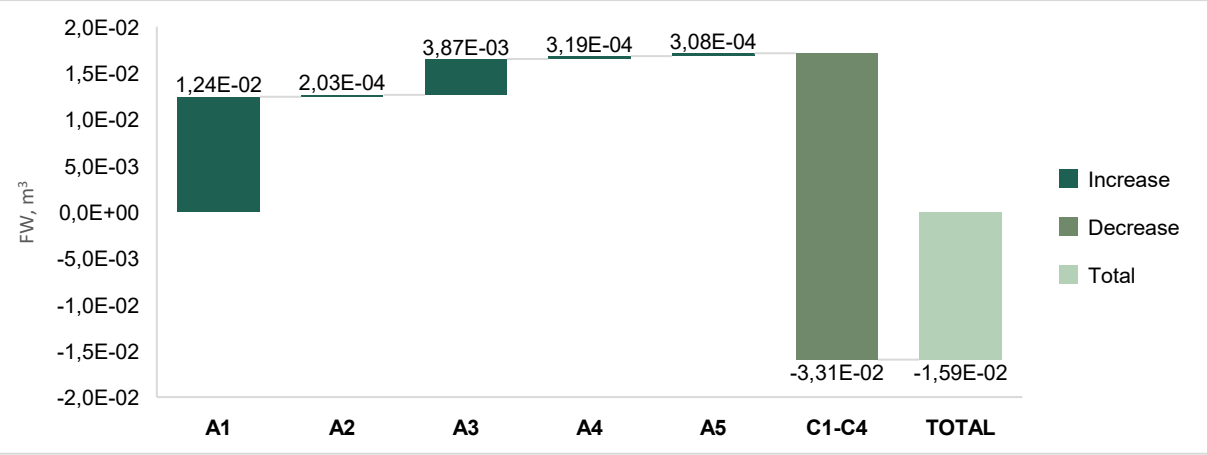
Considering total demand of primary energy per declared unit, that has been calculated using Cumulative Energy Demand (LHV) V1.01 impact assessment method, demand of primary energy is displayed in following Figure. With 81.9% resulting in Product stage (A1-A3), demand of primary energy for **1 m² of Natural WWCB with 25mm thickness** is distributed as follows:

- 61.1% for Raw material (A1)
- 6.3% for Transport (A2)
- 14.5% for Manufacturing (A3)
- 9.8% for Transport (A4)
- 5.7% for Installation module (A5)
- 2.5% for End-of-Life stage (C1-C4)



Primary energy demand per 1 m² of Natural WWCB with 25mm thickness

Other key effect factor is Freshwater consumption, that is displayed in following Figure as a Waterfall chart. A waterfall chart shows a running total as values are added or subtracted. It's useful for understanding how an initial value of net Freshwater use is affected by a series of positive and negative values. In case of **1 m² of Natural WWCB with 25mm thickness**, significant decrease has been observed in waste disposal, i.e., module C4, that represents landfill. Similarly to Primary energy demand, in terms of freshwater use level Product stage (A1-A3) is also responsible for most of its demand.



Net freshwater use for 1 m² of Natural WWCB with 25mm thickness

A-C variation (%) for products considered in this EPD

Indicator	Unit	1m² of Natural WWCB 25mm	1m² of Painted WWCB 25mm
GWP-total	kg CO_2 eq.	**9,39E+00**	9%
GWP-fossil	kg CO_2 eq.	**9,09E+00**	8%
GWP-biogenic	kg CO_2 eq.	**3,02E-01**	0%
GWP-luluc	kg CO_2 eq.	**4,81E-03**	1645%
ODP	kg CFC11 eq.	**1,65E-07**	10%
AP	mol H+ eq.	**8,20E-02**	13%
EP-freshwater	kg P eq.	**9,32E-05**	41%
EP-marine	kg N eq.	**1,68E-02**	8%
EP-terrestrial	mol N eq.	**2,29E-01**	3%
POCP	kg NMVOC eq.	**6,66E-02**	5%
ADP-minerals&metals	kg Sb eq.	**1,25E-05**	2%
ADP-fossil	MJ	**1,02E+02**	10%
WDP	m3	**-9,33E-01**	-54%
GWP-GHG	kg CO_2 eq.	**9,36E+00**	9%
PERE	MJ	**1,44E+00**	30%
PERM	MJ	**6,92E+01**	2%
PERT	MJ	**7,07E+01**	2%
PENRE	MJ	**1,02E+02**	10%
PENRM	MJ	**3,92E-03**	4744%
PENRT	MJ	**1,02E+02**	11%
SM	kg	**1,89E+00**	0%
RSF	MJ	**1,78E+00**	0%
NRSF	MJ	**0,00E+00**	0%
FW	m^3	**-1,59E-02**	-79%
Hazardous waste	kg	**6,99E-04**	11%
Non-hazardous waste	kg	**1,12E+01**	4%
Radioactive waste	kg	**1,48E-04**	10%
PM	Disease inc.	**6,95E-07**	7%
IRP	kBq U-235 eq.	**5,33E-01**	4%
ETP-fw	CTUe	**1,08E+01**	87%
HTP-c	CTUh	**1,05E-08**	4%
HTP-nc	CTUh	**4,23E-07**	1%
SQP	Pt	**4,32E+02**	3%
Components for re-use	kg	**0,00E+00**	0%
Material for recycling	kg	**7,93E-02**	0%
Material for energy recovery	kg	**5,48E-04**	0%
Exported electric energy	MJ	**5,44E-01**	0%
Exported thermal energy	MJ	**1,09E+00**	0%

ABBREVIATIONS

Abbreviation	Definition
C	Carbon
CO_2	Carbon dioxide
CPA	Statistical classification of products by activity
CPC	Central product classification
c-PCR	Complementary Product Category Rules
DQR	Data quality ratio
DU	Declared unit
EF	Environmental footprint
EN	European Norm
EPD	Environmental Product Declaration
EU	European Union
GHG	Greenhouse gas
GLO	Global
GPI	General Programme Instructions
GWP	Global warming potential
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LCI	Life cycle inventory
LHV	Lower heating value
ND	Module not declared
PCR	Product Category Rules
PET	Polyethylene terephthalate
PPP	Polluter pays principle
REACH	Regulation on the registration, evaluation, authorization and restriction of chemicals
SVHC	Substances of Very High Concern
UN	United Nations
UNSPSC	United Nations Standard Products and Services Code
VOC	Volatile organic compounds
WWCB	Wood wool cement board

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LCA background report for Wood wool cement boards by Stiga RM SIA

VERSION HISTORY

Editorial update, 2026-04-23

- Dimensions have been updated in the “Technical specification of the product” section

Original Version of the EPD, 2026-04-15

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