

Environmental Product Declaration

According to ISO 14025 & EN 15804



Owner of Declaration

Faay Vianen B.V.

Publisher

Hedgehog Company B.V.

Program operator

N.a.

Calculation number

EPD-2022-004

Issue Date

09 June 2022

Valid Unit

09 June 2027



Faay Kingsize



General information

Company

Manufacturer	Faay Vianen B.V.
Production Location	Netherlands
Address	Mijlweg 3, 4131 PJ Vianen
E-mail	info@faay.nl
Website	www.faay.nl

EPD information

EPD for	Faay Kingsize
Projectnumber	EPD-2022-004
Date of Issue	09-06-2022
Date of validity	09-06-2027
Product Category Rules	EN 15804+A2/Bepalingsmethode
Declared unit	1 m2 partition wall
Reference service life	75 years

Scope of declaration

This is a cradle-to-grave EPD for the Kingsize, serving as a partition wall. The declared life cycle stages are as shown below (x = included, MND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	x	x	x	x	x	x	MND	MND	x	x	x	x	x

Verification statement of the background LCA

CEN standard EN15804, as basis for NMD Bepalingsmethode serves as core PCR. Independent verification of the background LCA report and data, according to EN ISO 14040/14044:

Internal External

Third party verifier:

Pieter Stadhouders, EcoReview NL B.V.



Product description

The Kingsize is a prefab inner wall (thickness 70mm), made up of a flax core that is fitted with gypsum fiber boards on both sides. These panels are used as non-load-bearing partition walls and are particularly suitable for vertical construction.

Components (>1%)	%
Gypsum fibre board	classified
Flax board	classified
Wooden beam	classified
Glue	classified

Calculation rules

Production (A1–A3)

The Kingsize is produced at the production site of Faay in Vianen. Within these modules, the following is included:

- The provision of resources, additives and energy;
- Transport of the above items to the production site;
- On-site production processes including energy;
- Transport and treatment of production residues

Construction (A4–A5)

Transport to the construction site is based on the pre-described transport distance 150 km, in accordance with the Bepalingsmethode. The use of machinery and materials required during the installation stage are included in module A5.

Use stage (B1–B5)

No relevant material and energy inputs are required in this module. Neither any hazardous emissions to air, soil or water are emitted during the use phase. The potential impact of this stage is therefore negligible and declared as 0.

Demolition stage (C1)

For the deconstruction phase the same machinery is used as in module A5. Emissions from the machinery are included in this module.



End-of-life stage (C2-C4)

This EPD includes the transport from the demolition site to the sorting, waste treatment and final disposal locations in accordance with the Bepalingsmethode. The collected products and recycling waste streams, apart from gypsum, are treated according to the prescribed waste scenarios from the Bepalingsmethode (May 2022 version). The gypsum waste is treated in accordance with industry specific data from the Dutch industry association for gypsum.

Loads and benefits outside the system boundaries (D)

The potential loads and benefits of recycling and reuse of materials are included in this EPD. Next to that, the potential benefits from incineration are calculated and included as well.

Allocation

For the modeling of the used flax board in the Kingsize, flax production was modeled based on Carus & de Beus (2019). The impact of this production was allocated to the used flax shives for the flax board production based on economic values, as presented in Carus & de Beus (2019).

Biogenic carbon content

The biogenic carbon content of the Kingsize is 5,37 kg C per m² panel.



Environmental impact per declared unit

The LCA results are presented in accordance with the Bepalingsmethode Milieuprestatie Bouwwerken v1.1. Set 1 is in accordance with EN15804+A1:2013, and is supplemented with the correct characterization factors as described in the Bepalingsmethode. Set 2, in accordance with EN15804+A2:2019, is an addition to the first set and contains additional environmental impact categories.

Indicators A1												
	A1	A2	A3	A4	A5	B1-5	C1	C2	C3	C4	D	Total
ADPE	2,93E-04	5,32E-05	2,76E-05	2,97E-05	2,72E-04	0,00E+00	3,55E-06	5,39E-06	1,63E-06	7,84E-08	-7,57E-05	6,11E-04
ADPF	3,14E+02	3,18E+01	3,76E+01	1,78E+01	1,08E+02	0,00E+00	3,14E+01	6,63E+00	3,62E+00	1,78E-01	-3,18E+01	5,20E+02
GWP	1,93E+01	2,08E+00	2,68E+00	1,16E+00	3,51E+00	0,00E+00	2,29E+00	4,25E-01	1,79E+00	5,23E-02	-9,72E-01	3,24E+01
ODP	1,94E-06	3,70E-07	2,41E-07	2,06E-07	5,21E-07	0,00E+00	3,97E-07	7,13E-08	2,82E-08	1,81E-09	-2,66E-07	3,51E-06
POCP	1,52E-02	1,26E-03	4,73E-04	7,01E-04	3,13E-03	0,00E+00	2,33E-03	2,89E-04	5,79E-04	1,63E-05	-3,10E-03	2,08E-02
AP	1,15E-01	9,16E-03	3,60E-03	5,11E-03	2,35E-02	0,00E+00	1,73E-02	2,11E-03	3,97E-03	4,83E-05	-1,92E-02	1,60E-01
EP	1,48E-02	1,80E-03	5,06E-04	1,00E-03	4,89E-03	0,00E+00	3,93E-03	4,58E-04	1,21E-03	1,98E-05	-6,32E-03	2,23E-02

Toxicity indicators for Dutch market

HTP	7,93E+00	8,77E-01	4,26E-01	4,89E-01	1,55E+00	0,00E+00	8,48E-01	1,47E-01	4,48E-01	4,52E-03	-1,69E+00	1,10E+01
FAETP	4,49E-01	2,56E-02	3,63E-02	1,43E-02	3,49E-02	0,00E+00	1,18E-02	5,24E-03	1,97E-02	8,79E-05	-3,41E-02	5,63E-01
MAETP	6,84E+02	9,21E+01	2,04E+02	5,13E+01	9,16E+01	0,00E+00	4,11E+01	2,03E+01	2,78E+01	3,19E-01	-4,61E+01	1,17E+03
TETP	9,75E-02	3,10E-03	7,99E-03	1,73E-03	8,21E-03	0,00E+00	1,40E-03	1,06E-03	9,30E-04	1,47E-05	-7,10E-03	1,15E-01
ECI	2,42E+00	2,51E-01	2,17E-01	1,40E-01	4,73E-01	0,00E+00	3,07E-01	5,04E-02	1,62E-01	3,47E-03	-3,48E-01	3,67E+00
ADPF	1,51E-01	1,53E-02	1,81E-02	8,54E-03	2,35E-02	0,00E+00	1,51E-02	3,09E-03	1,44E-03	8,42E-05	-5,75E-03	2,31E-01

ADPE = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [MJ]; **GWP** = Global warming potential [kg CO₂-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO₂-eq]; **EP** = Eutrophication potential [kg PO₄³⁻-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **ECI** = Environmental Costs Indicator [euro]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]



Indicators A2												
	A1	A2	A3	A4	A5	B1-5	C1	C2	C3	C4	D	Total
GWP-total	-1,85E+00	2,10E+00	1,96E+00	1,17E+00	3,18E+00	0,00E+00	2,32E+00	1,85E-01	2,01E+01	7,71E-02	-1,08E+00	2,82E+01
GWP-f	1,96E+01	2,10E+00	2,72E+00	1,17E+00	3,27E+00	0,00E+00	2,32E+00	1,84E-01	1,77E+00	8,17E-03	-9,92E-01	3,22E+01
GWP-b	-2,15E+01	9,70E-04	8,05E-01	5,41E-04	-4,05E-02	0,00E+00	6,44E-04	8,51E-05	1,84E+01	6,89E-02	-7,48E-02	-2,35E+00
GWP-luluc	1,81E-02	7,70E-04	1,56E+00	4,29E-04	4,79E-02	0,00E+00	1,83E-04	6,76E-05	4,76E-05	3,59E-06	-1,05E-02	1,62E+00
ODP	2,01E-06	4,64E-07	2,68E-07	2,58E-07	5,85E-07	0,00E+00	5,00E-07	4,07E-08	2,39E-08	2,27E-09	-2,70E-07	3,88E-06
AP	1,43E-01	1,22E-02	4,46E-03	6,79E-03	3,02E-02	0,00E+00	2,42E-02	1,07E-03	5,43E-03	6,36E-05	-3,02E-02	1,97E-01
EP-fw	7,59E-04	2,12E-05	3,25E-05	1,18E-05	4,05E-05	0,00E+00	8,43E-06	1,86E-06	3,10E-06	1,53E-07	-9,69E-05	7,82E-04
EP-m	2,68E-02	4,29E-03	9,73E-04	2,39E-03	1,17E-02	0,00E+00	1,07E-02	3,77E-04	2,64E-03	4,10E-05	-8,79E-03	5,11E-02
EP-T	3,23E-01	4,73E-02	1,10E-02	2,64E-02	1,32E-01	0,00E+00	1,17E-01	4,16E-03	2,88E-02	2,35E-04	-1,44E-01	5,46E-01
POCP	8,81E-02	1,35E-02	3,34E-03	7,53E-03	3,55E-02	0,00E+00	3,23E-02	1,19E-03	7,35E-03	8,40E-05	-2,56E-02	1,63E-01
ADP-mm	2,86E-04	5,32E-05	2,76E-05	2,97E-05	2,71E-04	0,00E+00	3,55E-06	4,67E-06	1,61E-06	7,84E-08	-7,57E-05	6,02E-04
ADP-f	3,28E+02	3,17E+01	3,33E+01	1,77E+01	4,49E+01	0,00E+00	3,19E+01	2,78E+00	2,09E+00	1,73E-01	-1,16E+01	4,80E+02
WDP	1,01E+01	1,13E-01	3,97E-01	6,32E-02	4,31E-01	0,00E+00	4,27E-02	9,95E-03	1,45E-01	7,43E-03	-1,15E-01	1,12E+01
PM	2,88E-06	1,89E-07	2,62E-08	1,05E-07	7,42E-07	0,00E+00	6,41E-07	1,66E-08	3,69E-08	1,20E-09	-4,09E-07	4,23E-06
IR	1,18E+00	1,33E-01	2,99E-02	7,40E-02	1,80E-01	0,00E+00	1,37E-01	1,17E-02	4,26E-03	6,79E-04	-4,54E-02	1,71E+00
ETP-fw	6,48E+02	2,83E+01	2,10E+01	1,57E+01	3,91E+01	0,00E+00	1,92E+01	2,48E+00	7,85E+00	1,74E-01	-2,92E+02	4,89E+02
HTP-c	3,92E-08	9,17E-10	6,24E-10	5,11E-10	4,26E-09	0,00E+00	6,71E-10	8,05E-11	4,79E-08	4,82E-12	-3,35E-09	9,08E-08
HTP-nc	3,08E-07	3,09E-08	2,26E-08	1,72E-08	3,81E-08	0,00E+00	1,65E-08	2,71E-09	1,80E-08	1,86E-10	-1,08E-07	3,46E-07
SQP	3,29E+02	2,75E+01	2,83E+00	1,53E+01	-1,87E+01	0,00E+00	4,08E+00	2,41E+00	6,05E-01	4,10E-01	-1,14E+03	-7,78E+02

GWP-total = Climate change [kg CO2 eq]; **GWP-f** = Climate change - Fossil [kg CO2 eq]; **GWP-b** = Climate change - Biogenic [kg CO2 eq]; **GWP-luluc** = Climate change - Land use and LU change [kg CO2 eq]; **ODP** = Ozone depletion [kg CFC11 eq]; **AP** = Acidification [mol H+ eq]; **EP-fw** = Eutrophication, freshwater [kg P eq]; **EP-m** = Eutrophication, marine [kg N eq]; **EP-T** = Eutrophication, terrestrial [mol N eq]; **POCP** = Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = Resource use, minerals and metals [kg Sb eq]; **ADP-f** = Resource use, fossils [MJ]; **WDP** = Water use [m3 depriv.]; **PM** = Particulate matter [disease inc.]; **IR** = Ionising radiation [kBq U-235 eq]; **ETP-fw** = Ecotoxicity, freshwater [CTUe]; **HTP-c** = Human toxicity, cancer [CTUh]; **HTP-nc** = Human toxicity, non-cancer [CTUh]; **SQP** = Land use [Pt]



Resource use													
Parameter	A1	A2	A3	A4	A5	B1-5	C1	C2	C3	C4	D	Total	
PERE	9,21E+01	3,97E-01	9,27E+00	2,21E-01	1,06E+00	0,00E+00	1,72E-01	4,15E+00	8,10E-01	3,05E-03	-2,39E+02	-1,30E+02	
PERM	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
PERT	3,15E+01	3,97E-01	9,27E+00	2,21E-01	-7,52E-01	0,00E+00	1,72E-01	4,15E+00	8,10E-01	3,05E-03	-2,39E+02	-1,93E+02	
PENRE	3,48E+02	3,36E+01	3,66E+01	1,88E+01	4,78E+01	0,00E+00	3,38E+01	3,00E+00	2,27E+00	1,84E-01	-1,23E+01	5,11E+02	
PENRM	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
PENRT	1,94E+02	3,36E+01	3,66E+01	1,88E+01	4,32E+01	0,00E+00	3,38E+01	3,00E+00	2,27E+00	1,84E-01	-1,23E+01	3,53E+02	
PET	4,39E+02	3,40E+01	4,59E+01	1,90E+01	4,89E+01	0,00E+00	3,40E+01	7,16E+00	3,08E+00	1,87E-01	-2,51E+02	3,81E+02	
SM	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
RSF	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
NRSF	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	2,90E-01	3,86E-03	1,29E-02	2,15E-03	3,30E-01	0,00E+00	1,64E-03	2,95E-01	3,16E-02	1,81E-04	-3,27E-03	9,64E-01	
Waste categories													
Parameter	A1	A2	A3	A4	A5	B1-5	C1	C2	C3	C4	D	Total	
HWD	3,44E-04	8,03E-05	3,79E-05	4,48E-05	1,01E-02	0,00E+00	8,68E-05	7,05E-06	9,98E-03	2,67E-07	-5,57E-05	2,06E-02	
NHWD	2,32E+00	2,01E+00	2,65E-01	1,12E+00	3,53E+00	0,00E+00	3,77E-02	1,76E-01	3,42E+00	6,94E-01	-4,35E-01	1,31E+01	
RWD	1,41E-03	2,08E-04	3,26E-05	1,16E-04	2,73E-04	0,00E+00	2,21E-04	1,83E-05	5,19E-06	1,03E-06	-7,07E-05	2,22E-03	
Output flows													
Parameter	A1	A2	A3	A4	A5	B1-5	C1	C2	C3	C4	D	Total	
CRU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
MFR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
MER	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
EE	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total Energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m³]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]



References

Bepalingsmethode 'Milieuprestatie Bouwwerken', Stichting Nationale Milieudatabase, versie 1.1, maart 2022.

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ISO 14025: Environmental labels and declarations - Type III environmental declarations - Principles and procedures, International Organization for Standardization, ISO14025:2006.

ISO 14040: Environmental management - Life cycle assessment - Principles and Framework, International Organization for Standardization, ISO14040:2006.

ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines, International Organization for Standardization, ISO14044:2006.

EN 15804+A2: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, EN 15804:2012+A2:2019.

