Environmental
Product
Declaration
According to ISO14025 and EN15804+A2

This declaration is for:
HeartFelt® Linear 40x55 M100

Provided by:
Hunter Douglas Europe B.V.

program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

MRPI® registration
1.1.00737.2024
date of first issue
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COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.00737.2024

DATE OF ISSUE

11-12-2024

EXPIRY DATE

11-12-2029

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Gert-Jan Vroege, Eco Intelligence. The LCA study has been done by Bob Roijen, SGS INTRON B.V.. The certificate is based on an LCA-dossier according to EN15804+A2. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PROGRAM OPERATOR

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Amsterdam

Ing. L. L. Oosterveen MSc. MBA
Managing Director MRPI

PRODUCT

HeartFelt® Linear 40x55 M100

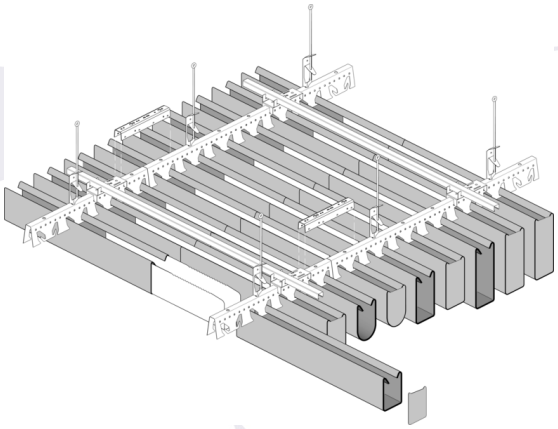
DECLARED UNIT/FUNCTIONAL UNIT

1m²

DESCRIPTION OF PRODUCT

HeartFelt® Linear is a modular, linear ceiling system consisting of felt panels.

VISUAL PRODUCT



MORE INFORMATION

https://www.hunterdouglasarchitectural.eu/en-EU/ceilings/textile/index.jsp

DEMONSTRATION OF VERIFICATION
CEN standard EN15804 serves as the core PCR(a)
Independent verification of the declaration an data according to ISO14025 and EN15804+A2 internal: external: x
Third party verifier: Gert-Jan Vroege, Eco Intelligence
[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

HeartFelt® Linear is a modular, linear ceiling system consisting of felt panels. The panels are made of non-woven, thermoformed polyester (PES) fibres. The felt panels are available in multiple tones of grey (5) and earth colours (5). In this study the colour “light grey 7596” is used as starting point since this is the most sold colour variety.

The panels are attached to the ceiling with an aluminium carrier system also included in the LCA. The carrier system is the same for all types of HeartFelt® Linear.

The panels are produced in several sizes. In this study, the environmental profile is calculated for the most sold product: HeartFelt® Panel 40x55 M100. This product measures 40 x 55 mm (w x h).

Also, the distance between the panels is a variable. In this study, the Module 100 system is used as starting point. In this system the space between 2 panels is 60 mm.

Material	Amount (%)
PES	69,7
Alu	18,7
Steel	9,7
Coating	1,8

SCOPE AND TYPE

The EPD follows the European standard EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

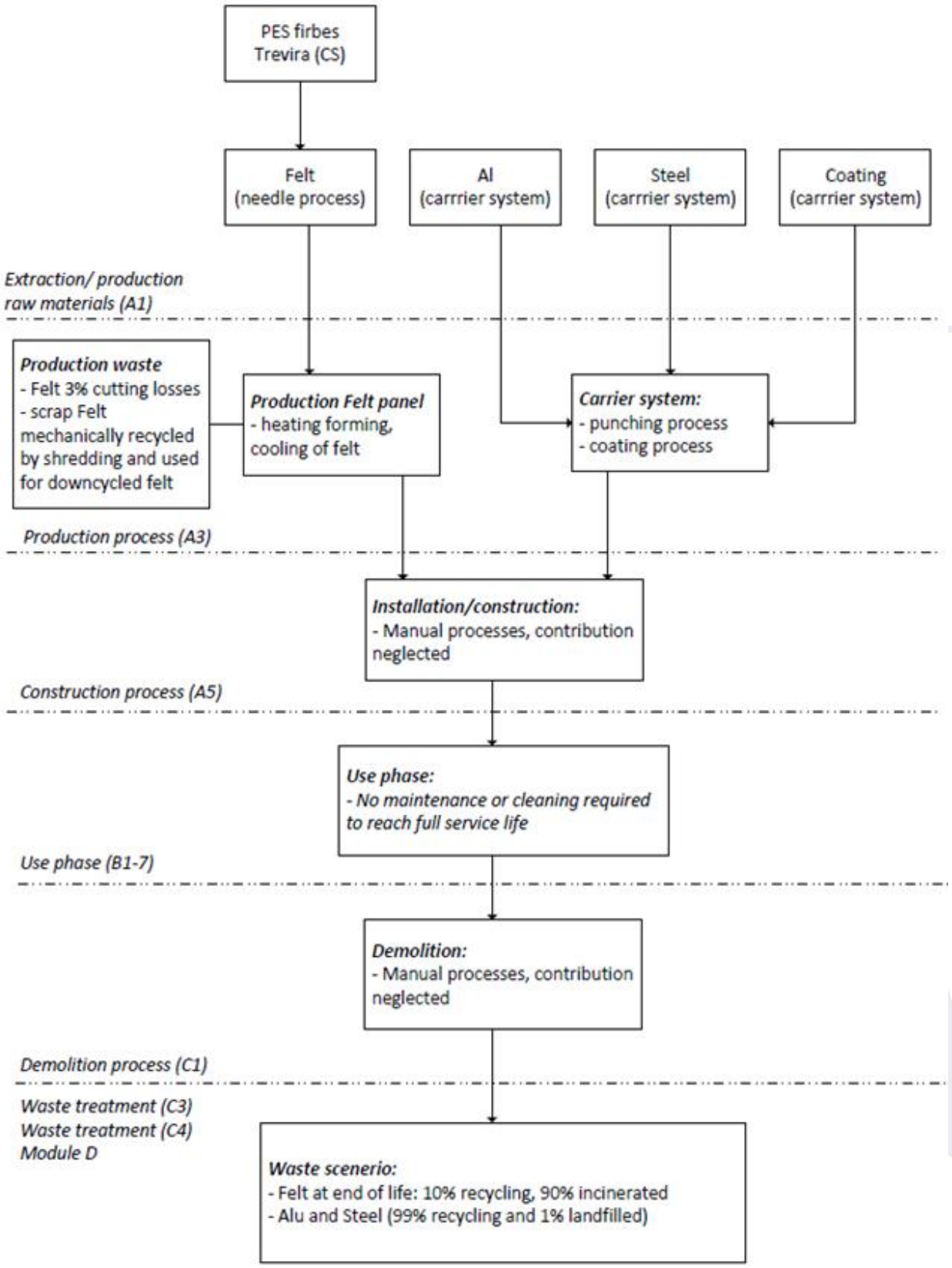
This means that the underlying standards ISO 14040:2006 “Environmental management – Life cycle analysis – Principles and framework” and ISO 14044:2006 “Environmental management. Life cycle assessment – Requirements and Guidelines” have been followed.

These standards are also based on ISO 21930:2017 “Sustainability in building construction – Environmental declaration of building products” and ISO 14025:2006 “Environmental labels and declarations – Type III environmental declarations”.

This is a product specific EPD for ceiling system produced by Hunter Douglas Europe in Rotterdam (NL) and supplied internationally.

The LCA calculations were made using Simapro and Ecoinvent v3.9.1 software. In the LCA calculations ecoinvent infrastructure processes are included and ecoinvent long-term emissions are excluded.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USER STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery – Recycling-potential
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	X	X	X	X	X	X	X
X= Modules Assessed ND= Not Declared																


PES firbes
Trevira (CS)
Felt
(needle process)
Al
(carrrier system)
Steel
(carrrier system)
Coating
(carrrier system)
Extraction/ production
raw materials (A1)
Production waste
- Felt 3% cutting losses
- scrap Felt
mechanically recycled
by shredding and used
for downcycled felt
Production Felt panel
- heating forming,
cooling of felt
Carrier system:
- punching process
- coating process
Production process (A3)
Installation/construction:
- Manual processes, contribution
neglected
Construction process (A5)
Use phase:
- No maintenance or cleaning required
to reach full service life
Use phase (B1-7)
Demolition:
- Manual processes, contribution
neglected
Demolition process (C1)
Waste treatment (C3)
Waste treatment (C4)
Module D
Waste scenerio:
- Felt at end of life: 10% recycling, 90% incinerated
- Alu and Steel (99% recycling and 1% landfilled)

ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	8,21 E+00	2,15 E-01	9,58 E-01	9,38 E+00	2,21 E-01	2,16 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,31 E-02	3,91 E-01	2,94 E-01	-2,58 E+00
GWP-fossil	kg CO2 eq.	8,19 E+00	2,14 E-01	1,07 E+00	9,47 E+00	2,21 E-01	1,04 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,31 E-02	3,91 E-01	2,94 E-01	-2,57 E+00
GWP-biogenic	kg CO2 eq.	0,00 E+00	0,00 E+00	-1,12 E-01	-1,12 E-01	0,00 E+00	1,12 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
GWP-luluc)	kg CO2 eq.	2,07 E-02	7,62 E-04	4,72 E-03	2,62 E-02	7,86 E-04	2,66 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,66 E-05	2,58 E-04	1,08 E-06	-1,36 E-02
ODP	kg CFC11 eq.	1,75 E-05	3,80 E-09	3,52 E-08	1,75 E-05	3,93 E-09	1,75 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,33 E-10	3,72 E-09	8,69 E-11	-1,04 E-05
AP	mol H+ eq.	4,31 E-02	1,02 E-03	2,99 E-03	4,71 E-02	1,06 E-03	4,92 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,26 E-05	1,06 E-03	5,77 E-05	-1,25 E-02
EP-freshwater	kg PO4 eq.	5,47 E-04	2,13 E-06	4,77 E-05	5,97 E-04	2,19 E-06	6,06 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,30 E-07	6,76 E-06	5,24 E-08	-5,45 E-05
EP-marine	kg N eq.	7,20 E-03	3,89 E-04	1,11 E-03	8,69 E-03	4,01 E-04	9,42 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,38 E-05	3,11 E-04	3,01 E-05	-1,97 E-03
EP-terrestrial	mol N eq.	9,31 E-02	4,15 E-03	8,48 E-03	1,06 E-01	4,28 E-03	1,14 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,54 E-04	3,35 E-03	3,04 E-04	-2,17 E-02
POCP	kg NMVOC eq.	3,60 E-02	1,42 E-03	2,60 E-03	4,00 E-02	1,46 E-03	4,28 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,66 E-05	1,25 E-03	7,56 E-05	-9,20 E-03
ADP-minerals & metals	kg Sb eq.	5,71 E-05	6,69 E-07	7,37 E-06	6,51 E-05	6,91 E-07	6,74 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,10 E-08	1,61 E-06	7,52 E-09	-1,65 E-05
ADP-fossil	MJ, net calorific value	1,42 E+02	3,06 E+00	1,52 E+01	1,61 E+02	3,16 E+00	1,68 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,87 E-01	3,86 E+00	4,05 E-02	-5,25 E+01
WDP	m3 world eq. Deprived	2,00 E+00	1,67 E-02	2,31 E-01	2,24 E+00	1,73 E-02	2,31 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,02 E-03	4,79 E-02	-4,52 E-04	-3,14 E-01

GWP-total = Global Warming Potential total
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 Exceedence
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 Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals = Abiotic Depletion Potential for non-fossil resources [2]
ADP-fossil = Abiotic Depletion for fossil resources potential [2]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]
- 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 experience with the indicator.

ENVIRONMENT IMPACT per functional unit or declared unit (additional indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	5,01 E-07	2,11 E-08	2,50 E-08	5,48 E-07	2,18 E-08	5,91 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,29 E-09	2,22 E-08	3,38 E-10	-1,37 E-07
IRP	kBq U235 eq.	2,37 E-01	1,19 E-03	3,24 E-02	2,71 E-01	1,23 E-03	2,77 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,31 E-05	4,94 E-03	1,70 E-05	-1,89 E-02
ETP-fw	CTUe	4,50 E+01	2,26 E+00	3,95 E+00	5,12 E+01	2,33 E+00	5,45 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,38 E-01	1,58 E+00	1,82 E-01	-7,18 E+00
HTP-c	CTUh	1,06 E-08	1,13 E-10	3,87 E-10	1,11 E-08	1,16 E-10	1,16 E-10	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,90 E-12	3,90 E-10	1,26 E-11	-1,58 E-09
HTP-nc	CTUh	9,72 E-08	2,46 E-09	1,11 E-08	1,11 E-07	2,54 E-09	1,18 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,50 E-10	3,65 E-09	8,77 E-10	-3,05 E-08
SQP	----	3,41 E+01	2,42 E+00	1,33 E+01	4,98 E+01	2,49 E+00	5,50 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,48 E-01	2,89 E+00	1,12 E-02	1,62 E+00

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclaimer [1]
- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

Disclaimer [2]
- 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 experience with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	8,33 E-03	1,95 E-05	5,38 E-05	8,40 E-03	2,02 E-05	8,43 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,19 E-06	1,38 E-05	3,95 E-07	-8,51 E-05
NHWD	kg	2,12 E+00	2,02 E-01	1,08 E-01	2,43 E+00	2,09 E-01	2,82 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,24 E-02	1,92 E-01	7,55 E-03	-3,21 E-01
RWD	kg	1,71 E-04	7,01 E-07	2,75 E-05	1,99 E-04	7,23 E-07	2,04 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,29 E-08	3,65 E-06	1,09 E-08	-9,90 E-06
CRU	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
MFR	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,81 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,47 E+00	0,00 E+00	0,00 E+00
MER	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
EEE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	5,87 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	5,87 E-01	0,00 E+00
ETE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,01 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,01 E+00	0,00 E+00

HWD = Hazardous Waste Disposed
NHWD = Non Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
CRU = Components for reuse
MFR = Materials for recycling
MER = Materials for energy recovery
EEE = Exported Electrical Energy
ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,24 E+01	4,33 E-02	4,15 E+00	1,66 E+01	4,47 E-02	1,69 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,65 E-03	1,99 E-01	8,88 E-04	-2,73 E+00
PERM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PERT	MJ	1,24 E+01	4,33 E-02	4,15 E+00	1,66 E+01	4,47 E-02	1,69 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,65 E-03	1,99 E-01	8,88 E-04	-2,73 E+00
PENRE	MJ	1,17 E+02	3,07 E+00	1,53 E+01	1,35 E+02	3,16 E+00	1,42 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,88 E-01	3,86 E+00	4,05 E-02	-5,25 E+01
PENRM	MJ	2,52 E+01	0,00 E+00	0,00 E+00	2,52 E+01	0,00 E+00	2,52 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PENRT	MJ	1,42 E+02	3,07 E+00	1,53 E+01	1,61 E+02	3,16 E+00	1,68 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,88 E-01	3,86 E+00	4,05 E-02	-5,25 E+01
SM	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m3	8,39 E-02	7,40 E-04	9,38 E-03	9,40 E-02	7,64 E-04	9,59 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,53 E-05	1,45 E-03	3,40 E-06	-2,06 E-02

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw materials
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 resources
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non-renewable secondary fuels
FW = Use of net fresh water

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	Kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	0,00 E+00	0,00 E+00	3,12 E-01	3,12 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The life cycle phases that have been modelled are confined by system boundaries, which determine which stages and processes in the life cycle are included.

Product Stage (A1-A3)

The main constituents of the ceiling system are polyester felt and aluminium / steel for the carrier and attachments. Metal parts are coated or galvanized. At the production location the panels are produced by heating, forming and cooling of the felt. Parts for the carrier are punched. These processes generate a small amount of production waste, which is largely recycled (metals) or applied into other products (felt). Subsecuently, the panels are packed in cardboard boxes.

Transport to Construction (A4)

For the purposes of the EPD transport to "somewhere in Europe" has been included based on a distance of 1000 km by truck: Transport, freight, lorry, unspecified {GLO}| market group for transport, freight, lorry, unspecified | Cut-off.

Construction process (A5)

The carriers are attached to the ceiling (using the galvanized steel rods) in a manual process. Therefore, no environmental burdens have been included for the installation process.

The loss at the building site is included. Since the panels are applied into the building at a preconceived plan according to Hunter Douglas there is virtually no waste at the building site. In the calculations 1% waste at the building site is included which probably is an overestimate of the actual amount of waste.
The panels are packed in cardboard boxes (0,234 kg cardboard is used per kg panel). The packaging materials are very likely collected for recycling. This has been modelled by transport (50 km) and the Ecoinvent process.

Regarding production waste:

- The transport, production and the waste treatment of production waste is included in module A5
- The benefits of waste treatment processes are included in module D

Use phase (B1-7)

In the use phase, there are emissions to (indoor) air. Hunter Douglas provided data to quantify these emissions. Since for all the components in this analysis no measured values were reported but the reporting limit of the laboratory. Therefore, these emissions have been excluded from the analysis.

It is not to be expected that during the service life of 25 years maintenance is needed or materials have to be changed. All components of the HeartFelt® felt ceiling system are installed at the ceiling of interior spaces (never exterior). This implies the components basically remain untouched.
Normal environmental influences are limited to slight variations in temperature and humidity as common in an interior climate. There is almost no danger of dirt from normal room usage (e.g. stains from food etc.) will get to the ceiling.
Depending on the building type, use and rate of pollution a cleaning regiment can be established for a felt ceiling. When simple, light cleaning (dusting) is required the advice is to clean the ceiling with a feather duster. For heavier pollution, vacuum cleaning is an option.

End of Life Stage (C-D)

Demolition (C1)

At the end of the service life the felt panels and the carrier is removed, probably manually. No environmental burdens have been included because of these processes.

Transport to waste treatment (C2)

Waste is transported by truck to a sorting station (50 km) according to the default scenario from the NMD manual. For transport to landfill and incineration plants transport also is included:

1. 50 km by truck to landfill.
2. 100 km by truck to incineration.

Waste scenario's
It is to be expected that the materials in the ceiling system can be separated very well. For each material the following scenario is used:

Felt: Therefore, the default scenario for plastics from the NMD manual is used in which 10% of the PES is recycled and 90% is incinerated in waste-to-energy plants.

Metals: For both aluminium and (stainless) steel the scenario is 99% recycling and 1% loss (modelled) as landfill. It is to be expected that a large proportion of the metals waste can be recovered since the ceiling system is not demolished together with the rest of the building and the felt can be easily separated from the carriers.

DECLARATION OF SVHC

No substances that are listed in the latest "Candidate List of Substances of Very High Concern for authorisation" are included in the product that exceed the limit for registration.

REFERENCES

•EN 15804:2012+A2:2019 en. - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products. 1 November 2019.

•ISO 14040:2006. Environmental management — Life cycle assessment — Principles and framework. 2006.

•ISO 14044:2006. Environmental management — Life cycle assessment — Requirements and guidelines. 2006.

•ISO 21930:2017. Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services. 2017.

•ISO 14025:2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures. 2006.

•Stichting Nationale Milieudatabase, Bepalingsmethode Milieuprestatie Bouwwerken Versie 1.1 (maart 2022).

•SGS INTRON report: A153040/R20241963

REMARKS

The results of this LCA also has been included in the Dutch National LCA Database (NMD). On this EPD the transport distance in module A4 deviates, 1000 km was used instead of the NMD Default (150 km).