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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Skonto Prefab SIA
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2321-1065-EN
Registration number:	NEPD-2321-1065-EN
ECO Platform reference number:	-
Issue date:	20.08.2020
Valid to:	20.08.2025

Columns

Product

Skonto Prefab SIA

Owner of the declaration

www.epd-norge.no

General information

Product:
Columns

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Manufacturer:
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Declaration number:
NEPD-2321-1065-EN

Place of production:
Acone, Salaspils area, Latvia

ECO Platform reference number:

Management system:
ISO 9001:2015
ISO 14001:2015

This declaration is based on Product Category Rules:
CEN Standard EN 15804 serves as core PCR
NPCR Part A:2017 Construction products and services
NPCR 020:2018 Part B for Concrete and concrete elements
EN 16757:2017 serves as a complimentary PCR

Organisation no:
LV40003610650

Statement of liability:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturerinformation, life cycle assessment data and evidences.

Issue date:
20.08.2020

Valid to:
20.08.2025

Declared unit:
-

Year of study:
Revision of NEPD00285E (2014)
Year of revision: 2020

Declared unit with option (A1-A5, C1-C4):
Production of 1 ton of prefabricated concrete elements

Comparability:
EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Functional unit:
-

The EPD has been worked out by:
Michael M. Jenssen

asplan viak

Verification:
The CEN Norm EN 15804 serves as the core PCR. Independent verification of the declaration and data, according to ISO14025:2010

☐ internal ☑ external

Third party verifier:
sign Simon A. Saxegård
Simon A. Saxegård
(Independent verifier approved by EPD Norway)

Approved
Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:
Columns are structural building elements and are delivered in various sizes, shapes and lengths. Minimum cross-section size is 200 to 200 mm. From one up to several brackets. Precast columns are assembled at foundation with screw type fastening (column shoes) or by installing them in socket type foundations.

Technical data:
The product is certified in accordance with EN1322.
Properties (min/max): Compressive strength: C30/37 - C50/60.
Length: 2000 - 11500 mm.
Cross-section: 200x200 - 900x900.

Product specification:
The composition of the product is described in the table below:

Materials	kg	%
Aggregate	271	27
Sand	219	22
Cement	119	12
Water	29	3
Steel	361	36
Additives	8.3	1

Market:
Norway, Sweden

Reference service life, product:
Not relevant for declared unit

Reference service life, building:
Not relevant for declared unit

LCA: Calculation rules

Declared unit with options (A1-A5, C1-C4):
Production of 1 ton of prefabricated concrete elements

System boundary:
Cradle to grave. Included modules production and construction are A1-A5, included modules for end of life are C1, C2 and C4. The use stage is not declared. Building demolition takes places in C1 while waste processing is considered in C3. Module D is not declared. Production process at Skonto includes mould preparation, casting of concrete product, curing and finalising. The product is then loaded on trucks for transportation to building site.

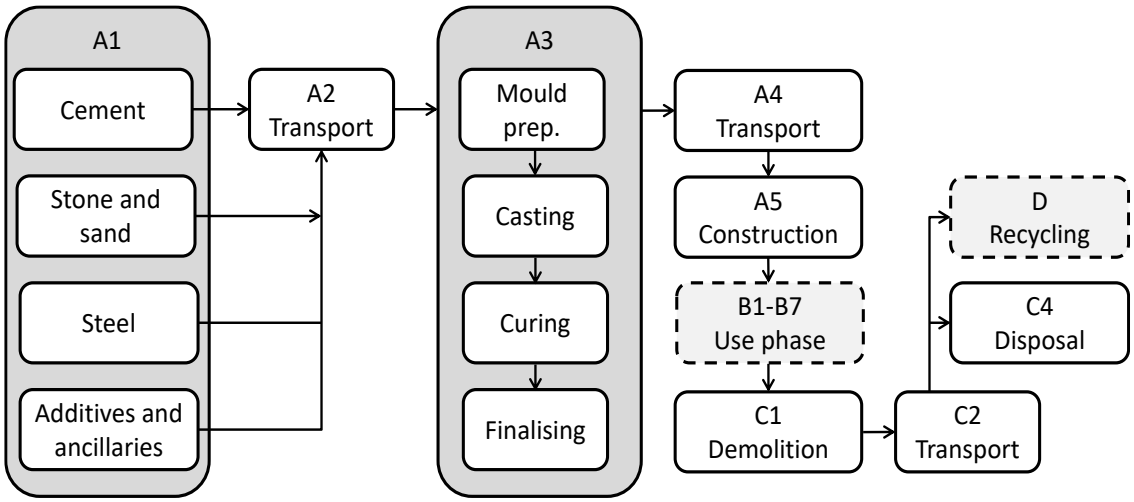

Figure 1: Flow chart of production system

Data quality:
The data is representative according to temporal, geographical and technological requirements as provided in EN15804. Data for Skonto Prefab production facility is for 2019 and represents technology in use. Material and energy use per declared unit has been calculated using expert judgment and validated against annual consumption. Where possible, specific supplier data has been used. Otherwise, generic data is from the ecoinvent 3.5 database. Data quality requirements are in line with core PCR; generic data are <10 years old.

Allocation:
The allocation is made in accordance with the provisions of EN 15804. Energy is allocated on expert judgment to each product group produced by Skonto Prefab to reflect differences between products. Otherwise, mass allocation is used.

Cut-off criteria:
All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

The scenarios for transportation from production place to user is defined as transport from Salaspils (Latvia) to markets in Norway and Sweden. Scenarios represent typical transportation distances for Skonto Prefab products.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck (to Norway)	44	Lorry, >32t	740	0.022 l/tkm	16.3
Boat (to Norway)	80	10 000 dwt vessel	276	N/A	-
Truck (to Sweden)	44	Lorry, >32t	265	0.022 l/tkm	5.83
Boat (to Sweden)	80	10 000 dwt vessel	276	N/A	-

Description, A5:
Scenario is modelled as installation of a typical concrete product in a building. Fossil fuel for building machinery and auxiliary materials are included.

Description, C1, C3 and C4:
End of Life scenario is based on demolition of the building and extraction of reinforced concrete in C1. After waste processing and sorting (C3), 99% of steel and 90% of concrete is recycled. The remaining fractions are sent to landfill (module C4).

Description, C2:
Transport from building (demolished building) to waste handling facility.

Assembly (A5)

	Unit	Value
Auxiliary	kg	40
Water consumption	m^3	0
Electricity consumption	kWh	0
Other energy carriers	MJ	42
Material loss	kg	0
Output materials from waste treatment	kg	0
Dust in the air	kg	0.012

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0
Recycling	kg	939
Energy recovery	kg	0
To landfill	kg	68

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	26	Lorry, 16-32t	278	0.044 l/tkm	12.2
Waste collection	50	Lorry, 21t	19	0.39 l/tkm	7.4

LCA: Results

System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assemby stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MND

Environmental impact

Parameter	Unit	A1-A3	A4 - NOR	A4 - SWE	A5	C1	C2	C3	C4
GWP	kg CO_2 -eqv	6.13E+02	7.35E+01	3.08E+01	9.40E+00	5.60E+00	6.89E+01	1.94E+00	3.58E-01
ODP	kg CFC11-eqv	4.54E-05	1.28E-05	4.58E-06	9.90E-07	1.02E-06	1.24E-05	2.24E-07	1.30E-07
POCP	kg C_2H_4 -eqv	2.24E-01	1.58E-02	8.79E-03	2.24E-03	1.12E-03	1.15E-02	4.12E-04	1.34E-04
AP	kg SO_2 -eqv	2.54E+00	3.59E-01	2.17E-01	4.82E-02	4.26E-02	2.50E-01	1.21E-02	2.72E-03
EP	kg PO_4^{3-}-eqv	4.94E-01	5.39E-02	3.04E-02	1.01E-02	9.22E-03	4.69E-02	1.94E-03	4.68E-04
ADPM	kg Sb-eqv	3.73E-03	1.25E-04	4.48E-05	2.75E-05	1.90E-06	1.53E-04	2.82E-06	4.06E-07
ADPE	MJ	8.50E+03	1.15E+03	4.65E+02	1.09E+02	8.09E+01	1.00E+03	2.96E+01	1.10E+01

GWP Global warming potential; **ODP** Depletion potential of the stratospheric ozone layer; **POCP** Formation potential of tropospheric photochemical oxidants; **AP** Acidification potential of land and water; **EP** Eutrophication potential; **ADPM** Abiotic depletion potential for non fossil resources; **ADPE** Abiotic depletion potential for fossil resources

Resource use

Parameter	Unit	A1-A3	A4 - NOR	A4 - SWE	A5	C1	C2	C3	C4
RPEE	MJ	5.25E+02	9.76E+00	3.56E+00	4.47E+00	5.60E+00	6.89E+01	1.94E+00	8.06E-02
RPEM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-06	1.24E-05	2.24E-07	0.00E+00
TPE	MJ	5.25E+02	9.76E+00	3.56E+00	4.47E+00	1.12E-03	1.15E-02	4.12E-04	8.06E-02
NRPE	MJ	9.31E+03	1.16E+03	4.71E+02	1.16E+02	4.26E-02	2.50E-01	1.21E-02	1.11E+01
NRPM	MJ	1.56E+02	0.00E+00	0.00E+00	0.00E+00	9.22E-03	4.69E-02	1.94E-03	0.00E+00
TRPE	MJ	9.47E+03	1.16E+03	4.71E+02	1.16E+02	1.90E-06	1.53E-04	2.82E-06	1.11E+01
SM	kg	2.36E-02	0.00E+00	0.00E+00	0.00E+00	8.09E+01	1.00E+03	2.96E+01	0.00E+00
RSF	MJ	1.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	9.14E-03	0.00E+00	0.00E+00	0.00E+00	4.36E-01	7.83E+00	5.47E+00	0.00E+00
W	m^3	7.21E+00	1.93E-01	6.95E-02	9.31E-02	0.00E+00	0.00E+00	0.00E+00	1.15E-02

RPEE Renewable primary energy resources used as energy carrier; **RPEM** Renewable primary energy resources used as raw materials; **TPE** Total use of renewable primary energy resources; **NRPE** Non renewable primary energy resources used as energy carrier; **NRPM** Non renewable primary energy resources used as materials; **TRPE** 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; **W** Use of net fresh water

End of life - Waste

Parameter	Unit	A1-A3	A4 - NOR	A4 - SWE	A5	C1	C2	C3	C4
HW	kg	2.33E-02	6.17E-04	2.21E-04	1.55E-04	3.66E-05	5.49E-04	5.00E-05	7.41E-06
NHW	kg	1.78E+02	9.05E+01	3.24E+01	1.40E+00	8.95E-02	3.47E+01	1.30E-01	6.83E+01
RW	kg	2.51E-02	7.20E-03	2.58E-03	5.88E-04	5.70E-04	6.98E-03	2.77E-04	7.33E-05

HW Hazardous waste disposed; **NHW** Non hazardous waste disposed; **RW** Radioactive waste disposed

End of life - Output flow

Parameter	Unit	A1-A3	A4 - NOR	A4 - SWE	A5	C1	C2	C3	C4
CR	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
MR	kg	1.30E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.39E+02
MER	kg	6.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	5.33E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	1.41E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CR Components for reuse; **MR** Materials for recycling; **MER** Materials for energy recovery; **EEE** Exported electric energy; **ETE** Exported thermal energy

Reading example: 9,0 E-03 = $9{,}0*10^{-3}$ = 0,009

Additional Norwegian requirements

Greenhous gas emission from the use of electricity in the manufacturing phase
National production mix from import, medium woltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing prosess(A3).

Data source	Amount	Unit
Econinvent v3.5	0.604	kg CO_2-eqv/kWh

Dangerous substances

- ☑ The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- ☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften, Annex III), see table.

Indoor environment

The product has not been tested for emissions to indoor environment. The product contains no dangerous substances on the REACH Candidate list or the Norwegian priority list, and a water-based release agent is used. Based on this it is assumed that the product has a negligible impact on the indoor environment and therefore meets the requirements for low emissions (M1) according to EN15251:2007 Appendix E.

Carbon footprint

Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2010	*Environmental labels and declarations - Type III environmental declarations - Principles and procedures*
ISO 14044:2006	*Environmental management - Life cycle assessment - Requirements and guidelines*
EN 15804:2012+A1:2013	*Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products*
EN 16757:2017	*Sustainability of construction works* *Environmental product declarations* *Product Category Rules for concrete and concrete elements*
ISO 21930:2007	*Sustainability in building construction - Environmental declaration of building products*
Jenssen, M.M. (2020)	*LCA report. EPD revision for prefabricated concrete elements. Presentation of updated life cycle inventories (LCI) and life cycle impact assessment (LCIA) for the revision of EPDs: NEPD00284E, NEPD00285E, NEPD00286E*
EPD Norway	*NPCR Part A:2017 Construction products and services. Reg 07.04.2017*
EPD Norway	*NPCR 020:2018 Part B for Concrete and concrete elements. Reg 18.10.2018*

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