ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

PREFABRICATED SOLID SLAB ELEMENTS

ABETONG AB, HEIDELBERG CEMENT GROUP

Environmental Product Declaration created with One Click LCA

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Abetong AB, Heidelberg Cement Group
Address	Box 24, S-351 03 VÄXJÖ
Contact details	info@abetong.se
Website	www.abetong.se

PRODUCT IDENTIFICATION

Product name	Prefabricated Solid Slab Elements
Additional label(s)	
Product number / reference	
Place(s) of production	Falkenberg, Sweden Kvicksund, Sweden

EPD INFORMATION

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	Building Information Foundation RTS / Building Information Ltd. Malminkatu 16 A, A00100 Helsinki, Finland http://cer.rts.fi
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the CEN standard 15804+A2 serves as the core PCR, RTS PCR (English version, 26.8.2020) PCR is used.
EPD author	Magnus Jönsson, Abetong AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	31.05.2021
EPD verifier	Silvia Vilčeková, Silcert, s.r.o.
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Jessica Karhu
RTS EPD Committee secretary

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Managing Director

PRODUCT INFORMATION

PRODUCT DESCRIPTION

The product is prefabricated solid concrete slab elements consisting of aggregate, cement, reinforcement, and the necessary cast-in-material of steel for transport and assembling.

PRODUCT APPLICATION

The product is mainly used for floors in heated buildings but can also be used outdoor in moderately exposed conditions.

TECHNICAL SPECIFICATIONS

Concrete strength C30/37.
Exposure classes up to XC4+XF1.
Life length class up to L100 (100 years).
Fire classes up to REI90.

PRODUCT STANDARDS

The product fulfils the requirements of SS-EN 13369:2018 "Common rules for precast concrete products".

PHYSICAL PROPERTIES OF THE PRODUCT

Typical properties of the product:
Geometry: Length 5.0 m, Width 3.5 m and Thickness 230 mm.
Density: 2450 kg/m³

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.abetong.se.

PRODUCT RAW MATERIAL COMPOSITION

Material	Weight kg/ton	Usability	Material origin
Cement	151	Non-renewable	Sweden
Aggregate	761	Non-renewable	Sweden
Additives	1	Non-renewable	Europe
Water	65	Renewable	Sweden
Reinforcement	15	Recycled	Norway
Cast-in-material	1	Non-renewable	Europe

Product raw material main composition

Raw material category	Amount, mass- %	Material origin
Metals	1.5	Europe
Minerals	98.5	Sweden
Fossil materials	0	
Bio-based materials	0	

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The production of homogeneous slab elements starts by manufacturing parts for the custom-made moulds. At the same time, the reinforcement is prepared by bending and cutting meshes and bars into the designed dimensions. The casting table is cleaned before the moulds are assembled. Reinforcement and cast-in-materials are mounted, form oil applied and the elements casted.

As the concrete sets and reaches the right consistency, the surface treatment is applied. After curing the concrete reaches the designed demoulding strength and the elements can be lifted to an intermediate storage area for quality control and finishing before they are finally transported out into the storage yard ready for delivery to the construction site.

TRANSPORT AND INSTALLATION (A4-A5)

After notification from the construction site, the elements are loaded onto lorries for transport. The transports are optimised for both efficient assembling at the construction site and reducing the number of required vehicles. Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

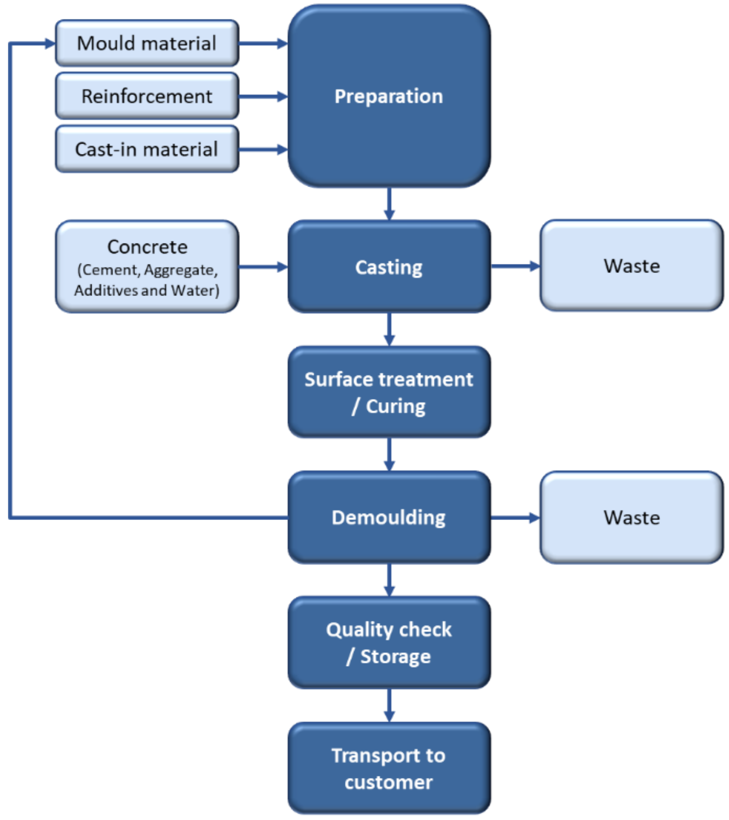
The transportation distance is defined according to RTS PCR. Average distance of transportation from production plant to building site is assumed as 100 km and the transportation method is assumed to be lorry. Transportation does not cause losses.

Optional A5 module is not declared.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover use phase. Air, soil, and water impacts during the use phase have not been studied.

Manufacture Diagram for Concrete Elements



PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as separate construction waste. The demolition process consumes energy in the form of diesel fuel used by building machines (C1).

The dismantled concrete elements are delivered to the nearest construction waste treatment plant (C2). At the waste treatment plant, waste that can be reused, recycled, or recovered for energy is separated and diverted for further use (C3).

Unusable materials are disposed of in a landfill (C4). Due to the recycling potential of reinforcement steel and concrete, they can be used as secondary raw material. This avoids the use of virgin raw materials (D).

C3 waste processing

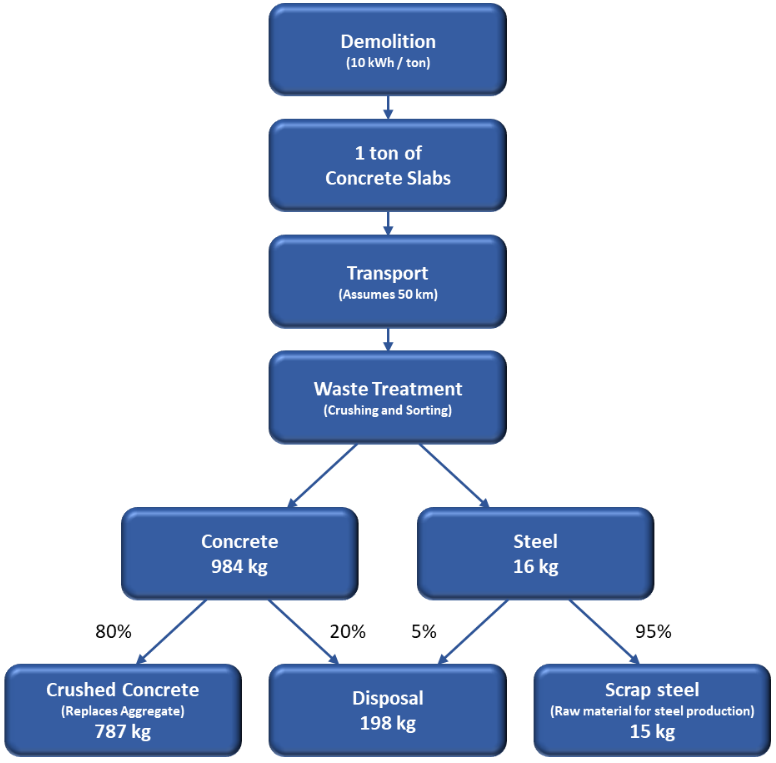
According to European Waste Framework Directive (2008/98/EC) Waste Hierarchy, the waste formation that cannot be prevented should be reused, recycled or otherwise recovered. Landfilling is to be avoided in all cases. Hence, recycling is the most conservative waste treatment scenario for the steel and concrete used in the product.

It was assumed that 100% of products were collected at demolition site and attached recyclable materials like glass, metals, and wood are sent directly to recycling facilities Share of losses in sorting process are assumed to be small and were not considered in the assessment. It was further assumed that any plastic goes with unseparated waste to landfill.

C4 disposal

From the crushed recycled material, it is assumed that 20% of the sorted concrete will be disposed along with 5% of the steel due to e.g. chemical degradation or mixed materials. Both values are conservative compared to the practical experience.

End-of-Life Scenario Diagram



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	Data for the calendar year 2019 is used in this study.

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 ton of solid slab element
Mass per declared unit	1000 kg

BIOGENIC CARBON CONTENT

The product does not contain any biogenic carbon, so the biogenic content at the factory gate is 0 kg. The product is delivered without packaging.

SYSTEM BOUNDARY

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

This EPD covers cradle to gate with options scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and RTS PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes which data are available for are included in the calculation.

There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution, and end-of-life stages.

For easier modelling and because of lack of accuracy in available modelling resources many constituents under 0,1% of product mass are excluded. These include material for moulds which are often reused and some vegetable form oil which are all present in the product only in very small amounts and have no serious impact on the emissions of the product.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy, and water use related to company management and sales activities are excluded.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

As it is impossible to collect raw material, ancillary material, energy consumption and waste production data separately for each product produced the in the plant, data is allocated. Allocation is based on annual production rate and made with high accuracy and precision.

The values for 1 ton of element are calculated by considering the total product weight per annual production. In the factories, several kinds of concrete elements are produced; since the production processes of these products are similar, the annual total raw materials, energy consumption, form materials and the generated waste per the declared unit are allocated.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below:

• Module A4: The transportation distance is defined according to RTS PCR. It was assumed that typical installation place is situated in the region of the production plant. Average distance of transportation from production plant to building site is equal to 100 km. Transportation method is assumed to be lorry. The transportation does not cause losses.

• Module C1: Energy consumption of a demolition process is on the average 10 kWh/m2 (Bozdağ, Ö & Seçer, M. 2007). Basing on a Level(s) project, an average mass of a reinforced concrete building is about 1 ton/m2. Therefore, energy consumption demolition is 10 kWh/ton. The source of energy is diesel fuel used by work machines.

• Module C2: It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed that it has the same weight with the declared product. All of the end-of-life product is assumed to be sent to the closest facilities such as recycling and landfill. Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is lorry which is the most common.

• Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emission in total results is small, the variety in load is assumed to be negligible. Empty returns are not included as it is assumed that return trip is used by the transportation company to serve the needs of other clients.

• Module C3: It was assumed that 100% of products were collected at demolition site and that attached recyclable materials are sent directly to recycling facilities. Share of losses in sorting process are assumed to be small and were not considered in the assessment.

• Module C4: From the crushed recycled material, it is assumed that 20% of the sorted concrete will be disposed along with 5% of the steel due to e.g. chemical degradation or mixed materials. Both values are conservative compared to practical experience.

• Module D: Benefits of recyclable waste generated in the phase C3 are considered in the phase D. The recycled steel and crushed concrete have been modelled to avoid use of primary materials. The scrap content in the studied product has been acknowledged and only the mass of primary steel in the product provides the benefit in order to avoid double counting.

AVERAGES AND VARIABILITY

The size and shape of individual concrete elements can vary significantly to fit the needs of the building for which it was manufactured. The amount of reinforcement and cast-in-material also depends to a substantial extent on the requirements of the construction. This is included in the analysis by calculating averages for reinforcement and cast-in-material based on the annual production of elements used in residential buildings.

ENVIRONMENTAL IMPACT DATA

Note: ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930 are presented in Annex.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change – total	kg CO_2e	1,32E2	3,9E0	4,33E0	1,41E2	8,63E0	MND	MND	MND	MND	MND	MND	MND	MND	3,3E0	4,36E0	3,5E0	1,04E0	−6,74E0
Climate change – fossil	kg CO_2e	1,31E2	3,9E0	4,33E0	1,39E2	8,71E0	MND	MND	MND	MND	MND	MND	MND	MND	3,3E0	4,35E0	3,52E0	1,04E0	−6,71E0
Climate change – biogenic	kg CO_2e	1,69E0	1,23E−5	4,24E−3	1,7E0	2,59E−4	MND	MND	MND	MND	MND	MND	MND	MND	2,42E−4	1,3E−4	−2,31E−2	1,43E−3	−2,5E−2
Climate change – LULUC	kg CO_2e	3,57E−2	1,27E−3	5,26E−4	3,75E−2	2,74E−3	MND	MND	MND	MND	MND	MND	MND	MND	2,79E−4	1,37E−3	6,89E−4	3,09E−4	−8,44E−3
Ozone depletion	kg CFC11e	5,53E−6	9,52E−7	1,11E−6	7,6E−6	2,14E−6	MND	MND	MND	MND	MND	MND	MND	MND	7,12E−7	1,07E−6	7,34E−7	4,28E−7	−5,96E−7
Acidification	mol H^+e	3,31E−1	1,1E−2	9,41E−3	3,51E−1	2,14E−2	MND	MND	MND	MND	MND	MND	MND	MND	5,64E−3	1,07E−2	8,43E−3	4,91E−3	−3,06E−2
Eutrophication, aquatic freshwater	kg PO_4e	2,07E−2	2,9E−4	2,87E−4	2,13E−2	6,48E−4	MND	MND	MND	MND	MND	MND	MND	MND	1,2E−4	3,24E−4	4,31E−4	1,08E−4	−3,99E−3
Eutrophication, aquatic marine	kg Ne	7,9E−2	1,7E−3	1,6E−3	8,23E−2	3,06E−3	MND	MND	MND	MND	MND	MND	MND	MND	7,58E−4	1,53E−3	1,06E−3	9,62E−4	−4,59E−3
Eutrophication, terrestrial	mol Ne	8,87E−1	1,83E−2	1,73E−2	9,23E−1	3,26E−2	MND	MND	MND	MND	MND	MND	MND	MND	8,11E−3	1,63E−2	1,15E−2	1,04E−2	−5,52E−2
Photochemical ozone formation	kg NMVOCe	2,31E−1	8,92E−3	6,49E−3	2,47E−1	1,8E−2	MND	MND	MND	MND	MND	MND	MND	MND	8,07E−3	8,99E−3	9,03E−3	4,28E−3	−1,52E−2
Abiotic depletion, minerals & metals	kg Sbe	1,19E−3	7,17E−5	8,54E−6	1,27E−3	1,55E−4	MND	MND	MND	MND	MND	MND	MND	MND	5,03E−6	7,75E−5	2,54E−5	9,51E−6	−7,18E−4
Abiotic depletion of fossil resources	MJ	7,18E2	6,23E1	9,51E1	8,75E2	1,4E2	MND	MND	MND	MND	MND	MND	MND	MND	4,48E1	6,99E1	4,79E1	2,9E1	−9,43E1
Water use	m^3e depr.	3,51E3	4,88E1	3,73E4	4,09E4	1,08E2	MND	MND	MND	MND	MND	MND	MND	MND	9,62E0	5,42E1	3,62E1	8,96E0	−3,9E2

EN 15804+A2 disclaimer for Abiotic depletion and Water use indicators and all optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
Eutrophication aquatic freshwater is reported as *kg PO_4 eq,* although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit *kg P eq.*

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,97E−6	3,27E−7	1,03E−7	3,4E−6	7,47E−7	MND	MND	MND	MND	MND	MND	MND	MND	8,45E−7	3,74E−7	3,98E−6	1,8E−7	−4,75E−7
Ionizing radiation, human health	kBq U235e	7,73E0	3,21E−1	2,54E−1	8,31E0	7,2E−1	MND	MND	MND	MND	MND	MND	MND	MND	2,06E−1	3,6E−1	2,5E−1	1,3E−1	−1,37E0
Eco-toxicity (freshwater)	CTUe	8,28E0	2,6E0	3,98E−1	1,13E1	5,96E0	MND	MND	MND	MND	MND	MND	MND	MND	2,48E−1	2,98E0	6E−1	1,81E−1	−8,13E−1
Human toxicity, cancer effects	CTUh	1,23E−7	1,15E−9	9,77E−10	1,25E−7	2,52E−9	MND	MND	MND	MND	MND	MND	MND	MND	8,77E−10	1,26E−9	1,33E−9	4,02E−10	−5,65E−9
Human toxicity, non-cancer effects	CTUh	7,9E−6	7,6E−8	2,83E−8	8E−6	1,7E−7	MND	MND	MND	MND	MND	MND	MND	MND	1,85E−8	8,52E−8	8,31E−8	1,53E−8	−2,48E−7
Land use related impacts/soil quality	-	1,19E3	9,11E1	2,51E1	1,31E3	2,11E2	MND	MND	MND	MND	MND	MND	MND	MND	1E0	1,06E2	2,3E0	4,94E1	−6,47E1

EN 15804+A2 disclaimer for Ionizing radiation, human health. 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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renewable PER used as energy	MJ	5E1	7,99E−1	8,2E1	1,33E2	1,78E0	MND	MND	MND	MND	MND	MND	MND	MND	2,45E−1	8,9E−1	1,04E0	2,35E−1	−7,94E0
Renewable PER used as materials	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renewable PER	MJ	5E1	7,99E−1	8,2E1	1,33E2	1,78E0	MND	MND	MND	MND	MND	MND	MND	MND	2,45E−1	8,9E−1	1,04E0	2,35E−1	−7,94E0
Non-renew. PER used as energy	MJ	8,14E2	6,35E1	9,6E1	9,73E2	1,43E2	MND	MND	MND	MND	MND	MND	MND	MND	4,51E1	7,13E1	4,89E1	2,93E1	−1,15E2
Non-renew. PER used as materials	MJ	1,81E1	0E0	0E0	1,81E1	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-renewable PER	MJ	8,32E2	6,35E1	9,6E1	9,92E2	1,43E2	MND	MND	MND	MND	MND	MND	MND	MND	4,51E1	7,13E1	4,89E1	2,93E1	−1,15E2
Use of secondary materials	kg	1,69E1	0E0	1,49E−3	1,69E1	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,51E1	0E0	1,25E−1
Use of renewable secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of non-renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	4,04E0	1,3E−2	1,04E−1	4,16E0	2,94E−2	MND	MND	MND	MND	MND	MND	MND	MND	4,01E−3	1,47E−2	5,94E−3	3,18E−2	−9,3E−1

PER abbreviation stands for primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	4,43E0	6,19E−2	1,83E−1	4,68E0	1,37E−1	MND	MND	MND	MND	MND	MND	MND	MND	4,88E−2	6,87E−2	0E0	2,72E−2	−5,1E−1
Non-hazardous waste	kg	9,93E1	6,61E0	4,67E1	1,53E2	1,52E1	MND	MND	MND	MND	MND	MND	MND	MND	5,22E−1	7,6E0	0E0	1,98E2	−2,02E1
Radioactive waste	kg	3,39E−3	4,32E−4	3,49E−4	4,17E−3	9,71E−4	MND	MND	MND	MND	MND	MND	MND	MND	3,18E−4	4,86E−4	0E0	1,92E−4	−4,28E−4

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for reuse	kg	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8,02E2	0E0	0E0
Materials for energy recovery	kg	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

Key information table (RTS) – key information per kg of product

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change – total	kg CO_2e	1,32E−1	3,9E−3	4,33E−3	1,41E−1	8,71E−3	MND	MND	MND	MND	MND	MND	MND	MND	3,3E−3	4,36E−3	3,5E−3	1,04E−3	−6,74E−3
Abiotic depletion, minerals & metals	kg Sbe	1,19E−6	7,17E−8	8,54E−9	1,27E−6	1,55E−7	MND	MND	MND	MND	MND	MND	MND	MND	5,03E−9	7,75E−8	2,54E−8	9,51E−9	−7,18E−7
Abiotic depletion of fossil resources	MJ	7,18E−1	6,23E−2	9,51E−2	8,75E−1	1,4E−1	MND	MND	MND	MND	MND	MND	MND	MND	4,48E−2	6,99E−2	4,79E−2	2,9E−2	−9,43E−2
Water use	m^3e depr.	4,04E−3	1,3E−5	1,04E−4	4,16E−3	2,94E−5	MND	MND	MND	MND	MND	MND	MND	MND	4,01E−6	1,47E−5	5,94E−6	3,18E−5	−9,3E−4
Use of secondary materials	kg	1,69E−2	0E0	1,49E−6	1,69E−2	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,51E−2	0E0	1,25E−4
Biogenic carbon content in product	kg C	N/A	N/A	0E0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic carbon content in packaging	kg C	N/A	N/A	0E0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, run-of-river (Reference product: electricity, high voltage), Ecoinvent v3.6, Sweden, year: 2019.
GWP-value for Electricity	0.0039 kg CO_2e / kWh

Transport scenario documentation

Scenario parameter	Value
A4 specific transport CO_2e emissions, kg CO_2e / tkm	0.0871
A4 average transport distance, km	100

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	1000 kg
Collection process – kg collected with mixed waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	802.4 kg
Recovery process – kg for energy recovery	-
Disposal (total) – kg for final deposition	197.6 kg
Scenario assumptions e.g. transportation	Assume energy use to 10 kWh/ton element for demolition. Assume 50 km to the closest recycle facility for construction material.

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ABOUT THE MANUFACTURER

Abetong AB is one of the country's leading companies for the development, manufacture and sale of concrete elements and concrete-based products. The company employs more than 500 employees and has a turnover of approximately SEK 1.3 billion per year and is part of the international building materials group Heidelberg Cement. The company's production of concrete elements and products takes place in a responsible manner in one of the six factories. The finished parts are then transported out to construction sites, where Abetong or the customer handles the assembly. Customers are found in both the construction and agriculture sectors.

EPD AUTHOR AND CONTRIBUTORS

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EPD program operator	Building Information Foundation RTS / Building Information Ltd. Malminkatu 16 A, A00100 Helsinki, Finland http://cer.rts.fi
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Cementitious Products

ANNEX: Environmental Impacts – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential	kg CO_2e	1,3E2	3,87E0	4,23E0	1,38E2	8,63E0	MND	MND	MND	MND	MND	MND	MND	MND	3,27E0	4,32E0	3,49E0	1,02E0	−6,56E0
Depletion of stratospheric ozone	kg CFC11e	4,92E−6	7,57E−7	8,76E−7	6,56E−6	1,7E−6	MND	MND	MND	MND	MND	MND	MND	MND	5,63E−7	8,5E−7	5,84E−7	3,4E−7	−5,43E−7
Acidification	kg SO_2e	2,69E−1	9,45E−3	2,08E−2	3E−1	1,85E−2	MND	MND	MND	MND	MND	MND	MND	MND	4,87E−3	9,25E−3	7,46E−3	4,12E−3	−2,68E−2
Eutrophication	kg $(PO_4)^3$e	9,41E−2	1,79E−3	1,68E−3	9,75E−2	3,74E−3	MND	MND	MND	MND	MND	MND	MND	MND	8,57E−4	1,87E−3	1,97E−3	7,97E−4	−1,44E−2
Photochemical ozone formation	kg C_2H_4e	1,29E−2	5,06E−4	5,71E−4	1,4E−2	1,06E−3	MND	MND	MND	MND	MND	MND	MND	MND	5,01E−4	5,32E−4	6,1E−4	3,02E−4	−2,3E−3
Abiotic depletion of non-fossil res.	kg Sbe	1,19E−3	7,17E−5	8,54E−6	1,27E−3	1,55E−4	MND	MND	MND	MND	MND	MND	MND	MND	5,03E−6	7,75E−5	2,54E−5	9,51E−6	−7,18E−4
Abiotic depletion of fossil resources	MJ	7,18E2	6,23E1	9,51E1	8,75E2	1,4E2	MND	MND	MND	MND	MND	MND	MND	MND	4,48E1	6,99E1	4,79E1	2,9E1	−9,43E1