

Environmental Product Declaration



THE INTERNATIONAL EPD® SYSTEM



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

Pre-stressed T-Beams

Sector EPD

EPD of multiple products, based on a representative product



Programme:	The International EPD® System, www.environdec.com
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): EN 15804 +A2: 2019, EN 16757: 2022, and PCR 2019:14-c-PCR-003 Concrete & Concrete Elements (Version 1.0.0)
PCR review was conducted by: The Technical Committee of the International EPD® System. See https://www.environdec.com/about-us/the-international-epd-system-about-the-system for a list of members. The review panel may be contacted via the Secretariat www.environdec.com/contact
Life Cycle Assessment (LCA)
LCA accountability: Mineral Products Association (MPA), http://mineralproducts.org/
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: <i>Jane Anderson, ConstructionLCA</i> Approved by: The International EPD® System
OR
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Mineral Products Association (MPA), 1st Floor, 297 Euston Road, London NW1 3AD, UK.

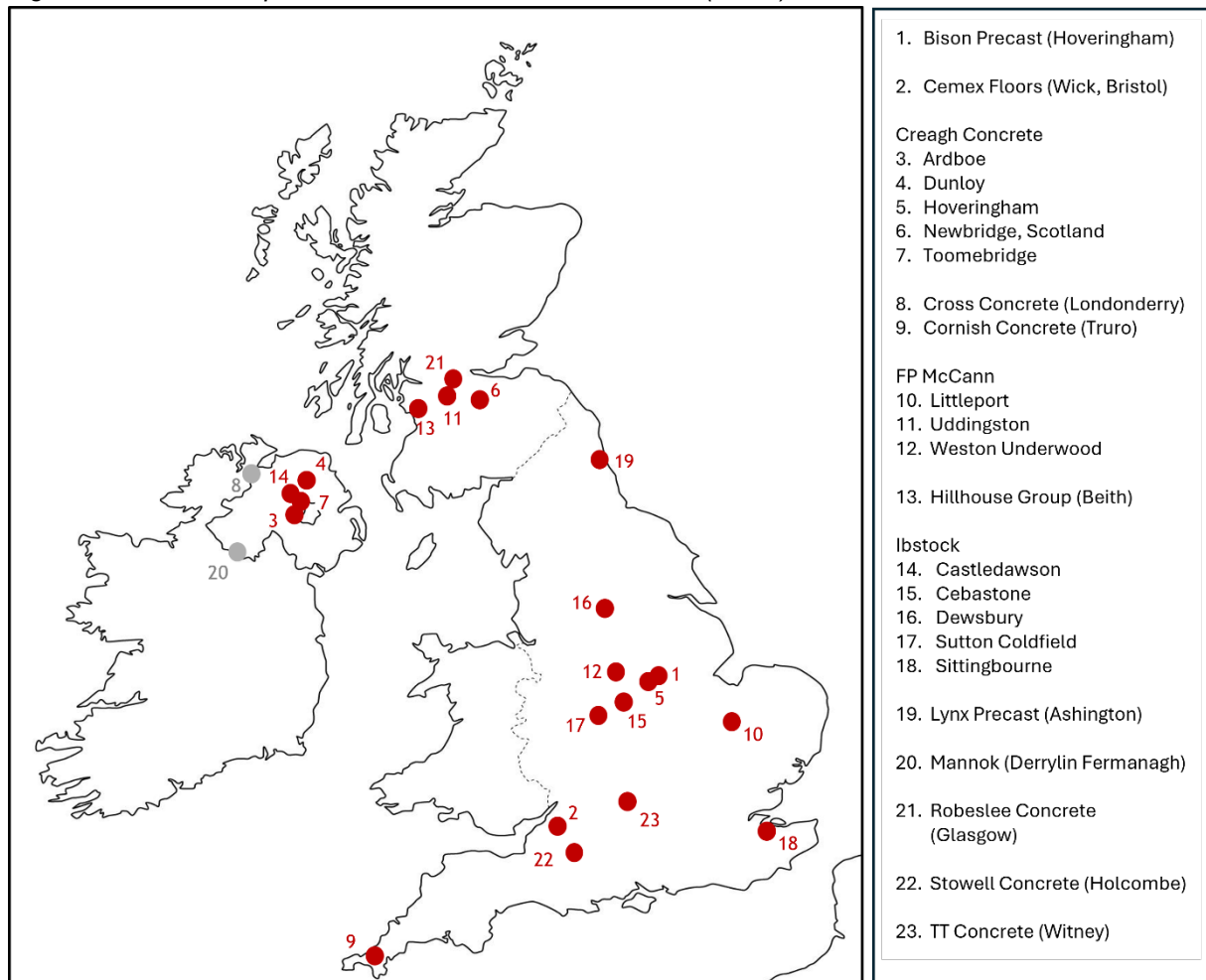
Contact: Dr Hafiz Elhag (hafiz.elhag@mineralproducts.org)

Description of the organisation: The Mineral Products Association (MPA) is the UK industry trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and industrial sand industries. MPA covers 100% of UK cement and lime production, 90% of GB aggregates production, 95% of asphalt, and 70% of ready mixed and precast concrete production in the UK.

Product-related or management system-related certifications: MPA is a trade association. The data has been provided by MPA members. >89% of MPA Precast/ Masonry production sites are certified to both ISO 9001 and ISO 14001. 85.9% of MPA precast/ masonry production is certified to BES 6001.

Name and location of production site(s): The following companies, with their production sites as highlighted in red in the map, were included:

Figure 1. Location map of sites included in the assessment (in red).



Bison Precast, Cemex Floors, Creagh Concrete, Cornish Concrete, FP McCann, Beith Precast Products (Hillhouse Group), lbstock, Lynx Precast, Robeslee Concrete, Stowell Concrete, TT Concrete.

Product information

Product name: Pre-stressed T-beams (EPD of multiple products, based on a representative product)

Product identification: 150mm deep pre-stressed T-beams have a density of around 2430 kg/ m³. T-beams are manufactured to EN 15037 with compressive strengths exceeding 50 MPa, thermal conductivity: 2 W/ mK. Its constituents include CEM I, blended CEM II A-L, fly ash, GGBS, limestone fines/ Betocarb, fine and coarse aggregates, water and prestressing steel reinforcement.

Product description: The T-beams are made of precast concrete with prestressed strand and wire reinforcement. T-beams are used with blocks to form one of the most popular suspended flooring solutions in housing in the UK, especially for ground floors (as well as first floors) in dwellings. A concrete structural topping or screed is usually applied on top of a Beam & Block flooring solution.

UN CPC code: 3755 Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone.

Geographical scope: United Kingdom.

LCA information

Functional unit / declared unit: 1 linear metre of 150mm precast prestressed T-beam.

Reference service life: 100 years.

Time representativeness: 2023 (with some datapoints for some sites from 2017, 2022 and 2024).

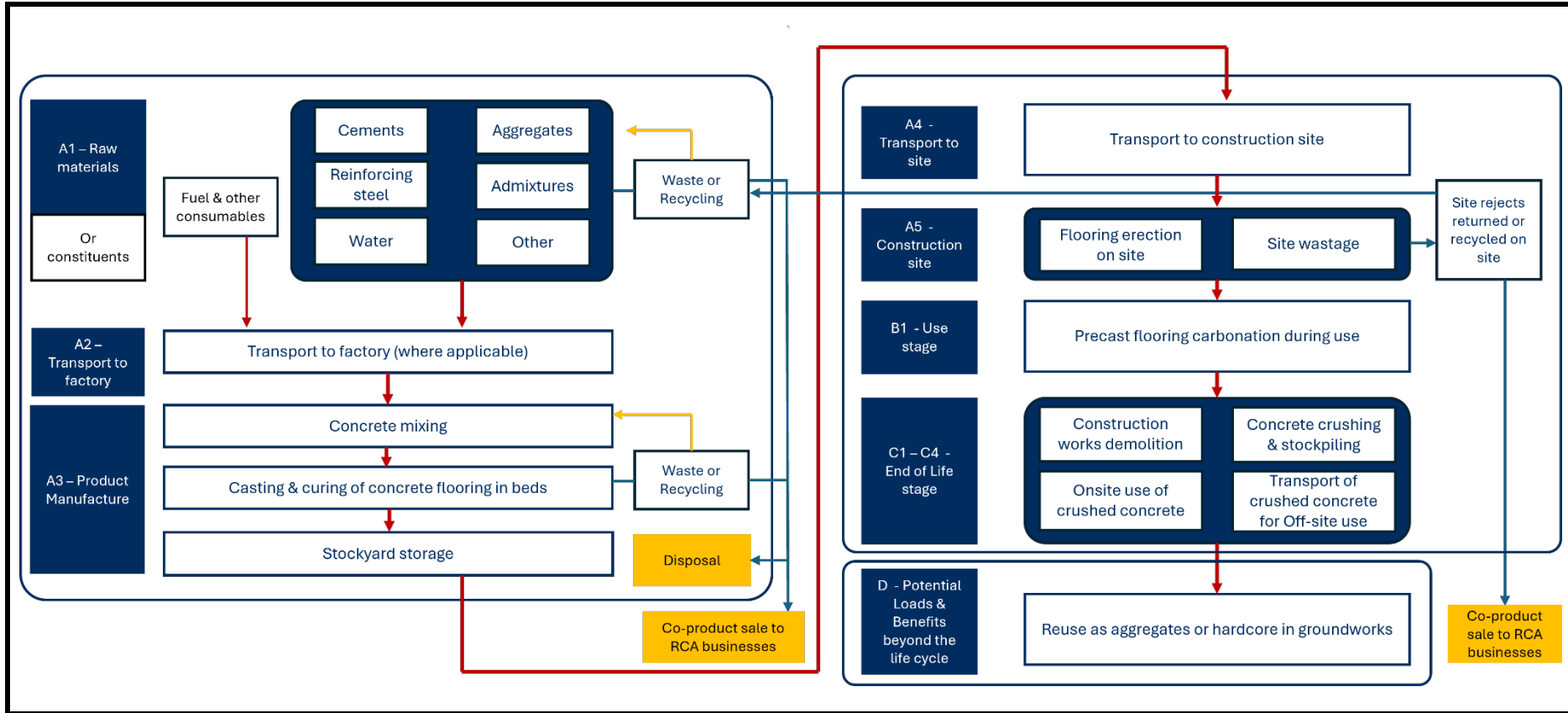
Database(s) and LCA software used: One Click LCA EF3.1 (Ecoinvent 3.10.1)

Description of system boundaries:

System boundary is for cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules A4, A5, and B1). Modules A1-to-A3 are based on production and sales data aggregates across MPA Precast member companies' sites, including input flows such as raw materials, fuels and other consumables and output flows (production flows, material losses and other outputs). A4 stage accounts for emissions associated with transport of beams to construction site. The scenarios adopted for modules A5 and B1 are based on the methods described in EN 15804 and EN 15941, looking at impacts only related with the beams. Use of blocks (for beam & block flooring), structural toppings or screed is outside the scope of this EPD. Modules C (end-of-life), and Module D (potential loads & benefits), are based on typical UK practice for demolition and recovery up to the point of End-of-Waste, as defined in EN 16757, focussing on the impact associated with the pre-stressed T-beams only: mainly impacts associated with demolition and crushing, and CO₂ removal via carbonation of the crushed concrete. Carbonation was calculated in accordance with EN 16757 for modules B1, C1, C3 and in secondary use beyond the system boundaries (see additional information).

System diagram:

Figure 3. Study Boundary for all life cycle modules considered and information module D.



Data quality

Life Cycle Inventory (LCI) data, and other main elementary flows (quantity) data, was collected directly from sites as part of MPA’s Sustainability Strategy initiative, covering all prestressed flooring production in all 21 factories throughout 2023. For one company, data from 2022 and 2024 was used to make up for missing data associated with the concrete mix. Specific data was used for the prestressing steel, using EPDs from specific suppliers identified by member companies and prestressing steel experts. All datasets used are compatible with Ecoinvent 3.10. Overall, the data quality can be described as **Very Good**. A4 scenario was based on companies’ own delivery data. A5 data was based on craneage assumptions from another recent precast flooring EPD. B1 scenarios were based on exposure from the beams’ bottom side. C1-C4 scenarios were based on statistics shared by NFDC and EN 16757.

Cut off rules

Cut-off rules employed are in accordance with EN 15804 where a cut-off criteria of 1% (for renewable and non-renewable primary energy usage and total mass input) was maintained. The total of neglected input flows per module do not exceed 5% of energy usage or mass.

Some capital goods and infrastructure impacts associated with factory equipment, on-site wind turbines (A3), and transport (A4) are cut off in accordance with the EPD International PCR.

Modules A1-A3 Manufacture

Allocation:

A1-A2: Co-product allocation for fly ash and Ground Granulated Blast-furnace Slag (GGBS) is based on economic allocation.

A3: Co-products, A physical allocation approach for factory-related emissions (using mass) is employed.

Electricity mix:

Some of the electricity used by MPA members for the manufacture of T-beams is either generated on-site or backed by Renewable Energy Guarantees of Origin (REGOs), issued by Ofgem. These also include transmission and distribution losses:

Electricity	Renewable (REGOs)	Renewable (generated on-site)	Residual mix	Total
kWh/m	0.024	0.011	0.280	0.314

The grid mix for REGO and other renewable generation is based on statistics published by the UK government Department for Energy Security and Net Zero (DESNZ) for 2023.

REGO electricity source	Onshore wind	Offshore wind	Solar	Hydro	Bioenergy & waste
	24.02%	36.57%	10.21%	4.07%	25.12%

The corresponding climate impact, GWP-GHG, associated with the overall electricity mix at A3 is **~0.547 kg CO₂e/ kWh**.

Module A4: Transport to construction site

Pre-stressed T-beams are transported to construction sites using Euro6 32+ lorries, fully laden. Multiple deliveries may be carried out in a single journey. Distance to site is based on MPA Precast KPI data submissions.

Scenario parameter (A4)	Quantity	Unit
Specific transport CO ₂ e emission factor	0.08997	kg CO ₂ e/ tkm
Distance to site	123.47	km

Module A5: Construction process

Almost all site wastage is returned to factory and is already accounted for in the primary data used for A1-to-A3. Cranage energy was accounted for using data from a similar EPD.

Scenario parameter (A5)	Quantity	Unit
Site wastage rate (accidental loss)	0.009	%
Cranage (lifting of units per DU)	0.114	kWh
Transport distance for product wastage	30	km

Module B1 Use stage

T-beams would be expected to carbonate through its bottom side. However, with indoor exposure, the degree of carbonation (D_c) is only 40%.

Scenario parameter (B1)	Quantity	Unit
T-beams CO ₂ uptake (carbonation)	0.352	Kg CO ₂ / m

Modules C1-C4 End-of-Life

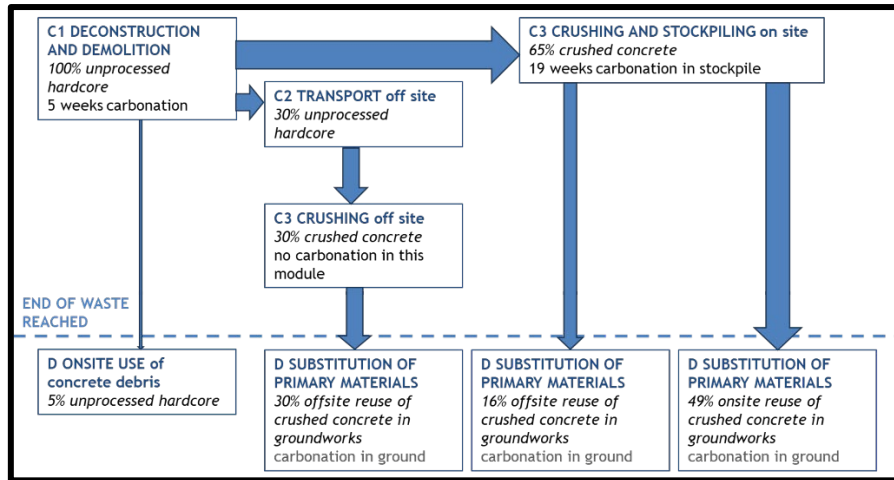
End-of-Life scenarios are based on the National Federation of Demolition Contractors (NFDC) statistics (see Figure 3). It is assumed that 95% of the concrete is processed post-demolition and then crushed to a 6F2 specification. The unprocessed material first remains on site for 5 weeks.

- Around 65% of the concrete is then crushed and recycled onsite, remaining at the demolished structure's (e.g. home) site for an average period of 19 weeks prior to being used on-site as hardcore for site reinstatement.
- Around 30% of the demolished masonry is transported for further treatment and processing.
- Around 5% is left unprocessed at the demolition site.

Carbonation takes place at two stages: At C1, when the building is first demolished, and at C3 when the crushed concrete is further processed and managed until it is no longer waste or until demolition and site reinstatement works are complete. All carbonation calculations were carried out in accordance with the methodology introduced in EN 16757.

Scenario parameter (C1-C4)	Quantity	Unit
Diesel use for crushing and processing operations (up to end-of-waste)	0.067	kWh/ m
Transport for waste concrete treatment	25	km
CO ₂ uptake (carbonation) at C1	0.0001	kg CO ₂ /m
CO ₂ uptake (carbonation) at C3	0.382	kg CO ₂ /m

Figure 4. Typical flows of end-of-life concrete during modules C and D (NFDC, 2023).



Module D Loads & Benefits beyond the System Boundary

Substitution of virgin materials (aggregates) by the crushed concrete from the demolished building (e.g. home) is based on 95% of the total mass of concrete. Substitution of any virgin steel content from reinforcement is also accounted for.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	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	
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	X	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	UK	UK	UK	UK	UK	-	-	-	-	-	-	-	UK	UK	UK	UK	UK
Specific data used	15%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	N/A			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	+17.0% ⁽¹⁾ /-22.1%			0%	0%	-	-	-	-	-	-	-	-	-	-	-	-

(1) Production sites with the higher A1-to-A3 GWP-GHG limit collectively make up ≤2% of the overall production covered in the LCI (by volume and mass). Variations are mainly due to products' concrete mix and fuels used in A3

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg*
CEM I	2.06	0.036%	-
CEM II A-L	3.12	0.046%	-
Fly ash	<0.01	-	-
GGBS	0.03	-	-
Betocarb	0.06	-	-
Other limestone fines	0.41	-	-
Water	2.00	-	-
Primary aggregate (coarse)	12.24	-	-
Primary aggregate (fine)	11.26	-	-
Secondary aggregates	0.38	1.14%	-
Limestone aggregates	1.3	-	-
Admixture	0.03	-	-
Steel wire & strand	0.5	-	-
TOTAL	33.4	1.22%	0%
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
None	0	-	-

*1kg biogenic C converts to 3.667 kg CO₂.

T-beams do not contain substances from the candidate list of SVHC for authorization in levels above 0.1% by weight.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil ⁽²⁾	kg CO ₂ eq.	4.92E+00	3.49E-01	3.75E-04	-3.52E-01	ND	ND	ND	ND	ND	ND	2.40E-02	3.18E-02	-1.50E-01	1.04E-02	-1.57E-01
GWP-biogenic	kg CO ₂ eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO ₂ eq.	2.99E-03	1.36E-04	2.81E-07	0.00E+00	ND	ND	ND	ND	ND	ND	2.47E-06	1.24E-05	2.38E-05	5.96E-06	4.14E-05
GWP-total	kg CO ₂ eq.	4.93E+00	3.50E-01	3.75E-04	-3.52E-01	ND	ND	ND	ND	ND	ND	2.40E-02	3.18E-02	-1.50E-01	1.04E-02	-1.57E-01
ODP	kg CFC 11 eq.	1.13E-07	7.29E-09	1.08E-11	0.00E+00	ND	ND	ND	ND	ND	ND	3.69E-10	6.63E-10	3.55E-09	3.02E-10	-5.17E-09
AP	mol H ⁺ eq.	1.49E-02	8.25E-04	1.42E-06	0.00E+00	ND	ND	ND	ND	ND	ND	2.17E-04	7.50E-05	2.09E-03	7.39E-05	-6.48E-04
EP-freshwater	kg P eq.	4.68E-04	2.44E-05	4.44E-08	0.00E+00	ND	ND	ND	ND	ND	ND	6.95E-07	2.22E-06	6.70E-06	8.57E-07	-5.44E-05
EP-marine	kg N eq.	1.63E-03	2.16E-04	1.68E-07	0.00E+00	ND	ND	ND	ND	ND	ND	1.01E-04	1.97E-05	9.72E-04	2.82E-05	-2.14E-04
EP-terrestrial	mol N eq.	4.74E-02	2.34E-03	4.49E-06	0.00E+00	ND	ND	ND	ND	ND	ND	1.10E-03	2.13E-04	1.06E-02	3.08E-04	-2.38E-03
POCP	kg NMVOC eq.	1.30E-02	1.43E-03	1.30E-06	0.00E+00	ND	ND	ND	ND	ND	ND	3.29E-04	1.30E-04	3.17E-03	1.10E-04	-7.61E-04
ADP-minerals& metals*	kg Sb eq.	4.15E-06	1.00E-06	4.64E-10	0.00E+00	ND	ND	ND	ND	ND	ND	8.63E-09	9.09E-08	8.32E-08	1.66E-08	-3.25E-08
ADP-fossil*	MJ	2.96E-01	5.25E+00	3.14E-03	0.00E+00	ND	ND	ND	ND	ND	ND	3.15E-01	4.77E-01	3.04E+00	2.56E-01	-1.35E+00
WDP*	m ³	4.74E-01	2.69E-02	4.51E-05	0.00E+00	ND	ND	ND	ND	ND	ND	7.87E-04	2.44E-03	7.58E-03	7.38E-04	-2.52E-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 of these results are high or as there is limited experience with the indicator.

⁽²⁾ The indicated Global Warming Potential fossil fuels (GWP-fossil) value includes GHG emissions from combustion of both fossil and waste-derived fuels during cement manufacture. The A1-A3 'net' (or cut-off-by-Classification) value of GWP-fossil, excluding combustion of waste-derived fuel, is **4.51 kg CO₂e/ linear metre**.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ³	kg CO ₂ eq.	4.93E+00	3.50E-01	3.75E-04	-3.52E-01	ND	ND	ND	ND	ND	ND	2.40E-02	3.18E-02	-1.50E-01	1.04E-02	-1.57E-01

Additional voluntary environmental impact indicators (EN 15804, Table 4) are not declared.

Resource use indicators

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	4.66E+00	8.54E-02	4.27E-04	0.00E+00	ND	ND	ND	ND	ND	ND	1.99E-03	7.77E-03	1.92E-02	2.47E-03	1.01E-01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4.66E+00	8.54E-02	4.27E-04	0.00E+00	ND	ND	ND	ND	ND	ND	1.99E-03	7.77E-03	1.92E-02	2.47E-03	1.01E-01
PENRE	MJ	2.90E+01	5.25E+00	3.08E-03	0.00E+00	ND	ND	ND	ND	ND	ND	3.15E-01	4.77E-01	3.04E+00	2.56E-01	-1.35E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.90E+01	5.25E+00	3.08E-03	0.00E+00	ND	ND	ND	ND	ND	ND	3.15E-01	4.77E-01	3.04E+00	2.56E-01	-1.35E+00
SM	kg	1.15E+00	2.27E-03	1.04E-04	0.00E+00	ND	ND	ND	ND	ND	ND	1.31E-04	2.06E-04	1.26E-03	6.43E-05	1.00E-01
RSF	MJ	2.02E+00	2.86E-05	1.81E-04	0.00E+00	ND	ND	ND	ND	ND	ND	3.42E-07	2.60E-06	3.30E-06	1.33E-06	5.11E-06
NRSF	MJ	3.72E+00	0.00E+00	3.35E-04	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	1.77E-02	7.75E-04	1.66E-06	0.00E+00	ND	ND	ND	ND	ND	ND	2.08E-05	7.04E-05	2.01E-04	2.66E-04	-4.85E-04

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 CO₂ is set to zero.

Waste indicators

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2.15E-02	7.59E-03	2.62E-06	0.00E+00	ND	ND	ND	ND	ND	ND	3.51E-04	6.90E-04	3.38E-03	2.83E-04	6.12E-03
Non-hazardous waste disposed	kg	6.79E+00	1.52E-01	6.25E-04	0.00E+00	ND	ND	ND	ND	ND	ND	4.78E-03	1.38E-02	4.61E-02	6.46E-03	-3.43E-01
Radioactive waste disposed	kg	5.77E-05	1.56E-06	5.33E-09	0.00E+00	ND	ND	ND	ND	ND	ND	3.42E-08	1.42E-07	3.30E-07	3.92E-08	1.35E-06

Output flow indicators

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.78E+00	0.00E+00	2.05E-04	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	3.23E+01	0.00E+00	0.00E+00
Materials for energy recovery	kg	4.39E-03	0.00E+00	3.95E-07	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other environmental performance indicators

None declared.

Additional environmental information

Further T-beam Carbonation beyond system boundaries

95% of the Declared Unit is crushed and reused in groundworks at End-of-Life, either within the demolished building site, or offsite. By assuming a 6F2 distribution for the recycled concrete and a “Buried in ground (above groundwater level)” exposure condition, and by considering a Secondary Life extended over 100 years, the additional carbonation beyond the system boundary would be **-0.879 kg CO₂ /linear metre**. This calculation was carried out in accordance with Annex G of EN 16757.

Overall CO₂ uptake in T-beam (100 years RSL).

LIFECYCLE STAGE	CO ₂ uptake	
	Kg CO ₂ / metre of T-beam	Kg CO ₂ / tonne of T-beam
Module A3	-0.038	-1.138
Module B1	-0.352	-10.539
Module C1	-0.0001	-0.003
Module C3	-0.382	-11.437
Total (Modules A-C)	-0.772	-23.114
Secondary Use (beyond system boundary)	-0.879	-26.317
Total (all modules including secondary use)	-1.651	-49.431

T-beam 60-year RSL carbonation at Use stage (B1)

The RICS Whole Life Carbon Assessment (WLCA) Professional Standard accounts for buildings’ service life of 60 years. Module B1 CO₂ uptake due to carbonation would be lower in such case, at around **-0.273 kg CO₂/ linear metre of T-beam** (-8.16 kg CO₂/ tonne of T-beam).

Information related to Sector EPD

This sector EPD is for a specific product, which is UK-produced prestressed T-beams (150mm). This EPD was modelled using collective average data from production sites where mainly prestressed precast products are manufactured. 2023 production data was used to produce a weighted average for the raw materials’ mix. The data used represents 62% to 66% of the total UK production and market for prestressed precast flooring.

The GWP-fossil values reported in this EPD are based on ‘gross’ CO₂e emissions i.e., they include combustion emissions from both fossil and waste-derived fuels (also called ‘alternative’ or ‘secondary’ fuels) during the manufacture of cement. An equivalent ‘Net’ (*Cut-off by Classification*) GWP-fossil value, which excludes waste-derived fuel emissions in accordance with the Polluter Pays principle, is also reported as recommended in EN 16908 (**4.51 kg CO₂e/ m²** or **134.7 kg CO₂e/ tonne** for A1-A3). When comparing with alternative non-concrete construction solutions’ EPDs, it is important to note that the ‘Net’ GWP value offers a fairer basis for such comparisons.

The LCA indicators for T-beam in this sector EPD are intended to provide the basis for the environmental assessment of buildings and other construction works in typical UK situations and in accordance with national recognised standards, such as the UK RICS WLCA standard. Such assessment should consider the whole life cycle: Modules A1-A3 should not be used alone without

considering results from Module C. 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 declared product is an average that is not available for purchase on the market and that the results are not representative for any specific manufacturer or its products.

For very detailed calculations requiring LCA data for specific manufacturer mixes and densities, please refer to EPDs from the individual manufacturer.

Differences versus previous versions

- Product description: "...multi-storey construction)" changed to "...first floors) in dwellings".
- Electricity mix table: "kWh/m³" changed to "kWh/m".
- Module A5 table craneage value: "1.114" changed to "0.114" (typo mistake).
- Module B1 table: kg CO₂/m²" changed to kg CO₂/m".
- Scenario parameter (C1-C4) table: change of all " /m²" units to " /m".
- Mandatory impact indicators table: Mix up in the labels for all four GWP indicators corrected.
- Overall CO₂ uptake in T-beam Table: Change of "kg CO₂/ metre" in 3rd column unit to "kg CO₂/ tonne".
- Overall CO₂ uptake in T-beam Table: Change in total (all modules including secondary use) value from "-0.772" to "-1.651" (typo mistake).
- T-beam 60-year RSL carbonation paragraph: Change "0.273" and "8.16" to "-0.273" and "-8.16".

References

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