

Net Zero Carbon Public Disclosure

PEEZ3001 Units 1a & 1b, Crewe Commercial Park (PLP)

September 2020

Introduction

This report has been prepared by Turley Sustainability, on behalf of PLP, to provide the necessary information for public disclosure to demonstrate how net zero carbon performance has been achieved for the development of Units 1a and 1b, Crewe Commercial Park, in accordance with the *UK Green Building Council Net Zero Carbon Buildings Framework*. Practical completion took place in July 2020, following which both units now let to Brightstar Corporation.

Figure 1: Completed Units 1a & 1b, Crewe Commercial Park [PLP]



Net Zero Construction

Construction carbon has been assessed at design and 'as built' stages using licensed OneClick LCA software and in accordance with *RICS Guidance on Whole Life Carbon Assessment for the Built Environment (2017)*. Total 'as built' construction carbon for both units is calculate to be 4,226 tonnes of carbon dioxide equivalent (tCO₂e), breaking down to 2,692 (Unit 1a) and 1,288 tCO₂e (Unit 1b). A reduction in construction carbon of circa 2% has been achieved at design stage through the specification of low carbon products including Twin Therm external walls and Interface carpet tiles. The relatively late stage in design at which construction carbon was considered for this project constrained wider opportunities for construction carbon reduction.

Net zero construction has been achieved for the development through the procurement by PLP of high quality carbon offset credits from Natural Capital Partners, experts in carbon neutrality and climate finance. A 50/50 blend of offset credits from two projects was chosen by PLP comprising 'Improved Cookstoves, Bangladesh' under the Clean Development Mechanism (CDM) and 'Asian Wind/Solar' under the Verified Carbon Standard (VCS) and CDM. The following tables provide the assessment details, assumptions, building coverage, LCA results and offsets separately for Units 1a and 1b, and all data sources from OneClick LCA used in the assessment are provided in **Appendix A**.

In addition to achieving *net zero construction* in accordance with the UKGBC Framework, the development has also been certified as **CarbonNeutral® development** in line with requirements of Natural Capital Partner's CarbonNeutral Protocol (January 2020). This certification provide an additional 'badge' and verification.



'Net Zero Ready' Operation

As well as achieving *net zero construction*, the buildings have been designed to minimise operational energy demand and carbon emissions beyond the requirements of planning policy and Building Regulations in accordance with the UKGBC Framework's '*net zero ready*' concept. The operational energy measures including the provision of low carbon heating (heat pump) for space and water heating in office areas rather than higher carbon gas boilers, and a doubling of the amount of building integrated solar PV required by local planning policy. Combined with a high performance building envelope (in terms of U values, air tightness and roof lights etc.), both units have high operational energy efficiency performance including 'A' rated EPCs.

Furthermore, the units are designed to accommodate the future installation by tenants of additional solar PV and also battery storage thereby promoting future-proofing and adaptability.

Tenants therefore have the opportunity to achieve *net zero operation* for the buildings by procuring appropriate renewable energy supplies (e.g. Power Purchase Agreement, PPA) and annually disclosing in accordance with the UKGBC Framework.



Unit 1a, Crewe Commercial Park – Project Details

Date of assessment	23 rd September 2020
Verified by	Turley Sustainability
Project type	New build
Assessment objective	Achieve net zero carbon construction
Project location	Unit 1a, Crewe Commercial Park
Date of project completion	21 st July 2020
Property type	Speculative employment / distribution development with ancillary offices (Use Classes B1, B2 and B8)
Building description	Warehouse / distribution units with associated office
Size	Unit 1a comprises 9,094 m ² speculative warehouse and associated offices for B1, B2 and B8 use.
Project design life	60 years
Assessment scope	Construction Carbon, Life Stage Modules A1 – A5 for base build only. Tenant fit out is excluded.
Data sources	See Appendix A

Unit 1a, Crewe Commercial Park – Building Element Coverage, Assumptions & Scenarios

#	Group	Element	Coverage (%)
0	Facilitating works	0.1 Temporary/Enabling works/Preliminaries 0.2 Specialist groundworks	>95%
1	Substructure	1.1 Substructure	>95%
2	Substructure	2.1 Frame 2.2 Upper floors including balconies 2.3 Roof 2.4 Stairs and ramps	>95%



	Superstructure	2.5 External walls	>95%
	Superstructure	2.6 Windows and external doors	
		2.7 Internal walls and partitions	>95%
		2.8 Internal doors	
3	Finishes	3.1 Wall finishes	
		3.2 Floor finishes	>95%
		3.3 Ceiling finishes	
4	Fittings, furnishings & equipment (FF&E)	Building-related	
		Non-building-related	N/A
5	Building services / MEP	5.1–5.14 Building-related services	>95%
		Non-building related	
6	Prefabricated Buildings & Units	6.1 Prefabricated Buildings and Building Units	N/A
7	Work to existing building	7.1 Minor Demolition and Alteration Works	N/A
8	External works	8.1 Site preparation works	
		8.2 Roads, Paths, Pavings and Surfacing	
		8.3 Soft landscaping, Planting & Irrigation Systems	
		8.4 Fencing, Railings & Walls	
		8.5 External fixtures	
		8.6 External drainage	
		8.7 External Services	
		8.8 Minor Building Works & Ancillary Buildings	>95%

Assumptions and scenarios

Roof lights have maximum weight of 5.4kg/m² (taken from Zenon manufacturer website)
 Gutters assumed to be PVC based on similar projects
 Mesh reinforcement within concrete yard at 80kg/m³ as per pad foundation
 Mass fill assumed under pad foundations at 0.9x volume of concrete within foundations based on similar projects
 Assumed aggregate sub base to ground floor slab at 150mm thickness based on similar projects
 Number of internal lighting units estimated based on similar projects
 Slot drain thickness 300mm
 Ceramic WCs
 Ceramic washbasins
 Shower trays made from synthetic material
 Steel sink in kitchenette / warehouse area



PLP



Building management system installed
Electricity cables estimated by One Click software on a floor area basis
Drinking water supply estimated by One Click software on a floor area basis
Hot and cold water supply estimated by One Click software on a floor area basis
Sewage water drainage estimated by One Click software on a floor area basis
5 electric meters based on experience of similar projects
External lighting mounted on 12m column
Surface water attenuation only
Transport distances used are OneClick LCA default - The One Click software assumes a default distance in kilometres and vehicle for each material category, this is based on regional typical values for the product type. Furthermore, it should be noted that transport emissions account for a very small proportion of embodied carbon emissions and therefore any manual update based on specific suppliers is unlikely to make a significant difference to the results. The transport figures exclude empty return trips as it is assumed that these serve other uses.



Unit 1a, Crewe Commercial Park – Offsets & Results

Offsets

Total embodied carbon (tCO₂e & kgCO₂e/m²) from construction (A1 to A5 of EN15978) at PC

2,868 tCO₂e / 315 kgCO₂e/m²

Total embodied carbon offset (tCO₂e) at practical completion

2,868 tCO₂e

Total embodied carbon cumulatively offset (tCO₂e) in previous years through net export of renewable energy

N/a

Total embodied carbon offset (tCO₂e) this year through net export of renewable energy

N/a

Total outstanding embodied carbon (tCO₂e) balance

N/a

Amount and type of offsets procured this year, including relevant framework used:

50/50 offset blend comprising:
1,434 tCO₂e Bangladesh cook stoves (CDM)
1,434 tCO₂e Asian wind/solar (VCS, CDM)

Expected verification processes:

Construction carbon verified by Turley Sustainability using OneClick LCA.

Cost per tonne CO₂e:

£2.875/tCO₂ (average of offset blend)

The minimum results required for submission are highlighted in blue.
* Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.

Global Warming Potential GWP (tCO₂e)

Product Stage

Construction Process Stage

Biogenic
(sequestered)
carbon

[A]

Building element category

[A1]

[A2]

[A3]

[A4]

[A5]

Demolition prior to construction

0.1 Toxic/Hazardous/Contaminated Material Treatment

N/A

N/A

N/A

0.2 Major Demolition Works



The minimum results required for submission are highlighted in blue. * Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.	Global Warming Potential GWP (tCO ₂ e)					
	Biogenic (sequestered) carbon	Product Stage			Construction Process Stage	
		[A]				
		[A1]	[A2]	[A3]	[A4]	[A5]
Building element category						
Facilitating works 0.3 Temporary Support to Adjacent Structures 0.4 Specialist Ground Works 0.5 Temporary Diversion Works 0.6 Extraordinary Site Investigation		N/A		N/A	N/A	
1 Substructure		773		55	N/A	
Superstructure 2.1 Frame 2.2 Upper Floors 2.3 Roof 2.4 Stairs and Ramps		930		3	N/A	
Superstructure 2.5 External Walls 2.6 Windows and External Doors		247		<1	N/A	
Superstructure 2.7 Internal Walls and Partitions 2.8 Internal Doors		10		<1	N/A	
3 Finishes		27		<1	N/A	
4 Fittings, furnishings & equipment		N/A		N/A	N/A	
5 Services (MEP)		157		<1	N/A	
6 Prefabricated Buildings and Building Units		N/A		N/A	N/A	



The minimum results required for submission are highlighted in blue. * Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.	Global Warming Potential GWP (tCO ₂ e)					
	Biogenic (sequestered) carbon	Product Stage			Construction Process Stage	
		[A]				
		[A1]	[A2]	[A3]	[A4]	[A5]
Building element category						
7 Work to Existing Building		N/A		N/A	N/A	
8 External works		547		35	N/A	
TOTAL	1.2	2,692		123	54	
TOTAL normalised (kgCO₂e/m² or equivalent unit to be stated)	0.13	295		14	6	



Unit 1b, Crewe Commercial Park – Project Details

Date of assessment	23 rd September 2020
Verified by	Turley Sustainability
Project type	New build
Assessment objective	Achieve net zero carbon construction
Project location	Unit 1b, Crewe Commercial Park
Date of project completion	21 st July 2020
Property type	Speculative employment / distribution development with ancillary offices (Use Classes B1, B2 and B8)
Building description	Warehouse / distribution units with associated office
Size	Unit 1a comprises 4,267 m ² speculative warehouse and associated offices for B1, B2 and B8 use.
Project design life	60 years
Assessment scope	Construction Carbon, Life Stage Modules A1 – A5 for base build only. Tenant fit out is excluded.
Data sources	See Appendix A

Unit 1b, Crewe Commercial Park – Building Element Coverage, Assumptions & Scenarios

#	Group	Element	Coverage (%)
0	Facilitating works	0.1 Temporary/Enabling works/Preliminaries 0.2 Specialist groundworks	>95%
1	Substructure	1.1 Substructure	>95%
2	Substructure	2.1 Frame 2.2 Upper floors including balconies 2.3 Roof 2.4 Stairs and ramps	>95%
	Superstructure	2.5 External walls 2.6 Windows and external doors	>95%
	Superstructure	2.7 Internal walls and partitions 2.8 Internal doors	>95%
3	Finishes	3.1 Wall finishes 3.2 Floor finishes 3.3 Ceiling finishes	>95%
4	Fittings, furnishings & equipment (FF&E)	Building-related Non-building-related	N/A
5	Building services / MEP	5.1–5.14 Building-related services Non-building related	>95%
6	Prefabricated Buildings & Units	6.1 Prefabricated Buildings and Building Units	N/A
7	Work to existing building	7.1 Minor Demolition and Alteration Works	N/A
8	External works	8.1 Site preparation works 8.2 Roads, Paths, Pavings and Surfacing 8.3 Soft landscaping, Planting & Irrigation Systems 8.4 Fencing, Railings & Walls 8.5 External fixtures 8.6 External drainage 8.7 External Services 8.8 Minor Building Works & Ancillary Buildings	>95%



Assumptions and scenarios

Roof lights have maximum weight of 5.4kg/m² (taken from Zenon manufacturer website)
Gutters assumed to be PVC based on similar projects
Mesh reinforcement within concrete yard at 80kg/m³ as per pad foundation
Mass fill assumed under pad foundations at 0.9x volume of concrete within foundations based on similar projects
Assumed aggregate sub base to ground floor slab at 150mm thickness based on similar projects
Number of internal lighting units estimated based on similar projects
Slot drain thickness 300mm
Ceramic WCs
Ceramic washbasins
Shower trays made from synthetic material
Steel sink in kitchenette / warehouse area
Building management system installed
Electricity cables estimated by One Click software on a floor area basis
Drinking water supply estimated by One Click software on a floor area basis
Hot and cold water supply estimated by One Click software on a floor area basis
Sewage water drainage estimated by One Click software on a floor area basis
5 electric meters based on experience of similar projects
External lighting mounted on 12m column
Surface water attenuation only
Transport distances used are OneClick LCA default - The One Click software assumes a default distance in kilometres and vehicle for each material category, this is based on regional typical values for the product type. Furthermore, it should be noted that transport emissions account for a very small proportion of embodied carbon emissions and therefore any manual update based on specific suppliers is unlikely to make a significant difference to the results. The transport figures exclude empty return trips as it is assumed that these serve other uses.



Unit 1b, Crewe Commercial Park – Offsets & Results

Offsets	Amount
Total embodied carbon (tCO ₂ e & kgCO ₂ e/m ²) from construction (A1 to A5 of EN15978) at PC	1,288 tCO ₂ e / 302 kgCO ₂ e/m ²
Total embodied carbon offset (tCO ₂ e) at practical completion	1,288 tCO ₂ e
Total embodied carbon cumulatively offset (tCO ₂ e) in previous years through net export of renewable energy	N/a
Total embodied carbon offset (tCO ₂ e) this year through net export of renewable energy	N/a
Total outstanding embodied carbon (tCO ₂ e) balance	N/a
Amount and type of offsets procured this year, including relevant framework used:	50/50 offset blend comprising: 644 tCO ₂ e Bangladesh cookstoves (CDM) 644 tCO ₂ e Asian wind/solar (VCS, CDM)
Expected verification processes:	Construction carbon verified by Turley Sustainability using OneClick LCA.
Cost per tonne CO ₂ e:	£2.875/tCO ₂ (average of offset blend)

The minimum results required for submission are highlighted in blue. * Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.	Global Warming Potential GWP (tCO ₂ e)					
	Biogenic (sequestered) carbon	Product Stage			Construction Process Stage	
		[A1]	[A2]	[A3]	[A4]	[A5]
Building element category						
Demolition prior to construction						
0.1 Toxic/Hazardous/Contaminated Material Treatment		N/A		N/A	N/A	
0.2 Major Demolition Works						



The minimum results required for submission are highlighted in blue. * Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.	Global Warming Potential GWP (tCO ₂ e)					
	Biogenic (sequestered) carbon	Product Stage			Construction Process Stage	
		[A]				
		[A1]	[A2]	[A3]	[A4]	[A5]
Building element category						
Facilitating works 0.3 Temporary Support to Adjacent Structures 0.4 Specialist Ground Works 0.5 Temporary Diversion Works 0.6 Extraordinary Site Investigation		N/A		N/A	N/A	
1 Substructure		378		27	N/A	
Superstructure 2.1 Frame 2.2 Upper Floors 2.3 Roof 2.4 Stairs and Ramps		409		3	N/A	
Superstructure 2.5 External Walls 2.6 Windows and External Doors		139		<1	N/A	
Superstructure 2.7 Internal Walls and Partitions 2.8 Internal Doors		5		<1	N/A	
3 Finishes		14		<1	N/A	
4 Fittings, furnishings & equipment		N/A		N/A	N/A	
5 Services (MEP)		94		<1	N/A	
6 Prefabricated Buildings and Building Units		N/A		N/A	N/A	



The minimum results required for submission are highlighted in blue. * Decarbonisation applicable – report decarbonised values alongside non decarbonised ones.	Global Warming Potential GWP (tCO ₂ e)					
	Biogenic (sequestered) carbon	Product Stage			Construction Process Stage	
		[A]				
		[A1]	[A2]	[A3]	[A4]	[A5]
Building element category						
7 Work to Existing Building		N/A		N/A	N/A	
8 External works		249		13	N/A	
TOTAL	1.2	1,288			43	26
TOTAL normalised (kgCO₂e/m² or equivalent unit to be stated)	0.13	302			10	6



Appendix A – Data Sources (from OneClick LCA)

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Aggregate (crushed gravel), generic, dry bulk density	1600 kg/m3			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	1600	EN15804	-
Air exchanger+heat recovery, 444 liters / s				One Click LCA	-	One Click LCA	ISO14040	-	2011	[LOCAL]	ecoinvent		EN15804	-
Asphalt, generic, compacted	5/95% bitumen-aggregate ratio, 2350 kg/m3			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	2350	EN15804	-
Ceiling heating and cooling system	10.82kg/m2	TAIM	IBU		EPD-TAI-20180163-IBG1-FR	EPD Systèmes de plafonds métalliques en acier utilisés comme plafonds chauffants et rafraîchissants TAIM e.V. - Association des fabricants de plafonds métalliques industriels	EN15804	Verified	2019	[europe]	GaBi	1082	PCR Plafonds métalliques, 07/2014	Only with EN15804
Ceramic tiles, incl. underlayment membrane				One Click LCA		One Click LCA generic construction definitions				[europe]	Other			
Ceramic toilet, French average		Donnee par default	MDEGD	INIES	INIES_D WC 20170317_174246, 6397	MDEGD_FDES	EN15804	-	2017	[france]	ecoinvent		EN15804	EN15804
Ceramic urinal	18kg	Donnee par default	MDEGD	INIES	INIES_DU RI20200413_124246, 16397	MDEGD_FDES	EN15804	verified	2020	[france]	ecoinvent		EN15804	EN15804



Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Ceramic wall tiles	7.5 mm, 3000 kg/m2		Seranit Granit Keramik	International EPD System	S-p-00676	EPD for For Floor Tiles in accordance with EN15804 and ISO14025	EN15804	Verified	2015	[turkey]	ecoinvent	3000	PCR 2012:01 Construction products and Construction services, ver.1.2, 15/03/2013	Only with EN151404
Ceramic washbasin, French average		Donnee par default	MDEGD	INIES	INIES_DL AV20170 317_174 253, 6400	MDEGD_FDES	EN15804	-	2017	[france]	ecoinvent		EN15804	EN15804
Coated steel hatch door	11.67kg/m2	Donnee par default	MDEGD	INIES	INIES_DT RA20191 023_075 349, 12703	MDEGD_FDES	EN15804	verified	2019	[france]	ecoinvent		EN15804	EN15804
Composite water meter	0.867 kg/m2	Donnee par default	MDEGD	INIES	INIES_DC OM2019 0408_13 2430, 10399	MDEGD_FDES	EN15804	verified	2019	[france]	ecoinvent		EN15804	EN15804
Concrete assembly for stairs and elevator shafts per one metre height				One Click LCA		One Click LCA generic construction definitions				[LOCAL]	Other			
Curtain wall assembly, glass with aluminium frame	Thickness of assembly 50 mm			One Click LCA		One Click LCA generic construction definitions				[europe]	Other			
Door, steel	1.23x2.18 m		Novoferm	IBU	EPD-NOV-2013211-D	Multifunktionsüren, Novoterm Rießinger Türenwerke GmbH	EN15804	Verified	2013	[germany]	GaBi		PCR Floor coverings, ver 1/1: 29/10/2012	Only with EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Drinking water supply piping network, per m2 GIFA (factories and logistics buildings)				One Click LCA	-	One Click LCA	EN15804	-	2019	[LOCAL]	ecoinvent		EN15804	-
Electric meter		Donnee par default	MDEGD	INIES	INIES_DC O220170 317_174 339, 6419	MDEGD_FDES	EN15804	verified	2016	[france]	ecoinvent, ELCD		EN15804	EN15804
Electric radiator	per 1kW / unit			One Click LCA	-	One Click LCA	EN15804	-	2019	[LOCAL]	ecoinvent		EN15804	-
Electricity, United Kingdom	SAP 10.1			Bionova		SAP 10.0 / One Click LCA			2019	[unitedKingdom]	ecoinvent			
Elevator, 630 kg capacity, for passenger use		Monospace 500	KONE	-	-	KONE Monospace 500 Environmental product declaration, KONE	ISO14040	Verified	2010	[europe]	-		-	Only with EN15804
Emulsion matt paint for allround interior use	Pigment: Lightfast Pigments, binder: PVA Copolymer emulsion , solvent: Water, 1.443 kg/l, 18m2/l, 0.16 kg/m2	Supermatt White, Almond White, Gardenia, Magnolia , Light Base, Medium Base	Dulux Trade	MRPI	1.1.0002 3.2017	EPD Dulux Trade Supermatt	EN15804	verified	2017	[unitedKingdom]	ecoinvent		EN15804	-
Energy management device, French average		Donnee par default	MDEGD	INIES	INIES_DG ES20170 317_174 345, 6428	MDEGD_FDES	EN15804	-	2016	[france]	ecoinvent, ELCD		EN15804	EN15804
External wood door, 2,1 x 1 m				One Click LCA	-	Bionova	EN15804	-	2011	[LOCAL]	ecoinvent		-	Biogenic CO2 separated



Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Glass façade curtain wall system	max. thickness: 50mm, R: 1.3 W/m2K	R50SG Glass System R50-V130 / R50-H100	Riventi	International EPD System	S-P-01078	EPD Curtain wall system with four configurations R50T / R50SG / R70ST / MODULAR RDS	EN15804	Verified	2017	[spain]	GaBi		PCR 2012:01 Construction products and Construction services, ver. 2.2, 30/05/2017	Only with EN15804
Glass wool insulation panels, unfaced, generic	25 kg/m3 (1.56 lbs/ft3), (applicable for densities: 0-25 kg/m3 (0-1.56 lbs/ft3)), Lambda=0.031 W/(m.K)			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	25	EN15804	-
Glazed steel sink	Long. 860 mm Larg. 500 mm Haut. 140 mm	Donnee par default	MDEGD	INIES	INIES_DE VI201910 04_0805 07, 12560	MDEGD_FDES	EN15804	verified	2019	[france]	ecoinvent		EN15804	EN15804
Gypsum plaster board, regular, generic	6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3)			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	858.0280 607	EN15804	-
High current cable		Donnee par default	MDEGD	INIES	INIES_DC ÅB20190 514_124 404, 10642	MDEGD_FDES	EN15804	-	2019	[france]	ecoinvent		EN15804	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Hot-dip galvanized structural steel	7850 kg/m3		bauforumstahl / Industrieverband Feuerverzinken	IBU	EPD-BFS- 2013017 3-IBG1- DE	Oekobau.dat 2017-I, EPD Feuerverzinkte Baustähle: Offene Walzprofile und Grobbleche bauforumstahl e.V. & Industrieverband Feuerverzinken e.V.	EN15804	verified	2013	[europe]	GaBi	7850	PCR Baustähle, 07/2012	-
In-situ concrete slab assembly				One Click LCA		One Click LCA generic construction definitions				[europe]	Other			
LED lighting	82W	Donnee par default	MDEGD	INIES	INIES_DR ÉG20190 918_145 258, 12417	MDEGD_FDES	EN15804	verified	2019	[france]	ecoinvent		EN15804	EN15804
Mechanical curtain dock shelter	Depth 600 mm, nominal height 3600 mm, nominal width 3450 mm, top curtain 1000 mm, side curtain 700 mm	Crawford DS6060A	Assa Abloy	IBU	EPD-ASA- 2017004 1-IBA1- EN	EPD Crawford DS6060A curtain dock shelter aluminium	EN15804	Verified	2017	[romania]	GaBi		PCR Loading dock and loading dock equipment, 01/2017 (PCR tested and approved by the SVR)	Only with EN15804
Metal-concrete composite decking	C 30/37, included: sheet metal decking, rebar, steel beams and columns share per m2			One Click LCA		One Click LCA generic construction definitions				[europe]	Ecoinvent			

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Non-Alloy Structural Steel (Direct Reduced Iron production route)	0% recycled content		Emirates Steel Industries	BRE	BREG EN EPD000055	EPD Carbon Steel Reinforcing Bar (secondary production route – scrap)Emirates Steel Industries	EN15804	Verified	2015	[unitedArabEmirates]	GaBi	7850	EN15804	-
PIR insulation boards, aluminium foil faced	<= 160 mm, L = 0.0215 W/mK, dens. = 32 kg/m3	Various products	Xtratherm	BRE	BREG EN EPD 000226	EPD Xtratherm UK Ltd	EN15804	Verified	2018	[unitedKingdom]	ecoinvent	32	EN15804	-
PVC rainwater drainage piping network	Diam. Gutter = 153 mm, Diam. Downspout = 100 mm, Wall thickness = 0.70 mm, 0.26 kg/m	Donnee par default	MDEGD	INIES	INIES_DR ÉS20180821_085048,8569	MDEGD_FDES	EN15804	verified	2018	[france]	ecoinvent		EN15804	EN15804
Pipesystem, hot and cold water supply, PEX, per m2 GFA	0.13 kg/m2			One Click LCA	-	Ruuska et al. 2013. Rakennusmateriaalien merkitys rakentamisen ympäristövaikutusten kentässä. VTT.	EN15804	verified	2016	[LOCAL]	GaBi		EN15804	-
Power outlets, high current, French average		Donnee par default	MDEGD	INIES	INIES_DP RI20170317_174353,6440	MDEGD_FDES	EN15804	-	2016	[france]	ecoinvent, ELCD		EN15804	EN15804
Precast concrete paving products	2350 kg/m3		BPCF	IBU	EPD-BPC-20170094-CCD1-EN	EPD UK Manufactured 1 tonne of Generic Precast Concrete Paving Products (Blocks, Slabs, Channels and Kerbs) Produced by members of Interpave a product group of British Precast	EN15804	Verified	2017	[unitedKingdom]	GaBi	2350	PCR Pre-cast concrete components , 07/2014	Only with EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Profiled steel sheeting, coated	0.75 mm		EAPP	IBU	EPD-EPQ-20130236-CBE1-EN	Profiled sheets made of steel for roof, wall and deck constructions EPAQ	EN15804	Verified	2013	[europe]	GaBi	7850	PCR Thin walled profiles and profiled panels of metal, 7/2013	Only with EN15804
Raised access flooring system	60 - 380 mm Variable height, 26 kg/m2	RG3 Europed	Kingspan	International EPD System	S-P-00798	EPD Kingspan RG3 Europed	EN15804	Verified	2016	[unitedKingdom]	ecoinvent		PCR 2012:01 Construction products and Construction services, ver. 2.0, 03/03/2015	Only with EN15804
Ready-mix concrete, normal-strength, generic	C30/37 (4400/5400 PSI), 20% recycled binders in cement (300 kg/m3 / 18.72 lbs/ft3)			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	2400	EN15804	-
Ready-mix concrete, normal-strength, generic	C30/37 (4400/5400 PSI), 10% (typical) recycled binders in cement (300 kg/m3 / 18.72 lbs/ft3)			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	2400	EN15804	-
Reinforcement steel (rebar), generic	90% recycled content			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Reinforcement steel mesh (rebar)	10-40mm		BRC	-	-	Environmental product declaration (EPD) report of fabricated steel products produced in the UK by Eco-Reinforcement members	EN15804	Verified	2019	[unitedKingdom]	ecoinvent	7850	PCR 2012:01 Construction products and construction services, v2.3	Only with EN15804
Road lighting column	Height: 12m, planting depth 1700 mm			-						[europe]	Other			
Rooflight GRP sheet	4.88kg/lm	Zenon	Hambleside Danelaw	BRE	BREG EN EPD 000248	EPD Site Assembled Zenon Evolution LC1/Insulator Core/Zenon Pro	EN15804	Verified	2019	[unitedKingdom]	ecoinvent		EN15804	-
Sandwich panel with glasswool insulation and double steel siding	U=0.23W/(m ² K), 181.1mm (Total), 0.7mm (Outer sheet), 0.4mm (Liner sheet), 180mm (Insulation), 13.37kg/m ² , 73.8kg/m ³	Twin-Therm	Tata Steel Europe & CA Building Products	TATA Steel	EPD-TS-2018-004	EPD Twin-Therm roof incorporating CA 17 1000L liner	EN15804	Verified	2018	[unitedKingdom]	GaBi		EN15804	-
Sewage water drainage piping network, per m ² GIFA (factories and logistics buildings)				One Click LCA	-	One Click LCA	EN15804	-	2019	[LOCAL]	ecoinvent		EN15804	-
Shower tray made of synthetic material, French average	Long. 90 cm Larg. 90 cm	Donnee par default	MDEGD	INIES	INIES_DR EC20161 116_164 640, 5751	MDEGD_FDES	EN15804	-	2016	[france]	ecoinvent		EN15804	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Solar panel photovoltaic system, EU average				One Click LCA	-	One Click LCA	ISO14040	-	2015	[LOCAL]	ecoinvent		-	Only with EN15804
Steel fencing welded wire mesh with columns per meter	h. 1,2m	Donnee par default	MDEGD	INIES	INIES_DC LÔ20180 808_124 453, 8533	MDEGD_FDES	EN15804	verified	2017	[france]	ecoinvent, ELCD		EN15804	EN15804
Steel sheets, generic	30% recycled content			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-
Steel sheets, generic	90% recycled content (typical)			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-
Steel stud internal wall assembly, 100 mm, incl. mineral wool insulation	Steel stud wall 100 mm, incl. mineral wool insulation 100 mm and plasterboard 13 mm on both sides			One Click LCA		One Click LCA generic construction definitions				[europe]	Other			
Steel water pipelines	max. wall thickness: 25.4 mm		Salzgitter Mannesmann	IBU	EPD-SMM-2016015 2-IBB1-DE	EPD	EN15804	Verified	2016	[germany]	GaBi		PCR Stahlrohre für Druckanwendungen	Only with EN15804
Structural steel hollow sections	D: 21.3-508 mm, section wall thickness: 2-16 mm, 7850 kg/m3	Celsius	Tata Steel	TATA Steel	EPD-TS-2017-001	EPD Tata Steel Celsius Structural Hollow Sections	EN15804	Verified	2017	[unitedKingdom]	ecoinvent	7850	EN15804	-
Structural steel profiles, generic	60% recycled content, I, H, U, L, and T sections			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-
Structural steel profiles, generic	100% recycled content, I, H, U,			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Structural steel profiles, generic	L, and T sections 0% recycled content (only virgin materials), I, H, U, L, and T sections			One Click LCA	-	One Click LCA	EN15804	-	2018	[LOCAL]	ecoinvent	7850	EN15804	-
Suspended metal ceiling system	5.901 kg/m2	SAS System 120 (Steel)	SAS International	BRE	BREG EN EPD 000280	EPD SAS System 120 (Steel), SAS International	EN15804	Verified	2020	[unitedKingdom]	ecoinvent		EN15804	-
Telescopic dock leveler, entrance system	Leveler height 700 mm, nominal length 2500 mm, nominal width 2000 mm	Crawford DL6020T teledock	Assa Abloy	IBU	EPD-ASA-2017003 9-IBA1-EN	EPD Crawford DL6020T teledock	EN15804	Verified	2017	[romania]	GaBi		PCR Loading dock and loading dock equipment, 01/2017 (PCR tested and approved by the SVR)	Only with EN15804
Tile adhesive, all round, for ceramics	1-5 mm, 1400 kg/m3	Verlegemörtel	PCI Augsburg	IBU	EPD-PCI-2016014 1-IBE1-DE	Oekobau.dat 2017-I, EPD Flexibilisierter Fliesenkleber PCI Verlegemörtel für keramische Fliesen PCI Augsburg GmbH	EN15804	Verified	2016	[germany]	GaBi	1400	PCR Mineralische Werkmörtel, 07/2014	Only with EN15804
Tufted carpet tiles	2.6 mm, 4.14 kg/m2, pile material of 100% recycled polyamide (PA), 0.58kg/m2, 740 kg/m3	Heuga H727 PD	Interface	INIES	INIES_IHE U201909 19_1104 20, 12435	FDES	EN15804	Verified	2019	[france]	ecoinvent		EN15804	EN15804
Ventilation ducting	per m linear, D: 400 mm (15.75 in)			One Click LCA	-	One Click LCA	EN15804	-	2019	[LOCAL]	ecoinvent		EN15804	-

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD No.	Data Source	Standard	Verification	Year	Country	Upstream database	Density	PCR	PCR Notes
Water-borne interior paints	1.36 kg/L, average coverage 8-10 m ² /L	Biora, Ekora, Kolibri Sand, Paneelika ttomaali, Ranch, Superlate ksi, Tapettipo hjamaali, Teknospro, Tela, Timantti, Trend	Teknos	RTS	RTS_14_18	EPD RTS EPD, Water-borne interior paints	EN15804	Verified	2018	[finland]	ecoinvent	1360	RTS PCR protocol: EPDs published by the Building Information Foundation RTS sr (2016)	Only with EN15804
Waterborne acrylic thin film intumescent coating	1.4 kg/l, dry film thickness 175-710 μm	SteelMaster 600WF	Jotun	EPD Norge	NEPD-2129-963-EN	EPD SteelMaster 600WF	EN15804	Verified	2020	[unitedKingdom]	ecoinvent	1400	IBU PCR Part B for coatings with organic binders	Only with EN15804
Waterproof, protective, flexible coating	1.5 kg/l	Lastogum	PCI Augsburg	IBU	EPD-PCI-2015003 9-IBE1-DE	Oekobau.dat 2017-I, EPD Wasserdichte, flexible Schutzschicht PCI Lastogum unter Keramikbelägen in Dusche und Bad PCI Augsburg GmbH	EN15804	Verified	2015	[germany]	GaBi	1500	PCR Beschichtungen mit organischen Bindemitteln , 07/2012	Only with EN15804

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