

04

Results and Analysis - Block A

04.1 Results & Analysis - Block A (Shared Living)

Building Description

Building Area	
Proposed GIA	20,905 m ²
Element	Description
Major Demolition	N/A
Minor Demolition	N/A
Foundations	Concrete piles and pile caps (C32/40 with 50% GGBS) with associated steel reinforcement. RC slab with blinding, DPM and insulation with associated steel reinforcement.
Structural Frame	Concrete frame (C50/60 for columns and core walls) with associated reinforcement.
Upper Floors	RC C32/40 slabs (225mm thickness) with associated reinforcement.
Roof	RC slab C32/40 (300mm) with associated reinforcement and insulation. Roof coverings include green roof, blue roof and hot melt roofing systems.
Stairs & Ramps	RC Stairs and metal balustrade to stair cores.
External Walls	SFS system with 12mm calcium silicate board, vapour control layer, 100mm metal stud with rockwool insulation. Cladding includes traditional brickwork (various grey tones) and PPC aluminium perforated rainscreen cladding. Double glazed curtain wall system included on ground floor.
Windows & Doors	Windows: Double glazed aluminium frame external windows Internal doors: Timber doors External doors: Glazed PPC aluminium doors to ground floor amenity space.
Internal Walls	Metal stud partitions with plasterboard and insulation. Blockwork walls with dot and dab plasterboard lining.
Wall Finishes	Emulsion paint and ceramic tiling.
Floor Finishes	Carpet, Vinyl flooring, ceramic tiles, engineered timber flooring, timber skirting, dust sealant, latex levelling compound and screed flooring.
Ceiling Finishes	Gypsum board, suspended ceiling system and emulsion paint.
Building Services	Bathroom pods, lifts, electricity distribution system, fresh water distribution system, waste water drainage system, ventilation system, PV modules and heat distribution system.
External Works	Permeable paving and concrete kerbstone in addition to bike stands, integrated benches and play equipment.

Table 3: Description of proposal Block A



04.2 Results & Analysis - Block A (Shared Living)
Embodied Carbon

Embodied Carbon

The following chapter presents the results of the WLC Assessment. In addition, it later highlights the materials that significantly contribute to the embodied carbon totals. The results of this WLCA can be used to inform material choices on future projects with the intention of reducing the environmental impact of future schemes.

The performance against the project targets for whole life and upfront embodied carbon are demonstrated in figures 18 & 19. At present, the project is currently achieving the GLA Benchmark for both upfront embodied carbon and whole life embodied carbon.

Contingency Factors

A contingency factor is applied to the WLC model at every assessment stage, and applies to modules A, B, C and D. It reflects uncertainty regarding the design of the asset, its construction and the quantities and types of materials used. If detailed uncertainty information unknown, default values are applied. Uncertainty generally reduces as the project phases proceed and more is known and finalised. In the case of this project, the default value of 15% has been applied for this assessment at Concept Design Stage.

We reinforce that WLCA is an iterative process. The team are currently reviewing and refining the design. These design developments are expected to further reduce the associated embodied carbon, impacts will be captured within the next iteration of the assessment, expected to be completed during RIBA workstage 3.

Workstage	Concept Design	Technical Design	Post Completion
Contingency Factor	15%	6%	0%

Table 4: RICS contingency factors for WLC assessments

Upfront Embodied Carbon A1-A5 (excl. sequestration)

Total Upfront Embodied Carbon: 12,290 tCO₂e



Figure 18: Performance against project target for upfront embodied carbon

Whole Life Embodied Carbon A1-B5, C1-4

Total Whole Life Embodied Carbon: 21,289 tCO₂e



Figure 19: Performance against project target for whole life embodied carbon



04.3 Results & Analysis - Block A (Shared Living)
Key Findings

Key Findings

The substructure, frame and upper floors are the largest contributors to upfront embodied carbon (A1-A5), accounting for 20%, 22% and 21% respectively. This is closely followed by the building services, which contributes a further 14%. This reflects the material intensity associated with delivering the services to the building.

When in use and end of life stages are considered, the embodied carbon associated with finishes increases significantly, rising from 5% to 12%, as does the carbon associated with the building services, rising from 14% to 24%. This increase is primarily driven by the shorter service lives of these elements, resulting in more frequent maintenance and replacement over the building lifecycle.

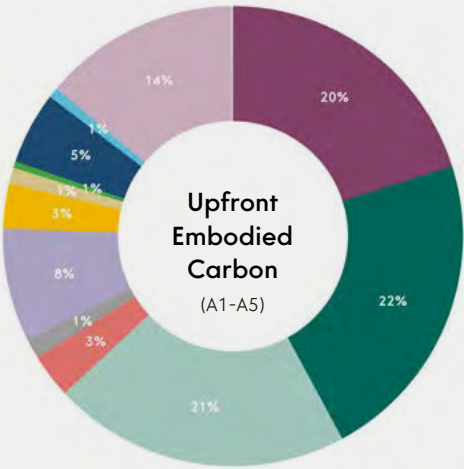


Figure 20: Upfront embodied carbon breakdown by Building Element Group

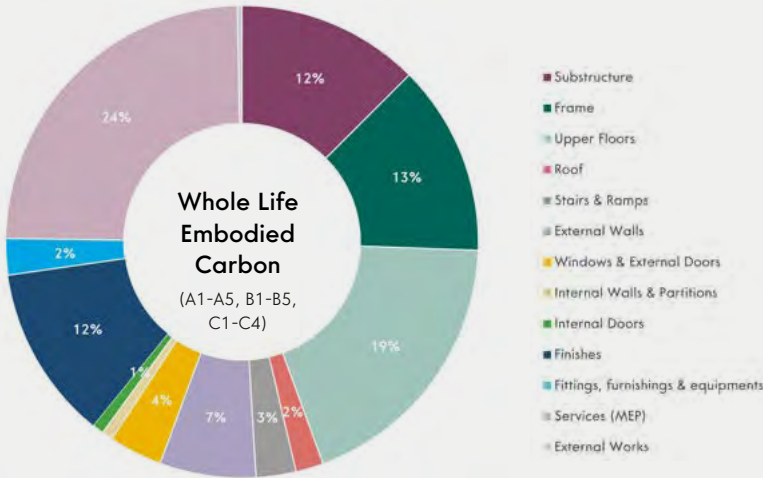


Figure 21: Embodied carbon breakdown by Building Element Group



Life-cycle stages

Figure 22: Total kgCO₂e Life Cycle Stages, using SAP 10.1 carbon factors



04.4 Results & Analysis - Block A (Shared Living)
Embodied Carbon Breakdown

Embodied Carbon Breakdown

Table 5 presents a breakdown of upfront embodied carbon (A1–A5) by building element using the results generated within OneClick LCA. Each element is reported with its total embodied carbon in kgCO₂e, the intensity by kgCO₂e/m² GIA, and its percentage contribution to the total upfront carbon emissions. This breakdown highlights the relative carbon impact of each element, identifying key material hotspots and priority areas for design optimisation and carbon reduction.

Building Element	A1 - A5 Total kgCO ₂ e	A1-A5 kgCO ₂ e/m ²	Percentage %
Substructure	2447271	117	19.7
Frame	2687587	129	21.7
Upper Floors	2552857	122	20.6
Roof	379228	18	3.1
Stairs & Ramp	166837	8	1.3
External Walls	975724	47	7.9
Windows & External Doors	354533	17	2.9
Internal Walls & Partitions	136394	7	1.1
Internal Doors	56257	3	0.5
Finishes	620961	30	5.0
Fittings, Furnishing & Equipments	88621	4	0.7
Services (MEP)	1676408	80	13.5
External Works	19477	1	0.2
Construction Site Impacts	236436	11	1.9
Total	12,290,591 kgCO ₂ e	588 kgCO ₂ e/m ²	100 %

→ Table 5: Summary of building element impacts

04.5 Results & Analysis - Block A (Shared Living)

Reduction Opportunities

Embodied Carbon Reduction Opportunities

It is important that the environmental impact for the embodied carbon of the project is reduced in order to meet the upfront embodied carbon targets. The measures listed within this section have been provided for the team's consideration with a view to further reducing the embodied carbon emissions.

It should be noted that these carbon reduction material suggestions have been considered in reference to carbon embodiment only, and other influencing factors must be taken into account and assessed by suitably qualified team members before adoption in the design.

Table 6 provides a list of the 'most contributing materials' identified within the embodied carbon study. This will allow the design team to consider where the greatest impact can be made, with regards to material specification.

The table accounts for 81.1% of the total cradle to gate embodied carbon emissions. Whilst the ability to reduce this substantially is always limited (no products are carbon free when not considering sequestration) the elements with the most significant cradle to gate impacts are the obvious starting point in terms of seeking further reductions.

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Table 6: Most contributing elements towards total cradle to gate emissions

Element	Product	Cradle to gate impacts TCO ₂ e	Of cradle to gate (A1-A3)	Global warming potential (A1-A3) before local compensation
Structure	Ready-mix concrete, C40/50, 25% GGBS content, CEM II/B-S portland-slag cement	1,621	14.2%	452 kg CO ₂ e / m ³
Structure	Ready-mix concrete, C32/40, 50% GGBS content, CEM III/A blast furnace cement	1,470	12.9%	332 kg CO ₂ e / m ³
Structure	Ready-mix concrete, C50/60, 25% GGBS in cement, CEM II/B-S portland-slag cement	1,408	12.3%	610 kg CO ₂ e / m ³
Structure	Ready-mix concrete, C32/40 25% GGBS in cement, CEM II/B-S cement	1,009	8.9%	432 kg CO ₂ e / m ³
Structure	Reinforcement steel (rebar), 97% recycled content, A615	922	8.1%	0.62 kg CO ₂ e / kg
Services	Composite bathroom system (water closet, washbasin, shower)	472	4.1%	904 kg CO ₂ e / unit
Internal Finishes	Suspended metal ceiling system	420	3.7%	22.4 kg CO ₂ e / m ²
Structure	Steel purlins & frame	381	3.3%	2.76 kg CO ₂ e / kg
Services	Electricity distribution system	316	2.8%	15.1 kg CO ₂ e / m ²
Facade	Clay brick	277	2.4%	0.21 kg CO ₂ e / kg
Facade	Steel brackets for facade cladding	252	2.2%	6.57 kg CO ₂ e / kg
Facade	XPS Insulation Boards	251	2.2%	129.21 kg CO ₂ e / m ³
Window	Aluminium framed tilt and turn operable window, double glazed	246	2.2%	117 kg CO ₂ e / m ²
Services	Elevator	200	1.8%	40100 kg CO ₂ e / unit



04.6 Results & Analysis - Block A (Shared Living)
Operational Energy & Carbon

Operational Energy & Carbon

Results and target comparisons

A net zero carbon building for operational energy is required to annually disclose in-use energy performance. A verified net zero carbon building is one that is based on in-use, rather than modelled, energy performance. Nevertheless it is important to consider that the likely operational performance of the building through modelling.

The annual predicted regulated and unregulated operational carbon emissions for both the domestic and non-domestic areas have been calculated using the predicted energy consumption figures provided by Meinhardt. The carbon associated with the energy use has been calculated within OneClick LCA using the SAP 10.1 & 10.2 profiles as per the RICS v1 guidance.

The development is currently achieving the UK Net Zero Carbon Buildings Standard (UKNZCBS) 2027 target for operational energy use. As shared living developments are not currently assigned a standalone typology within the UKNZCBS, the commercial residential student residential benchmark has been adopted as the closest appropriate comparator due to the building's communal amenity spaces and shared facilities.

The predicted Energy Use Intensity (EUI) has been assessed against the applicable UKNZCBS commercial residential student residential target of 70 kWh/m²/yr, with the current design assessed at 6kWh/m²/year lower than this benchmark.

Operational Energy B6

Total Operational Carbon: 21,291 TCO₂e

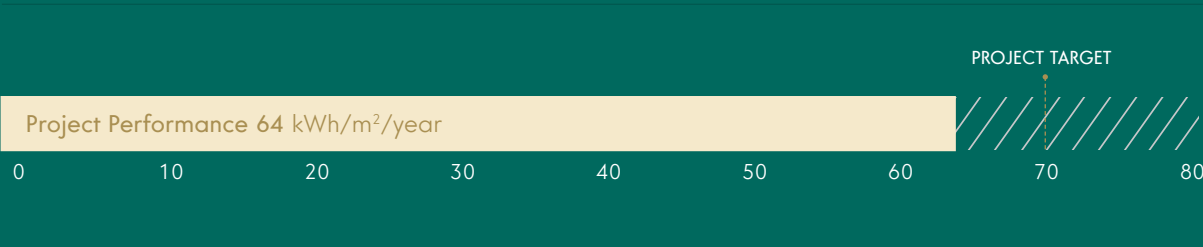


Figure 23: Performance against project target for energy use intensity

Operational Energy		Annual Energy Consumption (kWh/m ² /yr)	Annual Operational Carbon Emissions (kgCO ₂ e/m ² /yr)	Source
LSPBSA	Regulated	15.7	4.23	CIBSE TM54
	Unregulated	48.3	13.04	CIBSE TM54
On Site Renewables	55.5m ²			Cost Plan

Table 7: Operational carbon emissions

05

Results and Analysis - Block B

05.1 Results & Analysis - Block B (Affordable)

Building Description

Building Area	
Proposed GIA	9,758 m ²
Element	Description
Major Demolition	N/A
Minor Demolition	N/A
Foundations	Concrete piles and pile caps (C32/40 with 50% GGBS) with associated steel reinforcement. RC slab with blinding, DPM and insulation with associated steel reinforcement.
Structural Frame	Concrete frame (C50/60 for columns and core walls) with associated reinforcement.
Upper Floors	RC C32/40 upper floor slabs (225mm thickness) with associated reinforcement.
Roof	RC slab C32/40 (300mm) with associated reinforcement and insulation. Roof coverings include green roof, blue roof and hot melt roofing systems.
Stairs & Ramps	RC Stairs and metal balustrade to stair cores.
External Walls	SFS system with 12mm calcium silicate board, vapour control layer, 100mm metal stud with rockwool insulation. Cladding includes traditional brickwork (grey and white tone) and PPC aluminium rainscreen cladding (light grey).
Windows & Doors	Windows: Double glazed aluminium frame external windows Internal doors: Timber doors External doors: Glazed PPC aluminium doors to ground floor amenity space. Glazed PPC aluminium swing doors to balconies
Internal Walls	Metal stud partitions with plasterboard and insulation. Blockwork walls with dot and dab plasterboard lining.
Wall Finishes	Emulsion paint and ceramic tiling.
Floor Finishes	Carpet, Vinyl flooring, ceramic tiles, engineered timber flooring, timber skirting, dust sealant, latex levelling compound and screed flooring.
Ceiling Finishes	Gypsum board, suspended ceiling system and emulsion paint.
Building Services	Bathroom pods, lifts, electricity distribution system, fresh water distribution system, waste water drainage system, ventilation system, solar PV units and heat distribution system.
External Works	Permeable paving and concrete kerbstone in addition to bike stands, integrated benches and play equipment.

Table 8: Description of proposal Block B



05.2 Results & Analysis - Block B (Affordable)
Embodied Carbon

Embodied Carbon

The following chapter presents the results of the WLC Assessment. In addition, it later highlights the materials that significantly contribute to the embodied carbon totals. The results of this WLCA can be used to inform material choices on future projects with the intention of reducing the environmental impact of future schemes.

The performance against the project targets for whole life and upfront embodied carbon are demonstrated in figures 24 & 25. At present, the project is currently achieving the GLA Benchmark for both upfront embodied carbon and whole life embodied carbon.

Contingency Factors

A contingency factor is applied to the WLC model at every assessment stage, and applies to modules A, B, C and D. It reflects uncertainty regarding the design of the asset, its construction and the quantities and types of materials used. If detailed uncertainty information unknown, default values are applied. Uncertainty generally reduces as the project phases proceed and more is known and finalised. In the case of this project, the default value of 15% has been applied for this assessment at Concept Design Stage.

We reinforce that WLCA is an iterative process. The team are currently reviewing and refining the design. These design developments are expected to further reduce the associated embodied carbon, impacts will be captured within the next iteration of the assessment, expected to be completed during RIBA workstage 3.

Workstage	Concept Design	Technical Design	Post Completion
Contingency Factor	15%	6%	0%

Table 9: RICS contingency factors for WLC assessments

Upfront Embodied Carbon A1-A5 (excl. sequestration)

Total Upfront Embodied Carbon: 5,698 tCO₂e



Figure 24: Performance against project target for upfront embodied carbon

Whole Life Embodied Carbon A1-B5, C1-4

Total Whole Life Embodied Carbon: 9,675 tCO₂e



Figure 25: Performance against project target for whole life embodied carbon



05.3 Results & Analysis - Block B (Affordable)
Key Findings

Key Findings

The substructure and upper floors are the largest contributors to upfront embodied carbon (A1-A5), accounting for 23% and 20% respectively. This is closely followed by the building services and frame, which contributes a further 14% and 12%. This reflects the material intensity associated with delivering the services to the building.

When in use and end of life stages are considered, the embodied carbon associated with finishes increases significantly, rising from 5% to 19%. This is also the case for building services, rising from 14% to 23%. This increase is primarily driven by the shorter service lives of these elements, resulting in more frequent maintenance and replacement over the building lifecycle.

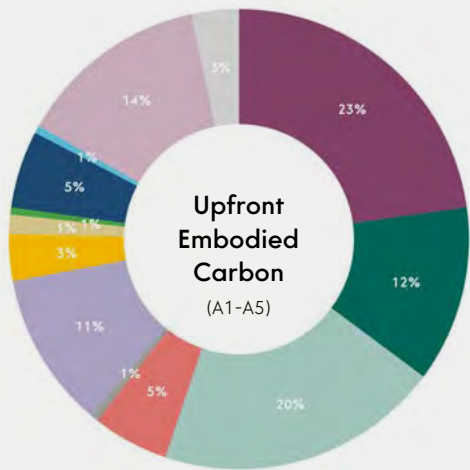


Figure 26: Upfront embodied carbon breakdown by Building Element Group

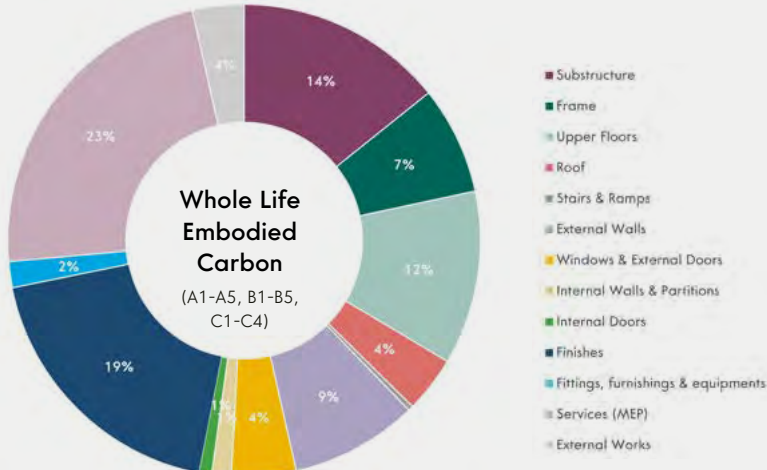


Figure 27: Embodied carbon breakdown by Building Element Group



Figure 28: Total kgCO₂e Life Cycle Stages, using SAP 10.1 carbon factors



05.4 Results & Analysis - Block B (Affordable)
Embodied Carbon Breakdown

Embodied Carbon Breakdown

Table 10 presents a breakdown of upfront embodied carbon (A1–A5) by building element using the results generated within OneClick LCA. Each element is reported with its total embodied carbon in kgCO₂e, the intensity by kgCO₂e/m² GIA, and its percentage contribution to the total upfront carbon emissions. This breakdown highlights the relative carbon impact of each element, identifying key material hotspots and priority areas for design optimisation and carbon reduction.

Building Element	A1 - A5 Total kgCO ₂ e	A1-A5 kgCO ₂ e/m ²	Percentage %
Substructure	1277647	131	22.3
Frame	695060	71	12.2
Upper Floors	1121985	115	19.6
Roof	300406	31	5.3
Stairs & Ramp	30067	3	0.5
External Walls	616108	63	10.8
Windows & External Doors	184480	19	3.2
Internal Walls & Partitions	75951	8	1.3
Internal Doors	27808	3	0.5
Finishes	305019	31	5.3
Fittings, Furnishing & Equipments	29472	3	0.5
Services (MEP)	756272	78	13.2
External Works	186825	19	3.3
Construction Site Impacts	110363	11	1.9
Total	5,698,463 kgCO ₂ e	583 kgCO ₂ e/m ²	100 %

→ Table 10: Summary of building element impacts

05.5 Results & Analysis - Block B (Affordable)

Embodied Carbon Reduction Opportunities

Embodied Carbon Reduction Opportunities

It is important that the environmental impact for the embodied carbon of the project is reduced in order to meet the upfront embodied carbon targets. The measures listed within this section have been provided for the team's consideration with a view to further reducing the embodied carbon emissions.

It should be noted that these carbon reduction material suggestions have been considered in reference to carbon embodiment only, and other influencing factors must be taken into account and assessed by suitably qualified team members before adoption in the design.

Table 11 provides a list of the 'most contributing materials' identified within the embodied carbon study. This will allow the design team to consider where the greatest impact can be made, with regards to material specification.

The table accounts for 80.9% of the total cradle to gate embodied carbon emissions. Whilst the ability to reduce this substantially is always limited (no products are carbon free when not considering sequestration) the elements with the most significant cradle to gate impacts are the obvious starting point in terms of seeking further reductions.

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Table 11: Most contributing elements towards total cradle to gate emissions

Element	Product	Cradle to gate impacts TCO ₂ e	Of cradle to gate (A1-A3)	Global warming potential (A1-A3) before local compensation
Structure	Ready-mix concrete, C32/40, 25% GGBS content, CEM II/B-S portland-slag cement	1,013	19.2%	432 kg CO ₂ e / m ³
Structure	Ready-mix concrete, C32/40, 50% GGBS content, CEM III/A blast furnace cement	834	15.8%	332 kg CO ₂ e / m ³
Structure	Reinforcement steel (rebar), 97% recycled content, A615	402	7.6%	0.62 kg CO ₂ e / kg
Structure	Ready-mix concrete, C40/50, 25% GGBS content, CEM II/B-S portland-slag cement	380	7.2%	452 kg CO ₂ e / m ³
Structure	Steel purlins & frame	220	4.2%	2.76 kg CO ₂ e / kg
External Works	Aluminium balcony system	202	3.8%	3610 kg CO ₂ e / unit
Internal Finishes	Suspended metal ceiling system	196	3.7%	22.4 kg CO ₂ e / m ²
Facade	Stainless steel wall ties	187	3.5%	5.49 kg CO ₂ e / kg
Lifts	Elevator	160	3%	40100 kg CO ₂ e / unit
Facade	Clay brick	149	2.8%	0.21 kg CO ₂ e / kg
Services	Electricity distribution system	147	2.8%	15.1 kg CO ₂ e / m ²
External Works	Aluminium balustrade railing system with vertical infill for balconies	112	2.1%	117 kg CO ₂ e / m ²
Services	Roof integrated mono-crystalline photovoltaic module	105	2%	148.29 kg CO ₂ e / m ²
Facade	Calcium silicate board, 12mm	88	1.7%	12.3 kg CO ₂ e / m ²
Services	Composite bathroom system	79	1.5%	904 kg CO ₂ e / unit



05.6 Results & Analysis - Block B (Affordable)
Operational Energy & Carbon

Operational Energy & Carbon

Results and target comparisons

A net zero carbon building for operational energy is required to annually disclose in-use energy performance. A verified net zero carbon building is one that is based on in-use, rather than modelled, energy performance. Nevertheless it is important to consider that the likely operational performance of the building through modelling.

The annual predicted regulated and unregulated operational carbon emissions for both the domestic and non-domestic areas have been calculated using the predicted energy consumption figures provided by Meinhardt. The carbon associated with the energy use has been calculated within OneClick LCA using the SAP 10.1 & 10.2 profiles as per the RICS v1 guidance.

The development is currently achieving the UK Net Zero Carbon Buildings Standard (UKNZCBS) 2027 target for operational energy use. As shared living developments are not currently assigned a standalone typology within the UKNZCBS, the home (flat) residential benchmark has been adopted as the closest appropriate comparator due to the building's providing individual flats within a larger residential block.

The predicted Energy Use Intensity (EUI) has been assessed against the applicable UKNZCBS homes (flat) residential target of 49 kWh/m²/yr, with the current design assessed at 14.4kWh/m²/year lower than this benchmark.

Operational Energy B6

Total Operational Carbon: 5,614 TCO₂e



Figure 29: Performance against project target for energy use intensity

Operational Energy		Annual Energy Consumption (kWh/m ² /yr)	Annual Operational Carbon Emissions (kgCO ₂ e/m ² /yr)	Source
LSPBSA	Regulated	12.15	3.28	Space heating & regulated from SAP. Commercial from CIBSE TM54.
	Unregulated	22.46	6.06	Unregulated from HES. Commercial from CIBSE TM54.
On Site Renewables		61.05m ²		Cost Plan

Table 12: Operational carbon emissions

05.7 Results & Analysis

Energy Strategy

Energy Strategy

The energy statement for the proposed development has been provided by Meinhardt (which can be found as part of the full planning application), with design principles developed alongside members of the design team. The report demonstrates that the proposed scheme will improve the sustainability and environmental performance of the built environment by increasing energy efficiency, reducing CO₂ emissions, generating energy services efficiently and utilising Low or Zero Carbon Technologies (compared to a notional equivalent scheme). It outlines how the scheme has adapted The London Plan's Energy Hierarchy (Figure 5) principles of Be Lean, Be Clean, Be Green and Be Seen. The energy calculations within the report have been carried out using dynamic simulation analysis, and recognised design calculations have been undertaken and provided to demonstrate compliance with relevant building regulations and policy targets. The proposed construction, design and specification will deliver a scheme that is inherently energy efficient during occupation maximising opportunities to reduce energy demand and consumption within the design of the building envelope and key building services.

Be Lean

In accordance with the first stage of the London Plan energy hierarchy (Policy SI 2) and Haringey's Local Plan Policy SP4, the proposed development adopts a fabric-first approach to minimise operational energy demand through passive design measures, enhanced building fabric performance and energy efficient building services. By reducing energy consumption over the building's operational life, these measures support the efficient use of resources and contribute to the reduction of whole life carbon impacts, aligning with the wider objectives of the Circular Economy Statement. A summary of the design measures proposed for the scheme is set out below.

The scheme exceeds Part L 2021 fabric standards through enhanced U-values, improved air permeability and minimised thermal bridging, with overheating managed via optimised glazing/g-values, balcony shading and natural ventilation. Heat-recovery MVHR ventilates the development, while heat pumps with low-loss pipework provide heating and hot water. Dwellings rely on natural/mechanical ventilation rather than mechanical cooling, with an MVHR cooling module as backup where windows must stay closed; commercial areas use heat-recovery VRF, feeding rejected heat into residential heating. Further measures include LED lighting, zoned controls with smart metering, a central BMS, and energy-efficient appliances specified or encouraged via the Building User Guide.

Be Clean

The second stage of the energy hierarchy considers the efficient supply of energy through decentralised energy infrastructure. In accordance with London Plan Policy SI 3 and Haringey's Local Plan Policy SP4, opportunities for connection to existing and proposed heat networks have been assessed to ensure the development remains adaptable to future low-carbon energy infrastructure and supports long-term resource efficiency. The London Heat Map has been reviewed to identify existing and planned heat networks in the vicinity of the site. No existing heat networks have been identified nearby; however, a proposed heat network is located in the surrounding area. The site is also located within a Heat Network Priority Area, and therefore a communal heating system is proposed to facilitate connection to a wider district heat network should one become available in the future. In accordance with the GLA heating hierarchy, connection to an existing or planned heat network has been considered but is not currently feasible. The development will therefore incorporate a site-wide communal heating network served by air source heat pumps (ASHPs), with heat distributed to each block via insulated pipework. The system will be designed to allow future connection to a wider district heat network, should one become available. The proposed all-electric heating strategy avoids the use of on-site fossil fuel combustion and supports the transition towards a lower-carbon heat supply. The communal network also provides flexibility to incorporate future low-carbon heat sources as the local heat network infrastructure develops.

Be Green

In accordance with the next stage of the London Plan energy hierarchy, an appraisal of on-site renewable and low-carbon energy technologies has been undertaken. Biomass boilers, photovoltaics (PV), solar thermal, ground source heat pumps, air source heat pumps and wind turbines were considered based on their suitability for the development. Air source heat pumps (ASHPs) are proposed as the primary heat source for the development, serving the communal heating network. The heat pumps are expected to provide a saving of approximately 211.034 kgCO₂e per year in regulated carbon dioxide emissions. The all-electric heating strategy avoids reliance on fossil fuel combustion and supports the long-term decarbonisation of operational energy. Approximately 63 photovoltaic (PV) panels, with a total peak output of 28.5 kWp, are proposed across the available roof areas of the two residential blocks. The panels are expected to provide a regulated carbon saving of approximately 3566 kgCO₂e per year. Solar thermal and ground source heat pumps have been discounted due to the availability of roof space for PV and the poor balance between heating and cooling demand, respectively. Biomass boilers have also been discounted due to competition with the proposed heat pump system and potential impacts on local air quality and servicing requirements. Wind turbines are not proposed due to their potential architectural, townscape and noise impacts. Together, the proposed ASHP and PV systems will reduce reliance on fossil fuel-based energy sources and support the long-term reduction of operational carbon emissions.

06.1 Conclusion

Performance & Next Steps

Performance

Block A - Shared Living

As per the requirements of the LPG Whole Life Carbon Assessment guidance, a Whole Life Carbon Assessment has been undertaken in accordance with RICS Whole Life Carbon Assessment for the Built Environment, Version 1 (1st edition, November 2017).

The assessment has been prepared in alignment with the UK Green Building Council (UKGBC) Net Zero Carbon framework. It is noted that the results presented are representative of a number of assumptions that have been made with regards to distance travelled and expected life span of product, as explained within Tables 21 & 22. Once available, these assumptions will be replaced by more accurate data.

At present, the project is achieving the GLA benchmark for upfront embodied carbon and the GLA benchmark target for whole life embodied carbon.

As the design matures, the accuracy of the information available to the WLC modeller will increase, and therefore improve the accuracy of the predicted whole life carbon emissions.

		Upfront Embodied Carbon Modules A1 - A5 (excl. seq carbon)	Whole Life Embodied Carbon Modules A-C (excl. B6 & B7)	Operational Energy Module B6
Targets	GLA Benchmark (Residential)	< 850 kgCO ₂ e/m ²	< 1200 kgCO ₂ e/m ²	N/A
	GLA Aspirational (Residential)	< 500 kgCO ₂ e/m ²	< 800 kgCO ₂ e/m ²	N/A
	RIBA 2030	N/A	< 625 kgCO ₂ e/m ²	< 35 kWh/m ² /yr
	UKNZCBS 2028 (Block A: Commercial Residential)	< 495 kgCO ₂ e/m ²	N/A	< 70 kWh/m ² /yr
	UKNZCBS 2028 (Block B: Homes - Flats)	< 450 kgCO ₂ e/m ²	N/A	< 49 kWh/m ² /yr
Stage 2 Results	Total	12,290 tCO ₂ e	21,289 tCO ₂ e	N/A
	Per m ² GIA	588 kgCO ₂ e/m ²	1,018 kgCO ₂ e/m ²	64 kWh/m ² /yr
	GLA Benchmark Achieved	Achieved	Achieved	N/A

Table 13: Summary of performance for Block A

06.2 Conclusion

Performance & Next Steps

Performance

Block B - Affordable

As per the requirements of the LPG Whole Life Carbon Assessment guidance, a Whole Life Carbon Assessment has been undertaken in accordance with RICS Whole Life Carbon Assessment for the Built Environment, Version 1 (1st edition, November 2017).

The assessment has been prepared in alignment with the UK Green Building Council (UKGBC) Net Zero Carbon framework. It is noted that the results presented are representative of a number of assumptions that have been made with regards to distance travelled and expected life span of product, as explained within Tables 21 & 22. Once available, these assumptions will be replaced by more accurate data.

At present, the project is achieving the GLA benchmark for upfront embodied carbon and the GLA benchmark target for whole life embodied carbon.

As the design matures, the accuracy of the information available to the WLC modeller will increase, and therefore improve the accuracy of the predicted whole life carbon emissions.

		Upfront Embodied Carbon Modules A1 - A5 (excl. seq carbon)	Whole Life Embodied Carbon Modules A-C (excl. B6 & B7)	Operational Energy Module B6
Targets	GLA Benchmark (Residential)	< 850 kgCO ₂ e/m ²	< 1200 kgCO ₂ e/m ²	N/A
	GLA Aspirational (Residential)	< 500 kgCO ₂ e/m ²	< 800 kgCO ₂ e/m ²	N/A
	RIBA 2030	N/A	< 625 kgCO ₂ e/m ²	< 35 kWh/m ² /yr
	UKNZCBS 2028 (Block A: Commercial Residential)	< 495 kgCO ₂ e/m ²	N/A	< 70 kWh/m ² /yr
	UKNZCBS 2028 (Block B: Homes - Flats)	< 450 kgCO ₂ e/m ²	N/A	< 49 kWh/m ² /yr
Stage 2 Results	Total	5,698 tCO ₂ e	9,675 tCO ₂ e	N/A
	Per m ² GIA	583 kgCO ₂ e/m ²	991 kgCO ₂ e/m ²	34.63 kWh/m ² /yr
	GLA Benchmark Achieved	Achieved	Achieved	N/A

Table 14: Summary of performance for Block B

06.3 Conclusion

Performance & Next Steps

Performance

Combined Block A & Block B

At present, when combined the project is achieving the GLA benchmark for upfront embodied carbon and the GLA benchmark target for whole life embodied carbon.

Comparing the two blocks individually, Block A and Block B perform similarly on upfront embodied carbon, at 588 kgCO₂e/m² and 583kgCO₂e/m² respectively, suggesting a broadly consistent structural and envelope strategy across both buildings at this stage. The whole life embodied carbon diverges more significantly as Block A's result of 1,018 kgCO₂e/m² is around 3% higher than Block B's result of 991 kgCO₂e/m², which may reflect differences in the commercial fit-out, servicing strategy or replacement cycles assumed for Block B's predominantly commercial-residential use, compared with Block A's residential (flats) typology.

This divergence is also reflected in operational energy performance, where Block A (64 kWh/m²/yr) is materially higher than Block B (34.63 kWh/m²/yr).

		Upfront Embodied Carbon Modules A1 - A5 (excl. seq carbon)	Whole Life Embodied Carbon Modules A-C (excl. B6 & B7)	Operational Energy Module B6
Targets	GLA Benchmark (Residential)	< 850 kgCO ₂ e/m ²	< 1200 kgCO ₂ e/m ²	N/A
	GLA Aspirational (Residential)	< 500 kgCO ₂ e/m ²	< 800 kgCO ₂ e/m ²	N/A
	RIBA 2030	N/A	< 625 kgCO ₂ e/m ²	< 35 kWh/m ² /yr
	UKNRCBS 2028 (Block A: Commercial Residential)	< 495 kgCO ₂ e/m ²	N/A	< 70 kWh/m ² /yr
	UKNRCBS 2028 (Block B: Homes - Flats)	< 450 kgCO ₂ e/m ²	N/A	< 49 kWh/m ² /yr
Stage 2 Results	Total	17,993 tCO ₂ e	30,960 tCO ₂ e	N/A
	Per m ² GIA	587 kgCO ₂ e/m ²	1,009 kgCO ₂ e/m ²	54.38 kWh/m ² /yr
	GLA Benchmark Achieved	Achieved	Achieved	N/A

Table 15: Summary of performance for combined Block A & Block B



06.4 Conclusion

Embodied Carbon Reduction

Next Steps

To ensure that whole life carbon is addressed effectively throughout the continuation of the design and construction period, the following next steps are recommended:

The design team should review the durability, focusing on the replacement cycles of materials when specifying for stage 4 technical design. This is particularly important for finishes, as the whole life carbon is significantly increased due to the regular replacement needed for finishes.

The GGBS content should be reviewed by the client and structural engineer. The substructure elements have been modelled with 50% GGBS content and the remaining frame at 25% GGBS content. These should be reviewed and increased where possible to reduce the carbon in the largest contributing building elements.

Further optioneering workshops should be scheduled with the WLC modeller and the design team, to discuss opportunities for reduction measures.

The 'most contributing elements' table (section 4.5 & 5.5) should be used as guidance for identifying opportunities to reduce the embodied carbon impacts as the design develops. Alternative materials with lower GWP should be considered and implemented where appropriate. These design decisions should be communicated to the WLC modeller to ensure the model is accurate and reflects the developed design, ensuring up to date benchmarking against the established project targets.

The Principal Contractor should review and implement the recommendations provided in Section 5 to ensure the project targets are considered during procurement and site activities.

A further assessment during the construction period is advisable for monitoring the carbon budget progress as the project develops and a final WLCA should be provided at practical completion.

Interrogation of supply chain with contractor

The UKGBC have published a 'NZ WLC Roadmap; Stakeholder Action Plan' which provides a set of recommended industry-wide actions for achieving net zero carbon in the construction, operation and demolition of buildings in the UK.

Within the publication is a 'Contractor Action Plan'. A number of the key 'immediate' actions that can be considered at project level have been outlined below for consideration by the contractor:

- The contractor should work with the supply chain to ensure they are aware of the net zero carbon targets that have been established by the client.
- Develop and implement training to deliver NZC targets internally and with key suppliers and with key suppliers, covering all pertinent sources of emissions during the construction process:
 - Establishing baseline carbon literacy across staff
 - Transport and site (modules A4-A5) & upfront carbon issues
 - Closing the energy performance gap
 - Ensuring sub-metering is fully operational
- The contractor should request EPDs (APD A-D to EN15804 & externally verified) from all supply chains. This requirement should be clearly communicated to the supply chain at the point of tender submissions.
- The contractor must track construction site emissions, measuring and monitoring all emissions from transport (A4), construction processes (A5), as well as materials quantities brought on to site and material wastage rates.

Ensure robust systems are in place to ensure quality standards and mitigation of performance gaps.

The contractor should develop a clear and robust Sustainable Procurement Plan to guide specification towards sustainable construction products. The plan should be clearly communicated to the supply chain.

General material specification & understanding of WLC assessment

It is important to note that the material specification of products has been limited by the utilisation of WLCA software on the market such as the One Click LCA software used for this assessment.

WLCA is still a relatively new technology and has emerged from an extremely narrow database of materials that continue to grow globally on a daily basis. As the product grows, so will the opportunity to identify materials and products that perform better than others and are more accurately reflected.

In short, further close analysis of material component performance will be needed to achieve marginal gains which overall could improve the embodied carbon output as a whole, whereby close communication with the WLCA modeller, more accurate material quantities and more detailed material specifications considering EPD performance will lead to improved results.

Any proposed material substitutions should be clearly communicated to the WLCA modeller to review the potential impacts to the project targets.

07

Appendix A

Methodology



07.1 Appendix A
Methodology - Guidance & Standards

Guidance & Standards

This section describes the pertinent guidance and methodological standards of the WLC assessment. Information detailed below includes the national standards, software tools, and external data sources, that have been used to inform the assessment.

EN 15978: 2011

The appraisal framework in the UK concerning environmental impacts of the built environment is provided by BS EN 15978: 2011 (Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method). This modular structure outlines the necessary principles that guide whole life assessments of the environmental impacts of built projects formulated on life-cycle assessment. As part of the wider set of standards EN 15643, the BS EN 15978 modular structure outlines the necessary principles that guide whole life assessments of the environmental impacts of built projects formulated on life-cycle assessment.

RICS Guidance

As a result of diverse interpretations of BS EN 15978, the Royal Institute of Chartered Surveyors (RICS) released a professional statement (RICS PS) addressing the need for technical details of the numerous aspects influencing whole life carbon calculations for built projects. The RICS PS guidance serves to avoid erratic application of the BS EN 15978 methodology and the subsequent discrepancies of assessment results, with a distinct emphasis on the practicalities of implementation.

Given the known factors, such as poor quality data selectivity, inappropriate data use, miscellaneous assumptions, and conflicting client requirements, the harmonised approach that the RICS PS outlines provides a solution to the shortcoming of the building industry to properly account for the embodied carbon emissions. Existing industry efforts have previously had a more significant impact on reducing the operational emissions through targets in building regulations (Part L) and local authority planning requirements. Accounting for both operational and embodied carbon emissions simultaneously is a key principle of the WLC assessment, highlighting the importance of complying with the RICS PS guidance.

Building parts to be included	0.1 Demolition Works 1. Substructure 2. Superstructure 3. Finishes 4. FF&E 5. Services 6. Prefabricated buildings and units 7. Works to existing buildings 8. External works
Life stages to be included	Product stage [A1-A3] Construction process stage [A4-A5] In Use emissions [B1] Replacement stage [B4] Regulated and Unregulated energy[B6] Water use (essential systems) [B7] Operational energy use [B6] End of Life [C1-C4] Benefits and loads from exported utilities [D2]
Assessment timing	At design stage (prior to technical design) - At least one other whole life carbon assessment should be conducted for each project after practical completion to represent the 'as built' carbon position.

→
Table 16: Minimum requirements for WLC assessments



07.2 Appendix A
Methodology - Software

OneClick LCA Software

To accurately calculate the embodied carbon produced by the new development, One Click LCA software has been utilised. The One Click LCA tool is based on the EN 15978 standard, which is in line with the ISO 14040 / 44 standards for LCA. Furthermore, the One Click database is IMPACT compliant, which means it uses manufacturer specific environmental product declaration (EPD) data licensed by the Building Research Establishment (BRE).

Table 17 demonstrates the life-cycle stages covered by the software for each material.

A number of assumptions are made by the software (which can be overridden by the appraiser), further details of these are provided in tables 21 & 22.

A1-A3 Materials	Includes raw material supply, transport of material to production lines and production impacts.
A4 Transportation	Includes exhaust emissions resulting from the transport of building products from manufacturer's production plant to building site as well as the environmental impacts of production of the used fuel.
A5 Construction	Covering the exhaust emissions resulting from using energy during the site operations, the environmental impacts of production processes of fuel and energy and water as well as handling of waste until the end-of-waste state.
B1 In Use	This life stage includes the in-use emissions of products such as refrigerants. It also includes materials and products which are capable of absorbing carbon dioxide from the atmosphere.
B2-B3 Maintenance and Repair	Emissions associated with ongoing maintenance and repair of the development.
B4-B5 Replacement	The environmental impacts of material replacements after they reach the end of their service life.
B6 Operational Energy Use	The in-use phase energy consumption impacts include exhaust emissions from any building level energy production as well as the environmental impacts of production processes of fuel and externally produced energy. Regulated energy is the energy used by the building for MEP services such as heating and cooling. Unregulated energy use is the electricity used by small power load, for example white goods and appliances for personal use.
B7 Operational Water Use	Impacts of in-use water consumption (potable and non-potable) can be measured and reported.
C1-C4 End of Life	The impacts of deconstruction include impacts for processing recyclable construction waste flows for recycling or the impacts of pre-processing and land filling for waste streams that cannot be recycled.
D External Impacts	The reuse, recovery and recycling potential which is expressed as a net benefit.

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Table 17: Minimum requirements for WLC assessments

07.3 Appendix A

Methodology - Building Element & Data Sources

Building Element Group	Building Element	Comments
Demolition	0.1 Toxic / hazardous / contaminated material	No toxic / hazardous / contaminated material applicable.
	0.2 Major demolition works	Not applicable
0 Facilitating Works	0.3 & 0.5 Temporary / diversion works	No temporary or temporary diversion works were applicable.
	0.4 Specialist groundworks	No specialist groundworks were applicable.
1 Substructure		Material quantity and composition of the foundations were calculated based on the quantities provided in the stage 2 RFI completed by Whitby Wood - '(561)2604-JC-SD-Ashley_Park_CD_R02'
2 Superstructure	2.1 Frame	Material quantity and composition of the frame were calculated based on the quantities provided in the Stage 2 RFI completed by Whitby Wood - '(561)2604-JC-SD-Ashley_Park_CD_R02'
	2.2 Upper floors	Material quantity and composition of the upper floors were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	2.3 Roof	Material quantity and composition of the roof were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	2.4 Stairs and ramps	Material quantity and composition of the stairs and ramps were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	2.5 External walls	Material quantity and composition of the external walls were calculated based on the quantities provided in the stage 2 cost plan -X.
	2.6 Windows and doors	Material quantity and composition of the windows and doors were calculated based on the quantities provided in the stage 2 cost plan -X.
	2.7 Internal walls and partitions	Material quantity and composition of the internal walls were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	2.8 Internal doors	Material quantity and composition of the internal doors were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'

Table 18: Data Sources for building elements in WLCA

07.4 Appendix A

Methodology - Building Element & Data Sources

Building Element Group	Building Element	Comments
3 Finishes	3.1 Wall finishes	Material quantity and composition of the wall finishes were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	3.2 Floor finishes	Material quantity and composition of the floor finishes were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	3.3 Ceiling finishes	Material quantity and composition of the ceiling finishes were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
4 Fittings, Furnishings and Equipment		Material quantity and composition of all fittings, furnishings and equipment were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
5 Building Services / MEP		Material quantity and composition of the Building Services / MEP were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
6 Prefabricated Buildings and Building Units		No prefabricated building units applicable at this stage.
7 Works to existing building	7.1 Minor demolition and alteration works	All works to existing structure picked up within the above.
8 External Work	8.1 Site preparation works	Material quantity and composition of Site Preparation works were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	8.2 Roads, paths, paving and surfacing	Material quantity and composition of Roads, paths and pavings were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	8.3 Soft landscaping, planting and irrigation systems	No works were included at this stage.
	8.4 Fencing, railings and walls	No works were included at this stage.
	8.5 External fixtures	Material quantity and composition of External fixtures were calculated based on the quantities provided in the stage 2 cost plan provided by KS4 - '260804 Ashley Park Cost Estimate R4 - Design Freeze Certified'
	8.6 External drainage	Due to the stage in the design, quantifiable information is not yet available and therefore has not been included within the assessment.
	8.7 External services	Due to the stage in the design, quantifiable information is not yet available and therefore has not been included within the assessment.
	8.8 Minor building works and ancillary buildings	No allowance was considered for minor building works and ancillary buildings.

Table 19: Data Sources for building elements in WLCA

07.5 Appendix A

Methodology - Life Cycle Stages & Data Sources

Life Cycle Stage	Life Cycle Module	Comments
Product Stage [A1-A3]	A1 - Raw material extraction and supply	Calculated using various data sources within the OneClick software, including ecoinvent, GaBi and product specific Environmental Product Declarations (EPDs).
	A2 - Transport to manufacturing plant	
	A3 - Manufacturing and fabrication	
Construction Stage [A4-A5]	A4 - Transport to project site	At Stage 2, it is not possible to report all specific construction site impacts, therefore the OneClick software provides a function which allows the impact of site operations to be estimated based on climate region and building area. This function has been used for the development under the selection of 'Average energy and fuel use in construction site - per £million' for a project in the UK.
	A5 - Construction and installation process	
Use Stage [B1-B7]	B1 - In use	Information required for the calculations of the B1 emissions has not been provided at this stage.
	B2 - Maintenance	Specific products and EPDs are required to confirm the maintenance and repair emissions associated with the operation of the development. At this early stage in the development, it is not possible to know the majority of products which will be procured, therefore these emissions have been excluded from the assessment.
	B3 - Repair	
	B4 - Replacement	
	B5 - Refurbishment	Replacement emissions have been calculated using the RICS guidance service life defaults where EPDs and product specific information is not available.
	B6 - Operational energy use (regulated)	Results from the SAP & SBEM Calculations completed by Meinhardt provided data for this input.
	B6 - Operational energy use (un-regulated)	Results from the SAP & SBEM Calculations completed by Meinhardt provided data for this input.
End of Life Stage [C1-C4]	B7 - Operational water use	Part G results from Meinhardt confirm 105l/person/day for the shared living block and 80l/person/day for the residential (C3) block.
	C1 - Deconstruction / Demolition	These modules have been reported as a combined figure in line with the OneClick software which assumes default scenarios for the disposal of materials. For example, metals are assumed to be recycled, whereas materials with high heating potential are assumed to be incinerated for energy generation.
	C2 - Transport to disposal facility	
	C3 - Waste processing for reuse, recovery or recycling	
	C4 - Disposal	
Benefits and loads beyond the system boundary [D]	D - Reuse, recovery, recycling potential	OneClick assumes default scenarios for the benefits of a number of materials, such as the recycling of metal to avoid use of virgin materials, and crushing of concrete for use as hard core.

Table 20: Data sources for lifecycle stages in WLCA

07.6 Appendix A

Methodology - Assumptions & Default Scenarios

Building Part	Building elements/components	Expected lifespan
Roof	Roof coverings	30 years
Superstructure	Internal partitioning and dry lining	30 years
	Wall finishes: Render/Paint	30/10 years respectively
	Floor finishes Raised Access Floor (RAF)/Finish layers	30/10 years respectively
	Ceiling finishes Substrate/Paint	20/10 years respectively
FF&E	Loose furniture and fittings	10 years
Services / MEP	Heat source, e.g. boilers, calorifiers	20 years
	Space heating and air treatment	20 years
	Ductwork	20 years
	Electrical installations	30 years
	Lighting fittings	15 years
	Communications installations and controls	15 years
	Water and disposal installations	25 years
	Sanitaryware	20 years
	Lift and conveyor installations	20 years
	Opaque modular cladding e.g. rain screens, timber panels	30 years
Facade	Glazed cladding/Curtain walling	35 years
	Windows and external doors	30 years

Table 21: RICS default lifespans for building elements in WLC assessments

Transport Scenario	km by road	km by sea
Locally manufactured e.g. concrete, aggregate, earth	50	-
Nationally manufactured e.g. plasterboard, blockwork, insulation	300	-
European manufactured e.g. CLT, façade modules, carpet	1500	-
Globally manufactured e.g. specialist stone cladding	200	10000

Table 22: RICS default transport scenarios for UK projects

Material	Details	Baseline specification representative of standard practice (UK)
Concrete, precast	Structural elements: beams, segments, slabs, etc. pours of >25m ³	Reinforced concrete (C40/50, 25% cement replacement, excluding reinforcement)
Concrete reinforcement	Reinforcement bars	UK CARES sector average (EAF production, typically 96% recycled content in UK)
Masonry	Brickwork	Generic UK clay brick, dry brick weight 2.13kg
Insulation	For floors and external walls	Mineral wool
Glass	Glass: general, glazing, toughened, multilayer safety, skylight, fibreglass, expanded glass	Relevant generic datasets
Plastics	Plastics (various)	Relevant generic datasets
Asphalt	For highway and pavement construction	Asphalt, 5% binder content

Table 23: RICS default material specifications for UK projects

08

Appendix B

Cost Validation - Block A & Block B

08.1 Appendix B - Block A & Block B

Cost Plan Validation

RICS Category	Total Cost	Cost Included	Percentage Included	Notes
0.1 Demolition Works	£569,569	£569,569	100.0%	
1. Substructure	£3,623,080	£3,473,016	95.9%	Piling mat is a temporary works process that has been omitted.
2. Superstructure	£42,800,209	£41,385,860	96.7%	Insufficient information to model: mansafe system, davit arms system, acoustic enclosures, masonry supports, thermal breaks, roof terrace amenity fit-out.
3. Finishes	£7,346,948	£7,042,448	95.9%	Bulkhead ceiling finishes are omitted due to insufficient
4. FF&E	£11,003,576	£8,178,800	74.3%	Excludes loose/replaceable fittings (post boxes, storage, amenity fit-out, sinks/taps)
5. Services	£23,058,866	£22,158,866	96.1%	Insufficient information to model: LTHW tank room and ground floor specialist plant are process/MEP plant items not yet assigned
6. Prefabricated buildings and units	n/a	n/a	n/a	
7. Works to existing buildings	n/a	n/a	n/a	
8. External works	£3,444,049	£2,863,399	83.1%	Soft landscaping, tree planting, disabled parking markings, external lighting, fencing, attenuation tanks
Total	£91,846,297	£85,671,958	93.3%	

Table 24: Cost Plan Validation Checklist

Cost Plan Validation

The table above demonstrates the cost plan validation exercise undertaken to demonstrate the Whole Life Carbon (WLC) assessment aligns with the requirements of RICS Whole Life Carbon Assessment for the Built Environment, Version 1 (1st edition, November 2017).

This process involves cross-referencing the project's elemental cost plan with the RICS cost breakdown structure to verify that all major building elements have been represented within the WLC model. By mapping cost plan items to the relevant RICS categories and calculating the proportion of total costs covered, the exercise demonstrates that 93.3% of the project's costed elements are included in the assessment.

09

Appendix C

Data Sources - Block A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
4-port water brass manifolds	0.7 kg/unit	Collecteur (=nourrice=répartiteur=clarinette) en laiton à 4 sorties	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DCOL20190708_090523, 31548	MDEGD_FDES	EN15804+A
Acoustic Partition Roll	1.25 m2 K/W, 50 mm, 0.65 kg/m2	APR 1200	Saint-Gobain ISOVER UK Ltd	International EPD System	EPD-IES-0018294:001	EPD Isover Acoustic Partition Roll (APR 1200) 50 mm	EN15804+A
Adaptator female/female, RJ45 180°		Adaptator RJ45 female/female 180°	Hager SE	PEP-ecopassport	HAGE-00441-V01.01-EN, 14086	PEP	EN15804+A
Aluminium framed curtain wall system, double glazed	3.6x6 m, 39 kg/m2	ALTF50	Alutech Commercial UK	EPD Hub	HUB-1201	EPD ALTF50 Facade System	EN15804+A
Aluminium framed glass door, double glazed	2.18 x 1.23 m, 49.91 kg/m2	Masterline 8 - Double glazing	Reynaers Aluminium	European Aluminium	EPD-2022-0002	EPD Masterline 8 door – Double and Triple glazing	EN15804+A
Aluminium framed internal glazed telescopic door system	3000 mm x 2400 mm, 297 kg/unit	Flo-Motion® T100 Telescopic	Axis Entrance Systems Limited	BRE	BREG EN EPD 000633, issue 01	EPD 1 unit T100 Telescopic 100 mm (297 kg) and T55 Telescopic 55 mm (295 kg)	EN15804+A
Aluminium framed tilt and turn operable window, double glazed	1.23m x 1.48m, 35.42 kg/m2	SDOSo	Reynaers Aluminium	European Aluminium	EPD EUROPEAN ALUMINIUM 2017 – REYNAERS 8	EPD Concept System® 86-HI Window	EN15804+A
Aluminium rainscreen cladding for facade, pre-painted	3 mm, 8.13 kg/m2	VitraDual	Valcan	International EPD System	S-P-04405	EPD VitraDual Aluminium Cladding from Fairview Europe Ltd t/a Valcan	EN15804+A
Anti-vibration flanged sleeve	7.3 kg/unit	Manchon Antivibratile à bride DN = 100 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAN20190909_082217, 31748	MDEGD_FDES	EN15804+A
Audible signaling device (siren)		Matériel de signalisation phonique (sirène)	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAT20190819_150403, 31716	MDEGD_FDES	EN15804+A
Automatic revolving glass door	1439 kg/unit	Crystal Tourniket	Boon Edam	IBU	EPD-BEN-20260265-IBA1-EN	EPD Crystal Tourniket	EN15804+A
Autonomous fire alarm system		BAASL Sa (1 405 31)	Legrand	PEP-ecopassport	LGRP-00875-V01.01-FR, 10305	PEP	EN15804+A
Balance beam for children in playground	30.04 kg/unit	Knuten	Lekolar	EPD Norge	NEPD-14184-14483	EPD Knuten Balance Beam	EN15804+A
Balancing brass valve	2.3 kg/unit	Vanne d'équilibrage DN 50	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DVAN20190903_095833, 31736	MDEGD_FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Bathroom vanity unit, biogenic CO2 not subtracted (for CML)	17.55 kg/unit	Meuble à vasque salle de bain	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFAULT	INIES	INIES_DOSZ20220429_162859, 29757	MDEGD_FDES	EN15804+A
Bike rack with space for 10 bikes on two levels	124.30 kg/unit	SR 10-2	Suveren Rørmøbelfabrikk AS	EPD Norge	NEPD-9628-9267	EPD SR 10-2 Sykkelstativ i 2 etasjer. 10 plasser med CC 45	EN15804+A
Blue Roof				-			
Brass quarter-turn valve	0.3 kg/unit, diameter: 20 mm	Vanne quart-de-tour en laiton DN = 20mm	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFAULT	INIES	INIES_DYWB20220324_104903, 29530	MDEGD_FDES	EN15804+A
CCTV system for office buildings per m2				One Click LCA		One Click LCA	
Calcium silicate board	12 mm, 12.5 kg/m2		Klasse	BRE	BREG EN EPD 000486	EPD 1 m² of cement board	EN15804+A
Carpet tiles with recycled nylon face fibre	7 mm, 4.292 kg/m2	TaskWorx® Carpet Tile with EcoSolution Q100™ Face Fibre	Shaw Contract	IBU	EPD-SHA-20220301-CCA1-EN	EPD TaskWorx® Carpet Tile with EcoSolution Q100™ Face Fibre Shaw Contract (Shaw Europe Ltd.)	EN15804+A
Cast iron globe valves	DN = 50 mm, 15kg	Robinet à soupape en fonte	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFAULT	INIES	INIES_DROB20200320_180515, 31930	MDEGD_FDES	EN15804+A
Ceramic wall tiles	7.88 kg/m2		Royal Mosa	MRPI	1.1.00264.2022	EPD Mosa wall tile Provided by: Royal Mosa	EN15804+A
Circulator pump, for liquids in HVAC systems	Group 1: flow rate 6.1 m3/h, head max. 4 m, power input avg. 0.0238 kW	Magna3	Grundfos	IBU	EPD-GRU-20180144-CCC1-EN	EPD MAGNA3 25-40/60/80/100/120 (Cast iron) Grundfos Holding A/S	EN15804+A
Clay brick, UK average production	215 mm x 102.5 mm x 65 mm, 2.13 kg/unit, 1485 kg/m3		Brick Development Association (BDA) Ltd (2023)	BRE	BREG EN EPD000002, issue 05	EPD BDA Generic Brick, The Brick Development Association	EN15804+A
Clay soil, loose dry density	1280 kg/m3		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A
Coaxial cable (TV / FM)	Diam. 10 mm	Câble coaxial (TV / FM)	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFAULT	INIES	INIES_DCÂB20191220_141748, 32034	MDEGD_FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Coir mat with PVC backing	17 mm, 5.5 kg/m2		Rinos BV	MRPI	1.1.00329.2022	EPD Coir mat, PVC backing by Rinos BV	EN15804+A
Communication cable	0.231 kg/m	Câble PTT 288 14 paires - DONNEE ENVIRONNEMENTALE PAR DEFAULT	MINISTERE DE L'ENVIRONNEMENT, DE L'ENERGIE ET DE LA MER - MINISTERE DU LOGEMENT ET DE L'HABITAT DURABLE	INIES	INIES_DCÂB20200429_103216, 31901	MDEGD_FDES	EN15804+A
Communication cable, fiber optic	12 optic fibers, 94.3g/m	MBO 12FO version renforcée B1216	ACOME	INIES	ACOM-00075-V01.01-FR, 12850	PEP	EN15804+A
Compact play tower for younger children	137 kg/unit		Lekolar	EPD Norge	NEPD-14181-14487	EPD Jungle gym Knuten	EN15804+A
Composite bathroom system (water closet, washbasin, shower)	254.7 kg/unit, 3.26 kg/m2	KAURY, TRADILINE	Altor Industrie	International EPD System	EPD-IES-0013547:001	EPD ALTOR bathrooms	EN15804+A
Concrete assembly for stairs per one metre height, incl. railing, using One Click LCA generic data				-			
Concrete kerbstones	150 x 400 x 1000 mm, 132 kg/m	Cordonata 15x40x100	Micheletto S.r.l.	EPD Italy	EPDITALY0924	EPD Dei cordoli: Cordonata 7x20x100 Cordonata 12/15x25x100 Cordonata 15x40x100	EN15804+A
Coping system (for rood edging) from coated aluminium sheets	1.05 kg/m		DALALU	INIES	INIES_ICOU20200804_081613, 24193	FDES	EN15804+A
Copper data cable, plenum rated	0.0454 kg/m	10Gain XP 6A	Superior Essex	UL Environment	4789047039.101.1	EPD Superior Essex 4-Pair Copper Data Cable PLENUM RATED	EN15804+A
Copper pipe drainage and sewage network	1.7 kg/m	Réseau d'évacuation et d'assainissement en cuivre DN=40mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉ220161116_164540, 31451	MDEGD_FDES	EN15804+A
Copper plenum data cable	0.05 kg/m	Panduit TX6A™ Category 6A, F/UTP, Panduit TX6A™ Category 6A, U/FTP, Panduit TX6A™ Category 6A U/UTP, Indoor (CMP)/Outdoor, Panduit TX6A™ Category 6A, U/UTP, Vari-MaTriX HD, Panduit TX6A™ Category 6A, U/UTP	Panduit Corporation	UL Environment	4790076521.105.1	EPD Panduit Category 6A Plenum (CMP) Data Networking Cable	ISO 14040, EN15804+A
Corrugated plastic pipes	0.138 kg/m	FFKuS-EM-F-105 co2ntrol	Fränkische Rohrwerke Gebr. Kirchner GmbH & Co.	IBU	EPD-FRW-20190167-IBA1-DE	EPD FFKuS-EM- F-105 co2ntrol® FRÄNKISCHE Rohrwerke Gebr. Kirchner GmbH & Co. KG	EN15804+A
District heat distribution center, per 1kW	4.6 kg/kW		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Double particleboard wardrobe	1800 x 1000 x 600 mm, 1.08 m3 storage/unit, 72.9 kg/unit	DOUBLE WARDROBE	Bisley	International EPD System	S-P-05029	EPD Wardrobe Units LIVING BY BISLEY	EN15804+A EN15804+A
Drainage layer for green roofs from pozzolona and conifer bark, biogenic CO2 not subtracted (for CML)	971 kg/m3	Couche de drainage SOPRALITHE Z	SOPREMA SAS	INIES	INIES_ISUB20200921_161831, 30801	FDES	EN15804+A
Drinking water supply piping network, per m2 GIFA (residential buildings)	0.26 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Electric panel heater	240VAC, 0.5kW-3.0kW, 4.6-8.7 kg/unit	PLXE	Glen Dimplex Heating & Ventilation	BRE	BREG EN EPD 000617	EPD One-unit Dimplex PLXE panel heater (0.5-3.0kW)	EN15804+A
Electric water heater (water cylinder)	200 liter capacity	Aquanext Plus, Nuos Plus 200, Aquanext Plus 250, Nuos Plus 250, Aquanext Opti 110, Nuos Evo 110	Chaffoteaux	INIES	CHTX-00003-V01.00-FR, 33222	PEP	EN15804+A
Electrical control panel		IB+ Touch Building Controller	SOMFY	PEP-ecopassport	SOMF-00010-V01.01-EN, 7147	PEP	ISO14040
Electricity distribution system, cabling and central (switchboards/panelboards), per m2 GFA, for all building types	3.96 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Electromagnetic door holders and releasers	0.8672 kg/unit	Rixson 99X Series Electromagnetic door holders/releases: Models 994M, 996M, 997M, 998M	Assa Abloy	UL Environment	4789922565.103.1	EPD Rixson 99X Series Electromagnetic door holders/releases: Models 994M, 996M, 997M, 998M	ISO 14040, EN15804+A
Elevator	5043 kg/unit	Schindler 9300	Schindler Management Ltd	EPD Hub	HUB-1026	EPD Schindler 9300	EN15804+A
Emergency evacuation lighting	0.604 kg/unit	0 The environmenal data is representative of the following products :	LEGRAND	PEP-ecopassport	LGRP-01488-V01.01-FR, 30375	PEP	EN15804+A
Emulsion matt paint for interior use	0.174 kg/m2, 1.39 kg/l	Diamond Matt	Dulux Trade	MRPI	1.1.00370.2022	EPD Dulux Trade Diamond Matt AkzoNobel Decorative Paints	EN15804+A
Expansion tank/vessel	V = 200L	Vase d'expansion	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAUT	INIES	INIES_DVAS20190821_152747, 31728	MDEGD_FDES	EN15804+A
Extensive green roof system	40mm, 23.34 kg/m2	Urbanspace	Knauf	IBU	EPD-KNI-20160071-CBA1-EN	EPD URBANSCAPE Extensive Green Roof System	EN15804+A
Fire detection and alarm system for single room occupancy buildings per m2				One Click LCA		One Click LCA	

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Flat roof access hatch	71.951 kg/m2	Comfort Duo	LAMILUX Heinrich Strunz GmbH	Kiwa BCS	EPD-Kiwa-EE-000449-EN	EPD Flat Roof Access Hatch Comfort (LAMILUX Heinrich Strunz GmbH)	EN15804+A
Fluorescent lamp	T8-18W, 0.07 kg/unit, EN15804+A1, ref. year 2018			OKOBAUDAT	8c22ee68-34b8-4925-86ee-4ea905d39aba	ÖKOBAUDAT 2021-II (25.06.2021)	EN15804+A
Fluorescent lamp	T5-14W, 0.05 kg/unit, EN15804+A1, ref. year 2018			OKOBAUDAT	cc5538d1-6222-46f2-8633-aa5169d09747	ÖKOBAUDAT 2021-II (25.06.2021)	EN15804+A
Fresh water distribution system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Geocellular sub-base water management system from polypropylene for shallow water storage and infiltration applications	2.49 kg/unit	Permavoid 85	Polypipe Civils & Green Urbanisation	EPD Hub	HUB-0309	EPD Permavoid 85 Polypipe Civils & Green Urbanisation	EN15804+A EN15804+A
Glassfibre Reinforced Concrete (GRC) panel	65 kg/m2, 12 mm + 3 mm GRC thickness		lbstock Telling GRC Ltd	BRE	BREG EN EPD 000366, issue 02	EPD Plain GRC panel	EN15804+A
Gypsum plasterboard	12.5 mm, 8.985 kg/m2 (average product weight)		Etex Building Performance	BRE	BREG EN EPD 000204	EPD GTEC Plasterboard	EN15804+A
HVAC controller	0.334 kg/unit	7216001-DIP-120REGULATEUR HVACIP D-ONE CONTROLLER	Delta Dore	PEP-ecopassport	DDOR-00050-V01.01-FR, 30593	PEP	EN15804+A
Heat distribution system (water heat distribution), per m2 GFA, for residential buildings	2.7 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Heat distribution system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Homogeneous vinyl flooring sheet	20 m x 2000 mm, 2 mm, 3.25 kg/m2	Medscapes HPD v2	Teknoflor	SCS Global	SCS-EPD-08971	EPD Teknoflor™ Medscapes HPD™ v2	ISO 14040, EN15804+A
Hot sanitary water production and distribution system for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Hot-melt bitumen waterproofing system	13.4077 kg/m2	Wilotekt-Plus	Axter Ltd	EPD Hub	HUB-3554	EPD Wilotekt-Plus (Second Generation) Monolithic Hot Melt Structural Waterproofing System	EN15804+A EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Indicator light push button	0.0505 kg/unit	A9E18037 0	SCHNEIDER ELECTRIC INDUSTRIES SAS	INIES	SCHN-00137-V01.01-FR, 29618	PEP	EN15804+A
Indoor luminescent ceiling light, linear	P=20W	Encastrés intérieurs linéaires pour éclairage tertiaire	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DENC20191220_142906, 32102	MDEGD_FDES	EN15804+A
Indoor pendant lights, painted black (1 side)	1000 dia, 2,54 kg/unit	Ulu Half Paint, black (1 side)	David Trubridge Limited (2020)	Australasian EPD System	S-P-00556, v. 2	EPD Kitset Pendant Light Fittings	EN15804+A
Insulated plastic loft access hatch	4.41 kg/unit		Manthorpe Building Products	EPD Hub	HUB-5094	EPD Drop Down Loft Access Door	EN15804+A EN15804+A
Insulating vapour control layer and air barrier	0.148 kg/m2	Protect VC Foil Ultra	Building Product Design Ltd	EPD Hub	HUB-0658	EPD Glidevale Protect VC Foil Ultra Building Product Design Ltd	EN15804+A
LAN cable	0.16 kg/m, CAT6A F/UTP	032878	LEGRAND	PEP-ecopassport	LGRP-01411-V01.01-FR, 32226	PEP	EN15804+A
LED lighting	P = 40W	Réglette LED	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉG20191220_143840, 31766	MDEGD_FDES	EN15804+A
Lighting system for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Lightweight concrete masonry block	440 x 100 x 215 mm, 85 kg/m2	Ultra 3.6N	Interfuse Ltd	EPD Hub	HUB-3315	EPD 100mm Ultra 3N	EN15804+A EN15804+A
Low voltage cable	Section conductrice de 5 mm2 à 120 mm2	Câble basse tension 0,6/1kV	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DCÂB20191220_142755, 32093	MDEGD_FDES	EN15804+A
Manometers	2.702 kg/unit	Manomètre	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAN20190725_082826, 31576	MDEGD_FDES	EN15804+A
Metal pedestal			RAAFT	BRE	BREG EN EPD No. 000813	EPD Metal pedestal	EN15804+A
Metallic electrical equipment box/cabinet		904421N	LEGRAND	PEP-ecopassport	LGRP-00905-V01.01-EN, 12476	PEP	EN15804+A
Monitoring equipments		Equipements de monitoring	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DEQU20190919_091608, 31860	MDEGD_FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Moulded torus/ogee shaped profile from medium density fiberboard (MDF)	4.4x144x18 mm, 1.944 kg/m	Skirting Torus/Ogee Profile	Staircraft Group Ltd	EPD Hub	HUB-1182	EPD MDF Skirting	EN15804+A
Multimedia box with telephone, TV and LAN outputs	1.485 kg/unit	RJ45 413218 413218 - 413219	LEGRAND	PEP-ecopassport	LGRP-01384-V01.01-FR, 32215	PEP	EN15804+A
Non-woven polymer-fleece waterproofing membrane with LDPE foil cover	1.29 mm, 0.779 kg/m2	Polyfleece SX® 100	an.kox GmbH	Kiwa BCS	EPD-Kiwa-EE-144962-EN	EPD Polyfleece SX® 100	EN15804+A
Oriented Strand Board (OSB), UK average	100% FSC/PEFC		IStructE (2025)	IStructE	-	The Structural Carbon Tool, v3.0	EN15804+A
Outdoor bench from wood and steel	81.42 kg/unit	Porto bench E, Free-standing	Vestre AS	EPD Norge	NEPD-3027-1705-EN	EPD Porto bench E, Free-standing	EN15804+A
Output module, flush mounted	0.123 kg/unit	TXB692F TYB692F; TYB602F; TYB601B; TXB692F; TXB602F; TXB601B	Hager SE	PEP-ecopassport	HAGE-00512-V01.01-EN, 18672	PEP	EN15804+A
PIR insulation boards, aluminum composite foil faced	66 mm, L = 0.022 W/mK, R = 3 m2K/W, 2.11 kg/m2, 32 kg/m3	Eco-Versal, Eco-Deck baseboard, Eco-Cavity, Eco-Cavity Full Fill	EcoTherm (2021)	BRE	BREG EN EPD 000331, issue 02	EPD EcoTherm Eco-Versal, Eco-Deck baseboard, Eco-Cavity, Eco-Cavity Full Fill, issue 02	EN15804+A
PVC fittings, covers and jacketing		ZESTON® 2000 SERIES, ZESTON® 300 SERIES, ZESTON® PVC JACKETING	Johns Manville	UL Environment	4787305280.107.1	EPD PVC FITTING COVERS AND JACKETING ZESTON® 2000 SERIES • ZESTON® 300 SERIES • ZESTON® PVC JACKETING	EN15804+A
PVC resin pipes, for sewerage, drainage and conduits application	16 - 315 mm, 1350 - 1550 kg/m3		Rifeng	International EPD System	S-P-01649	EPD Rifeng PVC drainage and conduit pipes	EN15804+A
Paving stone	2910 kg/m3, water absorption 0.25 kg/m2	Tradstocks Scottish Whinstone Kerbstone	Tradstocks Ltd	International EPD System	EPD-IES-0010036:001	EPD Scottish Whinstone Kerbs, Setts, and Paving Stone	EN15804+A
Polypropylene (PP) water supply piping	Ép. paroi 6.6mm, Diam. Ext. entre 110 et 200mm	Réseau d'adduction d'eau en polypropylène	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFALT	INIES	INIES_DRÉS20191220_141523, 32022	MDEGD_FDES	EN15804+A
Porcelain stoneware floor tiles	21.83 kg/m2	Cette FDES couvre l'ensemble des carreaux céramiques MOSA pressés à sec, de type 1, avec absorption d'eau Eb = 0,5 %, qui utilisent tous les mêmes matières premières, relèvent du même procédé de production et ne se distinguent que par leur design : - µ - Core Collection - Core Collection Solids - Core Collection Terra - Core Collection Quartz - Global Collection - GlobalGrip - Mosa	ROYAL MOSA BV	INIES	INIES_IWFC20220104_114017, 33509	FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
		Stage - Scenes - Softgrip - Softline					
Power supply	0.04 kg/unit	Securitron AQD6 Series Power Supplies	Assa Abloy	UL Environment	4789615048.114.1	EPD Securitron AQD6 Series Power Supplies	ISO 14040, EN15804+A
Rainscreen cladding system	10.11 kg/m2	Sotech Optima IPC PPC	Sotech	EPD Hub	HUB-0894	EPD Sotech Optima IPC Interlocking Plank Secret Fix Cladding System 1.5mm aluminium polyester powder coated (inclusive of carrier rails, brackets and fixings)	EN15804+A
Ready mix concrete for blinding	C16/20, 2396 kg/m3		Irish Concrete Federation	EPD Ireland	EPDIE-24-192	EPD C16/20 Readymix Concrete (30% GGBS Cement Replacement)	EN15804+A
Ready-mix concrete, generic	C40/50 (5800/7300 PSI), XC1, 25% GGBS in cement, CEM II/B-S portland-slag cement, 2391 kg/m3, (version 2024)		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Ready-mix concrete, generic	C32/40 (4600/5800 PSI), XC1, 25% GGBS in cement, CEM II/B-S portland-slag cement, 2389 kg/m3, (version 2024)		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Ready-mix concrete, generic	C32/40 (4600/5800 PSI), XC1, CEM III/A blast furnace cement 50% GGBS content, 2389 kg/m3		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Ready-mix concrete, high-strength, generic	C50/60 (7252/8702 PSI), XC1, 25% GGBS in cement, CEM II/B-S portland-slag cement, 2409 kg/m3, (version 2024)		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Recycled co-polymer thermoplastic damp proof membrane	Length: 20 m, width: 100-1400mm, 0.758 kg/m2	Visqueen Zedex CPT	British Polythene Limited t/a Visqueen	EPD Hub	HUB-4686	EPD Visqueen Zedex CPT High Performance Damp Proof Course	EN15804+A EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Reinforcement steel (rebar), generic	97% recycled content (typical), A615, RICS UK baseline dataset		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Reinforcement steel (rebar), generic	97% recycled content (typical), A615		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Riser door system	34.01 kg/m2	Selo - Quadra+ riser door	SELO	EPD Hub	HUB-0030	EPD Selo - Quadra+ riser door SELO	EN15804+A EN15804+A
Roof integrated mono-crystalline photovoltaic module, per m2	25 kg/panel, 1.95 m2/panel, 12.82 kg/m2	Clearline fusion PV16-405-M10	Viridian Solar	International EPD System	S-P-06949	EPD Clearline Fusion Viridian Solar	EN15804+A
Router	0.18 kg/unit	Zigbee Router	Assa Abloy	UL Environment	4789027809.118.1	EPD Zigbee Router Network Product	ISO 14040, EN15804+A
Self leveling leveling compound, synthetic resin modified cement powder	4.5 kg/m2, 1350-1450 kg/m3	ROXOL TRAFIC 3	BOSTIK SA	INIES	INIES_IROX20181129_150440, 29945	FDES	EN15804+A
Self-adhered composite polyethylene waterproofing membrane	0.69876 kg/m2	Maxiprufe Plus	Premcrete	EPD Hub	HUB-3610	EPD Maxiprufe Plus	EN15804+A EN15804+A
Sewage water drainage piping network, per m2 GIFA, for residential buildings	0.1844 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Signal cable network for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Smoke detector, French average		Détecteurs de fumée	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DDÉT20161116_164323, 5575	MDEGD_FDES	EN15804+A
Stainless steel piping, water supply network	4.5 kg/m, diameter 50 mm	Réseau d'adduction d'eau en acier inoxydable Diam. Ext. = 50 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉS20191220_140734, 31988	MDEGD_FDES	EN15804+A
Stainless steel stair handrail	1.15 kg/m	Main courante d'escaliers en acier inoxydable diam = 45mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAI20180529_140740, 31482	MDEGD_FDES	EN15804+A
Standard kitchen set up	154.75 kg/unit	B2B 780BK	DKG Groep	MRPI	1.1.00634.2024	EPD B2B Standard Kitchen Set-up 780BK	EN15804+A EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Standing spin play equipment for outdoor playgrounds	35 kg/unit	Annie	Lekolar	EPD Norge	NEPD-14173-14500	EPD Annie spinner	EN15804+A
Steel brackets for façade cladding	2.5 mm, 8000 kg/m3	MFT-FOX VTR	Hilti AG	IBU	EPD-HIL-20240158-CBJ1-EN	EPD MFT-FOX VTR	EN15804+A
Steel purlins and framing	7850 kg/m3		Voestalpine Metsec plc	EPD Hub	HUB-0024	EPD Purlins and Framing Voestalpine Metsec plc	EN15804+A EN15804+A
Steel security doors with louvres	1.023x2.5 m, 37.56 kg/m2	STEELDOR	STRONGDOR LIMITED	EPD Hub	HUB-1834	EPD STEELDOR with Louvre	EN15804+A
Steel wall ties			Leviat	International EPD System	EPD-IES-0028555:003	EPD Ancon Channel Restraint System	EN15804+A
Stone wool insulation (stone wool)	L = 0.044 W/mK, R = 1 m2K/W, 44 mm, 0.968 kg/m2, 22 kg/m3		ROCKWOOL Peninsular S.A.U.	-	EPD-RW_03-2021_RW-UK_EN-0001	EPD ROCKWOOL® Stone Wool Thermal Insulation for buildings	EN15804+A
Surveillance camera, French average		Equipements pour la capture d'image (caméras)	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFALT	INIES	INIES_DEQU20161116_164440, 5662	MDEGD_FDES	EN15804+A
Suspended metal ceiling system with acoustic insert/pad	7.119 kg/m2	SAS System 200 (Steel) with Acoustic Insert/Pad	SAS International	BRE	BREG EN EPD 000291	EPD SAS System 200 (Steel) with Acoustic Insert/Pad, SAS International	EN15804+A
Temperature measurement sensor	0.126 kg/unit	Sonde de température - DONNEE ENVIRONNEMENTALE PAR DEFALT	MINISTERE DE L'ENVIRONNEMENT, DE L'ENERGIE ET DE LA MER - MINISTERE DU LOGEMENT ET DE L'HABITAT DURABLE	INIES	INIES_DSON20200430_165135, 31933	MDEGD_FDES	EN15804+A
Terracotta shingles for exterior façade wall cladding	31 kg/m2	Bardage Argelite	WIENERBERGER	INIES	INIES_IBAR20201216_092421, 38130	FDES	EN15804+A
Thermometer, for heating network	0.327kg	Thermomètre (circulaire, droit) pour réseau de chauffage, ECS...	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFALT	INIES	INIES_DTHE20200422_125243, 31946	MDEGD_FDES	EN15804+A
Transparent interior dust binder	Spreading rate: 8 m2/l 1020 kg/m3	Floor Concrete Sealer	Flügger group A/S	International EPD System	EPD-IES-0024380:001	EPD Flügger Floor Concrete Sealer	EN15804+A
UK aggregate mix (land-won, marine, secondary, and recycled sources, bulk, loose)	RICS UK baseline dataset		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Valve, 2 or 3-way	4.32 kg/unit	Vanne 2 ou 3 voies DN = 50 mm	DONNEE ENVIRONNEMENTALE	INIES	INIES_DVAN20190903_092159, 31735	MDEGD_FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
			GENERIQUE PAR DEFAULT				
Ventilation system, per m2 GIFA, for residential buildings	4.1 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Wastewater drainage system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Water circulation radiator	Heating capacity: 1 kW, size: 700 × 500 × 102 mm, 20 kg/unit		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
Wooden doors, calculated average for United Kingdom	1.23x2.18 m, 36 kg/m2, 96 kg/unit		One Click LCA	One Click LCA		Calculated average for wooden doors	EN15804+A
Woven polypropylene geotextile	0.11 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804+A EN15804+A
XPS insulation foam boards	L = 0.027 - 0.03 W/mK, 41.9 kg/m3, Lambda=0.027 W/(m.K)	RAVATHERM XPS (X) PLUS/ULTRA	Ravago Building Solutions Germany GmbH	IBU	EPD-RAV-20220157-CBD1-EN	EPD RAVATHERM XPS (X) PLUS/ULTRA	EN15804+A
XPS insulation for pipes	25 mm, 0.17 kg/m	Calorifuge en coquille polystyrène ép. 25 mm pour une conduite de DN 42 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DBCS20220304_192010, 29398	MDEGD_FDES	EN15804+A

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
4-port water brass manifolds	0.7 kg/unit	Collecteur (=nourrice=répartiteur=clarinette) en laiton à 4 sorties	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DCOL20190708_090523, 31548	MDEGD_FDES	EN15804
Acoustic Partition Roll	1.25 m2 K/W, 50 mm, 0.65 kg/m2	APR 1200	Saint-Gobain ISOVER UK Ltd	International EPD System	EPD-IES-0018294:001	EPD Isover Acoustic Partition Roll (APR 1200) 50 mm	EN15804
Adaptator female/female, RJ45 180°		Adaptator RJ45 female/female 180°	Hager SE	PEP-ecopassport	HAGE-00441-V01.01-EN, 14086	PEP	EN15804
Aluminium balcony system	3300 x 1800 mm, 595 kg/unit	Cobalt Hybrid Balcony	Blue Chyp Ltd, Cradley Heath plant	BRE	BREG EN EPD000359	EPD Cobalt hybrid Balcony System	EN15804
Aluminium balustrade railing system with vertical infill for balconies	1100x1100 mm, 20.5 kg/m	AliiRail	AliiDeck	EPD Hub	HUB-5510	EPD AliiRail aluminium balustrade railing plate fix 074kN	EN15804
Aluminium framed internal glazed telescopic door system	3000 mm x 2400 mm, 297 kg/unit	Flo-Motion® T100 Telescopic	Axis Entrance Systems Limited	BRE	BREG EN EPD 000633, issue 01	EPD 1 unit T100 Telescopic 100 mm (297 kg) and T55 Telescopic 55 mm (295 kg)	EN15804
Aluminium framed tilt and turn operable window, double glazed	1.23m x 1.48m, 35.42 kg/m2	SDOSo	Reynaers Aluminium	European Aluminium	EPD EUROPEAN ALUMINIUM 2017 – REYNAERS 8	EPD Concept System® 86-HI Window	EN15804
Aluminium front opening door	37.16 kg/m2	RECTANGLE (Vitré)	K•LINE	INIES	INIES_IXRP20240409_184041, 37879	FDES	EN15804
Aluminium sheet, generic	0% recycled content, average European aluminium manufacturing technology		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Anti-vibration flanged sleeve	7.3 kg/unit	Manchon Antivibratile à bride DN = 100 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAN20190909_082217, 31748	MDEGD_FDES	EN15804
Audible signaling device (siren)		Matériel de signalisation phonique (sirène)	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAT20190819_150403, 31716	MDEGD_FDES	EN15804
Autonomous fire alarm system		BAASL Sa (1 405 31)	Legrand	PEP-ecopassport	LGRP-00875-V01.01-FR, 10305	PEP	EN15804
Balance beam for children in playground	30.04 kg/unit	Knuten	Lekolar	EPD Norge	NEPD-14184-14483	EPD Knuten Balance Beam	EN15804
Balancing brass valve	2.3 kg/unit	Vanne d'équilibrage DN 50	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DVAN20190903_095833, 31736	MDEGD_FDES	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Bathroom vanity unit, biogenic CO2 not subtracted (for CML)	17.55 kg/unit	Meuble à vasque salle de bain	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DOSZ20220429_162859, 29757	MDEGD_FDES	EN15804
Bike rack with space for 10 bikes on two levels	124.30 kg/unit	SR 10-2	Suveren Rørmøbelfabrikk AS	EPD Norge	NEPD-9628-9267	EPD SR 10-2 Sykkelstativ i 2 etasjer. 10 plasser med CC 45	EN15804
Blue Roof				-			
Brass quarter-turn valve	0.3 kg/unit, diameter: 20 mm	Vanne quart-de-tour en laiton DN = 20mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DYWB20220324_104903, 29530	MDEGD_FDES	EN15804
CCTV system for office buildings per m2				One Click LCA		One Click LCA	
Calcium silicate board	12 mm, 12.5 kg/m2		Klasse	BRE	BREG EN EPD 000486	EPD 1 m² of cement board	EN15804
Carpet tiles with recycled nylon face fibre	7 mm, 4.292 kg/m2	TaskWorx® Carpet Tile with EcoSolution Q100™ Face Fibre	Shaw Contract	IBU	EPD-SHA-20220301-CCA1-EN	EPD TaskWorx® Carpet Tile with EcoSolution Q100™ Face Fibre Shaw Contract (Shaw Europe Ltd.)	EN15804
Cast iron globe valves	DN = 50 mm,15kg	Robinet à soupape en fonte	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DROB20200320_180515, 31930	MDEGD_FDES	EN15804
Ceramic wall tiles	7.88 kg/m2		Royal Mosa	MRPI	1.1.00264.2022	EPD Mosa wall tile Provided by: Royal Mosa	EN15804
Ceramic washbasins	14.558 kg/unit		Hansgrohe Group	IBU	EPD-HAN-20240194-ICC1-EN	EPD Washbasins	EN15804
Circulator pump, for liquids in HVAC systems	Group 1: flow rate 6.1 m3/h, head max. 4 m, power input avg. 0.0238 kW	Magna3	Grundfos	IBU	EPD-GRU-20180144-CCC1-EN	EPD MAGNA3 25-40/60/80/100/120 (Cast iron) Grundfos Holding A/S	EN15804
Clay brick, UK average production	215 mm x 102.5 mm x 65 mm, 2.13 kg/unit, 1485 kg/m3		Brick Development Association (BDA) Ltd (2023)	BRE	BREG EN EPD000002, issue 05	EPD BDA Generic Brick, The Brick Development Association	EN15804
Clay soil, loose dry density	1280 kg/m3		One Click LCA	One Click LCA	-	One Click LCA	EN15804
Coaxial cable (TV / FM)	Diam. 10 mm	Câble coaxial (TV / FM)	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DCÂB20191220_141748, 32034	MDEGD_FDES	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Coir mat with PVC backing	17 mm, 5.5 kg/m2		Rinos BV	MRPI	1.1.00329.2022	EPD Coir mat, PVC backing by Rinos BV	EN15804
Communication cable	0.231 kg/m	Câble PTT 288 14 paires - DONNEE ENVIRONNEMENTALE PAR DEFAULT	MINISTERE DE L'ENVIRONNEMENT, DE L'ENERGIE ET DE LA MER - MINISTERE DU LOGEMENT ET DE L'HABITAT DURABLE	INIES	INIES_DCÂB20200429_103216, 31901	MDEGD_FDES	EN15804
Communication cable, fiber optic	12 optic fibers, 94.3g/m	MBO 12FO version renforcée B1216	ACOME	INIES	ACOM-00075-V01.01-FR, 12850	PEP	EN15804
Compact play tower for younger children	137 kg/unit		Lekolar	EPD Norge	NEPD-14181-14487	EPD Jungle gym Knuten	EN15804
Composite bathroom system (water closet, washbasin, shower)	254.7 kg/unit, 3.26 kg/m2	KAURY, TRADILINE	Altor Industrie	International EPD System	EPD-IES-0013547:001	EPD ALTOR bathrooms	EN15804
Concrete assembly for stairs per one metre height, incl. railing, using One Click LCA generic data				-			
Concrete kerbstones	150 x 400 x 1000 mm, 132 kg/m	Cordonata 15x40x100	Micheletto S.r.l.	EPD Italy	EPDITALY0924	EPD Dei cordoli: Cordonata 7x20x100 Cordonata 12/15x25x100 Cordonata 15x40x100	EN15804
Coping system (for rood edging) from coated aluminium sheets	1.05 kg/m		DALALU	INIES	INIES_ICOU20200804_081613, 24193	FDES	EN15804
Copper data cable, plenum rated	0.0454 kg/m	10Gain XP 6A	Superior Essex	UL Environment	4789047039.101.1	EPD Superior Essex 4-Pair Copper Data Cable PLENUM RATED	EN15804
Copper pipe drainage and sewage network	1.7 kg/m	Réseau d'évacuation et d'assainissement en cuivre DN=40mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉ220161116_164540, 31451	MDEGD_FDES	EN15804
Copper plenum data cable	0.05 kg/m	Panduit TX6A™ Category 6A, F/UTP, Panduit TX6A™ Category 6A, U/FTP, Panduit TX6A™ Category 6A U/UTP, Indoor (CMP)/Outdoor, Panduit TX6A™ Category 6A, U/UTP, Vari-MaTriX HD, Panduit TX6A™ Category 6A, U/UTP	Panduit Corporation	UL Environment	4790076521.105.1	EPD Panduit Category 6A Plenum (CMP) Data Networking Cable	ISO 1404 EN15804
Corrugated plastic pipes	0.138 kg/m	FFKuS-EM-F-105 co2ntrol	Fränkische Rohrwerke Gebr. Kirchner GmbH & Co.	IBU	EPD-FRW-20190167-IBA1-DE	EPD FFKuS-EM-F-105 co2ntrol® FRÄNKISCHE Rohrwerke Gebr. Kirchner GmbH & Co. KG	EN15804
District heat distribution center, per 1kW	4.6 kg/kW		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Double particleboard wardrobe	1800 x 1000 x 600 mm, 1.08	DOUBLE WARDROBE	Bisley	International EPD System	S-P-05029	EPD Wardrobe Units LIVING BY BISLEY	EN15804 EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
	m3 storage/unit, 72.9 kg/unit						
Drainage layer for green roofs from pozzolona and conifer bark, biogenic CO2 not subtracted (for CML)	971 kg/m3	Couche de drainage SOPRALITHE Z	SOPREMA SAS	INIES	INIES_ISUB20200921_161831, 30801	FDES	EN15804
Drinking water supply piping network, per m2 GIFA (residential buildings)	0.26 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
EPDM waterproofing membrane	1.5 mm, 1.95 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Electric panel heater	240VAC, 0.5kW-3.0kW, 4.6-8.7 kg/unit	PLXE	Glen Dimplex Heating & Ventilation	BRE	BREG EN EPD 000617	EPD One-unit Dimplex PLXE panel heater (0.5-3.0kW)	EN15804
Electric water heater (water cylinder)	200 liter capacity	Aquanext Plus, Nuos Plus 200, Aquanext Plus 250, Nuos Plus 250, Aquanext Opti 110, Nuos Evo 110	Chaffoteaux	INIES	CHTX-00003-V01.00-FR, 33222	PEP	EN15804
Electrical control panel		IB+ Touch Building Controller	SOMFY	PEP-ecopassport	SOMF-00010-V01.01-EN, 7147	PEP	ISO1404
Electricity distribution system, cabling and central (switchboards/panelboards), per m2 GFA, for all building types	3.96 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Electromagnetic door holders and releasers	0.8672 kg/unit	Rixson 99X Series Electromagnetic door holders/releases: Models 994M, 996M, 997M, 998M	Assa Abloy	UL Environment	4789922565.103.1	EPD Rixson 99X Series Electromagnetic door holders/releases: Models 994M, 996M, 997M, 998M	ISO 1404 EN15804
Elevator	5043 kg/unit	Schindler 9300	Schindler Management Ltd	EPD Hub	HUB-1026	EPD Schindler 9300	EN15804
Emergency evacuation lighting	0.604 kg/unit	0 The environmental data is representative of the following products :	LEGRAND	PEP-ecopassport	LGRP-01488-V01.01-FR, 30375	PEP	EN15804
Emulsion matt paint for interior use	0.174 kg/m2, 1.39 kg/l	Diamond Matt	Dulux Trade	MRPI	1.1.00370.2022	EPD Dulux Trade Diamond Matt AkzoNobel Decorative Paints	EN15804
Expansion tank/vessel	V = 200L	Vase d'expansion	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DVAS20190821_152747, 31728	MDEGD_FDES	EN15804
Extensive green roof system	40mm, 23.34 kg/m2	Urbanspace	Knauf	IBU	EPD-KNI-20160071-CBA1-EN	EPD URBANSCAPE Extensive Green Roof System	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Fire detection and alarm system for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Flat fibre cement panels for cladding, uncoated, glass fibre reinforced	6mm, 8.12 kg/m2, 1354 kg/m3, normal weight		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Flat roof access hatch	71.951 kg/m2	Comfort Duo	LAMILUX Heinrich Strunz GmbH	Kiwa BCS	EPD-Kiwa-EE-000449-EN	EPD Flat Roof Access Hatch Comfort (LAMILUX Heinrich Strunz GmbH)	EN15804
Fluorescent lamp	T8-18W, 0.07 kg/unit, EN15804+A1, ref. year 2018			OKOBAUDAT	8c22ee68-34b8-4925-86ee-4ea905d39aba	ÖKOBAUDAT 2021-II (25.06.2021)	EN15804
Fluorescent lamp	T5-14W, 0.05 kg/unit, EN15804+A1, ref. year 2018			OKOBAUDAT	cc5538d1-6222-46f2-8633-aa5169d09747	ÖKOBAUDAT 2021-II (25.06.2021)	EN15804
Fresh water distribution system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Geocellular sub-base water management system from polypropylene for shallow water storage and infiltration applications	2.49 kg/unit	Permavoid 85	Polypipe Civils & Green Urbanisation	EPD Hub	HUB-0309	EPD Permavoid 85 Polypipe Civils & Green Urbanisation	EN15804 EN15804
Glassfibre Reinforced Concrete (GRC) panel	65 kg/m2, 12 mm + 3 mm GRC thickness		Ibstock Telling GRC Ltd	BRE	BREG EN EPD 000366, issue 02	EPD Plain GRC panel	EN15804
Gypsum plasterboard	12.5 mm, 8.985 kg/m2 (average product weight)		Etex Building Performance	BRE	BREG EN EPD 000204	EPD GTEC Plasterboard	EN15804
Gypsum plasterboard, sound resistant	15 mm, 14 kg/m2, L= 0.250 W/m.K	Gyproc SoundBloc	Saint-Gobain Construction Products UK Limited t/a British Gypsum (2024)	International EPD System	EPD-IES-0000509:003	EPD Gyproc SoundBloc 15 mm	EN15804 EN15804
HVAC controller	0.334 kg/unit	7216001-DIP-120REGULATEUR HVACIP D-ONE CONTROLLER	Delta Dore	PEP-ecopassport	DDOR-00050-V01.01-FR, 30593	PEP	EN15804
Heat distribution system (water heat distribution), per m2 GFA, for residential buildings	2.7 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Heat distribution system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Homogeneous vinyl flooring sheet	20 m x 2000 mm, 2 mm, 3.25 kg/m2	Medscapes HPD v2	Teknoflor	SCS Global	SCS-EPD-08971	EPD Teknoflor™ Medscapes HPD™ v2	ISO 14044 EN15804
Hot sanitary water production and distribution				One Click LCA		One Click LCA	

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
system for single room occupancy buildings per m2							
Hot-melt bitumen waterproofing system	13.4077 kg/m2	Wilotekt-Plus	Axter Ltd	EPD Hub	HUB-3554	EPD Wilotekt-Plus (Second Generation) Monolithic Hot Melt Structural Waterproofing System	EN15804
Indicator light push button	0.0505 kg/unit	A9E18037 0	SCHNEIDER ELECTRIC INDUSTRIES SAS	INIES	SCHN-00137-V01.01-FR, 29618	PEP	EN15804
Indoor luminescent ceiling light, linear	P=20W	Encastrés intérieurs linéaires pour éclairage tertiaire	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DENC20191220_142906, 32102	MDEGD_FDES	EN15804
Indoor pendant lights, painted black (1 side)	1000 dia, 2,54 kg/unit	Ulu Half Paint, black (1 side)	David Trubridge Limited (2020)	Australasian EPD System	S-P-00556, v. 2	EPD Kitset Pendant Light Fittings	EN15804
Insulated plastic loft access hatch	4.41 kg/unit		Manthorpe Building Products	EPD Hub	HUB-5094	EPD Drop Down Loft Access Door	EN15804
Insulating vapour control layer and air barrier	0.148 kg/m2	Protect VC Foil Ultra	Building Product Design Ltd	EPD Hub	HUB-0658	EPD Glidevale Protect VC Foil Ultra Building Product Design Ltd	EN15804
LAN cable	0.16 kg/m, CAT6A F/UTP	032878	LEGRAND	PEP-ecopassport	LGRP-01411-V01.01-FR, 32226	PEP	EN15804
LED lighting	P = 40W	Réglette LED	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉG20191220_143840, 31766	MDEGD_FDES	EN15804
Lighting system for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Lightweight precast concrete blocks, UK average			IStructE (2025)	IStructE	-	The Structural Carbon Tool, v3.0	EN15804
Low voltage cable	Section conductrice de 5 mm2 à 120 mm2	Câble basse tension 0,6/1kV	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DCÂB20191220_142755, 32093	MDEGD_FDES	EN15804
Manometers	2.702 kg/unit	Manomètre	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAN20190725_082826, 31576	MDEGD_FDES	EN15804
Metal pedestal			RAAFT	BRE	BREG EN EPD No. 000813	EPD Metal pedestal	EN15804
Metallic electrical equipment box/cabinet		904421N	LEGRAND	PEP-ecopassport	LGRP-00905-V01.01-EN, 12476	PEP	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Modified bitumen self-adhesive membrane for gas and vapour barrier waterproofing	1x20 m, 1.65 kg/m2		British Polythene Limited t/a Visqueen	EPD Hub	HUB-5545	EPD Visqueen Self Adhesive Membrane	EN15804
Monitoring equipments		Equipements de monitoring	DONNEE ENVIRONNEMENTALE GNERIQUE PAR DEFALT	INIES	INIES_DEQU20190919_091608, 31860	MDEGD_FDES	EN15804
Moulded torus/ogee shaped profile from medium density fiberboard (MDF)	4.4x144x18 mm, 1.944 kg/m	Skirting Torus/Ogee Profile	Staircraft Group Ltd	EPD Hub	HUB-1182	EPD MDF Skirting	EN15804
Multimedia box with telephone, TV and LAN outputs	1.485 kg/unit	RJ45 413218 413218 - 413219	LEGRAND	PEP-ecopassport	LGRP-01384-V01.01-FR, 32215	PEP	EN15804
Non-woven polymer-fleece waterproofing membrane with LDPE foil cover	1.29 mm, 0.779 kg/m2	Polyfleece SX® 100	an.kox GmbH	Kiwa BCS	EPD-Kiwa-EE-144962-EN	EPD Polyfleece SX® 100	EN15804
One storey timber staircase	2587x225x905 mm, 41.9 deg		Stair Craft	-	-	EPD One storey timber staircase STAIRCRAFT (Midlands) Ltd	EN15804
Oriented Strand Board (OSB), UK average	100% FSC/PEFC		IStructE (2025)	IStructE	-	The Structural Carbon Tool, v3.0	EN15804
Outdoor bench from wood and steel	81.42 kg/unit	Porto bench E, Free-standing	Vestre AS	EPD Norge	NEPD-3027-1705-EN	EPD Porto bench E, Free-standing	EN15804
Output module, flush mounted	0.123 kg/unit	TXB692F TYB692F; TYB602F; TYB601B; TXB692F; TXB602F; TXB601B	Hager SE	PEP-ecopassport	HAGE-00512-V01.01-EN, 18672	PEP	EN15804
PIR insulation boards, aluminum composite foil faced	66 mm, L = 0.022 W/mK, R = 3 m2K/W, 2.11 kg/m2, 32 kg/m3	Eco-Versal, Eco-Deck baseboard, Eco-Cavity, Eco-Cavity Full Fill	EcoTherm (2021)	BRE	BREG EN EPD 000331, issue 02	EPD EcoTherm Eco-Versal, Eco-Deck baseboard, Eco-Cavity, Eco-Cavity Full Fill, issue 02	EN15804
PVC fittings, covers and jacketing		ZESTON® 2000 SERIES, ZESTON® 300 SERIES, ZESTON® PVC JACKETING	Johns Manville	UL Environment	4787305280.107.1	EPD PVC FITTING COVERS AND JACKETING ZESTON® 2000 SERIES • ZESTON® 300 SERIES • ZESTON® PVC JACKETING	EN15804
PVC resin pipes, for sewerage, drainage and conduits application	16 - 315 mm, 1350 - 1550 kg/m3		Rifeng	International EPD System	S-P-01649	EPD Rifeng PVC drainage and conduit pipes	EN15804
Paving stone	2910 kg/m3, water absorption 0.25 kg/m2	Tradstocks Scottish Whinstone Kerbstone	Tradstocks Ltd	International EPD System	EPD-IES-0010036:001	EPD Scottish Whinstone Kerbs, Setts, and Paving Stone	EN15804
Planed timber, conifer			Treindustrien	EPD Norge	NEPD-308-179-EN	Structural timber of spruce and pine, Norwegian Wood Industry Federation	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Polyethylene vapour barrier membrane	0.15 mm, 0.14 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Polypropylene (PP) water supply piping	Ép. paroi 6.6mm, Diam. Ext. entre 110 et 200mm	Réseau d'adduction d'eau en polypropylène	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAUT	INIES	INIES_DRÉS20191220_141523, 32022	MDEGD_FDES	EN15804
Porcelain WC kit (toilet and tank)	37.4 kg/unit	DURAVIT : Duraplus (023009+087920) KOHLER : Odeon Up (4956CK+E4708 ; 4956CK+E4740 ; 18557K+E4708 ; 18557K+E4740). Brive (E4380+E4452 ; E4380+E4453 ; E4381+E4452 ; E4381+E4453 ; E1730+E4452). Eolia (E4380+E4269). Patio (UJD101+ETB111 ; UJB101+ETB111 ; UJV101+ETB111 ; UJW101+ETB111 ; UJV101+ETB211). Struktura (UJX101+ETE111 ; UJH101+ETE111) // ROCA : VICTORIA (A349392000 ; A349393000 ; A34P395000). DEBBA (A34D999000 ; A34D99L000)	Association Française des Industries de la Salle de Bains	INIES	INIES_CPAC20140416_145721, 14204	FDES	EN15804
Porcelain stoneware floor tiles	21.83 kg/m2	Cette FDES couvre l'ensemble des carreaux céramiques MOSA pressés à sec, de type 1, avec absorption d'eau Eb = 0,5 %, qui utilisent tous les mêmes matières premières, relèvent du même procédé de production et ne se distinguent que par leur design : - µ - Core Collection - Core Collection Solids - Core Collection Terra - Core Collection Quartz - Global Collection - GlobalGrip - Mosa Stage - Scenes - Softgrip - Softline	ROYAL MOSA BV	INIES	INIES_IWFC20220104_114017, 33509	FDES	EN15804
Power supply	0.04 kg/unit	Securitron AQD6 Series Power Supplies	Assa Abloy	UL Environment	4789615048.114.1	EPD Securitron AQD6 Series Power Supplies	ISO 1404 EN15804
Preformed cavity trays from recycled polypropylene		Type C Cavitra, Type Q Arresting Barriers, Type U Cavitray Cavicloak and Cavilengths	Cavity Trays Ltd	EPD Hub	HUB-0847	EPD Preformed Cavity Trays from 100% Recycled Polypropylene	EN15804 EN15804
Rainscreen cladding system	13.63 kg/m2	Sotech Optima FC+ PPC	Sotech	EPD Hub	HUB-0891	EPD Sotech Optima FC+ Secret Fix Rainscreen Panel System 3mm aluminium polyester powder coated (inclusive of carrier rails, brackets and fixings)	EN15804
Ready mix concrete for blinding	C16/20, 2396 kg/m3		Irish Concrete Federation	EPD Ireland	EPDIE-24-192	EPD C16/20 Readymix Concrete (30% GGBS Cement Replacement)	EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Ready-mix concrete, generic	C40/50 (5800/7300 PSI), XC1, 25% GGBS in cement, CEM II/B-S portland-slag cement, 2391 kg/m3, (version 2024)		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Ready-mix concrete, generic	C32/40 (4600/5800 PSI), XC1, 25% GGBS in cement, CEM II/B-S portland-slag cement, 2389 kg/m3, (version 2024)		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Ready-mix concrete, generic	C32/40 (4600/5800 PSI), XC1, CEM III/A blast furnace cement 50% GGBS content, 2389 kg/m3		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Reinforcement steel (rebar), generic	97% recycled content (typical), A615, RICS UK baseline dataset		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Reinforcement steel (rebar), generic	97% recycled content (typical), A615		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Riser door system	34.01 kg/m2	Selo - Quadra+ riser door	SELO	EPD Hub	HUB-0030	EPD Selo - Quadra+ riser door SELO	EN15804 EN15804
Rock wool cavity fire barrier with intumescent strip		COSB 25 1024	PFC Corofil	EPD Hub	HUB-3601	EPD COSB 25 1024 Cavity Barrier for 246mm Cavity	EN15804 EN15804
Roof integrated mono-crystalline photovoltaic module, per m2	25 kg/panel, 1.95 m2/panel, 12.82 kg/m2	Clearline fusion PV16-405-M10	Viridian Solar	International EPD System	S-P-06949	EPD Clearline Fusion Viridian Solar	EN15804
Router	0.18 kg/unit	Zigbee Router	Assa Abloy	UL Environment	4789027809.118.1	EPD Zigbee Router Network Product	ISO 14046 EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Sandwich panel with mineral wool core and double steel siding, fire and sound resistant, for wall application	200 mm, 29.7 kg/m2, R = 5.00 m2K/W, Fire resistance class = A2, s1, d0, Sound insulation Rw = 35dB	ISOFIRE WALL, ISOFIRE WALL PLISSÉ	Isopan	International EPD System	S-P-01550	EPD SANDWICH PANELS WITH STEEL FACINGS AND MINERAL WOOL INSULATING CORE	EN15804
Self-adhered composite polyethylene waterproofing membrane	0.69876 kg/m2	Maxiprufe Plus	Premcrete	EPD Hub	HUB-3610	EPD Maxiprufe Plus	EN15804 EN15804
Self-levelling screed	1 mm, 2.25 kg/m2	Gyvlon® EXCELIO	Anhydritec	International EPD System	S-P-09604	EPD Gyvlon EXCELIO Flowing Screed	EN15804
Sewage water drainage piping network, per m2 GlFA, for residential buildings	0.1844 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Signal cable network for single room occupancy buildings per m2				One Click LCA		One Click LCA	
Skylight roof window, fixed frame	35 kg/m2	ECOLUX FIXE LEC	KINGSPAN LIGHT & AIR	INIES	INIES_IPKZ20240604_150919, 39767	FDES	EN15804
Smoke detector, French average		Détecteurs de fumée	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DDÉT20161116_164323, 5575	MDEGD_FDES	EN15804
Stainless steel façade cladding panel	5.5 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Stainless steel piping, water supply network	4.5 kg/m, diameter 50 mm	Réseau d'adduction d'eau en acier inoxydable Diam. Ext. = 50 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DRÉS20191220_140734, 31988	MDEGD_FDES	EN15804
Stainless steel stair handrail	1.15 kg/m	Main courante d'escaliers en acier inoxydable diam = 45mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DMAI20180529_140740, 31482	MDEGD_FDES	EN15804
Stainless steel-based wall ties			Leviat	International EPD System	EPD-IES-0028552:003	EPD Ancon Wall Ties for Cellular Clay Blocks	EN15804
Standard kitchen set up	154.75 kg/unit	B2B 780BK	DKG Groep	MRPI	1.1.00634.2024	EPD B2B Standard Kitchen Set-up 780BK	EN15804 EN15804
Standing spin play equipment for outdoor playgrounds	35 kg/unit	Annie	Lekolar	EPD Norge	NEPD-14173-14500	EPD Annie spinner	EN15804
Steel frame parapet assembly, with updated One Click LCA generic data (2025)				One Click LCA		One Click LCA generic construction definitions	

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Steel purlins and framing	7850 kg/m3		Voestalpine Metsec plc	EPD Hub	HUB-0024	EPD Purlins and Framing Voestalpine Metsec plc	EN15804 EN15804
Steel security doors with louvres	1.023x2.5 m, 37.56 kg/m2	STEELDOR	STRONGDOR LIMITED	EPD Hub	HUB-1834	EPD STEELDOR with Louvre	EN15804
Stone wool insulation (stone wool)	L = 0.044 W/mK, R = 1 m2K/W, 44 mm, 0.968 kg/m2, 22 kg/m3		ROCKWOOL Peninsular S.A.U.	-	EPD-RW_03-2021_RW-UK_EN-0001	EPD ROCKWOOL® Stone Wool Thermal Insulation for buildings	EN15804
Structural steel profiles, generic	60% recycled content, I, H, U, L, and T sections, S235, S275 and S355		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Surveillance camera, French average		Equipements pour la capture d'image (caméras)	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DEQU20161116_164440, 5662	MDEGD_FDES	EN15804
Suspended aluminium ceiling system with perforated tile with tissue, copper element and aluminium backing	8.31 - 30.59 kg/m2 depending on tile option.	SAS330	SAS International	International EPD System	S-P-00626	EPD SAS330 Chilled – Aluminium SAS International - Environmental products Declarations (EPDs) Metal Ceiling Tiles	EN15804
Suspended metal ceiling system with acoustic insert/pad	7.119 kg/m2	SAS System 200 (Steel) with Acoustic Insert/Pad	SAS International	BRE	BREG EN EPD 000291	EPD SAS System 200 (Steel) with Acoustic Insert/Pad, SAS International	EN15804
Temperature measurement sensor	0.126 kg/unit	Sonde de température - DONNEE ENVIRONNEMENTALE PAR DEFAULT	MINISTERE DE L'ENVIRONNEMENT, DE L'ENERGIE ET DE LA MER - MINISTERE DU LOGEMENT ET DE L'HABITAT DURABLE	INIES	INIES_DSON20200430_165135, 31933	MDEGD_FDES	EN15804
Thermometer, for heating network	0.327kg	Thermomètre (circulaire, droit) pour réseau de chauffage, ECS...	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DTHER20200422_125243, 31946	MDEGD_FDES	EN15804
Transparent interior dust binder	Spreading rate: 8 m2/l 1020 kg/m3	Floor Concrete Sealer	Flügger group A/S	International EPD System	EPD-IES-0024380:001	EPD Flügger Floor Concrete Sealer	EN15804
UK aggregate mix (land-won, marine, secondary, and recycled sources, bulk, loose)	RICS UK baseline dataset		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Valve, 2 or 3-way	4.32 kg/unit	Vanne 2 ou 3 voies DN = 50 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DVAN20190903_092159, 31735	MDEGD_FDES	EN15804
Ventilation system, per m2 GIFA, for residential buildings	4.1 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804

Resource name	Technical specification	Product	Manufacturer	EPD program	EPD number	Environment Data Source	Standard
Wastewater drainage system, with updated One Click LCA generic data (2025)				-		One Click LCA generic construction definitions	
Water circulation radiator	Heating capacity: 1 kW, size: 700 × 500 × 102 mm, 20 kg/unit		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Waterborne intumescent coating for structural steel	1.30 kg/l, 5.0–0.32 m2/l spreading rate, 82 ± 5 % solids/volume, RICS baseline datapoint		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
Waterproofing membrane, single component, cold applied, from PU	1.3 mm, 1.79 kg/m2	Sikalastic-618	Sika	BRE	BREG EN EPD000112	BREGENEPD000112	EN15804
Wood-aluminium inward balcony door, triple glazed, per m2	1980 x 2180mm, 30.70 kg/m2	ETIDL2-AL	Elitfönster AB	International EPD System	S-P-04894	EPD Inward opening Balcony door 3-glass Inward opening Balcony double door 3-glass	EN15804
Wooden doors, calculated average for United Kingdom	1.23x2.18 m, 36 kg/m2, 96 kg/unit		One Click LCA	One Click LCA		Calculated average for wooden doors	EN15804
Woven polypropylene geotextile	0.11 kg/m2		One Click LCA	One Click LCA	-	One Click LCA	EN15804 EN15804
XPS insulation foam boards	L = 0.027 - 0.03 W/mK, 41.9 kg/m3, Lambda=0.027 W/(m.K)	RAVATHERM XPS (X) PLUS/ULTRA	Ravago Building Solutions Germany GmbH	IBU	EPD-RAV-20220157-CBD1-EN	EPD RAVATHERM XPS (X) PLUS/ULTRA	EN15804
XPS insulation for pipes	25 mm, 0.17 kg/m	Calorifuge en coquille polystyrène ép. 25 mm pour une conduite de DN 42 mm	DONNEE ENVIRONNEMENTALE GENERIQUE PAR DEFAULT	INIES	INIES_DBCS20220304_192010, 29398	MDEGD_FDES	EN15804

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