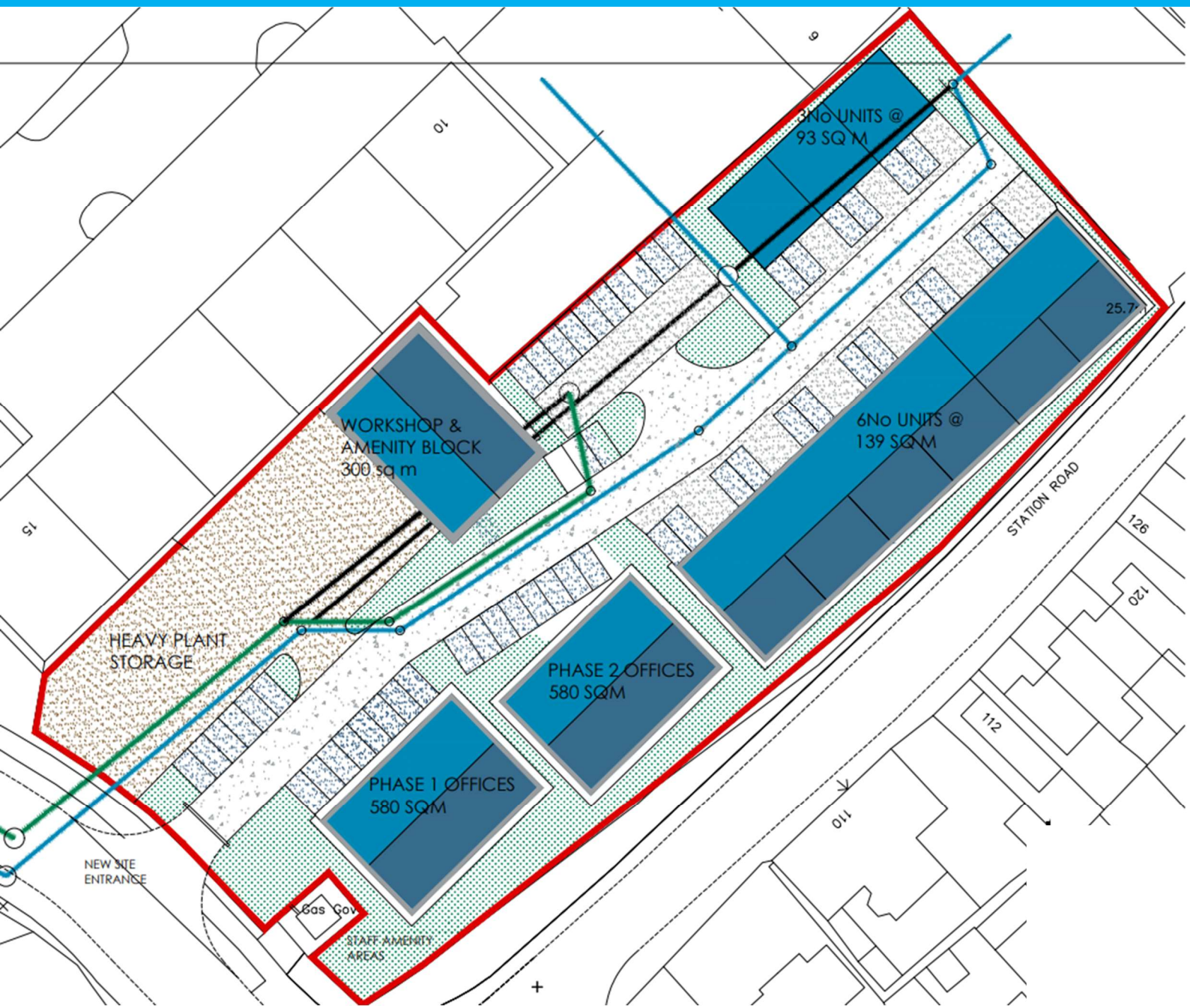
# Valley Road, Wombwell

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Date: 25/02/2026



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| RECORD OF REVISIONS | | |
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| **Date.** | **Revision.** | **Description of change.** |
| 25/02/2026 | 1 | Issued for comment |
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# 1. EXECUTIVE SUMMARY

This Whole Life Carbon (WLC) Report presents a comprehensive assessment of the forecasted carbon emissions associated with the proposed development at Valley Road, Wombwell, spanning embodied and operational emissions throughout the full lifecycle of the asset. The analysis has been conducted in accordance with the Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the Built Environment – Professional Statement (2nd Edition), ensuring methodological alignment with industry best practice and regulatory expectations.

To enable robust quantification and transparent reporting, carbon modelling has been undertaken using One Click LCA, a software platform that is formally recognised under the RICS v2 carbon assessment standards. One Click LCA facilitates integrated lifecycle stage analysis (including modules A–C for embodied emissions and module D benefits beyond system boundary) and supports consistent data handling, scenario comparison, and benchmarking against relevant baselines.

The WLC assessment scope reflects the requirements set out by Barnsley Metropolitan Borough Council in its emerging planning policy and guidance for Whole Life Carbon reporting. In particular, the assessment:

- Addresses both embodied carbon (A1–A5) and operational energy/carbon (B1–B7) over a 60-year life horizon, with a sensitivity analysis at 30 and 120 years where appropriate.
- Includes capital carbon from construction materials and processes, replacement and maintenance cycles, and end-of-life considerations, in line with Barnsley Council's expectation for comprehensive lifecycle coverage.

Key findings indicate that embodied carbon constitutes a significant proportion of the total lifecycle carbon footprint, reinforcing the need for early-stage design optimisation and material specification strategies. Design recommendations include increased use of lower-carbon materials, enhanced recycling and reuse pathways, and optimisation of structural systems to reduce material intensity. Operational carbon performance benefits significantly from high levels of building fabric performance and low-carbon energy solutions.

This WLC assessment aligns with Barnsley Council's emerging policy trajectory, facilitates early engagement with planning and sustainability stakeholders, and creates a transparent carbon baseline to support ongoing design decisions and future compliance. Use of One Click LCA ensures that results are auditable, comparable, and consistent with recognised carbon quantification standards.

Global warming potential (GWP) results for the proposed design for the whole proposed development are presented in following table. The results represent the total life cycle impact over a 60 year service life

| Module | Global warming potential | $KgCO^2e$ | $KgCO^2$ e/$m^2$ |
|---|---|---|---|
| A1-A3 | Construction Materials | **1,374,873** | **2464** |
| A4-A5 | Transport to the building site + Construction site wastage | **370,577** | **438** |
| B1-B5 | Use stage: Replace and refurbish | **497,472** | **895** |
| C1-C4 | End of life: Re-use, recycling or disposal | **119,260** | **145** |
| Total | Total | **2,363,183** | **3942** |

*Table 1.1 Proposed option results*

# 2. INTRODUCTION

## 2.1. Purpose

The Whole Life Carbon assessment has been completed for the proposed development to achieve the following goals:

- Quantify total carbon emissions across the full lifecycle of the development (Modules A–D).
- Establish a clear embodied and operational carbon baseline at design stage.
- Identify carbon hotspots within materials, construction processes, building services, and operational energy use.
- Inform design optimisation and material specification decisions to reduce upfront and lifetime emissions.
- Enable comparison of alternative design and construction scenarios on a carbon performance basis.
- Provide robust evidence for planning submissions and local authority Whole Life Carbon reporting requirements.
- Support sustainability certification processes (e.g. BREEAM, where applicable).
- Promote alignment with national and local net zero carbon targets.

### Assessed building, general information

- ***Development type**: Offices*
- ***Building area**: 5943.2m$^2$*
- ***Service life**: 60 Years*

## 2.2. Barnsley Metropolitan Borough Council requirements

Barnsley Metropolitan Borough Council requires Whole Life Carbon (WLC) Assessments to accompany planning applications for major developments, in accordance with its Sustainable Construction and Climate Change Adaptation Supplementary Planning Document and emerging Local Validation Checklist. Major development typically includes residential schemes of 10 or more dwellings and non-residential developments of 1,000 m² or greater. The WLC assessment must be submitted at planning stage to ensure carbon impacts are considered early in the design process and to support the Council's net zero ambitions.

The assessment is expected to align with the methodology set out in the Royal Institution of Chartered Surveyors Whole Life Carbon Assessment for the Built Environment (2nd Edition), following lifecycle modules A–D in accordance with BS EN 15978. This includes quantification of upfront embodied carbon (A1–A5), operational energy and water use (B6–B7), maintenance, repair and replacement cycles (B1–B5), end-of-life impacts (C1–C4), and, where reported, benefits and loads beyond the system boundary (Module D).

Barnsley Council expects submissions to clearly define system boundaries, assumptions, data sources, building lifespan (typically 60 years unless otherwise justified), maintenance and replacement schedules, and end-of-life scenarios. Use of third-party verified Environmental Product Declarations (EPDs) is encouraged where available. The report should identify carbon hotspots, demonstrate how carbon reduction has been embedded within the design development process, and outline practical mitigation measures. The WLC assessment is intended to form part of the wider sustainability evidence base alongside energy statements and, where applicable, BREEAM documentation.

# 3. METHODOLOGY

## 3.1. Scope of the study and service life

This Whole Life Carbon (WLC) Assessment has been undertaken in accordance with the methodology defined by the Royal Institution of Chartered Surveyors *Whole Life Carbon Assessment for the Built Environment (2nd Edition)* (RICS v2). The assessment quantifies greenhouse gas emissions associated with the proposed development across its entire lifecycle, reported in $kgCO_2e$ and presented in accordance with BS EN 15978 lifecycle modules.

The assessment adopts a reference study period (RSP) of 60 years, consistent with RICS v2 guidance for typical commercial and residential building typologies, unless otherwise justified. All lifecycle stages are assessed over this 60-year service life, including maintenance, repair, replacement cycles, operational energy use, and end-of-life scenarios.

The scope includes the following lifecycle modules:

- Product Stage (A1–A3): Raw material extraction, transport, and manufacturing of construction materials and building services components.
- Construction Process Stage (A4–A5): Transport to site and construction/installation processes.
- Use Stage (B1–B7): In-use emissions including maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), operational energy use (B6), and operational water use (B7), modelled over the 60-year service life.
- End-of-Life Stage (C1–C4): Deconstruction/demolition, transport, waste processing, and disposal impacts.
- Benefits and Loads Beyond the System Boundary (Module D): Potential reuse, recovery, and recycling benefits reported separately in accordance with RICS requirements.

The building elements covered by the assessment follow RICS classifications, the following building categories are included:

- **Substructure (NRM 1 – Group 1)**
- **Superstructure – Frame (NRM 1 – Group 2)**
- **Superstructure – Upper Floors (NRM 1 – Group 3)**
- **Superstructure – Roof (NRM 1 – Group 4)**
- **External Walls (NRM 1 – Group 5)**
- **Internal Walls and Partitions (NRM 1 – Group 6)**
- **Internal Finishes (NRM 1 – Group 7)**
- **Stairs and Ramps (NRM 1 – Group 8)**
- **Fittings, Furnishings and Equipment (NRM 1 – Group 9)**
- **Services (NRM 1 – Group 10)**
- **External Works (NRM 1 – Group 11)**

The assessment covers the building structure, substructure, superstructure, façade, internal elements, finishes, building services systems, and associated external works where applicable. Carbon factors are derived from recognised datasets, prioritising third-party verified Environmental Product Declarations (EPDs) where available. Operational energy modelling reflects regulated and unregulated energy consumption projections and applies appropriate grid decarbonisation assumptions consistent with national trajectories.

System boundaries, data sources, assumptions regarding service lives of components, replacement intervals, transport distances, waste rates, and end-of-life scenarios are transparently documented. Results are presented as total whole life carbon ($kgCO_2e$ and $kgCO_2e/m^2$ GIA), with lifecycle stage breakdowns to identify carbon hotspots and inform mitigation strategies.

This defined scope ensures the assessment is robust, auditable, and compliant with RICS v2 professional standards while providing a clear carbon baseline over the 60-year design life of the asset.

## 3.2. FUNCTIONAL UNIT

The functional unit establishes the specific basis of the study by defining and quantifying the primary function of the product under assessment. It provides a consistent reference point to which all inputs and outputs are related and serves as the foundation for comparing different design options.

For this study, the chosen functional unit—reflecting the building's industrial use case—is the internal floor area. Accordingly, the results of the assessment are expressed in both kilograms of $CO_2$ ($kgCO_2$) and kilograms of $CO_2$ equivalent per square metre ($kgCO_2e/m^2$)**.** The total development area (GIFA and GEA) of the proposed development is 5943.2m²**,** which forms the benchmark for the WLC calculations.

## 3.3. ONECLICK LCA SOFTWARE

The Whole Life Carbon (WLC) Assessment has been undertaken using One Click LCA, a recognised lifecycle assessment platform aligned with the requirements of the Royal Institution of Chartered Surveyors *Whole Life Carbon Assessment for the Built Environment (2nd Edition)* (RICS v2). The software enables structured modelling of embodied and operational carbon emissions in accordance with BS EN 15978 lifecycle modules (A1–D), ensuring methodological consistency, transparency, and auditability.

One Click LCA facilitates the integration of project-specific quantity data, mapped to RICS NRM elemental classifications, allowing carbon outputs to be reported by lifecycle stage and by building element. The platform incorporates a comprehensive database of third-party verified Environmental Product Declarations (EPDs), alongside generic datasets where product-specific data is unavailable. This supports compliance with RICS v2 data hierarchy principles, prioritising manufacturer-specific information where feasible.

Use of One Click LCA ensures that the WLC assessment outputs are traceable, scenario-comparable, and capable of benchmarking against industry datasets. The software's structured reporting format supports submission to planning authorities and sustainability certification bodies, providing a robust and defensible carbon evidence base aligned with RICS v2 professional standards.

## 3.4. DATA COLLECTION

For the Whole Life Carbon (WLC) assessment, data collection has been undertaken in accordance with the Royal Institution of Chartered Surveyors *Whole Life Carbon Assessment for the Built Environment (2nd Edition)* (RICS v2). Project-specific quantity information was gathered from design drawings, bills of quantities, and specifications, and mapped to the relevant RICS NRM elemental classifications. Material carbon factors were prioritised from third-party verified Environmental Product Declarations (EPDs), with generic datasets used only where product-specific data was unavailable. Operational energy and water use data were obtained from building performance simulations and aligned with projected grid decarbonisation trajectories. Component service lives, maintenance schedules, replacement cycles, and end-of-life assumptions were documented for each building element to ensure completeness, transparency, and auditability of the assessment in line with RICS v2 guidance.

## 3.5. Assumption list

For this Whole Life Carbon (WLC) assessment, a number of key assumptions have been applied to ensure consistency with Royal Institution of Chartered Surveyors RICS v2 guidance. A 60-year reference study period has been adopted for the building lifecycle, with component service lives, maintenance, and replacement cycles defined based on typical industry benchmarks. Material carbon factors have been prioritised from verified EPDs, with generic data applied only where product-specific data was unavailable. Operational energy projections assume anticipated grid decarbonisation trajectories over the study period, and end-of-life scenarios reflect standard demolition, recycling, and disposal pathways. All assumptions have been documented to ensure transparency, traceability, and alignment with RICS v2 reporting requirements.

# 4. WHOLE LIFE CYCLE ASSESSMENT RESULTS:

## 4.1. Proposed development results

The following tables break down all of the proposed buildings as well as total figure including external areas into their constituent building categories and showcase the GWP/functional unit for each category.

| Name | A1-A3 – Construction materials | A4-A5 – Transport to the building site, construction site wastage | B4 – B5 – Use stage: Replace and refurbishment | C1 – C4 – End of life | Total – $KgCO^2e$ |
|---|---|---|---|---|---|
| Office Block A | 301,920 | 46,724 | 130,143 | 20,702 | **499,489** |
| Office Block B | 300,698 | 46,514 | 129,372 | 20,237 | **496,821** |
| 6no units | 368,553 | 60,699 | 155,069 | 19,468 | **603,789** |
| 3no units | 103,014 | 17,041 | 42,480 | 4841 | **167,376** |
| Workshop and amenity block | 165,335 | 173,191 | 26,387 | 5381 | **223,511** |
| Total including external areas | 1,374,873 | 370,577 | 497,472 | 119,260 | **2,362,183** |

*Figure 5.11 WLC assessment results by $KGCO^2e$*

| Name | A1-A3 – Construction materials | A4-A5 – Transport to the building site, construction site wastage | B4 – B5 – Use stage: Replace and refurbishment | C1 – C4 – End of life | Total – $KgCO^2e/m2$ |
|---|---|---|---|---|---|
| Office Block A | 521 | 81 | 224 | 36 | **861** |
| Office Block B | 518 | 80 | 223 | 35 | **857** |
| 6no units | 434 | 72 | 183 | 23 | **712** |
| 3no units | 432 | 71 | 178 | 20 | **702** |
| Workshop and amenity block | 518 | 83 | 83 | 17 | **701** |
| Total including external areas | 2464 | 438 | 895 | 145 | **3942** |

*Figure 5.12 WLC assessment results by $KGCO^2e/m2$*

### 4.1.1. Block A

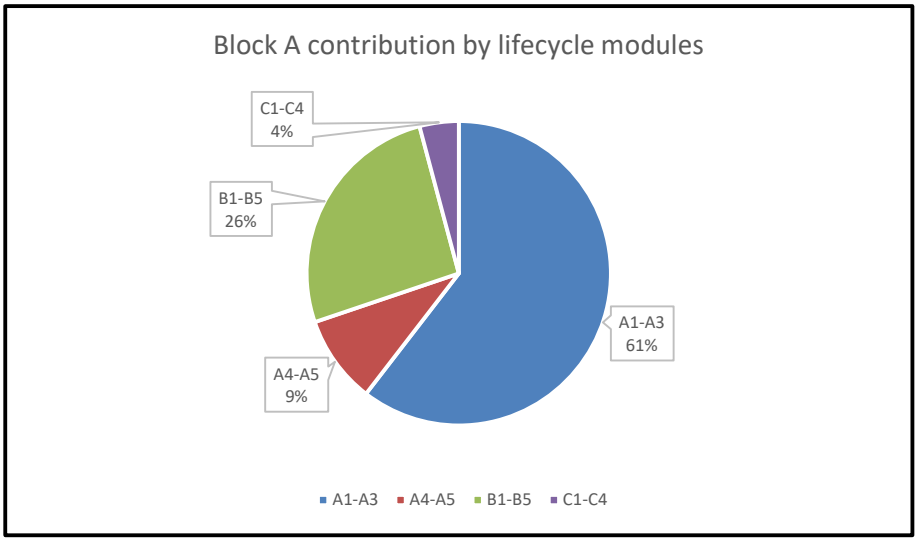



*Figure 5.2 Block A contribution by lifecycle modules*

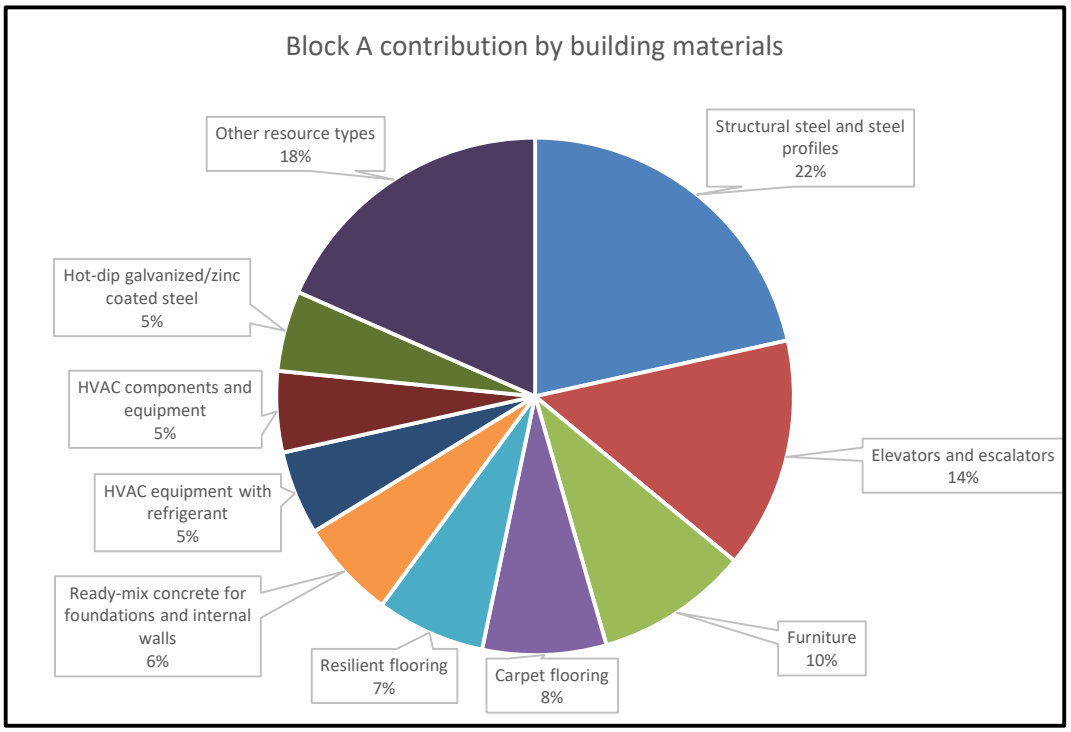



*Figure 5.21 Block A contribution by building materials by %*

Figure 5.2 indicates that A1–A3 dominate total impacts at 61%, highlighting the product stage as the primary contributor. The use stage (B1–B5) accounts for 26%, followed by construction impacts (A4–A5) at 9%, and end-of-life stages (C1–C4) at 4%. Overall, upfront embodied carbon (A1–A5) represents 70% of the total, significantly outweighing use and end-of-life impacts.

Figure 5.21 shows that structural steel and steel profiles are the largest contributor at 22%, followed by elevators and escalators at 14% and furniture at 10%. Carpet flooring (8%) and resilient flooring (7%) make moderate contributions, while ready-mix concrete accounts for 6%. HVAC equipment (with and without refrigerant) and hot-dip galvanized/zinc coated steel each contribute 5%, and other resource types collectively represent 18%. Overall, impacts are primarily driven by structural steel and major building systems.

### 4.1.2 Block B

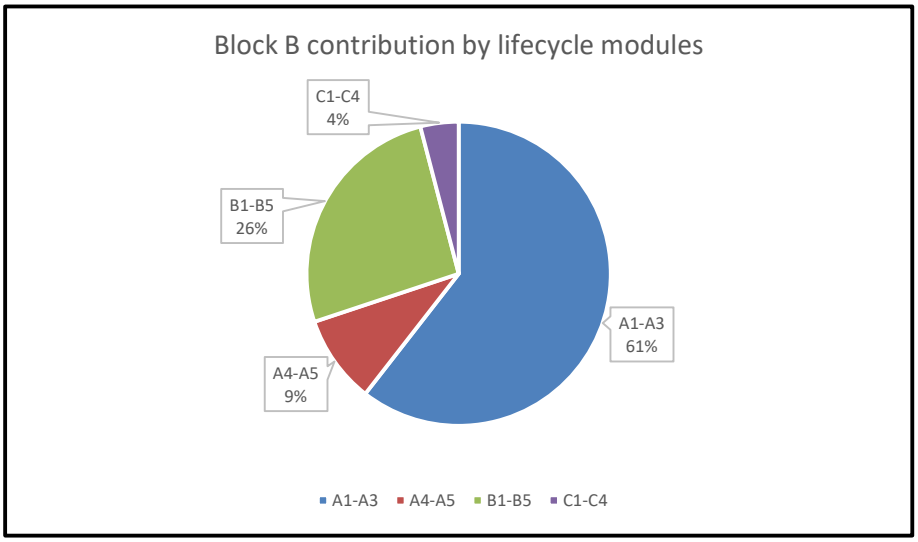



*Figure 5.3 Block B contribution by lifecycle modules*

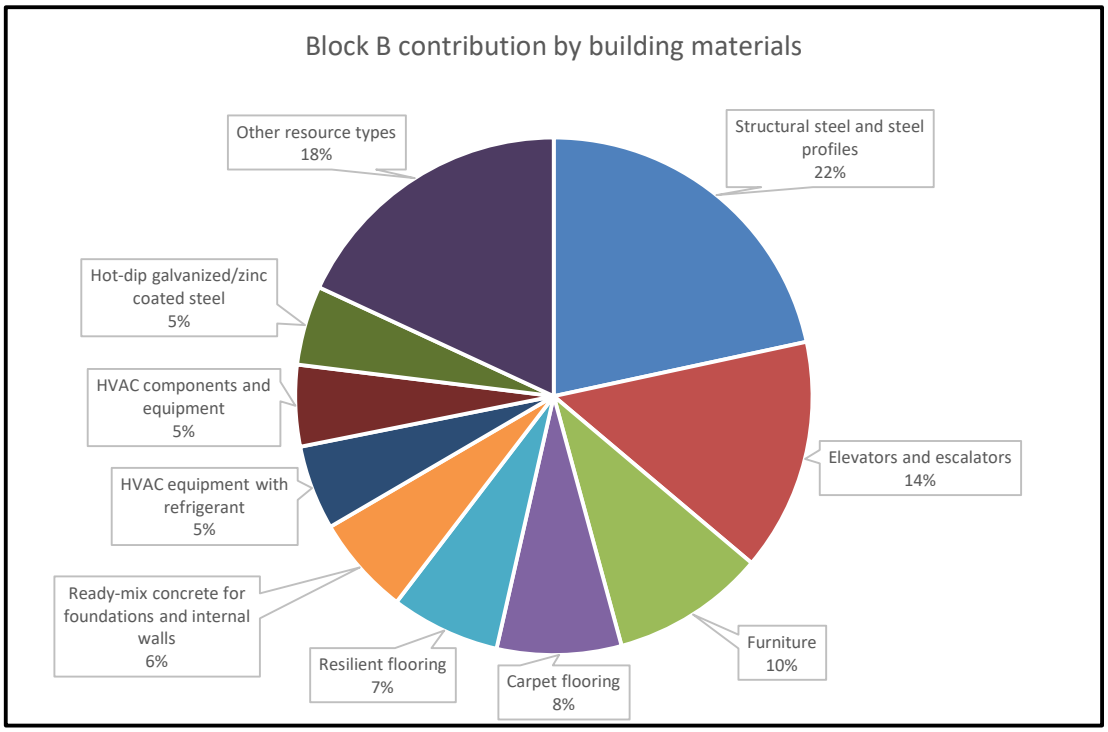



*Figure 5.31 Block B contribution by building materials by %*

Figure 5.3 shows that A1–A3 account for the majority of impacts at 61%, making the product stage the dominant contributor. The use stage (B1–B5) represents 26%, while construction impacts (A4–A5) contribute 9%. End-of-life stages (C1–C4) make up the remaining 4%. Overall, upfront embodied carbon (A1–A5) comprises 70% of total impacts, significantly exceeding use and end-of-life contributions.

Figure 5.31 shows that structural steel and steel profiles are the largest contributor to Block B's building materials at 22%, followed by other resource types at 18% and elevators and escalators at 14%. Furniture accounts for 10%, while flooring materials collectively form a notable share, with carpet flooring at 8% and resilient flooring at 7%. Ready-mix concrete contributes 6%, and smaller but equal contributions of 5% each come from HVAC equipment with refrigerant, HVAC components and equipment, and hot-dip galvanized/zinc coated steel. Overall, the chart indicates a dominance of structural materials and building systems, with secondary contributions from interior finishes and services.

### 4.1.3 6no units

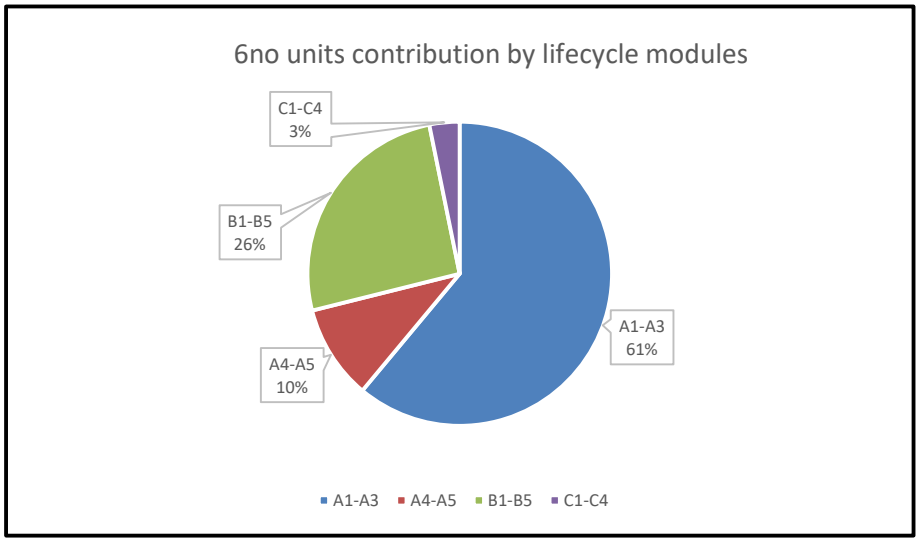



*Figure 5.4 6no units contribution by lifecycle modules*

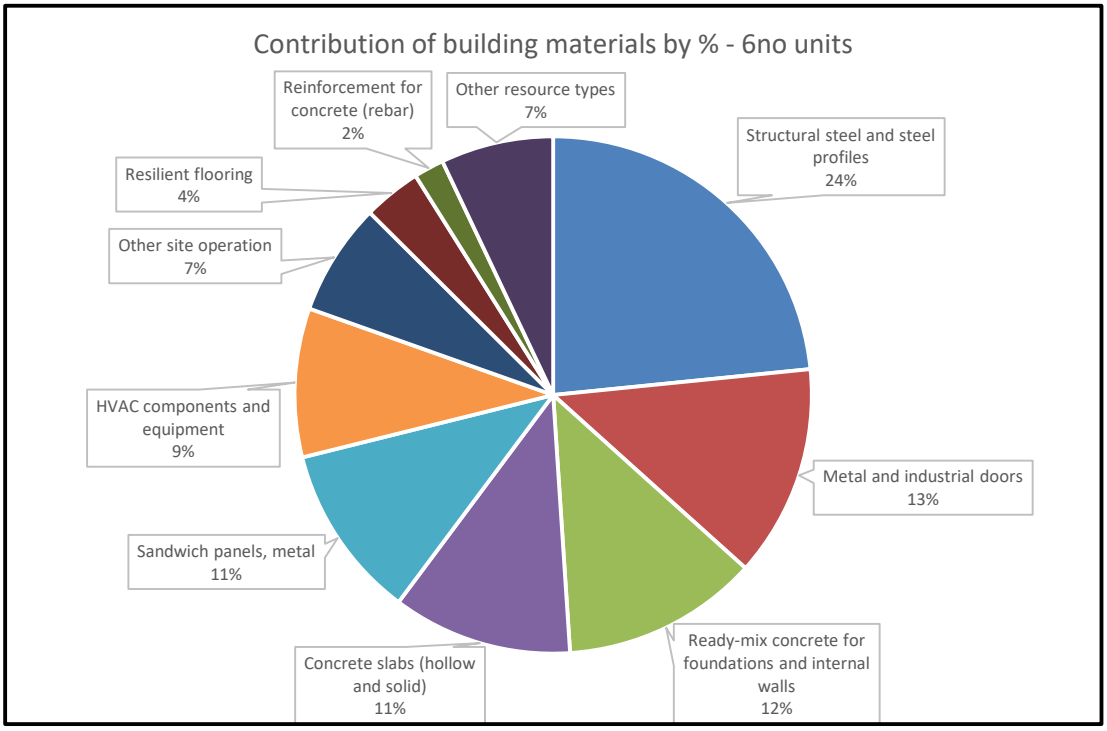



*Figure 5.41 6no units contribution by building materials by %*

Figures 5.4 show that lifecycle impacts for Block B are dominated by the product stage (A1–A3) at 61%, with the use stage (B1–B5) contributing 26%, while construction (A4–A5) and end-of-life (C1–C4) stages are comparatively minor.

Figure 5.41 shows that structural steel and steel profiles are the largest material contributor at 24%. Other significant sources include metal and industrial doors (13%), ready-mix concrete (12%), and concrete slabs and sandwich panels (11% each), highlighting the influence of primary structure and envelope elements. HVAC components account for 9%, with other site operations and resource types at 7% each. Finishes and reinforcement materials contribute relatively little, indicating that core structural materials drive the overall impact profile.

### 4.1.4 3no units

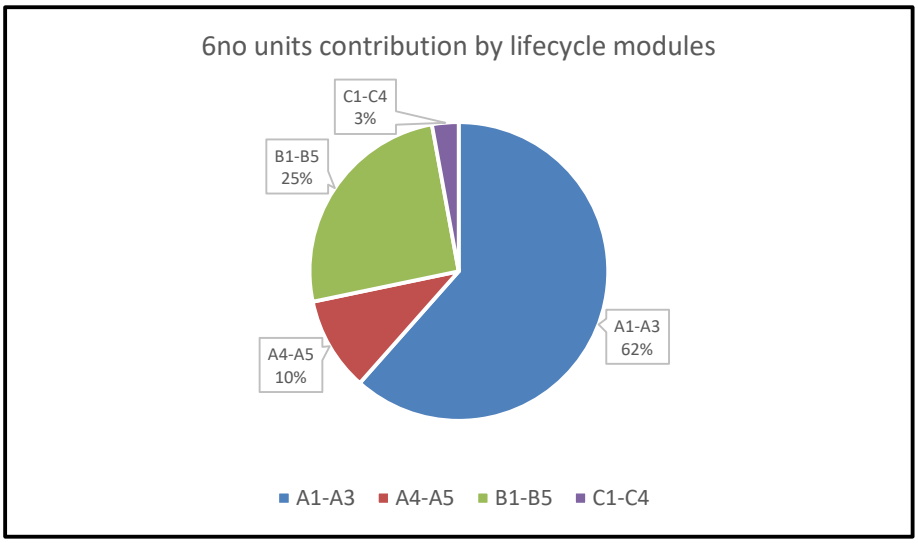



*Figure 5.5 6no units contribution by building materials by %*

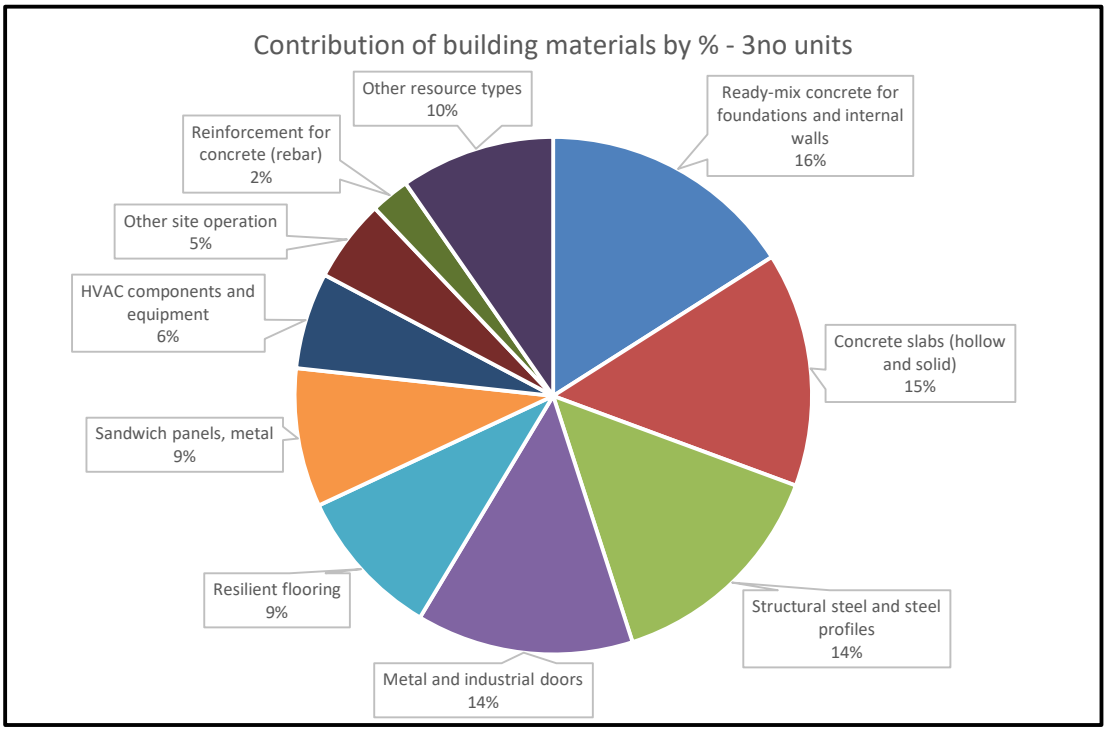



*Figure 5.51 3no units contribution by building materials by %*

Figure 5.5 shows that A1–A3 (product stage) dominates the lifecycle impacts for the 6-unit scheme, contributing 62% of the total. B1–B5 (use stage) is the second largest share at 25%, indicating notable in-use impacts. A4–A5 (transport and construction) accounts for 10%, while C1–C4 (end-of-life) is minimal at 3%. Overall, impacts are heavily front-loaded in material production, with comparatively small contributions from construction logistics and disposal.

Figure 5.51 indicates that ready-mix concrete for foundations and internal walls is the largest contributor at 16%, closely followed by concrete slabs at 15%. Structural steel and steel profiles and metal/industrial doors each account for 14%, indicating significant impacts from primary structure and access elements. Secondary contributors include resilient flooring and metal sandwich panels at 9% each, with HVAC (6%), site operations (5%), rebar (2%), and other resources (10%) making up the remainder. Overall, the impacts are driven mainly by structural and envelope materials, with smaller shares from services and ancillary items.

### 4.1.5 Workshop

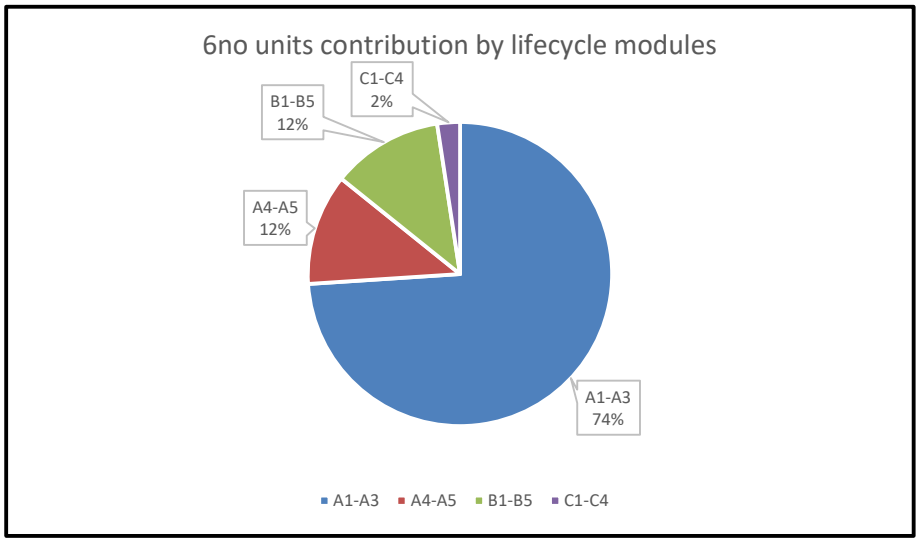



*Figure 5.6 workshop contribution by building materials by %*

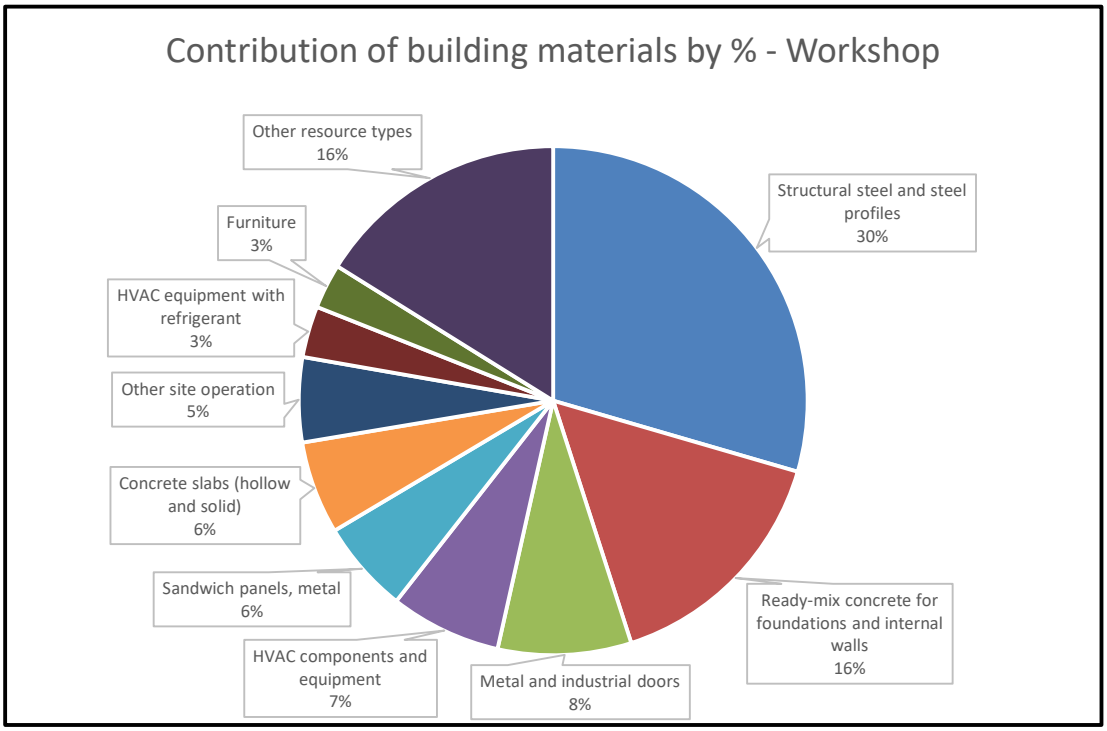



*Figure 5.61 workshop contribution by building materials by %*

Figure 5.6 shows that A1–A3 (product stage) overwhelmingly dominates the lifecycle impacts for the 6-unit scheme at 74% of the total. A4–A5 (transport and construction) and B1–B5 (use stage) each contribute 12%, indicating moderate impacts during construction and operation. C1–C4 (end-of-life) is minimal at just 2%. Overall, the results show impacts are heavily concentrated in upfront material production, with relatively small shares from later lifecycle stages.

Figure 5.61 indicates that structural steel and steel profiles are the main contributor for the workshop at 30%, significantly higher than any other material category. Ready-mix concrete for foundations and internal walls follows at 16%, with other resource types also notable at 16%. Secondary contributions include metal and industrial doors (8%), HVAC components (7%), and sandwich panels and concrete slabs at 6% each. The remaining impacts come from site operations (5%) and minor shares from HVAC equipment with refrigerant and furniture (3% each), indicating a strong emphasis on primary structure and core materials.

# 5. CONCLUSION

## 5.1. Conclusion

This Whole Life Carbon (WLC) assessment demonstrates that the proposed development at Valley Road, Wombwell will generate a total lifecycle impact of approximately 2.36 million $kgCO_2e$ over a 60-year reference study period, equating to around 3,942 $kgCO_2e/m^2$. The results clearly show that upfront embodied carbon associated with construction materials (Module A1–A3) is the dominant contributor, significantly outweighing impacts from construction processes, use-stage replacements, and end-of-life stages. This confirms that early design decisions — particularly material selection, structural efficiency, and specification strategies — will have the greatest influence on reducing the project's overall carbon footprint.

Across the individual building elements, the analysis identifies structural systems and primary materials — notably structural steel and concrete — as the principal carbon hotspots. Secondary contributions arise from building services, finishes, and replacement cycles during the use stage. The consistency of these patterns across the office blocks, industrial units, and workshop indicates that the development's carbon profile is primarily driven by core structural and envelope components rather than operational or end-of-life factors. This reinforces the importance of optimising structural design, considering lower-carbon material alternatives, and minimising material intensity where feasible.

The options appraisal further demonstrates that relatively modest design changes can produce measurable differences in whole-life performance. While some alternatives resulted in marginal increases in total impact, others achieved small but meaningful reductions compared with the baseline. Although the percentage differences between options are limited, the analysis confirms that selecting lower-impact specifications — particularly those reducing A1–A3 emissions — can cumulatively improve performance. This highlights the value of iterative carbon testing during the design process to support evidence-based decision-making.

Overall, the assessment aligns with RICS Whole Life Carbon methodology and Barnsley Metropolitan Borough Council planning expectations, providing a robust and transparent carbon baseline for the scheme. The findings support the integration of carbon reduction strategies into subsequent design stages, including the adoption of low-carbon materials, enhanced reuse and recycling pathways, and efficient building services. Implementing these measures will be essential to minimise lifecycle emissions and support local and national net-zero objectives while maintaining functional and commercial viability.

Finally, this report establishes a defensible framework for ongoing carbon management throughout the project lifecycle. Continued refinement of data, incorporation of product-specific Environmental Product Declarations, and monitoring during detailed design and construction will enable further reductions and ensure the development progresses in line with best practice for sustainable construction. As such, the WLC assessment should be viewed not only as a planning requirement but as a strategic tool to guide the delivery of a lower-carbon built asset.

# 6. APPENDIX A: SCOPE OF THE ASSESSMENT

| RICS WLCA Standard 2023 - concept design stage | RICS WLCA Standard 2023 - planning/pre-tender estimating | RICS WLCA Standard 2023 - post completion/most detailed | RICS WLCA Standard 2023 - Scope notes |
|---|---|---|---|
| 0.1 Treatment and demolition works Facilitating works | 0.1.1 Toxic/contaminated material treatment Demolition works | 0.1.1.1 Toxic/contaminated material treatment | Removal and disposal of any hazardous materials (eg asbestos), including any material from existing services installations or tanks or removal of toxic chemicals. Environmental treatment or removal of contaminated ground. Eradication of plant growth. |
| | | 0.1.1.2 Demolition works | Demolition in this context is anything that covers a more extensive scope of works than alterations. Removal/deconstruction/demolition of existing structure, envelope, fabric, fittings and services of an existing building such as required to create clear site conditions for new asset. Removing and disposing of complete building or structure including services, fittings and finishes. |
| | 0.1.2 Facilitating works | 0.1.2.1 Temporary supports | Temporary fencing, provision of support to unstable structures but not forming part of the permanent works. Does not include supports for facade retention, which is included below. Any removal or disposal also included. |
| | | 0.1.2.2 Facade retention | Works related to facade retention. Includes addition and removal of any dedicated, facade supports required. May include permanent additions such as dead, raking, flying or box shores, wall plates, needles, brackets, blockings, wedges, dog-irons or other similar metal work. Foundations to any shores. |
| | | 0.1.2.3 Specialist groundworks | Site de-watering and pumping. Soil stabilisation, site formation and slope treatment including erosion control, specialist site surface clearance not included in 8.1 Site Preparation below (clearing, grubbing, topsoil stripping, tree felling, minor earthwork removals). Gas venting. |

| | | | |
|---|---|---|---|
| | | 0.1.2.4 Temporary diversion works | Temporary surface drainage, temporary protection, diversion and relocation of public utilities. Include works required to divert and re-instate for new asset/clear ground condition. |
| | | 0.1.2.5 Extraordinary site investigations | Archaeological investigations, wildlife mitigation measures (relocation to new habitat/protection/barriers). |
| | | 0.1.2.6 Site preparation works | Covers getting the whole site to formation level, including the building footprint. Earthworks required to create new paths and roadways (including any disposal required). Disposal or management of surface/groundwater. General (non-specialist) vegetation removal, tree felling, tree protection, extraction and disposal of old piles. Breaking out and disposal of existing sub-structures, hard surfacing, drainage systems, utilities networks. Filling of dis-used manholes, shafts and pits. Removal of underground storage tanks. |
| 1 Sub-structure | 1.1 Foundations and piling | 1.1 Foundations and piling | Strips, rafts, piling, pile caps and underpinning. Foundations up to top of lowest floor slabs (inc insulation and waterproofing). Include breaking out of hard surfaces, excavations required, disposal and earthwork support. (Any vertical supports for basements included below.) Includes drainage and services within the building footprint to the point of the first junction or manhole outside of this area. |
| | 1.2 Basement retaining walls and lowest slab | 1.2.1 Lowest slab | Entire lowest floor assembly below the underside of screed or lowest floor slab. Can be ground bearing or suspended. To include any structural screed and underslab waterproofing and insulation. Formation of sumps, pits, chambers, tanks, swimming pool base integral to the lowest floor construction. Non-structural items including screed, insulation/DPM above slab, covered in 3.2.2. |
| | | 1.2.2 Suspended slabs | Slabs within the basement box. Can include a slab that forms the entrance to the building where the ground is sloping. For the purposes of this measurement the ground slab is the highest one you can enter the building from. Entrance slab and those suspended below are included in this category, while those above are included in the upper floor slabs. |

| | | | |
|---|---|---|---|
| | | 1.2.3 Basement retaining walls | Basement retaining walls (inc. vertical retaining structure, insulation and waterproofing external to the wall). To include lift pit lateral supports and any permanent, vertical retaining structures within building envelope. |
| | 2.1 Frame | 2.1.1 Frame (vertical) - columns/ structural walls & braces | Structural vertical framed elements including columns, structural walls or braces that are supporting a floor or roof (inc. connections, formwork, permanent structural casing and any fire proofing). Core and shear walls are included here. |
| | | 2.1.2 Frame (Horizontal) - beams, joists & braces | Horizontal structural framed elements including beams, joists or braces (inc. connections and any fire proofing). Will include any structural framing for roof (e.g. where pitched) and external or internal wall assembly (e.g. secondary framing, lintels or wind posts without which architectural wall elements would fail).<br>Note: monolithic beam structures cast with the structural slab are included in 2.2.1. |
| | 2.2 Upper floors<br>2.3 Roof | 2.2.1 Upper floor and roof - structural slabs | Horizontal structural slabs above the lowest and suspended slabs. Including monolithic horizontal beams or joists (inc. connections, formwork, permanent structural casing and any fire proofing). Includes roof structural slab that forms primary support to roof or thermal enclosure/weather protection to an internal space below. This would include terraces, inset balconies, bolt on balcony structures or podium landscaping (inc. formwork, structural screed, permanent structural casing and any fire proofing).<br>Insulation, weather protection, rainwater goods/drainage and final finish to roof included in 2.5 below. |
| | | 2.2.2 Upper floor and roof - non-structural slabs | Horizontal, non-structural slabs above the lowest and suspended slabs (inc. any slab to slab connections, fire proofing and permanent formwork or lining that is integral to the system).<br>Structural support or enclosures for tanks or pools (above lowest slab level). Includes:<br>Mezzanine structures<br>Structural slabs to corridors or bridges (internal or external)<br>Maintenance routes or interstitial plant floor.<br>Structure to support tiered seating, internal galleries. |

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| | 2.4 Stairs, ramps and safety guarding | 2.4.1 Stairs | Stairs flights excluding any final finishes but inc any fire proofing. Include connections, but ensure not to double count horizontal slab or structure. Include the structural element of any balustrade. Architectural balustrade linings included in internal assemblies and finishes. Where stairs are external but connected to it and required for the escape strategy of the asset, include them within the building calculation. If part of the external works, including them in category 8. |
| | | 2.4.2 Ramps | Ramps lengths excluding any final finishes but inc any fire proofing. Include connections, but ensure not to double count horizontal slab or structure. Include the structural element of any balustrade. Architectural balustrade linings included in internal assemblies and finishes. Where ramps are external but connected to it and required for the escape strategy of the asset, include them within this category. If part of the external works, including them in category 8. |
| | | 2.4.3 Safety and access ladders, chutes, slides and guarding | Internal and external vertical access ladders for fire escape, access or maintenance. Chute or slide linings within structural and boarded enclosures. Including finishes and fixings. Internal/external balcony and/or roof guarding including structure and finishes where this is not part of the thermal line of the building. Includes juliette balcony guarding. |

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| Super structure<br>2.5 External envelope including roof finishes<br>2.6 Windows and ext doors | 2.5 External envelope including roof finishes | 2.5.1 External - opaque envelope | External wall build up outside to inside, including final internal boarding, excluding specialist internal linings and final finishes. Including:<br>- all fixings and bracketry to connect back to primary and SFS package; ties, DPMs, cavity trays, closers, fire barriers and reveals<br>- external shading, canopies, shutters, not part of the window/glazing/door system (inc. finishes and connections)<br>- architectural boarding and finishes to balcony guarding (structural elements included above)<br>- any louvred or grille assemblies as part of the external wall build up<br>- roller shutters and associated boxing and equipment. Power distribution in MEP below.<br>- external rainwater goods and rainwater drainage equipment/guttering that runs vertically outside or within the external wall build up (internal, vertical rainwater drainage is included in MEP)<br>- insulated underside of returns/ soffits that form part of the thermal and weather protection line<br>- parapets and railings that are the extension of the external wall to provide safety protection and gable walls<br>- chimneys and/or green walls, planters and planting (inc substrate and drainage layers) that form part of the external wall |
| | | 2.5.2 External - full height glazing systems | Floor to ceiling curtain walling or unitised/framed construction or structural glazing. Including glazed units, gaskets, framing, bracketry and connections back to structure. Where same system includes solid or insulated spandrel panels include these here. Include films, blinds, insect protection that are integral to glazing system. Include any photovoltaic material integral to the thermal and weather protection of the building. If energy-generation is building mounted but not part of the thermal envelope include in MEP below.<br>Include glazed shop fronts where these are full height (punched, framed windows within category 2.6).<br>Where external doors are integrated into glazed screens and cannot be separated, please see note in external doors below. |

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| | | 2.5.3 External - roof finishes/coverings | Solid roof finishes above structure including non-structural screeds for falls, waterproofing, insulation and final finish including green rooves. Where eaves hang out over external walls those are included. Finishes to balconies and terraces about structure where these form part of the thermal line are included here. Include external rainwater goods and rainwater drainage equipment/ guttering that might runs horizontally to falls externally over roof assemblies. Where it runs internally, included in MEP and vertical equipment included in solid external walls. Access or AOV hatches that form part of the thermal roofline. |
| | | 2.5.4 External - safety systems | Including fall protection/safety equipment for cleaning and maintenance operatives (e.g. handrails, latchways, cradle systems). For powered equipment include all parts of the system, but power distribution is included in MEP below. |
| | 2.6 Windows and ext doors | 2.6.1 Windows - vertical | Windows that are punched into a solid wall construction and are part of the thermal building line. Including vertical dormer windows. Include films, blinds, shutters insect protection that are integral to glazing system and not separately building mounted. Including cills. |
| | | 2.6.2 Windows - roof or horizontal | Rooflights and structural glazed rooves that form the thermal and weather protection as part of a roof construction. Including frame, trims, thresholds, ironmongery, closers. Include films, blinds, shutters, insect protection that are integral to system and not separately building mounted. For automatic opening include all parts of the system, but power distribution is included in MEP below. |
| | | 2.6.3 External doors | External doors that form part of the thermal building line whether solid, glazed or revolving. Fanlights or sidelights integral to the door system are included. Including frame, trims, thresholds, ironmongery, closers. Include films, blinds, shutters, insect protection that are integral to door system and not separately building mounted. For automatic doors include all parts of the system, but power distribution is included in MEP below. In the specific case that a door assembly includes surrounding glazing (this could be the case for sliding doors integrated into glazed screens), include the whole |

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| | | | assembly in this category. Where the two can be separated, report in both full height glazing systems and external doors. |
| Super structure<br>2.7 Internal walls and partitions<br>2.8 Internal doors | 2.7 Internal walls | 2.7.1 Internal walls -solid | Non-structural/ non-loadbearing internal wall assemblies including studs from floor to ceiling and boarding. Includes:<br>- unfinished boarded linings to structural walls<br>- internal boarding to balcony walls and stair/ramp balustrades<br>- insulation required to meet performance criteria<br>- internal cubicle systems and vertical panelised access systems to bathrooms<br>- internal planters including protection, filter membranes and drainage<br>- internal green walls including substrate, membranes and drainage requirements<br>- deflection heads<br>(Final finish included in 3 Finishes) |
| | | 2.7.2 Internal walls - non-structural glazed walls, windows and vision panels | Non-structural/ non-loadbearing internal glazed wall assemblies. Includes:<br>- framing and fixings, integral blinds, films<br>- punched windows in solid walls, including framing, connections and trims<br>(secondary framing including lintels included above)<br>Where internal doors are integrated into glazed screens and cannot be separated, please see note in internal doors below. |
| | 2.8 Internal doors | 2.8 Internal doors | Internal doors inc. movable walls, sliding, folding doors, fire shutters and doors in glazed screens. Fanlights or sidelights integral to the door system are included. Including framing, trims, thresholds, fixings, vision panels, ironmongery, hinges, closers, hooks, fire/acoustic seals, integral blinds and films. When reporting electrically powered doors, the wiring up to the door is excluded, the fitting is included. In the specific case that a door assembly includes surrounding glazing (this could be the case for sliding doors integrated into glazed screens), include the |

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| | | | whole assembly in this category. Where the two can be separated, report in both full height glazing systems and external doors. |
| 3 Finishes | 3.1 Wall finishes | 3.1 Wall finishes | Internal wall finishes and specialist architectural linings applied/sprayed/painted over general boarding (external wall builds or internal assemblies) or structural elements. Include:<br>- taping, skim coats and plastering<br>- final wall finish, skirtings and trims including shadow gap trims, dado and picture rails<br>- adhesive/framing to hold the lining/finish in place<br>- fire protection<br>- tiled finishes<br>- vertical acoustic panelling fixed to partitioning<br>- wall protection including bumper rails, corner guards, protection strips, coatings |
| | 3.2 Floor finishes | 3.2.1 Raised access floor or specialist sprung floors | Raised access/floating floors, specialist sprung floors. Including internal and any external areas under cover and cavity barriers in any floor voids. Include the concrete dust sealer in this category. |
| | | 3.2.2 Non-structural screed | Non-structural screed or insulation to make up floor to final finish. Including internal and any external areas under cover. |
| | | 3.2.3 Floor finishes | Internal floor finishes above structure. Including internal and any external areas under cover, internal stairs (risers and treads) and/or ramps within the designated footprint. Final architectural finish including tiles, sheet flooring, painting, sealing, adhesive fixings, boarding, mats and matwells. Tiled linings to swimming pools included here. Line markings in internal car parks/sports halls, etc. Floor boxes to be included in MEP categories. |

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| | 3.3 Ceiling finishes | 3.3 Ceiling finishes | Internal ceiling finishes and specialist architectural linings applied/sprayed/ mounted/hung/painted from horizontal structural elements (slabs and beams).<br>Include:<br>- boarding, insulation, taping, skim coats and plastering<br>- final finish and any trims including shadow gap trims, cornices, ceiling roses and coving<br>- adhesive/framing/fixing to hold the lining/finish in place<br>- access hatches, trims and accessories<br>- fire protection and cavity barriers in ceiling voids<br>- acoustic panelling/systems hung from or fixed to ceiling. |
| 4 FF&E | 4 FF&E | 4.1 General FF&E | Fittings that are part of the building fabric (do not fall out when building turned upside down) and required for the building to function, but excluding specialist functions where FF&E should be included in 4.3.<br><br>Built in counters, desks, drawers, cupboards, fixed kitchen cabinets and drawers, storage, lockers, built-in seating/ mirrors, fireplace/hearth, statutory safety signage. Blinds/curtains, boxes and tracks that are integral to a comfortable internal environment. Bird, insect and animal control or deterrent systems. In regards split between fixed FF&E/sanitaryware, category 4.1 includes fixed items that do not involve plumbing like shower screens, hand dryers, hooks for clothes.<br><br>Excluding plug-in kitchen equipment, specialist FF&E and client procured loose FF&E, IT and AV. |
| | | 4.2 Kitchen equipment | Loose (usually client supply) equipment (that would fall out of the building if turned upside down), including plug-in and fixed appliances and white goods, cookers, fridge, freezer, dishwasher. |
| | | 4.3 Specialist FF&E | Equipment that is fixed but would be required only related to a specialist use including sports, leisure, entertainment, theatrical, medical, research or laboratory functions. Eg fixed theatre seating, fixed accessibility equipment like hoists, specialist gas terminals/taps. |

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| | | 4.4 Loose FF&E | Loose (usually client supply) fittings, furniture and equipment (that would fall out of the building if turned upside down). Bins, chairs, tables, desks, mobile units, storage, rugs, lamps, towel/ storage rails, hung mirrors, wayfinding signage. whiteboards/ pinboards, loose fire fighting equipment like blankets/extinguishers/hand operated appliances. Any decorative or art work that is not built into the building fabric. Planting that is not part of the building fabric. Vending machines.<br><br>Including specialist non-fixed equipment not covered by 4.1, 4.5 or 4.6 |
| | | 4.5 IT | Loose (usually client supply) IT items including computers CRAH units. Telephones and WiFi. Cabling contained below in MEP electrical. |
| | | 4.6 Audio and visual | Audio/visual equipment (usually client supply) including screens, mics, speakers, projection systems. Cabling contained below in MEP electrical. |
| 5.1 Public Health | 5.1.1 Sanitaryware | 5.1.1 Sanitaryware | Sanitaryware - any appliance that is permanently plumbed into the washing or toilet areas. Including toilet, cistern, shower tray, bath, taps, controls, shower heads, basin units, sink, instant hot water heater, washing machine, dishwasher, autoclave. |
| | 5.1.2 Cold water systems | 5.1.2.1 Cold water systems | Thermostat, thermal meters, cold water meters, pumps/booster set, other meters, pipework, pipe insulation, support/hanger, frost protection and trace heating equipment. |
| | | 5.1.2.2 Cold water storage | Storage tank, CAT 5 system, Treatment and filtration system for wholesome water. |
| | 5.1.3 Drainage and rainwater | 5.1.3.1 Surface water/rainwater/foul water drainage | Piping, insulation, support, rainwater storage tank, attenuation, outlets, pumps, downpipes), sewage piping, condensate piping, insulation, support, cistern, traps, pump, drain. |
| | | 5.1.3.2 Water reuse systems | Grey water/rain water harvesting storage tank, pipework and treatment equipment inside the building line. |
| 5.2 Heating, Ventilation and Cooling (HVAC) | 5.2.1 Space heating and hot water | 5.2.1.1 Heat & Hot water generation equipment | Gas/electric boiler, air/water/ground heat pumps, chiller, local water heater, wood burning stove, biomass boiler, solar thermal. Communal heating systems where housed within the building footprint are included here until it gets to the meter (after which it is included in distribution). Pit and manifold should be included here even if outside of the building footprint. Plate heat exchanger that |

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| | | | connects to a district heating network. Hot water generation equipment (e.g. calorifier) should be included as well. |
| | | 5.2.1.2 Heat & hot water distribution, control, ancillaries, emitters, exchangers/ terminal units | Electric radiator, wet radiator, underfloor heating, etc. heat interface unit, plate heat exchanger, pumps, mechanical switchboard, pressurisation unit, dosing pot, BC box, dehumidifier, vibration mounts, thermostat, thermal meters, hot water meter, pipework, pipe insulation, support/hanger, frost protection and trace heating equipment. |
| | | 5.2.1.3 Heat storage equipment | Hot water store, buffer vessel, expansion vessel. |
| | 5.2.2 Dedicated cooling installations<br><br>*(If the system does both heating and cooling, include it in heating)* | 5.2.2.1 Cooling generation equipment | Cooling tower, fan coil units. |
| | | 5.2.2.2 Cooling emitter, exchangers/ terminal units, ancillaries and control, distribution, storage | Cold water store, buffer vessel, expansion vessel for cooling, pumps, mechanical switchboard, pressurisation unit, dosing pot, BC box, dehumidifier, vibration mounts, thermostat, thermal meters, cold water meter, pipework, pipe insulation, support/hanger, frost protection and trace heating equipment. |
| | 5.2.3 Air movement | 5.2.3 Air movement | Fans, MVHR, AHU, ceiling fans, Kitchen ventilation, air curtains. |
| | 5.2.4 Ventilation air terminals, ductwork and ancillaries, control dampers, attenuation, fire safety related to ventilation equipment | 5.2.4.1 Air terminals | Diffusers, grilles, VAV, Louvre, CAV, etc. |
| | | 5.2.4.2 Ductwork & ancillaries | Ductwork, insulation, support, fire rated ductwork, support. |
| | | 5.2.4.3 Control dampers, attenuation and flre safety related to ventilation equipment | VAV damper, volume control damper, fire damper, fume and smoke extraction. Motorised fire smoke damper, stair case pressurisation, fire rated fans, pressure relief dampers, controls, louvres, gas extract. Also including acoustic attenuation. |
| 5.3 Electrical installations | 5.3.1 Lighting | 5.3.1.1 Internal lighting | Internal light fixtures, outlet, junction box, socket, light control, cable, switch. |
| | | 5.3.1.2 External lighting (building mounted) | Lamps/ poles/ supports etc that are building mounted. External light fixtures, outlet, junction box, socket, light control, cable, switch. |
| | | 5.3.1.3 Emergency lighting | Emergency lights, controls, cable, switch. |
| | | 5.3.1.4 Other lighting | Task lighting, stage/entertainment lighting, retail display lighting, architectural lighting including associated light fixture, outlet, |

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| | | | junction box, socket, light control, cable, switch. |
| | 5.3.2 Electrical services for power, communications, security, IT and fire detection | 5.3.2.1 Electrical power | Includes internal and building mounted installations. Power cable, cable trays containment, panel board/ distribution, back up equipment, busbar, transformer, sockets/ switches, floor boxes, sensors. It includes high voltage, low voltage, small power, containment. |
| | | 5.3.2.2 ELV/ Communications/Security | ELV: Low, medium and high voltage systems<br>Security: CCTV equipment, security sensors and alarm<br>Communications and audio visual equipment |
| | | 5.3.2.3 IT & Data | IT equipment: anything related to data, e.g. wifi equipment, server, backbone and structured cabling (cat6, etc.), computers, printers, data cabinets, patch panels, etc. |
| | | 5.3.2.4 BMS | BMS/controllers on fan coils, outstation, main controller system with computer (headend), cabling required, control valves, sensors for temperature statistics, etc. |
| | | 5.3.2.5 Electricity back up generation | UPS back up generation, battery supply, stand by generators within the building line. |
| | | 5.3.2.6 Fire detection & alarm | Fire alarm systems including detection, cabling, fire fighting panel and final call unit. |
| 5.4 On site renewable energy generation | 5.4.1 On site renewable energy generation | 5.4.1.1 Renewable energy - electrical generation onsite and building mounted | Solar PV panel, inverter, wind turbine, water turbine building mounted or within building footprint. |
| | | 5.4.1.2 Renewable energy - storage onsite | battery within building footprint. |
| 5.5 Systems including Life safety, Fuel installations, Lift and conveyor installations, Services equipment Disposal installations, Specialist installations, Builders work in connection with services | 5.5.1 Life safety | 5.5.1.1 Sprinkler system | Pipes, heads, valves, tank, hose, pumps. |
| | | 5.5.1.2 Fire fighting systems | Dry and wet riser, hydrant, within designated building footprint, AOV controls/ sensors, fire suppression system. |
| | | 5.5.1.3 Lightning protection/earth bonding | Lightning conductor, earth rods. |
| | 5.5.2 Fuel installations | 5.5.2 Fuel installations | All fuel supplies other than electric, anything pumped or pressurised.<br>Gas equipment: connection, Gas meter, pressure regulator, pipes, valves<br>Fuel storage tank on site, dry stores<br>Augers |
| | 5.5.3 Lift and conveyor installations | 5.5.3.2 Lift, stair lift, lifting platform | To include the systems, but power to the system included in Electrical Installations. |
| | | 5.5.3.3 Escalators and moving walkways | To include the systems, but power to the system included in Electrical Installations. |

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| | 5.5.4 Specialised and communal waste disposal | 5.5.4 Specialised and communal waste disposal | Refuse, incinerators and any systems for specialist/ communal waste streams and disposal installation. |
| | 5.5.5 Specialist installations & maintenance | 5.5.5 Specialist installations & maintenance | Equipment that is specialist but not fixed should be included here, e.g. related to labs/research, cold room, commercial kitchen, hospitals, medical facilities/ specialist care, animal welfare, agricultural buildings, manufacturing, warehouses, emergency services, entertainment buildings, sports/ swimming pools/ stadia, museums, archives, religious buildings, restaurants, shops, Maintenance equipment, Powered building signage, laboratory gases, carbon capture technology, internal pools and fountains Acoustic equipment not included in FF&E Cleaning system: central vacuum system, etc Other services equipment not included elsewhere. |
| | 5.5.6 Builders work in connection with services | 5.5.6 Builders work in connection with services | Sleeves, fire stopping to protect penetrations (not within ducts/systems), access platform, step overs, plinths (to raise equipment to protect from spills, leaks, etc.). |
| 6 Pre-fabricated buildings and units | 6 Pre-fabricated buildings and building units | 6 Pre-fabricated buildings and building units | Only include Category 1 MMC (volumetric off-site) in this category and only report total emissions at concept stage. Following this, the pre-fabricated volumetric elements must be broken downs into their constituent building elements and reported within the relevant lines. All other MMC categories to be reported within the defined building element categories, including at concept stage. |
| 7 Works to existing buildings | 7 Works to existing buildings | 7.1 Alterations | Minor removal/alteration/cutting back of minor portion of existing structure, envelope, fabric, fittings and services of an existing building. Deemed minor enough not to report under demolitions above. Alterations such as required to create clear site conditions for new works within this WLCA. |

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| | | 7.2 Repairs to existing Cleaning existing surfaces General Renovation works | Materials and processes required for repairs to retained items within an existing building from any of the building element categories above. If items are being fully replaced as new rather than repaired, include in relevant categories above. Examples:<br>- masonry/repairs including cutting out small areas and repairing, replacing brick ties, re-dressing, re-grouting, re-pointing<br>- concrete repairs including removal and replacement of defective, cleaning and rust-protecting reinforcement, re-surfacing, mesh reinforcement, impregnation<br>- metal repairs including replacement and renewal of small areas, cleaning and restoring, straightening, rust-proofing, framing repairs, staircase/balustrade repairs<br>- timber repairs including replacement and renewal, resin repairs, small splicing to existing structural members, framing repairs, stairs or balustrade small item replacements,<br>- plastic repairs<br>- removal of stains, soots, growths, vegetation, bird droppings and similar. |
| | | 7.3 Damp-proof courses/fungus and beetle eradication | Injecting or installation of chemical/mortar/mechanical damp-proof courses. Opening up works and cutting out or chemical treatment of infested existing building material. |
| | 8.1<br>Roads, paths, pavings, surfaces<br>Fencing, railings, walls<br>External fixtures | 8.1.1 Roads, paths, pavings, surfaces | Preparation of sub-base works including treatment, laying, levelling, grading and compacting. Blinding, in-situ concrete including formwork, reinforcement, connections, drainage/weed membranes, kerbs, edgings, accessories, surface applied pavement/road/pitch markings, worked finishes. e.g.:<br>- coated macadam or asphalt finishing<br>- masonry, bricks, paving, tiles, cobbles, setts<br>- gravel, stone chippings, wood-chipping<br>- grass perforated matting<br>- surfaces designed for playgrounds, sports or other specialist uses<br>- all systems required to manage surface water drainage and/or attenuation.<br>Accessories might include cat's eyes, tree grilles, traffic calming, smoke outlets, pavement lights, roundabouts, crossings (pelican/zebra), signage, connections to power etc |

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| | | | - Steps, staircases and ramps (including sub-structure, formation and final finish) outside of the designated building line. |
| | | 8.1.2 Fencing, railings, walls | Timber, metal, concrete, masonry fencing, railing, gates, walls, dwarf walls that are external and not part of the building thermal envelope and are new (Repairs covered in 8.8). Vehicle and pedestrian barriers that are required to take a specific loading for protection purposes, with associated gates. Including all sub-structure requirements, components, posts, fixings, ironmongery, accessories like copings, powered equipment, controls and final finishes.<br>This category includes retaining walls that are not part of the building. Usually formed from concrete, timber or masonry, including all sub-structure/piling requirements, reinforced earth, drainage requirements, membranes, components, fixings, accessories like copings, joints, preservatives, final finish, gabions. |
| | | 8.1.3 External fixtures | Site street furniture including gates (where not part of fencing or barriers), turnstiles, fixed/collapsible/removable bollards, seats, benches, tables, litter/grit/ dust bins, poster displays/notice boards, cycle stands/sheds, directional signage, flag poles, external sports/playground equipment, minor footbridges, bus stops, shelters, telephone boxes, post boxes, sculptures/external works of art, Ornamental water features including any sub-structure, tanks, components, pipework, controls and equipment required. |

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| | 8.2 Soft landscape, planting, irrigation | 8.2 Soft landscape, planting, irrigation | Seeding and turfing, preparing soil to form lawns, parklands, external planted areas, hedges, shrubs, blubs, reed beds, trees, woodlands. Including soil preparation, herbicides, topsoil, any reinforcement, e.g. for root zones, drainage systems, supports systems for planting like wires/trellises and the plants/trees themselves if not installed from seed. Marking out for grassed sports pitches. Irrigation systems including pipelines, storage tanks, chemical systems, outlets, controls, protection to systems.<br>Where trees/planting is installed in a generally hard landscaped area, sub-structure related to tree pit, etc. is included here. Works associated with the hard landscaping to incorporate the tree included in 8.2 above. |
| | 8.3 External drainage<br>External services<br>Minor building works | 8.3.1 External drainage | Foul water/surface water/land drainage below and above ground, from first manhole beyond the enclosing wall of the building, the sewer connection or other outfall (e.g. on-site sewage treatment facility). Including trenches, pipelines, fittings, beds, backfill, cradles, supports, connections, gullies and gratings (e.g. on roads). Packaged pumping stations, outfalls/outlet heads, final coatings, pre-fabricated channels, chambers, manholes, channels, soakaways, cesspools, petrol interceptor units. Also includes any alterations, repair works, filling or cleaning of existing drainage systems, manholes and gratings. Installations related to Sustainable urban drawing systems (SUDS) (not planted). Also includes drainage of hazardous liquids like chemicals and industrial liquid waste. |

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| | | 8.3.2 External services | General note: this category contains all services not building mounted or accommodated outside of the building footprint.<br>- Piped water supply systems bringing water from the statutory undertakers mains to the point of entry into building including distribution to external user points (eg external plant and equipment and fire hydrants). Fire hydrants/ rainwater recycling/grey water recycling outside designated building line. Includes tanks, pipework, trace heating, insulation, connections.<br>- Distribution of high voltage electricity from the statutory undertakers supply to an on-site transformer station, distribution of low voltage electricity from the on-site transformer to the main switchgear panel within the building and external installations for providing electricity including emergency or standby generators. Including cables, wiring, boards, trunking, access covers, connections, distribution, trenches, pits, packaged/transformer sub-stations, UPS installations, on-site renewable/non-renewable energy generation external to the building, including wind turbines, solar panels/PVs or other. |

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| | | | - Piped natural gas supply systems taking gas from the statutory undertaker's mains to the gas meter; and taking liquefied petroleum gas (LPG) from external storage vessels to distribution point, including mains gas supply and distribution of gas supply to external user points (e.g. to external plant and equipment). Including distribution, access covers, connections, trenches, pits, storage tanks/ bottles.<br>- Connection of telecommunications systems, cable television, internet and other communication systems from statutory undertaker's or other service provider's supply to the main distribution point within the building. Including cables, wiring, boards, trunking, access covers, connections, distribution, trenches, pits.<br>- External fuel storage and piped distribution systems. Storage tanks and vessels external to building, and piped supply systems distributing oil, petrol or diesel from storage tanks or vessels to the entry point within building or to external plant and equipment. Including distribution, pumps, valves, insulation, access covers, connections, monitoring equipment, trenches, pits, storage tanks/bottles.<br>- External site/street lighting systems including for pedestrian areas, paths, roads, illuminated traffic signs, external lighting. Including cables, wiring, boards, trunking, access covers, connections, distribution, trenches, pits, controls and the luminaires/lamps themselves. Lighting to sports pitches.<br>- Security systems including CCTV, camera poles, general external power supplies for security equipment and specific security lighting.<br>- Sundry builder's work associated with the installation of water, gas, electricity, heating, ventilation, above-ground drainage, telecommunications and other services. Including ducts, protective coatings, holes, chases, sleeves, covers, fire stopping, labelling, bases, etc. not included elsewhere. |

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| | | 8.3.3 Minor building works, ancillary | Refurbishment of and alteration to existing separate external small ancillary buildings, including overhauling existing mechanical and electrical plant and equipment. Small repairs to fencing/walls/barriers covered here. Examples might be repairs to boiler houses, sub-station buildings, fuel storage, bicycle stores, sheds, storage units, guard huts, external/floor standing canopies. Also included is under-pinning to existing external walls for repair purposes. |