

# Embodied Carbon: Example Client Brief

## Background

The purpose of the UK-GBC's "Embodied Carbon: Developing a Client Brief" guidance is to enable built environment clients to start requesting embodied carbon measurements. This includes understanding the outcomes from an assessment and how to start acting on the results.

By increasing action on embodied carbon at the client level, UK-GBC is aiming to raise awareness throughout industry as the supply chain responds to client requests.

Full guidance on the UK-GBC website:  
<http://www.ukgbc.org/resources/publication/embodied-carbon-developing-a-client-brief>

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This is an example brief for clients to commission an embodied carbon assessment. It is an excerpt from the UK-GBC's "Embodied Carbon: Developing a Client Brief" guidance.

The brief starts by informing the assessor of the need for the embodied carbon assessment. This could include:

- the company specific context;
- relevant sustainability objectives;
- relevant overall carbon aims;
- previous experience and/or studies in embodied carbon measurement and reduction; and
- identifying drivers and objectives for the data.

The brief sets the most relevant boundary for the organisation's interests and future planning.

This section defines the scope of the assessment, which may be at a project, asset or activity level e.g. new construction, refurbishment or strip out/fit out. If helpful, further detail can be given around which project activities are included and excluded from the calculation.

This section sets out any standards or calculation methodologies to which the assessment should conform. The calculation methodology is a choice between the RICS Methodology or the assessor's own approach. Calculations which do not use these standards or methodologies should request the assessor to justify this choice and explain the approach used.

## EMBODIED CARBON BRIEF

### Context and company objectives

<Organisation name> has an interest in delivering low impact assets and is therefore interested in measuring the embodied carbon impact. Sustainability is a core value of our business and we seek to make all of our new assets carbon neutral by 2025. We will achieve this through operational efficiency and through reducing embodied impacts.

The embodied carbon assessment must also be aligned with, and deliver compatible data for, our existing carbon processes including:

- ISO 14064-2 "Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements".
- Regular embodied carbon reporting of our assets which informs our selection of materials, products and suppliers throughout the project and on future projects.

### Boundary

The assessment will report on three boundaries, as defined using BS 15978:2011 "Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method".

1. Cradle-to-completed construction, comprising BS 15978 modules A1-A5.
2. "Cradle-to-transfer of ownership", comprising BS 15978 modules A1 to C4 (excluding B6 and B7) over 10-year, 20-year and 60-year reference study periods.
3. Cradle-to-grave, comprising BS 15978 modules A1 to C4 (i.e. including demolition, transport, waste processing and disposal) over a 60-year reference study period.

### Scope of the embodied carbon assessment

Asset function: The asset being assessed will be a mixed use development incorporating residential and retail tenants.

The assessment shall include the structural components (sub-structure, superstructure and façade). The fit-out, floor and wall finishes, as well as major interior items, are included.

The assessment will exclude emissions from design stage (paper and office consumption) and worker commuting activities.

### Assessment standards and calculation methodology

The methodology for calculation will conform to BS 15978:2011 and will also use the RICS "Methodology to calculate embodied carbon". Data gathering shall conform to ISO 14025:2010 "Environmental labels and declarations. Type III environmental declarations. Principles and procedures". An audit trail shall be presented.

## EMBODIED CARBON BRIEF 2

### Data and tools

The following industry data and/or databases are preferred for embodied carbon calculations:

- Environmental Product Declarations (EPDs)
- Proprietary data and database
- GaBi database

The following calculation tools are acceptable:

- Impact-compliant tools
- Any proprietary tools may also be considered if they are demonstrated to create the same outputs

The assessment shall include a general commentary on data quality for the project. Scoring of data quality for each data source is recommended.

### Starting point, iterations and frequency

The starting point will be at briefing stage and there will be periodic iterations of the assessment. <Organisation name> wishes to frequently monitor the embodied carbon and understand how material selection may affect the final outcome. Number and timing of iterations are to be agreed in conjunction with the embodied carbon assessor.

Where the first assessment is to be before product selection, initial calculations should be based on RICS component benchmarks or use estimated quantities and the GaBi database. This generic data should be substituted for detailed product data as the design progresses and subsequent iterations of the assessment are prepared.

### Presenting the results

All assumptions must be clearly stated.

The results of the assessment shall be presented in the following way:

- Total kgCO<sub>2</sub>e per building element as defined as: substructure, superstructure, cladding, exterior works, services, and any other major element.
- Total kgCO<sub>2</sub>e per material as defined as: foundation concrete, structural steel, etc.
- Total kgCO<sub>2</sub>e per major building component as defined as: frame, internal and external walls, floors, roof, windows and doors, etc.
- Total kgCO<sub>2</sub>e per work package.
- The results shall include intensity metrics, as defined by: kgCO<sub>2</sub>e per m<sup>2</sup> and tCO<sub>2</sub>e per £100k cost, kgCO<sub>2</sub>e per residential occupant.
- Each breakdown should be expressed as a proportion (%) of the total embodied carbon footprint.

The assessment shall provide the top five suggestions for reducing embodied carbon impact (including the reasoning) to inform the next stage of the project.

Clients may outline which embodied carbon data, databases and calculation tools are preferred and request that the data sources are disclosed. This section could also stipulate the data quality control rules.

This section states the stage at which the assessment will take place i.e. the starting point, and details any further iterations. If this embodied carbon assessment is the first, it can be used as a baseline for future comparisons. It should be noted that the starting point has an impact on the opportunities for embodied carbon reductions.

This section states the way in which the final assessment is presented. This will include all assumptions that have been made. A comprehensive breakdown of the results will enable the client to better understand where the embodied carbon impact lies. This depth of understanding can be used to inform decisions made at later stages in the project and on future projects.

Clients can request a list of reduction strategy suggestions, e.g. the top five which would have the most impact. Alternatively, the list of suggestions could be based on parameters such as the materials used in the elements and components, or reductions achievable in each project stage after the assessment.