Introduction
This document has been produced to provide alignment in Embodied Carbon measurement and comparisons. The industry needs to standardise performance and reporting scopes to meet IPCC recommendations for urgent emissions reductions. LETI have worked with RIBA, the GLA and the IStructE to produce this document.

A key issue the industry faces is the lack of consistent measurement, leading to mis-aligned benchmarks, project targets and claims.

Alignment in methodology is considered the interim step towards developing net zero carbon targets that reflect the UK’s carbon budget. Targets will only be useful once measurement is consistent. The UKGBC’s 2021 Whole Life Carbon Net Zero Roadmap project will generate sectoral carbon budget estimates, which will assist in future more detailed building-level target setting.

This paper summarises the following key points:
- The industry must push for Embodied Carbon reporting on all projects.
- A rating system should be introduced to allow quick comparison of ambition across various typologies and portfolios.
- Total embodied carbon targets have been introduced.
- Targets for retail have been developed.
- LETI and RIBA now have consistent embodied carbon target.
- Data disclosure and breakdowns are key to ensuring reporting is valid and comparable.
- There are two scopes that should be reported against: Upfront Carbon (modules A1-5, excluding sequestration), and Total Embodied Carbon (A1-5, B1-5, C1-4, including sequestration).

The Case for Letter Bandings
It is suggested that a rating system that allows comparison of embodied carbon ambition across typologies and facilitation of conversations about embodied carbon with key decision makers. Using a letter rating system, which is already familiar in the context of Display Energy Certificates will allow industry professionals to talk about an “A rated” building and know that they are talking about the same level of ambition regardless of the project. A rating system can support competition across various levels of ambition, something which is particularly useful in portfolio reporting (either for building owners or in schemes like the RIBA practice survey).

Current best-practice performance is considered to be a C rating, while a B and above is considered a robust stretch target. Though only 4 typology rating bands are provided currently, the methodology can be repeated for other typologies or scopes of work as more data becomes available. The bandings do not currently differentiate between new build or refurbishment. Part of the rationale for this is that refurbishment projects will find it easier to achieve good performances and this provides an incentive for retrofit. It is expected that as more data is collected for ranges of retrofit, the bandings could be adapted if necessary.

Using the ratings
The LETI position is that for buildings that are currently in the design stage:
- Average design achieves an E
- Good design achieves a C (LETI 2020 target)
- LETI 2030 design target achieves an A

The RIBA 2030 Climate Challenge built performance is equivalent of a B rating (note that this assumes practical completion in 2030, so designed earlier).

Signposting
This document is designed to be read with other LETI documents including the:
- LETI Embodied Carbon Primer
- Whole Life Carbon and Embodied Carbon One Pagers
- Net Zero Carbon Definitions
- Reporting templates on the LETI website
- FAQs available on the LETI website

Graphic showing the range of performance based on benchmarked projects, and the need to improve the average

Embodied Carbon Target Alignment

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Proposed rating ‘badge’
Embodied Carbon Target Alignment

Determining the Letter Bandings
In the preparation of the letter bandings, a number of data sources have been analysed. The starting point was data from Cundall and Targeting Zero. The results have been cross referenced with data provided by other companies, including Etool, Price & Myers, Arup, Hilson Moran. Data that appeared to have significant omissions was not used.

There is currently large variation across Life Cycle Analysis inputs and therefore reported final figures. The product LCA data used can differ significantly depending on the source and whether it is generic, or fully representative of the product or material. This is compounded by individual project assumptions. As data sets and guidelines, such as CIBSE TM 65, mature this situation will improve. In the meantime however, it is considered that the ratings proposed in this paper are of the right order of magnitude to enable designers to determine whether a particular project is significantly better or worse than ‘business as usual’.

Data Reporting
To enable direct comparisons both between projects and benchmarks, consistency of assessment method and reporting is necessary, to enable peer-review and simplify future analysis of projects.

When calculating embodied carbon, the RICS Professional Statement should be followed and a minimum of 95% of cost should be included in the assessment. The scope must include substructure, superstructure, finishes, fixed FF&E, building services and associated refrigerant leakage, but excluding external works outside the building footprint. When reporting the total embodied carbon figure, the calculations should be broken down as per the reporting template, which is provided on the LETI website. It allows the breakdown per building element to be reported, along with material quantities, data sources and boundary of the project. It should be noted that the commercial assessments cover Cat A, and Cat B fit outs are reported separately.

For clarity, sequestration is reported separately if reporting only Upfront Carbon (modules A1-5) but shall be included if reporting end-of-life emissions for Life Cycle Embodied Carbon (A1-5, B1-5, C1-4). Module D should be reported separately. Offsetting is not included. This ensures that direct emissions can be clearly identified in parallel to recording the beneficial aspects of the design.

Embodied carbon figures should be provided for Upfront Carbon (modules A1-5), and Life Cycle Embodied Carbon (A1-5, B1-5, C1-4), enabling the separation of construction impacts from future ongoing impacts.

In order to claim a rating against the bandings, the template for a particular project should be fully completed and publicly disclosed on a website.

Graph showing the embodied carbon letter bandings for four typologies

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Embodied Carbon Target Alignment

Which target do I use?
Current best-practice performance for projects in the design phase is considered to be a “C” rating, while a “B” and above is considered a robust stretch target.

Relationship to the previously published LETI targets
In January 2020, LETI published the Climate Emergency Design Guide and the Embodied Carbon Primer. This guidance set out upfront carbon targets (modules A1-A5), for residential, office and schools using a limited data set.

These documents put forward how the industry could define “good” for embodied carbon for buildings that are designed in 2020 and in 2030. Since then, these targets have been used in design projects and referred to as LETI 2020 target and LETI 2030 target.

Letter banding targets have since been developed. The table below shows how the existing LETI targets align with the letter banding.

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How this relates to the RIBA 2030 challenge
The initial (2019) version of the RIBA 2030 Challenge set out total embodied carbon (A1-A5, B1-B5, C1-C4) performance targets, rather than the upfront carbon targets published by LETI.

The figures were not directly comparable as they had these different scopes. With the release of the second (2021) version of the RIBA 2030 Challenge in June 21 the LETI and RIBA embodied carbon figures will be aligned. However, please note that RIBA targets are performance targets to be realised in buildings completed in 2025 and 2030, whereas LETI dates relate to the year of design.

Embodied carbon benchmarks and targets are a developing knowledge area; it is anticipated that as the quantity of more accurate and detailed information becomes available target figures may be updated. It may also become relevant to refine and provide an increased number of typology specific targets.

How should embodied carbon be analysed?
The targets are to be assessed including the elements required in RICS Professional Statement Whole Life Carbon Assessment for the built environment Table 3, excluding non-fixed FF&E, external works outside the building footprint, and renewable electricity generation (e.g. PVs). These have been omitted to focus the design on the building itself, and ensure comparability between ratings. Space is provided to record these additional elements within the reporting template, but entering them does not affect the overall rating.

Analysis should be undertaken following the RICS Professional Statement methodology, using the default values where not yet known.

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