



UK Net Zero Carbon Buildings Standard

Pilot Version
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The Institution of
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Introduction

The UK Net Zero Carbon Buildings Standard ('the Standard') has been collaboratively developed by a wide range of stakeholders in the United Kingdom's (UK's) built environment industry. It creates a unified definition for 'Net Zero Carbon Aligned Buildings' in the UK, underpinned by an evidence-based reporting methodology. The Standard is for everyone connected with the UK's real estate industry. Its development has been led by a coalition of Professional Institutions, industry bodies and leaders in the field who recognise the need for consistent rules, both to reduce spurious claims around net zero carbon, and to accelerate the design, construction and use of buildings that deliver lower-carbon outcomes in line with the UK's legally binding carbon targets.

Climate science (<https://www.ipcc.ch/sr15/>) shows that, to prevent the worst impacts of climate change on people and natural ecosystems, the planet's average temperature rise needs to be limited to 1.5°C above pre-industrial levels. To do this, humanity must reduce worldwide carbon emissions in line with the global 'carbon budget' pathway and reach a net zero carbon world by 2050. Reaching worldwide net zero carbon means realising a global balance between the greenhouse gases emitted by humans into the atmosphere and those removed from it. In line with this overarching aim, all sectors in all countries must significantly reduce their emissions and counterbalance any remaining emissions.

The scope and applicability of this Standard is the design, construction and use of buildings in the UK, although its principles and approach could be adapted and applied to other nations and regions, or other UK sectors.

The Standard sets out mandatory requirements for net zero carbon aligned buildings that could – if the rest of the UK building stock were to collectively implement compatible interventions – enable the UK real estate sector to stay true to the built environment's share of our national carbon and energy budgets. This approach is defined by the term 'Net Zero Carbon Aligned Building' within the Standard.

Offsets may be used to complement, but not replace, the mandatory elements of the Standard, and may be used to achieve net zero carbon at the asset level. This approach is defined by the term 'Net Zero Carbon Aligned Building (plus offsets)' within the Standard.

The mandatory requirements within the Standard cover a range of topics such as upfront carbon, operational energy use, avoidance of fossil fuel use on site, renewables and refrigerants. Limits have been derived from measured performance data, combined with expert professional experience on future performance trends and buildability, which have been compared against a complex model of the entire existing stock and future UK build-out rates.

The purpose of modelling and the associated development of the limits has been threefold: 1) to identify a deliverable route to net zero carbon for the UK built environment as a whole; 2) to discern the wider systemic actions required to enable the UK real estate sector to conform to the necessary net zero carbon pathway; 3) to ensure that any building claiming to be 'Net Zero Carbon Aligned' is achieving energy and emissions performance sufficient to keep the cumulative totals as faithfully as possible within the UK's remaining carbon and energy budgets. The limits



represent ambitious but achievable requirements for building performance and construction quality.

The Standard has six main sections and four annexes as summarised below:

Sections	Contents and purpose
Sections 1 to 3	Outlines the scope, references, terms and definitions, and abbreviations used by the Standard.
Section 4. General principles	Sets out the overarching requirements of the Standard that apply across all assessments, submissions and verifications.
Section 5. Assessment, submissions and limits	Provides requirements specific to each aspect of the Standard, such as embodied carbon or operational energy.
Section 6. Verification and conformity	Summarises the intent of these sections. Whilst these sections are not provided in the Pilot version, they will be included in future versions of the Standard.
Section 7. Communication	
Annex A Limits and targets	Provides the numerical requirements of the Standard, varying by type of building, construction works, timing and sector.
Annex B Submission proforma	Standalone spreadsheet for submitting numerical evidence of conformity with the Standard for verification.
Annex C Principles of equivalence	An informative annex explaining how other built environment schemes that share an aligned approach to one or more of the Standard's mandatory metrics, targets or requirements, might propose to demonstrate equivalence with specific aspects of the Standard. This will enable the potential use of comparable schemes to demonstrate conformity for certain criteria of the Standard in the future.
Annex D Roles and responsibilities	An informative annex explaining the likely roles and responsibilities required for implementation of the Standard on a building.
Annex E Contributors	Lists all contributors involved in the development of the Standard.

Although not currently included in the Pilot Version of the Standard, it is the intention that the Standard will evolve over time to include the following aspects:

- Life cycle embodied carbon limits;
- Space heating and/or cooling limits across further sectors and building types;
- Electricity demand management limits;
- Progression of the energy performance metrics to reflect additional energy uses, or intensity of use, such as for areas currently classified as Additional Use Areas;
- Options for delineation between areas or between responsibilities (e.g., for base build or for tenanted offices to assess their performance separately);
- An update to Annex C incorporating recognised standards or schemes that can be used to demonstrate areas of equivalence.



The Standard builds on previous work in the net zero carbon field by BBP, BRE, CIBSE, IStructE, LETI, RIBA and the UKGBC, and the methodology for carbon accounting adopted in the Standard is in line with the current edition of the RICS *Professional Standard – Whole Life Carbon Assessment for the Built Environment*, which is referenced throughout.

The development of the technical content, text and the numerical limits in the Standard has been led by the Technical Steering group with representatives from BBP, BRE, CIBSE, the Carbon Trust, IStructE, LETI, RIBA, RICS and UKGBC with the support from industry volunteers. The Pilot version of the Standard has been reviewed by a group of more than 350 people, representing designers, architects, engineers, developers, chartered environmentalists, contractors, academics and more. We are incredibly grateful to all those who have volunteered time, to the organisations who enabled and financially supported the Standard, and to those who have committed to continue to support the Standard going forward.

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