



# UK Net Zero Carbon Buildings Standard

Technical Update & Consultation

14 June 2023

**BBP** BETTER BUILDINGS PARTNERSHIP



The Institution of **StructuralEngineers**



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# Hello!

Through the determination and hard work of members of our task groups, sectors groups, and data providers we have been able to meet our next important milestone. On behalf of the team, I am delighted to report that we are now at the stage where we can provide you with a Technical Update & Consultation, which forms our second Quarterly Update.

This consultation document describes the technical fundamentals behind the Standard, sharing the metrics that buildings will be assessed against to demonstrate that they are aligned with what is required for the UK built environment to achieve Net Zero Carbon.

It then describes the work that has been undertaken to gain an understanding of the current operational energy and embodied carbon performance levels that will provide the context of technical feasibility for various sectors. This is the main focus of the consultation.

Finally, the consultation outlines the approach being taken to determine relevant budgets for carbon and energy, which inform the limits that will follow in later stages of work.

I also wanted to take the time to thank you for being involved in our consultation – and helping to shape the future definition of a Net Zero Carbon building.

This is an extremely important initiative that I am hugely passionate about. We have a lot of people giving up their time on this and I am grateful for all their hard work.

By completing our questionnaire, you can make a real difference to sustainability across the built environment, so I ask that you take the time to do so.

Thank you again for being a part of our consultation and I hope you find our Technical Update useful.



Clara Bagenal George  
Chair, Technical Steering Group



**UK Net Zero Carbon  
Buildings Standard**

# Purpose of this Technical Update & Consultation



## We want your views on:

- **The overall technical proposals for the Standard**
- **The achievability of the new build performance levels**
  - These levels will be used to inform the final NZC limits

## Aims

The team developing the Standard have spent the last 9 months developing its **technical basis**, and establishing **new build performance levels** for a wide range of sectors.

We are sharing this Technical Update & Consultation document to allow the wider industry to review the proposals and performance levels, and provide us with feedback.

The performance levels do not represent the energy and embodied carbon limits that buildings would have to meet. They provide the context of technical feasibility for the various sectors and provide a summary of the data received in the call for evidence.

## Who should respond?

We are interested in the views from across all built environment stakeholders, and interested we have broken the consultation into various themes.

# How to engage with the consultation

## Responding to the consultation

There are a series of talking points raised within this document which are posed as questions in our [online survey](#). Please submit your responses to these for our consultation.

**Given the technical nature of certain sections of the consultation document, it is expected that not all stakeholders will want to respond to all sections.**

We are expecting a high volume of responses to this consultation. Please ensure you use the online survey for your comments to ensure we are able to process and incorporate your feedback.

The team will also be conducting a webinar at **12pm on Monday 10 July 2023** to provide industry with answers to pertinent issues raised throughout the consultation. You can sign up [here](#).

## Consultation period

Please submit your views on the consultation between **Wednesday 14 June - Thursday 31 August 2023.**

## Data and performance levels

We are particularly interested to get your feedback on the performance levels which have been provided in answer to our Call for Evidence, for both operational energy and embodied carbon, and we encourage responses from those who have an understanding of technical achievability for these levels.

Please also note that we are collecting more embodied carbon data – please refer to **6. New Build Embodied Carbon Performance Levels** for more information.

**These levels provide technical evidence for what is currently being achieved by individual sectors within the built environment, based on benchmarking, case studies and modelling.**

**They are not intended to be limits or targets, but will be used to inform the NZC limits and targets in the next stage of our work.**

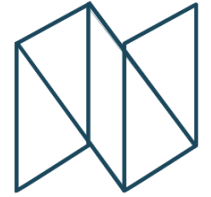
# 1. Background

Origin, principles, and progress



UK Net Zero Carbon  
Buildings Standard

# Origins of the Standard



In May 2022 a cross-industry Steering Group, representing stakeholders across the built environment, joined together to develop a Standard for verifying UK buildings as Net Zero Carbon (NZC).

The UK Net Zero Carbon Buildings Standard, or “The Standard”, will enable our industry to robustly verify that our built assets are Net Zero Carbon, and in line with our nation’s climate targets.

## What will the Standard cover?

The Standard will set out metrics by which net zero carbon performance is evaluated, and provide performance targets and limits.

The Standard will be science-based, aligned with delivering a Net Zero Carbon UK by 2050 and a 78% reduction by 2035 in the UK in order to limit global warming to 1.5°C.

The Standard will incorporate targets and limits that have been derived from an analysis of the UK’s Sixth Carbon Budget and from data gathered across different sectors within the built environment.

## Who is it for?

The Standard is for developers, contractors, asset owners and managers, occupiers, investors, financiers and funders, consultants, building industry professionals, building managers and product/material manufacturers, suppliers, and distributors.

**It is for anyone who wants to either fund, procure, design, or specify a Net Zero Carbon building and anyone wanting to demonstrate that their building is Net Zero Carbon in accordance with an industry-agreed Standard.**

# Principles of the Standard



## Overall principles

- Providing clear, consistent definitions and trajectories for Net Zero Carbon (NZC) buildings and the built environment. This will make it simpler to specify and deliver NZC, and also prevent unfounded “NZC” claims
- Driving market transformation through industry engagement, uptake and support
- Ensuring that the Standard is easy to understand and use, with achievable but stretching requirements
- Aligning asset-level requirements with the system-level changes needed for a NZC UK.

## Technical Principles

- Creating a Standard which is science-based
- Including both operational and embodied carbon
- Prioritising energy efficiency and eliminating the performance gap
- Prioritising the reuse of existing buildings and assets
- Adopting a whole life carbon approach
- Enhancing renewable energy generation
- Ensuring that buildings are responsive to electricity grid fluctuations

More detailed explanations of these principles can be found in our [April Quarterly Update](#).



# Application of the Standard

The approach will be applicable to both existing and new buildings.

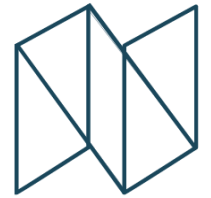
To start with, the focus will be on the most common building typologies, especially those for which industry stakeholders have already robust performance data available to inform the setting of performance targets.

The Standard is seeking to develop performance targets and limits for the following typologies.

Homes	Sport and Leisure	Hotels
Offices	Retail	Commercial Residential
Schools and Further Education	Culture and Entertainment	Logistics / Warehouses
Healthcare	Heritage	Datacentres
	Science and Technology	



# The people behind the Standard



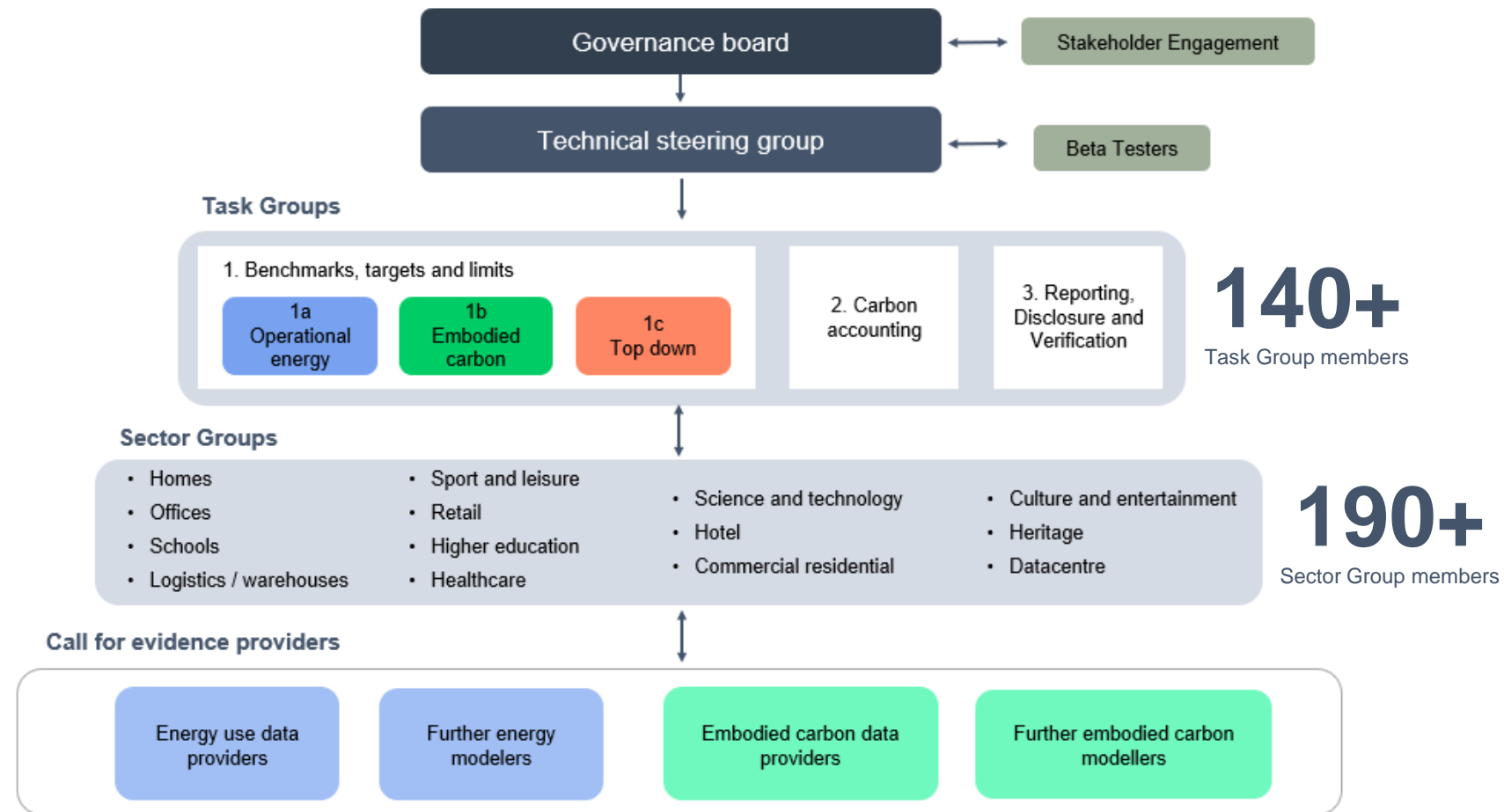
The Standard's project team is made up of more than 350 voluntary experts from all parts of the built environment industry.

The **Governance Board** oversees the development of the Standard, leads on stakeholder engagement, and secures resources for the Standard.

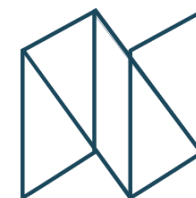
The **Technical Steering Group** (TSG) oversees the specification, design and development of the Standard. The TSG is supported by a series of Task Groups and Sector Groups.

The **Task Groups** develop the technical basis for the Standard alongside the TSG, and will draft parts of the Standard.

The **Sector Groups** provides expertise on the decarbonisation of that sector, by identifying sources of data, processing data from the call for evidence, producing sector-specific information such as metrics and benchmarks, and supporting the development of performance levels.



More information on these groups can be found in our [April Quarterly Update](#).



# Developing Net Zero Carbon Limits

Two key principles for the Standard are that it should be stretching but achievable, and also that it should be science-based.

To reconcile these aims, two workstreams have been established to develop the Net Zero Carbon limits.

The **bottom-up workstream** will use benchmarking, case studies and modelling to create Levels of Performance.

The **top-down workstream** will establish the relevant national carbon 'budgets' which show what the industry needs to achieve to play its part in a NZC UK.

The outputs from these workstreams will then be combined to create NZC limits and targets for the Standard.



**This consultation issue relates to the New Build Performance Levels, which are not the final NZC limits. More information on the development of limits can be found in our [April Quarterly Update](#).**

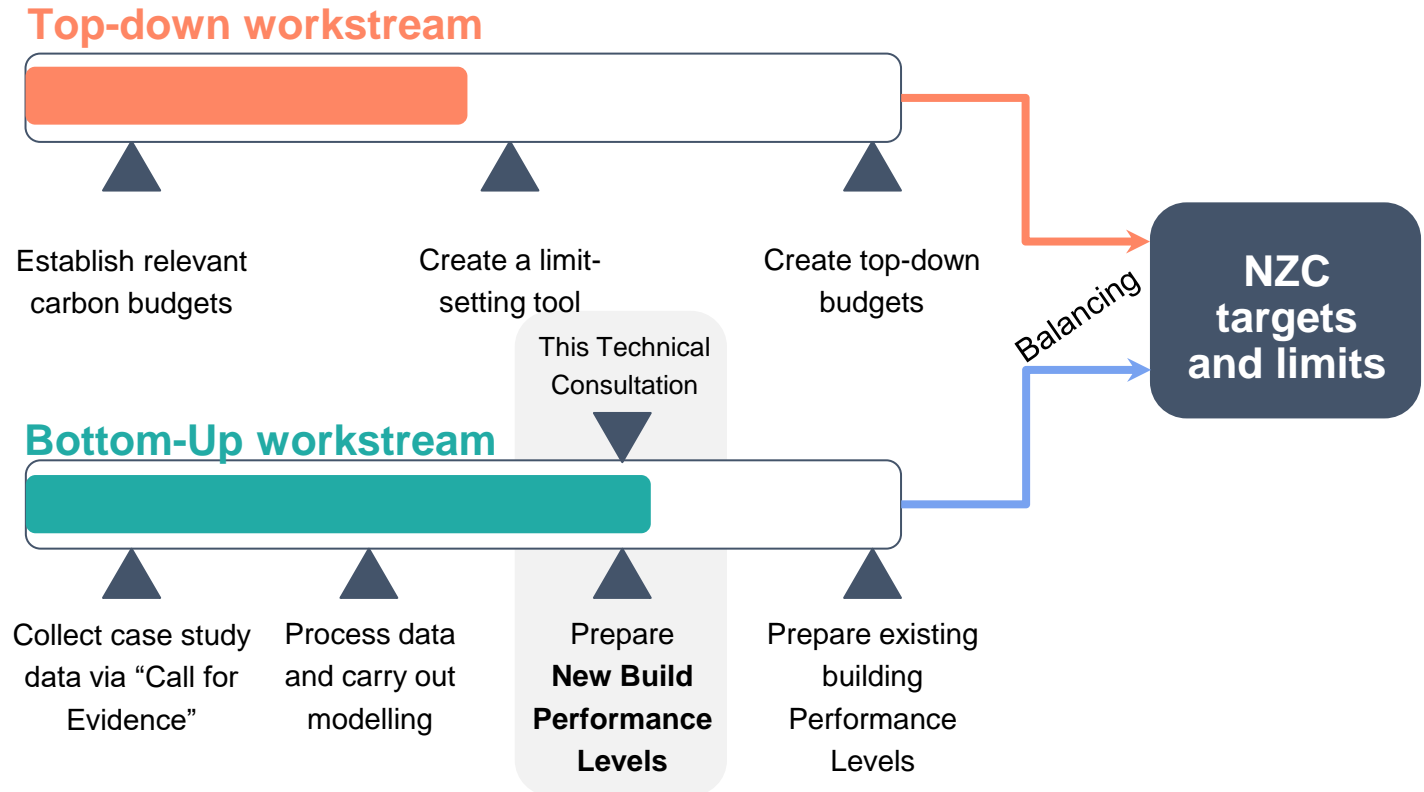
# Progress towards NZC Limits



The major milestone reached at the time of publication of this document is the development of bottom-up **New Build Performance Levels** for operational energy and embodied carbon.

Alongside technical fundamentals for the Standard, these New Build Performance Levels are a key focus of this consultation.

The Performance Levels represent what can be achieved at an individual building level. They are not the final NZCBS limits, which will be produced once the top-down budgets are available



*Glossary: Performance levels: These levels provide the technical evidence on what can be achieved by the individual sectors, based on benchmarking, case studies and modelling. They are not limits or targets, but will be used to inform the NZC limits and targets in the next stage of work.*

# Call For Evidence - Thank You!



## A huge thank you to everyone who responded to the Call for Evidence and contributed data:

The Standard issued a Call for Evidence to obtain case study data from the real estate and built environment industry. This data is critical to ensure that the Standard is inclusive, and reflective of the best available evidence.

Metered energy data from individual project submissions from best-in-class buildings for over 200 projects has been combined with data from predictive energy models to inform the performance levels.

Embodied carbon modelled data was submitted from 836 projects. Over half of the assessments were carried out between RIBA Design Stage 4-6, which provides a suitably robust assessment.

**836**   **3,200**   **200+**

Projects embodied carbon data

Projects metered operational energy data  
- from large data sets

Projects metered operational energy data  
- from individual projects

AECOM  
AEW  
AHMM  
AHR  
Anne Thorne Architects LLP  
Architype Ltd.  
Argent LLP  
Arup  
Atkins  
Bam  
BDP  
BE Design  
Big Yellow Group  
Bouygues  
Bruntwood  
Bryden Wood  
Buro Happold  
BWB Consulting  
Certified  
Chapman bds  
City of London  
Commercial Services Group  
Cundall  
Curtins  
Cushman and Wakefield  
Davies Maguire  
dRMM  
DEFRA  
Eckersley O'Callaghan Engineers  
Fiera Real Estate

Focus Consultants  
Galliford Try  
Glenn Howells Architects  
Hawkins Brown  
Haworth Tompkins  
Hilson Moran  
Hoare Lea  
Introba (formerly Elementa Consulting)  
ISG Ltd.  
JLL  
Kirsty Maguire Architect  
Knight Frank Investment Management  
Lamington Group  
Landsec  
LEAP  
Legal & General Investment Management  
Lendlease  
London Legacy  
Longevity Partners  
Mace Group  
Martin Ingham  
Max Fordham LLP  
Method Consulting  
New River  
Nigel Dutt  
Nottingham Trent University  
Pillbrow and Partners  
Price & Myers  
Purcell

QODA Consulting  
Ramboll  
Renaissance Associates Ltd  
Ridge  
RPS  
Savills  
SD Structures  
Sir Robert McAlpine  
Smith and Wallwork  
Staffordshire University  
Sustainable Construction Services  
Swansea Council  
Swansea University  
Timber Development  
Tooley Forster  
Treveth Holdings LLP  
Turley  
Turner & Townsend  
University of Liverpool  
University of Reading  
Walsh  
Wates Group  
Welsh School of Architecture  
Whitby Wood  
Wilkinson Eyre  
Willmott Dixon Holdings Ltd.  
Woolgar Hunter  
Workman  
WSP  
XCO2