

UK Net Zero Carbon Buildings Standard

26 January 2024

A Property Industry Alliance Webinar



Thanks for joining.
This webinar will
begin shortly

Please note: This webinar is being recorded.

Moderator Welcome

Bill Hughes

Chairman of PIA and Member of the
Governance Board of NZCBS



Agenda

09:15 Introduction

09:25 Presentation: UKNZCBS - Engagement Workshop

09:55 Moderated Q&A

10:15 Finish

(To ask a question - please use the Q&A panel to type your question to the Moderator)



Speakers



David Partridge
Chair of the Governance
Board of the UK NZCBS
(the Standard),
Chairman of Related
Argent



Katie Clemence-Jackson
Chair of the Technical
Steering Group of the
UK NZCBS and Associate
at QODA



Sarah Ratcliffe
Member of the Governance
Board of the Standard and
Chair of the Green Property
Alliance, CEO, Better
Buildings Partnership

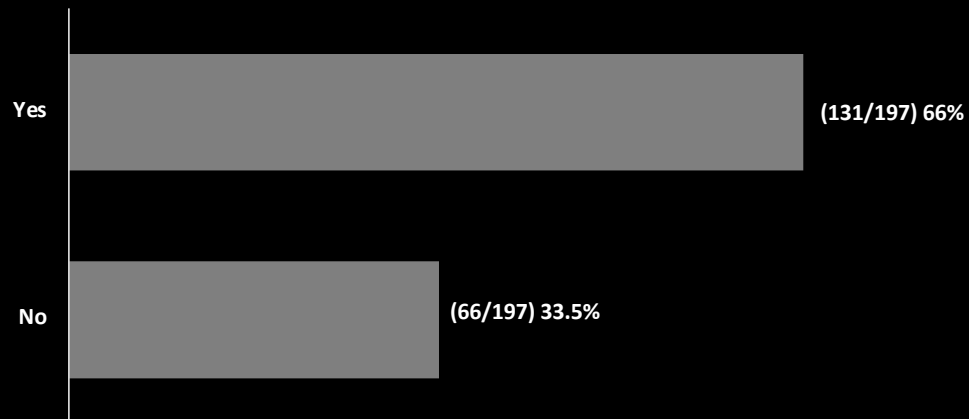
Introduction

The UK Net Zero Carbon Buildings Standard



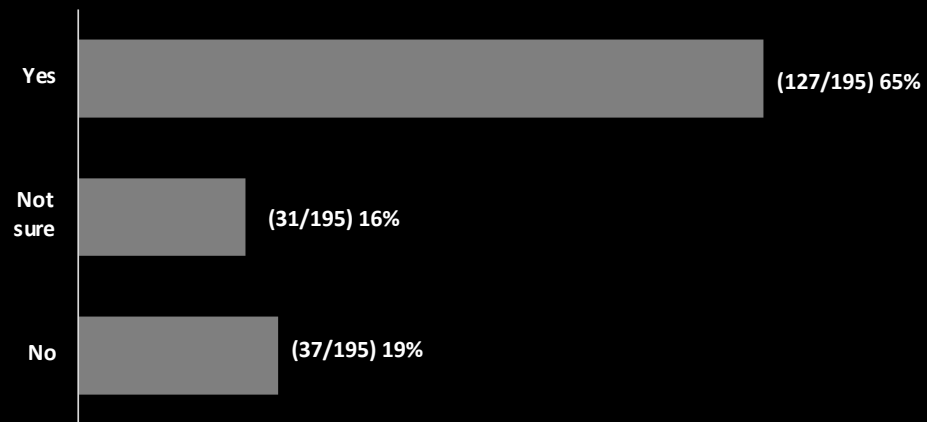
Poll Question 1

Were you previously aware of the UK Net Zero Carbon Buildings Standard?



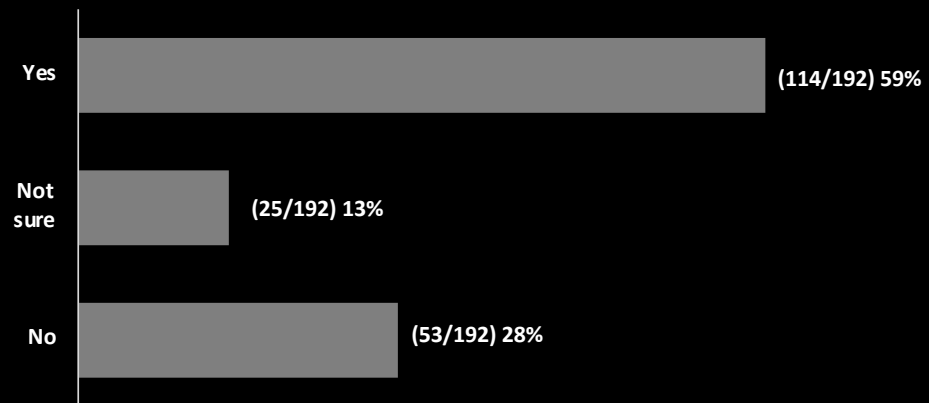
Poll Question 2

Has your organisation made a commitment to Net Zero Carbon (NZC)?



Poll Question 3

Are you currently assessing buildings against NZC aims?





UK Net Zero Carbon Buildings Standard

ENGAGEMENT WORKSHOP

BBP BETTER BUILDINGS PARTNERSHIP



CARBON TRUST



The Institution of **StructuralEngineers**



RIBA Architecture.com



AGENDA

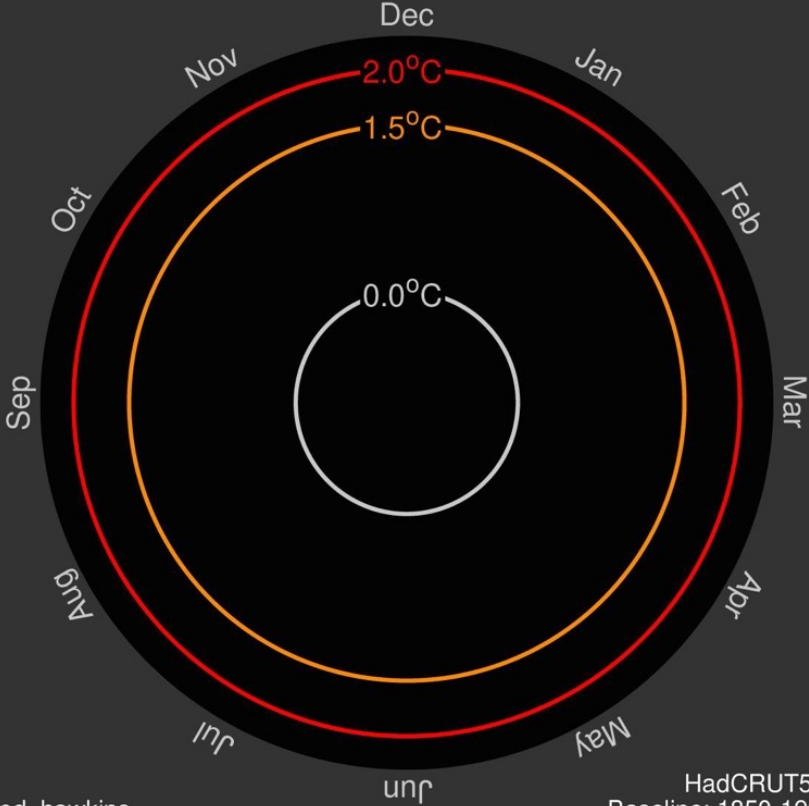
- Why do we need it, and what is the Standard?
- How is the Standard being developed?
- What's the Timeline for publication?
- Key outcomes from the Summer 2023 Consultation
- Issues to discuss



UK Net Zero Carbon
Buildings Standard

Our world is facing
an increasingly
uncertain future.

Global temperature change (1850-2023)

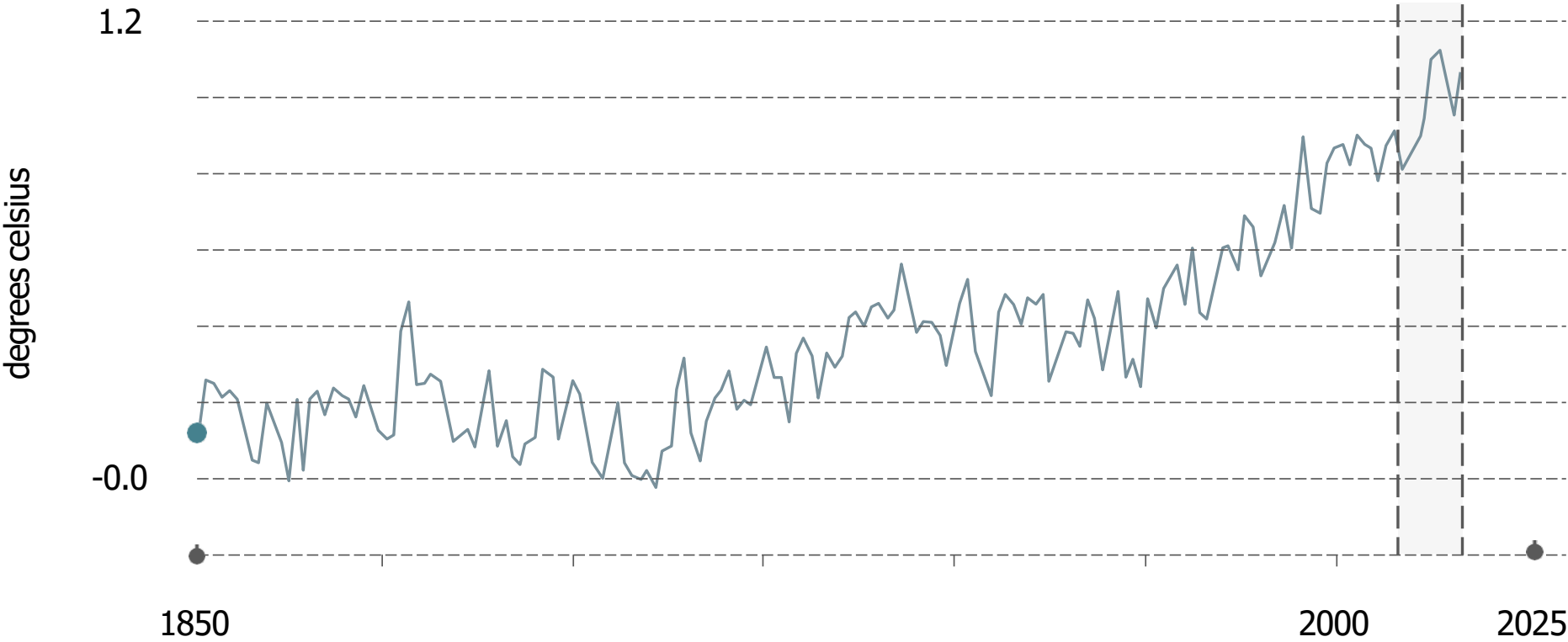


@ed_hawkins

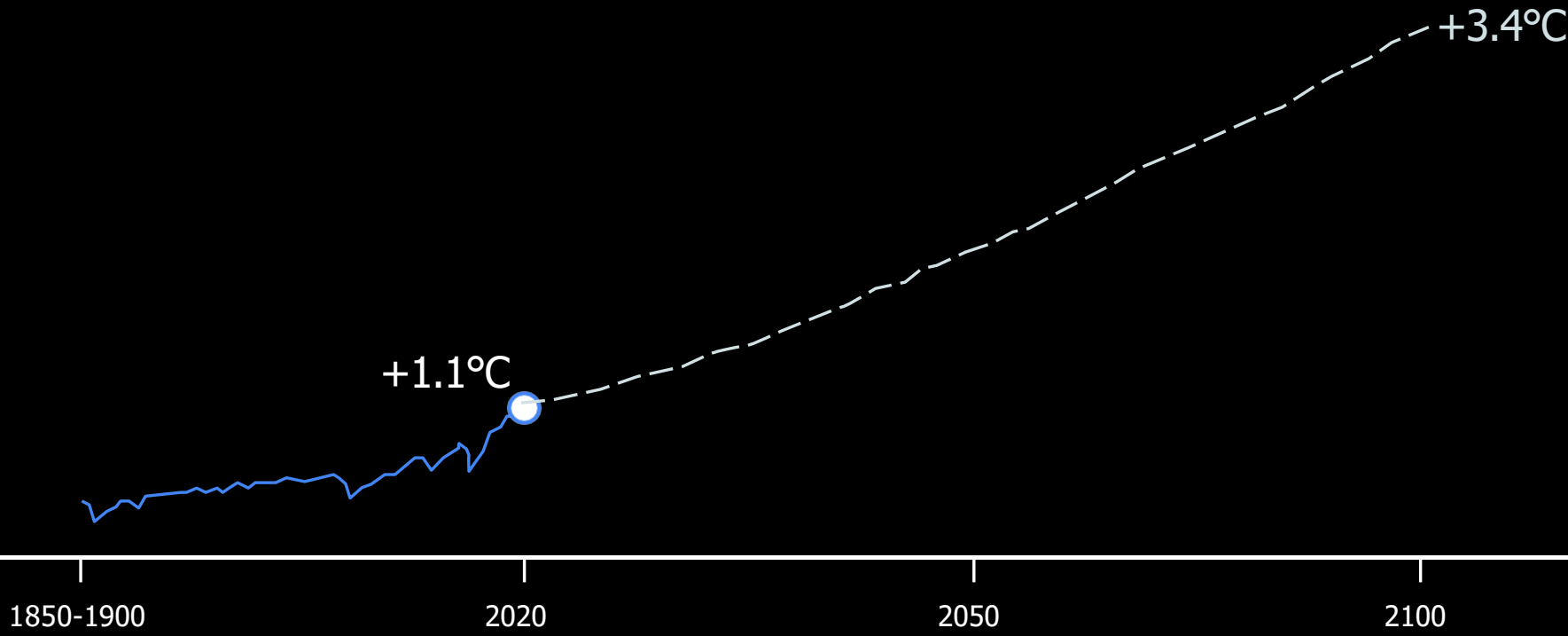
HadCRUT5.0
Baseline: 1850-1900

8 warmest years on record

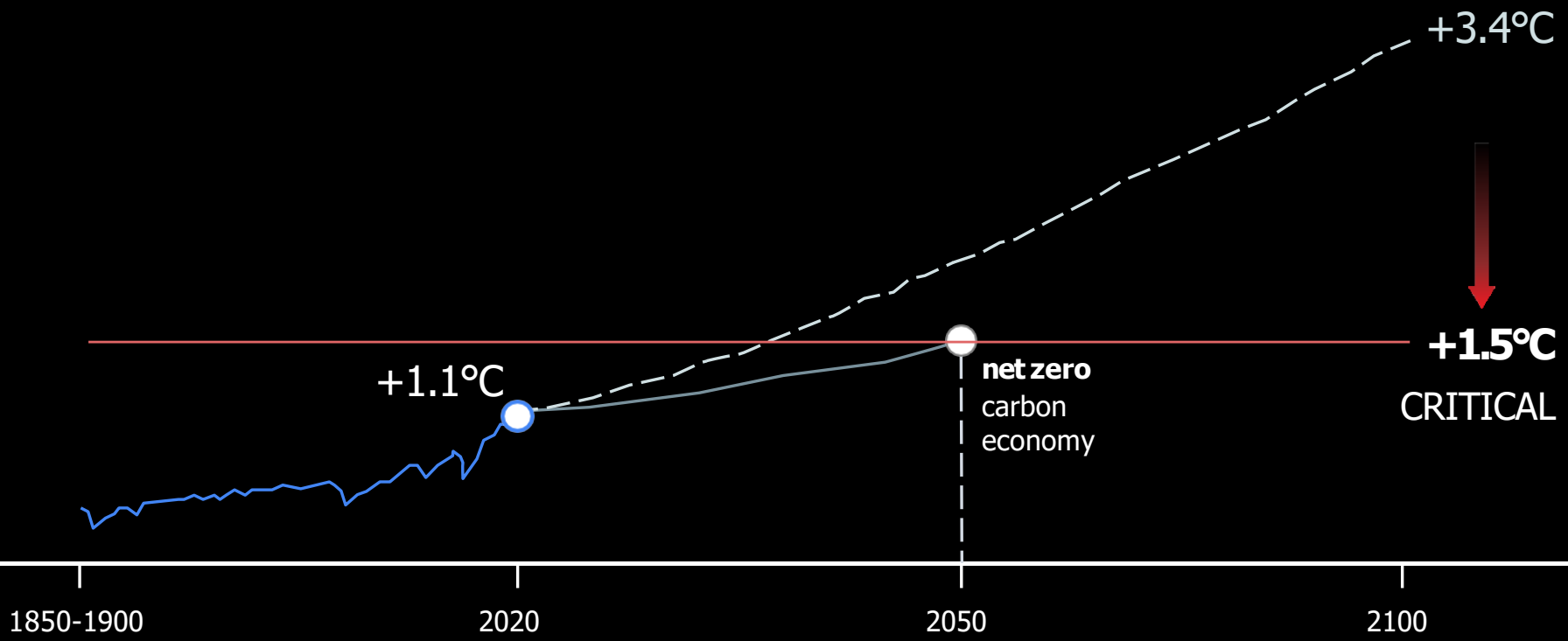
Since records started in 1850



lowering our emissions is **critical**



lowering our emissions is **critical**



buildings are responsible for 40%

of carbon emissions globally, so we have a role to play

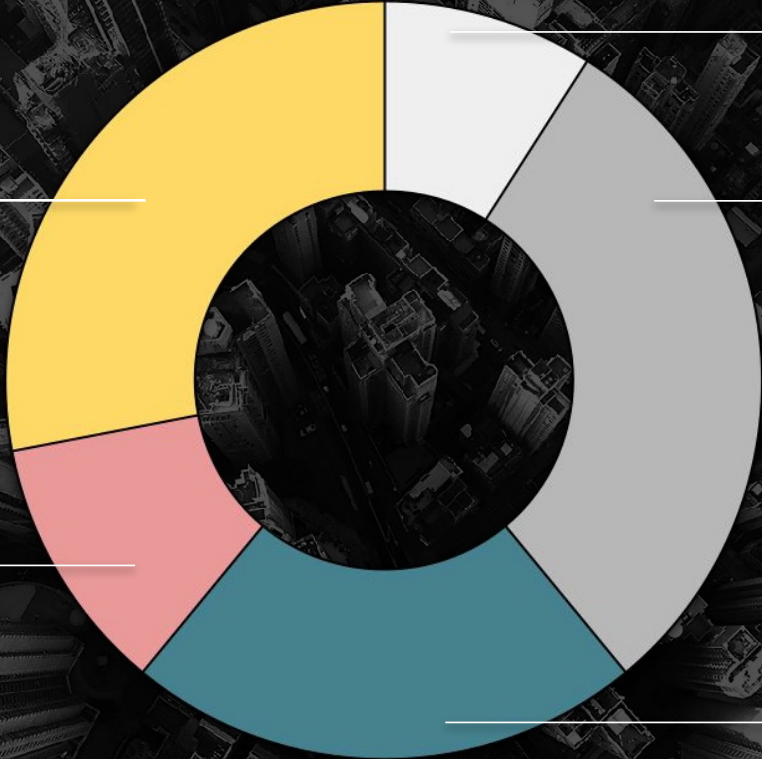
28%
Building Operations

11%
Building Materials &
Construction

9%
Other

30%
Industry

22%
Transportation



What is the Standard for?



The UK Net Zero Carbon Buildings Standard will enable our industry to **robustly verify that our built assets are Net Zero Carbon** in line with our nation's climate targets.



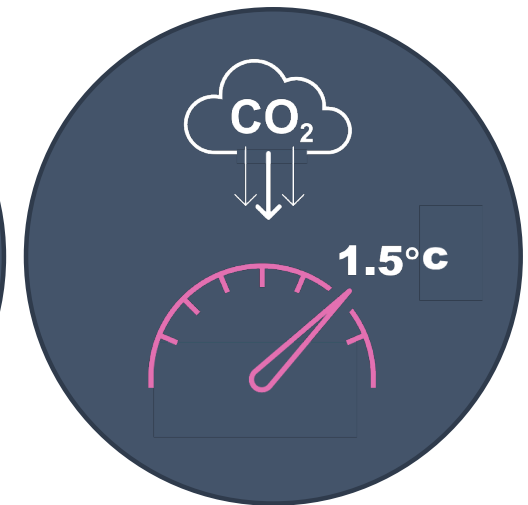
Rule book



Sectoral



Carbon-only

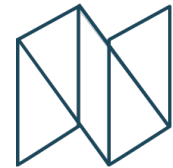
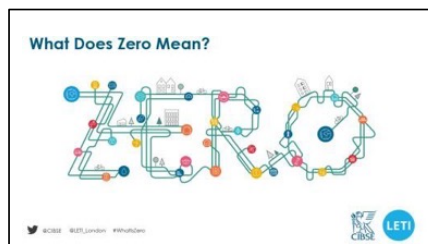
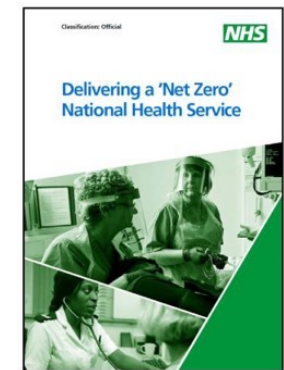
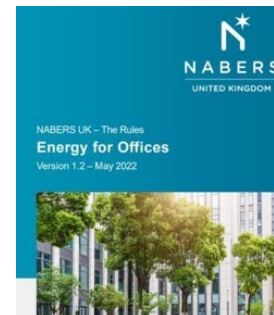


Science-based

The UK Net Zero Carbon Buildings Standard will provide:

- **A clear definition of Net Zero Carbon for buildings/assets, not for companies.**
- **A Standard against which buildings/assets can be verified to increase integrity and avoid greenwashing.**
- **A Standard around which the built environment sector can unite to prevent proliferation and duplication.**
- **A Standard which investors can use to inform investment decision-making.**
- **A Standard which could be used for sustainable finance, lending and debt.**
- **A Standard which occupiers can use when buying or leasing buildings.**
- **A Standard which policy-makers at national, city and local level could incorporate into planning, building regulations, procurement and leasing.**

Our starting point - Industry guidance

Upfront Carbon, A1-5 (exc. sequestration)

Band	Office	Residential	Education	Retail
A++	<100	<100	<100	<100
A+	<225	<200	<200	<200
A	<350	<300	<300	<300
B	<475	<400	<400	<425
C	<600	<500	<500	<550
D	<775	<675	<625	<700
E	<950	<850	<750	<850
F	<1100	<1000	<875	<1000
G	<1300	<1200	<1100	<1200

LE11 2030 Design Target
LE11 2020 Design Target



Principles of the Standard

Overall principles

- Clear, consistent definitions and trajectories for Net Zero Carbon (NZC) buildings
- Collaboratively created by, and for, the built environment industry, and not owned by any one organisation or Institute
- 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
- A Standard that is politically neutral

Technical Principles

- Informed by climate science (science-based)
- Including both operational and embodied carbon
- Prioritising energy efficiency and eliminating the performance gap by using measured performance data
- 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



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	

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.



The summer Consultation covered 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](#).

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.

Top Down - Science Based Limit Setting Tool



UK Net Zero Carbon
Buildings Standard

UK Carbon Budget Allocation



To deliver decarbonisation in line with a 1.5°C pathway



Top Down Pathways driven by Climate Science

The Top-down Task Group has been developing the methods and principles behind the national budget allocation process.

As well as establishing the Carbon Budget, a Stock Model and a Downscaling Methodology have been developed.



Stock Model



Budgets



Downscaling Methodology



Bottom Up Performance levels



UK Net Zero Carbon
Buildings Standard

What the performance levels represent



Operational Energy



- Assessment of **what can be achieved at the asset level** in individual sectors and sub sectors.
- Based on **benchmarking** of the existing stock (median and best practice), **metered data** from case studies, and **energy performance modelling**.
- Performance levels given as both **best practice today** and **future exemplar**.

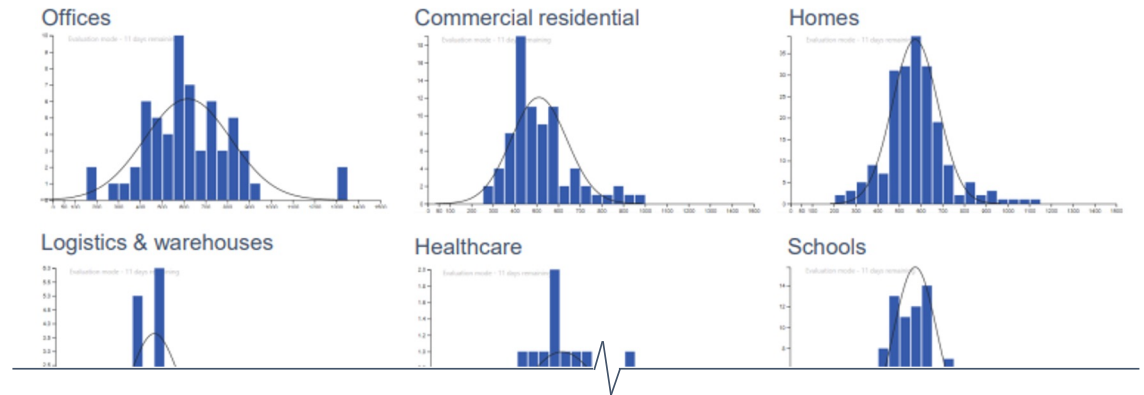
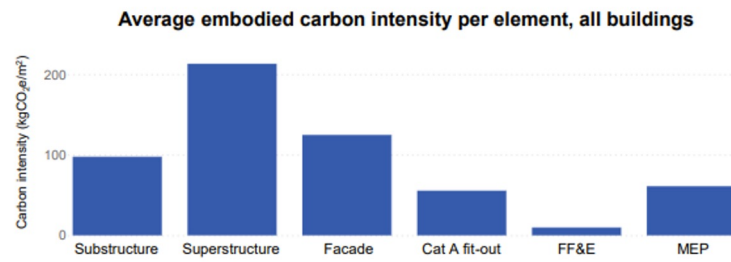
Embodied Carbon



- Assessment of **what can be achieved at the asset level** in individual sectors and sub sectors.
- Based on **submitted data** - assumed to be somewhere between mean and best practice.
- Performance levels therefore articulated in terms of the data received: **range, percentiles and average**.



Embodied carbon performance levels



Sector	All	Offices	Homes*	Commercial residential	Logistics / warehouses	Healthcare	Schools	Higher education	Culture and entertainment	Science and technology
Number of projects	499	61	204	78	20	9	80	10	21	16
Min	179	179	226	295	332	409	353	409	335	446
25th %ile	468	481	493	419	371	512	480	520	517	491
50th %ile (median)	561	592	566	464	460	589	579	616	600	569
Mean	568	618	574*	511	455	611	574	594	627	582
75th %ile	639	732	632	580	491	687	633	674	760	642
Max	1344	1344	1101	972	652	927	865	739	965	866

Right order of magnitude?



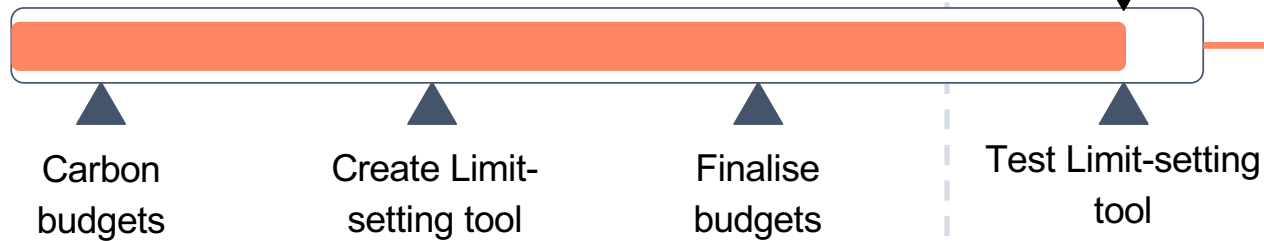
Evidence to support?

Share data via the BECD
<https://beta.becd.co.uk>

Progress towards NZC Limits

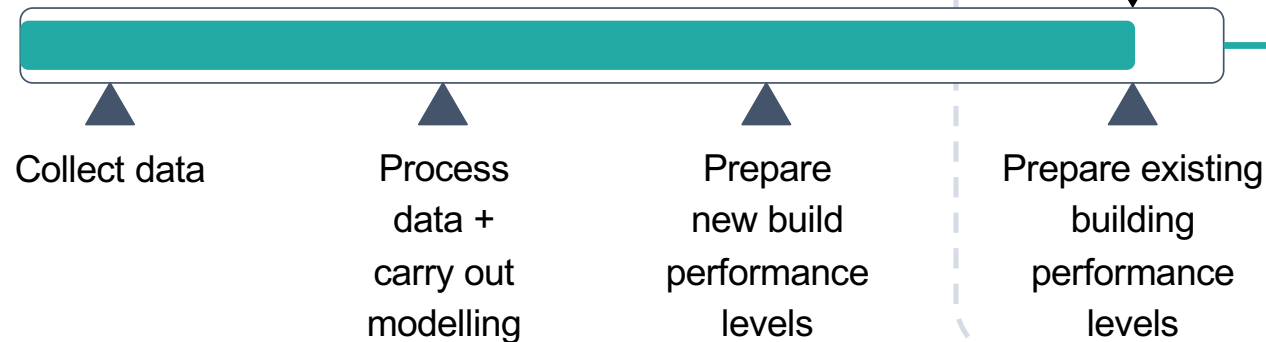


Top-down workstream



IN PROGRESS
NOW

Bottom-Up workstream



IN PROGRESS
NOW

“Balancing the budget”

UP NEXT

NZC targets & limits

Where We're At & Next Steps



UK Net Zero Carbon
Buildings Standard

The NZCBS Technical Consultation



- The Consultation launched on 14 June 2023 and ran until 31 August
- 61 questions covering topics including:
 - Technical Fundamentals - critical aspects of Standard
 - Technical Requirements - key technical aspects
 - Performance levels
 - Carbon Accounting
 - Top Down Modelling Approach

UK Net Zero Carbon Buildings Standard

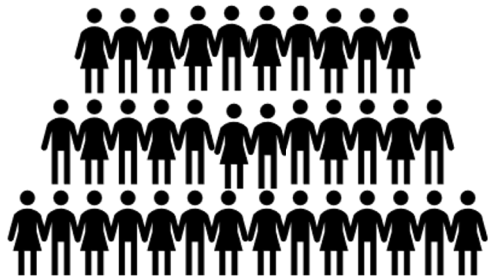
Technical Update & Consultation

14 June 2023

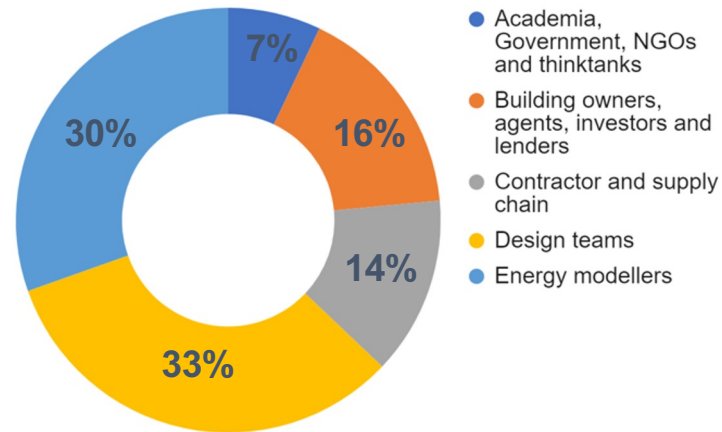
BBP BETTER BUILDINGS PARTNERSHIP bre CARBON TRUST CIBSE The Institution of StructuraEngineers LETI RIBA Architecture.com RICS GBC PIA RIAS ice



524 respondents



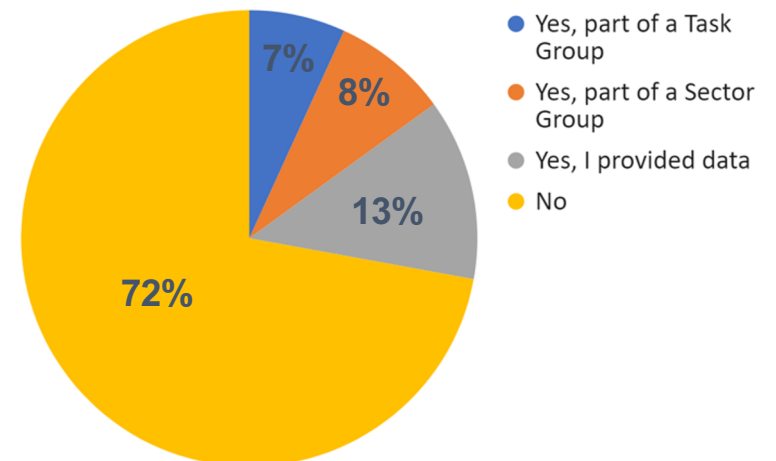
Type of respondent



90% UK based



Prior Involvement in project



Progress since the Technical Update



We have made significant progress since our last Update in June:

- Created a Tool which we will be using to balance “top-down” budgets and “bottom up” performance levels to produce overall, and sectoral, Net Zero Carbon pathways and limits
- Continued development of the verification process, which will allow built assets to evidence conformity with the Standard
- Begun a programme of wider industry engagement in order to understand better how the Standard might be used by the whole real estate ecosystem
- We have raised over £150,000 in Sponsorship from the generous organisations listed at the end of this Update, which has enabled us to:
 - Recruit a technical writer; a data analyst to process the results of the Summer Consultation; and significant project management support to progress the development of the Standard
 - Create a plan and structure for compiling the written Standard document

4. Major Updates



UK Net Zero Carbon
Buildings Standard

Major Updates - Overview



This section covers major updates to the Standard that have been agreed since our June Update.

Where these relate to questions in the Consultation, we have also included the consultation responses and how these were factored into the decision. The decision-making supporting these major updates was collaborative, involving both the Technical Steering Group and Governance Board. The consultation responses were taken into account in all discussions.

The Role of
Offsetting

Whole
Building
approach

Components
of the
Standard

Verification
Updates

The Role of Offsetting



What we asked




We asked whether offsetting should be mandatory as part of the Standard.

See page 17 of the TUC document

What we heard

07

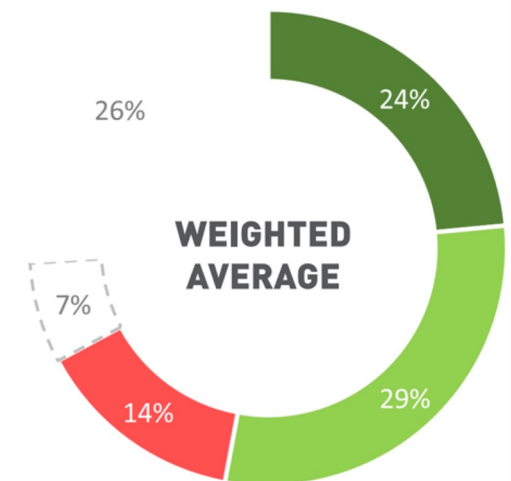
Which of the following approaches do you think the Standard should take?

-  **Offsetting mandatory:** The Standard should only recognise assets that have met carbon and energy limits, and then purchased offsets to 'net' these emissions
-  **Offsetting optional:** The Standard should not mandate the purchasing of offsets, but should recognise when a project has purchased offsets to 'net' the asset's emissions
-  **Offsetting not required:** The Standard should recognise assets that have met carbon and energy requirements without mandating the requirement to purchase offsets

 Don't know / Unsure

Not Answered (blank)

N Total number of responses (excl. those who did not answer)



The Role of Offsetting



Summary of feedback

The Consultation responses indicated that there was not a strong majority of respondents in favour of either making offsetting mandatory, or excluding it from the Standard.

The pros and cons section in the Technical Update explored our thinking around offsetting. To mandate it would increase a risk of greenwashing associated with potentially unreliable offsetting sources. However, to exclude it would mean that the Standard is not encouraging the development of the “carbon mitigation” supply chain, which is essential for the overall decarbonisation of the UK.

As a result, we are proposing that offsetting is voluntary when meeting the Standard. This means it will be possible to meet the Standard with or without offsetting. In both cases you must meet the same relevant limits and targets. Different terminology will be applied for these cases, but both will be considered to meet the UK Net Zero Carbon Buildings Standard.

Whole Building Approach



What we heard

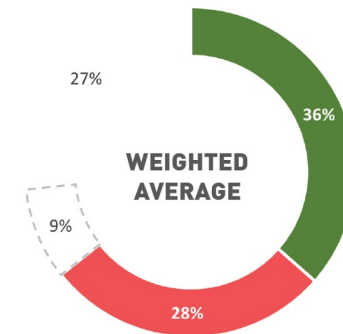
What we asked

We asked whether Net Zero Carbon verification should apply to whole buildings, or whether a delineated approach should be taken

See pages 19-20 of the TUC document

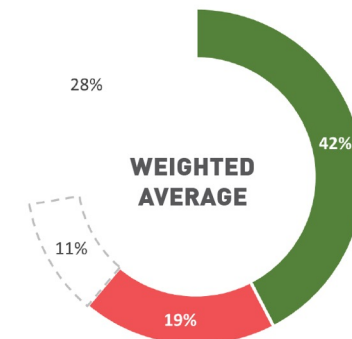
08

Do you agree with the working assumption that the Standard will apply only to a whole building, with no separation of landlord and tenant activities and no ability to verify part of a building (e.g. base build only, or a single tenant demise)?



09

Alternatively, do you think the Standard should seek to explore owner/occupier accountability and building delineation?



Note: Respondants were only asked to comment if they had responded "yes" to Q9. Therefore those giving reasons for "no" to Q9 is limited. No opportunity to provide comment with Q8.

Whole Building Approach



Summary of feedback

The Consultation responses indicated that there was a mix of views on how this should be approached. Many supported a whole building approach while others supported delineation between owners and occupiers and / or between individual tenant demises.

It is recognised that taking a whole building only approach may lead to some buildings being excluded where end uses and/or areas within the responsibilities of landlords or tenants cannot be included within the scope of the assessment.

It is also acknowledged that the recommendations of the Sector Groups - convened as part of the Standard - varied. For example, the Offices sector group recommended a delineated approach between base building and tenancies for commercial offices - while a whole building scope is the ultimate goal, each party must play their part and that it is fair to recognise when each achieves net zero requirements for the energy uses they control and/or are responsible for.

Our end goal is to allow delineation in-use for sectors where this would be appropriate. However, it will take time to develop the principles of delineation and we would prefer not to delay development of the Standard further to establish these principles.

We will develop the first iteration of the Standard on a Whole Building basis to meet the pressing industry need for the Standard. We will look to define a delineated approach in future, acknowledging that for sectors such as Offices this was recommended by the relevant sector group. The delineated update may be produced prior to the next formal 'version' of the Standard, as we will seek to develop these principles in parallel.

In the first iteration, new build projects and whole-building retrofits must apply the NZCBS rules on a whole-building basis. Once the delineated update is available, NZC status will be achievable either as a whole building or independently for different demises.

Verifying and Validating using the Standard



We are creating a ‘Standard’, not a scheme, or tool.

The Standard will provide a consistent approach to assessing whether a building can be defined as Net Zero Carbon (NZC).

It will be a verification Standard: a method to confirm the reliability of information declared in claims. Those wanting to describe their building as Net Zero Carbon will require **verification** of the building, in order to determine **conformity** with the Standard’s requirements.

In-use energy performance data is a requirement for a building to be able to verify as NZC. However, we understand there is a desire to assess buildings at earlier stages, before this information is available. The Standard will allow **validation** to be carried out in these cases, as defined opposite.

The timeline for verification and validation is set out overleaf.

Definitions

Verification - A process for **evaluating a statement of historical data and information** to determine if the statement is materially correct and conforms to criteria. Verification to the Standard will involve a check that the methodology has been correctly followed.
Importantly - there must be real data evidence

Validation - A process for **evaluating the reasonableness of the assumptions, limitations and methods** that support a statement about the outcome of future activities. Validation to the Standard will involve a check that the methodology has been correctly followed.

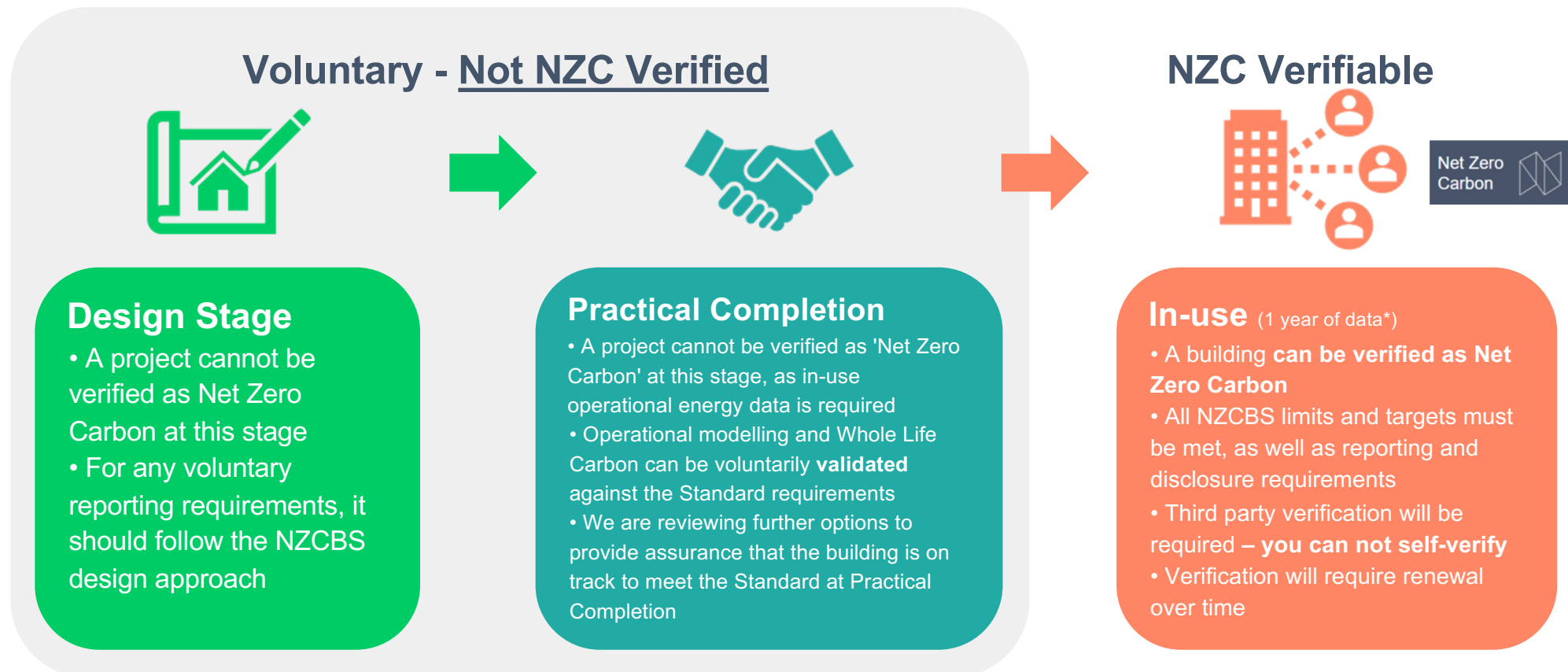
This can occur before real in-use data is available. **Validation in accordance with the Standard does not count as “meeting” the Standard**, but can provide assurance before full in-use information is available.

Conformity - means that the building has been verified as meeting the relevant requirements as set out within the Standard. Applicants will need to demonstrate that their building **conforms** to the Standard - this is what the verifier will be checking.

Our definitions are based on ISO Standards (ISO 14064-3).



NZCBS options at each project stage

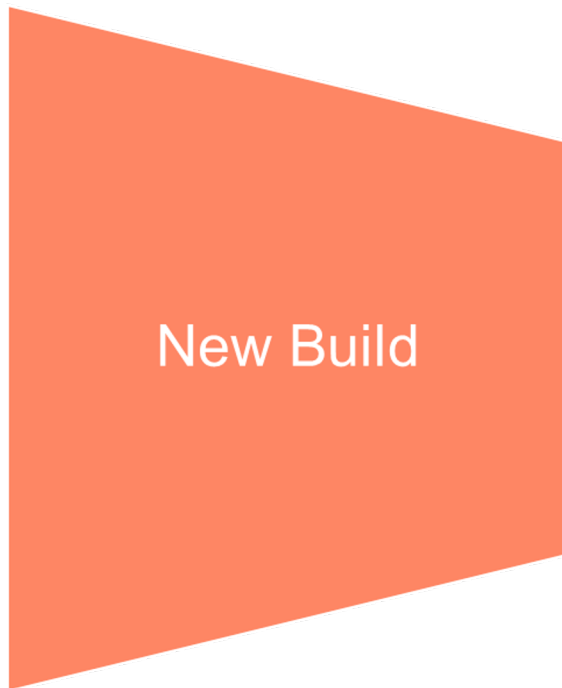


* In order to verify operational energy, the building must have at least a year of metered energy use, and demonstrate that it was occupied during this period

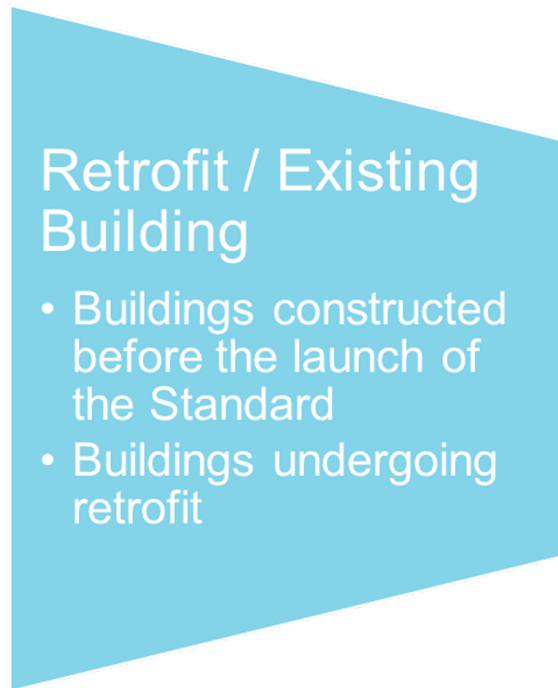
Verification Building Categories



Buildings will be able to verify under the following broad categories:



New Build



Retrofit / Existing Building

- Buildings constructed before the launch of the Standard
- Buildings undergoing retrofit

A **retrofit** is defined as where more than 25% of the building envelope undergoes renovation, or a substantial replacement of building services* occurs.

For intensive refurb projects, where more than 50% of the existing slab area is demolished, the building will be classed as a new build.

An **existing building** is any building that was in operation by the point the Standard was launched**.

Heritage buildings will have different requirements.

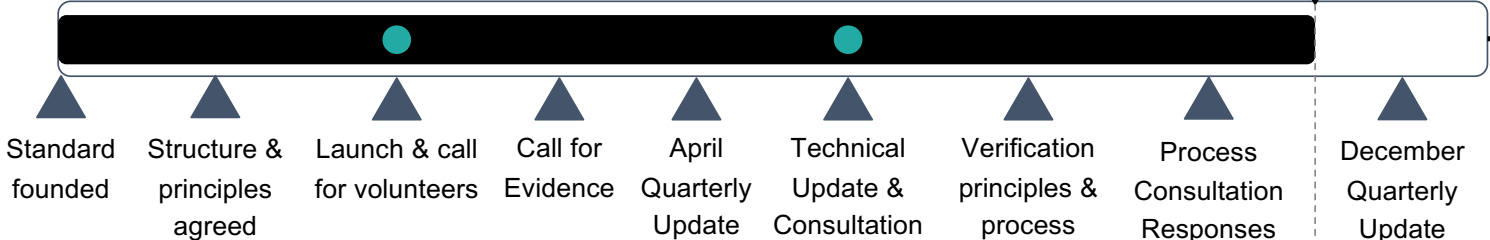
*To be defined

**We are reviewing whether a transitional period will apply



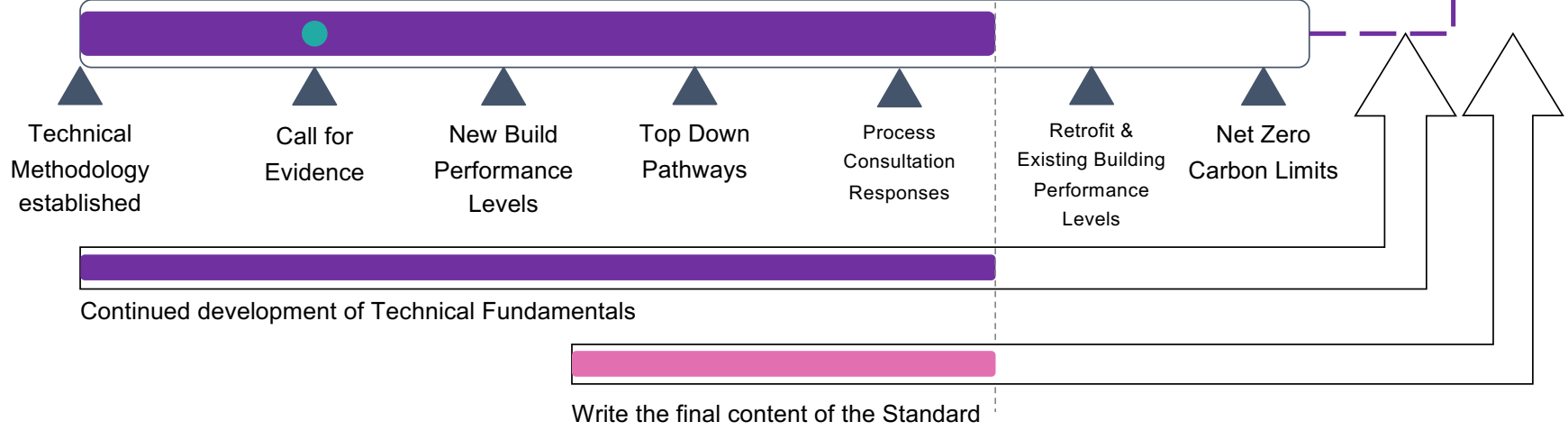
Progress towards the Standard

Governance Development



Technical Development

● Industry engagement



Beta Test Version

UK Net Zero Carbon Buildings Standard



Upcoming Issues and Documents

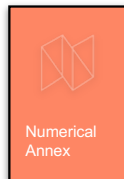


The UK NZCBS - Beta Test Version

Spring 2024
Beta Testing Issue for Public Consultation



The Standard itself
Draft version for 'beta Testing'



Numerical Annex to the Standard

- Contains the limits and targets

UK NZCBS - Version 1 plus Guidance & Supporting Documents

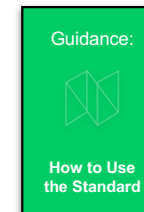
Late 2024



**UK NZCBS
Version 1
+ Numerical
Annex**

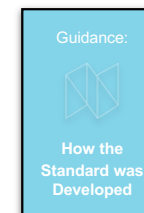


- **Verification & disclosure templates**
- **Reporting proformas**



Guidance - How to Use the Standard

Aimed at anyone trying to use the standard to meet its requirements



Guidance - How the Standard was Developed

Background information on decision-making behind the standard

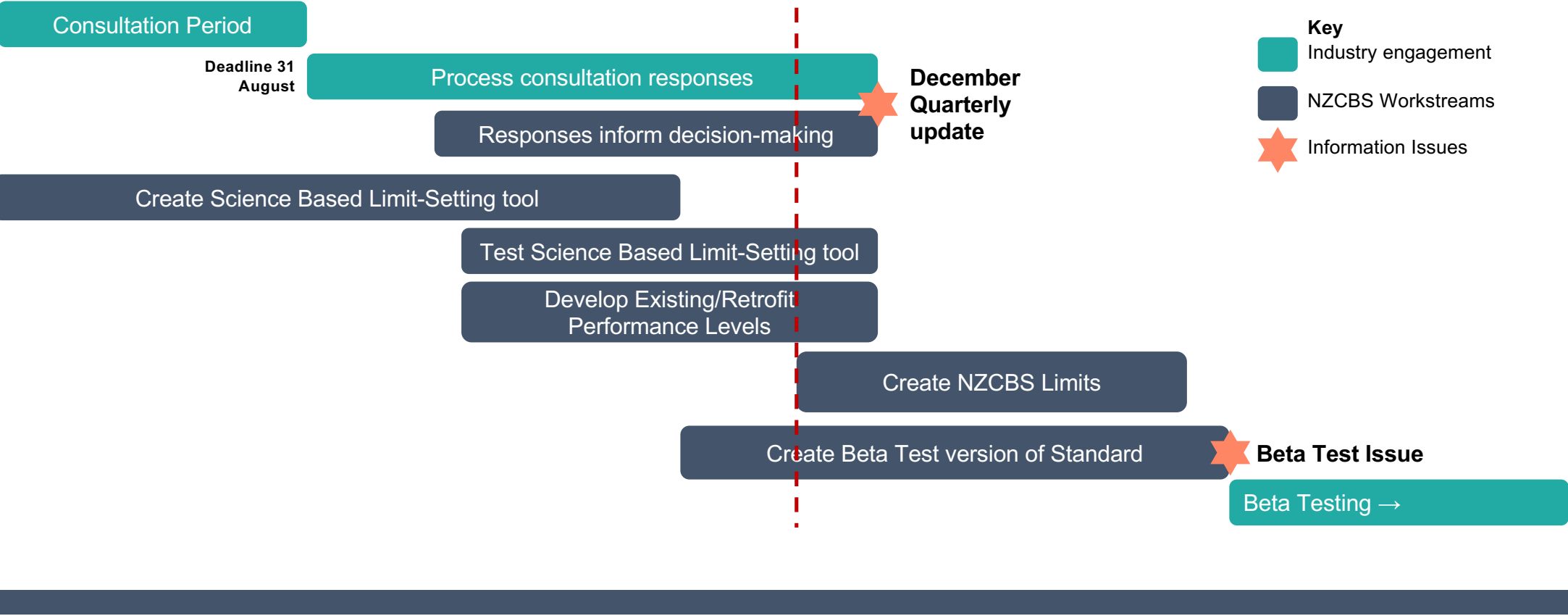


Next Steps

Today



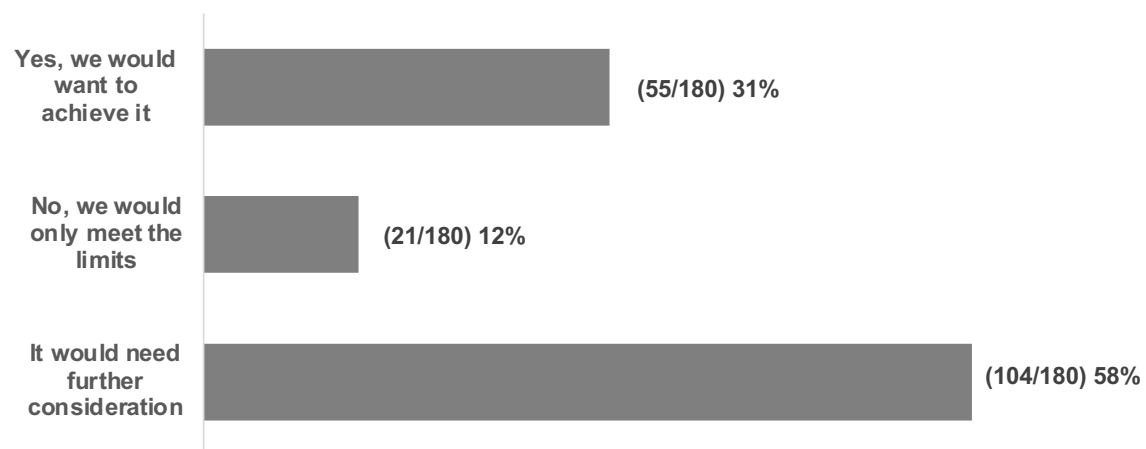
Summer 2023 → Autumn 2023 → Winter 2023/24 → Spring 2024 →





Poll Question 4: Offsetting

- Given that there is an offsetting option for the Standard, would your organisation look to pursue it?

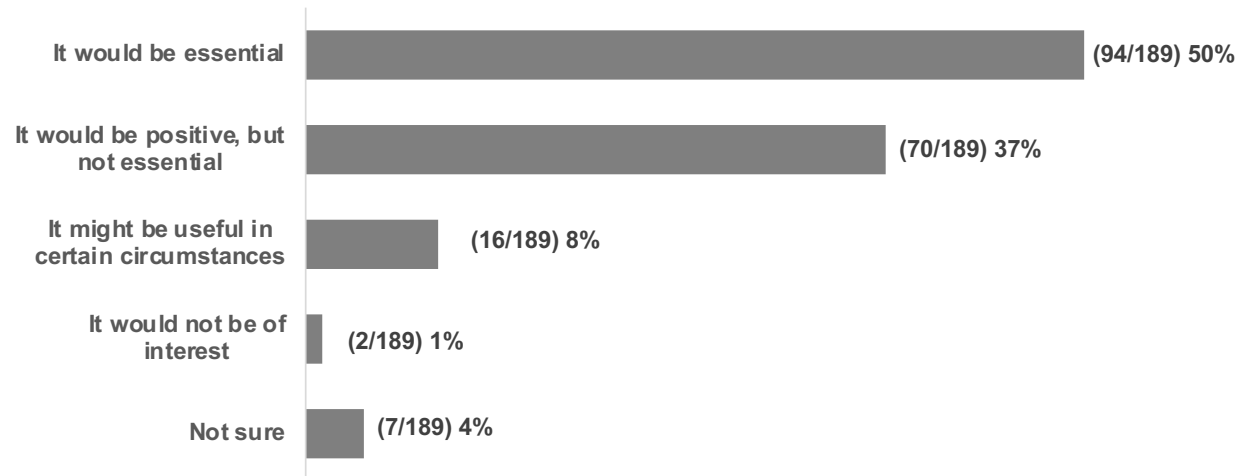


Poll Question 5: Practical Completion “On Track”



- The Standard is intended to be achievable once a building is completed, and has a year of measured energy use.

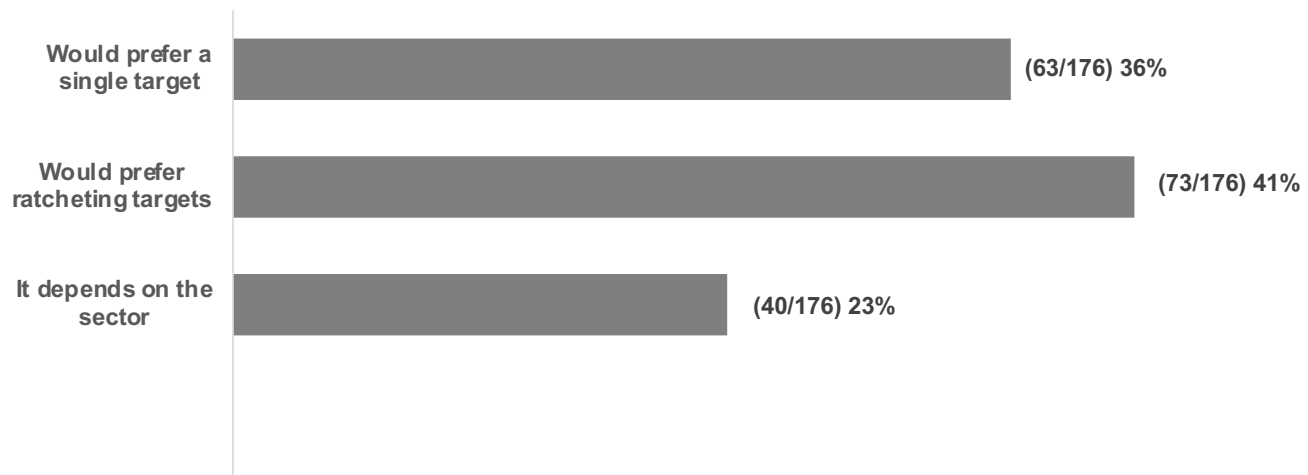
What would be your view on having an assessment at Practical Completion to determine that buildings are on track?



Poll Question 6: NZC limits



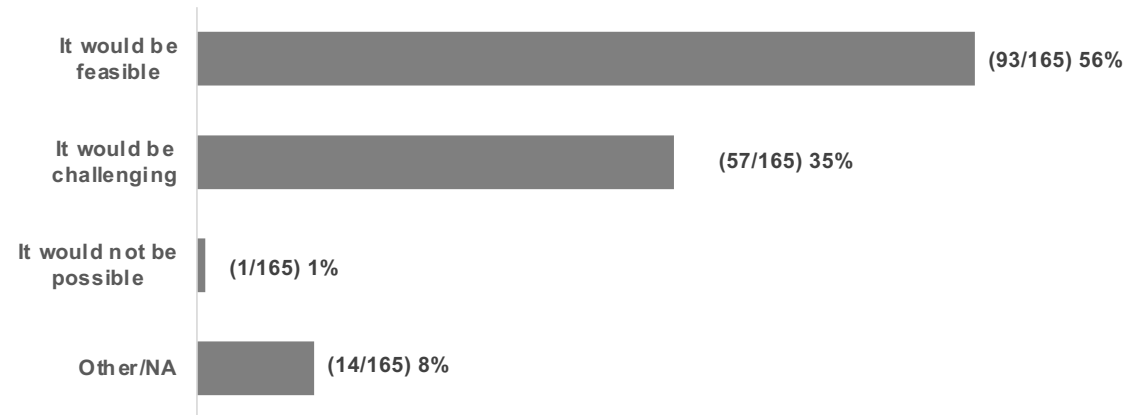
How do you feel about a single set of NZC limits (2050) for Retrofit implemented right away, instead of incremental/ratcheting targets?



Poll Question 7: Ongoing Verification



The Standard proposes ongoing verification of Net Zero Carbon performance in use. How might you be able to comply with this?



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SimpsonHaugh

Sponsors

OakNorth Bank



With Thanks

From the UK Net Zero Carbon Buildings Standard



Governance Board

Related Argent - David Partridge (**Chair**)

Founding Members

BBP - Sarah Ratcliffe

BRE - Jonathan Rickard

CIBSE - Fiona Cousins & Hywel Davies

IStructE - Patrick Hayes

LETI - Chris Twinn

RIBA - Duncan Baker-Brown

RICS - Charlotte Neal & Amit Patel

UKGBC - Smith Mordak

Observer Members

Lewis Barlow – **ICE**

Bill Hughes – **PIA**

RIAS - Angel Morales-Aguilar & Chris Stewart

Technical Steering Group

• Katie Clemence-Jackson - **QODA Consulting**

• Adam Baranowski - **BBP**

• Christine Pout - **BRE**

• Clara Bagenal George - **LETI (Introba)**

• Fabrizio Varriale - **RICS**

• Jane Anderson - **WLCN**

• Jess Hrivnak - **RIBA**

• Julie Godefroy - **CIBSE**

• Nektarios Gkanis - **The Carbon Trust**

• Tom Wigg - **UKGBC**

• Will Arnold - **IStructE**

Supported by

• Annika Buser - **BBP**

• Ciara Durkin - **Laing O'Rourke**

• Daniel Doran - **Lifecycle Sustainability**

• Ellie Burkill - **XCO2**

• Issy Budd - **Wasps Studios**

• Jack Poulton - **SimpsonHaugh Architects**

• Jessica Connan – **Related Argent**

• Matt Broad - **Arup**

• Mina Hasman, Julia Skeete

& James Woodall – **SOM**

• Rosie Bard – **Orms**

To all of our Contributors - Thank You



140+
Task Group members

800
Projects embodied
carbon data

190+
Sector Group
members

3200
Projects metered
operational energy
(large datasets)

500+
Consultation
Respondents

200+
Projects metered
operational energy
(individual projects)



Your support is
essential
to the Standard

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UK NZC Buildings Standard



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UK Net Zero Carbon
Buildings Standard

Moderated Q&A

The UK Net Zero Carbon Buildings Standard



Moderated Q&A



David Partridge
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Board of the UK NZCBS
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Chairman of Related
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Chair of the Technical
Steering Group of the
UK NZCBS and Associate
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Sarah Ratcliffe
Member of the Governance
Board of the Standard and
Chair of the Green Property
Alliance, CEO, Better
Buildings Partnership

*(To ask a question - please use the Q&A panel
to type your question to the Moderator)*

Thank you for joining us

A recording, audio and slides will be available from all associations soon.

A Property Industry Alliance Webinar

