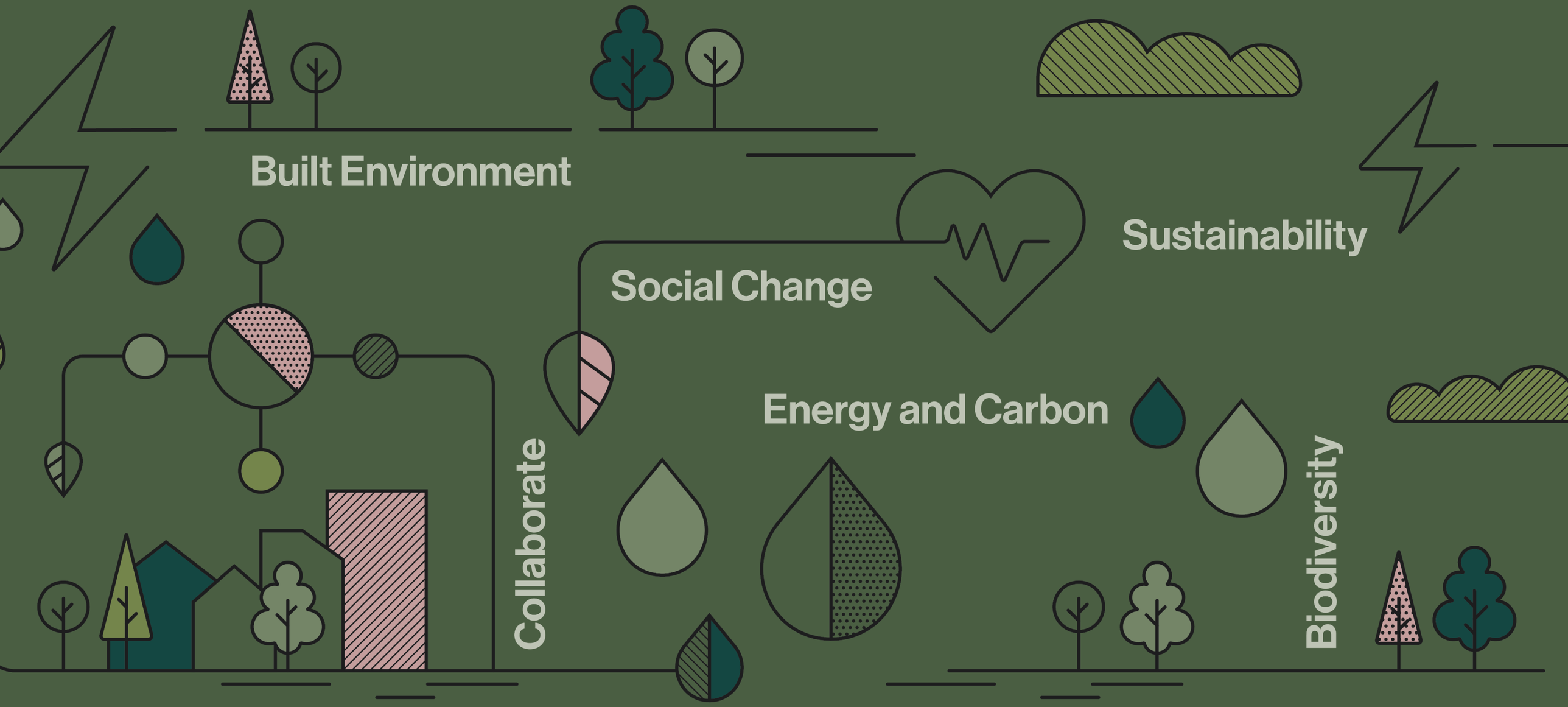
East Midlands Sustainability Partnership



23rd April 2026

Net Zero Carbon

Is it easy to deliver Net Zero Carbon Buildings? With the recently published Version 1 of the UK Net Zero Carbon Building Standard, we will deep dive into practical examples of how we can achieve the latest goals

Delivering Net Zero and The UK Net Zero Carbon Building Standard

Agenda

5.30 – 5.45pm - Arrival Drinks

5.45pm – Introduction

5.50pm – Embodied Carbon - Jaime

6.15pm – Energy – Ali

6.40pm – UK ZCBS

7.00pm – Q&A

7.30pm – Event Close

Why

The built environment is responsible for 40% global carbon emissions. We want to enable the knowledge exchange of sustainable development practices in the built environment, within the East Midlands Region.

Purpose

1. Enable knowledge exchange
2. Create space for research and cross industry collaborations (across industry, clients and academics.
3. Provide industry networking opportunities.

In short – we want to inspire each other and work together to implement solutions. Especially given the net zero ambitions of the new mayoral combined county authority (EMMCA).

Alongside knowledge exchange there are opportunities for research and cross industry collaborations and networking.

A new website!

EMSP

Can you help? Get in touch!

Who Helps?

EAST MIDLANDS SUSTAINABILITY PARTNERSHIP

Matt Alvey
Leonard Design Architects

Richard Bull
Deputy Dean at ADBE, NTU.

Anni Smith
Bywater & Woodhouse Property Staging | Just Living Interiors

Sue Churchill
Church Lukas

Will James
ARUP

Joe Higginbotham
SGP

Embodied Carbon – Jaime Oliver, CPW

Where buildings come alive

University of Derby, Business School Case Study

Jaime Oliver – Principal Sustainability Consultant, CPW

CONTEXT

// Who am I?

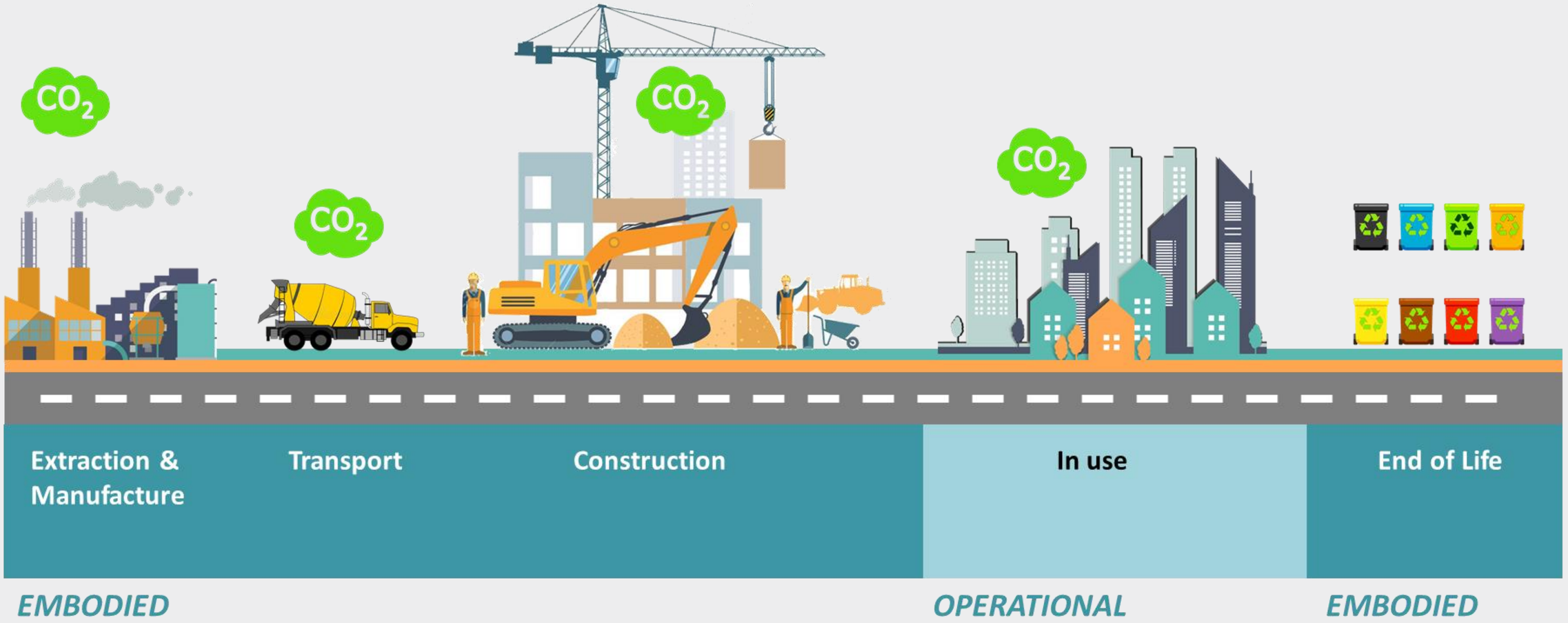
// What was my role?

// What is this case study?

// How does this link to Net Zero Carbon?

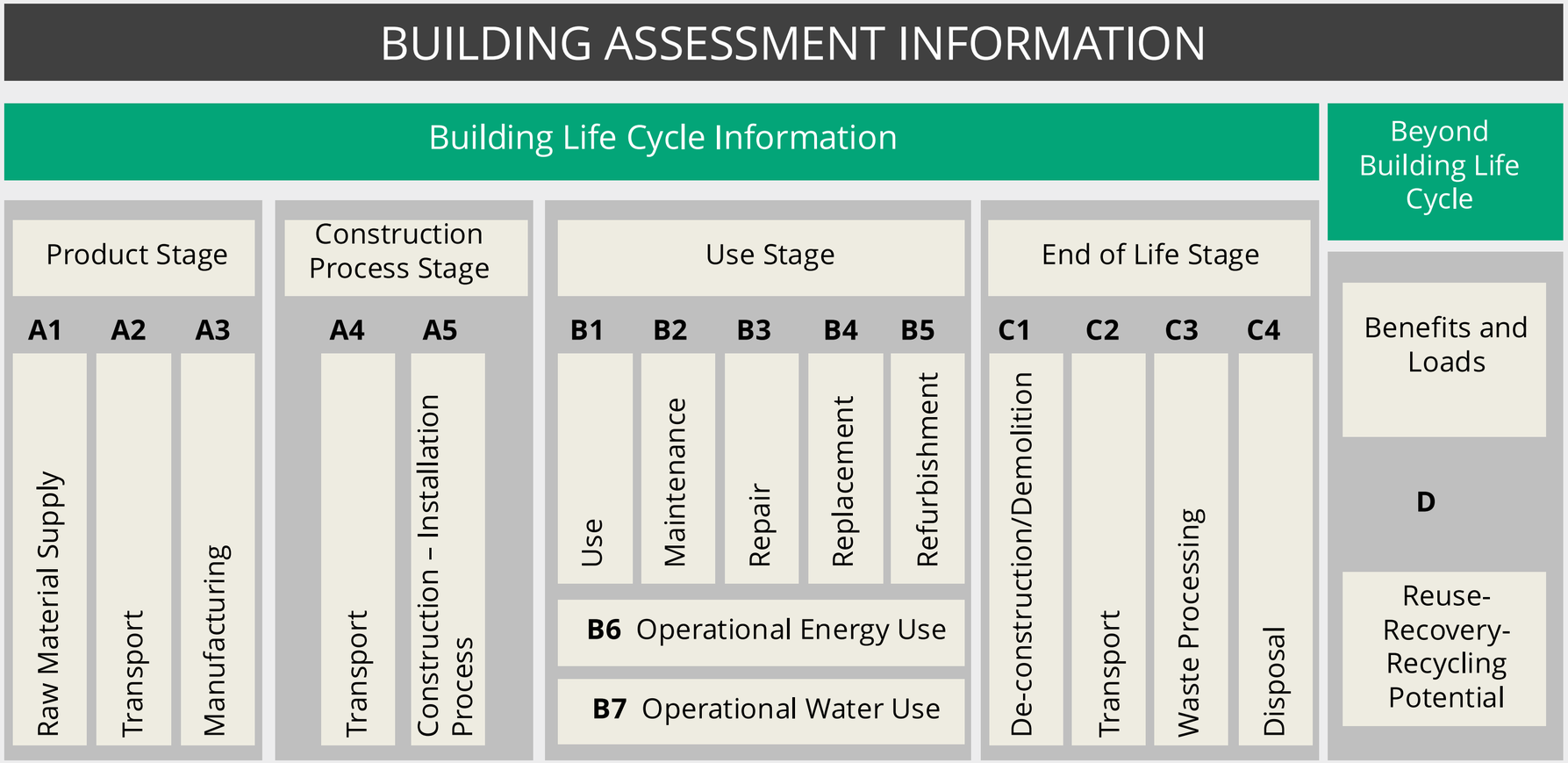
Where buildings come alive

// NET ZERO CARBON FRAMEWORK



// LIFE-CYCLE MODULES BS EN 15978

In the UK, the framework for appraising the environmental impacts of the built environment is provided by **BS EN 15978: 2011**: (Sustainability of construction works — Assessment of environmental performance of buildings - Calculation method)

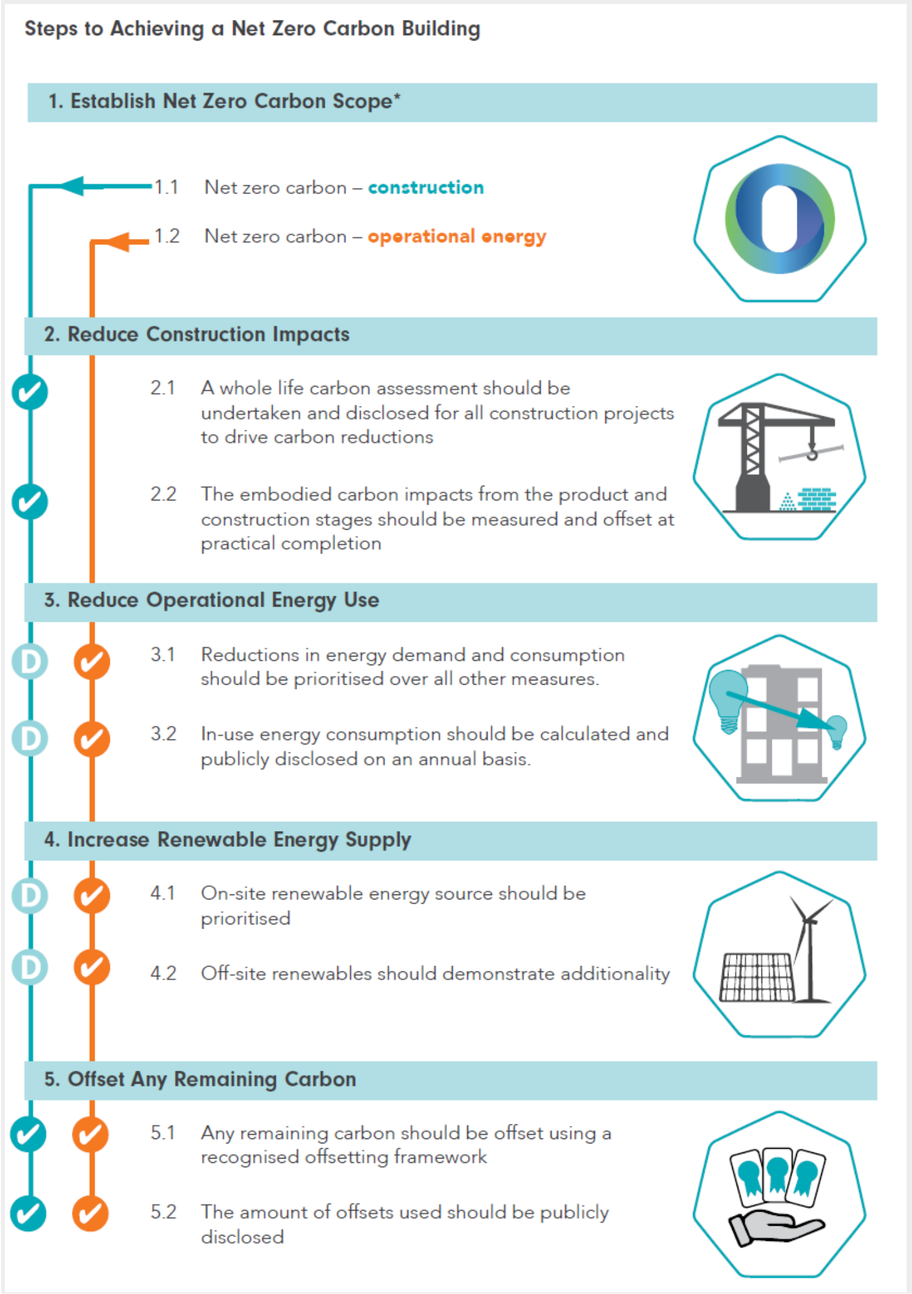


The **Reference Study Period** (RSP) is normally **60 years** and the functional unit for the assessment is **kgCO_2e**

Case Study – Cavendish Building

Cavendish Building

- £75m, seven-storey city centre development
- UKGBC Net Zero Carbon – Construction aligned
- £70/tCO_2e internal carbon price applied
- 6,652 tCO_2e of residual embodied carbon addressed
- 55% carbon removals / 45% carbon avoidance



Setting the brief:

University goal of **net zero by 2050**

Demonstrate leadership in addressing one of the most challenging aspects of the built environment**: embodied carbon.**

Net Zero - Construction

Where buildings come alive

Steps to Achieving a Net Zero Carbon Building

1. Establish Net Zero Carbon Scope*

1.1 Net zero carbon – **construction**

1.2 Net zero carbon – **operational energy**

2. Reduce Construction Impacts

2.1 A whole life carbon assessment should be undertaken and disclosed for all construction projects to drive carbon reductions

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5.2 The amount of offsets used should be publicly disclosed

Reduce embodied carbon:

Whole life carbon assessment carried out at each RIBA stage

Opportunities for reduction reported on and implemented

Materiality focus

Where buildings come alive

How would you reduce carbon for this brief?

Looking at the brief below, what are some immediate ideas you have for reducing the carbon of this project?

Brief for Cavendish Building:

- Show stopping Atrium and Reception
- Vibrant ‘social hub’ for the ground floor
- Enhanced natural daylight
- Use of concrete and steel for an industrial feel to the building
- Zoned areas for students to work and socialise
- Flexibility for spaces

Using the photos of the project in use, can you identify any carbon reduction principles we used? Or ways we could have reduced carbon further?

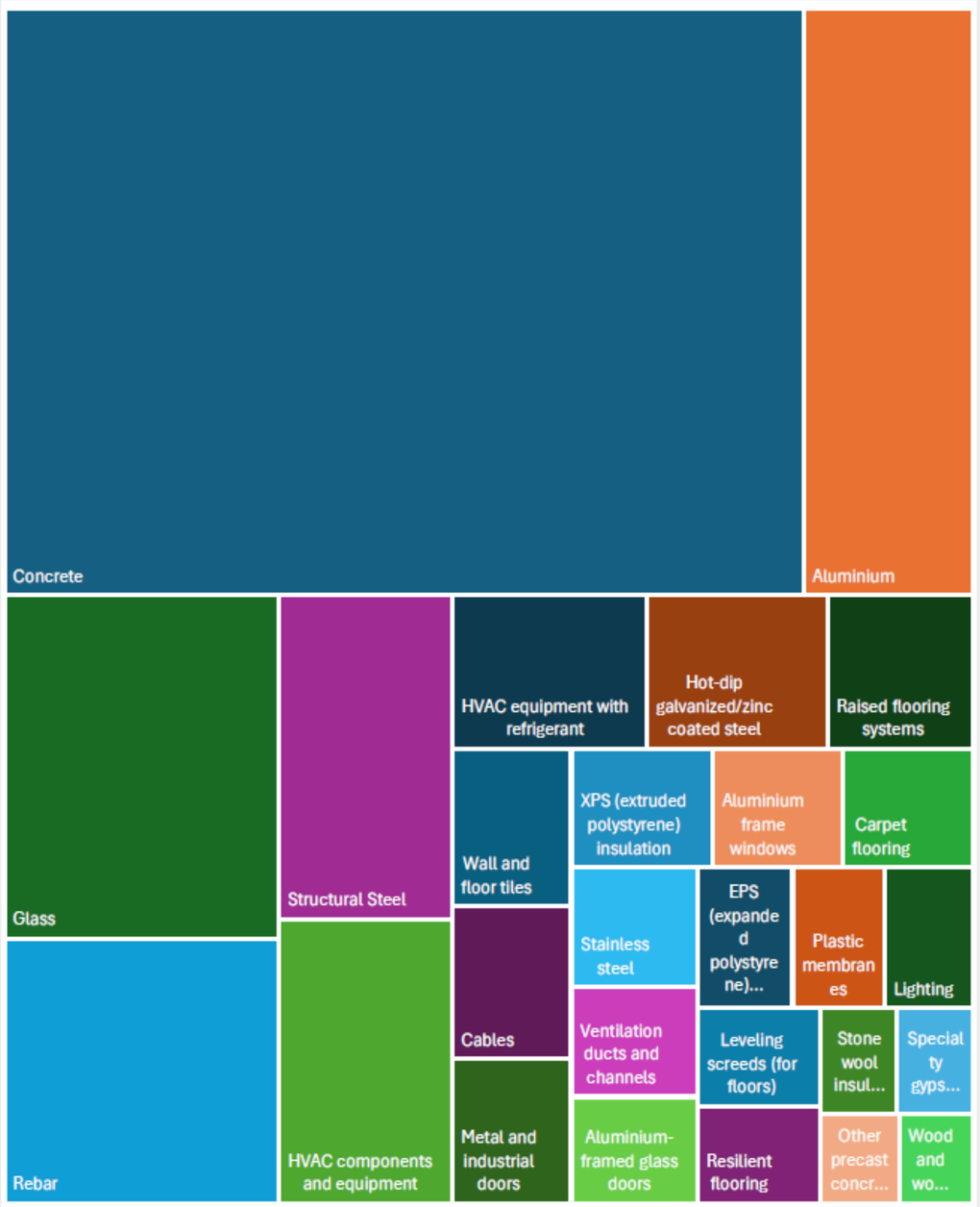
Where buildings come alive

// Reducing Embodied Carbon

Key ways we reduced the embodied carbon:

			A1-A5 *kgCO2e/kg*	A1-C4 *kgCO2e/kg*
Low Embodied Carbon	Lower Strength (C25/30)	High GGBS - 1	0.0885	0.09175
	Typical (C32/40)	High GGBS - 2	0.1312	0.13445
	Higher Strength (C40/50)	High GGBS - 3	0.1312	0.13445
Medium Embodied Carbon	Lower Strength (C25/30)	25% GGBS - 1	0.1197	0.12295
	Typical (C32/40)	25% GGBS - 2	0.1281	0.13135
	Higher Strength (C40/50)	25% GGBS - 3	0.1695	0.17275
High Embodied Carbon	Lower Strength (C25/30)	0% GGBS - 1	0.1384	0.14165
	Typical (C32/40)	0% GGBS - 2	0.1800	0.18325
	Higher Strength (C40/50)	0% GGBS - 3	0.1906	0.19385

- Use of timber where possible in an architecturally focussed way
- Reduced unnecessary finishes



Where buildings come alive

// Stage 3 - 4

New Structural design
More efficient Post Tensioned solution, rather than traditional RC. Reduced pile quantities

Rationalised SFS Design
Subcontractor design to reduce SFS quantities

MEP development
Developing and rationalising the Stage 3 design

Façade updates
Capturing the change to a pre-cast led façade solution

Cement Replacement Supply challenges
Evaluating the carbon effects of high, low and zero cement replacements due to potential supply issues

		Stage 3 *+ 10%*	Stage 3 Revised *+ 10%*	Stage 4		Difference from Stage 3 Revised
Beams	*Concrete*	128.7	296.3	315.2	*m3*	6%
	Reinforcement	28.6	74.1	78.8	*ton*	6%
Columns	*Concrete*	59.1	368.7	321.6	*m3*	-13%
	Reinforcement	13.3	162.6	141.8	*ton*	-13%
Walls	*Concrete*	1176.2	1286.2	1124.5	*m3*	-13%
	Reinforcement	76.9	295.2	260.8	*ton*	-12%
Slabs	*Concrete*	3730.1	3477.3	2726.2	*m3*	-22%
	Reinforcement	446.6	551.1	249.6	*ton*	-55%
	Steel Decking	0.0	4.9	2.2	*ton*	-54%
Precast Planks	*Concrete*	41712.0	0.0	0.0	*kg*	N/A
Steelwork		27.5	37.9	43.9	*ton*	16%
Ground Floor Slab / Substructure	*Concrete*	484.0	334.8	396.6	*m3*	18%
	Reinforcement	60.5	53.6	36.9	*ton*	-31%
Ground Beams	*Concrete*	62.0	63.7	69.7	*m3*	9%
	Reinforcement	14.0	15.9	167.2	*ton*	9%
Pile-caps	*Concrete*	900.2	904.7	675.7	*m3*	-25%
	Reinforcement	103.5	200.5	143.7	*ton*	-28%
Piles	*Concrete*	1132.8	938.1	723	*m3*	-23%
	Reinforcement	11.3	75.0	91.5	*ton*	22%
External Buildings	*Concrete*	65.6	157.9	199.5	*m3*	26%
	Reinforcement	5.9	19.0	28.3	*ton*	49%
	Steel Decking	3.7	3.7	0.0	*ton*	-100%
	Steelwork	14.0	14.0	4.5	*ton*	-68%
Total Quantities	*Concrete*	*49450.7*	*7827.8*	*6552.0*	*m3*	-16%
	Reinforcement	*760.6*	*1447.0*	*1048.9*	*ton*	-28%
	Steelwork	*41.5*	*52.0*	*48.4*	*ton*	-7%
	Steel Decking	*3.7*	*8.6*	*2.2*	*ton*	-74%

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Reduce operational carbon:

Operational energy modelling carried out as well as Part L compliance energy modelling

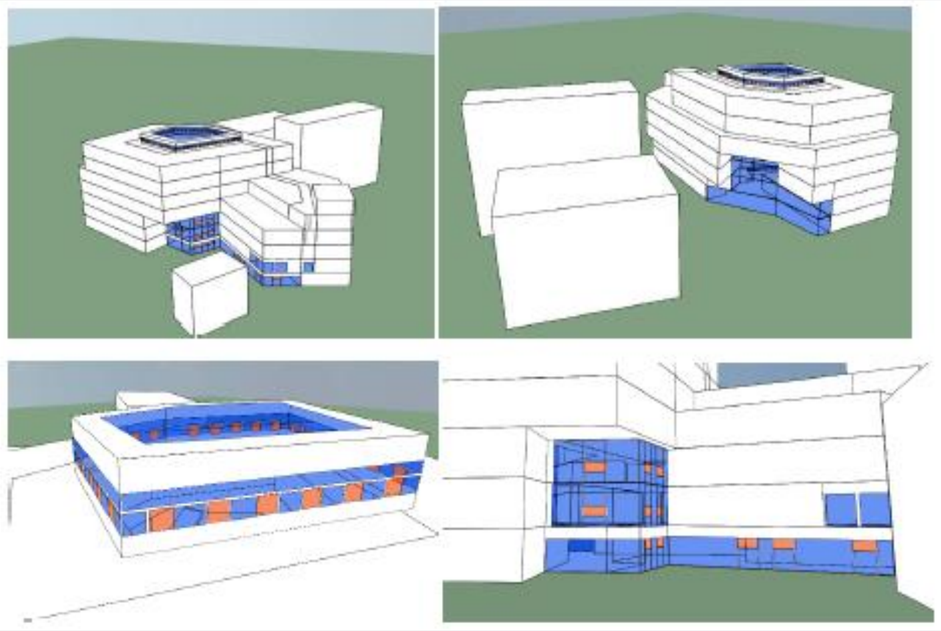
Passive design considerations to improve building fabric

High efficiency systems to reduce energy demand

Focus on all electric systems

// Reducing Operational Carbon

Use of daylight and natural ventilation



Fabric first approach

Element	Notional U-Value in Part L Building Regulations (W/m2K)	Criteria U-Value (W/m2K)
General Glazing	U = 1.6	U = 1.0
Wall	U = 0.26	U = 0.15
Roof	U = 0.18	U = 0.10
Ground Floor	U = 0.18	U = 0.12
Air Permeability	8m^3/hour/m^2 @ 50Pa	1 m^3/hour/m^2 @ 50Pa
Thermal Bridging Ψ value	n/a	0.04 w/mK

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Offsetting:

Come up with our offsetting strategy

Quantify a carbon offset budget

Consider projects

Consider Offsetting vs Insetting

// Offsetting & Transition Fund

Pre-defined £/tCO_2e x Residual carbon emissions

The residual carbon balance is offset through an approved **international or domestic carbon standard**.

Approved standards are as listed by ICROA or UK Environmental Reporting Guidelines and includes the following:

- Gold Standard
- Verified Carbon Standard
- Clean Development Mechanism
- UK Woodland Carbon Code
- UK Peatland Code

Reporting: The registry entry for the carbon offset credits or units must be provided, confirming retirement on behalf of the organisation or consumer, the number of credits retired, type and location of the project and the date and reason for retirement.

Pre-defined £/tCO_2e x Residual carbon emissions

The **remainder of the transition fund** can be spent on any type of project that contributes towards the transition to net zero

Example projects could include:

- Local community projects, e.g. retrofits, solar PVs
- Collaboration with Local Authorities on projects
- Reinvesting internally elsewhere, on activities or buildings separate to the net zero claims
- 'Insetting' – investing in the value chain
- Purchasing ex-ante credits or units, e.g. Pending Issuance Units from the Woodland Carbon Code
- Development and certification of owned forestry or peatland via the Woodland Carbon Code or Peatland Code
- Purchasing additional international or domestic credits, e.g. focussing on social co-benefits

Reporting: Disclose projects/schemes invested in, how it supports a transition to net zero, with evidence of projected or measured carbon savings. Reporting should also include how any remaining funds will be spent; updates to be provided in subsequent net zero annual disclosures.

- Additional finance can be used to invest in projects that go beyond net zero and support wider sustainability outcomes.
- Separate and additional to funds put aside for carbon offsetting
- Projects for the transition fund do not need to be verified through an approved carbon standard.
- The remainder of the transition fund should be spent within three years of the applicable net zero claim.

// Offsetting Strategy

Offsetting strategy: The University applied a £70 per tonne carbon price to the 6,652 tCO2e of residual emissions from the build. This generated a fund which they used to invest in high-quality carbon credits. The selected carbon portfolio followed the Oxford Principles Net Zero Aligned Carbon offsetting standard, with a 55-45% split of carbon removals to carbon avoidance credits.

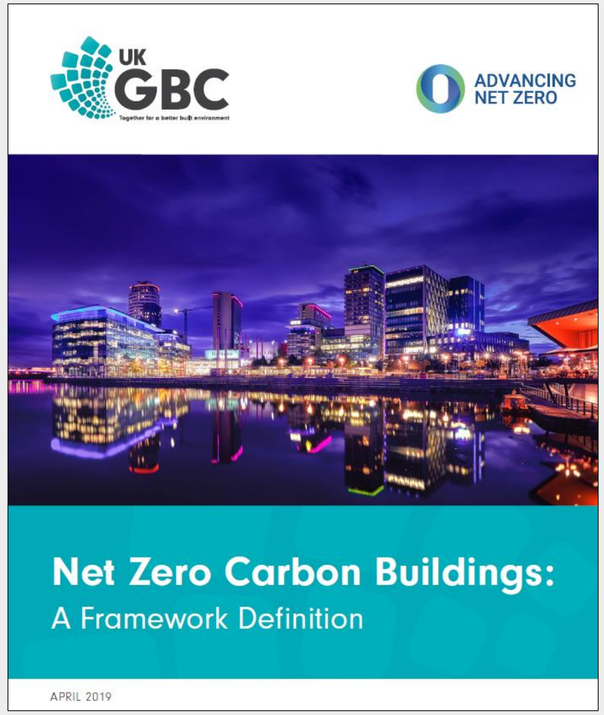
Transparency: Credits are fully traceable via Ecologi's platform, meeting UKGBC's disclosure requirements

Prioritise high-durability, nature-based solutions with long-term impact.
The project portfolio spans verified removals (biochar, blue carbon, afforestation) and high-integrity avoidance (REDD+), all independently validated and delivering significant co-benefits to biodiversity, clean water, and health - and also SDG 4 (Quality Education) as well as others.

For the transition fund, we chose to support the restoration of peatlands in the Goyt Valley, Derbyshire. The charity leads this effort, Moors for the Future, striving to protect & restore Moorlands across the Peak District.

Where buildings come alive

// UKGBC - UKNZCBS



‘Once the Standard has been published in 2024, **public claims of Net Zero Carbon** which are in line with UKGBC’s framework, will no longer be credible as the Framework will be retired’

UKGBC’s Framework Definition will be evolved to provide guidance/processes on how to achieve Net Zero Carbon

UKGBC Framework = Guidance/Processes

Where buildings come alive

// UKNZCBS

Limits

Upfront Carbon	✓ ✗
Operational Energy	✓
Fossil Fuel Free	✓
District Heating & Cooling	N/A
Refrigerants	✓
Heating Delivered	✗

Target

Onsite Renewable Electricity Generation	✗

Where buildings come alive

THANK YOU-
ANY QUESTIONS?

Operational Energy– Ali Brit, Arup

UKNZCBS

Version 1 (March 2026)

UK Net Zero Carbon Buildings Standard

ARUP 80 YEARS

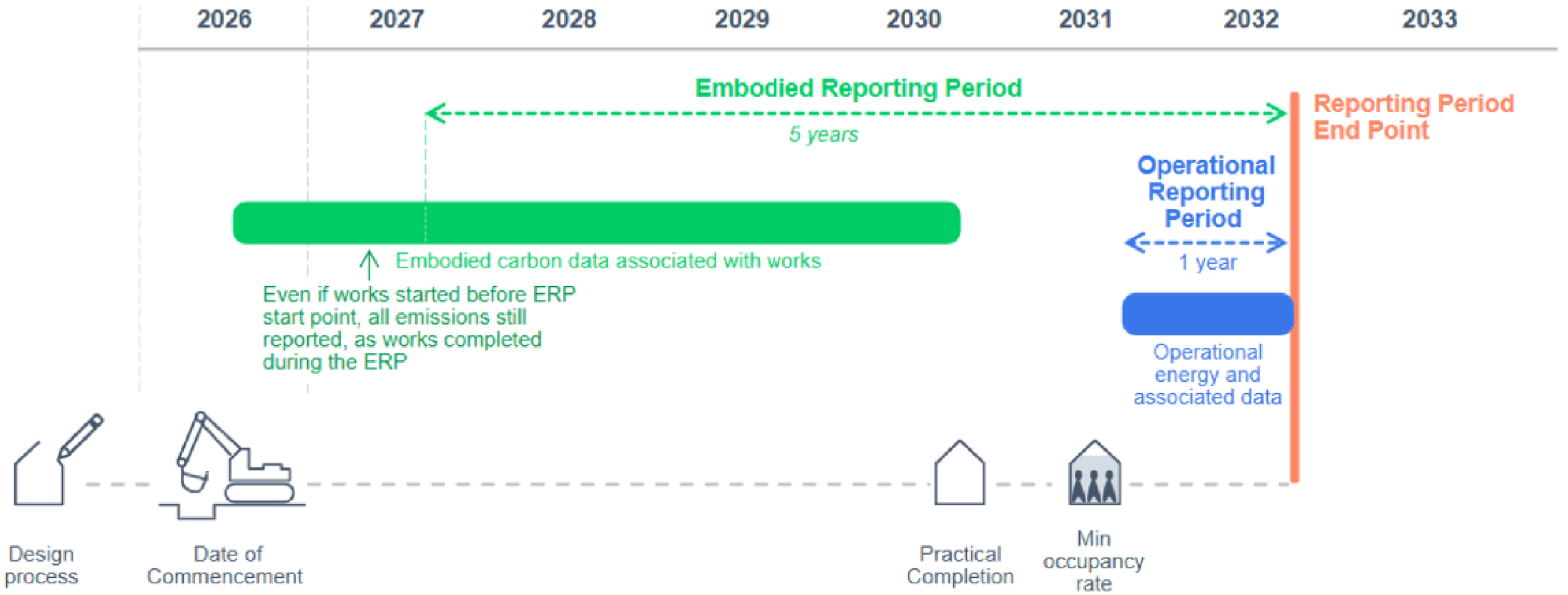
- Embodied Carbon
- Operational Energy
- On-site Renewable Electricity Generation
- Operational Water Use
- Fossil Fuel Free
- Electricity Demand Management
- District Heating and/or Cooling Networks
- Heating and cooling Delivered to the Buildings
- Refrigerants
- Carbon Offsetting

Operational Energy → Energy Use Intensity (EUI)

Residential	Healthcare	Offices	Science & Technology
Culture & Entertainment	Higher Ed.	Retail	Sport & Leisure
Data Centres	Hotels	Schools	Storage & Distribution

UKNZCBS – Operational Energy

Reporting Periods



Source: UK Net Zero Carbon Building Standard Version 1 (March 2026)

UKNZCBS – Operational Energy

Operational Energy Limits

"Buildings have to show in any given year that their energy use is at or below the limit given in the standard"

Table OE-1 Energy use intensity limits, New Buildings

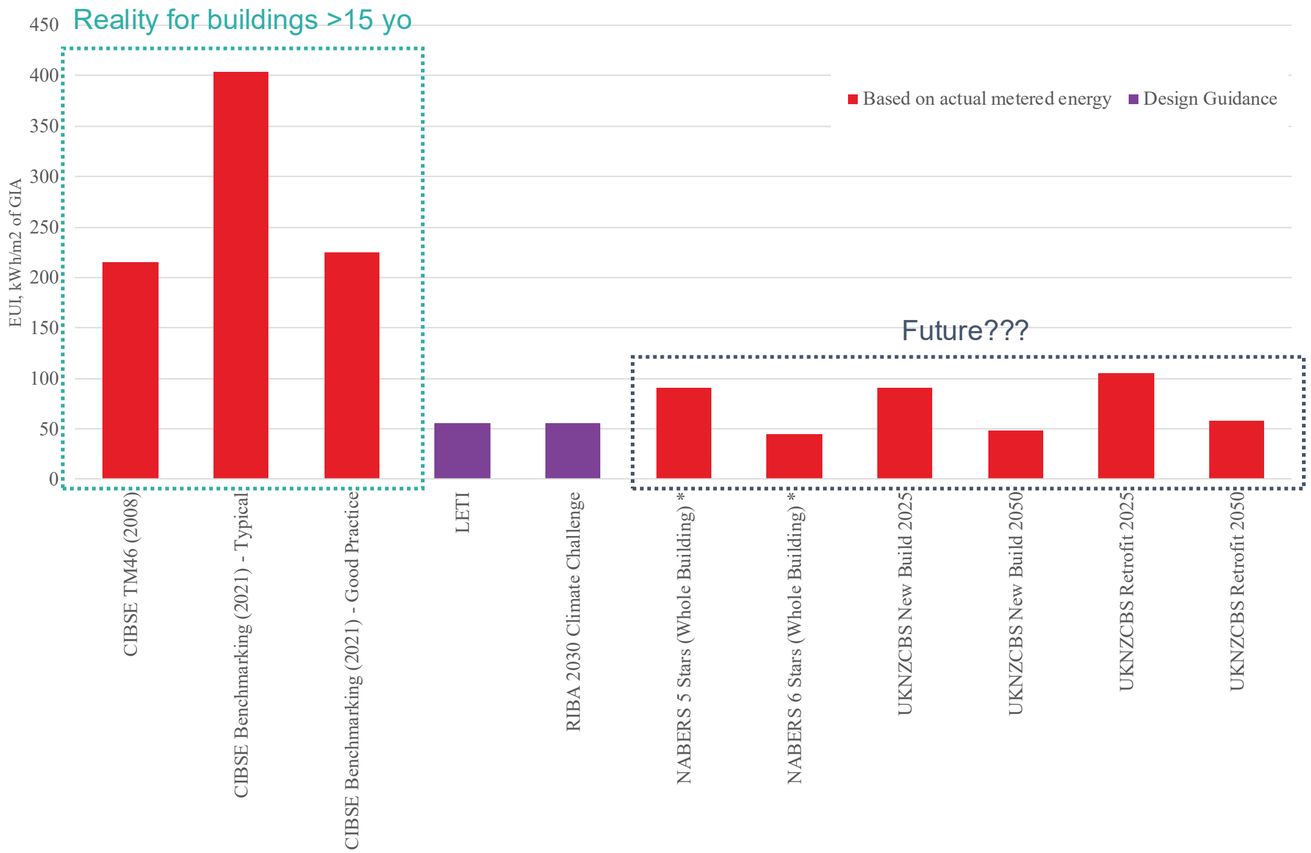
← Date of Commencement (see section 4.2.6)	Commercial Residential		Culture & Entertainment			Data Centres		Healthcare					Higher Ed.	Homes		Hotels	Offices (either /GIA or /NIA metrics may be used)						Retail						Schools			Science & Technology	Sport & Leisure			Storage & Distribution		
	Student resi.	Care homes	Performance	Collection	Archives	Low utilisation	High utilisation	Acute Trust	Care Trust	Community Trust	Mental health & Learning Trust	Ambulance Trust	-	Single family homes	Flats	-	General - Whole building	General - Landlord-only route	General - Tenant-only route	Call Centres	Trading Floors	Supermarket	High street retail, dept. store	F&B without catering[a]	F&B with catering[b]	Landlord Area Within Commercial/Shopping Centres[c]	Retail warehouse	Early years	Primary	Secondary incl. SEN	-	Dry	Wet	Fitness	Unconditioned storage	Conditioned storage	Cold store
	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	PUE	PUE	-	-	-	-	-	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²NIA/yr	kWh/m²GIA/yr	kWh/m²NIA/yr	kWh/m²NIA/yr	kWh/m²GIA/yr	kWh/m²NIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²CPA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr	kWh/m²GIA/yr
2025	75	150	80	60	5	1.40	1.20	*As per NHS NZBS*					100	50	50	125	90	113	54	68	45	135	169	155	194	200	80	215	380	55	80	50	45	60	305	80	350	150	40	90	175
2026	74	147	79	59	5	1.40	1.20						98	50	50	122	88	110	53	66	44	131	164	150	188	194	78	209	370	54	78	50	45	59	297	79	344	148	39	88	169
2027	72	144	77	58	5	1.39	1.19						95	49	50	119	85	106	51	64	42	127	159	145	181	188	76	202	359	53	75	49	44	58	289	78	337	145	38	85	162
2028	70	140	75	56	5	1.38	1.18						92	48	49	116	82	103	49	61	42	122	153	140	175	182	73	195	348	52	72	48	43	57	280	76	330	142	37	82	155
2029	69	137	74	55	5	1.38	1.18						90	48	49	113	79	99	47	59	40	118	148	135	169	176	71	189	338	51	70	48	43	56	272	75	324	140	36	79	148
2030	67	134	72	54	5	1.37	1.17						87	47	48	110	76	95	46	58	37	113	141	130	163	170	68	182	327	50	67	47	42	55	264	74	317	137	35	76	141
2031	65	130	70	52	5	1.36	1.16						84	46	48	107	74	93	44	55	38	109	136	125	156	164	66	175	316	49	64	46	41	54	255	72	310	134	34	73	134
2032	64	127	69	51	5	1.36	1.16						82	46	48	104	71	89	43	54	35	104	130	120	150	158	64	169	306	48	62	46	41	53	247	71	304	132	33	70	127
2033	62	124	67	50	5	1.35	1.15						79	45	47	101	68	85	41	51	34	100	125	114	143	152	61	162	295	47	59	45	40	52	239	70	297	129	31	67	120
2034	60	120	65	48	5	1.34	1.14						76	44	47	98	65	81	39	49	32	95	119	109	136	146	59	155	284	46	56	44	39	51	230	68	290	126	30	64	113

Source: UK Net Zero Carbon Building Standard Version 1 (March 2026)

UKNZCBS – Operational Energy

Understanding Operational Energy Limits

Operational Energy Benchmarks Comparison in offices



Building type	Date of Commencement	Minimum star rating
New	2026-2030	5★
	2031-2035	5.5★
Existing	2026-2030	4.5★
	2031-2035	5★

Source: UK Net Zero Carbon Building Standard Version 1 (March 2026)

** NABERS Metrics converted from NIA to GIA using multiplier of 1.25 (CIBSE TM46)*

UKNZCBS – Operational Energy

Understanding Operational Energy Limits

440,000 – Total number of office properties in the UK (2022 data)

153 – Number of office properties currently registered with NABER UK DfP

144 – Number of office properties targeting NABERS UK 4.5* and above

11 – Number of NABERS UK certified properties

4 – Number of NABERS UK certified properties with rating of 4.5* and above

Case Study

ARUP
80 YEARS

Case Study

Office Building in London

Project Type

Major Refurbishment

Project Description

Major refurbishment of an existing office building located in the City of London. The existing building is currently unoccupied, comprising a smaller Victorian heritage portion to the East, and a significant extension to the West completed in the early 1990s. The proposed development will retain or re-use as much of the existing structural fabric of the building as possible.

Project Size

11 floors
GIA 15,600 m2
NIA 11,707 m2

Arup's role

Smart Buildings. Sustainability assessments – BREEAM, WELL, NABERS DfP

Project Stage

In construction

Targeted NABERS Rating

5 stars

Estimated Energy Use Intensity

Landlord Only – 53.7 kWh/m2 NIA (for NABERS Rating)
Whole building - 119.4 kwh/m2 NIA

© image courtesy of Hawkins Brown

Case Study

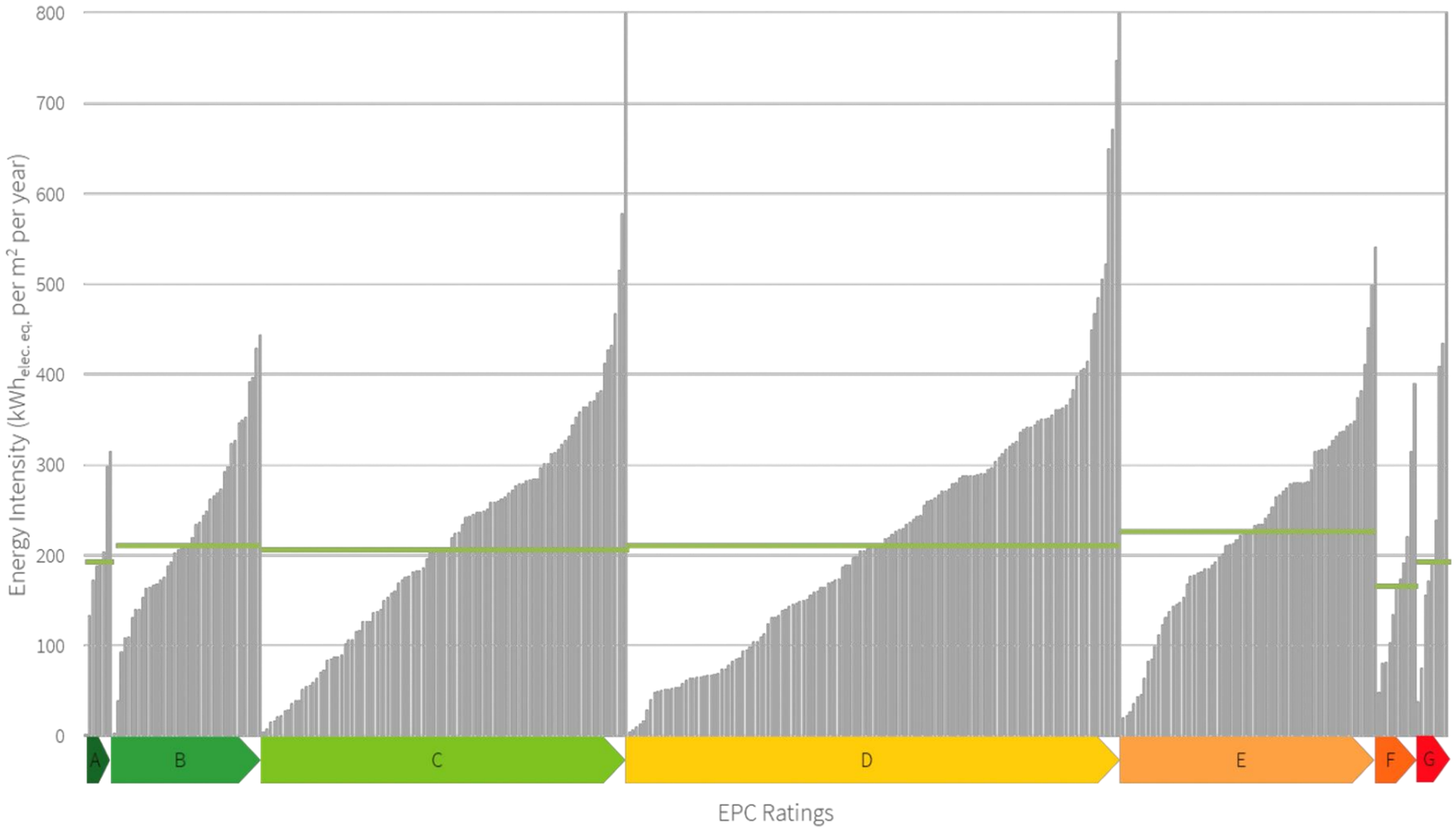
Project Challenges

1.	Existing building – limited floorplate flexibility for integrating MEP services.	Smaller, localised ventilation strategy – two ambient MVHR units per floor rather than a centralised system, significantly reducing ductwork runs, lowering energy associated with supply air tempering, and providing greater flexibility for tenants with varying occupancy hours.
2.	Existing building – constrained floor-to-floor heights affecting efficient HVAC distribution.	Increased focus on plant control strategies to optimise operational performance.
3.	Heritage Victorian façade – risk of condensation and uncertain thermal bridging performance.	Opportunity to make effective use of thermal mass, supported by a favourable window-to-wall ratio and strong solid façade elements.
4.	Meeting occupier comfort expectations while maintaining low energy consumption.	Smaller, modular plant selection with emphasis on efficient part-load performance and robust controls.
5.	Intensive value engineering process while protecting sustainability and energy performance objectives.	Ability to test all major design options through detailed HVAC energy modelling before key decisions were taken.

Case Study

Energy Modelling

Standard Part L / EPC models aren't enough to capture the complexity of building operations and cannot be used to test design solutions. Bespoke detailed energy modelling (CIBSE TM54 or NABERS DfP) should be used.

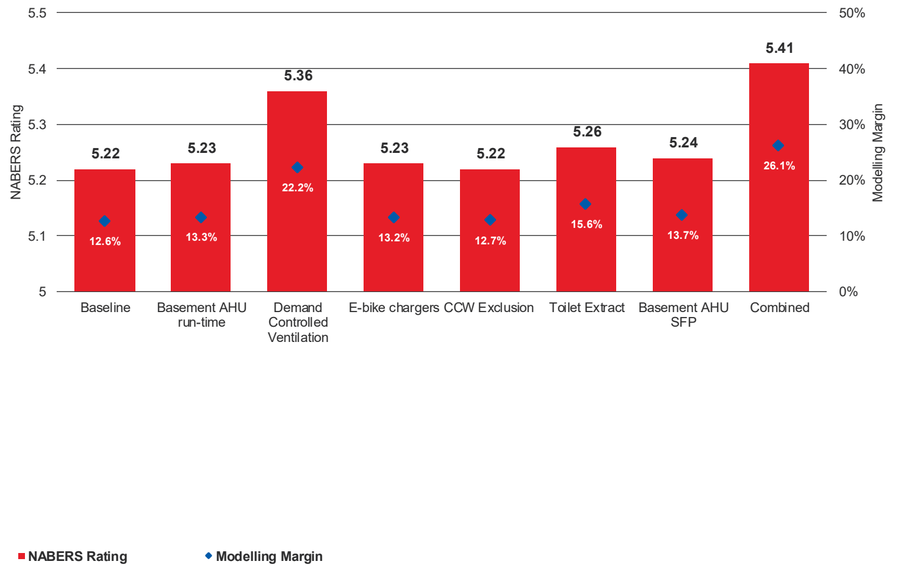


Case Study

Design Optioneering

Theme	IDR comments / basis of change
HVAC	Basement ventilation run time & flow rates
HVAC	Demand Controlled Ventilation (DCV) on tenants' floors
Metering	Exclusion of e-bike energy
Metering/HVAC	Energy inclusion of CCW heating & Cooling energy
HVAC controls	Toilet extract controls
AHU's	Basement ventilation SFP

NABERS rating impact assessment



- NABERS IDR can go ahead when 25% modelling margin is achieved for the project;

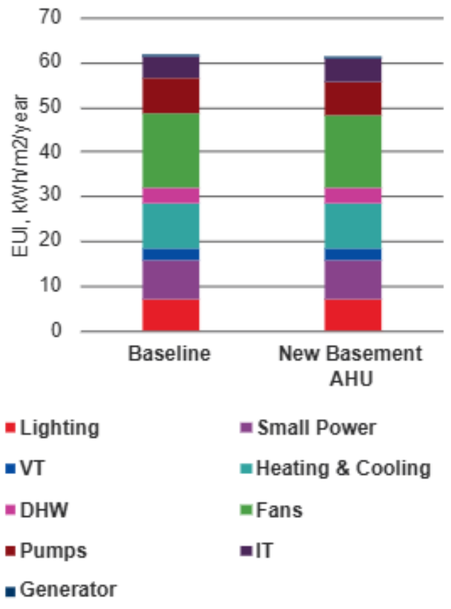
Case Study

Design Optioneering - example

Basement Ventilation SFP

Design Solution	Modelled Assumption
Basement ventilation run time & flow rates	Constant Air Volume Design flow rate operated 24/7
DCV on tenants' floors	Constant Air Volume ventilation on all tenant's floor
E-bike energy	Included for no 11 e-bike stands assuming 2no bike chargers per stand.
Energy inclusion of CCW energy	CWW energy is included. CWW operation time is similar to office hours
Toilet extract controls	Toilet extract operated 24/7 Mon-Sat and OFF on Sun
Basement ventilation SFP	New AHU with SFP of 1.48 W/l/s

Predicted EUI



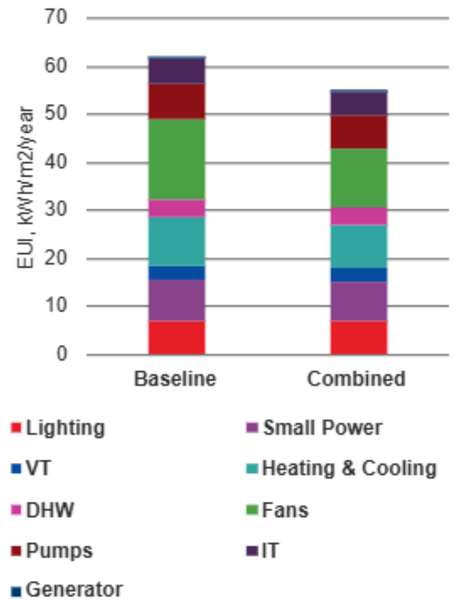
NABERS Rating	5.24	Modelling Margin	13.7%

Additional notes	N/A

Combined model

Design Solution	Modelled Assumption
Basement ventilation run time & flow rates	Operation 24/7 with 50% flow rates set-back outside of operating hours
DCV on tenants' floors	DCV on all tenants' floors – 14 VAV boxes (1 sensor per zone)
E-bike energy	Excluded on the basis of electrical meter provided for all e-bike stands
Energy inclusion of CWW energy	CCW energy is excluded from assessment.
Toilet extract controls	Timeclock allows extract to be switch off for each floor 1 hour past occupied hours
Basement ventilation SFP	New AHU with SFP of 1.48 W/l/s

Predicted EUI



NABERS Rating	5.41	Modelling Margin	26.1%

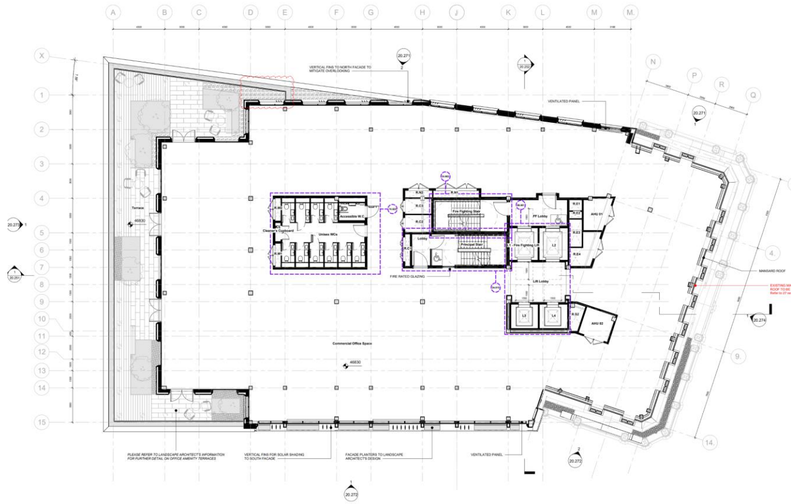
Additional notes	N/A

Case Study

Design Optioneering

One of the options considered during VE – mixed mode ventilation.

Mixed mode ventilation is a building ventilation strategy that combines natural ventilation and mechanical ventilation / air conditioning, using each when it is most effective.



Considering the nature, location and use of this project, what would you identify as the key advantages and disadvantages of mixed-mode ventilation compared with a fully mechanical solution?

What challenges would need to be overcome to make it successful, and in what scenarios might mixed-mode ventilation offer the greatest benefit?

© image courtesy of Barr Gazetas

Case Study

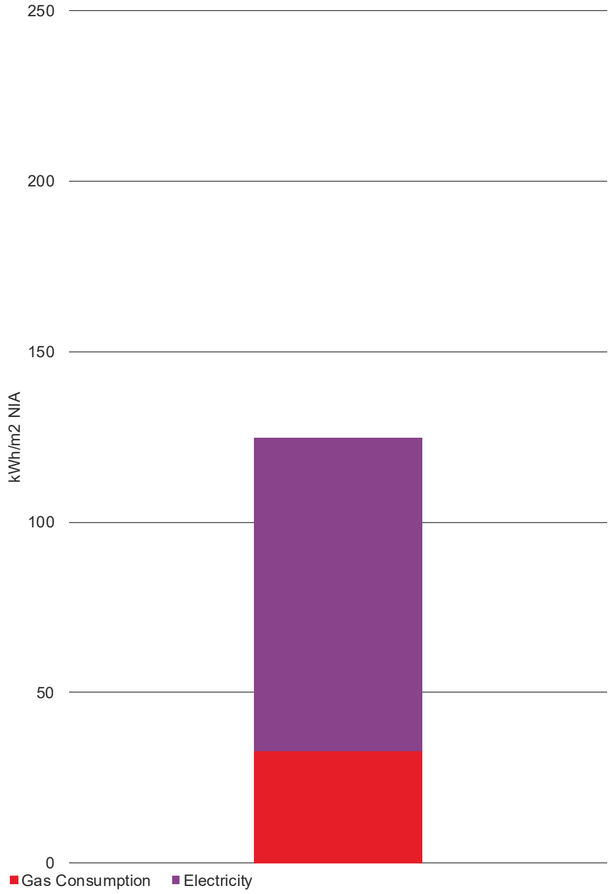
Final Design

Target NABERS Rating	5 Stars
Predicted EUI	Landlord Only – 53.7 kWh/m2 NIA (for NABERS Rating) Whole building - 119.4 kwh/m2 NIA
UKNZCBS requirement for retrofits (2026-2030)	NABERS route - 4.5 Stars
UKNZCBS requirement for retrofits (2025)	EUI route: Landlord Only – 79 kWh/m2 NIA Whole building - 131 kwh/m2 NIA

Case Study

Case Study 2 - Operation Matters

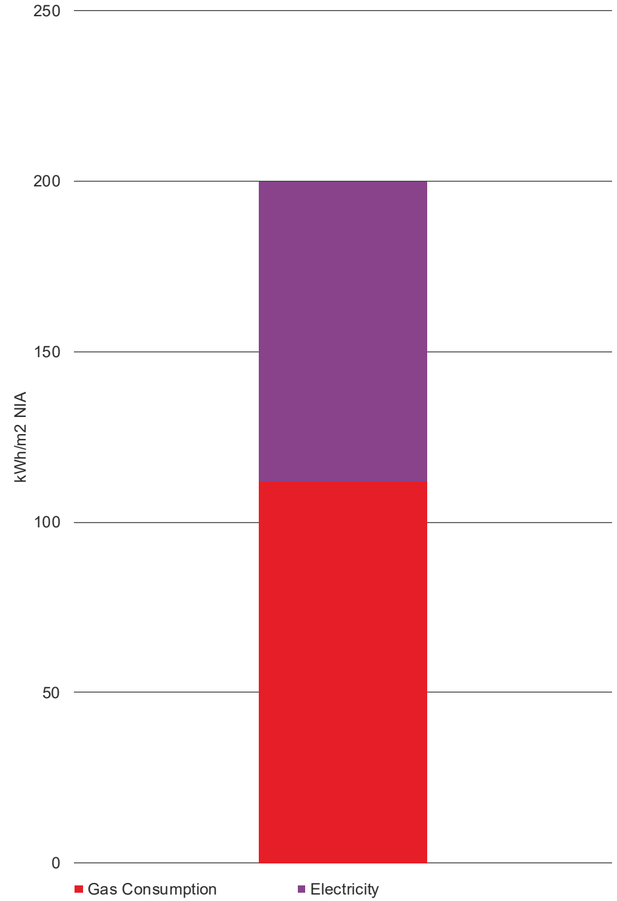
Annual Energy Intensity Office 1



Building Fabric	Performance
Curtain walling avg.	1.5 W/m²K
Solid external walls	0.35 – 0.2 W/m²K
Ground floor	0.15 W/m²K
Roof	0.23 W/m²K
Avg. U- value	0.73 W/m²K
Air permeability	3m3/h/m² @50Pa test pressure
Glazing Solar transmittance	0.26 (G)

Building Services	Description
Ventilation	Mechanical with thermal wheel heat recovery
Heating	Gas fired boilers serving LTHW system (fan coil terminal units on office floor plates radiators in all other areas except underfloor heating to reception)
Cooling	Air cooled chiller serving chilled water system (Fan coil terminal units on office floor plate & underfloor cooling to reception)
Domestic hot water	Gas fired hot water heaters
Lighting	LED with daylight/presence control
Controls/metering	Full Building Management System (BMS) with metering & Monitoring

Annual Energy Intensity Office 2



ARUP
80 YEARS

Thank you – any questions?

The Standard – Orlando Gibbons, TSG UK NZCBS

TO RADICALLY IMPROVE THE SUSTAINABILITY OF THE BUILT ENVIRONMENT, BY TRANSFORMING THE WAY IT IS PLANNED, FINANCED, DESIGNED, CONSTRUCTED, OPERATED AND REPURPOSED.

600+ MEMBERS AND GROWING

DEVELOPERS, OWNERS & OCCUPIERS

Kennedy Wilson
Argent
Bentall Greenoak
lendlease
Canary Wharf Group PLC
John Lewis Partnership
Hines
Berkeley Group
bruntwood
ALDI
British Land
Clarion Housing Group
CBRE
SEGRO
The Crown Estate
Landsec

FINANCIAL BODIES AND INVESTORS

NatWest Group
Lothbury Investment Management
octopus
BNP Paribas
Legal & General
Lloyds Banking Group
Federated Hermes
Deloitte.

CONTRACTORS

Wates
Builders Sisk Contractors
bam nuttall
mace
Bouygues UK
Troup Bywaters + Anders
Willmott Dixon
winvic
General Demolition
Multiplex
GMI Construction Group PLC
Turner & Townsend
Laing O'Rourke

SUPPLIERS

Mitsubishi Electric
Tata Steel
AkzoNobel
Airex
Heidelberg Materials
Rockwool
Knauf Insulation
Interface
Tarkett
Mapei
Wienerberger

ADVISORS

Stantec
AtkinsRéalis
Arup
JLL
Hoare Lea
Buro Happold
savills
Sidara
Bennetts Associates
Ramboll
Mott MacDonald
Perkins&Will
Introba
The Chancery Lane Project
dar Sidara Compar
Knight Frank
Cundall
AECOM
WSP

GOVERNMENT, AGENCIES & ACADEMIA

Ministry of Justice
Department for Environment Food & Rural Affairs
Homes England
Home Office
City of London
Bristol City Council
Historic England
Essex County Council
City of Westminster
Glasgow City Council
Manchester City Council
University of Cambridge
King's College London
UCL
University of Bath

UK GBC

The voice of our sustainable built environment

UK Net Zero Carbon Buildings Standard

The UK Net Zero Carbon Building Standard has landed!

Version 1 is available at www.nzcbuildings.co.uk

BBP BETTER BUILDINGS PARTNERSHIP

bre

Supported by:

CARBON TRUST

LETI

CIBSE

The Institution of StructuralEngineers

RIBA

RICS

UK GBC

Are you familiar with the standard?

a) Not at all

b) Kind of (but don’t quiz me on it!)

c) I’m pretty familiar with it

UK Net Zero Carbon Buildings Standard

Are you targeting the standard on any projects?

a) Yes, I have a project intending to verify

b) I am looking into it but have not yet committed to it

c) No projects targeting the standard

UK Net Zero Carbon Buildings Standard

Has the standard changed the conversations around carbon targets or reduction measures on any of your projects?

a) None

b) Some

c) Most

UK Net Zero Carbon Buildings Standard

How was it developed?

The Standard has been supported by hundreds of individuals and organisations from across the UK built environment

700+
Stakeholders engaged

9
Founding Organisations

Governance Board

Technical Steering Group

BBP BETTER BUILDINGS PARTNERSHIP · bre · CARBON TRUST · CIBSE · The Institution of Structural Engineers · LETI · RIBA Architecture.com · RICS · UK GBC

140+
Task Group members

5 Task Groups

14 Sector Groups

205 Pilot projects

+4 Working Groups '25

190+
Sector Group members

800
Projects embodied carbon data

3,200
Projects metered operational energy (large datasets)

Evidence Providers:
- In-use energy data providers
- Further energy modelers
- Embodied carbon data providers

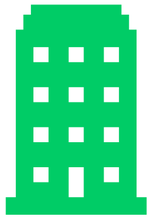
200+
Projects metered operational energy (individual projects)

Summary of the Standard

- A voluntary Standard
- Created by industry, for industry
- Outcome / measurement focussed
- 3rd party verification is required
- Limits informed by real industry data
- Credibility to Net Zero Carbon claims

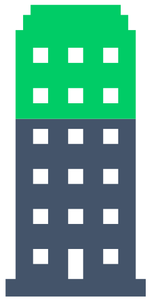
Scope of the Standard

Type of building and works:

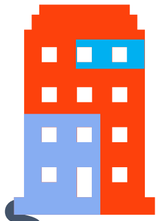


New buildings

Existing buildings, retrofits, Office



Extensions



Mixed-use buildin

Sector:

Commercial Residential	Culture and Entertainment	Data Centres	Healthcare	Higher Education	Homes
Hotels	Offices	Retail	Schools	Science and Technology	Sport and Leisure
Storage and Distribution					

Who is the Standard for?

Anyone involved in the UK Built Environment

Owners	Contractors and their Supply Chain	Occupiers
Managing agents	Housebuilders	Investors
Developers	Insurers	Planners
Architects	Designers and Consultants	Lenders

The Standard's Requirements

Limits, targets, reporting: 11 mandatory, 1 optional

Report and meet limits:

- Upfront Carbon
- Operational Energy
- Fossil Fuel Free
- District Heating and Cooling Networks
- Refrigerants
- Heating Delivered

Report and meet targets:

- On-site Renewable Electricity Generation

Optional requirement:

- Offsetting and renewable electricity procurement

Reporting only:

- Life Cycle Embodied Carbon
- Operational Water Use
- Electricity Demand
- Heating and Cooling delivered to the building

The Standard's Requirements

"Net Zero Carbon Aligned Building"

Report and meet limits:

- Upfront Carbon
- Operational Energy
- Fossil Fuel Free
- District Heating and Cooling Networks
- Refrigerants
- Heating Delivered

Report and meet targets:

- On-site Renewable Electricity Generation

Optional requirement:

- Offsetting and renewable electricity procurement

Reporting only:

- Life Cycle Embodied Carbon
- Operational Water Use
- Electricity Demand
- Heating and Cooling delivered to the building

The Standard's Requirements

"Net Zero Carbon Aligned Building (plus offsets)"

Report and meet limits:

- Upfront Carbon
- Operational Energy
- Fossil Fuel Free
- District Heating and Cooling Networks
- Refrigerants
- Heating Delivered

Report and meet targets:

- On-site Renewable Electricity Generation

Optional requirement:

- Offsetting and renewable electricity procurement

Reporting only:

- Life Cycle Embodied Carbon
- Operational Water Use
- Electricity Demand
- Heating and Cooling delivered to the building

The Standard's Requirements

DOES NOT Conform

Report and meet limits:

- Upfront Carbon
- Operational Energy
- Fossil Fuel Free
- District Heating and Cooling Networks
- Refrigerants
- Heating Delivered

Report and meet targets:

- On-site Renewable Electricity Generation

Optional requirement:

- Offsetting and renewable electricity procurement

Reporting only:

- Life Cycle Embodied Carbon
- Operational Water Use
- Electricity Demand
- Heating and Cooling delivered to the building

Developing the “Net Zero Carbon Aligned” limits

What is required?

Top-down statutory cap

UK national energy & carbon budgets

+

Bottom-up analysis

Operational energy performance levels

Embodied carbon performance levels

Built Evidence Data

+

What is possible?

UK NZCBS **Limits & Targets**

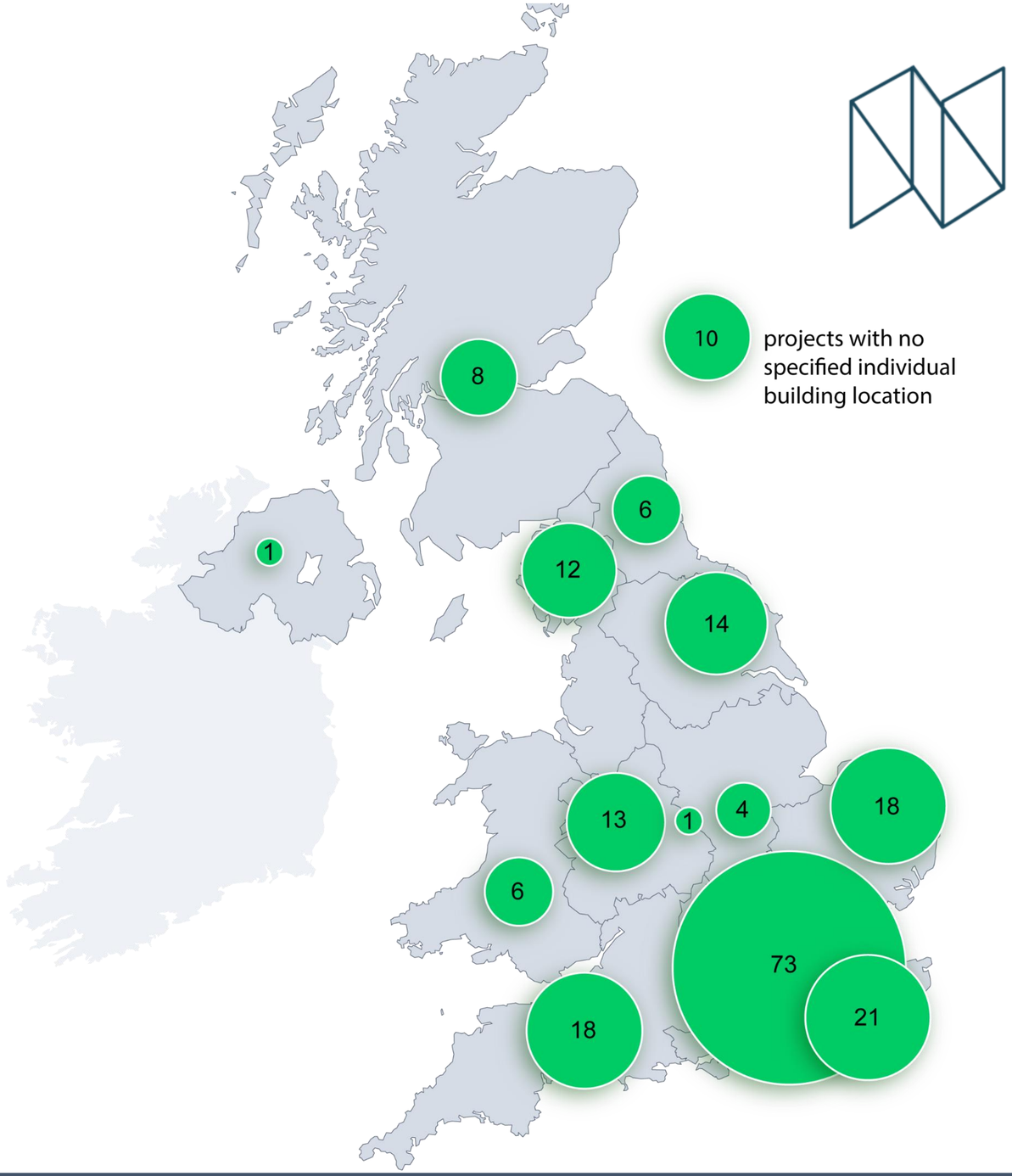
Pilot Testing in 2025

205 Projects

134 Owners

All Sectors represented

All aspects of the Standard tested



What’s included in Version 1?

UK Net Zero Carbon Buildings Standard

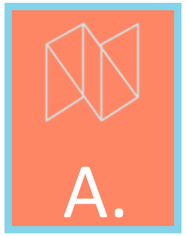
What's Included: The Standard Version 1

The Standard: Version 1

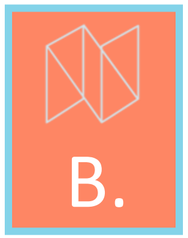
March 2026

Updates incorporating feedback from Pilot Testing and industry engagement incorporated.

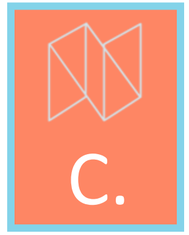
The Standard's Annexes:



Annex A
Limits and Targets
Updates to limits and targets



Annex B
Submission Proformas
New Proformas for PC On Track and Delineation.



Annex C
Deemed to Satisfy
Formerly 'Equivalence'..

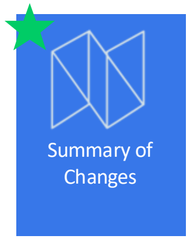
Annex D
Roles and Responsibilities
No changes since the Pilot Version

Annex E
PC on-track verified checks
E1 – General
E2 – PC On Track[1]

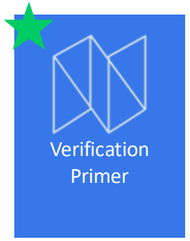
Annex F
Delineation
F1 – General
F2 – Landlord-only route
F3 – Tenant-only route

Supporting Documents

Published on the UK NZCBS website alongside Version 1



Summary of Changes
Explains the changes between the Pilot Version and Version 1



Verification Primer
Key information on the verification process ahead of the upcoming launch.

Key

Standard | Technical Annex | Guidance / For Information | New | Amendments made to previous version (border)

Update:
Limits (Annex A)

Upfront Carbon

Offices Schools

- Offices: 10% increase
- Schools: 10% increase

Operational Energy

Offices Homes Storage & Distribution Science and Technology Retail

- Offices: 5% increase
- Single family homes: 10% increase
- Multi-Residential: 25% increase
- Storage & distribution: 9 – 15% increase
- Retail – High Street: 10-15% increase
- Science & Technology: Refined approach to specific uses (no change to overall limits).

Same changes to limits for all Works types and Building types.

UPDATE:
Deemed to Satisfy (Annex C)

Details other recognised industry schemes that are considered to satisfy certain requirements of the Standard.

The Standard will be updated when a scheme is ‘deemed to satisfy’ certain aspects of the Standard.

Available in Version 1

NABERS UNITED KINGDOM

Passivhaus Trust
The UK Passive House Organisation

Deemed to satisfy certain aspects of the Standard

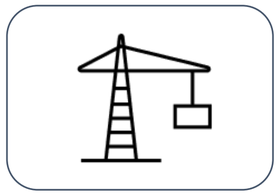
Discussions underway

BREEAM

NEW:
PC ‘On Track’ verified checks (Annex E)

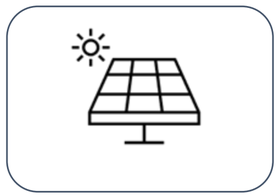
Pilot Feedback	• Interim recognition needed at Practical Completion (PC).
Headlines	• Optional • Verified • **Not** conformity, i.e. not Net Zero Carbon Aligned
Outcome	• Possible to demonstrate that building could achieve conformity once occupied and in-use.

PC On Track – key requirements



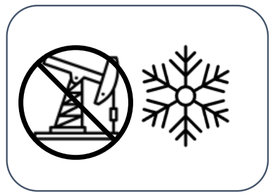
Upfront Carbon

Assess + verify for works completed so far.



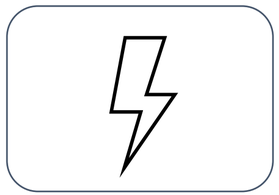
On Site Renewable Energy

Installed capacity demonstrated.



Fossil Fuel Free and Refrigerants

No change.



Operational Energy

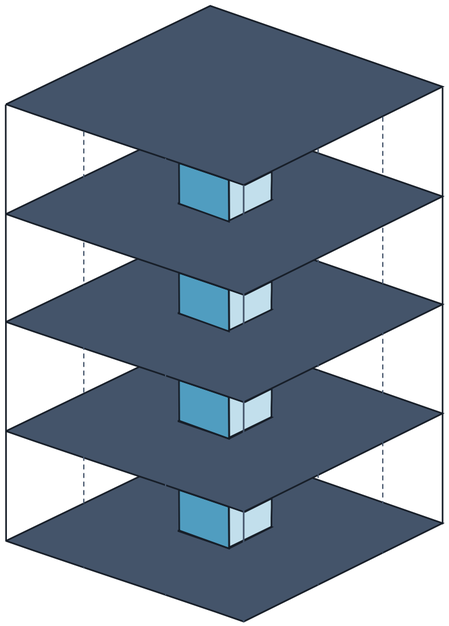
TM54 energy modelling + additional evidence.

Verification of Known Metrics at Practical Completion

Plausibility Check on In-Use Performance

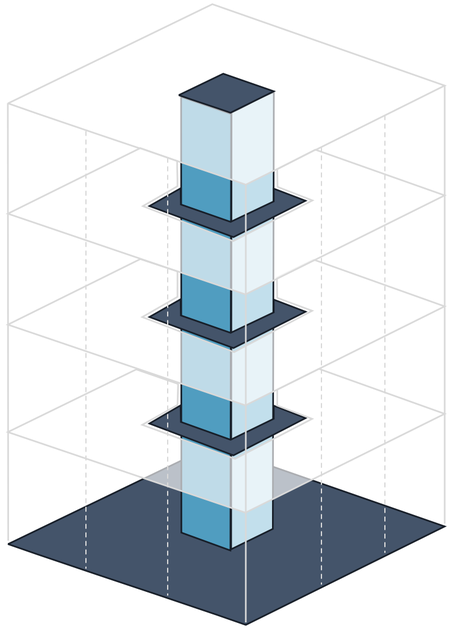
NEW:
Landlord-only or tenant-only route (Annex F)

Whole building assessment (Main sections of The Standard)

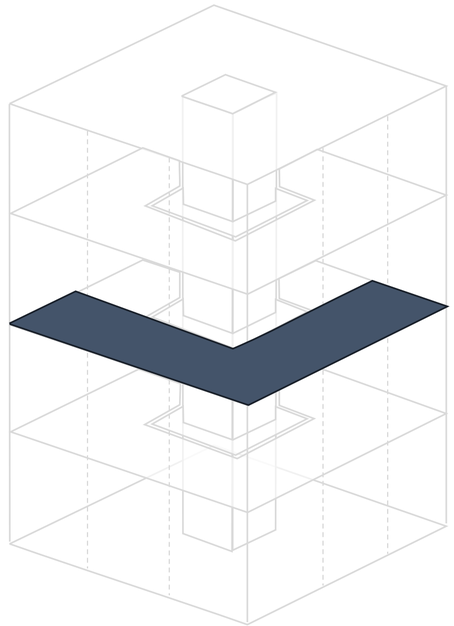


If whole building assessment is <u>not</u> reasonably practicable

Landlord-only route (Annex F2)



Tenant-only route (Annex F3)



Limits available for ‘Office’ and ‘Storage & Distribution’ Sectors

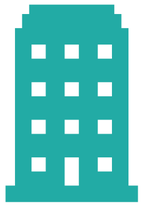
Communication

Targeting the standard (design / construction)

“Targeting verification to the UK Net Zero Carbon Buildings Standard”

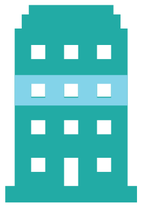
PC On-track Conformity

“At practical completion, this building was predicted to be on track to meet the UK Net Zero Carbon Buildings Standard”



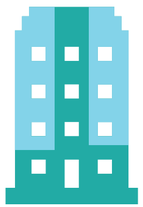
Whole Building Conformity

“Net Zero Carbon Aligned Building (plus offsets).”



Tenant Only Conformity

“Net Zero Carbon Aligned Tenancy (plus offsets).”



Landlord Only Conformity

“Net Zero Carbon Aligned Landlord Spaces (plus offsets).”

Verification

UK Net Zero Carbon
Buildings Standard

Key Principles of Verification

Independent Third Party

Competency of Verifiers

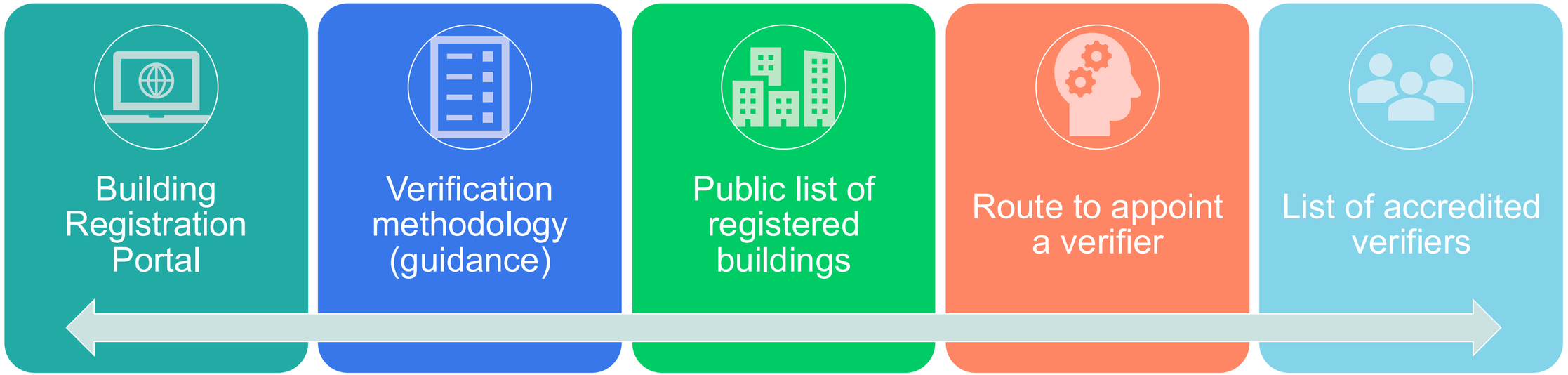
Communication Rules

Public Disclosure

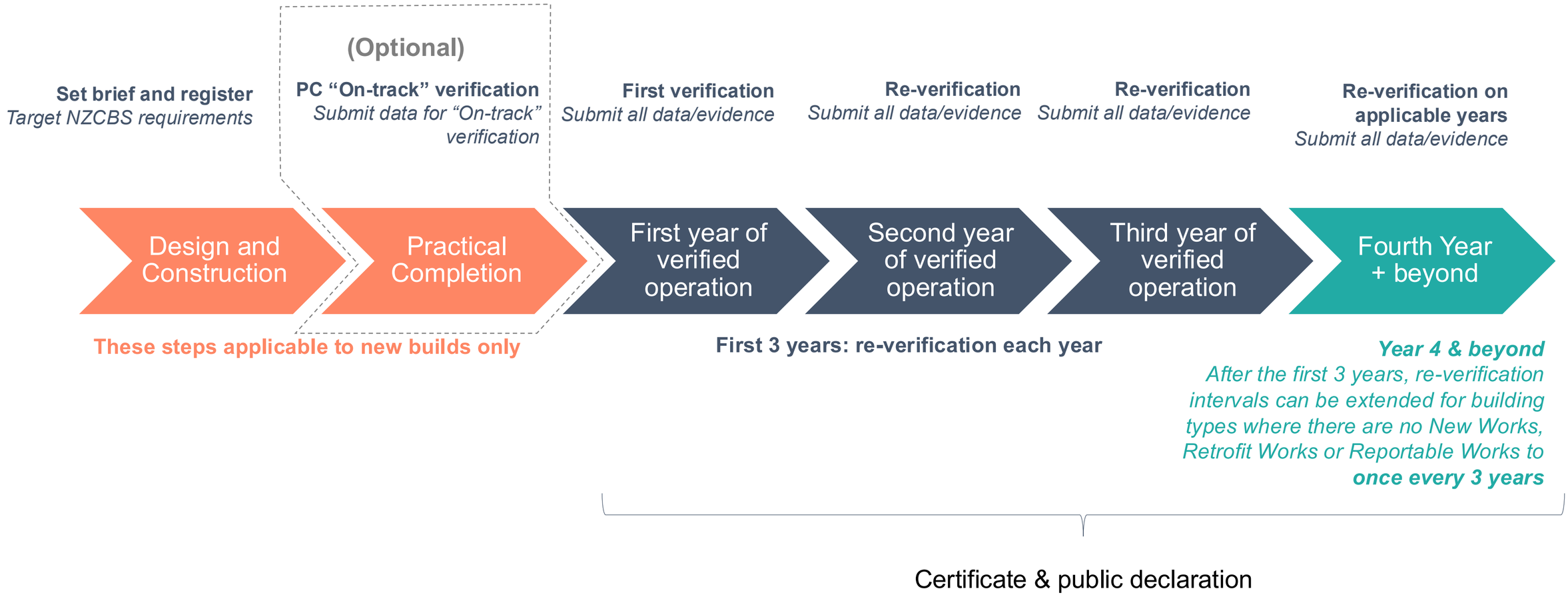
Accessible Methodology

Verification will launch in Q2 2026

Verification resources will include:



Verification process



Why is it needed?
Why should we use it?

UK Net Zero Carbon
Buildings Standard

Why is it needed?

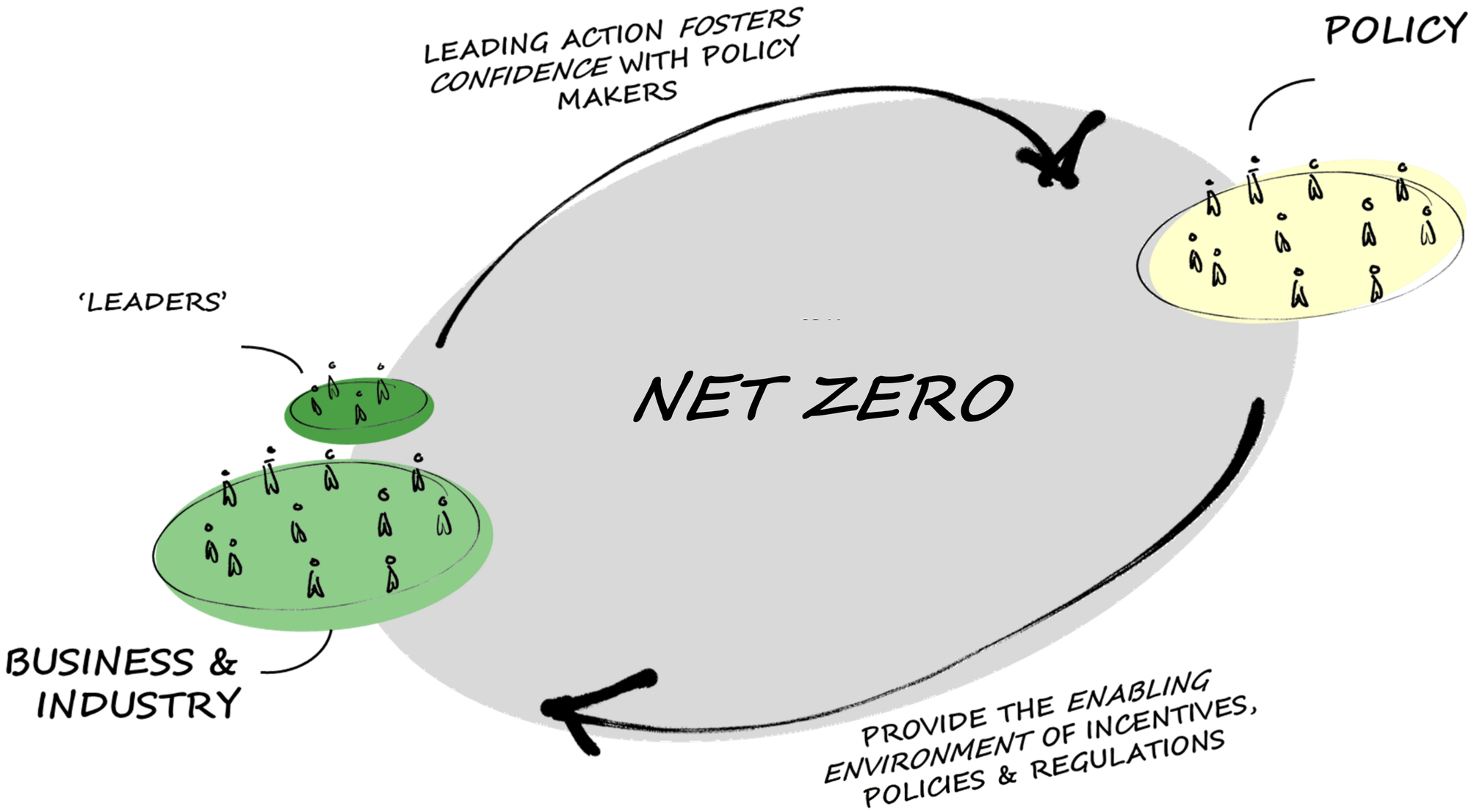
Prevent greenwashing

Reducing spurious claims around net zero carbon

Accelerate the net zero transformation

Pave the way for buildings delivered with net zero aligned outcomes

Why should we use it?



We need new Solutions

e.g. Arup’s Floorplate of the future


Precast vault


Timber-concrete hybrid

What are the opportunities for conformity with the standard?

Less constrained site

Low rise

Existing building retention

Timber

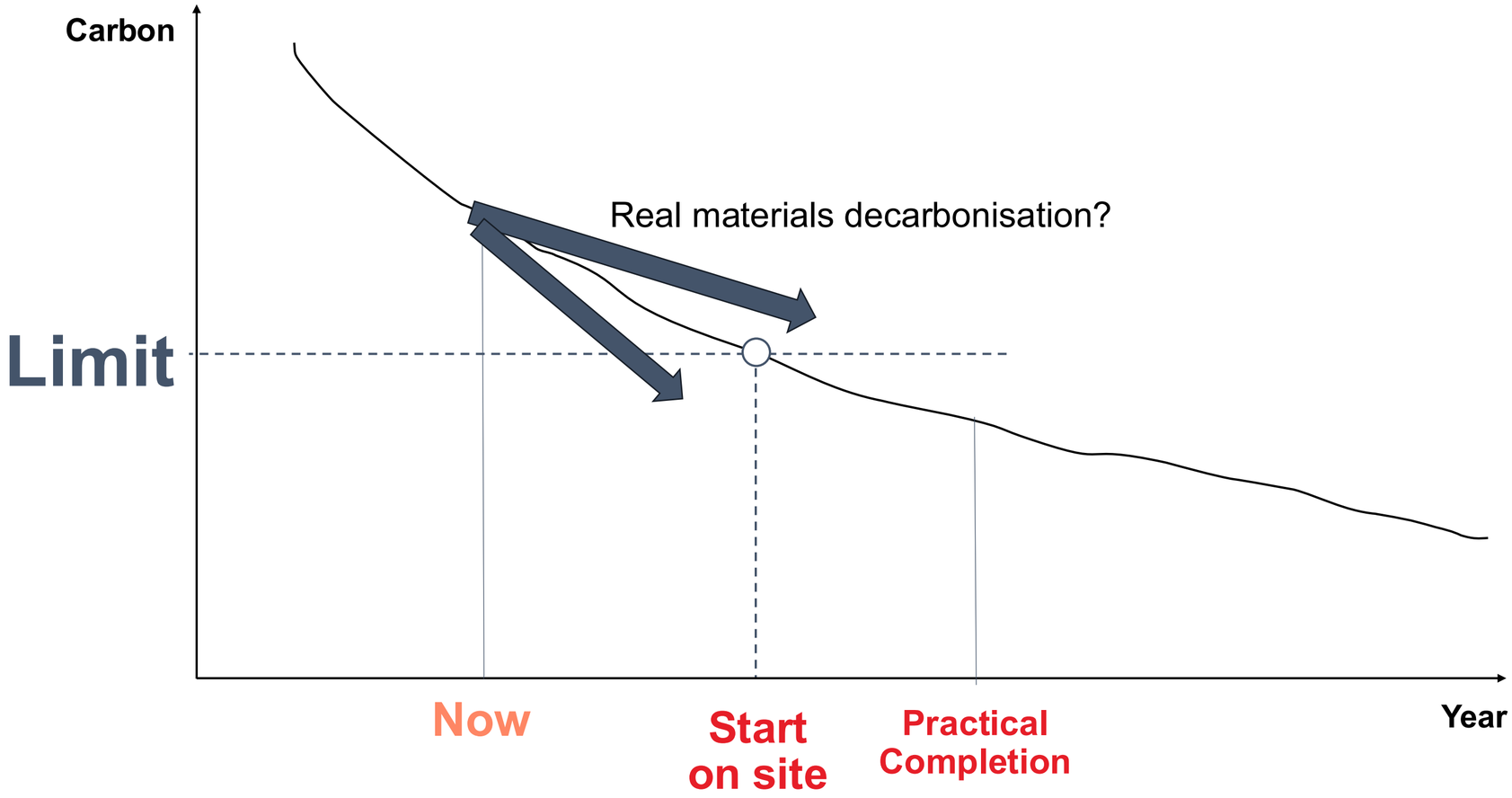
Existing buildings

The tricky (and interesting) aspects

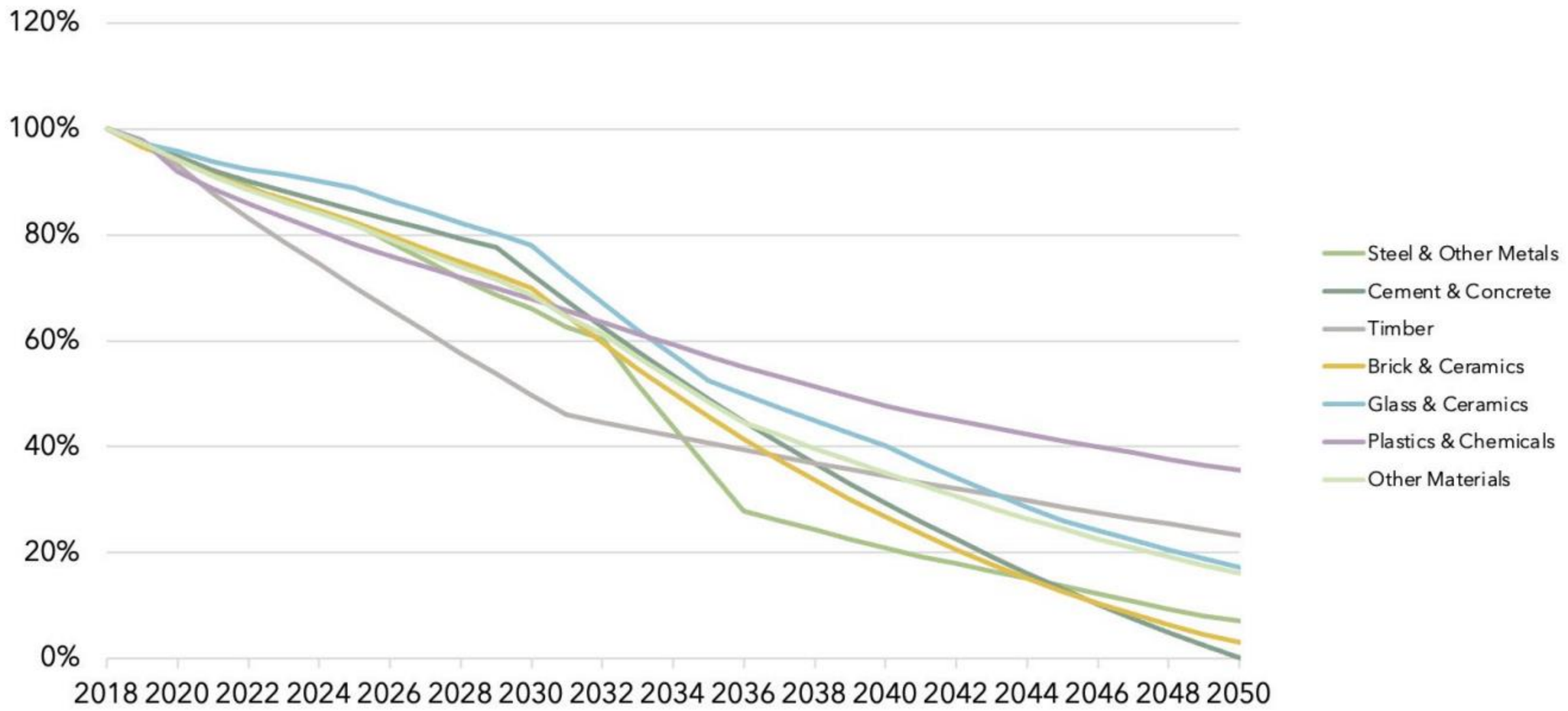
UK Net Zero Carbon
Buildings Standard

“The upfront carbon limits in a few years are too difficult to achieve”

… but we can't see into the future!



We need to demand materials decarbonisation. <u>As well as</u> decarbonising through design.



3 Questions to ask every manufacturer / supplier you work with

1. *We want a low carbon version of X. What have you got to offer?*

2. *How are you decarbonising your processes?*

3. *Do you have an EPD? We need one.*

Two key priorities

Market uptake

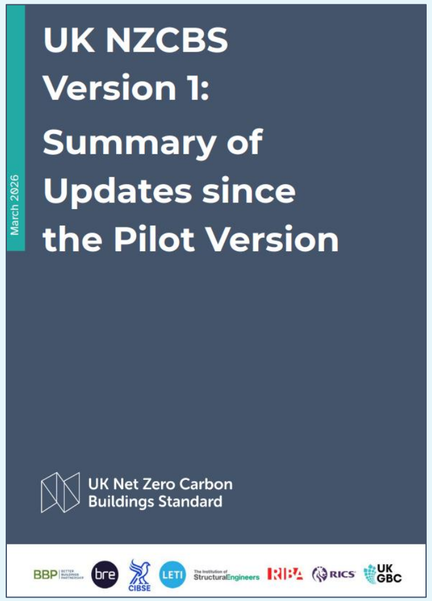
… more to come on this soon

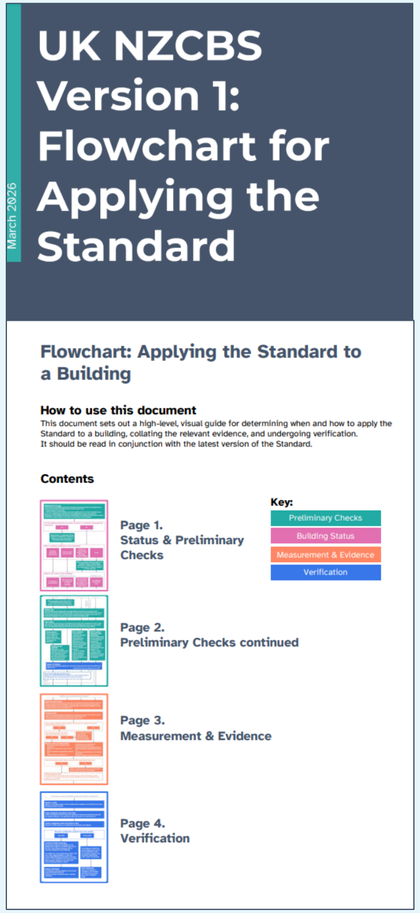
Robust net zero definition

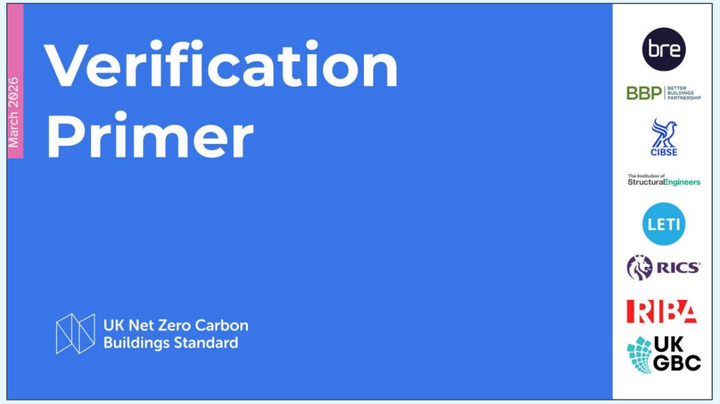
Guidance & next steps

UK Net Zero Carbon
Buildings Standard

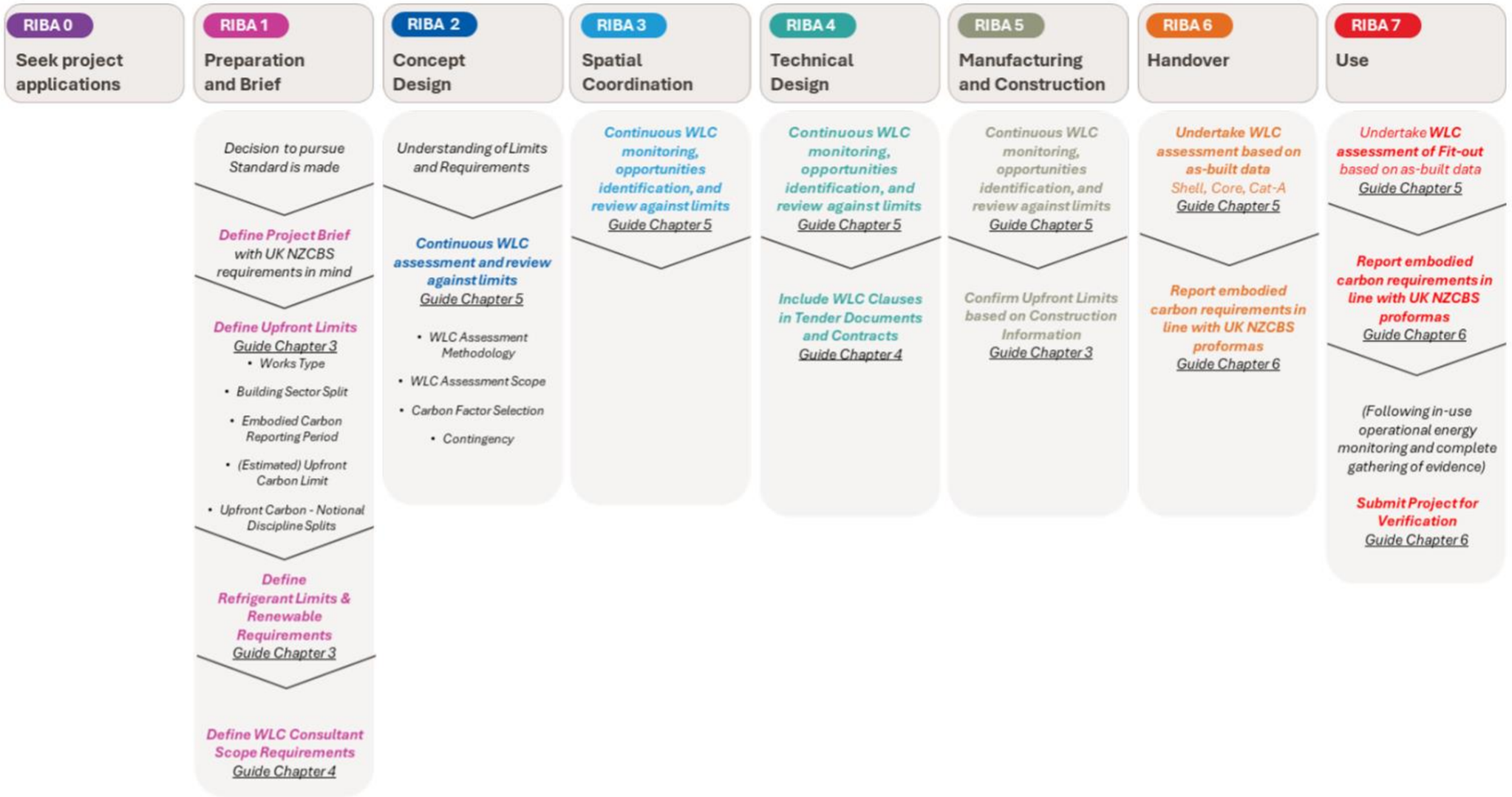
Supplementary Guidance







Process of addressing it on projects (IStructE guide)



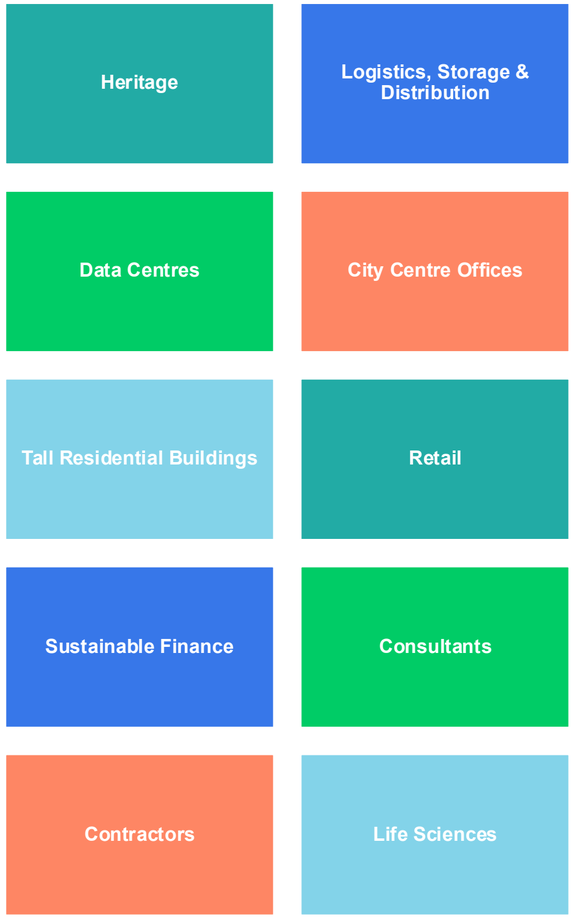
Upcoming Guidance

- Graphics and Explanatory Videos
- Heritage Guidance
- Documentation on How the Limits Were Set (update)
- Legal Primer

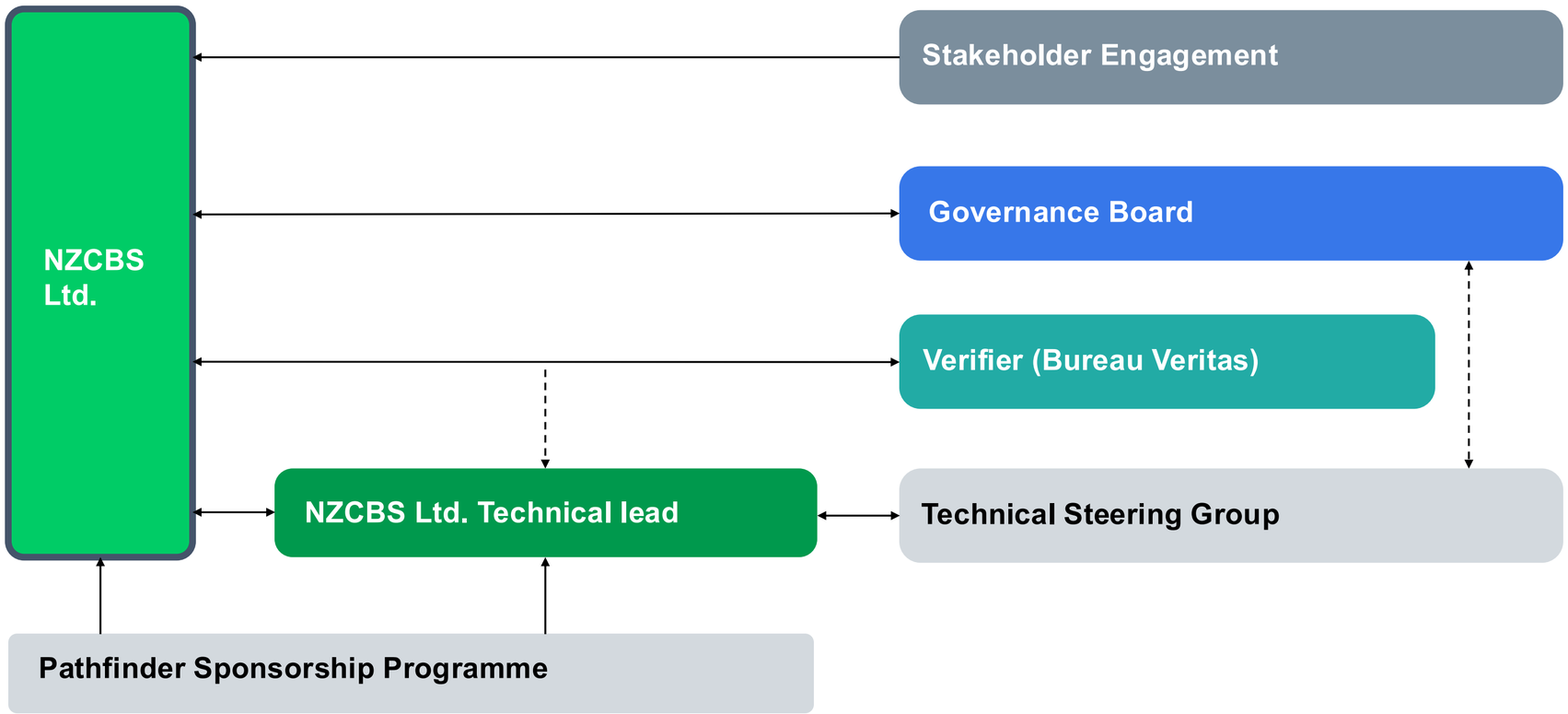
Next Steps: Pathfinders

- **Exploring the application of the Standard** through data collection, analysis and discussion
- Focussed around areas where **further thought and guidance** may support the application of the Standard
- **pathfinders@nzcbuildings.co.uk**

Workstreams with interest so far:



How will it be maintained?



What does success look like?

1. Market uptake

All parts of the built environment using it to accelerate the net zero transition.

Projects, policy makers and the supply chain.

2. Projects becoming verified "Net Zero Carbon Aligned (plus offsets)"

Use it on your project...
even if you're not sure it can meet all of the limits

Thank You

UK NZC Buildings Standard

info@nzcbuildings.co.uk

www.nzcbuildings.co.uk

UK Net Zero Carbon Buildings Standard

Next EMSP Event

Embedding Sustainable Procurement: Tackling Scope 3 Emissions Through Collaboration.

This session will explore how adopting a greener mindset in procurement can drive meaningful change. Regardless of where you are on your sustainability journey or the complexity of your supply chains, delegates will gain actionable strategies and practical tips for embedding sustainable procurement into their organisations—helping them become greener and accelerate progress toward Net Zero"

Coming soon...

Month	Date	Location	Topic
January	Tuesday 26th	Leicester	Understanding Net Zero Carbon
February	Wednesday 25th	Nottingham	FUTUREPROOF 26
April	Wednesday 22nd	Leicester	Passivhaus – then and now
May	Thursday 21st	Nottingham	NTU talk on decarbonisation tool.
June	Thursday 18th	Nottingham	Can we decarbonise concrete? Can it be part of a net zero carbon future?
July	TBC	Derby	Electric Daisy Summer Social
Sep, Oct, Nov, Dec	TBC		TBC

Linked In Group 👉

Please post. Use it for collaboration and questions.

Don’t be shy – who can post?

Other Events:
* Watch out for RIBA Events.
* Walk Notts - May

walk notts festival 2026 Walking Events 01-31 May

Stay in Touch