

Carbon Reduction Code for the Built Environment

To facilitate the reduction of carbon emissions (CO₂eq)
related to design, construction, maintenance, operation
and decommissioning of built assets

Issue 3.0

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Introduction

Carbon reduction is more likely to happen when all organisations within a value chain are committed to reducing their footprint and saving costs. This **Carbon Reduction Code for the Built Environment** forms part of the Construction Leadership Council's Construct Zero initiative. It is a first step to facilitate action and collaboration by relevant parties towards reducing carbon emissions (CO₂eq) related to design, construction, maintenance, operation and decommissioning of built assets. It is not intended to replace standards such as PAS 2080 (or equivalent), but it provides a framework for organisations to make a public commitment to and report on progress towards achieving Net Zero.

The Code was drafted by the CSIC Achieving Net Zero Cross-Industry Working Group in 2020 and first issued in 2021. It is expected that it will be updated as carbon targets change and progress towards net zero carbon is achieved. A process for organisations to commit to the code is detailed separately. The Code has three parts:

1. Core commitments for all organisations
2. Core commitments for client organisations and further commitments to facilitate the transition to Net Zero
3. Core commitments for supply chain organisations and further commitments to facilitate the transition to Net Zero.

There are three levels of compliance to the Code: PLEDGER, SIGNATORY and CHAMPION:

- PLEDGER: This is the minimum level of compliance. All organisations must sign up to commitments 1.1, 1.2 and ~~1.2~~ 1.3 to be in compliance at a PLEDGER level.
- SIGNATORY: To achieve a SIGNATORY level of compliance, organisations must sign up to 1.1, 1.2 and 1.3 and all Core Commitments relevant to their organisation (Client 2.1, 2.2, 2.3) (Supply Chain 3.1, 3.2, 3.3, 3.4).
- CHAMPION: To achieve a CHAMPION level of compliance, organisations must sign up to 1.1, 1.2, 1.3, Core Commitments relevant to their organisation (Client 2.1, 2.2, 2.3) (Supply Chain 3.1, 3.2, 3.3, 3.4) and the Further Commitments relevant to their organisation (Client 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10) (Supply Chain 3.5, 3.6, 3.7, 3.8, 3.9).

Although, organisations are encouraged to sign up at a global or national level, it is possible for organisations to sign up at a regional or local level. It is also possible for large projects to sign up such as a joint venture with several partners. The level of sign-up must be clearly stated.

Note: In this document, where we refer to carbon we mean CO₂eq; Built Environment refers to all built assets including buildings and infrastructure.

The Code

1. Core commitments for all organisations

1.1 We will set out our plans to meet net zero by 2045¹, including annual targets, recognising that the majority of cuts need to be made by 2030². We will publish this, and our progress against it, annually.

1.2 We will set an interim target to reduce our net direct and indirect (Scope 1, 2 and where appropriate Scope 3)³ carbon emissions for 2030, which aligns with or exceeds government strategy recognising that the **preference goal** is to reduce emissions **first, with** offsetting **as a last resort**. For major projects, that end before 2030 then a suitable target will be set for the end date of the project.

1.3 Where offsetting is used, we will publish our offsetting approach and the schemes we are using.

¹ As set into law by the Scottish Government in 2019 - <https://www.gov.scot/policies/climate-change/reducing-emissions/>

² See Note at the end of this document

³ Ref. Greenhouse Gas Protocol <https://ghgprotocol.org/>

The Code

2. Client commitments

Clients	Core commitments	Further commitments
Procurement	<p>2.1 We will include carbon reduction targets and reporting commitments explicitly in all our procurement documents, as a deliverable of the procurement process, to move the ‘cost-carbon’ balance in favour of low carbon choices. This will include capital carbon (product, A1-A3, and construction processes, A4-A5, according to the quantification framework of PAS 2080). We will use an appropriate standard (e.g., PAS 2080) (or equivalent standard) as the reference document for this.</p>	<p>2.4 Together with our supply chain, we will develop outcome-based⁴ specifications and commercial arrangements, where possible, ensuring outputs are not constrained to current thinking but encourage low carbon innovations. We commit to ongoing support and engagement with the supply chain to accelerate achievement of the desired outcomes.</p>
Data & Reporting	<p>2.2 We commit to providing a carbon baseline for each of our projects and setting targets for carbon reduction against these, which will drive innovation. We will also include, where appropriate, progressive carbon reduction targets throughout the life of a project and appropriate financial incentives, having regard to the other commitments on the Code⁵. Carbon offsetting should be the last resort and only used when all other carbon reduction efforts are exhausted. Carbon offsetting should follow the Oxford offsetting principles⁶ or equivalent.</p> <p>2.3 We commit to having our carbon data externally verified as part of our reporting requirements (e.g., via CEMARS) in compliance with ISO 14064-1 and to disclosing our environmental data through a public disclosure scheme such as the CDP (Carbon Disclosure Project).</p>	<p>2.5 By 2025 we will have established consistent measurement of carbon on projects and in our organisation and share these on industry databases for the purposes of benchmarking and performance improvement. To achieve this, we commit to share our carbon data openly, through a national carbon integrator (where available) and through working with industry.</p>
Learning & Skills		<p>2.6 We commit to implement approaches that improve our capability to measure and reduce embodied and operational carbon:</p> <ul style="list-style-type: none"> • in the design and construction phase; • during the life of existing assets; and • during decommissioning and end-of-life.
Design Philosophy		<p>2.7 We will align our capital and operational investment plans with the national net zero carbon obligation, including retrofitting decarbonisation to our existing asset operations and their use. We will use early-stage optioneering to prioritise no-build and low-build solutions, which optimise existing assets, systems and processes, before new build is considered. We will encourage multi-sector, system of systems approach, to seek integrated sustainable solutions and achieve a balanced outcome for the natural and built environment.</p>
Knowledge Sharing		<p>2.8 As clients, we will work together (with our peers, umbrella industry bodies and our supply chains) to proactively share best practice around our methodologies for carbon measurement and management. By also understanding where we have ‘common asset types and activities’ we will ensure we all measure and report on the carbon in these assets/activities consistently. by 2022.</p> <p>2.9 We will share knowledge and information on the benefits of circular economy principles and nature-based solutions for carbon sequestration and increased resilience instead of ‘hard engineering’ interventions.</p> <p>2.10 We will share our decarbonisation roadmaps both for new and existing assets, with the aim of contributing towards the national net zero carbon transition.</p>

⁴Project 13 <http://www.n13.org.uk/>

⁵Appropriate financial incentives might include contractual mechanisms/outcomes linked to low-carbon targets, such as: bonus structures, KPI regimes, performance failure damages, shared supply-chain incentive regimes, contract price rebates/reductions, pain/gain mechanisms, testing/defect remedies being activated and the required target being a condition of handover/acceptance

⁶<https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf>

The Code

3. Supply chain commitments

Supply Chain	Core commitments	Further commitments
Procurement		<p>3.5 (Contractors) We will proactively support our supply chain to adopt carbon measurement and carbon reduction, and will require them to report on carbon.</p>
Data & Reporting	<p>3.1 We will integrate and aim to automate production and delivery of CO₂e information through design and construction by using integrated approaches to data creation and management (in reference to commitment 3.3). This will inform optimal solutions through the build phase and streamline delivery of information to clients.</p> <hr/> <p>3.2 We will reduce the whole life carbon intensity of our projects year on year, within the limits of our influence (to achieve the long-term targets set out in Commitment 1.2).</p>	<p>3.6 We are committed to the collation and sharing of carbon reduction data across the industry. We will contribute data, for example, into a publicly available carbon measurement database or provide carbon data to clients who will enter the data to a database for the purposes of benchmarking and performance improvement.</p>
Design Philosophy	<p>3.3 We will proactively recommend and adopt carbon measurement and carbon reduction methodologies in all our projects for both design and construction, including whole-life carbon approaches, regardless of whether the clients are requesting them, to raise awareness and facilitate informed decision-making. We will use PAS 2080 (or another relevant standard) as the reference document for this and aim to build on integrated and automated data capture (ref. Commitment 3.1) to log carbon intensity and monitor progress in reducing it.</p> <hr/> <p>3.4 We will work in close collaboration with clients and with our supply chain partners to deliver on the clients' carbon requirements, and inform the development of approaches and standards.</p>	<p>3.7 (Consultants) We will work with clients to consider the carbon hierarchy options before a new build is committed to. Where possible, we will integrate nature-based solutions and circular economy principles in the design development and delivery of projects.</p>
Knowledge Sharing		<p>3.8 We will proactively share commit to sharing our own best practice across the supply chain and learning from and adopting others best practice where possible, for example with reference to the Supply Chain Sustainability School⁷, and annual reports of the Infrastructure Carbon Review⁸.</p>
Learning and Skills		<p>3.9 We commit to implement approaches that improve our capability to measure and reduce embodied and operational carbon in the design and construction phase, including reducing the carbon footprint of materials, reducing waste and decarbonizing construction operations.</p>

⁷<https://www.supplychainschool.co.uk/>

⁸<https://www.gov.uk/government/publications/infrastructure-carbon-review>

Note

Note that in 2026, we will be 20% of the way to 2050, from 2019 (when the UK and Scottish governments wrote climate commitments into law). It is anticipated that we will need to make most of our carbon reductions with existing technologies⁹, rather than relying on new technologies to emerge.

According to the Pareto principle, we need to reach 80% reduction vs 2019 by 2026 in order to reach net zero by 2050 (current UK government law). This implies emissions reductions of ~20% per year:

Residual annual emissions in given year, at given rate of reduction, vs. 2019 emissions

	10%/yr	12%/yr	15%/yr	18%/yr	20%/yr	25%/yr
2025	53%	47%	38%	31%	27%	18%
2026	48%	41%	32%	25%	21%	14%
2030	32%	25%	17%	12%	9%	4%

Guidance and information

This initiative sits within a wider context ~~of the ICE Carbon Project, the Infrastructure Carbon Review Seven Years On and CLC's Green Construction Board.~~ and on its own it is not sufficient to deliver a Net Zero UK, but it does enable individual organisations to publicise their annual progress, and thereby collaborate and share best practice on their journey to Net Zero with the intention of accelerating progress across the industry. Additional guidance and structures which may help you to achieve the commitments of the Code include:

1. Infrastructure Carbon Review (2013) and the ICR Seven Years On Report
2. ~~PAS2080~~ PAS 2080:2023 (available from BSI) and the accompanying guidance document
3. Construction Leadership Council's CO₂nstruct Zero programme and its nine priorities and the related signposting
4. Construction Playbook 2022
5. Supply Chain Sustainability School's Carbon Reduction Code Resource Mapping Table
6. Science Based Targets Initiative (SBTi)
~~Engineers Declare and related initiatives: Architects Declare; Civil Engineers Declare; Structural Engineers Declare~~
7. CIH Value Toolkit
8. SteelZero and ConcreteZero
9. The Netherlands Carbon Performance Ladder: used in the Netherlands to reward improved carbon performance through procurement
~~Construction Playbook 2020~~
10. HMG Green Book
11. ICE Carbon Project

Additional guidance and information will be available at www.smartinfrastructure.eng.cam.ac.uk on the Carbon Reduction Code page.

⁹<http://www.eng.cam.ac.uk/news/absolute-zero>

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