NQA UK – CARBON & SUSTAINABILITY TEAM

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OUR PURPOSE IS TO HELP CUSTOMERS DELIVER PRODUCTS THE WORLD CAN **TRUST**

NQA is a world leading Certification and Verification body with global operations.

NQA specialises in Certification and Verification in high technology and engineering sectors.

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LONDON
BOSTON
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AMERICA'S NO.1
Certification body in **Aerospace** sector

GLOBAL NO.1
Certification body in **telecommunications** and **Automotive** sector

TOP 3 IN THE UK
ISO 9001, ISO 14001, ISO 45001, ISO 27001, ISO 14064-1, PAS 2060 / ISO 14068-1, PAS 2080

GLOBAL NO.3
Certification body in **Aerospace** sector

CHINA'S NO.1
Certification body in **Automotive** sector

UK'S NO.2
Certification body in **Aerospace** sector

Overview of NQA's Carbon & Sustainability Services

Our ESG Solutions:

ENVIRONMENTAL
13. Climate Action

- PAS 2060 / ISO14068-1 Verification (Carbon Neutrality)
- ISO 14064-1 Verification (GHG Quantification and Reporting)
- PAS 2080 Certification (Carbon Management in Buildings and Infrastructure)
- ISO 14001 - Environmental
- ISO 50001 - Energy
- EcoCampus
- ISO 26000 – Social Responsibility
- ISO 20121 – Sustainable Events

SOCIAL
3. Good Health and Wellbeing

- ISO 45001 – H&S
- ISO 45003 – Mental Health
- ISO 44001 – Collaborative Working
- ISO 37001 – Anti-bribery

GOVERNANCE
9. Industry, Innovation and Infrastructure

- ISO 9001 – Quality
- ISO 22301 – BCMS
- ISO 27001 / 27701 / 27017 / 27018 – Info Sec
- ISO 55001 – Asset Management
- ISO 44001 – Collaborative Working
- ISO 41001 – Facilities Management
- Industry specifics
  - Aerospace
  - Medical
  - Food
- SSIP

Learning Objectives

1. **Gain an overview of the basic principles and concepts of carbon management in buildings and infrastructure**

2. **Gain an overview of the basic structure, content and purpose of PAS 2080**

3. **Understand how PAS 2080 helps to support environmental and sustainability ambitions**
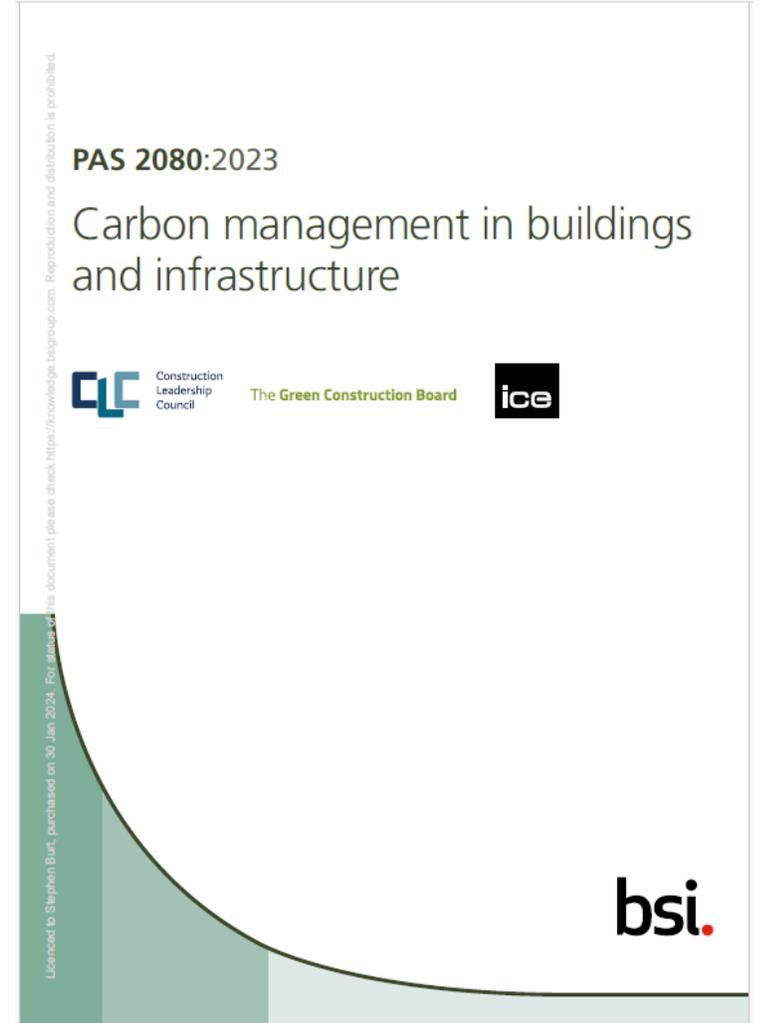
PAS 2080

What is it?

- Publicly Available Specification (PAS) developed by BSI through a team of internal and external experts in this field

- A framework (requirements with guidance) for managing and reducing the whole life carbon emissions associated with buildings and infrastructure projects from the 'concept' to the 'end-of-life' stage - aligns with Net Zero decarbonisation requirements

- Its focus is on the entire building and infrastructure lifecycle. It very strongly encourages and relies on 'value chain' collaboration and innovation (asset owners / managers; designers; constructors; product / material suppliers – also regulators and financiers) and recognises the levels of control / influence over carbon at each stage – higher in earliest stages

- Its focus is on the Carbon hierarchy (Avoid, Switch, Improve - build nothing, build less, build clever, build efficiently) and on Capital Carbon (GHGs associated with the creation and end-of-life treatment of an asset, network or system, and optionally with its maintenance and refurbishment)

- Note: it does not provide a Carbon quantification methodology: it refers to, eg BS EN BS EN 15978, BS EN 17472 and BS EN 15804 as methodologies for Life Cycle Assessment for buildings, construction and civils works.

PAS 2080

What is it?

Initially published in 2016 and later revised to its current version PAS 2080:2023. Revisions included:

✓ *An expanded scope to include all the built environment (buildings and infrastructure) with a focus on behaviours and good practice principles intended to complement existing standards/guidance*

✓ *Clarified roles of value chain members to control and influence whole life carbon in the context of a net zero transition and systems-level change*

✓ *An increased emphasis on whole life carbon – aligned with a 1.5°C scenario, circular economy principles, and addressing the urgent need to decarbonize systems, networks, and assets while balancing capital carbon investment with operational and user benefit*

✓ *Includes requirements specific to the procurement stage and to aid decision-making in projects and programmes of work*

✓ *Considers other demands and co-benefits while managing carbon, such as climate adaptation and biodiversity net gain*

✓ *Emphasizes the importance of leadership, governance, and collaboration across the value chain and beyond, including guidance for government, regulators, and financiers*

✓ *Brings consistency across the built environment industry to collectively manage whole life carbon and support the net zero transition while not conflicting with other existing standards, accreditation schemes, procurement notices, or similar*

(ISO website)

PAS 2080

Who is it for?

- **Highways England requirements (Highways England themselves are verified against PAS 2080 and have stated: '*We will ask our contractors and their sub-contractors to implement their own PAS 2080 accredited carbon management systems by the end of 2025.*')**

- **Construction companies**

- **Architects and designers**

- **Asset owners and managers**

- **Product and material suppliers**

- **Regulators and financers**

Examples include the proposed Lower Thames Crossing, HS2, Skanska, RPS, Amey, Ramboll, Keltbray, Stantec, Aggregate Industries

PAS 2080

Why use PAS 2080?

- Around 40% of UK carbon emissions are linked to the built environment (UK Govt. 'Promoting Net Zero and Sustainability in Construction')

- Emission reductions and cost saving opportunities through identified reductions in material, energy, and labour

- Consistency in the industry and throughout the supply chain

- Commitment and recognition for environmental and sustainability efforts, in turn enhancing brand image and reputation

- Competitive advantage

- Meeting tender, supply chain, and stakeholder expectations

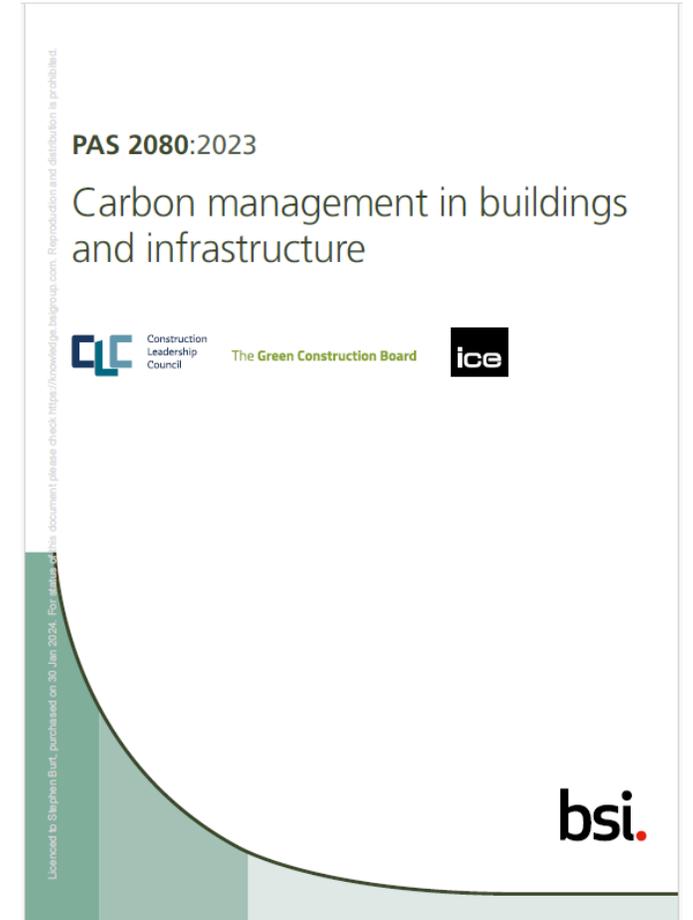# BREAKDOWN OF PAS 2080

PAS 2080

1. Scope
2. Normative references
3. Terms and definition
4. Decarbonisation principles
5. Leadership
6. Integrating carbon management into decision-making
7. Whole life carbon assessment principles to support decision-making
8. Target setting and baselines
9. Monitoring and reporting
10. Procurement
11. Continual improvement
12. Claims of conformity

Annexes A, B, and C

PAS 2080:2023

Carbon management in buildings and infrastructure

Construction Leadership Council   The Green Construction Board   ice

bsi.

PAS 2080

1. Scope

- Covers the intended outcome and the boundaries within which the standard applies

2. Normative References

- There are no normative references in this document

3. Terms and definitions

- For the purposes of PAS 2080 the terms and definitions given in PAS 2080 apply – refer to key terminology pages for more information

3. Terms and definitions (not an extensive list)

- Activity Data – data based on a unit quantity of input or output of the studied system or a process within it
- Asset – physical entity forming part of infrastructure that has potential or actual value to an organisation and its stakeholders
- Carbon management – assessment, removal and reduction of GHG emissions during the delivery of new, or the management of existing, infrastructure assets and programmes
- Capital Carbon – GHG emissions associated with the creation, refurbishment and end of life treatment of an asset
- Circular Economy – economy that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles
- Infrastructure – transport, energy, water, waste and communications sectors, as defined in the UK National Infrastructure Plan 2014
- Direct Influence – where asset owners/managers have the ability to use enablers to encourage users to make low carbon decisions
- End of life – stage which begins when the asset has reached the end of its design life and is ready for refurbishment, retrofit, disposal, dismantling, etc.,
- Functional Unit – quantified performance of a product or system for use as a reference unit

PAS 2080

3. Terms and definitions (not an extensive list)

- Net Zero – reduction of anthropogenic greenhouse gas emissions to zero or to a residual level that is consistent with reaching net zero emissions in eligible 1.5 °C pathways (hence time-bound) and neutralizing the impact of residual emissions (if any) by removing an equivalent volume of carbon

- Operational Carbon – GHG emissions associated with the operation of infrastructure required to enable it to operate and deliver its service

- Practitioner – individual responsible for different aspects of infrastructure delivery and carbon management including, strategic planning, procurement, programme manager, operator, designer/technical advisor, construction manager, material/product developer, environment or sustainability manager, etc.

- System Boundary – set of criteria specifying the life cycle, spatial and temporal extent of a GHG quantification or management system

- User Carbon – GHG emissions associated with Users' utilisation of infrastructure and the service it provides during operation

- Value Chain – organizations and stakeholders involved in creating and managing infrastructure assets. These include asset owners/managers, designers, constructors and product/material suppliers

- Whole Lifecycle Carbon Emissions - sum of GHG emissions from all stages of the life cycle of a product or asset and within the specified system boundaries of the product or asset

4. Decarbonisation principles

COMMENTARY ON CLAUSE 4

This clause sets out the fundamental principles underpinning the carbon management process presented in this PAS. Their application allows practitioners to demonstrate that a true and fair approach has been adopted when undertaking carbon management activities.

The carbon management principles apply to projects and programmes comprising buildings and infrastructure. At the core of the principles is the fact that no asset of the built environment can function in isolation from its surrounds: its construction, operation and use impacts on and is impacted by the functions of networks and systems of which it is part. Likewise, the decarbonization principles apply to all value chain members to a greater or lesser extent. More specific details are given in Clause 5 and Clause 6.

5. Leadership

COMMENTARY ON CLAUSE 5

Leadership is recognized as a key enabler of carbon management. It provides the vision to drive carbon reductions across all levels of an organization and allows the right capabilities to exist across the value chain to plan for and drive decarbonization. Leadership is expected from all levels of the value chain in implementing the requirements in this clause.

6. Integrating carbon management into decision-making

> **COMMENTARY ON CLAUSE 6**
>
> Integrating whole life carbon into decision-making requires the development and implementation of a carbon management process. The intention of a carbon management process is to drive the right behaviours at each work stage (both for infrastructure and buildings) to reduce whole life carbon in a project or programme of work. This process is to be developed and implemented by asset owners/managers. All value chain members, however, are responsible for specific requirements within the carbon management process.

7. Whole life carbon assessment principles to support decision-making

COMMENTARY ON CLAUSE 7

The purpose of Clause 7 is to ensure that whole life carbon assessment is fit for integrating carbon reduction into decision-making in projects and programmes, in accordance with Clause 6.

This clause establishes key principles for consistency in the assessment approach throughout the value chain, encourages a level of detail commensurate with the decision-making at the stage considered, recognizes that the accuracy of assessment improves as the project/programme develops, and emphasizes the importance of assessing whole life carbon, even in the absence of detailed data during the early optioneering stage of the delivery process to drive low-carbon behaviours and decisions.

This clause references the whole life carbon framework (introduced in Clause 4) that for the assessment of emissions and removals within and beyond a project/programme boundary. The framework can be applied to projects and/or programmes of work at the asset, network or system level. The framework builds on life cycle assessment principles of existing standards and does not intend to replace those, while enabling a common carbon management language across different asset/network/system typologies.

The framework allows carbon hotspots both in the control and influence of the value chain to be identified and, in turn, support whole life carbon reductions. Central to the PAS 2080 whole life carbon framework is the importance of systems thinking for achieving decarbonization.

8. Target setting and baselines

COMMENTARY ON CLAUSE 8

Setting carbon reduction targets provides clear direction and communicates intent for carbon reduction. It is important that targets are set against clear baselines so that performance against them can be determined. This clause focuses on target setting and baselines throughout the whole life of projects and/or programmes of work at the asset or network level. This PAS recognizes that net zero targets should be set at the system level and ideally all networks and assets should have targets that are aligned with the system net zero target. This PAS also recognizes the importance of asset owners/managers setting carbon targets against clear baselines at project and programme level so that the value chain can focus their efforts in delivering those targets.

The purpose of asset-level targets is to deliver the required pace and scale of carbon reduction to support and enable a system-level net zero target. An isolated "net zero" target at asset level might cause unintended consequences of increased carbon elsewhere in the system and shift focus to offsetting carbon rather than whole life carbon reductions or activities that could result in significant carbon reductions at the network or system level. Asset-level targets should be ambitious and align to a system-level net zero target. Further context is provided in 4.1 and 4.2.

At the need stage through to construction, a whole life carbon target should be met which might then evolve to an operational emissions target from handover.

9. Monitoring and reporting

COMMENTARY ON CLAUSE 9

A carbon management process should have robust monitoring and transparent reporting at frequent intervals during the delivery of projects and/or programmes of work to highlight the progress of carbon reductions against targets. Reports should inform decision-making in managing whole life carbon, as well as provide information for future continuous improvement.

10. Procurement

COMMENTARY ON CLAUSE 10

The procurement process is critical to accelerate whole life carbon reductions in the value chain when delivering projects and/or programmes of work. This PAS recognizes that procurement is not solely the development of a contract; it's a mechanism that will incentivize the right behaviours.

Organizations might want to consider the guidance of ISO 20400 and include carbon as part of a holistic approach to the integration of sustainability in all aspects of procurement activity.

11. Continual Improvement

> **COMMENTARY ON CLAUSE 11**
>
> Continual improvement is a core part of the carbon management process that allows lessons learned to improve the delivery of current and future projects and/or programmes of work; this should be targeted towards the end goal of decarbonization. Continual improvement also allows organizations to mature their carbon management experience and learn from each other about effective decarbonization approaches, including innovations.

PAS 2080

12. Claims of conformity

➢ **Independent third-party certification**

➢ **Other-party validation**

➢ **Self-validation**

PAS 2080

- **NQA's role in PAS 2080 certification:**
  - Any Value Chain member can seek independent, third-party certification (claim of conformity) to PAS 2080
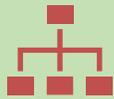
- **NQA's certification process**

- **Tools and resources**

SUMMARY OF KEY LEARNINGS

Understand the fundamental principles and concepts of carbon management in infrastructure

Understand the structure, content and purpose of PAS 2080

Understand how PAS 2080 helps to support environmental and sustainability ambitions

ANY QUESTIONS?
THANK YOU

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