



Net Zero Bridges Group

7 November 2023

Brian Duguid & Cameron Archer-Jones, Net Zero Bridges Group

To accelerate progress towards Net Zero carbon bridges by sharing knowledge and ideas, and shaping best practice



Our objective

AECOM	Cass Hayward	Knight Architects	Tony Gee
Amey	COWI	Mott MacDonald	Useful Studio
ARCADIS	ECSL	Moxon Architects	Waterman
Arup	Expedition	Nuttall Bowser	Weston Williamson + Partners
Atkins	Format Engineers	Ramboll	Wilkinson Eyre
BEAM Architects	GHD	Robert Bird Group	WSP
BG&E	Hewson	RPS	
Buro Happold	Jacobs	Stantec	
Cake Industries	Kier Consulting	Sweco	



NZBG update



Our Mission

To accelerate progress towards
net zero carbon bridges by
sharing knowledge and ideas, and
shaping best practice.

www.netzerobridges.org

LinkedIn

The screenshot shows the LinkedIn interface for the Net Zero Bridges Group. On the left is a navigation sidebar with options: Feed, Activity (21), Analytics, Edit page, and Settings. The main content area is titled 'Net Zero Bridges Group' with 1,151 followers and a '+ Create' button. Below this is a 'Post ideas' section with a prompt: 'Work culture at your organization. Can you share examples of employee recognition and rewards programs offered by your organization?'. At the bottom, a post by Peter Nugent from 9/28/2023 is visible, with a 'Boost' button and a filter for 'Admin posts by: All'. The post content is partially visible: 'We recently passed 1000+ followers this month - a testament to the number of'.

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Recent group presentations

- PAS 2080 Update (Arup & MM)
- Blade Bridge (TU Cork)
- Low carbon procurement on large project – LTC (NH & COWI)
- Optimisation for Carbon in Design/Assessment (NZBG)
- Carbon Calculation Guide Update (NZBG)

Planned:

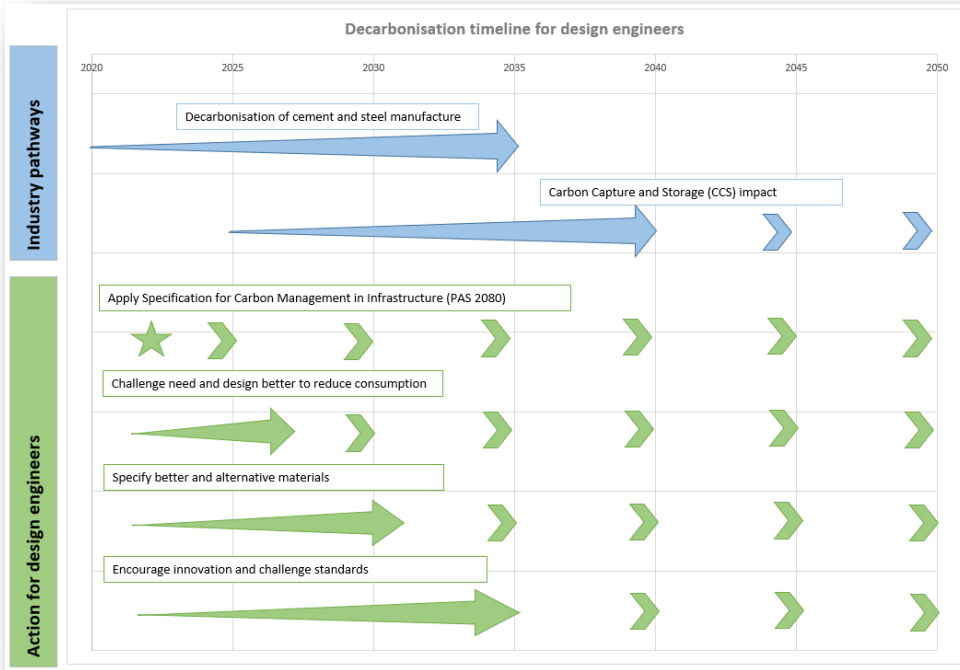
- Timber CO₂e and how to consider for a bridge (Uni of Bath)
- Masonry arch bridges and new stone bridges (NZBG)



NZBG external activities planned...

- Increased external comms – LinkedIn, conferences, articles, guidance notes, etc.
- Bridges Scotland
- Bridges 2024
- IABSE Symposium 2024
- ICE papers





Carbon timelines and targets

What makes bridges different?

Framing the challenges



Member survey

Case studies

Steel bridges

Alternative materials



Case Study: Reliability-based Assessments for South Wales Trunk Road Agent

Build Nothing, Existing Bridges

Read It



Case Study: Net Zero Carbon Management of Rochester Bridge

Build Nothing, Build Less, Existing Bridges

Read It



Case Study: A13 River Lea Crossing Refurbishment

Build Less, Build Nothing, Existing Bridges, Steel Bridges

Read It

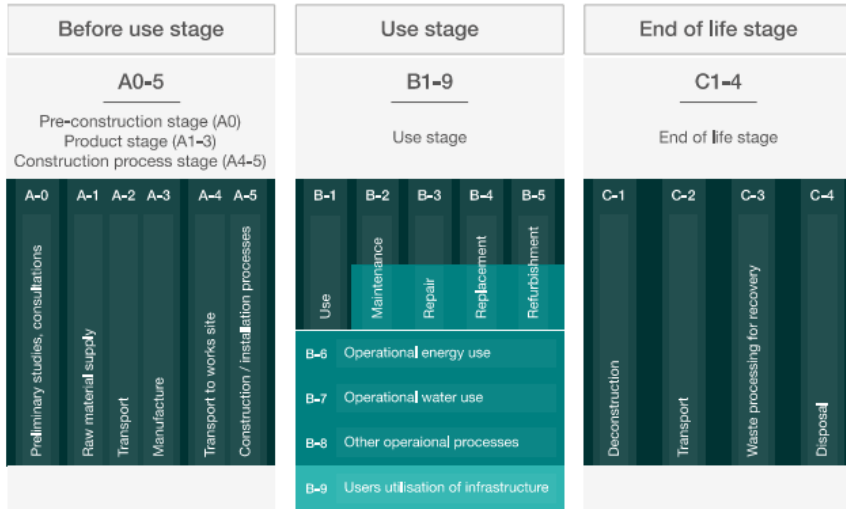


Case Study: Hampton Footbridge

Build Clever, Build Efficiently, New Bridges

Read It

Infrastructure assessment life cycle information



- Capital GHG emissions
- Operational GHG emissions
- User GHG emissions



Supplementary information beyond the infrastructure life cycle

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Benefits and loads beyond the system boundary

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GHG emissions potential of:

- Recovery including:
 - Reuse
 - Recycling
- Benefits and loads of additional infrastructure functions

1 Introduction

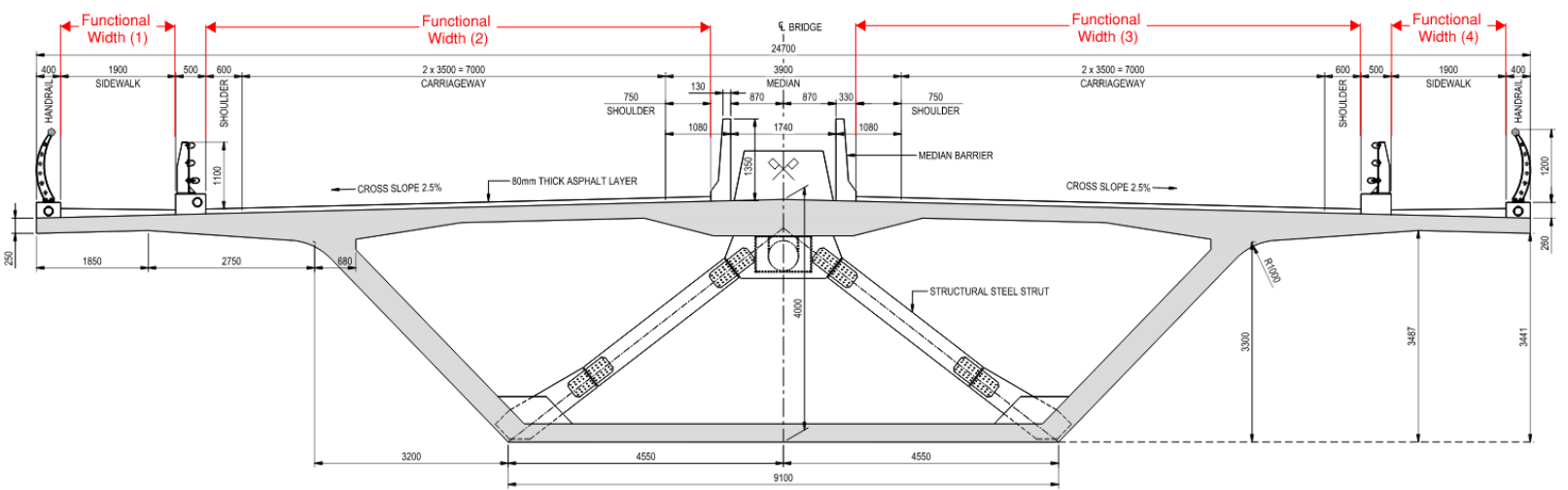
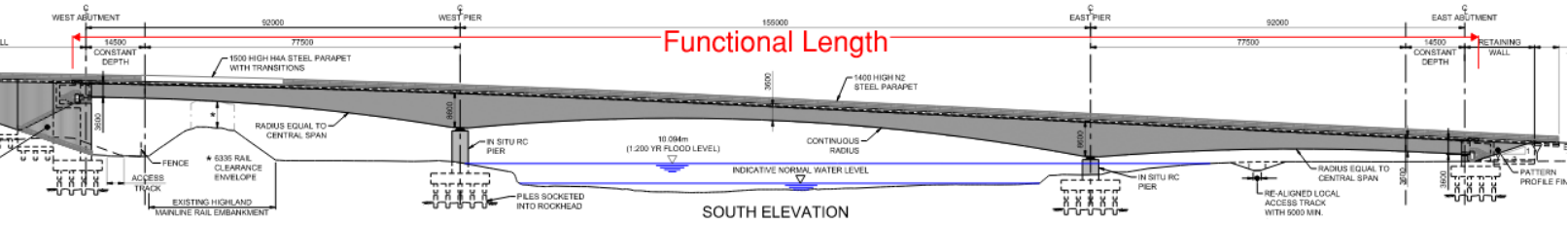
This note sets out the accepted approach for carrying out carbon calculations for bridges by the Net Zero Bridges Group to support assessment and comparison of carbon in bridges. Although the carbon factors provided in this guide have a UK and European focus, many aspects can be applied to bridge projects in different geographies.

This DRAFT version is shared for preliminary use by industry with opportunity to provide comment to the Net Zero Bridges Group at info@netzerobridges.org by 1 October 2023. The final version of this guidance will be published on a page of our website www.netzerobridges.org.

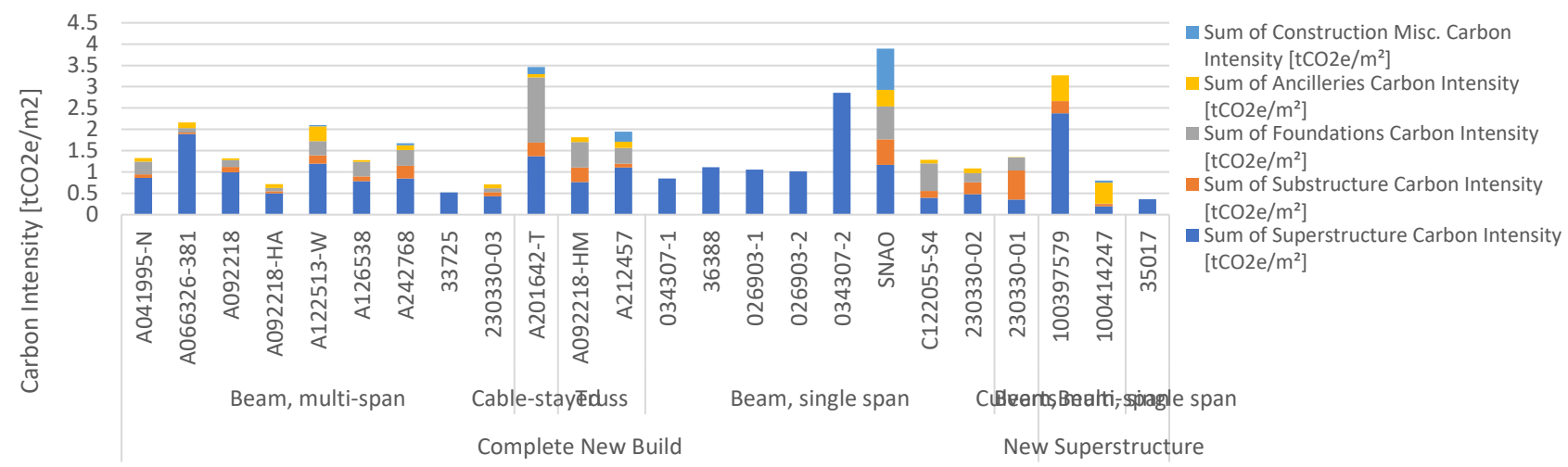
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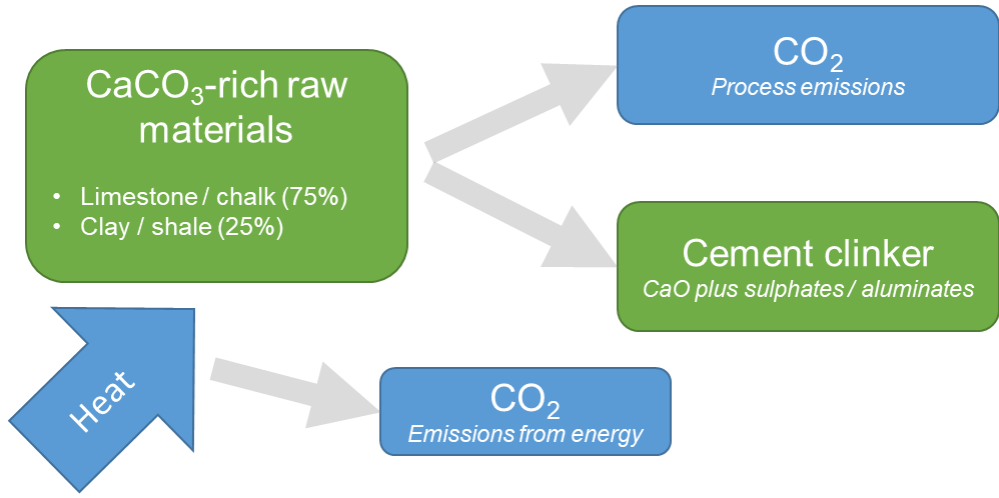
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Bridge Carbon Intensity



Concrete bridges

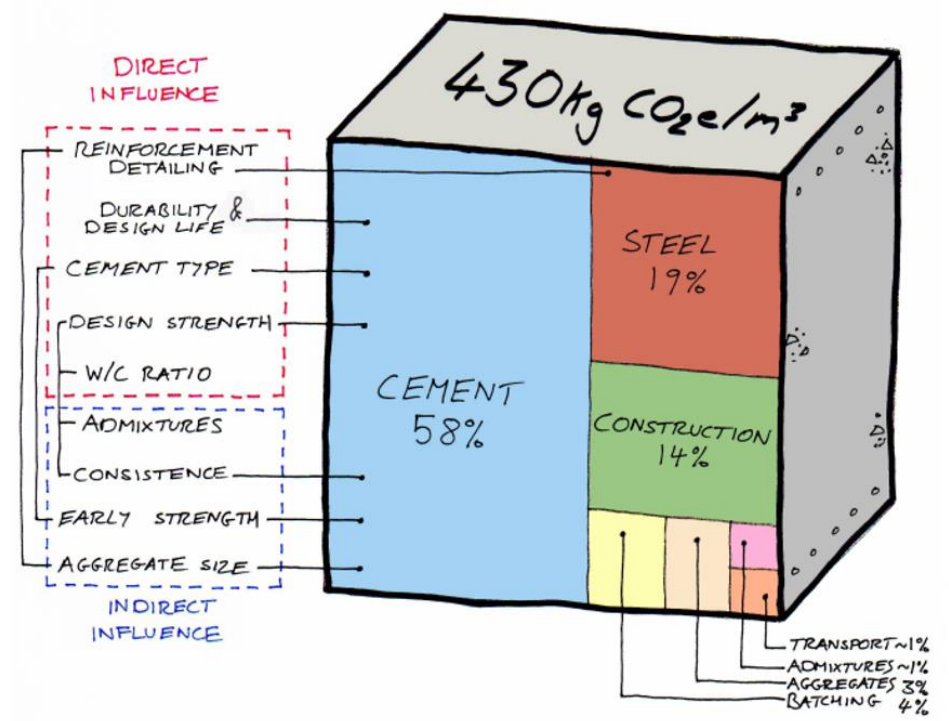


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- Focussed documentation on what this means for bridges and how we can make our concrete bridges lower carbon.

Guidance notes under development:

- 56-day strength guide, concrete in PSC beams, CO₂e upper bound target guidance, etc.
- IStructE paper on GGBS use in concrete



Next steps and discussion points



- Bridge carbon assessment, database and baselines
 - *Can you mandate use of calculation guidance & sharing carbon data?*
 - *Can we expand guidance to include existing bridge maintenance – what does good maintenance look like, for carbon?*
- PAS 2080 – carbon actions in the bridge project lifecycle
 - *Can you mandate its use on your projects?*
 - *Can you bring experience to our PAS 2080 task group?*
- Collaboration and engagement
 - *How should BOF and NZBG continue to engage?*
 - *Can you contribute to one of our task groups e.g. concrete, steel?*
 - *Can we work on model specifications, contract clauses etc?*



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