1. Introduction

In February 2023 the Net Zero Bridges Group surveyed our member organisations to understand their views on progress with decarbonisation of bridge works. All organisations surveyed are engaged in the design or engineering of bridges in the UK or Ireland. The survey response rate was 88% (23 out of 26 members).

This paper reports the results of the survey.

2. Results

2.1. Has your organisation made a declaration to take action on decarbonising your engineering work, such as Structural Engineers Declare or Architects Declare?

It is a condition of membership of the NZBG that all members make such a declaration! Our members are signatories of at least one of Structural Engineers Declare, Civil Engineers Declare, or Architects Declare. They are committed to advocating for faster change, and to sharing knowledge and research.

2.2. Is your organisation PAS 2080 accredited / certified / verified?

The PAS 2080 [1] specification is the first global standard for managing infrastructure carbon. It helps to establish a common understanding, approach and language for whole life carbon management in the provision of economic infrastructure.
The majority of NZBG member organisations are PAS 2080 accredited or are working towards the accreditation. This suggests that there is growing capacity to implement the standard’s carbon management methodology, at least amongst design and consultancy organisations.

2.3. Roughly how many of your bridges projects in the UK/Ireland are operating under a carbon management plan?

A carbon management plan can help to achieve a common goal of reducing the embodied carbon associated with infrastructure projects. A plan provides structure and targets, and facilitates monitoring and reporting of progress.

Compare the previous question: most NZBG members are accredited against PAS 2080, or working towards this. However, only 8.7% said that carbon management plans are in use on “most” of their projects. Most members (60.9%) said such plans were only used on “some” projects.

This suggests that the capability exists to considerably expand the number of projects adopting PAS 2080 and making use of a carbon management plan. The UKGBC Whole Life Carbon Roadmap Stakeholder Action Plan [2] targets use of PAS 2080 on 80% of infrastructure design projects by 2025.

2.4. Roughly how many of your bridges projects in the UK/Ireland are you calculating embodied or whole life carbon for?

The calculation of embodied or whole life carbon is more widespread on bridge projects than is the use of a carbon management plan. Over 60% of our member organisations calculate embodied or
whole life carbon in about half (or more) of their UK or Ireland bridge projects, and 17.4% do so on all their projects.

This is in line with the UKGBC Whole Life Carbon Roadmap Stakeholder Action Plan [2], which recommends that infrastructure designers adopt carbon measurement methodologies whether or not their clients request them.

The collection of carbon data can contribute greatly to the reduction of embodied carbon. However, in the absence of wider use of carbon management plans, it is not clear whether carbon calculations are contributing effectively to decision-making.

2.5. Where you calculate carbon for your typical bridges work, how embedded would you say it is within the design process?

Calculation of embodied carbon can be more efficient and consistent if it is embedded within the normal design process. Most of our member organisations report that they calculate carbon as a separate process, after the design. A significant minority consider it intrinsic to their design process, and some have automated the process.

It is likely that processes can be improved through inter-organisational sharing of methods and tools.

2.6. Does your organisation provide training in climate change /net zero / embodied carbon to your staff involved in bridge design?

Over 80% of our member organisations provide informal learning or formal training regarding carbon for their bridge design staff.
The UKGBC Whole Life Carbon Roadmap Stakeholder Action Plan [2] recommends that Infrastructure Designers should act immediately in developing internal training for Net Zero Carbon, with high levels of competence to be achieved by 2025.

2.7. Roughly what proportion of your clients do you believe aspire to reduce the carbon footprint of their bridge works?

![Pie chart showing responses to the question.](chart1)

43.5% of our members perceive “most” clients as aspiring to reduce the carbon footprint of their bridge works. 47.8% believe that only “some” clients do so. This suggests that some client bodies may not yet either have made associated carbon commitments, or that those commitments are not visible to their supply chain.

2.8. Roughly what proportion of your clients have made or supported changes in design/procurement/specification that contributes to achieving this aspiration, on projects you are working on?

![Pie chart showing responses to the question.](chart2)

In comparison to the previous question, 43.5% of our members believe “most” of their clients aspire to reducing embodied carbon; however only 8.7% believe “most” of their clients are taking action to change design, procurement or specification in ways that support this goal. This suggests that action may be lagging against aspiration.

However, roughly 80% believed that at least “some” clients are taking such action, suggesting that progress is variable across the broad transport infrastructure client base.
2.9. Do you believe clients should make calculating whole life carbon mandatory on the typical bridge projects you work on?

A very large majority of our members believe that calculation of whole life carbon should be mandatory on typical bridge projects. This is in line with a desire in other parts of the built environment industry supply chain to make carbon calculation business as usual.

Concern was noted that the calculation process may not yet be mature or consistent enough for calculation to be mandatory. Our members are working together to agree a common methodology to address this concern.

2.10. Do you believe clients should set whole life carbon targets on the typical bridge projects you work on?

The same very large majority of our members believe that whole life carbon targets should be set by clients on typical bridge projects. Again, concerns were expressed regarding whether the calculation process and our collective understanding of carbon data is sufficiently mature for this to happen now. It was also noted that targeting reductions in the carbon of only the bridge elements of a wider scheme may not lead to the best result overall.

Our members are beginning to share bridges carbon data with each other to better understand issues regarding consistency, and factors that may affect the setting of realistic targets.
3. Conclusion

There is encouraging evidence that the net zero carbon agenda has a strong foothold within the bridge design and engineering community in the UK and Ireland. Progress with carbon learning / training, carbon calculation, and building capability to apply PAS 2080 are all encouraging.

It would be useful to repeat this survey in the future to see whether progress is being made, and to extend it to other organisations within the supply chain to see whether perceptions or achievements differ.

4. References


Contributors

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