

1. Get informed

IABSE Henderson Colloquium 2020: Steps to achieve a net-zero construction industry

Mike Cook summarises the outcomes of the IABSE British Group's annual debating forum, setting out key actions that stakeholders in the construction industry can take to enable a transition to net zero.

Introduction

The IABSE British Group held its annual Henderson Colloquium virtually in September 2020. Over two days, with 40 invited contributors drawn from multiple sectors, we explored the actions needed across the industry, the professional institutions, the financial sector, government and education to achieve a net-zero-carbon construction industry. We arrived at a view on the outcomes required and key actions ahead across this wide spectrum of influencing bodies.

Although the focus of the colloquium was the UK, most, if not all, of the outcomes and actions are applicable universally and can be adopted by local bodies in other countries. The climate emergency we all face is, after all, a global issue and the need for structural engineering to bring benefit and avoid harm applies globally.

Outcomes and actions

The colloquium mapped out the concerted response needed from the industry, our professional institutions, clients and investors, government, and educators.

1. Investors, clients, insurers

It is essential that we engage our clients, investors and insurers in the efforts to achieve radical change in project planning, procurement and delivery. Without them, the industry cannot achieve the necessary changes towards net-zero construction.

Key commitments and actions

- Procure new projects based on desired valued and agreed outcomes.
- Set annual, diminishing carbon targets for project portfolios.
- Ensure that all buildings and infrastructure projects carry out a carbon assessment – embodied and

whole-life.

- Seek refurbishment over new build, as a priority.
- Reconsider economic/business models and ensure they are fit for purpose and fit for the future.
- Consider impacts on future generations within all development appraisals.
- Consider stranded asset risks of all developments.

Example: The adoption of *future scenario testing* by investors and developers such as Lendlease (www.lendlease.com/uk/company/sustainability/climate-related-financial-disclosure-tcfdd/).

2. Education

Engendering 'planet literacy' is crucial. Rethinking education, driven by needs of all generations equally and providing the attributes and skills that are needed in a world of accelerating change.

Key commitments and actions

- Re-focus on developing new skills and learning outcomes for future built environment professionals that is far more diverse than STEM.
- Encourage innovative, low- or negative-carbon approaches to design, with less emphasis on new build and more on practical reuse and social benefits.
- Systems thinking and systems literacy should be central to education to allow people to handle complexity and change.
- Rethink accreditation of tertiary education courses to define new learning outcomes to fit new needs.
- For civil and structural engineering, the Joint Board of Moderators is leading the way in accreditation – this example should be followed by other construction-related professions.
- The Royal Academy of Engineering National Engineering Policy Centre should lead coordinated change across education in all engineering professions.

KEY CONCLUSIONS

- 1) The UK construction industry needs to find a united voice and vision driven by the future needs of the planet and the way the industry can and will support these.
- 2) The design community must prioritise repurposing existing buildings ahead of new construction, and ensure a 'pre-feasibility design stage' that balances the social benefits with the planetary harm of a project.
- 3) Institutions must unite to define the ethical principles of the professions, driving change through the standards they set, the education and skills they promote and the targets they set for upfront and in-use carbon.
- 4) Business models must move away from growth for its own sake to consider health and prosperity of future generations, and the risks of climate change being unabated.
- 5) Government must recognise how central the construction sector is to achieving net-zero-carbon targets, and becoming a partner in the sector's transformation.
- 6) Education must change to ensure future generations' thinking is not constrained by the traditional discipline silos and business-as-usual practices; promoting cross-disciplinary empathy and creativity to foster the ability to solve the challenges ahead.

Example: The new learning outcomes now agreed by the Joint Board of Moderators (<https://jbm.org.uk/media/u44b11ld/guidelines-for-developing-degree-programmes.pdf>) and as discussed at the IStructE Academics Conference 2020 (www.istructe.org/resources/training/developing-learning-outcomes/).

3. Institutions/professions

Our professional institutions have a responsibility to inform and guide the design professions through their members, and influence the regulations that govern their behaviours, skills and professional standards.

Key commitments and actions

- | Commit to making changes to regulatory frameworks and codes of practice that will help achieve the transformation required.
- | Standardise ways to assess climate and ecological impact.
- | Set targets to achieve reduction in harm from construction and increasing benefit.
- | Change what good looks like: celebrate zero-carbon, regenerative design outcomes.
- | Commit to assisting the retraining and upskilling of the professions.
- | Drive changes to the education curriculum and learning outcomes, and the criteria for the accreditation of further education courses.
- | Raise the importance of climate response as core to the ethical base of the professions.
- | Build influence and lead at policy level in collaboration with other institutions to speak with one voice.

Example: The creation of the Climate Emergency Task Group (www.istructe.org/resources/report/climate-emergency-task-group-end-of-year-report/) at the IStructE to help inform and drive change across the profession.

4. Industry: constructors and designers/specifiers

Industry, pulling together, needs to demonstrate its capability to deliver the green future and to demonstrate what is needed to strengthen it. There needs to be a clear, consistent message from representative organisations, contractors and design practices, to achieve change. This will make us better partners with government and allow the construction industry to pull together with others to deliver to the net-zero agenda.

Key commitments and actions

- | Build a unifying vision to meet the demands for achieving zero carbon ahead of 2050.



THE UK CONSTRUCTION INDUSTRY NEEDS TO FIND A UNITED VOICE AND VISION DRIVEN BY THE FUTURE NEEDS OF THE PLANET

- | Create a better-connected industry with active alliances of clients and businesses that are committed to change.
- | Learn from international best practice and connect globally.
- | Share knowledge, through learning feedback loops from research and experience.
- | Work towards future climate scenarios, emphasising the future value we can deliver.
- | Recognise that personal and business ethics are crucial.
- | Recognise that public opinion (voter/client opinion) matters and will redefine demand.
- | Speak with one voice, building towards a real tipping point.

Example: Bodies such as the UK Green Building Council, the Construction Industry Council and the Construction Leadership Council are all driving a climate emergency response agenda and working towards COP26 in November 2021 (<https://ukcop26.org/>).

5. Government

The construction industry needs stable and clear support from government, to recognise construction as a cross-cutting sector for industrial strategy and to deliver to the UK's net-zero-carbon targets.

Key commitments and actions

- | Appoint a chief adviser for construction (or the built environment) with a specific remit to ensure we have a built environment that will support long-term health, safety and prosperity.
- | Be honest and include all consumption-related carbon generated both onshore and offshore, based on consumption not production.
- | Rebalance taxation on construction activities to favour renovation and reuse over demolition and new build, to reduce construction's carbon footprint.
- | Base procurement for the government estate on setting outcomes required from the development and delivering value to the health and wellbeing of present and future generations – true value rather than lowest cost.
- | Favour reuse and refurbishment of existing building stock when making

- procurement decisions and seek to minimise demolition.
- | Mandate carbon budgets (in-use and embodied) for all new housing projects, moving to the Passivhaus Standard by 2025.
- | Require all buildings and infrastructure projects to carry out a whole-life carbon assessment and set increasingly tight performance targets.

Example: The UK government's push to encourage all businesses in the construction industry to join the UN's Race to Zero (<https://unfccc.int/climate-action/race-to-zero-campaign>) and the creation of a 'built environment day' at COP26 (www.architectsjournal.co.uk/news/cop26-climate-summit-to-examine-role-of-buildings).

What can I do now?

These notes provide a reminder that every individual engineer is working within a wide set of 'systems' – all these are important and need to change if we are to achieve our carbon reduction targets. Setting out the systems here should help individuals develop their own climate emergency response and encourage them to connect to others whom they can influence.

It is important for us each to find ways to communicate the need for change across as wide a sphere of influence as we can, with colleagues, collaborators, clients and beyond.

Acknowledgement

I am grateful to Ian Firth FREng, FISTRUCTE for inviting me to chair the 2020 IABSE Henderson Colloquium and for wholeheartedly supporting an agenda devoted to the urgent issues of climate emergency response.

Mike Cook

MA, PhD, CEng, FREng, FISTRUCTE

Mike Cook is a Consultant (Past Senior Partner) at Buro Happold and Chair of the Institution of Structural Engineers Climate Emergency Task Group.



tse@istructe.org



@ISTRUCTE
#TheStructuralEngineer

IABSE Congress 2021

IABSE is holding a congress in Ghent, Belgium on 22–24 September 2021. The theme will be 'Structural Engineering for Future Societal Needs', comprising building and maintaining safe and reliable buildings and infrastructures under the effects of climate change in a world with scarcer resources and the ambition to reduce humanity's CO₂ footprint.

Find out more at <https://iabse.org/ghent2021>