

Zero-carbon building and infrastructure design and construction

Background Information

The construction industry is one of the main contributors to CO₂ emissions. The construction industry has a significant role to play in emissions reduction. New buildings and infrastructure will need to be redesigned to take into account the emissions they produce and reduce these emissions as much as possible. Renovating and retrofitting of buildings also poses a challenge for emissions reduction as material replacement, waste and demolition, for example, can contribute to a large emissions count. Internationally, 196 countries committed to reducing greenhouse gas emissions by signing the Paris Agreement on 4 October 2016. They further reinforced their commitment to delivering on the expectations set out in the Paris Agreement during the Glasgow COP 26. Transforming the construction industry to deliver zero (or near to zero) carbon buildings and infrastructure will require a paradigm shift in thinking, including new processes, products, technology and people, from investors to designers to contractors to product manufacturers and end-users. There is a need to broaden the scope of research worldwide related to the design and construction of buildings and infrastructure to reduce greenhouse gas emissions and mitigate the effects of climate change.

Objectives and scope of work (set out the specific plan for this TG/WC)

The proposed new Task Group will bring together leading construction industry and other experts internationally to debate, research and reduce global construction emissions targets. Our first task will be to learn from each other by undertaking, and publishing, a comparative study on worldwide current and future practices on the design and construction of zero-carbon buildings and infrastructure.

The Task Group aims to bring together researchers who will create and share international best practices for reducing construction industry emissions and seek solutions for improving the delivery of zero carbon building and infrastructure design and construction.

Task Group objectives:

- to create a network of CIB members who are interested and involved in research into zero carbon buildings and infrastructure in the construction industry.
- to provide a forum for the exchange of ideas on zero carbon buildings and infrastructure practices in construction.
- to identify key issues for future research
- to seek collaborative funding from national and international sources
- to disseminate research findings within the CIB network, and to a broader group of academics and practitioners working in the field.

Planned research outputs

- 2022: Launch of TG at the CIB World Building Congress.
- 2023: CIB supported international symposium.
- 2024: Publication of a Special Issue in Built Environment Project and Asset Management CIB recognised journal.
- 2025: Publish a book on zero carbon building practices around the world, best practices and how to mitigate the barriers in practice. This book would be with CIB recommended publisher.