

Performance Report of Active CIB Working Commissions and Task Groups in 2024

May 2025

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W040 (Heat and Moisture Transfer in Buildings)

Objectives and scope

- to explore the phenomena of heat, air and moisture transfer in buildings, components and materials
- to formulate laws governing the physics involved
- to define, measure and discuss the hygrothermal properties of materials and building components
- to explore the ventilation and hygrothermal behavior of buildings
- to apply the acquired knowledge to the design, execution and maintenance of buildings
- to transfer research information to practice

Current work programme

The years of 2025-2028, the work programme of the W040 commission will continue to be centered on the fundamentals of heat, air and moisture phenomena in buildings, focusing on four aspects:

- Climate resilient building materials and envelope systems;
- HAM phenomena in close proximity to buildings;
- Probabilistic approach for building stock analysis; and;
- Holistic approach for building performance assessment. The target performance metrics will include moisture safety, thermal comfort and energy efficiency, all of which are significantly influenced by the changing climate.

It is anticipated that based on this work programme, the W040 commission will advance both the knowledge and methodologies for applying HAM fundamentals to a climate resilient and low-carbon built environment.

Completed activities

- Developed work program for 2025-2028;
- Hosted online meeting to introduce the work program; 40+ researchers from 17 countries attended the meeting.

Planned activities for the next year

- Develop stochastic hygrothermal simulation script;
- The researchers from different countries will prepare the wall templates, material properties, and climate data for their own countries;
- Prepare a review paper (joint review paper by researchers from different countries) to comprehensively review the challenges for energy efficient retrofitting of buildings under changing climate in an urban setting, and how the fundamentals of heat and moisture transfer could support decision making for energy efficient retrofitting.
- In-person and online meetings.

Coordinators

- Lin Wang, NRC, Canada
- Michael Lacasse, NRC, Canada

W056 (Sandwich Panels)

Objectives and scope

CIB W056 “Sandwich Panels”, together with ECCS TWG7.9 “Sandwich Panels and related Subjects”, forms the “Joined Committee on Sandwich Construction”. The Joint Committee is also closely linked to the groups and commissions of CEN, both in terms of personnel and advice. This concerns on the one hand the TC for the product standard (CEN/TC 128/SC 11 - Double skin metal faced insulating sandwich panels for roofing and cladding), on the other hand the WG for the design standard (CEN/TC 250/SC 3/WG 21 - Design of Sandwich Panels) for sandwich panels in building applications.

Current work programme

The Joint Committee is currently working on two documents, so-called “recommendations”:

- ER Axial loads: Sandwich panels were originally developed as structural elements for a building envelope subjected to bending due to wind, snow, etc. Sandwich panels are also used as walls for cold storage cells inside a building. There, no wind and snow loads occur, so a load bearing supporting structure is not required, and the sandwich panels in the walls are subjected to compressive loads. For the latter application, there is usually no structural design. As a new development, both areas of application are combined: in smaller buildings, the envelope takes over the load-bearing function. Now, however, the building envelope must be designed. The topic is being dealt with in parallel in CEN/TC 250/SC 3/WG 21. The Eurocode prepared by the latter will refer to the ER under preparation.
- ER Torsional/rotational restraint: The building envelope made of sandwich panels can be used to stabilize the supporting structure. This enables a lighter structure. The interaction is quite complex, because the deformations of the supporting structure, the flexibility of the joints, etc. have to be taken into account. In many cases, therefore, this relies on tests, which, however, are carried out differently by everyone. The ER describes different test setups used in the past, evaluates them and gives recommendations. The topic is being dealt with in parallel in CEN/TC 250/SC 3/WG 21 and CEN/TC 128/SC 11. The ER will serve as a background document and – to some extent – as a commentary to the standards.

Completed activities

There were a total of three meetings in 2024, one of which was an online meeting. The year began with an online meeting in January. A two-day meeting under the umbrella of ECCS TC7 was held in Madrid, Spain in June. The year ended with the meeting in Karlsruhe, Germany.

Planned activities for the next year

Currently, three meetings are scheduled for 2025

- An online-meeting in February
- A two-day meeting in Milano, Italy in June
- A one -day meeting in Aachen, Germany in December

List of latest output

None in 2024. The document on the standardization of the notation of symbols in sandwich panel design was completed, but is deliberately not yet published (to be able to react to any requests arising from the work on CEN standards). The document on point and line loads was completed in 2024, but will not be published until early 2025 due to ongoing corrections.

Coordinator

Thomas Misiek, Breinlinger Ingenieure, Germany

W062 (Water Supply and Drainage for Buildings)

Objectives and scope

In terms of scope, the Commission covers (but is not limited to):

- Water supply
- Drainage (including roof drainage)
- Sanitation
- Provision of facilities
- Rainwater Harvesting
- Water Reuse
- Water Efficiency
- Materials for water supply and drainage
- Computer modelling
- Sustainability and climate change
- Water and public health aspects (inc Legionella, etc)
- Codes and Regulations

where all of the above are positioned within the context of the building (or property) envelope.

Annual meetings

CIBW062 symposia have been held as shown below:

- 2015 – Beijing, China
- 2016 – Košice, Slovakia
- 2017 – Haarlem, Netherlands
- 2018 – Azores, Portugal
- 2019 – Melbourne, Australia
- 2020 – *No symposium due to Covid lockdown*
- 2021 – Online (*due to Covid restrictions*)
- 2022 – Taichung, Taiwan (*hybrid; very few in-person attendees due to Covid restrictions*)
- 2023 – Leuven, Belgium (*hybrid, but mostly in-person*)
- 2024 – Northampton, UK (*hybrid, but mostly in-person*)

It has been agreed that the host for 2025 will be the University of Miami, and dates have now been confirmed as 24th-27th August.

Scientific committee

The Scientific Committee meets two or three times a year and comprises the following:

- Coordinator: Professor Lynne Jack, Heriot-Watt University, Scotland
- Professor Armando Silva Afonso - ANQIP, Portugal
- Mr Bart Bleys - Buildwise, Belgium
- Professor Cheng Li Cheng - National Taiwan University of Science and Technology, Taiwan
- Dr Matjaz Nekrep - University of Maribor, Slovenia
- Professor Lúcia Helena de Oliveira - Universidade de São Paulo, Brazil
- Dr Wong, Ling-Tim – Hong Kong Polytechnic University, Hong Kong
- Professor Marina Ilha, State University of Campinas, Brazil
- Professor Zuzana Vranayová - Technical University of Kosice, Slovakia

- Professor Orestes Goncalves - Universidade de São Paulo, Brazil
- Professor Otsuka - Kanto Gakuin University, Japan

At the meeting of the Scientific Committee in August 2024, it was agreed that there was a need for a committee refresh. Some members have been on the Scientific Committee for years/decades; some are due to retire; and some have not shown active participation for some considerable time.

It was also agreed that membership of the Scientific Committee should be extended to include a further nomination from Japan and Taiwan, and that a nomination from the USA should also be included. Following a discussion, it was agreed that the following nominees would be invited to join the Scientific Committee:

- Dr Jeffrey Lee (Taiwan)
- Dr Kose (Japan)
- Mr Dan Cole (USA) – *already approached and has agreed*

Confidential – it was also agreed that two of the three Committee members from Brazil would be asked to stand down. In part, due to over-representation (geographical) but mostly as these members are somewhat inactive (and have been for some time).

The Committee refresh should be complete by August 2025.

Current work programme

Annual seminars are organized by a Planning Group chaired by the Coordinators. Following each seminar a plenary Commission Meeting is held.

Topics addressed in the Work Programme are:

- Hydraulics related to pressure piping and gravity drainage (including rainwater drainage)
- Calculation and lay-out methodologies: peak flow calculation etc.
- Materials behaviour: pathology (corrosion), use of plastic pipes etc.
- Maintenance and renovation
- Economy of resources: water conservation, recycling of water, hot water production and distribution etc.
- Environmental aspects: individual waste water treatment
- Health and safety: water quality at tap, Legionella etc.
- Testing of piping installations and sanitary appliances (WC's etc.)
- New product developments
- Implementation of research results in standards and regulations
- Information and electronics in plumbing systems: leak detection, domotics etc.

Completed activities

Historically, the CIBW062 Commission has accepted research paper submissions only, with each paper presenting new knowledge in 'traditional' conference-paper style and then presented in-person at the annual symposium. Up until last year, papers were not reviewed. In 2023, the decision was made by the Scientific Committee that all papers will now undergo a double-blind review prior to acceptance.

As Commission Coordinator, I ran this process, establishing and allocating reviewers, and assessing feedback. This was a significant task but all agreed one worth doing. As was anticipated, this did result in a small number of papers being declined, but overall, the process was deemed to represent a significant step forward, as this now ensures quality across the range of submissions. Continuation of the peer review process should become less onerous now that the reviewer pool has been established, alongside the processes required to ensure timeliness and quality.

At our Scientific Committee meeting of August 2024, we also agreed that the category of paper submission would be broadened to include research paper, technical paper and extended abstract.

This decision was taken not only with the aim of recognising differences in author contributions, but also with the intention of supporting our early career researchers (who may be at too early a stage in their career to submit a full paper) and to help build our community.

Planned activities for the next year

The Scientific Committee is in the process of being refreshed, and a new coordinator should be appointed during 2025. Alongside this, we have agreed that we will seek to appoint an ECR Coordinator for the Commission and discussions are ongoing with a number of interested parties. The ECR Coordinator should be confirmed sometime in early 2025.

Coordinator

Lynne Jack, Heriot-Watt University, UK

W070 (Facility management and maintenance)

Objectives and scope

CIB Joint-Coordination Vision Statement for W070 Facility Management and Maintenance

As Joint-Coordinators, Lavy, Klungseth and Lindkvist created a vision statement for W070 Facility Management and Maintenance. Within this vision, the aim is to expand the active network to all researchers of Facility Management and Maintenance at all career levels worldwide, while creating opportunities to address ongoing and new challenges underpinned by sustainable goals in terms of what and how we do it as a network. The following areas are prioritized, prior to dialogue with members:

Collaboration opportunities: Stimulating task groups for diverse platforms for meeting members, and increasing member engagement.

Strategies for CIB W070: Develop a strategy to implement aim of CIB W070, increasing membership numbers, and re-examining traditional research practices for networking and communication.

The Commission aims:

- to foster a deep understanding of how our built environment influences human behavior, health and organizational productivity;
- to promote the strategic and operational value of facilities management and asset maintenance in meeting emerging business challenges;
- to forge closer links and collaboration between the financial, technical, sociological and operational aspects of facilities management and asset maintenance through an integrated resource management approach;
- to disseminate the findings of research work on facilities management and asset management to a wider audience;
- to provide a forum for the exchange of know-how and best practice in education, research and industry that addresses physical workplace and functional workspace demands; and
- to communicate the work of CIB W070 by publication of its symposium proceedings.

Current work programme

No work program yet, this needs to be developed - will be developed based on the input from members through the members meetings - both online and physical meetings - during 2024 and 2025.

Completed activities

- One members meeting (online) to introduce the new co-ordinators
- Promoted the CIB WBC25 conference to our members

Planned activities for the next year

- Members meeting (online)
- Session on WBC25
- Commission meeting at WBC25
- Setting agenda forward together with members

Coordinators

- Nora Johanne Klungseth, NTNU, Norway
- Carmel Margaret Lindkvist, NTNU, Norway
- Sarel Lavy, Texas A&M University, USA

W080 (Prediction of Service Life of Building Materials and Components)

Objectives and scope

In 2024, the CIB W080 commission made significant strides in advancing research and collaboration within its focus on the service life prediction of building materials and components. The scope of the annual report is to document the research activities of CIB W080 commission members in 2024, collaborative events, and strategic initiatives. The report not only provides an overview of the significant publications and events of 2024 but also outlines how these activities contribute to the broader objectives of enhancing building durability, integrating advanced technologies as AI, and setting a clear agenda for future work.

Current work programme

This current roadmap will guide future activities and define the commission's long-term strategy. Currently, the roadmap includes:

- Compiling and indexing the body of work produced so far by creating a DRAFT list of publications. This effort is aimed at enhancing the visibility and accessibility of the commission's research outputs.
- Advancing the research agenda with dedicated working groups: – WG1 is focused on developing methods for service life prediction of building components and products. This involves an extensive literature review and the creation of a database on Reference Service Life data. – WG2 is tasked with producing applied research outputs: one task is to develop a "Guideline" document (serving as a pre-normative document for ISO TC59 SC14 on "Climate resilient buildings"), and another is to analyze the role of maintenance in extending service life, culminating in a state-of-the-art report on building maintenance strategies.
- Addressing emerging topics such as the circular economy, where one report will explore the interplay between service life prediction and circular economy strategies. This includes assessing business cases, re-use/recycling, and the integration of life cycle and climate change considerations.
- Collecting and analyzing climate data to support simulations and understand future performance trends under changing climate scenarios.
- Coordinating with related commissions and international bodies, ensuring that work is aligned with standardization efforts and fostering collaborations (for example, liaising with ISO TC59/SC14 and other relevant committees).

Completed activities

In 2024, members of the CIB W080 actively contributed to advancing the field by publishing 15 scientific papers, reports, and book chapters related to the commission's focus areas. The members of the CIB W080 Fulvio Re Cecconi and Ana Silva collaborated in a team awarded with the CIB Vistas funding. The CIB Vistas funding supported the development of a successful Summer School on "AI for Construction Project Management", which involved 162 participants from around the globe. The program brought together leading experts from academia and industry to equip attendees with state-of-the-art knowledge and tools in artificial intelligence (AI) applications for Construction Project Management (CPM). As AI becomes increasingly integrated into construction processes, this event aimed to bridge the gap between theoretical advancements and practical applications. It focused on showcasing how AI

can enhance efficiency, safety, and decision-making in managing large-scale construction projects. The Summer School represented a significant step in fostering global knowledge-sharing and capacity-building in the construction industry. The final report is available at the following link: [CIB Vistas AI for Construction Project Management Report](#).

In 2024, the members are actively collaborating for the development of new publications under the roadmap 2021-2024. The annual meeting of CIB W080 commission was held in a hybrid format, in person, in Lisbon, during the Construction 2024 congress (5th Portuguese Brazilian Congress of Sustainable Construction Materials) and via Teams, with the participation of 22 members and guests. This was a joint meeting with CIB W086 commission.

List of output

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List of publications of CIB W080 members in the scope of the commission during 2024:

- i. Acar G., Steeman M., Van Den Bossche N. Reusing Thermal Insulation Materials: Reuse Potential and Durability Assessment of Stone Wool Insulation in Flat Roofs. *Sustainability* 2024, 16, 1657. <https://doi.org/10.3390/su16041657>
- ii. Acar G., Van Den Bossche N., Steeman M. Durability and Reusability Assessment of Naturally Aged Synthetic Foam Insulation in Existing Buildings. In: Berardi, U. (eds) *Multiphysics and Multiscale Building Physics*. IABP 2024. Lecture Notes in Civil Engineering 2024, vol 552. Springer, Singapore. https://doi.org/10.1007/978-981-97-8305-2_51
- iii. Barreiras J., Silva A., de Brito J., Tadeu A. A new methodology for projecting the future degradation of rendered façades under the influence of a changing climate based on the gradual evolution of maximum temperatures. *Science of the Total Environment* 2024, 953, 176112.

- iv. Barrelas J., Silva A., de Brito J., Tadeu A. Influence of temperature increase and precipitation decrease on the degradation evolution of rendered façades in service conditions. *Journal of Building Engineering* 2024, 94, 109843.
- v. Cabral M., Matos J.P., Silva A., Valença J., Grau I., Correia T. AI-Anomaly Project: Condition Assessment of Urban Water Assets through the Detection of Cracks based on Artificial Intelligence Methods. 8th IAHR Europe Congress, June 2024, Lisbon, Portugal.
- vi. Chen X., Van Den Bossche N. Assessment of Algae Growth Models: A Response-Based Analysis of Climate and Material Parameters in China. In: Berardi, U. (eds) *Multiphysics and Multiscale Building Physics. IABP 2024. Lecture Notes in Civil Engineering 2024*, vol 552. Springer, Singapore. https://doi.org/10.1007/978-981-97-8305-2_18
- vii. Decorte Y., Steeman M., Van Den Bossche N. Integrating the Energy Performance Gap into Life Cycle Assessments of Building Renovations. *Sustainability* 2024, 16, 7792. <https://doi.org/10.3390/su16177792>
- viii. Janssens K., Godts S., Orr S.A., Marincioni V., Van Den Bossche N. The Influence of Climate Change and Interior Insulation on Salt Damage in Masonry Facades. In: Berardi, U. (eds) *Multiphysics and Multiscale Building Physics. IABP 2024. Lecture Notes in Civil Engineering 2025*, vol 553. Springer, Singapore. https://doi.org/10.1007/978-981-97-8309-0_25
- ix. Mousavi H., Silva A. Natural Stone; Symbol of Strength and Durability. The 3rd Natural Stone and Coverings Show, Jakarta Surface Show, June 2024, Jakarta, Indonesia.
- x. Pedro K., Flores-Colen I., Ferreira C., Silva A. A Comparative Analysis of Time- and Condition-Based Approaches for Imperfect Maintenance of Natural Stone Claddings. *Journal of Performance of Constructed Facilities* 2024, 38(5), 04024025.
- xi. Pereira C., Silva A. Operationalisation of Building Inspections and Repair: Systematisation-Based Approach. *Appl. Sci.* 2024, 14(16), 6947. <https://doi.org/10.3390/app14166947>
- xii. Rosa, I.; Castelo, A.; Sousa, J.; Garrido, M.; Correia, J.; Fonseca, S.; Brito, J. de: "Natural Weathering of GFRP Structures: Case Studies, Data Survey, and Proposal of Moisture Conversion Factor for Durability Design", *Journal of Composites for Construction*, V. 28, No. 6, ASCE, Reston, USA, Dezembro de 2024, pp. 04024063. DOI: 10.1061/JCCOF2.CCENG-4869
- xiii. Silva A., Mendes M.P., Gaspar P.L., Reinhart C. A decade of energy consumption in a single-family house: The impact of microgeneration. IBPC 2024, Toronto Metropolitan University, July 2024, Toronto, Canada.
- xiv. Valença J., Mendes M.P., Ferreira C., Silva A. Digitalizing Building Maintenance: BIM-Powered Asset Management Solutions. CongrEGA'24, 1st Ibero-American Congress on Engineering Asset Management, July 2024, Lison, Portugal.
- xv. Valença J., Morin K., Jouen N., Olivo N., Torres-Gonzalez M., Mendes M.P., Silva A. Feeling-BIM: A digital model to support maintenance decisions, based on automatic inspection and dwellers' feelings. *Journal of Building Engineering* 2024, 87, 108937.

Planned activities for the next year

For 2025, the commission is planning a series of activities designed to both consolidate the progress made during the 2021–2024 work program and set a clear strategic direction for the coming six years. Next year, the commission will participate in international meetings and webinars - including a session at the CIB World Congress in West Lafayette and the annual meeting at ICMB 25 in Guimarães (Portugal) - to foster collaboration among members and share research findings.

Coordinators

- Michael Lacasse, NRC, Canada
- Jorge de Brito, University of Lisbon, Portugal

W089 (Education in the Built Environment)

Objectives and scope

The Commission focusses on the broad discipline of the built environment and its constituent fields.

The Commission aims:

- to foster high quality academic debate about the way knowledge is generated, codified, taught and learnt
- to promote stronger links between research, scholarship, teaching and practice
- to promote the expansion of the international community of educators in the built environment
- to create and disseminate pedagogic knowledge throughout the community of educators and provide a stronger intellectual basis for practice
- to promote collaboration with other groupings of built environment educators.

Current work programme

- Facilitate Paper Sessions & Business Meeting at CIB World Congress
- Prepare for Innovation in Built Environment Education (IBEE) Conference, September, 2025 - London, England

Planned activities for the next year

The Commission will accomplish its objectives through:

- organizing international symposia to facilitate debate and the advancement of knowledge
- promoting the publication of scholarly articles on education, pedagogy and educational technology, covering empirical pedagogical research, applied educational theory, and practice issues
- drawing from the international community of educators, examining social and cultural issues surrounding built environment education
- engaging with stakeholders to advance the aims of the commission.

Coordinators

- Richard Burt, Auburn University, USA
- Fiona Borthwick, LJMU, UK

W096 (Architectural Design and Management)

Objectives and scope

As the commission name suggests, the main objective is to research all aspects of Architectural Design and Management in education and practice. In recent years, we have expanded to research to the urban scale, focusing on the city centre with the Future of the City Centre Network and Placemaking Europe. Spatial Equity and Inclusiveness is a particular aspect of the city centre that continues to be explored with the ARCC. We are committed to develop Early Career Researchers, and we are seeking ECRs to take on roles in W096.

Current work programme

Continuing work with Architectural Research Centers Consortium (ARCC), including a further workshop on Spatial Equity and Inclusiveness at their annual conference. Both co-ordinators are guest editors for a special issues of the CIB partner journal Buildings. Proposals for papers are welcome https://www.mdpi.com/journal/buildings/special_issues/820CT76B58; https://www.mdpi.com/journal/buildings/special_issues/Project_Design_Management

Completed activities

The most significant activity has been the publication of the book Architectural Design and Management in the Digital Age, with Wiley Blackwell, produced by the Commission, and edited by the Co-ordinators with Jenni Barrett, practice liaison. They have also contributed to the chapters. The Introduction by former Co-ordinator Stephen Emmitt includes the development of W096 since its inception in 1993. Many other members of the Commission were also central to authoring the content. We led an in-person workshop with the Architectural Research Centers Consortium (ARCC) and the European Association of Architectural Education (EAAE), on spatial equity and inclusiveness, for their joint conference in Aarhus, Denmark, May 2024.. Bob Giddings contributed to the special issue on Global Challenges Facing our Cities for partner journal Construction Management and Economics. He also took part in a CIB Early Career Researchers' webinar on housing.

Planned activities for the next year 2025

The Commission is very active in preparations for WBC2025. 35 papers have been received and reviewed for the joint session with W104. W069 has also been incorporated into the session, as it currently does not have its own co-ordinators. A workshop with ARCC and a commission meeting are also being planned for the Congress. We continue to actively encourage schools of architecture within university members of CIB to engage with the Commission, and will involve those present at WBC2025 in the commission meeting. Future plans are still to include the identification of research topics suitable for funding applications by international teams and publication in further special editions of academic journals.

List of latest output

- Giddings, B., Melhado, S. and Barrett, J. (eds). (2025). Architectural Design and Management in the Digital Age: International Perspectives. Hoboken NJ: Wiley Blackwell.

- Rogerson, R. J., Giddings, B., and Jefferies, M. (2023). Constructing the future of the city centre: realizing visions. *Construction Management and Economics*, 42(2), 129–145. <https://doi.org/10.1080/01446193.2023.2222190>

Coordinator

Bob Giddings, Northumbria University, UK

W098 (Intelligent and Responsive Buildings)

Objectives and scope

- to provide an international forum for discussion and critique on research, development and design activities related to intelligent architecture, technologies, systems and materials and their integration within the design, construction, operation and management of buildings
- to initiate and encourage research and to develop an internationally accepted framework, methods for evaluating performance and quality and analysis tools in support of the design and construction and operation process of Intelligent and Responsive Buildings
- to form a theoretical basis for the design and development of an intelligent and responsive architecture through advanced and emerging intelligent materials and technologies in conjunction with design principles for comfort, productivity and performance
- to obtain, synthesize, publish and disseminate information which provides technical support on advanced materials, systems, tools and technologies for the design, construction, use, operation and management of Intelligent and Responsive Buildings.

Current work programme

Integration and Indicators for and Measurement of – aspects of – Building Intelligence will be topics for seminars, publications and research studies.

Completed activities

- UCL-CIB-CIBSE lecture series 2024:
 - Intelligent Buildings Liveable Buildings for the 21st Century, Derek Croome
 - Enhancing Energy Performance in Urban Commercial Buildings, Kartik Amrania
 - Off-grid 100% Renewable Energy Buildings, Pietro Elia Campana
 - Towards Net Zero: Technology Advances & Human Factors
- CIBSE IB-CIB W098 joint events:
 - Data Centres - the challenges in the current arena, James Rix

Planned activities for the next year

- UCL-CIB-CIBSE lecture series 2025 (on-going)
 - Interplay between the Façade and the Indoor Climate, Johannes Persson
 - Measuring Building Performance using Advanced Monitoring Devices, Chris Leslie
 - Prosumers as Architects of Energy Resilience, Amir Vadiiee
 - Energy Waste and the Challenge of Future Retrofits, Amr Suliman
- CIBSE IB-CIB W098 joint events:
- Spring 2025 CIB Presidential Seminar series by Shen Wei (completed)
- UCL-ASHRAE-CIB District Energy Systems Event (completed)
- Review for World Building Congress 2025 (completed)
- Support of relevant research proposals, projects and conferences (on-going)

- Collaboration with other institutions (on-going)
- CIB W098 and TG97 Webinar on Biophilic Designs (under planned)

List of latest output

- Funding applications AI solutions to develop AI competencies in key sectors from Innovate UK
- Conferences: ICEES 2025 World Building Congress 2025
- Publications:
 - Tao Lu, Xiaoshu Lü, Petri Välisuo, Qunli Zhang, Derek Clements-Croome 2024 Innovative approaches for deep decarbonization of data centers and building space heating networks: Modeling and comparison of novel waste heat recovery systems for liquid cooling systems. <https://doi.org/10.1016/j.apenergy.2023.122473>
 - Xiaoshu Lü, Tao Lu, Suvi Karirinne, Anne Mäkiranta, Derek Clements-Croome 2024 Renewable energy resources and multi-energy hybrid systems for urban buildings in Nordic climate. <https://doi.org/10.1016/j.enbuild.2023.112789>
 - Clements-Croome D J(editor/author) 2024 Intelligent Buildings and Infrastructure with Sustainable and Social Values; (book ICE-Emerald)
 - Clements-Croome D J 2024 Chapter 2 Liveable Joyful and Soulful Cities in book Resilient Urban Environments ed. R.Yao (Springer)
 - Clements-Croome D J 2024 Chapter 8 Planetary Health in book Essential Lifestyle Medicine ed.Imperial College(Cambridge University Press)
 - Zhou, H., H. S. M. Kort, M. G. L. C. Loomans, T. H. Tran, S. Wei, Y. Zhang, Y. Wang, W. Shi, S. Zhou and W. Yu (2024). "Lab Study on the Physiological Thermoregulatory Abilities of Older People with Different Frailty Levels." Building and Environment: 112130.
 - Hou, G., C. Tweed and S. Wei (2024). "An Investigation of Occupants' Thermal Requirements in Indoor Transitional Space in Entertainment Buildings." Buildings 14(7): 1896.
 - Hou, G., X. Zhai, Y. Kuai, P. Shu, P. Zhang and S. Wei (2024). "A systematic review on studies of thermal comfort in building transitional space." Journal of Building Engineering 89: 109280.
 - Zhou, H., W. Yu, K. Zhao, H. Shan, S. Zhou, Y. Zhang, H. Wang and S. Wei (2024). "Adaptative thermal comfort analysis in the elderly based on Fried frailty classification in residential buildings during summer." Building and Environment: 111262.
 - Zhou, H., W. Yu, K. Zhao, H. Shan, S. Zhou, S. Wei and L. Ouyang (2024). "Thermal demand characteristics of elderly people with varying levels of frailty in residential buildings during the summer." Journal of Building Engineering 84: 108654.
- Collaborations
 - ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) UK World Green Design Organization (WGDO)

Coordinators

- Shen Wei, UCL, UK
- Derek Clements-Croome, University of Reading, UK

W099 (Safety Health & Wellbeing in Construction)

Objectives and scope

The Commission is committed to the advancement of the safety, health and wellbeing (SHW) of the construction industry workforce across the world. This includes both blue collar (e.g. site trades) and white collar (professional) workers, with due recognition that it is frontline construction-site workers who are most at risk of injury, illness and death on sites.

Not only does our research look to site-based fundamentals of good SHW management, but also to the wider industry factors that also have influence. Thus our scope is broad, including but not limited to the research of design, procurement, planning, training, leadership and organisational culture, as they influence the SHW of the workforce as a whole. Such upstream activities influence working practices in both professional offices and on sites, and thus there is little construction industry activity that is not relevant to our Commission when viewed through a SHW lens.

Construction SHW in 'developing' countries is significantly different to that in 'developed' countries. The Commission is actively working towards bringing researchers together from across the world to explore shared learnings and research directions able to be of benefit to both contexts.

Current work programme

W099 has a very close relationship with W123 (People in Construction) due to our shared areas of interest, with many of the key themes of W123 impacting or influencing workforce SHW. We therefore work together as a partnership in mutual support.

The Commission organizes an Annual International Conference jointly with W123, which are well attended by our membership, and are supplemented by formally published and indexed proceedings. There is an ambition to host our conferences in each global region on a rotating basis to enable the widest possible attendance from amongst our membership. From 2022, the Conferences operate on a hybrid model, facilitating attendance from members and interested participants who may not have the funding available for face-to-face conferencing, but who can attend and participate in an online mode. Our conferences are also often affiliated with a CIB encouraged journal, and we aim to publish a Conference Special Issue alongside the formal conference proceedings.

Every third year, the Commission manages a number of parallel sessions within the triennial World Building Congress, usually in partnership with W123. W099 is keen to work with other Commissions, and as such a number of joint webinars and workshop sessions are planned for the future, looking to find areas of synergy and mutual benefit in our work.

Completed activities

W099 was delighted to co-host with W123 the first CIB conference in West Africa at the Kwame Nkrumah University of Science and Technology (KNUST) at their beautiful and verdant campus in Kumasi, Ghana. The conference itself covered two full days, welcoming around 150 delegates each day in person and more than 500 online, with a fantastic mixture of plenary discussions, keynote speeches and paper sessions, making it a highly stimulating and engaging event. A PhD Workshop was held the day before the conference formally opened, led by Dr Fred Sherratt and Dr Kenneth Lawani. Five students at different stages of their PhD journeys presented their work and were able to receive feedback from both their peers and a panel of experts. The Conference also created a space for two fantastic keynotes from Professor George Ofori, who shared an overview of his exceptional career, and Professor John Smallwood, whose keynote reminded us of the very real reasons why we in W099 and W123 do what we do, and why we need to continue to fight for construction worker rights across the world. Professor Billy Hare was delighted to present John with his Lifetime Achievement Award for recognition of his significant contributions to the research communities of W099 and W123 at the Conference.

W099 also delivered a joint Webinar with W065 titled: Measure All the Things! Reflecting on Metrics in Construction Management, and a W099-focused Webinar titled: The Role of BIM in Accident-Free Construction. W099 also produced their Research Webinar to showcase W099, to share who we are and what we do.

Planned activities for the next year

- W099 will be in attendance at the 2025 World Building Congress to be held at Purdue University, USA.
- Delivery of an updated W099 Research Roadmap.

List of latest output

- Webinar Recording: W099 Joint Webinar with W065 - Measure All the Things! Reflecting on Metrics in Construction Management
- Webinar Recording: W099 Webinar - The Role of BIM in Accident Free Construction
- Proceedings of the W099/W123 Annual Conference (2024), Ed: Adinyira, E., KNUST, Kumasi, Ghana, October 8th-10th

Coordinators

Billy Hare, Glasgow Caledonian University, UK
Fred Sherratt, University of Colorado, USA

W101 (Urban planning and infrastructure development)

Objectives and scope

The objective of the Commission is to find common methodologies and effective solutions on issues related to spatial planning and infrastructure development through information exchange and discussions between planning experts worldwide.

Within its overall scope the Commission focuses on the following main themes:

Cities and the Built Environment for Social inclusion.

This theme involves transport oriented development, multi-means of transport, compact city, universal design of planning, town centre revitalization and new urbanism.

Informal Cities.

This theme may relate to areas described as slums, areas that have emerged without legal establishment, spatial and social management in unregulated areas etc.

Theoretical Approach for Planning and Development.

Urban environment is formed and transformed by activities of a lot of players and stakeholders. This theme refers to the application of optimization, dynamic programming, gaming and incentivisation theories in planning municipal areas.

Spatial Survey and Assessment for Sustainable Development.

GIS technology has been rapidly progressed and much more applied to planning practice in many cities in the world.

Current work programme

The Commission has been preparing for the upcoming World Building Congress 2025 where it has planned to co-host the paper session "Nature based solutions & smart technologies for sustainable urban environments." with W116-Smart and Sustainable Built Environments and TG97 – Nature-Based Solutions for Climate Resilient Buildings and Communities. W101 has also taken on responsibility for reviewing papers submitted to TG91-Infrastructure along with papers submitted to its own paper call.

It is therefore likely that the commission will host a paper session under the joint banner TG91 / W101.

Otherwise, the commission seeks to expand its membership base around the conference. This will in part be aided by hosting a meeting for all current and interested members to plan our recruitment approach and otherwise to plan commission activities in the short and medium terms.

Completed activities

The commission has been an active participant in planning for the WBC 2025.

We have also reached out to existing and potential members through email correspondence.

Planned activities for the next year

The coming year's activities will revolve around the WBC2025. We will renew contact with existing members who also attend the conference, digitally and in person. We also hope to attract new members from amongst those who attend.

We will plan the short term (2025) and medium term (up to following WBC in 2028) agenda for W101 in a commission meeting. The leadership sees opportunities for W101 to work with other working commissions that have similar research focus areas. In this way the commission can leverage the capacity of a smaller group to reach a wider audience. In this way we would hope to remain vital, contribute to knowledge in the field of urban planning and infrastructure development and to recruit new membership.

Coordinator

Morten Gjerde, NTNU, Norway

W104 (Open Building Implementation)

Objectives and scope

Three basic objectives of the Commission:

- To increase awareness of the principles of Open Building among professionals who shape the built environment, and among the people who live in that built environment.
- To support initiatives at national, regional and local levels that improve the efficacy of building construction and facility adaptation following Open Building methods.
- To be a platform for research and information dissemination among professionals committed to improving Open Building practices and methods.

The Commission has a relationship with the CIB Encouraged Journal OHI - Open House International

Current work programme

W104 is an international network of researchers and practitioners who subscribe to the Open Building approach. In doing so we seek to formulate theories about the built environment seen in this dynamic way and to develop methods of design and building construction compatible with it. Open Building provides strategies for sustainable buildings and neighborhoods Open Building enables built environments to last because they can adjust, meeting changing social and technical requirements. This is accomplished in part by organizing physical elements at any scale (building product to urban tissue*) in such a way as to minimize their mutual interference. Perhaps Open Building's most important goal is to combine the freedom of choice and dignity of individuals in their work places, dwellings and communities, with the ecological coherence and stability of culturally appropriate buildings and neighborhoods.

Completed activities

- Participation in CIB congress in Purdue 2025 by organization of papers and participants. About 20 papers are accepted for the presentation of the conference.
- Two books are published about Open Building:
- Leaves and Flowers : essays of N.J. Habraken (in Chinese), edited by Wong, Minghung 2024
- Open Building for Architects, edited by Stephen Kendall and N. John Habraken 2024
- Open Building Course is carried in three universities in Hong Kong and China, led by Beisi Jia
- Fours seminars on Open Building were taken place in South Africa, USA, and China.

Planned activities for the next year

- Organize the conference sessions and workshop on Open Building in May 2025, Purdue USA
- Organize the Open Building conference in Nanjing, China in Sept 2025
- Continue promote seminars and Architectural education programs in China
- Coordination of academic exchanges in Holland, South Africa, USA and China
- Publication a special journal issue on Open Building history

List of latest output

- Leaves and Flowers : essays of N.J. Habraken (in Chinese), edited by Wong, Minghung 2024 Open Building for Architects, edited by Stephen Kendall and N. John Habraken 2024 Papers presented in CIB Congress 2025

Coordinators

- Beisi Jia, University of Hong Kong, China
- Amira Osmann, Tshwane University of Technology, South Africa

W112 (Culture in Construction)

Objectives and scope

Objectives and scopeThe scope for this Commission reflects the array of important business concerns deriving directly from underpinning culture – organizational climate, ethics, corporate social responsibility (CSR) and organizational citizenship behavior (OCB). The construction industry itself as field of interest is considered on an international, national and local scales, focusing on the processes, (project-) experiences, and the parties involved. Given the dynamism, the scope is maintained under constant review.

Against this background the objectives of W112 are:

- to continue to research National Cultures and Organizational Cultures relating to construction worldwide to maintain and extend the 'Inventory of Culture in Construction'
- to extend the methods of research employed to encompass more longitudinal approaches to enable evolutionary aspects of culture to be included in investigations
- to research into the related cultural topics of organizational climate, ethics, CSR, and OCB; and other related topics to provide a more comprehensive understanding of culture and its consequences
- to enhance relationships with other CIB Commissions, and beyond, to disseminate findings and stimulate further collaborations and investigations.

Current work programme

1. Preparing a book chapter for the AAPM (American Academy of Project Management) – Project Management book, with the topic of 'Culture':

- 2.2 Organizational culture and project success
- 2.2.1 Overview of organizational culture
- 2.2.2 Organizational culture has an important impact on project management
- 2.2.3 Organizational culture management
- 2.2.4 Shaping organizational culture

Progress: The first draft has been completed. The manuscript is under review and revision.

2. Continuous monitoring of the development of culture-related research in the field. A systematic literature review also indicates an increasing trend of culture related study in the construction sector in the past decade.1. Preparing a book chapter for the AAPM (American Academy of Project Management) – Project Management book, with the topic of 'Culture':

- 2.2 Organizational culture and project success
- 2.2.1 Overview of organizational culture
- 2.2.2 Organizational culture has an important impact on project management
- 2.2.3 Organizational culture management
- 2.2.4 Shaping organizational culture

Progress: The first draft has been completed. The manuscript is under review and revision.

3. Continuous monitoring of the development of culture-related research in the field. A systematic literature review also indicates an increasing trend of culture related study in the construction sector in the past decade.

Completed activities

1. W112 coordinators have made four paper submissions to the CIB 2025 World Building Congress. The research focuses on the associations between culture and green building transitions, contract management, and project success.

2. Both of the two W112 coordinators served as the editor and /or reviewer of the CIB 2025 World Building Congress.

3. In line with the CIB W112 goal to foster research and collaborations related to construction culture, an international symposium was held on 25th October 2024. The theme of the event is 'Culture in the Digitalization of Construction Safety.' A number of distinguished speakers with extensive expertise in this field have been invited, including:

- Prof. Shuibo Zhang from Tianjin University: Effects of Digitalization Transformation on Construction Safety Performance: Moderating Role of Organizational Culture
- Prof. Hedley Smith from UCL: Digital Adoption for OHSW and the Role of the Construction Firm
- Prof. Wilco Tjihuis from the University of Twente: Culture's Influence in a Digitalizing Construction World: Challenges Ahead!
- Prof. Steve Rowlinson from the University of Hong Kong: Why the Construction and Real Estate Industry Business Models are Broken and Their Effect on OHWS
- Prof Isabelle Chan from the University of Hong Kong: Automation Culture: Investigating Human-Machine Collaboration in Construction Safety Automation
- Ir Dr. Wong Chun-kuen, George from the Construction Industry Council HK: Updates of CIC's Works on Culture and Digital Technologies for Construction Safety

The event garnered significant attention, drawing over 300 attendees, both physically and virtually. The range of topics presented by our esteemed speakers sparked lively discussions and robust audience participation!

4. Lecture-series (including development, updating, preparation); master-courses for international students:

- Tjihuis W. (2024); Culture in International Construction; Course materials; University of Twente, Enschede, The Netherlands.
- Tjihuis W. (2024); Culture in International Construction; Invited Guest Lecture; University of Hong Kong, HKPRC.

5. Lecture-series (including development, updating, preparation); master-course for an international group of students:

- Chan I. (2024); Culture in Construction; Course materials; University of Hong Kong, HKPRC.

6. It is believed that culture is the root cause of various problems facing the construction sector. Based on research, industrial partnership, and public engagement, the coordinator delivered speeches and participated in forums, contributing to reshaping the culture in the fragmented and rapidly digitalizing construction sector, including:

- Chan I.Y.S. (2024), “Human Machine Collaboration in Construction Safety Automation: Evidence from EEG-based Experiment”, Beijing-Hong Kong-Macao Youth Scientists and Technologists Forum, Beijing Engineering Management Science Institute (BEMSI), 9th Nov 2024, Beijing, China.
- Chan I.Y.S. (2024), “Trust in New Engineering Contract (NEC)”, NEC Asia Pacific Conference 2024, invited by Development Bureau, NEC Hong Kong, and ICE, Hong Kong, 28th Nov, 2024. (Plenary Session)
- Chan I.Y.S. (2024), “New Engineering Contract (NEC) – The Future of Collaborative Success in Construction”, Collaborative Success for High-Quality Development - Opportunities and Challenges of Implementing the NEC System in Mainland Cities of the Greater Bay Area, invited by Qianhai Authority, Development Bureau (DevB), HKSAR, Hong Kong Chamber of Commerce, Qianhai (HKCCQ) and the Qianhai Shenzhen-Hong Kong Planning, Design and Construction Platform, Shenzhen, 26 Sept, 2024.

7. Published papers and book chapter contributing to knowledge development and cross-interdisciplinary exchange in culture-related topics, including collaborative contract, human perception and environment, whole process engineering, etc. For instance:

- Chan, I.Y.S., Twum-Ampofo, S., Ababio, B.K., Ghansa, F.A., & Li, S.M. (2025) Towards a whole process engineering approach for enhancing the holistic wellbeing of underground space users: A systematic review, *Tunneling and Underground Space Technology*, accepted on 26th Feb 2025.
- Chan, I.Y.S., Ma, P., Ho, T.Y.K. (2025) Impacts of relational and formal governance on information sharing and project performance in collaborative contracts: a mixed-method approach, *Journal of Construction Engineering and Management*, ASCE, accepted on 17th Jan 2025.
- Chan, I. Y. S., Dong, Z., & Chen, H. (2024). Impacts of connections to the outside on underground space occupants’ psychophysiological health: A virtual reality-based experimental approach. *Tunnelling and Underground Space Technology*, 147, 105675.
- Chan, I. Y. S., & Chen, H. (2024). Towards an integrative analysis of underground environment and human health: a survey and field measurement approach. *Engineering, Construction, and Architectural Management*, 31(5), 1807–1834.
- Chan I. Y. S., Chen, H., & Ma, P. (2024) Effects of signage color on human psychophysiological states and wayfinding performance in urban underground

spaces with different noise levels: a combined EEG and VR experiment, Handbook of Smart Built Environment, edited by Lu and Anumba, Taylor & Francis, in press. (Accepted in Aug 2024) [Book Chapter]

Planned activities for the next year

1. Publish the book chapter for the AAPM (American Academy of Project Management) – Project Management book with the title of “Organizational culture and project success”. The plan is to publish the book in both Chinese and English, by the end of 2025.
2. Continue to support the upcoming CIB international conference(s) as reviewers, authors and presenters.
3. Organize a research seminar in Hong Kong or other country, in collaboration with other working commissions, for fostering knowledge exchange in the field of culture in construction.
4. Deliver speeches on topics related to culture in construction in conference(s), seminar(s), and invited lecture(s).
5. Collaborate with researchers in multi-disciplinary fields in research and publications related to culture in construction.

Coordinators

- Wilco Tjihuis, University of Twente, Netherlands
- Isabelle Chan, University of Hong Kong, Hong Kong

W113 (Law and Dispute Resolution)

Objectives and scope

The Commission's primary function is to coordinate the identification of and response to the multitude of emerging legal challenges faced by the construction and property industries worldwide. In this context the Commission's objectives are:

To establish a thriving international research community in the fields of law and dispute resolution

To contribute to the wider building and construction research agendas through encouraging the active engagement of legal scholars with other specialist in the field

To coordinate efforts to identify and address emerging legal challenges faced by the global construction and property industries through building a coalition of stakeholders from industry, the professions and academia

To generate interest in the application of law in an international construction and property context amongst legal specialists in the legal professions and law faculties worldwide

To increase the understanding of obstacles to effective transnational construction operations and building performances management by facilitating the development of comparative legal methodologies and research projects.

Current work programme

The commission arranges annual commission meetings and annual law and dispute resolution symposia, both as stand-alone events and in association with other CIB events.

Activities will be organised as projects within the commission (commission study groups) or as joint projects with other CIB commissions and, if more appropriate, as separate CIB Task Groups that work in collaboration with the Commission.

Operational W113-related separate CIB Task Groups have included:

TG79 – Building Regulations and Control in the face of Climate Change

TG80 – Legal and Regulatory Aspects of BIM

TG89 – Construction Mediation Practices

Completed activities

Publication of 2 journal articles:

- Maginathan, S and Agapiou, A (2024). Fraud in Statutory Adjudication: A Comparative Study of Common Law Jurisdictions. *International Construction Law Review*. Volume., 2. Part 2. April. ISSN 0265-1416.
- Agapiou, A. (2024). A Systematic Review of the Socio-Legal Dimensions of Responsible AI and Its Role in Improving Health and Safety in Construction. *Buildings* 2024, 14, 1469. <https://doi.org/10.3390/buildings14051469>
- Completion of Knowledge Exchange Project
- Scottish Funding Council Innovation Voucher Scheme. Ravenscraig AR Heritage and Wayfinding App (with Digitalnauts Ltd and the National Manufacturing Institute Scotland).

Planned activities for the next year

Planned Workshop: The Application of Digital Technologies in Construction Litigation and Dispute Resolution

In the upcoming months, we have planned several events and activities to continue strengthening our commission's mission. We are organising a "Digital Technologies and Construction Law" workshop in collaboration with our industry partners. This workshop aims to explore the latest developments and advancements in the construction industry's application of digital technologies in litigation and dispute resolution.

Submission of Network Grant Proposal

The Responsible AI Network for Construction Safety Compliance (RAINCSA) is an academic-industry collaboration ensuring ethical, transparent, and legally enforceable AI adoption in construction safety. AI's role in compliance remains fragmented and unregulated, requiring transparent governance. RAINCSA brings together construction firms, regulators, and AI developers to create trusted, accountable AI solutions. Activities include best practice repositories, AI fairness audits, and policy alignment. By making AI compliance industry-led, RAINCSA fosters knowledge transfer, policy engagement, and long-term research, ensuring AI adoption enhances safety, accountability, and risk management in the construction sector.

List of latest output

- Maginathan, S and Agapiou, A (2024). Fraud in Statutory Adjudication: A Comparative Study of Common Law Jurisdictions. *International Construction Law Review*. Volume., 2. Part 2. April. ISSN 0265-1416.
- Agapiou, A. (2024). A Systematic Review of the Socio-Legal Dimensions of Responsible AI and Its Role in Improving Health and Safety in Construction. *Buildings* 2024, 14, 1469. <https://doi.org/10.3390/buildings14051469>

Coordinator

Andrew Agapiou , Senior Lecturer University of Strathclyde, UK

W115 (Construction Materials Stewardship)

Objectives and scope

A proposal is being made to change the objective and scope which is attached.

Completed activities

Professor Tayyab Maqsood is part of WBC2025 scientific committee and took part in completing the review of papers submitted in W115.

A change among W115 joint coordinators was proposed and approved in the CIB board meeting in September 2024. As part of the change, Professor Frank Schultman stepped down and the two new joint coordinators were proposed to join Professor Tayyab Maqsood. The two new proposed joint coordinators are as follows:

Professor Holger Wallbaum

Dr Maud Lanau

They are in the process of submitting their documents for approval in CIB coordinator meeting in April. Holger has already submitted and Maud will submit soon.

Part of the documentation requires a three year plan for the commission which is being developed.

Planned activities for the next year

New Joint coordinators to be approved and to become functional.

Involved in WBC2025 and facilitate paper presentations

involved in WSBE26 being hosted at RMIT in June 2026

Coordinator

Tayyab Maqsood, RMIT, Australia

W116 (Smart and Sustainable Built Environment)

This report summaries activities of CIB Working Commission W116, Smart and Sustainable Built Environments.

Objectives and scope

The Commission will focus on the integrated development of both smart and sustainable aspects of built environments and will drive high performance and innovative solutions towards enhanced sustainability. It will follow multi-disciplinary approaches that are based upon functional usage of and interaction with natural environments. Against this background the Commission's mission is:

to promote best practices of integrated development of smart and sustainable built environments with knowledge transfer and benefits to all stakeholders.

The Commission's objectives are:

to encourage global networking, foster awareness and promote understanding of smart technologies and sustainability issues in built environments

to identify, collect, create, discuss, evaluate and disseminate information and knowledge on strategies and best practices for developing smart and sustainable buildings and infrastructure

to analyze, develop and apply appropriate knowledge and transfer this to stakeholders

to promote and facilitate international collaborative research, consultancy and professional education in this field.

Current work programme

- identify appropriate exemplar projects that are applicable to different parts of the world and promote their success stories
- develop and promote international and interdisciplinary research
- conduct CIB SASBE conferences, Commission meetings, workshops and other networking events
- facilitate information dissemination and knowledge management on research and best practices through Internet, CIB reports, books, conference proceedings and journals
- contribute to the CIB vision of being a globally recognized authority on sustainable construction.

Completed activities

As part of CIB's 70th anniversary, W116 worked with Architectural Design and Management (W096) and Construction in Developing Countries (W107); and the Future of the City Centre International Network to hold the [City Centre Sustainable Design Housing competition \(CCSH\)](#) in South Africa. The competition had a significant impact and generated discussion and new ideas on sustainable housing in city centres. It involved 10 schools of Architecture, 12 online seminars, 68 competition entries and 181 students (more [here](#)).

W116 continue to host SASBE seminars and ran the [Learning from Living Labs and Built Environment Testing Facilities Seminar](#) involving the HSB Living Lab, Tropical Technologies Lab, the TU Delft Campus, and the CSIR and NHBC test sites.

W116 represents the CIB on the [Global Consensus on Sustainability in the Built Environment \(GLOBE\)](#) and [Global ABC](#). CIB, along with RILEM, IABSE, fib, ECCS and IASS have established a Global Expert Task Force within GLOBE to support sustainable built environment policy development and initiatives by supra-national and national authorities. Global ABC is a global platform for governments, private sector, civil society, research, and intergovernmental organizations to work together to achieve a zero-emission, efficient and resilient buildings, and construction sector. The Commission's research journal, [Smart and Sustainable Built Environments](#), published by Emerald has grown steadily and publishes 4-5 editions a year and is now on the eleventh volume.

Coordinator

Jeremy Gibberd, CSIR, South Africa

W117 (Performance Measurement in Construction)

Objectives and scope

The CIB W117 research group remains committed to advancing global best practices in construction performance through innovative research and real-world application of the research. For the current year, our objectives are to build and refine the latest Best Value Approach process (BVA 4.0) while addressing new industry challenges driven by automation, digital transformation, and sustainability. The BVA is a procurement, project management and risk management approach which utilizes expertise and performance metrics to increase performance. The primary objectives and scope for this year include:

1. **Redefine Project Management Practices:** Transition from traditional management, direction, and control (MDC) models to leadership-based frameworks emphasizing automation, transparency, and expertise. This includes implementing semi-automated tools for risk management and decision-making.
2. **Enhance the Best Value Approach (BVA):** Focus on refining and simplifying BVA concepts to improve adoption in diverse global industries. Efforts will target applying the latest BVA 4.0 process to various services and research projects.
3. **Promote Industry Transparency through Performance Information:** Continue the development of the Information Measurement Theory (IMT) and related tools to enable real-time access to performance data. This year we will analyze the latest data from our case studies using BVA 4.0 through The Weekly Risk Report.
4. **Expand International Outreach:** Strengthen global partnerships and extend the implementation of BVA and performance information frameworks across new regions. This includes increasing our research partners and certified educators to ensure sustainable adoption.
5. **Foster Future-Ready Professionals:** Continue the integration of W117 frameworks into K-12 and tertiary education systems, equipping the next generation with the skills to thrive in an information-based, automated industry environment.

The W117 research group will operate across three interconnected pillars:

- **Research and Development:**
 - Refine and develop improved semi-automated project management tools, including Weekly Risk Reports (WRRs), to streamline operations.
 - Conduct pilot studies in key regions to refine BVA procurement, project management, and risk management practices.
 - Redefine core concepts such as “expert,” “risk,” and “performance” to align with modern industry demands, ensuring they are measurable and observable.
- **Education and Training:**
 - Maintain the BVA certification system, through industry workshops and conferences.
 - Collaborate with government and private organizations to establish training programs emphasizing the BVA and performance measurement systems.

- Global Collaboration and Implementation:
 - Strengthen the international board of experts to proliferate BVA adoption.
 - Facilitate knowledge exchange by publishing findings in W117 journal and other platforms such as ResearchGate.
 - Collaborate with industry stakeholders to address challenges in adapting theoretical concepts to practical, real-world applications through continuous case studies applying the BVA.

By aligning research efforts with the evolving needs of the construction and broader service industries, W117 seeks to establish itself as a global leader in information-based performance management. This year's objectives will not only build on existing foundations but also set the stage for transformative change, ensuring that W117 remains at the forefront of industry innovation.

Current work programme

The current work programme includes is summarized through activities / project planned for next year. In addition to these planned projects, we hope to:

1. Expand our research partnerships with more pilot BVA 4.0 projects.
2. Publish a journal through our working commission of the latest case studies.
3. Publish a manuscript with the latest BVA 4.0 lessons learned and research conclusions.

Completed activities

1. Clover Meadows Park – City of Longmont (Jan – Dec. 2024). The execution portion of the development of a park (est. \$2M). This project finished up this last year. The results were amazing with a .68% over budget and -7.84% over schedule due to vendor. The stakeholders were amazed at the project and very happy. They plan on presenting this project at the 2025 NIGP National Conference.
2. Dry Creek Park – City of Longmont (Jan – Dec. 2024). The execution portion of the development of a park (est. \$8.5M). This project finished this last year. The project went 12% under budget due to different circumstances and stakeholders were happy to see that!
3. Fox Meadows Park – City of Longmont (Jan – Dec. 2024). The execution portion of the development of a park (est. \$3.5M). The project will continue into next year where it is expected to finish with great results! The project is moving forward despite client changes.
4. Computer Information System Implementation – City of Longmont (Jan – Dec. 2024). The execution portion of the implementation of a new Customer Information System, a Meter Data Management System, a Customer Web Self-Service System, and related products. The vendor is doing a good job in assisting but it will be for a couple of years.
5. Procurement Assistance for the Government of Brazil – Assisting the government agencies in establishing transparent, competitive, and high-quality procurement processes and practices in alignment with the new laws to support the adoption of value-based procurement mechanisms for ICT procurements. Four Brazilian state ICT companies have participated and finished the first phase.

6. Procurement Assistance – City of Santa Fe (Mar – Dec. 2024). The city has been working with some Best Value Experts to create templates and forms to be used in implementing the Best Value Approach with all the new contracts with the city. The city has been using the forms through the year in putting out new projects!
7. Project Management Consulting Services – City of Santa Fe (May – Oct. 2024). The city was looking into procuring PM consulting services to be used on special projects. The approach was adjusted due to client needs but ended up being the fastest rating and procurement that they had seen.
8. The Alpha Program - a professional certification program. The Alpha Program has been collecting, inspecting and documenting the performance of roofing contractors for over 25 years. This program is for the elite group of contractors that have proven through years of documented performance that they provide the highest level of quality in the roofing industry.
9. Automating the Best Value Approach – utilizing the advancements in Artificial Intelligence research partners in the Netherlands have been piloting the use of AI training in each phase of the Best Value Approach within procurement and project management.

Planned activities for the next year

1. Passenger Air Service – City of Santa Fe (July – Dec. 2024). The city is looking for a passenger service into Los Angeles due to a new government regulation. The RFP has been released and we are waiting to hear back from the bidders.
2. Architect and Engineering Services – City of Santa Fe (July – Dec. 2024). The city is looking for a contractor for services required inside the airport. The FAA is reviewing the RFP and it will be released when everything is signed off on it.
3. Health Benefits Program– City of Santa Fe (Oct – Dec. 2024). The city is looking for health benefit programs for the essential needs of their constituents. The RFP has been released and bidders have sent in their proposals. We are in the middle of prioritizing the bidders.
4. Event Planning Services – City of Santa Fe (Oct – Dec. 2024). The city is looking for a contractor to plan events in specific their Fourth of July event. The RFP is being created and reviewed before it will be sent out for submittals.
5. Execution of a \$1M grant from the roofing industry in 2024 to establish a first-of-its-kind roofing center in the US. We will be utilizing all the BVA principles in this research effort.
6. Continued assistance to our research partner (City of Santa Fe) in executing even more projects utilizing the BVA principles.
7. Continued execution of the Alpha Program.

Coordinator

Isaac Kashiwagi, Kashiwagi Solution Model Inc., USA

W121 (Offsite Construction)

Objectives and Scope

The aim of the commission is to act as a global platform of exchange and collaboration in offsite construction research and innovation. The scope of this 'platform' is to build offsite capacity and capability within and across the design, manufacturing, and construction phases/sectors through a socio-technical systems perspective, focusing on people, process, and technology domains.

Current Work Programme

Main programme objectives for the period 2024 – 2027 are:

- To initiate and encourage research efforts and outputs focusing on offsite construction, particularly the priority areas highlighted in the recent research roadmap.
- To develop and introduce a new commission structure, which includes:
 - “regional ambassadors”, to enhance global engagement, influence, and impact of W121.
 - “working groups” to focus on sub-research themes to encourage collaboration among members and the development of `expertise`.
- To maintain and enhance the collaboration with other working commissions, on the areas of common interests (such as W78).
- To organise events, such as W121 conferences, joint conferences with other working commissions, or sessions within conferences (WBC) to create knowledge and experience exchange platforms, travelling different regions of the world, bringing academia and industry together to widen the capacity and impact of W121 and offsite construction.
- To organise/support international conferences and manage sessions within the triennial World Building Congress (WBC2025).
- To support the development of early career researchers, encouraging their involvement in the W121 activities.

Completed Activities

- Members meetings took place in January and October 2024
- The idea of regional ambassadors and sub-research themes was introduced to the members.
- Research efforts by W121 members, such as journal special issue editorship, were communicated to the group, encouraging broader research collaborations and support among members.
- The WBC2025 organising committee was supported through regular attendance at SC meetings and the completion of related tasks, including abstract and full paper reviews.
- The Transforming Construction with Offsite Methods and Technologies conference (20-22 August 2024), organised and supported by the W121 leadership team, provided members with an opportunity to engage with the offsite construction experts from around the world.

Planned activities for the next year

- An online survey will be conducted as an internal audit tool to understand the research interests, capabilities, and aspirations of the W121 members,

supporting the development of strategic plans for growth and fostering collaboration between the members.

- The concept of travelling conferences will be discussed, and an action plan will be developed.
- Collaboration among members on joint publications and grant applications will be actively encouraged.
- W121 sessions will be organised and managed in WBC2025.
- At least two members meetings are planned, including one hybrid meeting (in person and online) at WBC2025 Purdue.

List of latest output

CIB Global Report – Revisiting Offsite: A new Capability – Driven Research Roadmap for Offsite Design, Manufacturing and Construction

Coordinators

- Mohammed Arif – Leeds Trinity University, UK
- Jeff Rankin – University of New Brunswick, Canada
- Volkan Ezcan – Liverpool John Moores University, UK
- Brandon Searle – University of New Brunswick (Coordinator ECR), Canada

W122 (Public Private Partnership)

Objectives and scope

Public Private Partnership (PPP) involves a contractual engagement between private companies and the public sector for their joint participation in the financing and provision of infrastructure and/or services. Our scope and focus in W122, being within the CIB umbrella, has usually been on the built environment domain of PPP, presently on built infrastructure, which is still seen to be the most prominent in PPP applications. However, the research in PPP is continually growing and has moved from a pure construction and built asset focus to a broader perspective encompassing physical and social infrastructure, including topics from finance, law, public administration, construction and built asset management.

Therefore, we have also targeted and pursued areas of development strategy for PPP where a dynamic research and development agenda reaching beyond our 2016 Roadmap for CIB, is now needed in many areas including the following:

- Financing and financial models and structure
- Risk allocation and management
- Transparency and Accountability, including regulatory and institutional frameworks
- Public Policy and Private & Public Sector approaches, attitudes and synergies
- PPP Project Evaluation
- Contractual structures
- Performance indicators

The objectives of the commission are:

- Address PPP at an international level, by expanding the established global forum, to facilitate exchange and synthesis of research identifying new and emerging international practices in PPP in facilities and infrastructure development.
- Expand and further develop the thriving international research and practice community within this PPP field by proactively bringing together academics, practitioners and experts in the field to collaborate on distinct scholarly tasks, apart from targeting meaningful developments in PPP knowledge and practice.
- Organise meetings and workshops to discuss, debate and disseminate current and emerging developments in the field of capital infrastructure design, construction, funding and operation.
- Demonstrate through the events, the importance of emerging new ideas in PPP practice as matters worthy of academic study and research.
- Stimulate the translation of academic research results in PPP into industry-relevant and immediately applicable knowledge.
- Promote the dissemination of information and research output from PPP research through workshops, seminars, conference proceedings and social media.
- Expand the academic and professional core research competencies in PPP.

This report, through the current work programme, completed activities in 2024, planned activities for 2025, and a list of the latest outputs, shows how the objectives are being approached and achieved.

Current work programme

1. Preparations for the W122 Sessions to be held at the 2025 CIB WBC in Purdue University, USA, in June 2025. Abstracts, then papers, were invited in a special call for these W122 sessions too, then submitted and reviewed by us, revised to address review comments, then re-reviewed. Papers that were accepted thereafter are targeted for the planned W122 paper session, while the other W122 session will be conducted in a Brainstorming Workshop mode, as at the two previous WBCs. The W122 theme for WBC2025, is "Public Private Partnership (PPP) - Lessons learned and Ways Forward in meeting emerging needs". These sessions will be co-ordinated by Giovanni Migliaccio and Akintola Akintoye.
2. Plans are also in place for a journal Special Issue to be published, based on developed and peer-reviewed versions of selected papers from the above W122 sessions at CIB WBC 2025, along with other submissions expected from a general call on this theme soon after the WBC 2025, Yongjian Ke, Robert Osei-Kyei and Gabriel Castelblanco. This is being co-ordinated by Mohan Kumaraswamy.
3. Work was completed and materials handed over to the publisher, on an edited book supporting the work of CIB 122, entitled "Consolidating and Developing a Body of Knowledge for Public-Private Partnership Project Management". The Editors Yongjian Ke and Robert Osei-Kyei, attracted book chapters from a spectrum of PPP researchers in many countries, to capture, consolidate and disseminate the accumulated Body of Knowledge in PPP Project Management. This is due for publication in 2025 in the WSP Book Series: Domain-Specific Bodies of Knowledge in Project Management. Editor-in-Chief: Mohan Kumaraswamy. The material for the book is now with the Publisher, WSP.

Completed activities

[A] Edited book supporting the work of CIB 122: The materials were reviewed, refined, finalised and passed on by The Editors Yongjian Ke and Robert Osei-Kyei, to the Publisher WSP, for the edited book supporting the work of CIB 122, entitled "Consolidating and Developing a Body of Knowledge for Public-Private Partnership Project Management" as above.

[B] PPP Panel discussion on 10 Aug. 2024 – held in hybrid mode with an audience at the physical venue in Sr Lanka: SUMMARY with LINK to Zoom RECORDING

'Optimising Use and Minimising Misuse of PUBLIC PRIVATE PARTNERSHIPS in Developing Countries'

CIB W122-WCS PANEL DISCUSSION - hybrid mode (live & via zoom)

This PPP panel discussion was organised by the CIB Working Commission W122 on PPP, the University of Moratuwa and the Ceylon Institute of Builders

Saturday 10 August 2024 - 3.30 to 5.00 PM Sri Lanka time at Taj Samudra Hotel, Colombo, SRI LANKA **and** on Zoom

It was an important plenary session at the World Construction Symposium 2024 (WCS 2024) - the 12th in the WCS series, organised annually by the University of Moratuwa and the Ceylon Institute of Builders

PANEL DISCUSSION AGENDA

A. AIM & BACKGROUND – from CIB W122 Joint Coordinators

Welcome & Panel Discussion Objectives – *Prof. Mohan Kumaraswamy*

Background from Developed Countries – *Prof. Akintola Akintoye*

B. INSIGHTS - from four invited speakers:

Research Prof. Andreas Wibowo (online from Indonesia):

Issues, Challenges, and Recommendations in Value for Money Assessment for PPP Projects in Developing Countries: Insights from Indonesia's Experience

Associate Prof. Yongjian Ke (online from Australia):

Transforming China's PPP Landscape: Key Changes and Strategic Implications from 2023 Onwards

Eng. Nissanka Wijeratne (at venue):

Construction Procurement Landscape in Sri Lanka and current deterrents to Private Investments

Chanaka De Silva PC (at venue):

PPPs: The Sri Lanka experience

C. Q & A, Discussion and Brief Summing-up:

Moderators: *Prof. Mohan Kumaraswamy* and *Dr. Suranga Jayasena*

OTHER PARTICIPANTS:

A. **On Zoom** – 66 registered in advance: from Australia, India, Ghana, United Kingdom, New Zealand, United Arab Emirates, Hong Kong, Rwanda, Indonesia, Malaysia, South Africa, Thailand, Nigeria and Sri Lanka. Numbers **on-line** averaged about 50.

B. **At the Venue** – about 70.

View VIDEO RECORDING of PANEL DISCUSSION: <https://youtu.be/rLknWZ0LL7w>

NOTE: A visual of the Speakers & their Topics, with the Zoom recording link is also attached.

Planned activities for the next year

[1] A Webinar on a 'hot topic' in PPP [possibly similar to those organised from UK in 2023 and from Sri Lanka (in hybrid mode) in 2024.

[2] Publicising and dissemination of insights from the Book on PPP Body of Knowledge to be published in 2025 (as in item **[A]** above).

[3] Other activities, as may be initiated when needed and/or opportunities arise.

List of latest output

[1] A Special Issue of the CIB recognised international journal BEPAM (Journal of Built Environment Project and Asset Management) was published as BEPAM Vol 14, Issue 1, in early 2024. Being supported by CIB W122, it was on the *theme*: "Public Private Partnerships: Past, Present and Future"; and the Guest-Editors were Boeing

Laishram, Ganesh Devkar, Yongjian Ke, Ahmed Abdel Aziz". It contains an Editorial and seven peer-reviewed papers under this theme.

[2] CIB W122 Report co-hosted PPP Panel discussion on 10 Aug. 2024 – held in hybrid mode with an audience at the physical venue in Sr Lanka: on_‘Optimising Use and Minimising Misuse of PUBLIC PRIVATE PARTNERSHIPS in Developing Countries’ conducted in hybrid mode (live and *via* zoom – link to zoom recording available).

Coordinators

- Akintola Akintoye, Leeds Beckett University, UK
- Mohan Kumaraswamy, University of Hong Kong, China PR
- Giovanni Migliaccio, University of Washington, USA
- Yongjian Ke, University of Sydney, Australia – Communications Coordinator
- Marcus Jefferies, University of Newcastle, Australia – Regional Coordinator

W123 (People in Construction)

Objectives and scope

The Commission focus on 'boots on the ground' and frontline managers, professionals, and workers as the people in construction. Despite the advancement in technology and industrial revolutions, onsite construction remains labour-intensive where the contributions of people have a significant influence on the project, organisation, and industry performance.

The Commission, which builds upon the work and antecedent of TG59, involve scholars and practitioner identifying as employers (public and private), contractors and developers, regulators (government or NGOs), and all categories of people in construction operations (craft, technical, professional, and managerial workers), and researchers in both developed and developing countries. The Commission fosters dialogue and collaboration among the people in construction (PIC). The work of the Commission thus brings together researchers:

Who seeks to advance the performance and image of the industry with improved well-being and life of people engaged in various activities on construction sites.

Who aims to improve the lives of people who work on construction sites.

Against this background, the objectives of the Commission include:

to create a network of members who are interested and involved in research into work (employment), people and social issues in construction.

to bring scholars from outside the construction disciplines working on people issues into the network.

to provide a forum for the exchange of ideas on social and people issues in construction concerning: Sustainable Development Goals (3 Health and Well-being, 4 Quality Education, 5 Gender Equality, 8 Decent Work & Economic Growth, 9 Industry, Innovation & Infrastructure, 10 Reduced Inequalities, 11 Sustainable Cities and Communities) in construction; cyber technologies for the fourth Industrial revolution (4IR) (Artificial Intelligence [AI], Quantum Computing, Internet of Things [IoT], Big Data, Blockchain, Cloud) in construction; physical technologies for 4IR (3-D printing, Robotics, New Materials) in construction; health disruptions in the form of pandemics and epidemics (inequalities, job security, revised safe work procedures [SWPs]) in construction; ethical reasoning in construction.

to identify critical issues for future research and possible funding sources.

to disseminate research findings to a broader group of stakeholders working in the field.

Completed activities

1. Scientific journal articles published in Management, Procurement and Law (Proceedings of ICE published by Emerald):

<https://www.icevirtuallibrary.com/toc/jmapl/177/4>

2. Proceedings from CIB 123 and W099 Annual International Conference hosted by KNUST at Kumasi, Ghana in October 2024.

Planned activities for the next year

1. Working Commission sessions at the CIB World Building Congress in Purdue.
2. Planning 2026 Annual Joint (with W099) International Conference Proceedings.
3. Special Issues in CIB Encouraged Journals.

List of latest output

8 Journal articles and over 40 conference papers in 2024

Coordinators

- Fidelis Emuze, Central University of Technology, Free State, South Africa
- John Smallwood, Nelson Mandela University, South Africa

TG97 (Nature-based Solution for Climate Resilient Buildings and Communities)

Objectives and scope

The objective of TG97 is to advance knowledge, science, and practices to facilitate the effective implementation of nature-based solutions (NBS) in urban environments. The aim is to create buildings, communities, and cities where people and nature coexist harmoniously, fostering thriving ecosystems and resilient communities.

To achieve this objective, a multidisciplinary team of researchers from around the globe will collaborate to:

1. **Quantify the Impact of NBS:** Assess the contribution of existing and future NBS in sequestering carbon, reducing carbon emissions from buildings, and moderating urban microclimates.
2. **Develop and Demonstrate Approaches:** Showcase methodologies for developing NBS that support carbon-neutral and climate-resilient buildings and communities. This will include simulations that consider current and projected climate and development scenarios.
3. **Create Best Practices and Guidelines:** Establish a set of best practices and guidelines to empower professionals and policymakers to confidently implement NBS worldwide.

Researchers specializing in nature-based solutions for climate-resilient buildings and communities will contribute expertise in areas such as:

- Urban landscape architecture and planning
- Urban development and community-level modeling, including building energy use and carbon emission calculations under future climate scenarios
- Urban carbon cycle modeling for carbon sequestration analysis
- Urban forestry and tree mapping, including growth forecasting
- Human-environmental interactions
- Urban policymaking and governance
- Urban microclimate modeling
- Building operations, energy efficiency, and indoor environmental quality
- Building thermal and hygrothermal performance and energy simulation

Additionally, the team will prioritize researchers focused on mitigating climate change impacts in urban areas, particularly those addressing Urban Heat Island (UHI) effects on buildings and communities through the implementation of NBS.

Current work programme

The translation of scientific knowledge arising from this task group (TG97) will be prioritized to ensure findings are explained in accessible language and made widely available to the general public. Annual workshops will be organized either on a virtual platform or as focused in-person gatherings, engaging researchers, partners, and key stakeholders, including municipal, provincial, and federal government agencies. Public engagement through focus groups, surveys, and demonstration projects will facilitate the global sharing of activities and advancements in nature-based solutions (NBS).

The 2024 work plan included a virtual meeting held on October 21, 2024, with TG97 members and interested parties. During the meeting, the co-chairs and four other

researchers presented their work on NBS to the audience, accompanied with an open discussion session. The minutes from this meeting are attached in Annex A of this report for further reference.

The current 2025 work plan involves organizing and hosting a workshop alongside the WBC2025 conference in May at Purdue University, holding another virtual meeting with members in October 2025, and preparing a state-of-the-art report on NBS for climate-resilient buildings and communities in collaboration with interested parties. Additionally, there is a proposal to establish a TG97 student chapter to build relationships with Concordia University, Université du Québec à Montréal, Toronto Metropolitan University, University of Toronto, University of British Columbia, and other universities worldwide.

The proposed work plan also includes designing a website to consolidate and share information prepared and provided during the workshop and annual gatherings, as well as newsletters, details of past and upcoming events, and webinars as they are developed. These initiatives aim to enhance the dissemination of information, strengthen collaborations, and advance the global impact of NBS research and applications.

Completed activities

A virtual meeting with TG97 members was held on October 21, 2024. Meeting was organized into three sessions; 1) NBS work conducted in Canada and around globe presented by co-chairs and four other researchers; 2) discussion session, and 2) proposed future work plan. Key discussions included the structure of a global NBS case study report, emphasizing climate zones or NBS types, and the need for consensus on evaluating outdoor thermal comfort. The group proposed developing a comprehensive global index to assess NBS impacts on thermal conditions and health outcomes. A "State of the Art" review was discussed to form the basis of global NBS implementation guidelines, with contributions addressing tools, methods, and evaluation indicators.

Future plans include workshops, virtual meetings, and participation in conferences such as WBC2025, with an emphasis on fostering collaboration and publishing a harmonized guideline for NBS. The meeting concluded with a commitment to advancing NBS research and implementation globally, with action plans and milestones outlined for 2025.

Planned activities for the next year

The proposed activities are listed in the following:

- 1) In-person workshop and gathering at the WBC 2025 – Purdue University, Indiana, USA May 2025
- 2) Virtual meeting in Oct 2025
- 3) In-person workshop and meeting - TBD (April to May 2026)
- 4) Virtual meeting in Oct 2026

List of latest output

The slides, presentations and the recording of the Oct 21st, 2024 meeting is shared with the TG97 members. The detailed agenda is presented in Annex A of the attached report.

Coordinators

- Zahra Jandaghian, NRC – National Research Council Canada, Canada
- Hua Ge, Concordia University, Canada

TG 124 (Net zero carbon building design & construction)

Objectives and scope

The Task Group aims to unite researchers from diverse backgrounds to develop, share, and promote international best practices for reducing carbon emissions in the construction industry. By fostering collaboration and knowledge exchange, the group seeks to identify and implement effective solutions for enhancing the delivery of zero-carbon building and infrastructure design and construction.

Currently, the Task Group is focused on understanding global net-zero carbon practices, with a particular emphasis on sustainable building design and construction. Through comprehensive research and analysis, the group aims to compile, assess, and disseminate valuable insights and strategies that can drive the global transition toward low-carbon and climate-resilient built environments. By leveraging international expertise and fostering cross-disciplinary discussions, the group aspires to bridge knowledge gaps, facilitate innovation, and support policy and industry advancements in the pursuit of net-zero carbon goals. The Task Group aims to bring together researchers to create and share international best practices for reducing construction industry emissions and to seek solutions for improving the delivery of zero-carbon building and infrastructure design and construction. Currently the task group focuses on understanding the global net zero carbon practices focuses on building design and construction to collate and disseminate the knowledge in the field globally.

Task Group Objectives:

1. To create a network of CIB members who are interested in and involved with research on zero-carbon buildings and infrastructure in the construction industry.
2. To provide a forum for exchanging ideas on zero-carbon building and infrastructure practices in construction.
3. To identify key issues for future research and seek collaborative funding from national and international sources.
4. To disseminate research findings within the CIB network and to a broader audience of academics and practitioners working in the field.

Current work programme

The Task Group 124 (TG 124) is actively engaged in multiple initiatives aimed at advancing global knowledge and best practices in net-zero carbon construction. The current work programme includes the following key activities:

1. BEPAM Special Issue and Net Zero Carbon Forum

TG 124 is leading a special issue in the Built Environment Project and Asset Management (BEPAM) journal titled "Creating Capacity and Capability for Net Zero Carbon in the Construction Sector." This special issue will showcase cutting-edge research and practical approaches to achieving net-zero carbon goals in the construction industry.

2. CIB Vistas Funding and Global Net Zero Carbon Survey

TG 124 has received CIB Vistas funding for a research project titled "Global Practices of Net Zero Carbon Building Design and Construction." As part of this initiative, the group has conducted an international survey across seven countries: Australia, New Zealand, Hong Kong, Sri Lanka, South Africa, Italy, and the United Kingdom. The survey aims to capture insights into policies, strategies, and industry

practices that drive net-zero carbon outcomes in the construction sector. The research team is currently in the process of analysing the findings and compiling a comprehensive report, which will be submitted to CIB. This report will provide valuable recommendations for enhancing net-zero carbon practices globally.

Book Publication on Global Net Zero Carbon Practices

TG 124 members are collaborating on a forthcoming book titled "Global Net Zero Carbon Practices in Construction." This publication will offer a comprehensive overview of international strategies, challenges, and case studies related to achieving net-zero carbon targets in the built environment. By bringing together insights from leading researchers and practitioners, the book aims to serve as a key resource for academics, policymakers, and industry professionals working toward a sustainable and low-carbon future.

Completed activities

Please refer to the Highlights and Current Work Programme section of the report for this.

Planned activities for the next year

1. Complete the global survey report and launch it at the CIB World Building Congress.
2. Publish the book "Global Net Zero Carbon Practices in Construction" with Springer Nature.
3. Participate in two panel discussions in the CIB President's Seminar Series related to the Task Group.
4. Publish a journal article based on the global survey in collaboration with TG 124 members.

Coordinators

- Niluka Domingo, Massey University, New Zealand
- Suzanne Wilkinson, Massey University, New Zealand
- Sepani Senaratne, Western Sydney University, Australia

TG 125 (Creating an Inclusive Built Environment for Diverse Users)

Objectives and scope

Our Task Group focuses on the United Nations Sustainable Development Goals 11: Sustainable Cities and Communities. We aim to bring together the international community, specifically industry and academic design experts, policymakers and other stakeholders in the built environment, to work collaboratively on research towards creating an inclusive built environment for diverse users. We have created a network of global researchers interested in providing conducive indoor and outdoor environments (housing and urban forms). This network will facilitate discussions, collaborative research and case studies, and publications on current issues and practices in designing and operating a diverse, user-friendly built environment.

The Task Group/Work Commission aims.

1. Create a global network of researchers in this area.
2. Initiate small-scale research in various parts of the world.
3. Secure funding for the task group to conduct the activities
4. Designing a framework (or toolkit) for recommended strategies for diverse user facilities
5. Organise webinars to showcase case studies – to be recorded and uploaded on YouTube
6. Publish a book on the above topic – a collection of work done in this area

Task Group/ Work Commission objectives are:

- 2024: Launch of TG.
- 2024: Secure funding for international collaborative research.
- 2024: Facilitate a panel discussion at an international conference.
- 2025: Publish a Special Issue in a CIB-recognised journal.
- 2026: Publish a book on Creating an Inclusive Built Environment for Diverse Users with a CIB-recommended publisher.
- Specific Priority Theme Relevance
- Enabling diverse use of the built environment
- Providing connections to nature – biophilic building designs
- Providing healthy, resilient (manmade and natural hazards) and climate-friendly buildings
- Creating intergenerational active spaces
- Promoting inclusion and connectedness
- Smart systems for interactive or proactive use of facilities
- Designing safe buildings and public spaces

Scope of Work

The scope of work for this task group is limited to cities and urban forms. The areas of focus for this task group include:

- Inclusivity and diversity
- Public use and diverse use spaces
- Climate change
- Occupant safety, health and wellbeing

- Comparative global best practices and case studies

Current work programme

- 2025: Host a Special Issue in a CIB-recognised journal.
 - Proposal under development to be submitted to SASBE - accepted in principle
- 2024/2025/2026: Facilitate panel discussions/workshops at international/national conferences
 - Facilitated a panel Session at SASBE 2024
 - Held a discussion stream at NZBERS 2025
 - Secured a panel discussion in collaboration with W116 to be held at WBC 2025
- 2026: Publish a book on Creating an Inclusive Built Environment for Older Adults with a CIB-recommended publisher
 - Proposal under development to be submission by April 2025
 - 2024/2025: Secured funding to support activities
 - Applied for the RICS and CIB Vista Research Funds

Completed activities

- 2024: Have an online presence to showcase our activities and progress
 - Created a LinkedIn Page - CIB TG125: Creating An Inclusive Built Environment for Diverse Users' Needs. <https://www.linkedin.com/company/105041924/admin/page-posts/page-ads/>
- 2024/2025/2026: Facilitate panel discussions/workshops at international/national conferences
 - Facilitated a panel Session at SASBE 2024
 - Held a discussion stream at NZBERS 2025
- 2024/2025: Secured funding to support activities (travel etc)
 - Applied for the RICS and CIB Vista Research Funds in 2024: CIB Vista (not successful); RICS - unknown
 - Planned activities for the next year
- 2025: Host a Special Issue in a CIB-recognised journal.
 - Proposal under development to be submitted to SASBE - accepted in principle
- 2024/2025/2026: Facilitate panel discussions/workshops at international/national conferences
 - Facilitate a panel discussion in collaboration with W116 to be held at WBC 2025
 - Work closely with W116 to achieve objectives
- 2026: Publish a book on Creating an Inclusive Built Environment for Older Adults with a CIB-recommended publisher
 - Proposal under development to be submitted by April 2025
- 2024/2025: Secured funding to support activities
 - Apply for funding in 2025

Coordinators

- Eziaku Rasheed – Massey University, New Zealand

- Esther Yung – Hong Kong Polytechnic University, China
- Kola Akinsomi – University of the Witwatersrand, South Africa