## CIB Commissions' Scope and Objectives

### TG59 People in Construction

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<th>Coordinator(s)</th>
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<tr>
<td>Dr Fedelis Emuze, Central University of Technology, Free State, South Africa</td>
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### Scope and Objectives

The Task Group will focus on "boots on the ground" managers, professionals and workers. Construction is a labor intensive activity and the behavior of people has a huge influence upon the organisation and performance. The Task Group aims to involve representatives of employers, workers and governments, and researchers in both developed and developing countries, and aims to foster dialogue and collaboration.

The Task Group will bring together researchers:

- who will be primarily seeking to improve the performance of the industry and with focus on people
- whose aim is primarily to improve the lives of the people who work in the industry.

Against this background the Task Group objectives are:

- to create a network of members who are interested and involved in research into labor issues in the construction industry
- to bring into the network researchers from outside the construction disciplines who are working on construction people issues
- to provide a forum for the exchange of ideas on social and people issues in construction
- to identify key issues for future research and possible sources of funding
- to disseminate research findings within the network and to a broader group of academics and practitioners working in the field.

Main research activities of the Task Group will focus on various items related to people in construction, including: competencies, aging workers, gender issues, disability, work and labor conditions, H&S, work/life conditions and socio-economic issues, stress, respect for people, skills supply and employment relationships.

### Work Programme

The Task Group work programme for its 2016-2020 term includes:

- production of position papers from different regions in the world with a focus on skills formation, employment relationships, labor conditions and working conditions
- publication of papers in journals
- international conferences resulting in the publication of proceedings
- collection, analysis and publication of best practices, with a focus on people in construction issues in developing countries
- production and publication of an R&D Roadmap, preferably together with ILO.

### Output

- 2019: TG59 sessions at the CIB World Building Congress
- 2020: publication of a Research Roadmap on People in Construction
- 2020: publication of PiC Best Practices
- 2020: International Conference and Conference Proceedings

### Home Page
CIB Commissions' Scope and Objectives

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

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<th>Coordinator(s)</th>
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<tr>
<td>• Prof Dr Ir Henk Visscher, Delft University of Technology, OTB, The Netherlands</td>
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<tr>
<td>• Prof Dr Edwin H W Chan, Hong Kong Politechnic University, China</td>
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**Scope and Objectives**

There is a need to broaden the scope of research worldwide related to building regulation and control and especially for more extensive comparative research involving a greater number of actors form across the globe. The urgent need to address climate change and its relationship with the built environment adds an imperative to this work due to the increasing role that building regulation and control must perform in achieving reductions of CO$_2$ emissions from buildings. Against this background the Task Group will bring together leading experts internationally and will undertake a genuinely comparative study of national building regulations and control regimes in the face of world wide climate change.

The Task Group objectives are:

• to establish within CIB the primary international academic research network for building regulations and control and related policy evaluation in the face of climate change
• to act as a valuable resource for CIB Members and the broader research community
• to provide an overview of the state of building regulations and building control and the related policies to address climate change across a number of countries world wide
• to identify developments in terms of division of tasks between public and private parties
• to identify developments caused by the impact of climate change on building regulatory systems and systems of building control
• to conduct and publish a comparative analysis of these areas.

**Work Programm**

The Task Group will cooperate with and will have meetings in conjunction with CIB conferences as are being organised by Working Commissions W113 on Law and Dispute Resolution and W108 on Climate Change and the Built Environment and by Task Group TG66 on Energy and the Built Environment.

The task Group work program includes:

• to establish an international research group
• to review law and literature worldwide in an interdisciplinary way, drawing upon science, building processes and disparate regulatory disciplines
• to publish about the situation in various countries and about the outcome of international analyses
• to produce a final publication outlining the state-of-development worldwide that inform legislators, actors in the building process and governments.

**Output**

• 2017: publication of a special issue of the journal BRI on: Building Governance an Climate Change: Regulation and related Policies.
• 2019: publication of a Research Roadmap on Climate Change and Building Regulations and Control

**Home Page**
## CIB Commissions' Scope and Objectives

### TG81 Global Construction Data

**Coordinator(s)**
- Dr. Stephen Gruneberg, University of Westminster, UK

**Scope and Objectives**
The Task Group aims to contribute to improving:
- the effectiveness of national processes for the gathering of data on various aspects of construction
- international availability and comparability of such data.

**Work Programme**
The Task Group's Work Programme includes:
- international audit of construction related data and their availability and comparability
- assessment of the international demand for construction related data
- international data collection and coordination
- presentation of international coordinated construction related data via a designated website.

**Output**
- 2018: international construction statistics in a pilot database
- 2018: report on limitations, issues and other considerations related to the development and maintenance of such database
- 2018: publication with scientific papers from CIB conferences on aspects of international construction data

### TG83 e-Business in Construction

**Coordinator(s)**
- Prof Bingu Ingirige, Uni Salford, UK
- Prof Srinath Perera, Western Sydney Uni, Australia

**Scope and Objectives**
ICT facilitated collaborative practices in Construction, such as e-businesses, are gaining momentum. In order for the various stakeholders to gain mutual benefits from enhanced knowledge sharing appropriate technologies and social systems need to be embedded within the collaborative processes. Especially next generation web technologies offer the potential for the construction industry to take its current technological perspective towards a knowledge-based one. Against this background the Task Group objective are:
- to conduct joint research with interested parties
- appraise and promote the use of state of the art web-based technologies for collaboration and e-business in construction
- provide a forum for discussion, debate and evaluation of technologies, research and concepts in the area.

**Work Programme**
The Task Group will achieve:
- to engage in networking with members having common interests in the area of e-Business in Construction
- to conduct interviews and questionnaire surveys to determine the State-of-Art with regard to e-Business in Construction
- to address the gap in knowledge by putting together an edited book in the area of e-Business in Construction.

**Output**

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17/07/19
### CIB Commissions' Scope and Objectives

#### TG87 Urban Resilience: Benchmarking and Metrics

**Coordinator(s)**
- Assoc Prof Pinchao Liao, Tsinghua University, Beijing, China PR

**Scope and Objectives**

In general the Task Group aims:
- to contribute to the enhancement of the awareness of urban resilience
- to encourage better research and education in support of resilient urbanization
- to facilitate knowledge exchange and research feedback from different research groups worldwide
- to stimulate incorporation of resilience engineering in urbanization processes.

In particular the Task Group aims:
- to develop a metrics system that enables the measurement and benchmarking of urbanization resilience in support of decision making by policy makers.

Included in such metrics system will be (key) performance indicators that cover:
- different aspects of resilience, including: technical, organizational, social and economic resilience
- different dimensions of resilience, like: adaptability, mobility, safety and recovery
- different subsystems of urbanization, like: transportation, education, health, electricity, water, culture, etceteras.

**Work Programm**

Components of the Task Group Work Program are:
- research definition
- literature review, resulting in an assessment of available knowledge, tools and systems
- development of a Framework with Resilience Performance Indexes through:
  - questionnaires
  - online Webinars and face-to-face workshops
- framework validation against actual pre-and post-event data
- development of sets of good practices and interference measures.

**Output**
- Benchmarking framework on urban resilience, both with a theoretical justification and practical applicability
- Web-based benchmarking system with a database of applications in disaster situations, with both pre- and post-disaster data

#### TG88 Smart Cities

**Coordinator(s)**
- Prof Dr Miimu Airaksinen, VTT, Finland

**Scope and Objectives**

Innovation in the form of Smart City Solutions can deliver technologies, products and services that meet the dual challenge of reducing greenhouse gas emissions and delivering more efficient services. The rapid development of IT, new technologies for local small scale energy production and new transport solutions are key enablers for cities becoming more resource efficient and at the same time being better able to meet the users' needs. The built environment, i.e. buildings, transport an utility networks, require a reshaping to make better use of technology opportunities. Against this background the Task Group objectives are:
- to analyze the state-of-development on Smart City solutions and to select the most suitable cases
- to develop the CIB community's collection of Smart City solutions and to present how these can be scaled and replicated elsewhere.

**Work Programm**

Components of the Task Group's Work Programme for the period 2016 - 2019 are:
- analysis of current Smart City solutions and a reflection in respect of the Smart Cities Roadmap (see Realized Publications)
- development of the holistic content of good examples in different geographical, social, cultural, climatic and economic regions in the world
- consultation of international experts and stakeholders in webinars
- development and publication of a collection of global Smart City solutions based on the Smart Cities Roadmap.

**Output**
- 2019: Publication of zsmart city solutions
CIB Commissions' Scope and Objectives

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<th>TG89</th>
<th>Construction Mediation Practice</th>
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<td>Coordinator(s)</td>
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<tr>
<td>• Dr Andrew Agapiou, Strathclyde University, UK</td>
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<tr>
<td>• Dr Deniz Artan Ilter, Istanbul Technical University, Turkey</td>
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Scope and Objectives

The value of Mediation in Construction has been widely acknowledged, as evidenced by the continued and dramatic expansion of Mediation in Construction industries across many common en civil law countries. Mediation developments are taking place rapidly, with different modes of implementation in different countries and in some cases with substantially different legal frameworks. In the research community relatively little is known on the potential scope, purposes and practices of court-connected Construction Mediation. Against this background the objectives of this Task Group are:

• to develop a thriving international research community related to the legal perspectives on Construction Mediation Practice
• to generate an international state-of-the-art review that sheds light on how court-connection and lawyers' perspectives have shaped court-connected Construction Mediation Practice
• to produce and publish a Construction mediation Research Roadmap.

Within the broader context of Construction Mediation especially the following themes will be explored:
• diversity of mediation theory and the dilemma of court-connected Construction Mediation
• program characteristics of court-connected Construction Mediation
• roles of participants in court-connected Construction Mediation
• lawyers' perspectives of the goals of court-connected Construction Mediation.

Work Programm

The Task Group Work Program includes:
• regular face-to-face meetings in conjunction with meetings of CIB Conferences and of CIB Commission W113 - Legal and Dispute Resolution, plus online Task Group meetings
• establishment of an online discussion forum for the sharing of knowledge and information and as basis for the development of a virtual community of Construction Mediation practitioners, academics and researchers
• preparation and collection of research on Construction Mediation Practice
• production and publication of a Construction Mediation Research Roadmap.

Output

Home Page
CIB Commissions' Scope and Objectives

TG90  Information Integration in Construction

Coordinator(s)
- Prof Keith Hampson, Sustainable Built Environment National Research Centre (SBEnrc) - Curtin University, Australia
- Ass Prof Dr Rasmus Remling, Chalmers University of Technology, Sweden

Scope and Objectives

The Task Group would focus on addressing the need for:
• efficient knowledge creation, preservation and integration across the life cycle of constructed facilities
• relevant, reliable, interoperable and long-lasting data and information gathering and analysis
• monitoring and feedback from end-users into the different stages of design, construction and asset management of buildings and infrastructure.

This will create a more effective and reflective industry and deliver benefits to public and private asset owners.

The scope of the Task Group is limited to the housing, building and infrastructure design, construction and asset management sectors. The potential to translate findings into other sectors will be of particular interest to government agencies and firms making significant investments in knowledge and information systems integration for whole-of-life asset management. Examples may include manufacturing and equipment supply systems. This will be achieved through analysis at the level of the project, firm and industry, brought together through assimilating buildings and infrastructure case studies across the international industry research partners. In particular, it is envisaged the Task Group's efforts contribute to more appropriate procurement models, including contractual frameworks, project team composition and governance, and information architecture and use.

Work Programme

The Task Group Work Programme includes:
• conduct industry-focussed international case studies
• develop procurement guidelines
• develop a research roadmap

In addition to annual real meetings the Task Group will have regular online meetings in support of the production of its planned output.

Output

• 2015: Task group designated website
• 2016: publication of an industry-focussed CIB report on knowledge and information integration strategies for whole-life asset management

Home Page
The objectives of the Task Group are:

- to develop evidence-based methods to improve the design and delivery of infrastructure from economic and social perspectives, using project and technology best practices.
- to explore new technological approaches to understanding conditioning of existing infrastructures and novel approaches to their maintenance and repair.

The Task Group aims to develop a Research Roadmap to identify greatest contributions and gaps to:

- evidence best practice for portfolio, program and project management of infrastructure design, delivery and improvement, particularly in developing nations.
- uncover emerging novel technical solutions and their relative merits compared to standard practices.
- develop resilient and sustainable solutions for whole-life use.

The Task Group will focus on two research areas that respectively aim to:

- improve the design and delivery of infrastructure projects so that these can be effectively monitored and maintained, particularly later in their life cycle. Themes in this research area may include: whole-life design, project delivery, embedded sensors, big data, sustainability and resilience.
- develop more efficient and effective infrastructure monitoring techniques to detect defects and partial failures before these become catastrophic or move to a point beyond repair. Themes in this research area may include: robotic vision, advanced diagnostic and survey sensors, big data and spatial information, new approaches to cost-benefit analysis.

The Task Group will:

- run a series of workshops, both in-situ and online, to determine where research gaps lie to deliver solutions to the two focus research areas.
- collaborate with other CIB Priority Themes and Commissions.
- run a first conference as part of the CIB 2016 World Building Congress.
- explore possibilities for industry and academic funding.
- establish collaborative relations with the World Bank Group and GIH - the Global Infrastructure Hub.

Output:

- 2015 - run scope development workshops for different participants
- Infrastructure Scope Development Workshops: February in Washington DC, USA, in May, Durban, South Africa, in July, Kolkata, India and Others.
- 2016 - MOU’s for collaboration with World bank and GIH.
The Task Group focusses on:
- understanding the potential for wearable and sensor technology during the construction and use of built environment assets.
- development of human computer interfaces that improve the health and safety and efficiency of the construction process
- multi-disciplinary approach to the communication of visual and aural information by sensors to wearable technology to influence human behaviour in the construction and use of built environment assets

The scope of the Task Group is limited to the housing, building and infrastructure, design construction and asset management sectors.

The potential to translate findings into other sectors will be of particular interest to government agencies and firms making significant investments in wearable and sensor technology for construction and asset management. Examples may include organisations with a significant property portfolio, manufacturing companies and service providers. This will be achieved through analysis at the level of the project, firm and industry, brought together through assimilating buildings and infrastructure case studies across the international industry research partners.

The Task Group Work programme includes:
- industry-focussed international case studies
- development of guidelines for wearable technology
- development of a research roadmap in support of the worldwide development and implementation of sensor and wearable technology in property and construction.

The Task Group will have annual in-situ meetings in conjunction with the annual meetings of CIB Commission W078 on IT in Construction. In addition the Task Group will have regular online meetings.

Output

- 2015 - Task Group Designated website
- 2016 - publication of an industry-focussed CIB report on sensor and wearable technologies
- 2017 - publication of an industry-focussed book on sensor and wearable technologies
- 2017 - publication of a research roadmap on sensor and wearable technologies
### CIB Commissions' Scope and Objectives

#### TG93 | Building Zero Energy Settlements

**Coordinator(s)**
- Prof Dr Thomas Bock, Technical University München, Germany
- Assoc Prof Mattheos Santamouris, National and Kapodistrian University of Athens, Greece

**Scope and Objectives**
The realization of zero (or near zero) energy settlements requires the development and implementation of comprehensive and at the same time affordable and sustainable new technologies and practices, also under the consideration of the optimization of offside production and onsite assembly activities. Based on this background the Commission's objectives are:
- to identify and develop research and industry practices that focus on integrated methods that enable innovative solutions for zero energy buildings and settlements
- to stimulate international cooperation and information dissemination in support of technology deployment for zero energy buildings and settlements.

Areas of attention within the Commission scope, as related to the processes of planning, design, construction and use of zero energy buildings and settlements, include: policies on zero energy buildings and settlements, design methodologies, advanced customized building production, assembly and maintenance methods, IT integrated Sustainable Construction and business models for the realization and use of zero energy buildings and settlement.

As concerns the buildings and settlements themselves areas of attention include: energy harvesting systems, ambient assisted living technologies, building monitoring and control systems, closed loop recycling of systems and components and smart grid system integration.

**Work Program**
The Commission's work program includes:
- annual international workshops
- publications that are the be presented at the 2019 CIB World Building Congress

**Output**
- 2016: establishment of a designated Commission website
- annual workshops in conjunction with CIB and IAARC conferences, with a final workshop in 2019 as part of the CIB World Building Congress

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#### TG94 | Healthy Town

**Coordinator(s)**
* Prof Lei Zhang, CNERCHS, China

**Scope and Objectives**
The concept of Good Health not only implies prevention, monitoring and treatment of diseases, but also maintenance, promotion and enhancement of health in terms of people's physiology, mentality, morality and social ecology. The concept of a Healthy Town refers to a type of human settlement that aims to protect and promote the health of its residents. A Healthy Town has a size of approximately 3 to 5 square kilometers and it provides facilities for live, production, education, entertainment and other functions in an integrated way.

Against this background the commission will focus on research that supports the integration of architecture, medicine, sports, nutrition and other relevant aspects into a holistic system for the planning, design, construction and operation of Healthy Towns.

**Work Program**
- Conducting an international comparative study of relevant standards and developing an evaluation system and a design standard for Healthy Towns
- Collecting, analyzing and publishing case studies on - aspects of - Healthy Towns
- Analyzing the need for research in support of further developing the concept of Healthy Towns
- Establishing best ways for market promotion and demonstration of Healthy Towns in different countries

**Output**
- Publication of proceedings from annual workshops / conferences
- 2017: Commission Website
- 2020: Publication of Case Studies on Healthy Towns

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The Building and Construction Industry has a poor reputation with regard to probity, professionalism and good governance. It is necessary to study underlying factors and determine ways and means of realising change. Against this background the aim of the Task Group is to raise awareness among construction practitioners and researchers of the extent of the incidence of corruption and malpractice and its impact on the quality of life of the citizens; and to explore ways and means of addressing the situation.

The objectives of the Task Group are:

- to gather comprehensive and accurate information on the full situation regarding the incidence of corruption and malpractice in the construction industry; and explore the factors lying at its roots
- to determine the impact of such incidences on the quality of service delivery from constructed items and quality of life of citizens in all countries
- to compile a comprehensive review of the works undertaken, and the actions being taken around the world, at the international, national and industry levels to deal with the problem of corruption and malpractice in construction and to enhance the levels of professionalism in the industry, and highlight best practices
- to contribute to the body of knowledge on the root causes of, and effective remedies to, corruption and malpractice in construction, and to develop sustainable and effective solutions to the problem in all aspects of construction around the world.

The Task Group's scope covers the areas of: professionalism, ethics, transparency and anti-corruption initiatives.

### Work Programme

The Task Group will have an annual international conference and commission meeting that will take place where possible in conjunction with either the CIB World Building Congress or a general conference on a topic such as ethics, transparency and anti-corruption.

The Work programme aims to produce deliverables of special value to the international research community, the community of practitioners and to educators.

### Output

The Task Group will produce the following:

- 2019: Scoping report on the global situation regarding the incidence of corruption and malpractice and its impact on the quality of service delivery and quality of life of the citizens
- 2019: Special issue of a CIB-encouraged or recognised journal
CIB Commissions' Scope and Objectives

**TG96 | Accelerating Innovation in Construction**

**Coordinator(s)**
- Prof Mohammed Dulaimi, Leeds Beckett University, UK
- Dr Taha Elhag, Heriot-Watt University, Dubai, UAE

**Scope and Objectives**

Efforts to transform the Building and Construction Industry to a “smart industry” are expected to shift focus from the physical structure to the intelligent systems and tools that create, operate and control the built environment. This shift will bring about greater opportunities for interface with other industries, such as manufacturing and information technology industries.

The Task Group promotes an agenda that focuses on increasing the pace of innovation in Building and Construction, through examining the different theories and techniques that enable construction firms and projects to deliver innovation quicker.

Against above background the Task Group Objectives are:

- to create a research network and a forum that is focused on the agenda of accelerating innovation in Building and Construction, while also interacting with other industries
- to evaluate the links between innovation theories and good practices in delivering accelerated innovation across the various industries and developing best practice case studies
- to identify research priorities and opportunities to form research groups to target funding opportunities
- to disseminate research findings to promote a wider membership and engage key stakeholders in the construction industry through international conferences, workshops, seminars, journals’ special issues, etc.

The Task Group will address the issue at an international level to identify new theoretical frameworks and develop concepts that builds the research foundation that will enable the investigations of the different aspects and dimensions of this issue. In particular the Task Group will focus on the delivery of innovation to enhance the digital transformation of the construction industry and promote learning across sectors.

**Work Programme**

The Task Group will have annual meetings in cooperation with CIB Commission W065 - Organisation and Management of Construction.

In addition the Task Group will have online meetings and will create a LinkedIn group as to facilitate networking, to promote research and to disseminate research outcomes in the area.

**Output**

* Conference Proceedings
* 2020: Publication State-of-the-Art Report
* 2020: Publication of a CIB Research Roadmap on Accelerating Innovation in Construction
CIB Commissions' Scope and Objectives

W14 Fire Safety

Coordinator(s)
• Prof. Dr. G. Hadjisophocleous, Carleton University, Canada

Scope and Objectives
The objective of this Working Commission are:
• to provide an ongoing research focus and promote international collaboration for the development of a sound technical basis for fire safety engineering (FES) methods
• to promote fire safety engineering methods and their use with performance based codes
• to provide fire safety technology input to the other CIB Commissions as appropriate
• to exchange fire safety engineering outputs internationally, including the standards community.

To meet those objectives W014:
• launches projects with well-defined scopes and limited time schedules
• publishes the output of its work as CIB Publications, in international journals and workshop or conference proceedings
• provides a forum for networking among its members
• organizes workshops with topics in the context of the work program
• initiates the CIB co-sponsorship of conferences that serve the purpose of the commission
• facilitates its members to circulate information on ongoing and completed research projects and research publications
• liaises with organizations that have similar interests.

Work Programm
For the medium future the commission's Work Program includes the following projects / Working Groups:
• WG1 - Design Fires. Task: to review fuel loads and approaches used for design fires development from different studies and statistical data on ignition sources.
• WG2 - Fire Performance of Materials. Task: to review existing data on thermal and mechanical properties of building materials. Information Contact: Dr Steven Craft, Canada
• WG3 - Structural Performance in Fires - Connections. Task: review of existing work on connections.
• WG4 - Structural Performance in Fire - Fire induced progressive Collapse. Task: review of existing work in fire induced progressive collapse. Information Contact: Niall Walsh
• WG5 - Performance Criteria for Performance Based Fire Safety Design. Task: review of performance criteria used in different countries. Information Contact: Dr Noureddine Benichou, NRC, Canada

Output
• WG1 Publication of a report on the State-of-the-Art of design fires
• WG2 Publication of a report on Thermal and mechanical properties of building materials
• WG3 report on Research and knowledge gabs on the structural performances of Connections in Fire
• WG4 discussion paper on structural performance in fire and fire induced progressive collapse

Home Page

17/07/19
### W23 Wall Structures

**Coordinator(s)**
- Prof Jan Kubica, Silesian University of Technology, Poland

**Scope and Objectives**
The Commission aims to provide a scientific basis for the preparation of design standards, building codes and recommendations with particular reference to the structures of load bearing walls, prefabricated panels, in-situ cast concrete and masonry.

**Work Programm**
Commission Working Groups have been established in order to prepare documents (e.g. state-of-the-art on specific aspects of the wall structures, reports on pre-normative research activities, draft recommendations) which serve as the basis for the discussions during the Commission Meetings. The following Working Groups are currently active:
- **WG1**: Serviceability of Masonry Walls Convenor: Hipólito Sousa, Portugal
- **WG2**: Preparation of Codes on Masonry.
- **WG3**: Rehabilitation of Large Panel Buildings
- **WG4**: Historic Masonry Buildings.
- **WG5**: Reinforced and Pre-stressed Masonry. Convenor: J. Kubica, Poland
- **WG6**: Seismic Design of Masonry Structures.
- **WG7**: Complex Shapes in Masonry

**Output**
- Repports from annual meetings
- Guide for Reinforced and Pre-stressed Masonry

### W40 Heat and Moisture Transfer in Buildings

**Coordinator(s)**
- Prof Dr Thomas Bednar, Vienna University of Technology, Austria

**Scope and Objectives**
The Commission's objectives are:
- to explore the phenomena of heat, moisture, air and salts 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

**Work Programm**
There will be annual Commission Meetings in support of information dissemination. Each such meeting will result in a meeting report.

**Output**
- 2019: Publication of a Research Roadmap on Heat and Moisture Transfer in Buildings
CIB Commissions' Scope and Objectives

W55  Construction Industry Economics

Coordinator(s)
• Prof Dr Les Ruddock, University of Salford, UK

Scope and Objectives

The Commission's objectives are:
• to be the leading international research focus for the economics of the construction industry
• to stimulate the development of a theoretical base for the discipline of construction economics
• to support and develop the perception of the important role of the construction industry in the economy.

The Commission will study, evaluate, disseminate, exchange and discuss issues based on these objectives.

The main areas of attention for the Commission’s research include:
• Characteristics of the Construction Firm: Strategic, managerial and production based theories; Transaction costs and contracting; M&A, market entry and international construction; Technology uptake models and construction firms.
• Characteristics of Construction Markets: Identifying construction firms and markets; Imperfect competition in construction; Game theory in construction bidding and contracting; Auction markets and bidding for construction projects.
• Applying Macroeconomic Theory: Use of input-output data for analysis of construction industry; Asset prices, monetary policy and building cycles; Stages of development and construction activity.
• Theoretical Issues: Methodology in construction economics; The property market and demand for new building; Measuring construction productivity.
• Cost Studies and Design Economics: Cost modelling; Life-cycle costing and sustainability; Value management.

Work Programme

The Commission's Work Programme includes the following project:
• Emerging from the Global Economic Crisis. Following the Global Challenge of ‘addressing the global economic crisis’ from the 2010 World Congress, the aim is to produce a report on how the global construction industry should prepare itself to address economic and business sustainability.

The following CIB Task Group has been set up through W055 that operates in close collaboration with the Commission:
• TG81 - Global Construction Data

Output

• Publication of a Research Roadmap on Construction Industry Economics

Home Page
CIB Commissions' Scope and Objectives

**W56 Sandwich Panels**

**Coordinator(s)**
- Dr.-Ing. Thomas Misiek, Germany

**Scope and Objectives**
The focus of this Commission is on Lightweight Self-Supporting Sandwich Panels and related topics in the field of mechanical strength and building physics, including acoustics and fire. In this context the Commission's objective is:
- To exchange information and coordinate research programmes in all technical aspects of construction using lightweight materials
- To prepare synthesised reports on matters of particular interest

**Work Programm**
The joint committee will concentrate on following topics in the coming 2 years:
1. Openings in sandwich panels
2. Connections and fastening of sandwich panels
3. Panels under axial loading and in-plane shear loading (diaphragm action)

These subjects are divided into the following subtopics:
1.1 Strength of panels with opening
1.2 Transmission of loads between panels
1.3 Reinforcement of panels with openings
1.4 Actions on panels with openings
2.1 Fastening of sandwich panels to frames/purlins
2.2 Fastening of additional elements in one face layer of a sandwich panel
3.1 Axially loaded sandwich panels
3.2 Sandwich panels under shear in-plane loading
3.3 Stabilisation of purlins

**Output**
Publication of reports from below mentioned Task Groups
# CIB Commissions' Scope and Objectives

## W62 Water Supply and Drainage

### Coordinator(s)
Prof Dr Lynne Jack, Heriot-Watt University, UK

### Scope and Objectives
The Objectives of the Commission are:
- to report on research results, industrial developments and standardisation progress
- to stimulate concerted research actions between different research teams
- to coordinate the drafting of "states-of-the-art" for selected topics
- to draw up inventories of research and bibliographic lists

The Commission's Scope includes:
- Water supply systems and drinking water treatment (softening, heating etc.) inside buildings
- Water (waste and rainwater) drainage systems in buildings and individual waste water treatment

### Work Programme
Annual seminars are organised 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.

### Output
- Proceedings from annual symposia
- 2019: Publication of a Research Roadmap on Water Supply and Drainage

### Home Page
### W65 | Organisation and Management of Construction

**Coordinator(s)**
- Dr. Graeme Larsen, University of Reading - School of the Built Environment, UK

**Scope and Objectives**

The Objectives of the Commission are:
- to be the leading research and innovation focus for the organisation and management of construction
- to support the creation of construction practices and outcomes that equate to or exceed the best found in other industries, in terms of imagination, energy, effectiveness and efficiency
- to stimulate, facilitate and communicate research and innovation, stressing the integration essential for successful innovation in a complex environment

The Scope of W065 covers all aspects of the organisation and management of construction. In particular the following broad themes will pervade many of its activities: Projects, Companies, Policy and Processes.

**Work Programme**

The Commission has established the following Project:
- In-depth analysis of earlier proceedings of W065. Information contact: Prof David Langford.

The following CIB Task Groups have been set up through W065 that operate in close collaboration with the Commission:
- TG78 - Informality and Emergence in Construction
- TG82 - Marketing in Construction
- TG84 - Construction Reform

A three year pattern of W065 meetings has been adopted:
- in year 1: W065 stream of events as part of the Triennial CIB World Building Congress
- in year 2: Triennial 0W65 Symposium
- in year 3: Possibilities for a variety of more focussed conferences arranged around topics and/or geographical areas.

**Output**

- Proceedings from conferences
- Publication of a Research Roadmap on Organisation and Management of Construction

**Home Page**

http://cic.vtt.fi/projects/cibw065/

### W69 | Residential Studies

**Coordinator(s)**
- Prof Dr Sten Gromark, Chalmers University of Technology, Sweden
- Prof Dr Katrin Paadam, Tallinn Technical University, Estonia

**Scope and Objectives**

The Commission is a network platform in support of the development and strengthening of international and interdisciplinary cooperation as related to residential research in support of the development and presentation of new conceptual perspectives and appropriate theories and methodologies. The network is to include appropriate representatives of researchers, academics, policy makers and practitioners and is to bring together expertise from various relevant areas, including urban and residential sociology, architectural design, economics and business, facilities management, construction and environmental sustainability.

**Work Programme**

The Commission's work programme is organized in four working groups that focus on:
- WG1 - Theoretical and methodological approaches to housing qualities
- WG2 - Transformation processes
- WG3 - Future major challenges
- WG4 - Residential innovations and inventions

**Output**

- Publication by Commission Members of scientific papers in journals and conferences
- Joint publication by Commission Members of books and reports
- Workshops and seminars that facilitate exchange and collaboration between researchers, academics, policy makers and

**Home Page**

http://cic.vtt.fi/projects/cibw065/
# CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>W70</th>
<th>Facilities Management and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator(s)</td>
<td>Prof Dr Ing Tore Haugen, Norwegian University of Science and Technology - NTNU, Norway</td>
</tr>
</tbody>
</table>

**Scope and Objectives**

The Commission aims:

- to foster a deeper 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
- to communicate the work of CIB W070 by publication of its symposium proceedings.

**Work Programme**

The Commission Work Programme is being rewritten.

**Output**

- publication proceedings of conferences
- Publication of a Research Roadmap on Facilities Management and Maintenance

[Home Page](#)
**CIB Commissions' Scope and Objectives**

<table>
<thead>
<tr>
<th>W78</th>
<th>Information Technology for Construction</th>
</tr>
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<tr>
<td>Coordinator(s)</td>
<td>• Prof Robert Amor, University of Auckland, New Zealand</td>
</tr>
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</table>

**Scope and Objectives**

In general the Commission will: organize meetings (physical or virtual) on regular basis; promote international collaboration, research and innovation within the scope of the Working Commission; provide a platform for exchange of ideas and results of research; produce tangible outputs in the form of proceedings and/or special publications like state of the art reports, roadmaps, etc.; interact with CIB Priority Themes and other relevant CIB Commissions as appropriate; provide regular reports about activities for publication in the CIB Newsletter and contribute to the tri-annual CIB World Building Congress.

The scope of W078’s work is broad in terms of the design, construction and occupation and occupancy of constructed facilities, but primarily it relates to the integration and communication of data, information and knowledge in the facility’s life cycle. Information and Communication Technologies (ICT) are relevant to all aspects of the workplace and are seen as a major enabler of productivity improvement as well as more sophisticated and integrated design and construction. Against this background the Commission focuses on:

• Development and application of integrated IT throughout the life-cycle of the design, construction and occupancy of buildings and related facilities
• Demonstration of capabilities developed in collaborative research projects on Construction IT.

**Work Programm**

W078 has the following projects in progress:

• Industry engagement. Information contact: Alain Zarli, CSTB, France and Prof Attila Dikbas, Istanbul Technical University, Turkey
• Women in Construction IT. Information Contact: Robert Armor
• Supporting young researchers. Information Contacts: Assist Prof Jakob Beetz, TUE, the Netherlands
• IDDS CIB Priority Theme engagement. Information Contact: Bob Owen, University of Salford, UK

**Output**

- Papers to CIB Encouraged Journals, especially to the Electronic Journal on Information Technology for Construction - ITCon
- Publication of a Research Roadmap on Information Technology for Construction
- Publication proceedings of 2015 conference

**Home Page**

http://cibw78.org/
CIB Commissions' Scope and Objectives

**W80 Prediction of Service Life of Building Materials and Components**

Coordinator(s)

- Prof Dr Bruno Daniotti, Politecnico di Milano, Italy
- Dr Michael Lacasse, NRC, Canada

Scope and Objectives

The Commission aims to help ensure sustainable building practices and its intended purpose is to provide the building (construction) industry practitioners with the most recent advances in respect to methods for service life prediction (SLP) and the design for durability of building materials, components and assemblies. In this context the Commission is focused on the prediction of service life of building materials, components and assemblies in respect to:

- Informing on the state-of-the-art for SLP by:
  - identifying existing systematic methods for SLP, and;
  - proposing improvements of existing and recommendations for new methods.
- Actively disseminating knowledge of SLP through delivery of CIB publications and in support of the international conference on “Durability of Building Materials and Components” (DBMC) held triennially since 1978.

Commission activities forming part of the Work Programs include:

- Providing information on and enhancing existing methods for: the factorial method of SLP, Stochastic methods and reliability-based approaches to SLP, material and component specific SLP methods, design for durability of building (construction) materials, components and assemblies and damage and dose-response functions as are used for SLP
- Undertaking collaborative projects within the broad community that encompasses both the research and practitioner domains and that help foster the use of SLP methods and methods for design for durability of building components and assemblies.
- Actively participating in standards development initiatives that foster extending the use of SLP methods
- Actively supporting the dissemination of knowledge of SLP through support of the DBMC Conference.

Work Program

- Development of a Research Roadmap on the Prediction of Service Life of Building Materials, Components and Assemblies (contact: Bruno Daniotti)
- Further development and maintenance of an interoperable database for SLP (contact: Bruno Daniotti)
- Developing a Guide for Design for Durability of Wall Assemblies (contact: Michael Lacasse)
- Publishing a State-of-the-Art Report on Conceptualization of SLP defining the concept and establishing criteria for the end of Service Life
- Developing a Guide on the Factor Method as a General Framework for Service Life Prediction; intended to boost the use of this method by practitioners (contact: Jorge de Brito)

Output

- Interoperable database
- 2019: Research Roadmap on the Prediction of Service Life of Building Materials, Components and Assemblies
- 2020: Guide for Design for Durability of Wall Assemblies

**W83 Roofing Materials and Systems**

Coordinator(s)

- Mr. Keith Roberts, Roberts Consulting

Scope and Objectives

The Objective of the Commission are:

- to maintain and grow the international network of professionals who have an active interest in the performance of roofing materials and systems
- to promote the exchange of ideas and findings of relevant research.

Work Program

To compile a series of Reports, recording the findings of meetings and discussions

Output

- Publication of a Research Roadmap on Roofing Materials and Systems
W86 Building Pathology

Coordinator(s)
• Prof Jorge Manual de Brito, IST, Portugal

Scope and Objectives
WO86 is essentially concerned with learning from past and current building pathologies and encouraging the systematic application of that knowledge to the design, construction and management of buildings.
Against this background the objectives of W086 are:
• to produce information which will assist in the effective management of service loss
• to develop and evaluate methodologies for assessment of defects and failures and consequential service loss
• to propose methodologies for prevention and mitigation of building defects
• to analyze costs associated with building pathology
• to promulgate findings to all those involved in the production and management of buildings.

Work Programm
The Commission initiated the following projects:
• Assembling the most relevant bibliography on Building pathology
• Collection and analysis of national case studies of construction defects and failures
• Development of a website that contains links to all relevant building pathology websites
• Development of a Building Pathology State-of-the-Art report.

Output
• Commission related Website
• Publication of a Research Roadmap on Building Pathology

W89 Education in the Built Environment

Coordinator(s)
• Prof Melvyn Lees, Birmingham City University, UK
• Dr Richard Burt, Auburn University, USA

Scope and Objectives
The Commission focuses 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.
The Commission will accomplish its objectives through:
• organising 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.

Work Programm
• Biannual conferences
• Joint project of CIB W089 and ASC on Higher education and professional accreditation worldwide

Output
• Publication on Education and Accreditation worldwide
• 2019: Publication of a Research Roadmap on Education in the Built Environment
CIB Commissions' Scope and Objectives

W92 Procurement Systems

Coordinator(s)
- Prof. Dr. Steve Rowlinson, Hong Kong University, China
- Dr. Peter McDermott, University of Salford, UK

Scope and Objectives
The Commission aims:
- to research into the social, economic and legal aspects of contractual arrangements, appointment systems and tendering procedures used in relation to construction projects
- to establish and comment upon the practical aims and objectives of contractual arrangements and to define the participants and their responsibilities
- to review areas of commonality and differences
- to formulate recommendations and the selection and effective implementation of project procurement systems
- to compare and contrast standard conventions for the various systems of project procurement generally and specifically
- to report and liaise with relevant CIB Working Commissions and Task Groups

Work Programme
Within its Work Programme W092 aims:
- To organise regular meetings to enable experts to come together, in order to discuss ideas and developments with a view to helping establish more effective procurement strategies
- To encourage experts to present learned papers to their peers concerning construction procurement and to arrange, where appropriate, for their publication through the mechanism of CIB
- To produce bulletins reflecting and comparing current practice in the procurement of construction at both national and project level.

W092 has established a Task Group on:
- PPP - Public Private Partnership, with as Task Group Leader: Assic.Prof. Dr. Mohan Kumaraswamy, Hong Kong University

In addition W092 has the following ongoing projects:
- Collection of models related to procurement issues as input to the CIB Compendium on Performance Based Building Models
- Sustainability and procurement. Information Contacts: Dr. Steve Rowlinson
- Organisational Learning.
- Impact of IT on procurement. Information Contact: Dr. Ghassan Aouad, University of Salford, UK
- Procurement Research Agenda. Information Contact: Dr. Stuart Green, University of Reading, UK
- Appropriate procurement strategies. Information Contact: Dr. Mike Lewis, University of the West Indies, Trinidad and Tobago
- Survey on Potential for Implementing Relational Contracting and Joint Risk Management

Output
- Publication of a Research Roadmap on Procurement Systems

Home Page
http://www.cibw92.com/
## W96 Architectural Design and Management

### Coordinator(s)
- Prof Dr Bob Giddings, Northumbria University, UK
- Prof Dr Silvio Melhado, University of Sao Paulo, Brazil

### Scope and Objectives
The Commission's Objectives are:
- to determine where information related to architectural management lies and the means of retrieval, with particular regard to user requirements
- to establish the most effective ways in which designers may meet client needs
- to improve communication between procurement and implementation of the design process in order that supply may accurately reflect demand
- to seek to translate user requirements into architectural concepts and provision of tools for implementation
- to promote excellence in architectural management, practice and design
- to encourage the integration of design values in design and delivery practices.

### Work Programme
The Commission has the following ongoing projects:
- External Communication, including the development of a W96 Home Page. Information Contact: Dr. Ad den Otter
- Production of a research-based book about the Perspectives on Architectural Management by the Commission Members that is to reflect current developments in Architectural Management and to include case studies drawn from practice.

The Commission holds regular international conferences at which CIB Members, researchers and practitioners attend to share best practice. Conference papers are peer reviewed and published in edited proceedings. Events are usually held annually and often in conjunction with major CIB Symposia or in partnership with other CIB Commissions.

### Output
- 2019: publication of a Research Roadmap on Architectural Management

## W98 Intelligent and Responsive Buildings

### Coordinator(s)
- Prof Derek Clements-Croome, University of Reading, UK
- Dr Tong Yang, Middlesex University London, UK

### Scope and Objectives
The Commission aims:
- 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, synthesise, 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.

### Work Programme
Integration and Indicators for and Measurement of - aspects of - Building Intelligence will be topics for seminars

### Output

## Home Page
### CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>W99</th>
<th>Safety and Health in Construction</th>
</tr>
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</table>
| Coordinator(s) | * Prof Billy Hare, Glasgow Caledonian University, UK  
• Dr Fred Sherratt, Anglia Rusk University, UK |

#### Scope and Objectives

The Commission is committed to the advancement of safety and health of construction workers. The tools necessary to accomplish this end include designing, preplanning, training, management commitment and the development of a safety culture.  
A country’s involvement with construction safety is influenced by factors like: varying labour forces, shifting economies, insurance rates, legal ramifications and technological development.

#### Work Programm

The Commission organises Triennial World Conferences plus Annual Regional Conferences which are focussed on topics of regional interest and which in principle are initiated by the respective Regional W099 Sub-Coordinators. The Commission publishes an annual report with a re-refereed and re-edited collection of the best papers on Safety and Health on Construction Sites that are presented and discussed during its Commission Meetings and International Conferences. In addition the Commission is preparing for the production of IJCSH - The International Journal of Construction Safety and Health. The Commission has the following ongoing projects:

- **Study on Future Trends in Construction Safety.** Project Coordinator: Dr. Wim Schaefer, Technical University Eindhoven, Netherlands  
- **Study on Comparability of Safety Performance related Data.** Project Coordinator: Assoc.Prof. Marton Marossezeky, University of New South Wales, Australia  
- **Study on the Implementation of Health Aspects in Construction.** Project Coordinator: Mr. Roto Pekka, Ministry of Social Affairs and Health, Finland  
- **Study on possibilities to integrate Quality Assurance Systems, Management of Safety and Health Issues and Management of Environmental Impacts from Construction.** Project Coordinator: Prof. Dr. William Malloney, University of Kentucky, USA  
- **Study on Quality Assurance on Construction Sites.** Project Coordinator: Assis.Prof. James Jenkins, Purdue University, USA

#### Output

- Proceedings of conferences  
- Publication of a Research Roadmap on Safety and Health in Construction
CIB Commissions' Scope and Objectives

W101 | Spatial Planning and Infrastructure Development

Coordinator(s)
- Dr Morten Gjerde, Victoria University of Wellington, New Zealand

Scope and Objectives

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. Cities in the 21st century should be post-automobile dependent. It is required not only for warming gas reduction but also to exclude mobility and accessibility of residents of all ages or without car. This issue involves transport oriented development, multi-means of transport, compact city, universal design of planning, town centre revitalization and new urbanism.
- Informal Cities. Urban area often includes formal parts such as informal settlement. Rapid urban growth tends to generate informal developments. Problems are hard to solve because they are not legal. How to integrate the informal city into a formal one? Or how does it need to address informal areas to improve the situation? This issue may involve slum issues, illegal small developments, 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 is the unique characteristic of urban planning which is different from machines and buildings. That is why planning needs legal, social and economical systems based on practical theories. This issue may include application of optimization theory, dynamic programming theory, game theory and incentive compatible theory for planning.
- 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. Also, planning decisions will be required on much more scientific grounds. There must be a possibility to develop international technical standards in some part of the land survey, analysis and assessment. This issue may include a land use transportation model, land suitability assessment, categorizing land uses etc.

Work Programme

The Commission operates through annual meetings, at which its Members and other attendees are stimulated to exchange information and most recent insights through the presentation of scientific papers and best practice information and through discussion.

Output

2020: Publication of a Research Roadmap on Spatial Planning and Infrastructure Development
Information and Knowledge Management in Building

Scope and Objectives
Information is an all-pervading ingredient in building, common to research and practice. By giving proper consideration to the flow of information, research results can be usefully translated into innovation and further adapted to provide the knowledge-base for best practice. In an environment in which the tools for making information available are developing at breakneck speed, it is necessary to manage the whole spectrum of information forms in a way that reflects the realities of decision-making in modern building practice.

In this context the Objective for the Working Commission is to cover concerns that are related to information and knowledge management, both theoretical and practical. Special points of attention are the following:

- Interface between general information and the building process and especially the dysfunction in the flow of information between researchers and practitioners. The questions why research results are not put into practice, and how research results and feedback information can be converted and refined to be of practical use will be considered.
- Contemporary information systems bearing on the information needs of the building industry.

Coordinator(s)
Prof Charles Egbu, London South Bank University, UK
Dr Subashini Suresh, University of Wolverhampton, UK

Work Programme
The case-studies approach (of information successes and failures in the construction industry) will characterise the Commission's work. Tasks to be performed during the period 1998-2001 include preparing the following deliverables: i) scientific products for a broad building industry audience, ii) practical products for the benefit of other CIB and UICB members and iii) products of immediate use by the Working Commission’s own members.

In addition the Commission started the following Projects:
- Joint W060 - W102 project Information Models for Performance Based Information Management and Documentation.
- Technology Watch / Technology Transfer to SME's. Information Contact: Ron Sharpe, CSIRO, Australia
- Information Models for Performance Based Procurement and Design

Output
- Internet based database, including: i) case-histories, ii) comparative material on national and international standards and guidelines, iii) ongoing research in the field of information and iv) available information tools
- Book on Enhancing Knowledge Management in Construction Organisations: A Practitioner Guide
- Publication of a Research Roadmap on Information and Knowledge Management in Building

Home Page
CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>W104</th>
<th>Open Building Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator(s)</td>
<td></td>
</tr>
<tr>
<td>• Dr Beisi Jia&lt; University of Hong Kong, China</td>
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<tr>
<td>• Prof Amira Osmann, Tshwane University of Technology, South Africa</td>
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Scope and Objectives

Open Building relates to a number of different but related ideas about the making of environment, for instance the ideas:
• of distinct Levels of intervention in the built environment, such as those represented by urban design and architecture;
• that users/inhabitants may make design decisions as well as professionals;
• that, more generally, designing is a process with multiple participants also including different kinds of professionals;
• that the interface between technical systems allows the replacement of one system with another performing the same function.

CIB W104 seeks to formulate theories about the built environment and to develop methods of design and building construction compatible with the Open Building Implementation concept.

Against above background the three basic objectives of the Commission are:
• 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.

Work Programme

W104 Work Programme includes the following activities:
• Annual international conferences with published proceedings of peer reviewed papers
• Joint meetings with other CIB Commissions and affiliated local research units
• New initiatives with a focus on Open Building in the Health Care Sector
• Workshops on Education for an Open Architecture
• International student competition on Open Building.

Output

• Book in English and Chinese on: Open Building: An international movement
• Publication of a Research Roadmap on Open Building Implementation

Home Page

http://open-building.org/
CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>Work Programm</th>
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The aim of this Commission is to study and effectively disseminate the possible ways and means by which the construction industry of developing countries can be continuously improved to enable them to fulfill the tasks required of them in the nations' drive to achieve social and economic progress.

The objectives of the Commission are:

- to undertake research into areas relating to the construction industry in developing countries, in order to understand its nature, strengths, weaknesses and needs and possible improvement measures.
- to disseminate useful research findings and best practices and monitor and facilitate their implementation
- to provide a forum for the exchange of experiences and information among construction researchers and administrators in developing countries
- to serve as a link between construction researchers and administrators in developing countries and their counterparts in industrialised countries, as well as international agencies involved in the field of construction industry development.

The following special subject areas will provide a focus for the Commission's activities:

- poverty alleviation through construction
- sustainable construction in the context of developing countries
- implications of privatisation for construction enterprises and practitioners in developing countries
- merits of a central agency for managing construction industry development in developing countries
- implications of globalisation for local enterprises in developing countries
- application of information technology in construction in developing countries
- appropriate construction management and economics techniques for developing countries.

The Commission aims to launch international research projects on the following topics and will seek to attract external funds for such projects:

- information technology and its implications for, and applications in, construction in developing countries (in collaboration with CIB W078 on Information Technology in Construction)
- work opportunities for local construction firms
- new business techniques – their relevance to, implications for, and possible application in, construction in developing countries (in line with CIB pro-active programme on Business Process Re-engineering)
- sustainable construction in developing countries (in collaboration with the various CIB Commissions on Sustainable Construction)
- the knowledge-based economy and construction industries in developing countries
- the informal sector of construction industries in developing countries.

Output

- Proceedings from conferences

Home Page
CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>W110</th>
<th>Informal Settlements and Affordable Housing</th>
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<tr>
<td>Coordinator(s)</td>
<td>• Prof. Happy Ratna Santosa, Institut Teknologi Sepuluh Nopember, Indonesia</td>
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</table>

### Scope and Objectives

The commission aims to define how to create sustainable livelihoods in the informal settlements incorporating the inhabitants participation, and how the stakeholders can transfer the technology to assist the community in such settlements in the development or improvement of the settlement physical, social and economic conditions.

Detailed objectives of the commission are:

- to investigate informal settlements that have not previously been adequately researched and to present proposals for their improvement to create sustainable livelihoods incorporating people's participation.
- to educate to transfer technology and technical information and guidance on healthy settlements, housing and socio-economic improvements and to create conditions for technical and cultural exchange between the universities and scientific institutes, NGOs or other stakeholders to the communities in informal settlements.
- to create an international focal point for the collection, organisation and dissemination of research results related to enabling the provision of affordable housing and informal settlements world wide.

The scope of the research on informal settlements and housing includes: government regulations, informal settlements and housing policies and programmes, social-economic issues and people participation, housing design, housing delivery system, building technology transfer and guidance, land development, site planning and housing for special need groups, as well as housing in disaster situations.

### Work Programme

The following Phases and Activities are distinguished in the commission's work programme:

**Phase 1**
- Circulation by e-mail of the project and intended work plan, scope and term of reference for the project.
- Finalization of active project participants, roles and resources.
- Preparation of proposal for funding.

**Phase 2**
- Research, documented information from other researchers.
- Establish an information interchange network among researchers and practitioners

**Phase 3**
- Research progress presentation and meeting.
- Report on the information interchange network.
- Agreement on way forward for the project

**Phase 4**
- Finalization of continent reports
- Documentation of the research reports
- Publication and dissemination (Journal, conference)
- Final meeting

### Output

- Publication of articles in journals
- 2019: Publication of a Research Roadmap on Informal Settlements and Affordable Housing
- * 2019: publication of a book on Informal Settlement and Affordable Housing, in support of HABITAT NewUrban Agenda

**Home Page**
### W111 Usability of Workplaces

**Coordinator(s)**

- Assoc Prof Geir Karsten Hansen, Norwegian University of Science and Technology

**Scope and Objectives**

Within the scope of the commission there is a focus on the concept of usability of workplaces, as applied in a range of building types, including commercial buildings and buildings for healthcare and education.

Research themes within this scope include:

- Usability concepts, tools and methods
- Economy, efficiency and effectiveness
- Context, culture, situation, performance, experience.

The Commission's objectives are:

- to conduct a series of case studies and associated workshops, involving users, practitioners and researchers in a programme of action research
- to develop concepts of usability for application in practice
- to promote, develop and share methods, processes and techniques for the evaluation of the built environment in use.

**Work Programm**

The following presents the Workplan of the commission for the years 2006-2008:

- further round of collaborative case studies and workshops
- annual symposium to consider and discuss results of usability case studies
- dissemination and publication.

**Output**

- Publication of a Research Roadmap on Usability of Workplaces

### W112 Culture in Construction

**Coordinator(s)**

- Dr Wilco Tijhuis, University of Twente, Netherland
- Dr Isabelle Chang, University of Hong Kong

**Scope and Objectives**

The 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, focussing 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 evolulutional 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.

**Work Programm**

**Output**

- Publication of a Research Roadmap on Culture in Construction

### Home Page
CIB Commissions' Scope and Objectives

W113 | Law and Dispute Resolution

Coordinator(s)

- Dr Andrew Agapiou, Strathclyde University, UK
- Ms Jennifer Charlson, University of Wolverhampton, UK

Scope and Objectives

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 specialists 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.

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 organized 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.

As from June 2009 operating W113 Study Groups are:

- COPA: Comparative Study on Enforcement of Payment & Adjudication in Construction Contracts in Singapore, Hong Kong and Mainland China
- LARC: Legal Aspects of Relational Contracting
- (under preparation) LABIM: Legal Aspects of Building Information Modeling (BIM), possibly to be organized as a joint project of various CIB commissions.

Operational W113 related separate CIB Task Groups are:

- TG79 - Building Regulations and Control in the face of Climate Change
- TG80 - Legal and Regulatory Aspects of BIM
- TG89 - Construction Mediation Practices

Output

- Publication of a Research Roadmap on Law and Dispute Resolution

Home Page

http://www.lawlectures.co.uk/w113/
<table>
<thead>
<tr>
<th>W114</th>
<th>Earthquake Engineering and Buildings</th>
</tr>
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<tbody>
<tr>
<td><strong>Scope and Objectives</strong></td>
<td></td>
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<tr>
<td>The Commission aims to promote communication amongst researchers and engineers worldwide in support of the implementation and use of harmonized design guidelines for sustainable buildings against earthquake, for which building owners can set target performances for buildings; not only to the allowable damages that prevent buildings from collapsing, but also in order to maintain fully operational conditions after buildings have been subject to severe external design earthquake loads that may occur just once or even less during their planned service life. During 2007 - 2010 a focus will be on supporting the worldwide dissemination of responsive control techniques, including the promotion of the application of such techniques in developing countries with a high risk for earthquake disasters. For this purpose the Commission will organize symposia and publish guidelines in reports, books and other media.</td>
<td></td>
</tr>
</tbody>
</table>

| Work Programm |
| During the period 2007 - 2010 the Commission will organize annual symposia and will publish a report or book each year. |

| Output |
| • Publication of a Research Roadmap on Earthquake Engineering and Buildings |
| • International survey and comparison of design codes and guidelines for buildings with response control devices |
| • Guides for response control techniques and for harmonized design guidelines for buildings with response control devices |

| Home Page |
| http://www.cibw114.net |
CIB Commissions' Scope and Objectives

W115 | Construction Materials Stewardship

Coordinator(s)
- Prof Dr Abdol R Chini, University of Florida, USA
- Prof Dr Frank Schultmann, Karlsruhe Institute of Technology, Germany

Scope and Objectives
The Commission aims to develop methods, strategies and initiatives to promote:
- effective use of new and existing construction materials
- utilization of sustainable materials
- regeneration of the construction material resource base
- use of waste to make construction materials
- building, component and material reuse
- minimization of construction waste
- deconstruction and design for deconstruction
- design and utilization of transformable and adaptable buildings
- renovation and adaptable reuse of existing buildings
- use of life cycle costing and management for CMS
- collection of evidence to support policy and regulatory development for CMS

Work Program

Commission subgroups have been established with a focus on the following topics/objectives and with the indicated leader/information contact per subgroup:
- to develop systems to mitigate and ultimately avoid construction materials waste. (Subgroup 3) Contact: Gilli Hobbs
- to develop ways of using material wastes as raw material for making construction materials. (Subgroup 4). Contact: Shiro Nakajima
- to develop methodologies for designing for closed loop materials use and for the effective recovery of materials and components from existing buildings. (Subgroup 5). Contact: Charles Kibert
- to develop design and construction methodologies for transformable and adaptable buildings and spaces to extend service life and so reduce overall construction material resource use. (Subgroup 6).

A programme task in support of this is:
- to develop a Commission Database containing all accessible literature with accompanying literature reviews on (aspects of) Construction Materials Stewardship plus information on relevant initiatives, interventions and programmes in member countries. Information contact: Charles Kibert

Output
- Publication of a Research Roadmap on Construction Materials Stewardship

Home Page
http://www.cibw115.org/
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 analyse, develop and apply appropriate knowledge and transfer this to stakeholders
- to promote and facilitate international collaborative research, consultancy and professional education in this field.

Work Programme

During the first five year period 2007 - 2012 the Commission's work programme seeks to:

- 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.

Output

- Regular and Special issues of the SASBE Journal
- 2019: Publication of a Draft Research Roadmap on Smart and Sustainable Built Environment For Discussion
- 2020: Publication of a Research Roadmap on Smart and Sustainable Built Environment

Home Page

http://www.cibw116.org/
## CIB Commissions' Scope and Objectives

### W117 Performance Measurement in Construction

**Coordinator(s)**
- Prof Dr Dean Kashiwagi, Kashiwagi Solution Model Incorporated, USA
- Prof Dr Sicco Santema, Delft University of Technology, The Netherlands

**Scope and Objectives**
The need to understand and appropriately benchmark and use performance data, together with the consequences of non and inappropriate use are essential for the development of the construction industry worldwide. Against this background the commission's objectives are:

- to explore the optimal uses of performance information in the built environment
- to create a worldwide resource center of knowledge of proven methods for implementing and sustaining performance metrics in an organization or in the industry
- to develop performance measurements as appropriate for different countries by engaging researchers and practitioners worldwide
- to support researchers, scholars and practitioners and like-minded individuals and organizations in their quest to improve their understanding and awareness of Benchmarking Construction Performance Data.

**Work Program**
Programme activities for the immediate future include:

- to develop a living online database of performance metrics, methodologies and results
- to strengthen and improve the CIB Encouraged Journal for the Advancement of Performance Information and Value, in terms of its wider appeal, content and quality.
- to host regular international conferences in the area of Benchmarking Construction Performance Data.

**Output**
- [Home Page](http://cibw117.com/)

### W118 Clients and Users in Construction

**Coordinator(s)**
- Dr Kim Haugbolle, SBi - Aalborg University, Denmark
- Prof David Boyd, Birmingham City University, UK

**Scope and Objectives**
Clients and users play a significant role in shaping construction and real estate. Getting a better grasp of their aspirations, needs and behavior will open up new and important roads for the industry to deliver more value for money. Against this background the aim of the Commission is:

- to bring together the experience and expertise of researchers and practitioners
- to develop, share and disseminate appropriate research theories and practices for successful client management of procurement and innovation
- to encourage and facilitate new collaborative and multi-disciplinary research both within and outside of CIB.

The Commissions will define what constitutes Clients and users in Construction, will identify appropriate procurement and management strategies, will classify methods for engaging users in decision making processes and will develop appropriate related guidance material for clients and users.

**Work Program**
The commission's programme objectives for the first three-year period 2014 - 2016 are:

- to revise the commission's research agenda and road map
- to establish an interactive virtual community
- to establish a researchers' network
- to publish a book on clients' agency, governance and innovation.

**Output**
- Launch of a designated website and weblogs in support of a virtual community
- Publication of a book on clients and users

**Home Page**
Customised Industrial Construction

Coordinator(s)
- Prof Dr Ing Thomas Bock, Technische Universität München, Germany

Scope and Objectives

Industrialisation in Construction will become more customer oriented. Systems for adaptable manufacturing and robot technologies will merge the best aspects of industrialisation and automation with aspects of traditional manufacturing. Concepts of mass customisation can be implemented via the application of robots in prefabrication processes, on site in service. Drivers for such concepts are:
- the potential of such advance construction technologies to enable new business opportunities for the construction industry in order to deliver more efficient and customised products and services
- the increasing changes in demographics, life styles, cities, economies that require personalised socio economic and socio technical processes and services to be more affordable.

Against this background the commission will focus on the following areas for international research:
- Industrialised customisation in automation and robotics in factories, on site and in building services
- Design for industrialised customisation
- Strategic deployment of industrialised customisation.

The commission aims:
- to become the core of the world's leading international research community on Customised Industrial Construction and how this impacts upon processes in architecture, construction and real estate
- to facilitate to bring in new knowledge and frontier technologies from various profession, including: ICT, Automation, Robotics, Mechanical Engineering, Mechatronics and Product-Service Engineering
- to expand the professional core competence in the construction industry.

Work Program

During its first years the commission will have commission meetings each year in conjunction with major CIB and IAARC conferences. The commission aims to develop its own series of international conference and workshops.

The commission works through project groups that during its first years will focus on:
- production and publication of an R&D Roadmap
- development of new professional courses and curricula
- publication of handbooks for professionals.

Output

- Definition of a concept for an international course curriculum, supporting the deployment of new professional areas
- Exploration of possibilities for an international Master Course, teaching network and/or certification system in support of Customised Industrial Construction
- Publication for handbooks for aspects of Customised Industrial Construction.
## W120 Disasters and the Built Environment

### Coordinator(s)
- Dr Jason von Meding, University of Florida, USA
- Dr Ksenia Chmutina, Loughborough University, UK

### Scope and Objectives
Rapid growth of urban centers presents numerous challenges to humanity, many of which can be addressed through built environment solutions. In the face of more frequent and powerful hazards, the future of vulnerable and growing populations is increasingly perilous. Against this background the objectives of the Commission are:

- to explore optimum means of engaging multiple stakeholders in collaborative projects that address issues of disaster and development through built environment solutions
- to encourage strategic urban planning through development of an evidence base supporting built-in disaster risk reduction (DRR)
- to advocate for the deployment of the appropriate built environment professionals in support of DRR activities
- to develop tools / frameworks / models to support built environment organizations in complex environments in a variety of global contexts
- to support the embedding of disaster and development issues in the curriculum of built environment disciplines globally, encouraging the consideration of broader career paths.

### Work Program
The Commission's Work Program includes:

- stimulating and facilitating experts' discussion worldwide via social media
- triennial updating of a Research Roadmap
- best practices Webinar series
- participation with scientific sessions and workshops in international conferences and congresses, including the triennial CIB World Building Congress and the i-Rec conferences
- triennial conference on Disasters and the Built Environment under the responsibility of the Commission
- setting up and facilitating an International, Commission related Student Chapter on Disasters and the Built Environment

### Output
- Establishment group blog on Disasters and the Built Environment: Emergent Issues
- Establishment designated LinkedIn group on Disasters and the Built Environment
- Establishment of an International Student Chapter on Disasters and the Built Environment
- Special Journal issue in IJDRBE - the International Journal of Disaster Resilience in the Built Environment

### Home Page
Scope and Objectives

The precursor of this Commission CIB TG74 produced a Research Roadmap for Offsite Construction that emphasized the need for work in such areas as: Design / Construction / Manufacturing, with specific emphasis on ICT integrated solutions, socio-economic drivers, identifiable costs and value streams, including the need for skill development to support the concept of Offsite Construction. One of the main challenges highlighted for integration, particularly in aspects relating to the Design, Construction and Manufacturing Industries, to enable process innovation in Offsite Construction, which will be the prime focus of the Commission in the 2016 - 2019 period.

Against this background, within the scope of the Commission the focus will be on: Process improvement, Innovation, Visualization, Process models, Strategic and operational business models, Training and development.

Output

Main program objectives for the period 2016 - 2019 are:

• to establish a community of researchers and practitioners and in particular to promote CIB's work in this area with early career researchers and doctoral students
• to organize a series of developmental (sessions within) conferences, to run special issues in leading international journals and to organize a series of designated CIB Innovation Webinars
• to develop a research strategy to address theories relating to process innovation for Offsite Construction and to develop a Research Roadmap addressing strategies, theories and as quick wins

Work Programm

Main program objectives for the period 2016 - 2019 are:

• 2016 - 2018: one or two annual CIB Innovation Webinars
• 2017: planning of designated sessions in future conferences
• 2017 - 2018: one annual special journal issue
• 2018: hosting of one or two high-impact workshops
## CIB Commissions' Scope and Objectives

<table>
<thead>
<tr>
<th>W122</th>
<th>Public Private Partnership</th>
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<tbody>
<tr>
<td><strong>Coordinator(s)</strong></td>
<td></td>
</tr>
<tr>
<td>• Prof Akintola Akintoye, Leeds Beckett University, UK</td>
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<tr>
<td>• Prof Mohan Kumaraswamy, University of Hong Kong, China PR</td>
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### Scope and Objectives

Amidst mounting global pressures for more effective and efficient forms of PPP, specific current needs were identified and presented in the CIB PPP Research Roadmap. This presents as main research themes: Financing and financial models and structures; Risk allocation and Management; Transparency and Accountability including Regulatory and Institutional frameworks; Public Policy and Private/Public Sector behaviors; PPP Project Evaluation; Contractual structure; and PPP Performance Indicators.

New innovations and novel approaches are being developed in the formulation and implementation of PPP around the world. This calls for a new or additional research agenda for PPP, in addition to the roadmap already produced.

The scope or the Commission is informed by the description of Public-Private-Partnerships (PPP) as joint ventures, in which a private consortium and public or governmental bodies cooperate; each applying its strengths to develop a project to deliver public services more quickly, more efficiently and with better value for money. Consequently, the Working Group will facilitate research forum for academics, practitioners and experts in the field at international, national and regional levels.

The Commission has as objectives to:

- 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
- 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.

### Work Programm

The Commission will facilitate the research forum for academics, practitioners and experts in the field at international, national and regional levels through meetings and publications.

### Output

- 2017: Consolidated summary of relevant PPP outputs from 6th World Construction Symposium in Sri Lanka and CIB conference at Salford University research week, UK
- 2017: Establishment of designated Linkedin group on PPP developments and initiatives
- 2018: Special Journal issue in BEPAM or JFMPC on emerging initiatives in PPP.