

CIB Task Groups' and Working Commissions' Scope and Objectives

TG59 **People in Construction**

The Task Group will focus on human resource issues in the construction industry. Construction is a labor intensive activity and the behavior of people has an enormous 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 amongst those in the network
- 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 information and employment relationships.

TG72 **Public Private Partnership**

Public-Private-Partnerships (PPP's) are joint ventures, in which business and government cooperate; each applying its strengths to develop a project more quickly, more efficiently or otherwise better than government could accomplish on its own.

There are many ongoing studies concerning PPP's for infrastructure, facilities and services delivery in the construction environment that need to be coordinated to develop a body of knowledge across the world. This will allow various features of PPP (social, economic, political, cultural, etc.) to be captured and documented.

Against this background the Task Group The Task Group will address PPP on an international level by providing a forum to facilitate exchange and synthesis of research and by identifying emerging international practices concerning PPP in facilities and construction development. The Task Group's objective is to develop a thriving international research community within the field of public private partnership through involving practitioners and experts in the field to collaborate on distinct scholarly tasks.

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

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 from 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 CO₂ 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.

TG81 **Global Construction Data**

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.

TG83 **e-Business in Construction**

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.

TG86 **Building Healthy Cities**

The Task Group will address the planning, design, construction, management and maintenance and deconstruction of buildings, built infrastructure and whatever else constitutes the built environment in cities. This will include both new and existing buildings and infrastructure in both developing and developed countries.

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TG87 Urban Resilience: Benchmarking and Metrics

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.

TG88 Smart Cities

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 and utility networks, require a reshaping to make better use of technology opportunities. Against this background the Task Group objectives are:

- to develop the CIB community's vision and to define perspectives for the future of cities under the impacts of the expected development of the new technologies as related to the production and distribution of energy, virtual services, urban transport and opportunities for better urban living and working
- to create a strategic roadmap for building and construction related research as needed in support of the creation of future smart cities.

TG89 Construction Mediation Practice

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 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.

TG90 Information Integration in Construction

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.

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TG91 **Infrastructure**

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.

TG92 **Wearable Sensor Technology**

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.

TG93 **Building Zero Energy Settlements**

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 offsite 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.

W014 **Fire Safety**

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.

W023 **Wall Structures**

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.

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W040 Heat and Moisture Transfer in Buildings

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 discuss 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 knowledge of heat, moisture, air and salts

W055 Construction Industry Economics

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.

W056 Sandwich Panels

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 Commissions objective is;

- To exchange information and coordinate research programmes in all technical aspects of construction using light weight materials
- To prepare synthesised reports on matters of particular interest

W062 Water Supply and Drainage

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

W065 Organisation and Management of Construction

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.

W069 Residential Studies

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.

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W070 **Facilities Management and Maintenance**

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.

W078 **Information Technology for Construction**

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.

W080 **Prediction of Service Life of Building Materials and Components**

The Commission will consider the prediction of service life of building materials and components by identifying and developing systematic methodologies and areas for improvement of existing methodologies, by recommending new methodologies and by informing on the state-of-the-art.

It is envisaged that access to research on Service Life and Durability will be offered through the Internet. As well, guide lines will be prepared in regards to the use of different Service Life Prediction Methods, including the Factorial Method and Stochastic Methods and the Reliability Approach. Finally, concepts related to damage, dose-response and performance-in-time functions and their interrelations will be outlined.

W083 **Roofing Materials and Systems**

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.

W086 **Building Pathology**

W086 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.

W089 **Education in the Built Environment**

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

The Commission aims:

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

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.

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W092 Procurement Systems

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

W096 Architectural Management

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.

W098 Intelligent and Responsive Buildings

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.

W099 Safety and Health in Construction

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.

W101 Spatial Planning and Infrastructure Development

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 not 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.

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W102 Information and Knowledge Management in Building

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.

W104 Open Building Implementation

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.

W107 Construction in Developing Countries

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.

W110 Informal Settlements and Affordable Housing

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.

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W111 Usability of Workplaces

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.

W112 Culture in Construction

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 evolutionary aspects of culture to be included in investigations
- to research into the related cultural topics of organizational climate, ethics, CSR, and OCB; and other related topics to provide a more comprehensive understanding of culture and its consequences
- to enhance relationships with other CIB Commissions, and beyond, to disseminate findings and stimulate further collaborations and investigations.

W113 Law and Dispute Resolution

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

- to establish a thriving international research community in the fields of law and dispute resolution
- to contribute to the wider building and construction research agendas through encouraging the active engagement of legal scholars with other specialist in the field
- to coordinate efforts to identify and address emerging legal challenges faced by the global construction and property industries through building a coalition of stake-holders 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.

W114 Earthquake Engineering and Buildings

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.

W115 Construction Materials Stewardship

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

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W116 Smart and Sustainable Built Environments

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.

W117 Performance Measurement in Construction

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.

W118 Clients and Users in Construction

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.

W119 Customised Industrial Construction

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.

CIB Task Groups' and Working Commissions' Scope and Objectives

W120 Disasters and the Built Environment

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.

W121 Offsite Construction

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.