Construction and Society: A Global Challenge

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CIB Mission

To promote and facilitate research and innovation on priority themes of regional and/or global significance for building and construction

Serve as:
- a source of broad-based authoritative information, and
- a forum for international collaborative forum

Enhance quality of life, sustainability, and economic prosperity
Construction and Society

• **Priority focus areas**
  - Resilient (and sustainable) urbanization
  - Sustainable construction
  - Integrated design and delivery solutions

• **Scope of priority areas includes**
  - Societal needs
  - Advanced research
  - Critical technologies
Societal Needs

- Urbanization of communities
- Infrastructure development and maintenance
- Housing for low-income and aging populations
Advanced Research

- Sustainability and energy efficiency
- Health, safety, and disaster resilience
- Building and construction technology and processes
Scope of Advanced Research

Sustainability and Energy Efficiency:
Use resources efficiently while preserving or enhancing environmental quality

Health, Safety, and Disaster Resilience:
Prepare for, prevent, mitigate, and/or rapidly recover from effects of natural and manmade disasters

Building and Construction Technology:
Use critical technologies to enhance prosperity, sustainability and quality of life
Critical Technologies

- Information technology
- Sensor networks
- Wireless communication
- Adaptive control
- Smart materials
- Cyber-physical systems
CPS - A Systems Context

Physical Systems
- Machines
- Facilities
- Infrastructure
- Fleets
- People

Cyber Systems
- Data/information
- Communications
- Sensing
- Monitoring
- Wireless
- Analysis

Life-Cycle* Performance Optimization
- Efficiency & Sustainability
- Agility & Flexibility
- Reliability & Resilience
- Safety & Security

* Design, build, operate, use, maintain, service, dispose/recycle
CPS Testbed at NIST

- Smart Manufacturing
- Smart MicroGrid
- Smart Structures
- Smart FireFighting
- Smart HealthCare

Smart Community
My Vision

CIB will be a major force for positive change in construction and society