

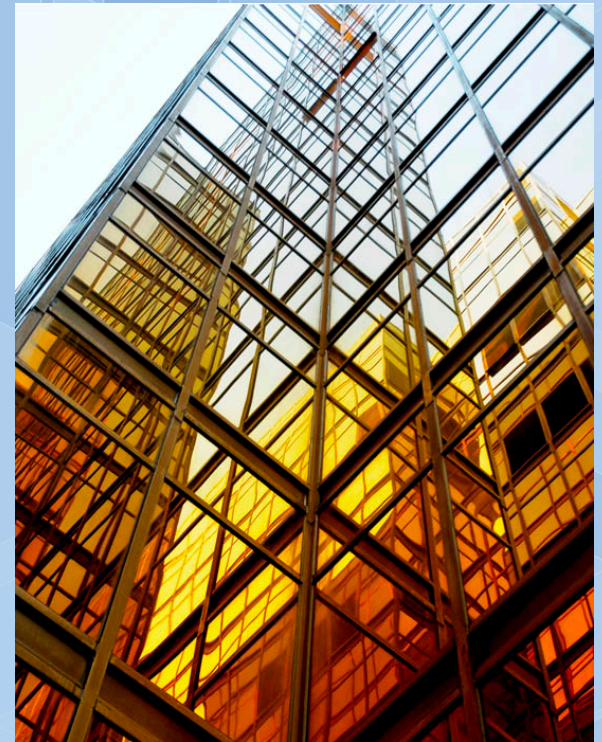


**International Council
for Research and Innovation
in Building and Construction**

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CIB International Seminar
Tokyo, Japan

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:

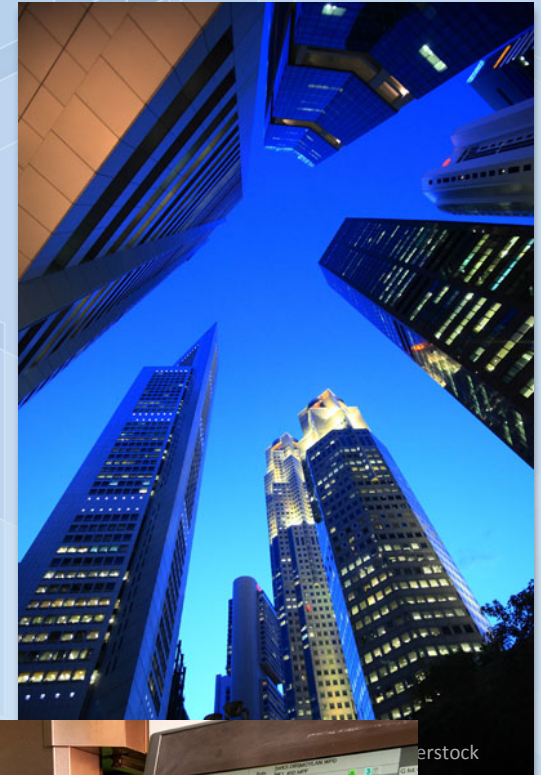
- a source of broad-based authoritative information, and
- a forum for international collaborative forum

Enhance quality of life, sustainability, and economic prosperity

WHY HOW WHAT

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

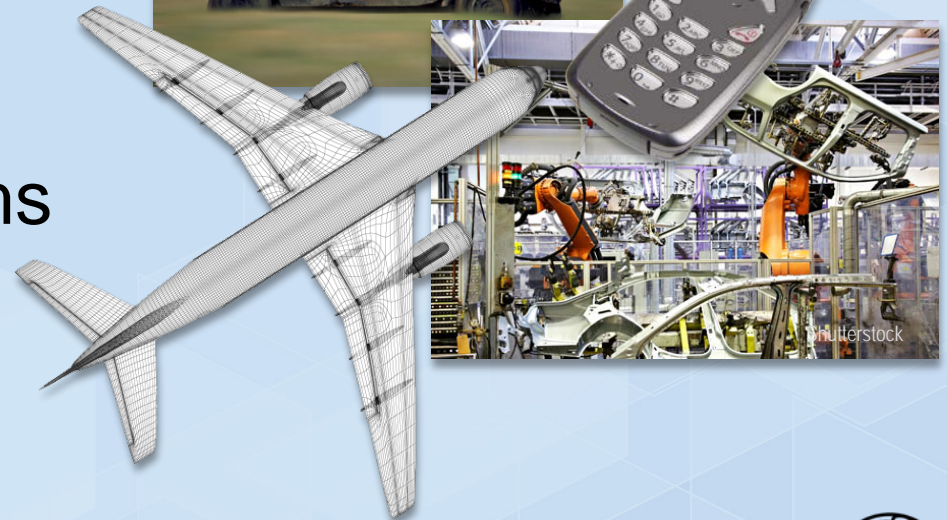
Building and Construction Technology:

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

- Machines
- Facilities
- Infrastructure
- Fleets
- People

Physical Systems



Cyber Systems



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

Life-Cycle*
Performance
Optimization

Cyber Physical Systems



- Efficiency & Sustainability
- Agility & Flexibility
- Reliability & Resilience
- Safety & Security

* *Design, build, operate, use, maintain, service, dispose/recycle*

SMART Cyber-Physical Systems



**Buildings
& Structures**



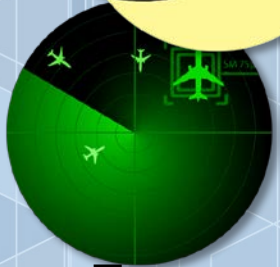
Infrastructure



**Emergency
Response**



Transportation



Healthcare



Warfighting



Smart Production

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

