

**Report of Task Committee B**  
**NEXT-GENERATION BUILDING AND INFRASTRUCTURE SYSTEMS**

**Date:** 14 May 2007

**Place:** National Institute for Land and Infrastructure Management, Tsukuba, Japan

<b>Attendees:</b>	U.S. Side -	Douglas Foutch (Co-Chair)	NSF
		Noël Raufaste (Acting Co-Chair)	NIST
		William Roper	GMU
		Josephne Malilay	CDC
		Fuyuen Yip	CDC
		Jennifer Rice	UI
	Japan-side -	Takashi Kaminosono (Acting Co-Chair)	BRI
		Hiroshi Fukuyama (Co-Chair)	BRI
		Hitoshi Shiohara	Tokyo Univ.
		Taiki Saito	BRI
		Koichi Morita	BRI

### **1. Objective and Scope of Work**

#### **(1) Objective**

The objectives of the Task Committee are to enhance the development and implementation of innovative and new 1) structural and non-structural materials; 2) enabling technologies such as structural health monitoring and multi-hazard performance based engineering; 3) evaluation, analysis, design, construction, and maintenance methods through cooperative individual and organized and networked analytical and experimental approaches for the next-generation building and infrastructure systems.

Opportunities during the next five years include topics on multi-hazard resilient buildings, embedded systems for the health and productivity of occupants, and collaborations with other researchers and practitioners.

#### **(2) Scope-of-Work**

- a) Conduct joint workshops and joint meetings to identify research opportunities, new projects including multi-hazard risk reduction strategies and measures, and make recommendations for the UJNR Panel.
- b) Encourage the development and application of new technologies, smart sensors, and intelligent materials to improve the health, safety, and productivity of construction workers and building occupants as well as reducing building impact on the environment.
- c) Develop new materials and technologies for condition assessment, retrofit of existing buildings, and design of new buildings.
- d) Coordinate development of databases, test procedures, and guidelines for interpretation of test results and their applications.
- e) Coordinate joint research including the utilization of experimental facilities.
- f) Enhance the exchange of information and personnel.

### **2. Accomplishments**

- (1) The key accomplishment was the Workshop on Technologies for Next Generation Buildings that initiated the Panel's charge for TCs to cluster with TC D, Wind Engineering, and TC I, Structural Fire Performance, and with other experts to improve productivity and reduce workshop costs (February 25-27, 2007).
- (2) The Workshop resulted in a process to develop a five-year strategic research plan that addresses high-performance buildings' abilities to better resist the effects from extreme wind, earthquakes, and fire

