UJNR Panel on Wind and Seismic Effects

Panel Update

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23RD US-JAPAN T/C G BRIDGE ENGINEERING WORKSHOP AND FHWA/NILIM/PWRI ANNUAL BRIDGE ENGINEERING MEETING 2007

The Panel on Wind and Seismic Effects' Task Committee G (T/C G), Transportation Systems hosted its 23rd US-Japan Bridge Engineering Workshop during 4-11 November 2007, at the Public Research Institute (PWRI), Tsukuba, Japan. The first three days focused on exchanging the Task Committee's recent bridge engineering research and technology with emphases on 1) Advanced Seismic Engineering, 2) Multiple Hazards, and 3) Long Term Bridge Performance. Forty-four technical papers were presented during these three days. The 26 Japanese delegation members and 18 US delegation members were led by Mr. Jiro Fukui (Japan-side T/C Chair), PWRI, Japan, and Dr. W. Phillip Yen (US-side T/C Chair), Federal Highway Administration, Department of Transportation, (FHWA/DOT), respectively, including PWRI researchers, NILIM researchers (the National Institute for Land and Infrastructure Management, Ministry of Land, Infrastructure and Transport, Japan), FHWA researchers, State DOT bridge engineers, industrial practitioners, and academic researchers. The workshop closed with the Resolutions that the 24th Bridge Engineering Workshop will be held in the U.S. in the fall of 2008. The past Workshop's agendas and technical papers are available at http://www.pwri.go.jp/eng/ujnr/tc.htm; the 23rd Workshop agenda and technical papers soon will be uploaded. A half-day government-to-government (FHWA/NILIM/PWRI) meeting was held during the afternoon of 7 November to discuss bridge engineering, seismic engineering, and administrative issues.

Following these meetings, the US participants and members of Japan side's Task Committee participated in three-days of technical site visits in Kyushu that included the recently constructed and award-winning Megami-Ohashi Bridge and Shin Saikai Bridge of Nagasaki Prefecture and bridge construction sites of the Fukuoka-Kitakyushu Expressway Public Corporation. Technical meetings with bridge engineers from these authorities were held on these bridge's advanced technologies. The on-site technical meetings addressed applied technologies of bridge engineering that complemented the fundamental bridge engineering research topics discussed during the workshop. Those on-site technical meetings helped the participants understand practical applications of recent technologies, differences and commonalities of bridge design and construction methods between Japan and US, and issues to be discussed in the following workshops.

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Site visit to the Megami-Ohaashi Bridge, Nagasaki, Japan.

THE SIXTH JOINT NEES/E-DEFENSE RESEARCH PLANNING MEETING
- A COLLAPSE TEST ON A FULL-SCALE FOUR-STORY STEEL BUILDING-

The Sixth Joint NEES/E-Defense Research Meeting was held during 27 - 28 September 2007 at E-Defense, Miki City, Japan. This meeting was based on the August 2005 Memorandum of Understanding (MOU) between the NEES Consortium, Inc. and the National Research Institute for Earth Science and Disaster Prevention (NIED) on Earthquake Engineering Research using E-Defense and NEES facilities. The MOU focuses on many aspects of earthquake engineering, this U.S. and Japan joint research addresses issues of "steel buildings" and "bridge structures." Forty-four Japanese and thirty-five U.S. participants from universities, research institutes, governmental organizations, and engineering companies attended the meeting.

During the plenary session, Mr. Konaka, Executive Director of NIED delivered the opening address and the directors from E-Defense and NEES presented their respective research programs. After the plenary session, breakout sessions on steel structure research and bridge research were held. In these sessions, active discussions centered on research progresses and future programs. Japanese researchers are planning to conduct E-Defense tests on full-scale steel and bridge structures funded by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT). U.S. researchers plan to conduct five E-Defense tests sponsored by the U.S. National Science Foundation (NSF). Discussions from this meeting and results from these tests will greatly contribute to improving the seismic performance and design of structures.

During this meeting a collapse test of a full-scale four-story steel building was conducted. A live Internet broadcast was carried out worldwide during the test that was monitored by more than six hundred people. The test specimen was designed under the current Japanese specifications and practices. The specimen was excited by three-dimensional motions based on the record recorded at JR Takatori Station in Hyogoken-Nanbu Earthquake. Such strong excitation caused buckling at the head and bottom of all six steel-pipe columns of the building's first story and resulted in large shear deformation on the first story. Results from this test demonstrated that earthquake motions exceeded the Building Standard Code level and could cause serious building damages. Following this milestone test, E-Defense tests on full-scale buildings with passive dampers and base isolations are planned in the next year.

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Joint NEES/E-Defense Research Planning Meeting.

Four-story steel building after shake test.