NARLabs 國家實驗研究院
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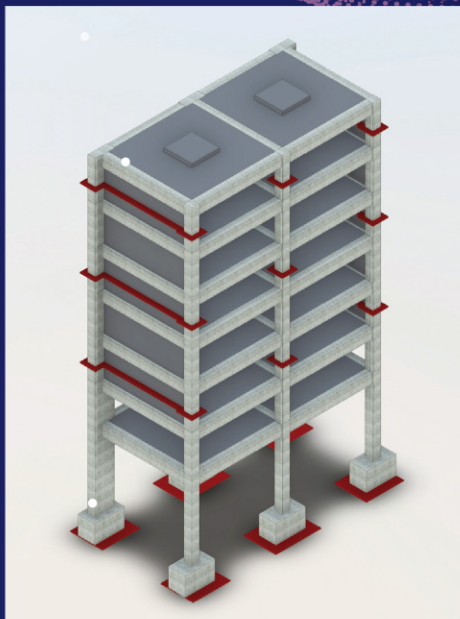National Center for Research on Earthquake Engineering

Blind Analysis Contest on a 7-story Reinforced Concrete Building under Near-fault Earthquakes

1:2 scale 7-story RC building model

Collapse of Weiguan Jinlong Complex in the ML-6.6 Meinong Earthquake

Contest Schedule

2018/8/13
► Announcement of the contest outline and schedule, and distribution of the building model design, including specifications of structural components and basic material properties.

2018/11/1
► Deadline of entry application.

2018/11/17
► Submission of pre-test analysis results by participants.

2018/11/1-20
► Shaking table tests at NCREE Tainan Lab.

2018/12/3
► Distribution of actually achieved table acceleration records.

2019/1/2~2019/3/31
► Submission of post-test analysis results by participants.

2019/5/31
► Announcement of the winners.

Purpose

On February 6, 2016, an ML-6.6 earthquake on the Richter magnitude scale occurred in the Meinong District of Kaohsiung City, Taiwan. The earthquake caused catastrophic damage to Tainan city, including a significant number of collapsed and severely damaged buildings and 117 deaths. The collapsed buildings showed the structural disadvantages of irregularities and soft stories. In Taiwan, near-fault effects on building structures are a critically important issue. The high performance of the shaking table in NCREE Tainan Laboratory is capable of reproducing the characteristics of near-fault ground motions. A blind prediction contest is held in order to contribute to the development of computational prediction of seismic responses and efficient modeling techniques for reinforced concrete frame buildings involving near-fault effects and "soft/weak" 1st story condition. The goal is to promote efficient seismic performance assessment methods for reinforced concrete frames. Accordingly, shaking table tests of a 1/2-scale 7-story reinforced concrete frame building model will be carried out. Each of the participating teams shall predict the responses before and after the tests, and the closest prediction to the test results will be awarded.

Category

The contest is categorized by the types of participants. Winners will be selected for each of the following categories:

1. Researchers (including students)

2. Practicing Engineers.

Analysis may be carried out by (but not limited to) finite element analysis with shell and/or solid elements, or 3D/2D-frame analysis using fiber elements and/or beam-column line elements with plastic hinges.

Each category will have at least two winners according to the type of participants. All the award winners will be honored by the host.