

Achievement from Seismic Performance of Building Model Competition

The competition is mainly supported by Computer & Structures (CSI) and organized at Asian Institute of Technology (AIT). There are two main categories: Graduate Level and Undergraduate Level. Many universities from different countries such as Nepal, Pakistan, Malaysia, Thailand, Cambodia, and Myanmar participated in this competition.



The competition is intended to encourage creativity, productivity, and seismic engineering knowledge for the students. The building model should stand all the different amplitudes and frequencies on the shake table till the last time. The criteria for model is;

- The building model should be 5-storied.
- Each floor should be able to carry a minimum of 7 kg.
- Column size, column area, bracing dimensions are limited.
- Base isolation is restricted.

Our Judges



Prof. Pennung Warnitchai
Professor in Structural Engineering,
School of Engineering and Technology,
Asian Institute of Technology (AIT), Thailand.



Dr. Virote Booniyapinyo
Assoc. Professor in Structural Engineering,
School of Engineering and Technology,
Thammasat University (TU), Thailand.



Dr. Sutat Leelataviwat
Assoc. Professor in Civil Engineering,
Department of Civil Engineering,
KMUTT, Thailand.

Our Concept for Competition

At the earlier time on shake table, we tried to make our model to be able to stand against high frequency. To get higher resonance frequency, we isolated floor mass from the building system. We tried prototype models and found that the concept can work. We used cables to isolate and level the floor and tied these cables to the floor beams making sure that the load is distributed uniformly. In the 5-storied model, the columns need to be prevented from buckling and we have large open space in mid span. Then, we strengthened the main columns with surrounding small columns and braced them together to get the function of truss column which is very effective and strong. Some of the energy is also dissipated using hand-made springs attached in the shaking direction.



Cables

Truss
Column



Photos : On CSI Celebration Day

Table – Graduate Level Building Models

Team – SEA, AIT, Thailand



Team – MCE - KMUTNB, King Mongkut's University, North Bangkok, Thailand



Team – Double A, Thammasat University, Thailand



Team – Duct, AIT, Thailand



Table – Undergraduate Level Building Models

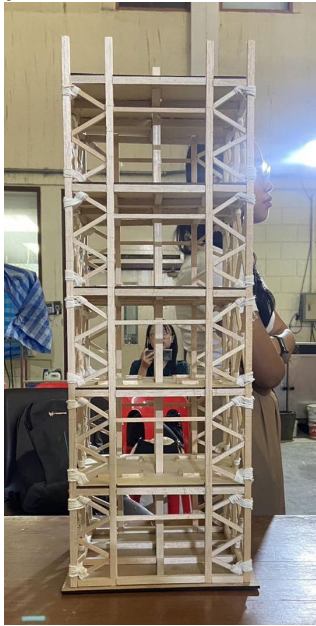
Team – UM, University of Malaya, Malaysia 	Team – Mod Earthquake, King Mongkut's University, Thonburi, Thailand 
Team – Seismic Savants, NED University, Pakistan 	Team – Alpha, King Mongkut's University, North Bangkok, Thailand 

Table – Undergraduate Level Building Models

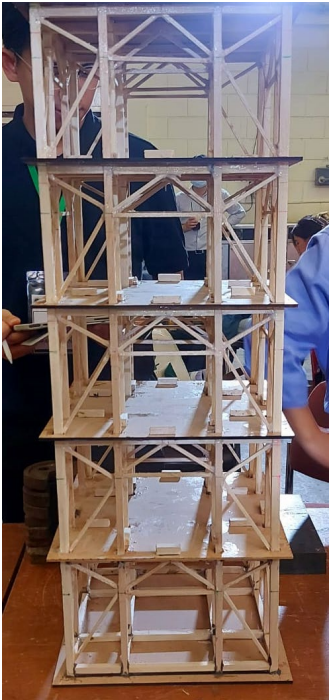
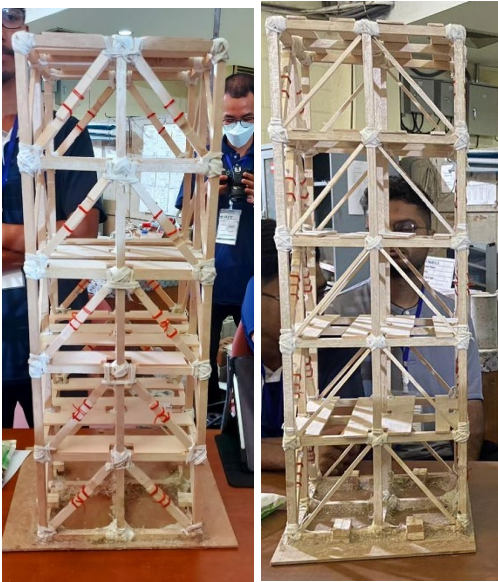
Team – Truss Us, King Mongkut's University, Thonburi, Thailand 	Team – QuakeMakers, University of Lahore, Pakistan 
Team – RUS Suphan, Rajamangla University, Thailand 	Team – Pulchowk, Tribhuvan University, Nepal 

Table – Winning Teams

Graduate Level

Team – Duct, AIT, Thailand



Undergraduate Level

Team – MU for Health, Mahidol University, Thailand

