

**13th Five-Year plan for
National Science and Technology Infrastructure Program**

**Facility for
Earthquake Engineering Simulation
(FEES)**

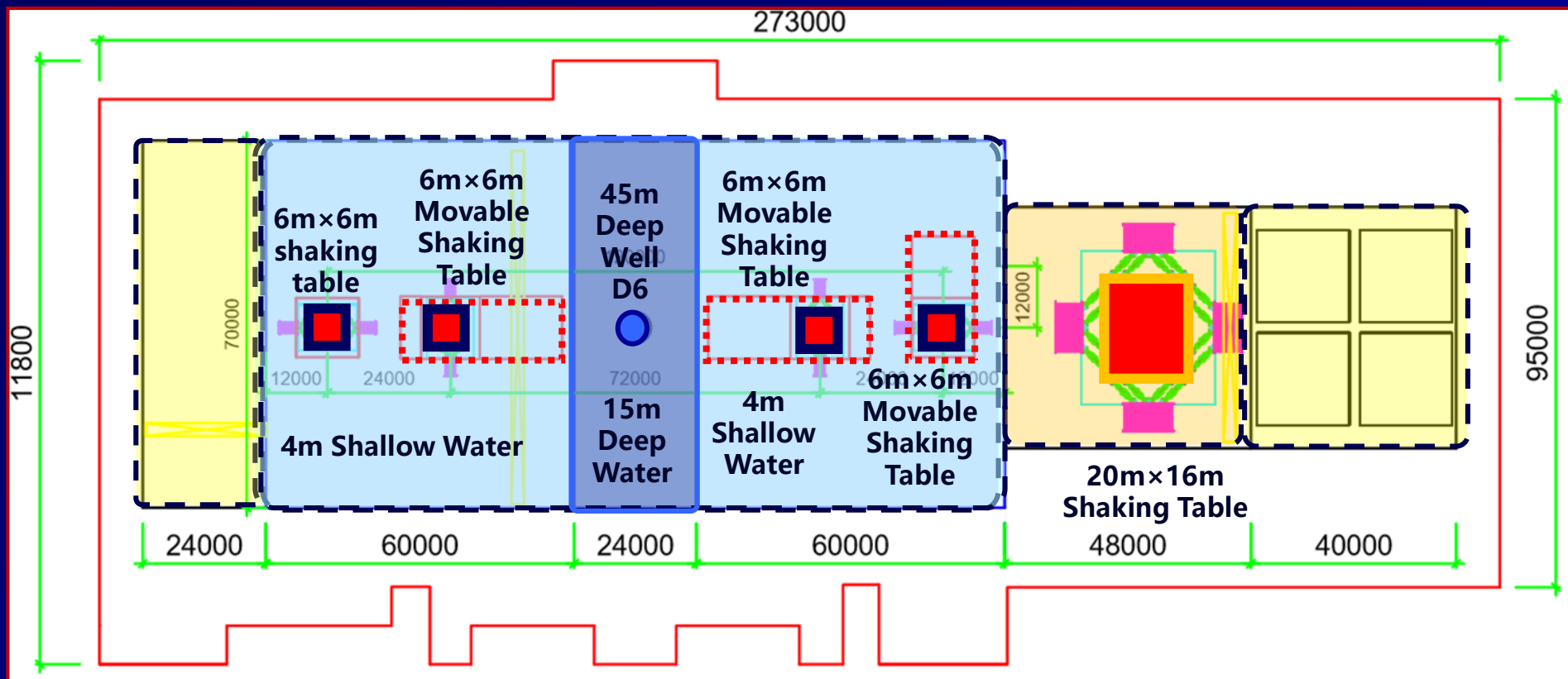
Proposed by: Tianjin University

Supervised by: Ministry of Education of PRC

2017

System Configuration

- FEES will satisfy the needs to conduct full/large scale tests with multi-tables, and coupled earthquake and hydrodynamic loadings with high-speed wave and currents.



Specifications

● Shaking table system

	Size (m)	Load (t)	DOF	Disp.(m)	Vol.(m/s)	Acc. (m/s ²)	Fre.(Hz)
Main (1)	20x16	1350	6	$\pm 1.0/\pm 1.0/\pm 0.5$	$\pm 1.5/\pm 1.5/\pm 0.7$	$\pm 15/\pm 15/\pm 20$ (1.5g/1.5g/2.0g)	0.1~50
Medium (4)	6x6	150	6	$\pm 0.5/\pm 0.5/\pm 0.3$	$\pm 1.5/\pm 1.5/\pm 0.7$	$\pm 15/\pm 15/\pm 20$ (1.5g/1.5g/2.0g)	0.1~50 0.1-100

- Medium shaking tables can be controlled to act together or operated individually with independent motions.
- Two of them are moveable tables along the longitudinal direction with a total range of 20m.
- Another table can move along the transverse direction with a total range of 12m.

Wave and Current Simulation Facility

Wave generator:

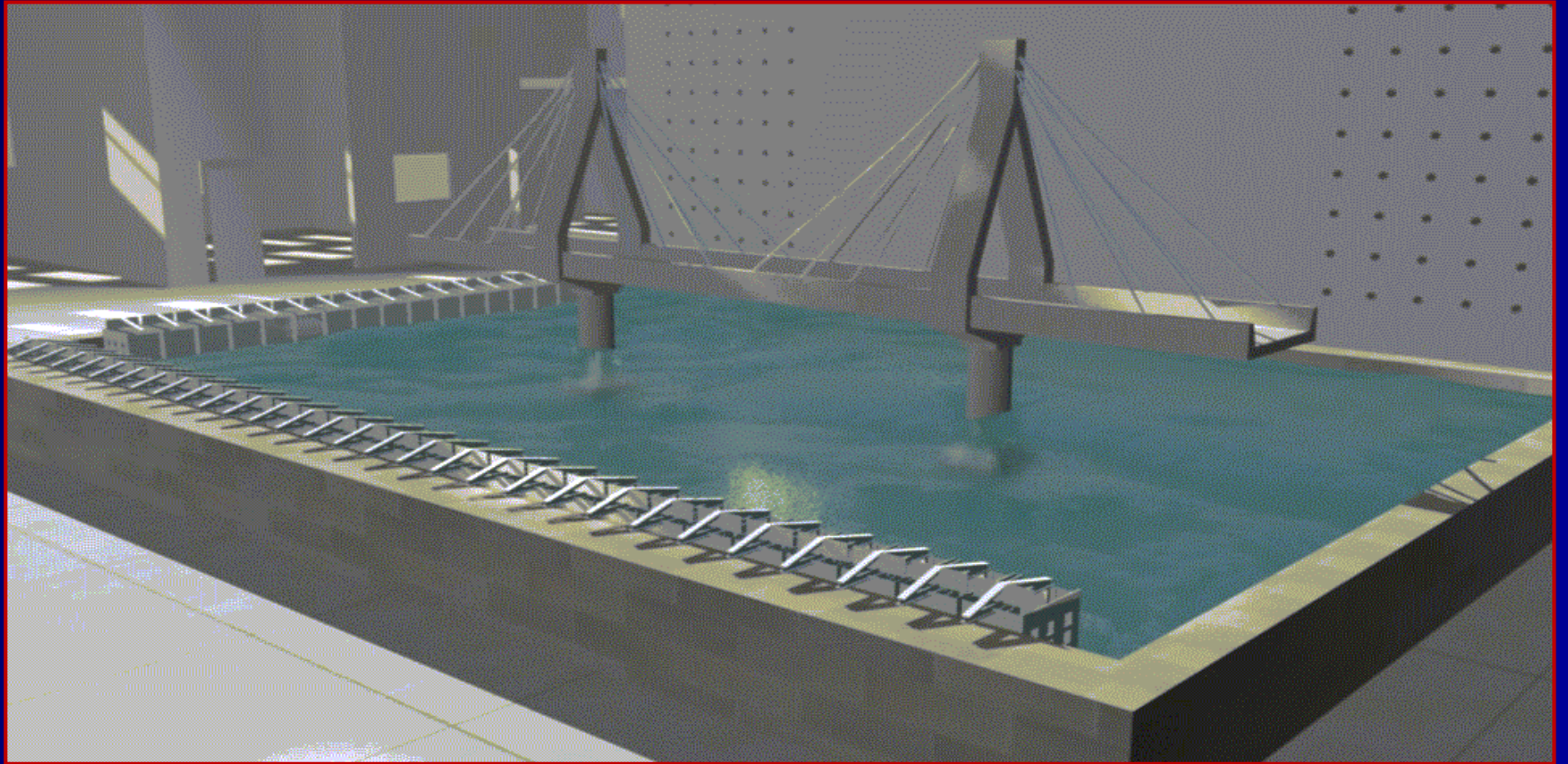
Maximum water depth 3m, width 70 m, length 140 m, Maximum wave height 0.5m, non-reflective wave;

Deep wave tank, maximum water depth 15m, width 23m, length 70 m, Maximum wave height 1.0m, non-reflective wave

Current generator:

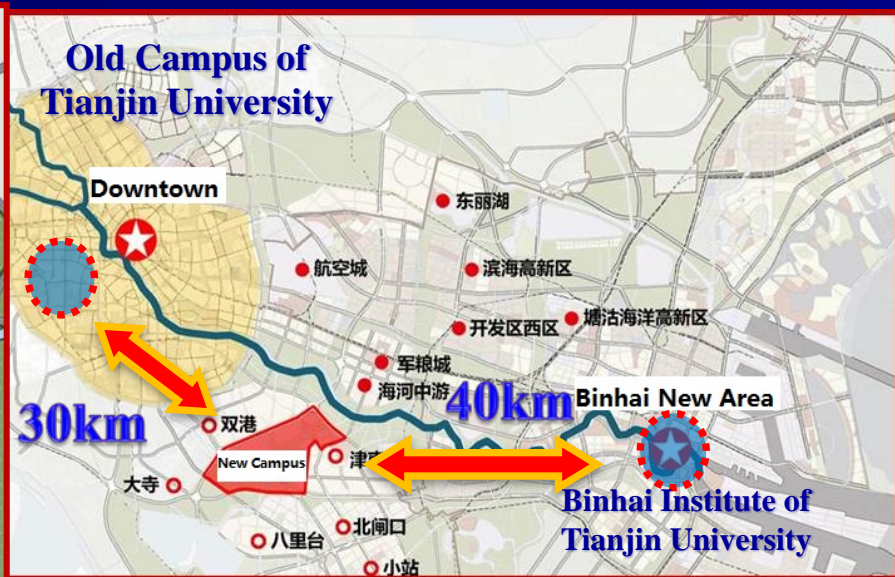
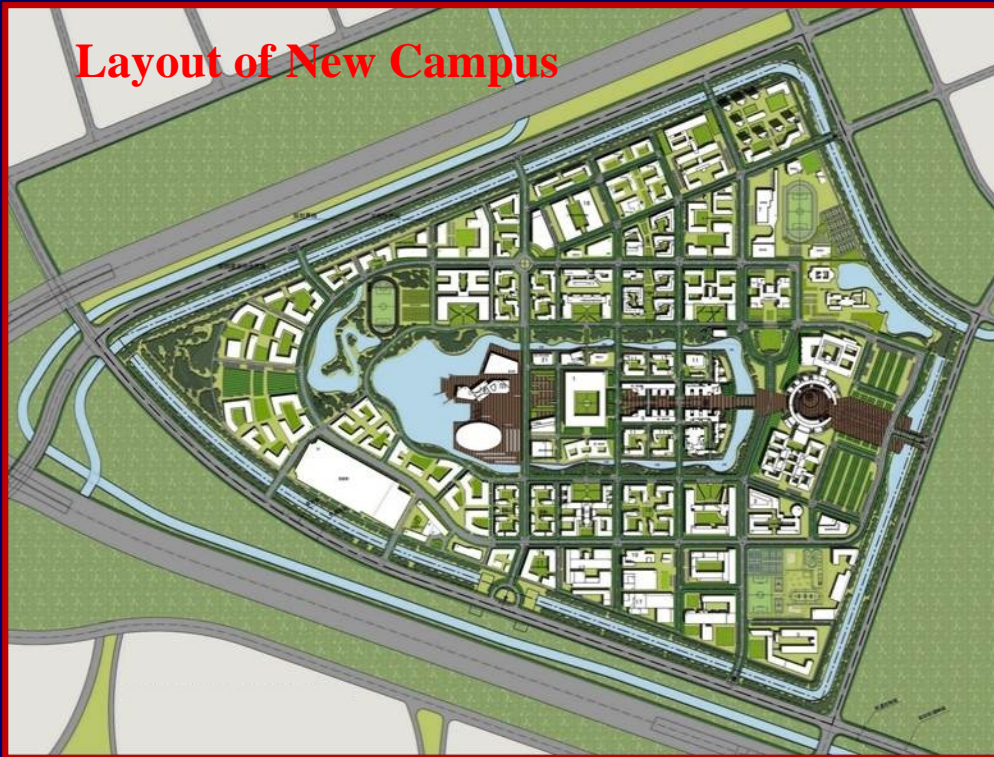
Shallow water single layer current: water depth 3 m, 70 m wide, 140 m long

Deep water four layer current: water depth 15 m, 15 m wide, 70 m long



Location

Layout of New Campus



Bird's-Eye View



Applications and possible research topics

Dynamic Size effect, inertial effect



Large offshore structures with multi-hazards



Underground structures with confinement

