

Hybrid Seismic Test System

Purpose:

To contribute to seismic upgrade and subsequent earthquake disaster reduction for electric power facilities and infrastructures, we will investigate real seismic performance associated with large deformation and/or near collapse of a structure under a strong ground shaking based on a hybrid seismic response test that incorporates a numerical simulation with a load test.

Applications:

- 1) Substructure hybrid seismic experiments with a shake table or an actuator(s)
- 2) Seismic qualification tests for transmission or substation components; Seismic limit states performance tests for slope stability and soil-foundation interaction; Load tests for reinforced concrete and steel members or structures

Specifications:

Hydraulic servo shake table

Uni-axial (horizontal) excitation

5m by 5m in table dimension

Maximum weight 600kN

Maximum acceleration 1.0G

Maximum velocity 150cm/s

Maximum displacement ± 50 cm

Hydraulic servo actuator

Seven units; maximum load 100kN to 1,000kN

Reaction equipment

Reinforced concrete reaction wall (width 9m, height 7m, depth 2m); Reinforced concrete strong floor (width 16m, depth 9m, thickness 1.5m); Steel frame for horizontal and vertical loadings

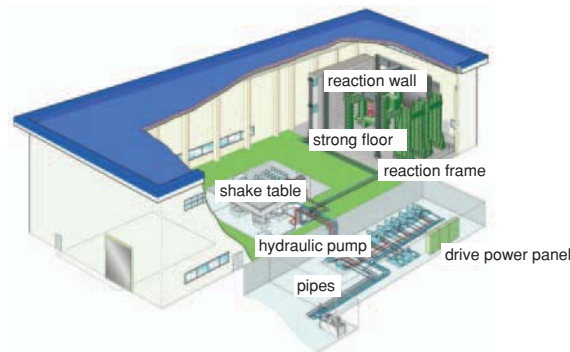
Control and visualization

PCs that play the roles of

- 1) computer simulation
- 2) control for the shake table and the actuators
- 3) data acquisition
- 4) visualization using CG

Location and Date of Installation:

Abiko Campus, March 2006



Schematic view of hybrid seismic test system