

An Advanced Design Method for Large RC Structures Focused on Dynamic Response Characteristics

Project Leader:

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Objective:

Damage to buildings affects the vulnerability of a city, especially when there are many RC structures in the city. Large RC structures are crucial to the safety of a city during and after strong earthquakes. Large RC structures may become the evacuation buildings for tsunami emergencies, which tend to come after strong earthquakes. For this reason we undertake the development of an advanced design method for large RC structures.

Project Outline:

(1) Estimation of damage to all buildings including RC structures in a city during a major earthquake.

Creating seismic analysis data for all structures in a city and conducting seismic response analysis to estimate the damage to each structure. Using the analysis results, a calculation of the hazard regarding evacuation and/or fire protection in that area will be made.

(2) Studying the seismic design criteria of large RC structures from the point of safety of the city. Examining the influence of seismic design criteria for large RC structures on the safety such as evacuation and fire protection of the city,.

(3) Propose of an advanced seismic design method for large RC structure with consideration for the safety of the city.

From the discussion above, an advanced seismic design method for large RC structures will be proposed, taking into consideration dynamic response characteristics, because damage to RC structures may vary according to dynamic nature of each structure.

References:

Mizutani, Takeda, Kai, Matsubara, "A study on the applicability of the response estimation of a PRA procedure", Nuclear Engineering and Design, Vol. 147, pp.211-230, Prof. K. Kussmaul, Elsevier Science B.V., 1994

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