Committee Report: JCI-TC204A Technical Committee Report on Non-linear Modeling for Performance-based Seismic Design of Concrete Structure

委員会報告：JCI-TC204A 性能評価型耐震設計に用いるコンクリート構造物の非線形モデル研究委員会

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Abstract
Non-linear time history seismic response analysis is one of the most great progress of earthquake engineering for quantifying seismic performance of various concrete structures in a rational, robust and reliable manner. In practice, it is sometimes used to increase the flexibility of structural planning and ensure high seismic performance. However, there are many to be left in practice to the selection of structural modeling parameters by structural engineers, and there is a risk of arbitrary selection of the modeling parameters. To assist structural engineers to fulfill the responsibilities of accountability, and this technique to be accepted and obtain the trust of our society, standardization and documenting openly in public with transparency are indispensable. This report summarizes the committee report of JCI-TC204A: Technical Committee on Non-linear Modeling for Performance-based Seismic Design of Concrete Structure, which focuses on the state of the practice of the modeling of nonlinear time-history seismic response analysis used in seismic design of concrete structures in Japan.

1. Introduction
Non-linear time history seismic (NLTH) response analysis have been used in seismic design of tall buildings in Japan since as early as 1960s. But it has not experienced critical upgrade yet. So recently there is a big gap in seismic design practice using HLTH analysis in the United States which has made significant advance in 2010s. In Japan, the application of NLTH analysis for building structure have been enclosed within parties, there are little open discussion across the structural engineers who belongs to engineering firms or general contractors who utilize them in their practice, and there are few detailed standards or guidelines documented publicly available on how NLTH nonlinear seismic response analyses are applied to design in practice. In addition, there has been little discussion between the.....

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