

July
24

Performance-Based Seismic Design and Nonlinear Analysis of Tall Buildings – Part I

By Prof. (Dr). Yogendra Singh

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04.00pm to 06.30pm

Dear Participants, We have met on zoom platform on similar topic by Prof (Dr). Yogendra Singh in the month of August 2020. We have once again invited him based on request from past participants as well as many others who could not attend the program.

Tall and code exceeding buildings require particular attention regarding their seismic analysis and design. The conventionally used analysis and design methods are applicable only to regular and code compliant buildings. In case of a non-conventional building, the performance-based design approach is to be followed. This approach is based on nonlinear analysis to estimate seismic behaviour and energy dissipation capacity of the building structure. The nonlinear analysis also provides a check on the hierarchy of the strength of various components to validate the capacity design and capacity protection of brittle components and undesirable modes of failure. In case of tall and irregular buildings, higher modes have a significant contribution in the seismic response and the nonlinear static (Pushover) analysis does not yield reliable results. In such cases, a nonlinear dynamic analysis becomes essential. On the other hand, a full nonlinear analysis of a tall building requires large computer resources and computational time.

This talk will be focussed on optimal application nonlinear static and nonlinear dynamic analyses in a design office to design code exceeding and tall buildings. Emphasis will be on interpretation of the results of the pushover analysis, understanding their limitations, and on selection, scaling and spectral-matching of ground motion (time history) records for nonlinear time history analysis. The basis and limitations of the 'fast nonlinear time history analysis' will also be discussed.

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Registration fees (including GST)

Professionals – 500/- | Faculties – 400/- | Students – 150/-

Webinar Convener – Mr. Jayant Kulkarni

Moderator 1 – Mr. Arvind Parulekar

Moderator 2 - Mr. Anand Kulkarni