

# Performance-based seismic design and assessment of tall buildings

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**ABSTRACT:** Over the past ten years, cities in California and other seismically active regions of the United States have adopted performance-based approaches for the design of tall buildings and other special structures. Nonlinear response history (dynamic) analyses are now an essential component to evaluate whether earthquake demands satisfy specified acceptance criteria. While the primary motivation of these methods has been to enable the use of structural systems, such as concrete shear wall systems, that are not otherwise permitted for tall buildings by traditional prescriptive building code provisions, the performance-based approaches offer opportunities for further innovations. In particular, comprehensive performance-based assessments to quantify economic losses and downtime can (1) help inform the public of expected seismic performance, and (2) incentivize owners and other stakeholders to invest in measures to improve building performance. This talk will review current performance-based seismic design practice for tall buildings in the United States and illustrate how more comprehensive assessment methods can better inform design decision-making, and thereby promote urban resilience.