Pushover

Pushover is a static-nonlinear analysis method where a structure is subjected to gravity loading and a monotonic displacement-controlled lateral load pattern which continuously increases through elastic and inelastic behavior until an ultimate condition is reached. Lateral load may represent the range of base shear induced by earthquake loading, and its configuration may be proportional to the distribution of mass along building height, mode shapes, or another practical means.

Output generates a static-pushover curve which plots a strength-based parameter against deflection. For example, performance may relate the strength level achieved in certain members to the lateral displacement at the top of the structure, or bending moment may be plotted against plastic rotation. Results provide insight into the ductile capacity of the structural system, and indicate the mechanism, load level, and deflection at which failure occurs.

When analyzing frame objects, material nonlinearity is assigned to discrete hinge locations where plastic rotation occurs according to FEMA-356 or another set of code-based or user-defined criteria. Strength drop, displacement control, and all other nonlinear software features, including link assignment, P-Delta effect, and staged construction, are available during static-pushover analysis.

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