STUDY ON ROLE OF ASYMMETRY IN PUSHOVER ANALYSIS WITH SEISMIC INTERPRETATION

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ABSTRACT

Pushover analysis is a static, nonlinear procedure in which the magnitude of the structural loading is incrementally increased in accordance with a certain predefined pattern. It helps in evaluating the real strength of the structure. With the increase in the magnitude of the loading, weak links and failure modes of the structure are found. Structural asymmetries are commonly found in constructions. In this paper an attempt is made to study the applicability of Pushover Analysis to frames having different types of asymmetries with seismic interpretation and developing a method for arriving at failure loads based on spectral stiffness and to take care of asymmetries in PO analysis. Reference graphs developed yield the accurate results for the effect of asymmetry without doing pushover analysis repeatedly for different asymmetries. A need for interpretation in terms of seismic loads exists as it will help in assessing damage and rehabilitation methods on site, without resorting to sophisticated analysis. It gives indicators on safety of the frame with asymmetry, with the original frame designed for a specific zone. In this study SAP2000, a state-of-the-art, general purpose, three dimensional structural analysis program, is used as a tool for performing non linear static analysis.

KEYWORDS: Pushover analysis, Seismic Interpretation, Seismic Loads.