

# A Constant Displacement Iteration Algorithm for Nonlinear Static Push-over Analyses

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## ABSTRACT

*This paper presents the formulation and implementation of a new static push-over analysis algorithm for the seismic rehabilitation of building frames, in accordance with “NEHRP Guidelines for the Seismic Rehabilitation of Buildings”. The concept of the push-over analysis is described and problems associated with its implementation in a nonlinear finite element program are examined. Earlier work, which contributed to the development of the strategy, is reviewed. The theory of the solution algorithm is presented with special consideration placed on the stability of the algorithm and the method of iteration for the nonlinear behavior. Examples are carried out that demonstrate the remarkably stable and efficient procedure.*

## KEYWORDS

*Nonlinear, static, push-over, seismic, structural, analysis, algorithm.*

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