

## Modeling and Behavior of Structural Walls

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**Abstract :** Reinforced concrete structural walls are very efficient elements for protecting buildings against excessive early damage and against collapse under earthquake actions. It is therefore of interest to develop a numerical model which simulates the typical behavior of these units, this paper presents and describes different modeling techniques that have been used by researchers and their advantages and limitations mentioned. The earthquake of Boumerdes in 2003 has demonstrated the fragility of structures and total neglect of seismic design rules in the realization of old buildings. Significant damage and destruction of buildings caused by this earthquake are not due to the choice of type of material, but the design and the study does not congruent with seismic code requirements and bad quality of materials. For idealizing the failure of rules, a parametric study focuses on: low rate of reinforcements, type of reinforcement, resistance moderate of concrete. As an application the modeling strategy based on finite elements combined with a discretization of wall more solicited by successive thin layers. The estimated performance level achieved during a seismic action is obtained from capacity curves under incrementally increasing loads. Using a pushover analysis, a characteristic non linear force-displacement relationship can be determined. The results of numeric model are confronted with those of Algerian Para seismic Rules (RPA) in force have allowed the determination of profits in terms of displacement, shearing action, ductility.

**Keywords :** modeling, old building, pushover analysis, structural walls

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