

Effective Pier Model for the Nonlinear In-Plane Analysis of Individual URM Piers

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Abstract:

Many experimental studies have investigated the maximum strength and failure modes of unreinforced masonry (URM) piers; however, a reliable analytical model capable of accurately modeling the nonlinear behavior of URM piers observed in these past experiments is needed. In this paper, a macro model for the analysis of individual URM piers is described. This model is compared with the ultimate strength equations given by FEMA 356 for the primary failure modes associated with URM piers. A nonlinear pushover analysis program is then developed and used to analyze several URM piers investigated in previous tests. Strength, force-displacement behavior and failure modes predicated by the model are all in close agr

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