

عنوان مقاله:

Finite Element Analyses of Masonry Shear Walls

محل انتشار:

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خلاصه مقاله:

In this paper examples of Finite Element analyses of un-reinforced single leaf clay brick/concrete block masonry shear walls with or without opening, under a non-proportional confined vertical and monotonic lateral loadings are presented. In the FE detailed modelling of these structures, full units (bricks/blocks) are modelled with two conventional 8-noded continuum elements, while 6-noded continuum elements- instead of mortar joints- are used to capture masonry failure mechanisms in the 2D plane-strain analyses. Brick-mortar interface characteristics act in the mortar element material plasticity algorithm which includes softening for cohesion parameter of the shear mode. In case of crack modelling in the unit elements, a simple plasticity material model was used. The above numerical solution algorithm which includes the effective parameters in the masonry response, provided great abilities for the FEM to trace entire response of the masonry shear walls in their path loads (up to and beyond the peak load until total degradation of strength), crack pattern and deformation, and also the failure process, all in a good and reasonable estimate of the experimental results.

کلمات کلیدی:

masonry wall, shear load, finite element method

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