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Evaluation of Flange Effects on the Lateral In-Plane Response of Brick Masonry Walls

Authors : Hizb Ullah Sajid, Muhammad Ashraf, Naveed Ahmad Qaisar Ali, Sikandar Hayat Sajid

Abstract : This research study investigates experimentally the effects of flanges (transverse walls) on the lateral in-plane response of brick masonry walls. The experimental work included lateral in-plane quasi-static cyclic tests on full-scale walls (both with & without flanges). The flanges were introduced at both ends of the in-plane wall. In particular the damage mechanism, lateral in-plane stiffness & strength, deformability and energy dissipation of the two classes of walls are compared and the differences are quantified to help understand the effects of flanges on the in-plane response of masonry walls. The available analytical models for the in-plane shear strength & deformation evaluation of masonry walls are critically analyzed. Recommendations are made for the lateral in-plane capacity assessment of brick masonry walls including the contribution of transverse walls.

Keywords : brick masonry, damage mechanism, flanges effects, in-plane response
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