

Flexural and Shear Behavior of Insulated Concrete Masonry Walls

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Abstract:

In this paper, the results from the second phase of a two-part study on insulated concrete masonry are presented, which involved the flexural testing of eight wall panels constructed from two different types of insulated concrete masonry units. All specimens were built in running bond and were thirteen blocks high, two blocks wide, and one wythe thick. Wall panels were loaded out-of-plane using either center- or third-point loading. Wall variables included the amount of flexural reinforcement and the direction of loading. Results indicated that the shear strength of the walls was lower than that of standard concrete masonry walls and that failure modes depended greatly on the amount of reinforcement and the side of loading. Ultimate flexural strength could be predicted using standard strength design techniques as long as shear strength was adequate. A method for predicting the ultimate shear strength of insulated concrete masonry walls was proposed.

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