

Shear Strength of Reinforced Masonry Walls

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Abstract:

Predicting the shear strength of reinforced masonry walls is still largely an unsolved problem. While the flexural strength of a wall can be adequately estimated with the simple flexure theory, the complex interaction of various shear mechanisms hinders the development of a simple rational method for evaluating the shear strength. To address this problem, a simple analytical approach has been developed to evaluate the shear as well as flexural strength of a wall in a unified manner. The lateral resistances of shear walls predicted by the new method are compared to experimental results and finite element analysis. Additionally, to provide validation on walls of low aspect ratios, an experimental program was undertaken, in which three walls of different aspect ratios were tested. The new analytical method is presented in this paper together with the experimental validation.

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