

Behavior of Unreinforced Brick Masonry Under Lateral (Cyclic) Loading

Yan Zhuge¹, John Corderoy², and David Thambiratnam³

Abstract:

The behavior of brick masonry shear walls under seismic loading has been a subject of investigation for many years. This paper presents the test results for twelve unreinforced clay brick masonry walls under cyclic in-plane loading, which have been conducted in the Structural Laboratory at the Queensland University of Technology. The experimental set-up was designed to investigate the failure mechanism and lateral load capacity of unreinforced masonry (URM) walls, which are widely used in Australia. A special photogrammetric technique was used in the tests to obtain the overall movement of the wall. The experimental procedure is first described and then the various failure modes are discussed. It is found that the vertical compressive stress applied to the wall plays an important role in determining the failure pattern. The wall has substantial deformation capacity after cracking if a suitable vertical load is applied to the wall.

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DOI: 10.70803/001c.140774

¹ Lecturer, University of South Australia, The Levels, SA 5095, Australia

² Professor, Dean of the Faculty of Built Environment & Eng., Queensland University of Technology

³ Associate Professor, School of Civil Eng., Queensland University of Technology