Strengthening of Hollow Block Masonry Basement Walls with Plastic Reinforcing Bars

Ahmad A. Hamid[1]

Abstract:

Hollow block masonry walls have limited flexural tensile strength controlled by the unit-mortar bond at the interfaces. Basement walls built with hollow concrete masonry often exhibit horizontal flexural cracks as a result of the lateral earth and water pressures. This paper documents a research project aimed at developing materials and methodology for strengthening hollow block walls using plastic vertical reinforcement and high strength modified grout which were used because of corrosion resistance and ease of installation. Full scale walls were built using the proposed technique and were tested under flexure. The results demonstrated that the proposed strengthening procedure is very effective and provides adequate strength that far exceeds that of the original hollow wall. A recommended installation procedure is also presented.

DOI: 10.70803/001c.140423

[1] Professor, Department of Civil and Architectural Engineering, Drexel University, Philadelphia, PA, USA