Effect of Moisture on FRP-Masonry Bond Strength

D. D. Stierwalt[1] and H. R. Hamilton III[2]

Abstract:

Bonded Fiber-reinforced polymer (FRP) composites can improve both in-plane and out-of-plane strength of masonry walls. This is a relatively new application for FRP composites, however, and the long-term durability of the system is yet unknown. Concern has been raised over the effect of full coverage FRP composites on the transfer of moisture through the masonry. This paper describes a series of moisture exposure tests conducted on clay and concrete masonry wall segments with bonded Glass FRP composites to determine the effect on the bond interface. Infrared thermography was used to inspect the specimens periodically during the moisture conditioning. Pull-off bond tests were conducted on each of the specimens following the moisture conditioning to determine average bond capacity. Slight decreases in bond strength for both concrete and clay masonry were noted.

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[1] Structural Engineer, Reid Middleton, Anchorage, AK
[2] TMS Member, MSJC Committee member, ACI Committee 440 member, Associate Professor of Civil Engineering, University of Florida, Gainesville, FL