

Development and Testing of Prestressed Clay Brick Walls

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Abstract:

A new concept of using prestressed clay brick masonry for veneer construction has been developed. The typical problems of wall cracking and metal tie corrosion can be eliminated by this prestressed masonry system. This paper describes the introduction of prestressing to veneer walls and first-stage testing of a research project that is underway at the University of Nebraska-Lincoln on 'prestressed clay brick walls.' Six clay brick masonry panels were built in the laboratory, post-tensioned, and tested to study their flexural behavior. Researchers used a simple and practical technique of post-tensioning using high-strength threaded bars and direct tension-indicator washers. Results of the panel tests showed that grouted test panels had an ultimate capacity approximately twice that of ungrouted specimens. MSJC Code provisions are addressed wherever applicable. Comparison of experimental and analytical results are made.

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