

An Overview of Prestressed Masonry

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Abstract:

Prestressing is a simple and versatile method for overcoming the low tension strength of masonry, as well as for improving other aspects of structural performance. During the past three decades, prestressed masonry had been verified as a cost-effective construction system in other countries, primarily the U.K., but in U.S. its use is practically nonexistent. A brief comparison of reinforced and prestressed masonry is presented to highlight the positive features of prestressing and to identify its proper role in masonry construction. The paper traces the history of development of prestressed masonry, and describes the most commonly used prestressing system. A number of noteworthy applications of prestressed masonry are summarized, and a review of research related to prestressed masonry is given. Previous research efforts on beams, walls (out-of-plane loads), walls (in-plane loads), and prestress losses, among others, are included. Potential applications of prestressed masonry in the U.S. are also discussed.

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