

Torsional Strength of Brick Masonry Joints

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Abstract:

A technique for determining the torsional strength of brick masonry joints is proposed. The results of testing 32 torsion specimens, 20 shear specimens and 15 compression prisms are presented. The tests were made to study the effects of such variables as mortar compressive strength, mortar interlocking, precompression loading and initial rate of absorption of the bricks on torsional strength of brick masonry bed joints. Correlations between the torsional strength of the mortar and its compressive strength, its shear strength and prism compressive strength are investigated. Results show that mortar compressive strength, mortar interlocking in 5-hole bricks and precompression loading are significant factors in increasing torsional strength of brick masonry bed joints. The initial rate of absorption of the brick is found to be a minor factor in increasing torsional strength. It is also concluded that the torsional strength of masonry bed joints could better be related to the mortar compressive strength than to its shear strength or to the prism compressive strength.

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