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Loading rate effect on the debonding phenomenon in fiber reinforced cementitious matrix-concrete joints

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ABSTRACT

This paper presents the results of an experimental study conducted to examine the effect of loading rate on the response of direct-shear tests of fiber reinforced cementitious matrix (FRCM)-concrete joints. Seven rates were used in this study, as well as two different types of control referred to as global slip control and machine stroke control. The experimental results indicate that a change in the rate results in a variation in peak load. In addition, a comparison between load responses obtained from tests carried out using different control variables indicates that the shape of the load response and its peak load are influenced by both the rate and the variable used to control the test. The out-of-plane displacement of the composite determined at the peak load increases with increasing rate for both control types.

Keywords: A. Fabrics/textiles; B. Adhesion; B. Fibre/matrix bond; D. Mechanical testing.

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