

Polymer Modification of Fine Grained Concretes Used in Textile Reinforced Cementitious Composites

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Abstract : Textile reinforced cementitious composite (TRCC) is a development of a composite material where textile and fine-grained concrete (matrix) materials are used in combination. These matrices offer high performance properties in many aspects. To achieve high performance, polymer modified fine-grained concretes were used as matrix material which have high flexural strength. In this study, ten latex polymers and ten powder polymers were added to fine-grained concrete mixtures. These latex and powder polymers were added to the mixtures at different rates related to binder weight. Mechanical properties such as compressive and flexural strength were studied. Results showed that latex polymer and redispersible polymer modified fine-grained concretes showed different mechanical performance. A wide range of both latex and redispersible powder polymers were studied. As the addition rate increased compressive strength decreased for all mixtures. Flexural strength increased as the addition rate increased but significant enhancement was not observed through all mixtures.

Keywords : textile reinforced composite, cement, fine grained concrete, latex, redispersible powder

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