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Finite Element Modelling of Flexural Behaviour of Geosynthetic Cementitious Composite Mat (GCCM)

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Abstract:

This paper presents a finite element modelling of a new geosynthetic cementitious composite material called GCCM. The framework adopted a concept of concrete externally bonded by fibre-reinforced polymer (FRP). The existing bond-slip model was used to predict a flexural behaviour of GCCM, considering the effect of needle-punch process during manufacturing. The finite element modelling was calibrated against the experimental data of bending tests. The parameter optimisation was employed to define a set of the bond-slip model parameters. The analytical load-displacement curves predicted by the bond-slip model could agree well with those obtained from the experiments.

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