

BLAST RESISTANCE OF ENGINEERING CEMENTITIOUS COMPOSITES (ECC) PANELS

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ABSTRACT

Engineering Cementitious Composites (ECC) is an easily molded mortar-based composite which utilizes similar constituents as concrete with the additional of specially selected short random fibers. Due to its unique properties such as high tensile strain capacity and high fracture energy, ECC has been found to be very promising for application in protective structures. This paper reviews the influence of single fibers ECC system as well as hybrid fibers ECC system. Based on the potential improvement of hybrid fiber ECC system coupled with cost analysis, a composition is identified and the corresponding numerical model has been developed to predicate a hybrid fiber ECC system's blast loading capacity. Experimental and Shock tube tests have been planned to carry out on ECC panels to validate and verify the model and better understand the behavior of ECC panels under blast loading.