

عنوان مقاله:

Experimental Study on Engineered Cementitious Composite

محل انتشار:

دومین کنفرانس ملی پژوهش های کاربردی در مهندسی عمران (مهندسی سازه و مدیریت ساخت) (سال: 1396)

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خلاصه مقاله:

Engineered Cementitious Composite (ECC) is a kind of high-performance fiber-reinforced cementitious composite materials (HPFRCCs) reinforced with short fibers and characterized by tight multiple cracking. These characteristics of ECC make it applicable to increase the capacity and the ductility of structural elements so that structural design is economic and sustainable. This paper presents an extended evaluation of Engineered Cementitious Composites (ECC) for the use in the strengthening of masonry infilled reinforced concrete frames. ECC is a mixture of cement, fly ash, water, sand, quartz powder and poly-vinyl alcohol fibers with a better quality of tensile strain rather than common ECC. The fine sand and quartz powder used in this study as filler were instead of the typically used sand to improve ECC behavior. Also, to show the effect of fly ash on ECC properties, five different mixtures were considered with various fly ash ratios. Different mixtures of ECC using fine aggregates produced in Iran were selected to find out how the aggregates and fly ash would affect ECC performance. The results show that the optimized mixture has the best characteristics including tensile strength and strain. Also, the best values of tensile strength and tensile strain are 3.5 .MPa and 6% respectively

کلمات کلیدی:

Engineered Cementitious Composites, Optimization, Experimental Study, Retrofit

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