

Nano and Micro Silica Cooperating Effect on Ferrocement Mortar

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Abstract : The objective of this paper is to explore the effect of incorporating Nano-Silica with Silica-fume in ferrocement mortar to enhancing mechanical properties of it. One type of Nano silica with average diameter size 23nm and silica fume have been used with two percentage (1%, 2% Nano silica and 5%, 10% silica fume per weight of cement) and w/c with / without superplasticizer was been calculated by flow test method. Also three sand: cement ratios have been used (1.5, 2.0 and 2.5) with max. Aggregate size 0.6mm in this study for reference and other mixtures. Results reveal adding Nano silica with silica fume to ferrocement mortar enhances its physical and mechanical properties such as compressive strength and flexural strength. The SEM pictures and density with absorption ratio demonstrate that Nano silica with silica fume contributes to enhancement of mortar through yielding denser, more compact and uniform mixtures.

Keywords : nano silica, ferrocement mortar, compression strength, flexural strength

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