

EXPERIMENTAL STUDY ON COLD FORMED STEEL SHORT COLUMN INFILLED WITH SILICA FUME CONCRETE

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ABSTRACT

An experimental investigation on the behaviour of cold formed steel short column infilled with silica fume concrete under axial compression to failure is presented. The ultimate load carrying capacity and load versus strain graph for hollow section, hollow column infilled with normal M30 concrete and hollow column infilled with optimum silica fume concrete were examined. A total of 12 specimens with square cross section having length to breadth ratio as 7 and breadth to thickness ratio as 40 and 50 were tested. The results were compared with various codes of practices and also with some equations published in journal papers. Hollow column infilled with silica fume concrete with B/t ratio 40 increases its axial compressive load by 17% when compared with hollow column infilled with normal M30 concrete gives the best result. As B/t decreases the axial load carrying capacity of CFST infilled with silica fume concrete increases by 37%. In all the comparisons with the codes, CFST infilled with silica fume concrete were conservative.

KEYWORDS: Cold Formed Steel Tubes (CFST), Composite Members, Silica Fume (SF) Concrete