

Effect of Strength of Concrete by Partial Replacement of Cement with Flyash and addition of Steel Fibres

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ABSTRACT

The aim of this paper is to study the behavior of M-40 grade of concrete having mix proportion of 1:1.62:2.83 with w/c of 0.45 and to determine the compressive, split tensile and flexural strength of concrete reinforced with steel fibres. Four percentages of steel fibres (0%, 1%, 1.5% & 2%) having aspect ratio 50 were used. Cement was replaced with two percentages (40%, 60%) of Class F fly ash. All the tests were performed according to bureau of Indian standards. The results obtained were compared and examined with respect to the control specimen. The advantage of adding steel fibre in concrete is that it enhances its overall strength especially the flexural and split tensile strength. The optimum percentage of adding flyash and steel fibres was determined to be 40% and 2% which showed the maximum improvement in tensile and flexural strength.

Keywords: fibre reinforced concrete, flyash, steel fibre, strength, flexure, compression