## عنوان مقاله:

Experimental Examination of The Effect of Length and Percentage of Steel Fibers on The Tension and Compression Strengths of Concrete

## محل انتشار:

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## خلاصه مقاله:

Fiber concretes, as a new generations of concrete, have considerably attracted the attention of researchers and engineers for a couple of decades. Fibers play a very important role for improving the weaknesses of concrete, including the tensile and flexural strengths of concrete. In this paper, the effect of length and percentage of steel fibers on the tensile and compressive strengths of concrete is investigated. For this propose, three concrete samples including plain concrete and fiber concretes with steel fibers with lengths of ۳ and ۵ cm each with different volume ratios (i.e., ۰.۵, ۱, and ۱.۵%) have been tested. In addition, the samples of the plain concrete are made to determine the effect of fibers on the strength of the concrete. Afterward, using the hydrulic jack machine, both tension and compression strength tests are performed on the concrete specimens. Based on the obtained results, it is observed that with increasing the length and percentage of steel fibers, the tensile and compressive strengths of the concrete specimens are increased. Furtheromre, the samples containing a combination of ۳ and ۵ cm steel fibers in concrete have lower strength than samples with only ۵ cm fibers and more strength than samples with only ۳ cm fibers. According to experiments, in order to increase the tensile and compressive strength of concrete, the use of ۵ cm steel fibers with different percentages is preferable to ۳ cm steel fibers.

## کلمات کلیدی:

Steel fiber reinforced concrete (SFRC), hybrid fiber, Tension strength, Compression strength