



**GOVERNMENT OF KARNATAKA
GOVERNMENT ENGINEERING COLLEGE
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DEPARTMENT OF CIVIL ENGINEERING

A

PROJECT REPORT

ON

**“AN EXPERIMENTAL INVESTIGATION ON SLURRY INFILTRATED
HYBRID FIBRE REINFORCED CONCRETE”**

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In

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ABSTRACT

Hybrid fibre reinforcement of cement composites is rapidly emerging as an innovative and promising way of improving mechanical performance and durability of cement-based materials.

Hybrid fibre reinforced concrete in which more than one fibre types are used as secondary reinforcement has become a very popular construction material which is directly related to recent development in concrete technology. The brittle nature of high strength concrete results in sudden unpredictable failure. By using hybrid fibre combinations of steel and polypropylene fibres, the explosive failure behaviour of high strength concrete (HSC) may be avoided.

Similarly, in the world of concrete technology SIFCON plays vital role in developed construction material and is considered as a special type of fibre concrete with high fibre content. The application of SIFCON includes earthquake resistant structures, repair and retrofit of structural components, bridge deck and pavement overlay.

In this project work an attempt is made to find out the strength characteristics of slurry infiltrated hybrid fibre reinforced concrete. In this investigation the different hybrid fibre combinations planned for usage are (SF+PPF), (SF+GIF), (SF+WPF) and (SF+HDPEF). The strength, characteristics that are planned for the study are compressive strength, tensile strength flexural strength.

The cement-sand slurry used is of the proportion 1:1.5 with a convenient water cement ratio. The percentage of fibres (by volume fraction) used in the experimentation is (5+5) %. The specimens are water cured for 28 days and then tested for their respective strengths. For compressive strength, test cube specimens of size 150x150x150mm are used. For tensile strength test, the cylindrical specimens of size 150diameter x300mm length are used. For flexural strength test and for flexural toughness factor, test beams of size 100x100x500mm are used. Before testing the specimens, all specimens are weighed accurately to know their densities. The results of slurry infiltrated hybrid fibre reinforced concrete are compared with that of slurry infiltrated fibre reinforced concrete.