

STUDY ON MECHANICAL AND DURABILITY PROPERTIES OF TEXTILE REINFORCED CONCRETE

Textile-reinforced concrete (TRC) is a variant of reinforced concrete in which textiles are used in place of steel reinforcing bars. Reinforcing the concrete with steel means increasing its tensile strength, but steel also corrodes and wears out over time. The TRC is a novel idea that has the potential to overcome these drawbacks. TRC is a composite reinforcing material that is made from cement and has the benefits of being resistant to corrosion, having a high bearing capacity, and performing well in terms of its fracture limit. The principal function of TRC in buildings has been as reinforcement and as a means of enhancing the ductility and performance of concrete. This experimental work utilizes a 145 gsm (grams squared per meter) alkali-resistant (AR) glass fiber textile mesh. Specimens were cast with steel of traditional concrete with or without fiber and the number of layers was increased from 1 to 3 at 25 mm spacing. In this experimental work, the mechanical behavior of TRC was investigated by conducting tests on its impact, compressive, and flexural strengths. And the durability test like chemical attack, frost attack (freezing and thawing), high temperature, etc., From these results, the TRC specimen exhibits more flexibility than the control specimen. The TRC specimen bends under force and returns to a new position when the load is removed, indicating a good energy absorption capability. As a result, it infers that the TRC has a greater fracture control system compared to conventional steel-reinforced concrete.