

Thesis title:

Bond characteristics of Carbon Fibre reinforced polymer strengthened concrete member exposed to acidic solution.

Abstract:

Usage of Fibre reinforced polymer (FRP) material applications in structural strengthening is increasing day by day, durability of FRP to concrete bonded interface has become an important area of research. Many environmental factors influence the service life of CFRP strengthened concrete members such as temperature variation, acid attack, sulphate attack, wet/dry cycles, UV radiations. Among these aggressive environmental factors acid attack on CFRP strengthened members has not been studied as much as other environmental conditions. Rapid economic growth and industrialization during 21st century led increasing energy consumption resulted excessive emission of SO₂ and NO_x which resulted exposure of structures to acidic environment from acidic rain, acidic soil, biogenic sulphuric acid from sewage system and power stations. In this study bond characteristics of CFRP strengthened concrete member is investigated by exposing such members in acidic solution with varying concentrations, bond performance is monitored periodically.