

MUSTAFA MOHAMMED RAHEEM AL.KASHAN. FLEXURAL BEHAVIOR OF SELF COMPACTING RC CONTINUOUS BEAMS STRENGTHENED BY CFRP SHEETS. UNIVERSITY OF TECHNOLOGY Department of Building and Construction Engineering . MSC. Supervisor: Dr.Sabeeh Z. Al.Sarraf.2012.10ph.

Abstract

This search presented an experimental study of the flexural behavior of self-compacting reinforced concrete continuous beams externally strengthened by carbon fiber reinforced polymer (CFRP) sheets.

The practical study contained eight self-compacting reinforced concrete continuous beams (with two span), each span had 1500 mm length and (150x250)mm cross sectional dimensions, study the effect of the type of superplasticizer (Glenium 51 and Glenium 54) on the compressive strength and fresh properties of self-compacting concrete in order to select the most effective. Further, test of construction materials. Seven of these beams strengthened externally by CFRP sheets with and without external anchorage. The experimental variables included location of CFRP sheets and anchor type and location.

The results, show that the beams strengthened externally by CFRP sheets provided improvement in ultimate loads. The increment in ultimate loads reached (60.71 %). The usage of CFRP in the anchorage zone indicated an effective method in comparison to increasing the CFRP sheets lengths or extending them up to the support or under the loading points . Test results also showed that side strengthening provided an effective tool for increasing the load at the cracking stage and also the load capacity and reducing flexural crack widths.

Keywords: CFRP. SCC. Continuous Beam. Flexural Behavior