



STRENGTHENING OF REINFORCED CONCRETE BEAMS DAMAGED UNDER THE HEAT EFFECT USING CFRP SHEET AND SURFACE PREPARATION (GROOVES)

Khairedin M. Abdalla^{1*}, Rajai Z. AL-Rousan², Jameel N. Al-Muhiedat³

¹Jordan University of Science and Technology, Irbid, Jordan

abdallakhairedin@yahoo.com

²Jordan University of Science and Technology, Irbid, Jordan

rzalrousan@just.edu.jo

³Jordan University of Science and Technology, Irbid, Jordan

muheidatjameel@yahoo.com

ABSTRACT

This research discusses the process of strengthening and repairing a reinforced concrete beam using the CFRP sheet to predict the effect of using the grooves as a surface preparation of the beam with varied numbers and distribution on the strengthening process. Reinforced concrete beams (1100 × 200 × 150 mm) were cast and strengthened with different size of the CFRP sheet and use the surface grooves with different numbers as surface preparation. It is found that the flexural strength and the ductility of the beam increase with the use of CFRP sheet, with increasing the length of the CFRP sheet and with the use of the surface preparation. Also, it is found that the mode of failure for beams strengthen with a varied length of CFRP sheet is very similar to each other but the only difference is that the area that the cracks distributed along the beam increased with increasing the sheet length.