

Effect of Impact Load on the Bond between Steel and CFRP Laminate

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Abstract : Carbon fiber reinforced polymers have been widely used to strengthen steel structural elements. Those structural elements are normally subjected to static, dynamic, fatigue loadings during their life time. CFRP laminate is one of the common methods to strengthen these structures under the subjected loads. A number of researches have been focused on the bond characteristics of CFRP sheets to steel members under static, dynamic and fatigue loadings. There is a lack in understanding the behavior of the CFRP laminates under impact loading. This paper is showing the effect of high load rate on this bond. CFRP laminate CFK 150/2000 was used to strengthen steel joint by using Araldite 420 epoxy. The results showed that applying high load rate has a significant effect on the bond strength while a little influence on the effective bond length.

Keywords : adhesively bonded joints, bond strength, CFRP laminate, impact tensile loading

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