

## Confinement of Concrete Filled Steel Tubular Beams Using U-Links

**Authors :** Madiha Z. Ammari, Abdul Qader AlNajmi

**Abstract :** A new system of U-links was used in this study to confine the concrete core in concrete-filled steel beams. This system aims to employ the separation expected between the steel tube and the concrete core in the compression side of the section in the plastic hinge zone. A total of six rectangular CFT beam specimens were tested under flexure using different D/t ratios and different diameters for the U-links to examine their effect on the flexural behavior of these beams. The ultimate flexural strength of the CFT beam specimens with U-links showed an increase of strength about 47% of the specimen with D/t ratio equals 37.5 above standard CFT beam specimen without U-links inside. State of concrete inside the tubes has shown no crushing of concrete when those beams were cut open at the location of the plastic hinge. Strain measurements revealed that the compressive strain of concrete was 5-6 times the concrete crushing strain.

**Keywords :** concrete-filled tubes, U-links, plated studies, beams, flexural strength, concrete, confinement

**Conference Title :** ICCESE 2015 : International Conference on Civil, Environmental and Structural Engineering

**Conference Location :** Vancouver, Canada

**Conference Dates :** August 06-07, 2015