

عنوان مقاله:

EXPERIMENTAL INVESTIGATION ON THE BEHAVIOR OF CONCRETE FILLED DOUBLE SKIN STEEL TUBULAR COLUMNS UNDER AXIAL REPEATED COMPRESSION LOAD

محل انتشار:

مجله تحقیقات کاربردی، دوره 3، شماره 2 (سال: 1396)

تعداد صفحات اصل مقاله: 17

نویسندگان:

Shayma M. Resen - *Civil Engineer, State company for Steel Industries, Ministry of Industries and Minerals, Baghdad, Iraq.*

.Abbas A. O. Al Zayadi - *Civil Engineer, Al Mustansiriyah University, Civil Engineering Department, Baghdad, Iraq*

.Laith Kh. Al-Hadithy - *Civil Engineering Department, Al-Nahrain University, Baghdad, Iraq*

.Riyadh J. aziz - *Civil Engineering Department, Al-Nahrain University, Baghdad, Iraq*

خلاصه مقاله:

Concrete filled double skin steel tubular (CFDSST) columns have been considered lately as efficient bearing members in bridge piers and high rise buildings. The present work includes fabrication and testing of 10CFDSST columns of different outer tube thickness and different hollowness ratio, half of the specimens tested under static axial load while the other half tested under varied repeated load, ordinary selfcompactingconcrete was use to fill specimens. Axial load and axial strain was measured as well as mid axial and hoop span strain in the outer and inner steel tube by attaching vertical and hoop strain gages. Due to the high ductility provided by the steel tubes, it has been found that for all CFDSST specimens the ultimate axial capacity of static and repeated loading condition is of close values. Also for both loadingconditions, the CFDSST specimens exhibited almost initial linear elastic deformations, followed by a nonlinear elasto-plastic deformation until reaching the ultimate capacity. Increasing the hollowness ratio resultedin decreasing axial capacity and increasing the unloading displacement while increasing the outer steel tube thickness led to increase in the axial capacity and decrease in the unloading displacement. The recorded axialmid-span axial strain were affected mainly by failure mode which is controlled by the outer tube thickness, while hoop strain recorded at the inner tubes was less than that recorded at the outer tubes, while the slope of the axial load-hoop strain curves has slopes is sharper than those of the axial load-axial strain curves.

کلمات کلیدی:

CFDSST, composite columns, Self compacting concrete, experimental, Repeated Loading

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/665514>



