

## Performance of Jute-Glass/Epoxy Bi-tubular Cone-Tube under Axial Compression Loading

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Experimental work on the performance of composite bi-tubular cone-tube subjected to axial compression load has been carried out. Woven roving [ $\pm 45^\circ$ ] glass, Jute and hybrid jute-glass/epoxy materials were used to fabricate the composite bi-tubular cone-tube by hand lay-up method. Tube height and inner diameter of 120 mm and 56 mm respectively were selected. Cone height and top inner diameter of 120 mm and 65mm were used. Cone semi-apical angle ( $\alpha$ ) and number of layers were  $10^\circ$  and 6 layers respectively. Cone semi-apical angles of  $15^\circ$  and  $20^\circ$  were selected for comparison purpose. Load-displacement relations were drawn for the tested specimens and compared. The specific energy absorption (SEA) was calculated and the failure mechanism of the fractured specimens was observed and discussed. Results show that the bi-tubular cone-tube made of glass/epoxy supported load higher 16% than jute-glass/epoxy and 33% than jute/epoxy. The increase in the cone semi-apical angle from  $10^\circ$  to  $15^\circ$  increased the specific energy absorption and the mean crushing load. The level of the Energy absorbed decreased with further increase in the cone semi-apical angle. The glass/ epoxy tubes under axial compression absorbed energy higher respectively 17% and 45% than the hybrid jute-glass/ epoxy and jute/ epoxy tubes. The fractured specimens show a progressive failure mode. More cracks appeared on the jute/ epoxy tubes compared to the glass/ epoxy tubes.