

BEHAVIOR OF BAMBOO GEOCELLS UNDER COMPRESSION LOADING CONDITION

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ABSTRACT

In the present study, laboratory experimental investigations has been carried out on bamboo made geocells to check its efficacy as alternative encasements. A series of unconfined compression tests were carried out on single bamboo geocells filled with stone aggregates by a strain controlled Universal Testing Machine. The circular perforated cells were prepared by using easily available well finished bamboo sticks of 10 mm width. Each cell was surrounded by a multifilament woven jute geotextile from inner side to prevent the infill material from escaping out of the perforated cell. Diameters of the bamboo cells were 75 and 100 mm with varying heights of 50, 100 and 200 mm. Bamboo geogrid was prepared by sticking the bamboo sticks with adhesive to evaluate its wide width tensile strength. Opening size of the bamboo geogrid was same as that of the bamboo geocells. From the experimental investigation, it was observed that the smaller diameter geocell exhibits higher compressive strength at a particular deformation before failure. Also, the compressive strength of geocell increases with decrease in the height of geocell. The failure pattern of bamboo geocell is also reported in this paper.

KEYWORDS: Bamboo Geocell, Compressive Strength, Geogrid, Infill Material, Jute Geotextile, Opening Size