

Structural Behavior of Concrete Filled Bamboo Columns Under Axial Loads

Abstract.

This paper investigates the load carrying capacity development of concrete filled bamboo columns when subjected to static axial loads. Concrete Mix C20 and C30 were used to fill bamboo of different diameters and slenderness ratios. Compression tests were performed using Uniaxial Compression Machine under a loading rate of 31 Kn/s. Results revealed that increase in concrete grade had significant effect on the carrying capacity and crushing stresses with C20 increasing the load capacity of concrete filled bamboo by 0.8 times while C30 by 1.5 times. The carrying capacity increases as the diameter of the column is increased but decreases as the slenderness ratio is increased due to reduced stiffness of the column. Increase in column diameter reduces the crushing stresses due to increased carrying area. Deformation behavior showed that specimens filled with concrete mix C20 are more ductile and undergoes large displacements before failure while C30 specimens showed brittleness characteristics in all samples.

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