Accepted Manuscript

Effect of the drum height on the bearing capacity of composite multi-drum column under static load

A. Buzov, J. Radnić, N. Grgić, G. Baloević

PII: S1359-8368(18)30379-2

DOI: 10.1016/j.compositesb.2018.05.005

Reference: JCOMB 5675

To appear in: *Composites Part B*

Received Date: 1 February 2018

Revised Date: 2 May 2018

Accepted Date: 3 May 2018

Please cite this article as: Buzov A, Radnić J, Grgić N, Baloević G, Effect of the drum height on the bearing capacity of composite multi-drum column under static load, *Composites Part B* (2018), doi: 10.1016/j.compositesb.2018.05.005.

Effect of the drum height on the bearing capacity of composite multi-drum column under static load

A. Buzov[a*], J. Radnić[a], N. Grgić[a], G. Baloević[a]

[a]University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 21000 Split, Croatia

*Corresponding author: Tel. +385 21 303336, Fax. +385 21 465117, e-mail: ante.buzov@gradst.hr

Abstract

The results of a experimental study on the effect of the drum height on the bearing capacity of composite multi-drum column under axial compression force and lateral horizontal force were presented. Small scale columns with two, four, six and twelve drums were tested. It was concluded that an increased number of drums reduces bearing capacity, flexural and shear stiffness, and increases horizontal and vertical deformability of columns. The reason is the simultaneous increase of the joints number, which are the weakest point in column. The column loaded by axial force only had a brittle failure, and by combined axial force and lateral force more ductile failure.

Keywords: Multi–drum column, bearing capacity, effect of the drum height, static load.

1. Introduction

Stone columns are important structural elements in masonry buildings. They are primarily intended to carry the vertical load, but they can also carry a smaller horizontal load. Stone