

Behaviour of Hollow Tubes Filled with Sand Slag Concrete

Authors : Meriem Senani, Nouredine Ferhoune

Abstract : This paper presents the axial bearing capacity of thin welded rectangular steel stubs filled with concrete sand. A series of tests was conducted to study the behavior of short composite columns under axial compressive load, the cross section dimensions were: 100x70x2 mm. A total of 16 stubs have been tested, as follows: 4 filled with ordinary concrete appointed by BO columns, 6 filled with concrete with natural sand was completely substitute a crystallized sand slag designated in this paper by BSI, and 6 others were tacked in concrete whose natural sand was partially replace by a crystallized sand slag called by BSII. The main objectives of these tests were to clarify the steel specimen's performance filled by concrete sand compared to those filled with ordinary concrete. The main parameters studied are: The height of the specimen (300mm-500mm), eccentricity of load and type of filling concrete. Based on test results obtained, it is confirmed that the length of the tubes, has a considerable effect on the bearing capacity and the failure mode. In all test tubes, fracture occurred by the convex warping of the largest, followed by the smallest due to the outward thrust of the concrete, it was observed that the sand concrete improves the bearing capacity of tubes compounds compared to those filled with ordinary concrete.

Keywords : concrete sand, crystallized slag, failure mode, buckling

Conference Title : ICCSEE 2015 : International Conference on Civil, Structural and Environmental Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : September 28-29, 2015