

Comparative Study of and Voided Slab System and Conventional RCC Slab

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Abstract: This paper presents the flexural capacities of R.C.two-way hollow flat slabs with plastic voids. Recently, various types of slab systems which can reduce the self-weight of slabs have been studied as the height and span of building structures rapidly increase. To verify the flexural behaviour of this voided slab such as flexural stiffness, ultimate load, deflection, stresses and concrete compressive strain were studied.FEM model was created in ANSYS workbench 2022 for both conventional solid flat slab and voided slab. U-Boot beton from “daliform group building innovation Italy” was used as void former in this study. The dimensions of U-boot is 520×520mm and with 180mm and 160mm height. Dimension of FEM slab model is 8500×8500 mm with 500×500 column support at all four corners. Three different slab of 280mm, 300mm and 320mm was created. In addition, manual analysis of solid slab and voided slab was carried out using direct design method as per IS-456(2000). And further, design is checked to verify that it satisfies all design and serviceability criteria given as per IS-456(2000).Results obtain via theoretical calculation and FEM model simulation for both solid and voided slab were compared. The aim of this paper is to discuss and compare flexure behaviour of solid slab and voided slab and to study changes in inertia, stiffness and reduction in weight, of the slab by void formation.

Keywords: Voided slab, ANSYS, U-Boot, Flat slab, flexure capacity, stiffness.

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