

عنوان مقاله:

Deformation Behavior of Reinforced Concrete Two-Way Slabs Strengthened with Different Widths and Configurations of GFRP

محل انتشار:

ژورنال مهندسی عمران، دوره 3، شماره 11 (سال: 1396)

تعداد صفحات اصل مقاله: 12

نویسندگان:

Hossein Izadi - *Department of Civil Engineering, Islamic Azad University, Tiran Branch, Isfahan, Iran*

Hamid Pesaran Behbahani - *Department of Civil Engineering, Islamic Azad University, Khorasgan Branch, Isfahan, Iran*

خلاصه مقاله:

In this paper, we conducted a numerical analysis of the deformation behavior of Steel-reinforced concrete (RC) two-way slabs strengthened by glass fiber reinforced polymer (GFRP) with different widths and configurations. A total number of 36 RC slabs of 12 × 300 × 300 cm were used in this numerical study. Also, a column of 30x30 cm was considered in the center of the slab for applying static loading. The bonded GFRP strips had 5, 7.5 and 10 cm width (W) and configured in three models called PM1, PM2, and DM. In PM1 (strip length = 2.4 m) and PM2 (strip length = 1.7 m) configurations, the strips were bonded in two directions parallel to the sides of the slab, while in DM configuration (strip length = 1.7 m), strips were rotated with 45 degree angle around the central axis that is perpendicular to the surface of the slab. According to the comparison results, we found out that the 5-cm wide strips with PM1 configuration having a parallel space of 0.5 times the strip width (0.5W) greatly reduced the deformation of RC two-way slab compared to other strip widths and configurations, while 10W strips under all configurations, highly increased the deformation when space between strips varied from 1.5W to 2W.

کلمات کلیدی:

Glass Fiber Reinforced Polymer; Reinforced Concrete Slabs; Finite Element Analysis

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/803974>

