

عنوان مقاله:

Ultimate stress and strain models for AFRP confined concrete columns with inclined fiber orientation

محل انتشار:

دوازدهمین کنگره ملی مهندسی عمران (سال: 1399)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Alireza Arabshahi - Graduate Student, Department of Civil and Environmental Engineering, Ferdowsi University of Mashhad

Nima Gharaei-Moghaddam - Phd, Postgraduate Researcher, Department of Civil and Environmental Engineering, Ferdowsi University of Mashhad

Mohammadreza Tavakkolizadeh - Assistant Professor, Department of Civil and Environmental Engineering, Ferdowsi University of Mashhad

خلاصه مقاله:

Various stress and strain models are proposed for FRP confined concrete columns. Almost all of these relations are developed by assuming fiber angles perpendicular to the column axis. Therefore, application of these relation to predict ultimate confined stress and strain of columns confined with FRPs having incline fibers results in inaccurate estimations. Accordingly, in this paper, modification factors are proposed to make the available stress and strain models applicable for the FRP confinement with inclined fiber orientation. For this purpose, a database of experimental tests on such columns are collected from the previous studies. The part of the collected database is used to calibrate some of the best performing confined stress and strain models utilizing nonlinear regression techniques and an evolutionary optimization algorithm called Multi-Expression Programming (MEP). The attained results indicate good accuracy of the suggested relations in estimating ultimate stress and strain of FRP confined concrete columns with inclined fiber angle

کلمات کلیدی:

.Confinement pressure, FRP, Partial confinement, Compressive strength, Circular and Square section

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1120429>

