

Behavior of external column- wide beam joint with different bar arrangement and existence of joint shear link under gravity.

ABSTRACT

An experimental investigation done on the RC exterior wide beam-column joint when subjected to the gravity load up to failure is reported in this paper. This study was conducted by applying the concentrated gravity load on full scaled wide beam-column joints with same area of longitudinal reinforcement to resist for negative moment due to concentrated gravity load. The joints behavior was considered by effect of different layout of beam longitudinal bars, existence of the shear link in connection zone, spandrel bar and width of the beam in terms of failure capacity, crack patterns, deflection and rotation. The results shown that the failure capacity of joints with concentrated longitudinal bars of beam that two-third of bars anchored in the column zone was 24 % higher than even bar distribution. And also the existence of the shear links in connection area and spandrel bar to anchor the longitudinal beam reinforcements that were outside the connection area is higher than the other specimens without them. Moreover, the width of beam played important role to enhance the failure capacity.

Keyword: Gravity loading test; Shear link; Spandrel bar; Reinforcement layout; Wide beam-column connection