REHABILITATION OF RC CORNER BUILDING JOINTS WITH FRP COMPOSITES
In this project, beam-column joints of non-ductile RC buildings are investigated. Half-scale R/C corner joints were tested for the purpose of investigating their behavior in a shear type of failure due to diagonal tension. In addition to the as-is specimens, an identical corner joint was retrofitted with FRP composites to determine the improvement in ductility and joint shear capacity that could be achieved. Both the as-is and retrofitted corner joints were subjected to quasi-static cyclic loading, and their performance is examined in terms of peak lateral load capacity, ductility, drift, axial load bearing capacity of the column at high levels of drift, and in terms of crack widths. The influence of the axial load applied to the column on the joint shear capacity is investigated and compared to suggested values in the literature. Two of the specimens were reinforced with hoop steel in the joint, while one specimen did not have any hoop steel reinforcement. Two of the specimens, one with and one without hoop steel, were tested with an axial column load of 0.1$f_c^\prime A_g$. The third specimen was tested with a column load of 0.25$f_c^\prime A_g$. The performance of the rehabilitated specimens was compared to that of six baseline specimens, four with hoop steel in the joint and two without hoop steel. The shear capacity of the rehabilitated joints with hoop steel was improved in comparison to the baseline. The rehabilitated joint without hoop steel showed even more improvement in shear capacity and the displacement ductility was increased significantly.