

BEHAVIOR AND REPAIR OF RC CORBELS USING EXTERNAL PRESTRESSING

Nesreen M Kassem

Tanta University, Egypt

Corbels become common elements in construction due to the increased use of the precast reinforced concrete buildings. This paper presents experimental data of 11 reinforced concrete (RC) double corbels; some of them were repaired using external pre-stressing. Research parameters included in this study are: combined effect of pre-stressing with and without premature failure, the combined effects of pre-stressing with premature damage and corbel width, number of branches of horizontal stirrups and relative column/corbel width. In addition, a comparison between the monolithic and the precast actions of prestressed specimens is presented. A strut and tie model based on a numerical analysis are presented. The results of the experimental tests showed that number of branches of horizontal stirrups of tested short cantilevers is effective parameter on ultimate capacity, while increasing the length of column to be equal to the width of the wide corbel enhanced the crack pattern but isn't effective in increasing the ultimate capacity. The precast pre-stressed corbel has a very lower ultimate capacity than the monolithic one.

nesreenkassem@yahoo.com
nesreen.kassem@f-eng.tanta.edu.eg