

Ductility of Slab-Interior Column Connections Transferring Shear and Moment

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Abstract : Ductility of slab-column connections of flat slab structures is a desirable property that should be considered when designing such connections which are susceptible to punching failure around their columns. Tests to failure on six half-scale specimens were conducted for slab-interior column connections transferring shear force and unbalanced moment. The influences on connection ductility of four parameters; namely, the moment to shear force ratio, the ratio of column side length to slab effective depth, the aspect ratio of the column cross section, and the presence of four square openings located next to column corners were investigated. The study revealed marked effects of these parameters on connection ductility. Increasing the first and second parameters, were found to be in favor of increasing connection ductility, while the third and fourth parameters were found to have negative effects on the connection ductility. These findings should, hopefully, help in designing interior connections of flat slab structures.

Keywords : ductility, flat slab, failure, shear force, moment, unbalanced moment, punching failure, connection, interior-column connection

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