The Effect of Detailing Steel in the Compression Regions of Internal Supports on the Ductility of Reinforced Concrete Beams

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ABSTRACT

A clause on detailing in AS 3600 stipulates that 25 percents of the maximum steel in the span of a reinforced concrete beam has to be extended beyond the near face of each internal support. This suggests that the internal support regions have more flexural ductility than the original designed amount. This ductility is obtained indirectly by determining the amount of moment that the support regions are capable of distributing. Non-linear analysis of beams designed and detailed to the design limits specified by AS3600 shows that they have substantial reserve in moment redistribution and load capacity as a result of the inclusion of steel in the compressive zones of the supports. This reserve capacity can be exploited for design and for the strengthening of beams.

KEYWORDS

Strengthening; Ductility; Reinforced concrete