

The Overload Behaviour of Reinforced Concrete Flexural Members

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Abstract : Sufficient ultimate deformation is necessary to demonstrate the member ductility, which is dependent on the section and the material ductility. The concrete cracking phase of softening prior to the plastic hinge formation is an essential feature as well. The nature of the overload behaviour is studied using the order of the ultimate deflection. The ultimate deflection is primarily dependent on the slenderness (span to depth ratio), the ductility of the reinforcing steel, the degree of moment redistribution, the type of loading, and the support conditions. The ultimate deflection and the degree of moment redistribution from the analytical study are in good agreement with the experimental results and the moment redistribution provisions of the Australian Standards AS3600 Concrete Structures Code.

Keywords : ductility, softening, ultimate deflection, overload behaviour, moment redistribution

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