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HIGH STRENGTH REINFORCED CONCRETE BEAMS IN THE CONTEXT OF DESIGN CODES

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Abstract:

The aim of the presented paper is to examine some aspects of current structural design codes in connection with the flexure behaviour of high strength reinforced concrete (HSRC) beams and one way slabs. An experimental study was conducted on HSRC beams subjected to short term static load. Flexural tests were carried out on singly reinforced beams. The test parameters of the beam specimens were cube compressive strength of concrete (70-110 MPa (10-16 ksi)) and the tensile steel ratios (1.03-4.04 percent). The methods of determining ultimate strength capacity of HSRC beams as suggested in some of the design codes have been critically examined and possible design recommendations have been provided. It was found that the design methods presented in this investigation are reasonably applicable in most cases and provide an adequate and safe basis for prediction of the ultimate capacity of HSRC beams in flexure. Moreover, some idealisations have been proposed to estimate the ultimate moment capacity of HSRC beams in flexure. These approaches provide a very close agreement with the actual measured ultimate moment capacity for all the tested beams.

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