STRENGTH AND STABILITY OF CONCRETE DEEP BEAMS

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Abstract

This investigation covers two important aspects of reinforced concrete deep beam behaviour, namely in-plane shear behaviour (covered in Part 1 of this thesis) and instability effects (covered in Part 2). It would seem that this latter topic has not been covered in the literature.

Part 1 of the thesis begins with a review of the relevant literature. This is followed by a critical review of the expressions that have gained the most acceptance in practice for the prediction of the ultimate shear strength. From the author's observations and in the light of much experimental work now available, a reappraisal of fundamental deep beam behaviour is carried out in Chapter 3. Finally a semirational expression for predicting the ultimate shear capacity is proposed on the basis of the conclusions drawn in Chapter 3. This expression is then compared with the existing semi-empirical formulations and test results.

Part 2 considers deep beam instability. An experimental programme is described in Chapter 7 and the results presented in Chapter 8.