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Cement & Concrete Composites **20** (1998) iii

0958-9465/98/$ — see front matter

Guest Editorial

The topic of 'Shear in Reinforced Concrete' has attracted significant attention of researchers and practitioners from the beginning of this century. Numerous technical papers and research theses have been written on the subject. Some significant developments in understanding the shear behaviour of reinforced concrete members have occurred in the last 20 years. The codes of practice have to some extent embraced these recent developments into the shear design provisions.

This special issue on 'Shear in Reinforced Concrete' contains four very interesting papers by eminent researchers in the field as well as a paper by the guest editor. All papers were received and reviewed by the usual procedure in accordance with the set guidelines.

In his paper, Professor Hsu presents a unified approach to shear analysis and design. The paper describes various truss models available to predict the behaviour and shear strength of elements. One of these truss models is applied to develop design equations for low-rise shear walls, framed shear walls, deep beams and shear transfer strength.

Professor Nielsen and his colleague in their paper demonstrate the powerful application of plasticity approach to the shear design problem. The paper illustrates means of finding design formulae for use in codes of practice. Many of their proposals serve as a basis of shear design provisions in the Eurocode 2.

The paper by this guest editor reviews the shear design provisions, in the current Australian standard, for concrete structures for beams and slabs. The design equations are merely empirical simplifications of the results given by the truss models and plasticity approach described in the first two papers. These design equations have been in use by the Australian practice for more than ten years. The paper also presents certain design equations for shear strength of walls.

The paper by Dr Foster deals with non-flexural members such as deep beams and corbels. Various design equations are presented which show considerable promise for adoption by future codes of practice.

Lastly, Professor Mansur addresses the special problem of effect of openings which frequently occur in practice on the shear strength of beams. Criteria for distinguishing small and large openings and various design equations are presented. Once again, these equations are worthy of consideration by code writing authorities.

In conclusion, the papers in this special issue cover the state-of-the-art of shear in reinforced concrete. The information contained herein is believed to be useful to researchers in the field as well as to practicing engineers. The guest editor is grateful to Professor Swamy for giving him the unique opportunity to edit this special issue. He expresses his sincere thanks to the authors for their excellent contributions.

B. Vijaya Rangan
Guest Editor