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Spotlight on *Structures*

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Volume 42 of *Structures* (August 2022) is now available to read at www.sciencedirect.com/journal/structures/vol/42.

As the Featured Article from this issue, Associate Editor, Lei Wang, has chosen an article investigating the differing design approaches to shear enhancement of reinforced concrete beams in Eurocode 2 and the superseded British Standard BS 8110.

The article will be available free of charge for six months.

Editor's Featured Article

Shear enhancement in RC beams without shear reinforcement simultaneously loaded within 2*d* and at 3*d* from supports

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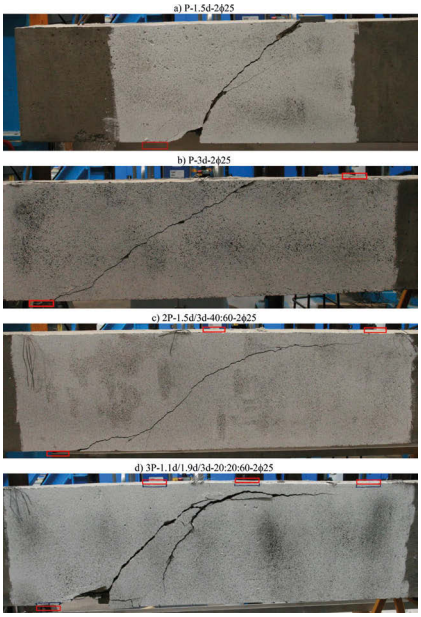
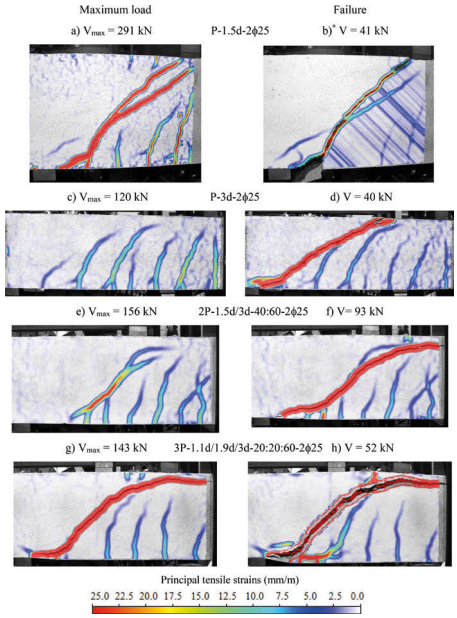
Shear resistance is increased by arching action when reinforced concrete (RC) beams are loaded within around twice the beam effective depth (*d*) of supports. The vast majority of laboratory tests have investigated shear enhancement in beams under three- or four-point loading with all loads applied within 2*d* of supports. This type of loading is representative of deep beams but not slender beams and slabs which are invariably loaded within the span when subject to point loads near supports. The latter problem arises in many guises in practice but is scarcely researched. The motivation for looking into the problem was the difference in design approaches adopted in EC2 and the superseded UK code BS8110. The former accounts for shear enhancement by reducing the design shear force while the latter increases the design shear resistance within 2*d* of supports. The *UK National Annex to Eurocode 2 Part 2 Concrete Bridges* adopts the approach of BS8110 for members without shear reinforcement. The paper presents the results of tests on four simply supported RC beams without shear reinforcement in which the loading arrangements were chosen to investigate the influence on shear enhancement of applying loads both within and outside 2*d* of supports. Digital image correlation (DIC) system was used to investigate the crack kinematics and shear resisting mechanisms of each beam. The BS8110 approach to shear enhancement is shown to be potentially unsafe for beams without shear reinforcement. Good predictions of strength were obtained with EC2 as well as strut and tie modelling in which the concrete strength was determined using the Modified Compression Field Theory.

→| Read the full paper at **https://doi.org/10.1016/j.istruc.2022.05.095**





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