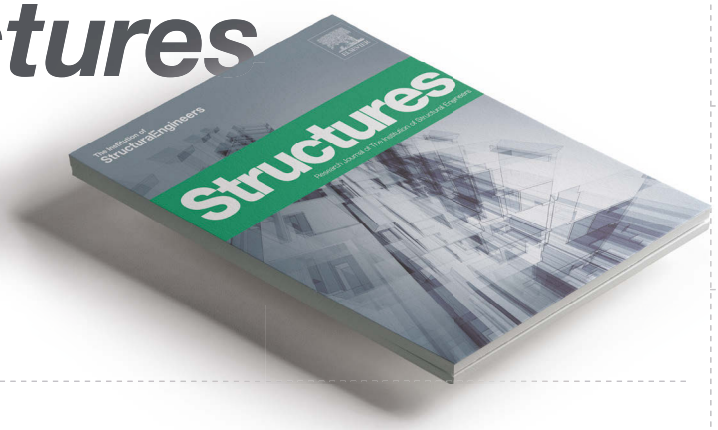
All articles in *Structures* are available free of charge to paying-grade members of the Institution as one of their membership benefits. The journal is available online at: www.structuresjournal.org

Spotlight on *Structures*



Read the latest issue

Volume 37 of *Structures* (March 2022) is now available to read at www.sciencedirect.com/journal/structures/vol/37.

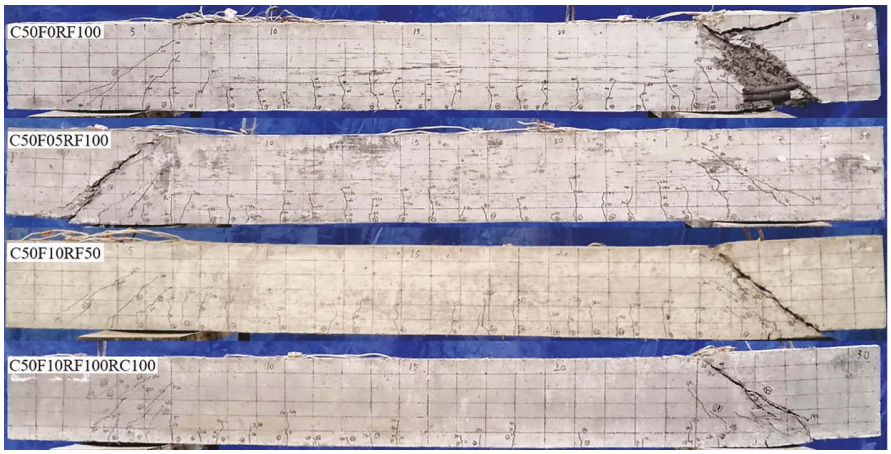
Associate Editor, Hua Yang, has selected a paper on shear behaviour analysis and capacity prediction of steel fibre-reinforced concrete beams as the 'Featured Article' from this issue. The article will be available free of charge for six months.

Editor's Featured Article

Shear behavior analysis and capacity prediction for the steel fiber reinforced concrete beam with recycled fine aggregate and recycled coarse aggregate

Danying Gao[abc], Weiwei Zhu[a], Dong Fang[a], Jiyu Tang[a], Haitang Zhu[c]
[a] School of Civil Engineering, Zhengzhou University, Zhengzhou, China
[b] School of Water Conservancy Engineering, Zhengzhou University, Zhengzhou, China
[c] School of Civil Engineering, Henan University of Engineering, Zhengzhou, China

This paper mainly studies the shear behavior of steel fiber reinforced concrete beams with recycled fine aggregate and recycled coarse aggregate. A total of thirteen beams with 150mm width, 300mm height, and 3000mm length were tested under four-point bending. The shear span-to-depth ratio was kept the constant of 2. The spacing of stirrups was 150mm, 200mm, and 250mm, respectively. The recycled fine aggregate and recycled coarse aggregate obtained from building demolition waste were introduced in the concrete mixes with the replacement ratio of 0%, 50%, and 100%, the steel fiber volume fractions in the beams were 0%, 0.5%, 1.0%, and 1.5%, respectively. The shear capacity, the mid-span deflection, and the stirrups strain were measured in this test. The results indicated that the shear capacity of the concrete beam with recycled aggregate and steel fibers decreased with the increase in the replacement ratio of recycled coarse aggregate, and gradually improved as the increase in steel fiber volume fractions, respectively. The steel fiber volume fraction of 1.0% in concrete was almost sufficient to offset the shear capacity degradation induced by 100% recycled fine aggregate replacement ratio and 100% recycled coarse aggregate replacement ratio. Finally, the effects of recycled fine aggregate, recycled coarse aggregate, and steel fibers on the shear behavior of the concrete beams were severally quantified by the linear equations, and a model for predicting the shear capacity of concrete beams with recycled fine aggregate, recycled coarse aggregate, and steel fibers was proposed and verified.



→| Read the full paper at **https://doi.org/10.1016/j.istruc.2021.12.075**

Register for alerts
If you'd like to receive regular updates about new content in *Structures*, register for email alerts at **www.sciencedirect.com/**.