

Award-winning paper in 2018

Papers published in *Magazine of Concrete Research* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 4 October 2018, ICE president Andrew Wyllie presented an award to the following paper published in *Magazine of Concrete Research* in 2018. The Editorial Panel nominated their best papers and an awards committee chaired by Robert Armitage allocated the awards.

Magazine of Concrete Research Prize

The Magazine of Concrete Research Prize, awarded for the best paper published in *Magazine of Concrete Research*, was awarded to Behnam *et al.* (2018).

Abstract

Most of the current design codes of practice allow the use of reinforced-concrete moment frames with wide beams in regions of high seismicity. These design codes prescribe beam-width limitations and special reinforcement details to minimise the lag in the formation of full-width plastic hinges. However, due to insufficient experimental and analytical

studies, empirical design formulas for beam-width limitation, with remarkable differences, have been implemented in these codes. In this paper, an effective beam-width model of exterior wide beam–column connections is analytically developed using the equivalent-frame model representation, where the effect of torsion of transverse beams and flexure around the joint core is considered. The validity of the model is verified using flexural strength predictions of previously published tests in the literature, covering a wide range of design parameters. Combining the proposed effective beam-width model and the rational, analytical approach, a formula is presented for determining the beam-width limitation of exterior wide beam–column connections. For convenient application in practical design, the proposed beam-width limitations of both exterior (derived in this paper) and interior connections (previously derived by the authors) are further simplified, and the relevant design curves and charts are presented.

REFERENCE

Behnam H, Kuang JS, Wong HF, Huang Q and Al-Mahaidi R (2018) Analysis of laterally loaded exterior wide beam–column connections. *Magazine of Concrete Research* **70(10)**: 500–511, <https://doi.org/10.1680/jmacr.17.00255>.