

Spotlight on Structures

Research Journal of The Institution of Structural Engineers

In this section we shine a spotlight on papers recently published in *Structures* – the Research Journal of The Institution of Structural Engineers.

Structures is a collaboration between the Institution and Elsevier, publishing internationally-leading research across the full breadth of structural engineering which will benefit from wide readership by academics and practitioners.

Access to *Structures* is free to paying-grade Institution members as one of their membership benefits, with access provided via the 'My account' section of the Institution website. The journal is available online at: www.structuresjournal.org

Read the latest issue

The latest issue of *Structures* (Volume 16, November 2018) is available at www.sciencedirect.com/journal/structures/vol/16/. Institution members of any paying grade can read the journal free of charge, with access via the 'My Account' section of the Institution website.

Editor-in-Chief, Professor Leroy Gardner, has selected an article proposing a new design method for single-angle members as his featured article from this issue. The proposed design method addresses plastic failure as well as stability checks.

Editor-in-Chief's featured articles are made available free of charge to all for a period of six months following publication.

Update: Structures accepted for SCIE

We are pleased to announce that *Structures* has been accepted for inclusion in the Science Citation Index Expanded, part of the Web of Science collection of citation databases. Inclusion in SCIE will see *Structures* awarded a Journal Impact Factor for the first time, when the 2019 *Journal Citation Reports* are issued by Clarivate Analytics later in the year.

Structures is already indexed in Scopus, and was previously indexed in the Emerging Sources Citation Index within Web of Science.

Editor-in-Chief's Featured Article

Finite Element Modeling and Design of Single Angle Member Under Bi-axial Bending

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Practical single angle members are mostly subjected to eccentric forces due to the end connections to their legs. Plastic Class 1 and compact Class 2 angle cross-sections are allowed for using their plastic reserves. However, most of the interaction equations in the current design codes are linear whereas the nonlinear equations associated with plastic surface are provided in the literature. In this study, a new design method for single angle member to address the plastic failure as well as stability checks is proposed. The first yield moments at different critical points due to the interaction between the normal forces and the biaxial bending are provided. Moreover, the elastic flexural and flexural-torsional buckling loads for single angle member are calculated using a

simplified equation rather than the complex design charts or series of equations in literature or design codes. New buckling curves, taking the Eurocode 3 design rules into account, are presented for single angle member subjected to eccentric load about both major and minor principal axes. A reliable and efficient finite element model is provided to verify the proposed equations and to investigate the different parameters affecting the buckling behavior. Finally, various initial geometric imperfections together with a residual stress distribution pattern are studied and provided in this paper.

The full paper is available at <https://doi.org/10.1016/j.istruc.2018.11.001>.

