

# 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.

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## Articles in press

The following articles have recently been made available online:

### Comparison of Seismic Design Provisions for Buckling Restrained Braced Frames in Canada, United States, Chile, and New Zealand

R. Tremblay<sup>a</sup>, M. Dehghani<sup>a</sup>, L. Fahnestock<sup>b</sup>, R. Herrera<sup>c</sup>, M. Canales<sup>c</sup>, C. Clifton<sup>d</sup> and Z. Hamid<sup>e</sup>

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<sup>c</sup> Dept. of Civil Eng., University of Chile, Santiago, Chile

<sup>d</sup> Dept. of Civil & Environmental Eng., University of Auckland, Auckland, New Zealand

<sup>e</sup> Steel Construction New Zealand Inc., Auckland, New Zealand

<http://dx.doi.org/10.1016/j.istruc.2016.06.004>

### Behaviour and Design of Connections for Demountable Steel and Composite Structures

Brian Uy<sup>a</sup>, Vipulkumar Patel<sup>a,b</sup>, Dongxu Li<sup>a</sup> and Farhad Aslani<sup>a,c</sup>

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<sup>c</sup> School of Civil, Environmental and Mining Engineering, The University of Western Australia, Crawley, WA 6009, Australia

<http://dx.doi.org/10.1016/j.istruc.2016.06.005>

### Response of CFS Sheathed Shear Walls

Matteo Accorti<sup>a</sup>, Nadia Baldassino<sup>a</sup>, Riccardo Zandonini<sup>a</sup>, Federica Scavazza<sup>b</sup> and Colin A. Rogers<sup>c</sup>

<sup>a</sup> Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy

<sup>b</sup> Cogi s.r.l., Calliano, Italy

<sup>c</sup> Department of Civil Engineering and Applied Mechanics, McGill University, Canada

<http://dx.doi.org/10.1016/j.istruc.2016.06.009>

## Highlights

- Study of light steel residential building in seismic areas
- Experimental investigation of performance of walls under gravity and lateral loads
- Influence of the bracing system and of the sheathing under monotonic and cyclic lateral loads
- Analytical methods for determining the elastic stiffness and strength of sheathed panels
- Deformation capacities and energy dissipation confirm adequacy for low and medium seismic areas

### Design of Top-hat Purlins for Cold-formed Steel Portal Frames

Asraf Uzzaman<sup>a</sup>, Andrzej M. Wrzesien<sup>b</sup>, James B.P. Lim<sup>c</sup>, Robert Hamilton<sup>a</sup> and David Nash<sup>a</sup>

<sup>a</sup> Department of Mechanical and Aerospace Engineering, The University of Strathclyde, Glasgow, UK

<sup>b</sup> Department of Civil Engineering, The University of Strathclyde, Glasgow, UK

<sup>c</sup> Civil & Environmental Engineering, The University of Auckland, New Zealand

<http://dx.doi.org/10.1016/j.istruc.2016.06.006>

## Highlights

- Viability of using top-hat sections for purlins in cold-formed steel portal frames
- Experimental investigation of cold formed top-hat sections subjected to four point bending

- Non-linear finite element models have been developed and verified against the experimental test results
- Parametric studies were carried out to study to investigate the effect of different thicknesses and steel grades
- Design recommendations are provided in the form of charts

### Deformed steel fibres as minimum shear reinforcement – An investigation

Kranti Jain<sup>a</sup> and Bhupinder Singh<sup>b</sup>

<sup>a</sup> Department of Civil Engineering, National Institute of Technology Uttarakhand, Srinagar-Garhwal, India

<sup>b</sup> Department of Civil Engineering, Indian Institute of Technology Roorkee, India

<http://dx.doi.org/10.1016/j.istruc.2016.06.003>

### Buckling and Post-buckling Behavior of Beams With Internal Flexible Joints Resting on Elastic Foundation Modeling Buried Pipelines

Vasileios E. Melissianos and Charis J. Gantes, Institute of Steel Structures, School of Civil Engineering, National Technical University of Athens, Greece

<http://dx.doi.org/10.1016/j.istruc.2016.06.007>

### Investigation of Compressive Bond Behavior of Steel Rebar Embedded in Concrete With Partial Recycled Aggregate Replacement

S. Moallemi Pour and M. Shahria Alam, School of Engineering, University of British Columbia, Kelowna, BC, Canada

<http://dx.doi.org/10.1016/j.istruc.2016.06.010>

### A New Metallic Damper for Seismic Resilience: Analytical Feasibility Study

Dhiman Basu and P.R.M. Reddy, Indian Institute of Technology Gandhinagar, India

<http://dx.doi.org/10.1016/j.istruc.2016.06.011>

### Three Dimensional Extension for Park and Ang Damage Model

J. Guo<sup>a,c</sup>, J.J. Wang<sup>b</sup>, Y. Li<sup>a</sup>, W.G. Zhao<sup>c</sup> and

Y.L. Du<sup>a</sup>

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<http://dx.doi.org/10.1016/j.istruc.2016.06.008>

### Most read articles

The top 10 most read articles on the Structures website as of 15 July are as follows:

#### Experimental testing of grouted connections for offshore substructures: A critical review

Paul Dallyn, Ashraf El-Hamalawi, Alessandro Palmeri and Robert Knight

Vol. 3, August 2015

<http://dx.doi.org/10.1016/j.istruc.2015.03.005>

#### Improved Formulation of Travelling Fires and Application to Concrete and Steel Structures

Egle Rackauskaite, Catherine Hamel, Angus Law and Guillermo Rein

Vol. 3, August 2015

<http://dx.doi.org/10.1016/j.istruc.2015.06.001>

#### Static and fatigue performance of resin injected bolts for a slip and fatigue resistant connection in FRP bridge engineering

Behrouz Zafari, Jawed Qureshi, J. Toby Mottram and Rusi Rusev

In press

<http://dx.doi.org/10.1016/j.istruc.2016.05.004>

#### Systems Reliability for 3D Steel Frames Subject to Gravity Loads

Benyu Liu, Kim J.R. Rasmussen and Hao Zhang

In press

<http://dx.doi.org/10.1016/j.istruc.2016.06.002>

#### Effect of the thickness of concrete cover on the fatigue bond strength of GFRP wrapped and non-wrapped reinforced concrete beams containing a lap splice

Rayed Alyousef, Tim Topper and Adil Al-Mayah

Vol. 6, May 2016

<http://dx.doi.org/10.1016/j.istruc.2016.01.001>

#### Investigation of Compressive Bond Behavior of Steel Rebar Embedded in Concrete With Partial Recycled Aggregate Replacement

S. Moallemi Pour and M. Shahria Alam

In press

<http://dx.doi.org/10.1016/j.istruc.2016.06.010>

#### Review on Recent developments in the performance-based seismic design of reinforced concrete structures

Mohd. Zameeruddin and Keshav K. Sangle

Vol. 6, May 2016

<http://dx.doi.org/10.1016/j.istruc.2016.03.001>

#### Review of Concrete Structures Strengthened with FRP Against Impact Loading

Thong M. Pham and Hong Hao

In press

<http://dx.doi.org/10.1016/j.istruc.2016.05.003>

#### Robustness of simple joints in pultruded FRP frames

Jawed Qureshi, J. Toby Mottram and Behrouz Zafari

Vol. 3, August 2015

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