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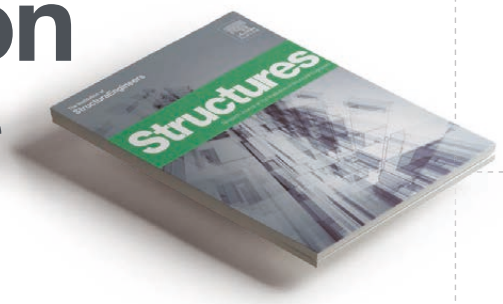
Spotlight on *Structures*



Read the latest issue

The latest issue of *Structures* (Volume 22, December 2019) is available at www.sciencedirect.com/journal/structures/vol/22.

Editor-in-Chief, Leroy Gardner, has selected an article on structural behaviour of prefabricated stressed-skin engineered timber composite flooring systems as his 'Featured Article' from the issue. This will be available free of charge for six months.

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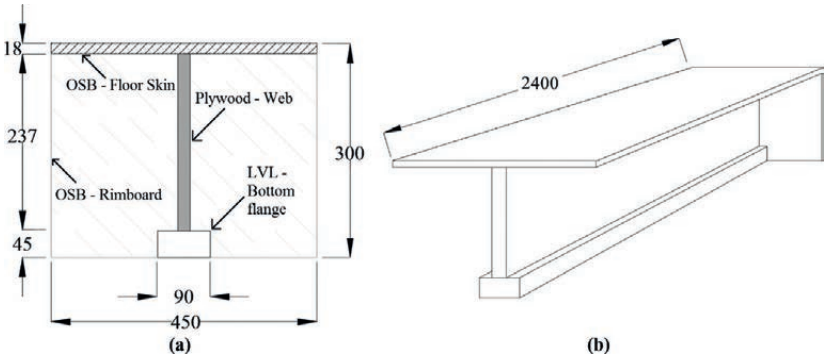
Editor's Featured Article

Structural behaviour of prefabricated stressed-skin engineered timber composite flooring systems

Kristopher Orlowski, Shanaka Kristombu Baduge, Priyan Mendis and Yusak Oktavianus
Department of Infrastructure Engineering, University of Melbourne, Australia

The primary focus of this study is understanding the behaviour and structural performance of prefabricated composite timber floor cassette systems with oriented strand board (OSB) stressed-skins. These do not have a dedicated top flange, instead their plywood webs are integrally bonded to the OSB flooring skin through a chemical connection. Subsequently, local buckling of the stressed-skin was found to occur as the first failure mode. Specimens with 150mm and 300mm nail spacings were investigated for its effects on performance due to the criticality of the integrated web to floor skin connection in these systems. A total of 20 stressed-skin specimens were tested in three-point bending with recordings of the applied force, displacement, slip and failure modes. It was found that local buckling of the skin is prone to occur prior to reaching the designed SLS limit. A detailed finite element analysis (FEA) which takes into consideration the full behaviour of the materials and the glue and nail connections along with failure modes has been validated and used to provide insight to potential design solutions. Key parameters investigated include the adhesive properties, the ratio of clear effective outstand width of the flange to the thickness of the stressed-skin ($b_{eff,o}/t$), ratio of the clear depth of the web to the thickness of the web (d_p/t_w), ratio of the clear span to the total depth of the composite beam (L_o/D) and finally the spacing of the nails. This has resulted in a broad level understanding of the effects of these design parameters to the behaviour of stressed-skin engineered timber flooring cassettes.

→| Read the full paper at **https://doi.org/10.1016/j.istruc.2019.08.012**



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Resilience-Based Design for Next-Generation Bridge Design and Construction

Date: 15–16 July 2020
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Abstract deadline: 15 March 2020

Submit an abstract for the workshop 'Resilience-Based Design for Next-Generation Bridge Design and Construction', dedicated to the broad topics of accelerated, automated and robotic bridge construction. Accepted papers will be published in a special issue of *Structures* following the workshop.

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