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### Behavior of axially loaded back-to-back cold-formed steel built-up channel sections

Back-to-back built-up cold-formed steel channel columns are being increasingly used by cold form steel structures, such as trusses, wall frames and portal frames. In such an arrangement, independent buckling of channel-sections can be prevented by using intermediate fasteners, at discrete points along the length. Current guidelines in the North American Standard (NAS) for such back-to-back built-up cold-formed steel channel sections requires the use of a modified slenderness approach in order to take into account the spacing of the screws. This method, however, is well-known to be conservative. This paper presents the results of 60 tests performed on back-to-back built-up cold-formed steel channel sections. Test results are then compared against the design strengths calculated in accordance with AISI and the Australian and New Zealand standard. It is shown that the AISI and the Australian and New Zealand Standards are un-conservative for columns sections failed by local buckling whereas standard under estimate the strength of intermediate and long columns which were failed mainly by overall member buckling for the both the section BU 75 and BU 90 considered in the investigations.

#### Recent Publications

1. Tina Chui Huon Ting, Krishanu Roy, Hieng Ho Lau, James B P Lim (2017) Effect of screw spacing on behavior of axially loaded back-to-back cold-formed steel built-up channel sections. *Advances in structural Engineering*; DOI: 10.1177/1369433217719986.

#### Biography

Hieng Ho Lau is currently the Dean of Faculty of Engineering and Science, Curtin University Malaysia. He is a Member of Curtin University Malaysia Campus Community where he has accumulated over 14 years of teaching experience in the field of civil engineering. He is a Professional Engineer with Practicing Certificate registered with Board of Engineers Malaysia (BEM) and also Chartered Professional Engineer with Engineers Australia.

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