

Siripob Kakaew 2013: Behavior of Cold-Formed Steel Built-up Column using Channel Sections with Different Weld Spacing. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Assistant Professor Kitjapat Phuvoravan, Ph.D. 173 pages.

The research presents on the buckling behavior of cold-formed steel built up column using channel sections with different weld spacings which is subjected to compression between fixed ends. The built-up sections of test specimens were prepared by welding two light lip channel sections together creating a closed column section. More specifically, the welded spacing is varied for each specimen since the weld spacing effects the buckling behavior in different ways. Although this type of built-up column is widely used as a main structural member in the present construction, their behaviors have not been acknowledged by most engineers. This research is conducted to reveal behaviors of built-up sections under concentric compression loading. All the experimental results are compared with the compressive design strength according to the AISI. The effects of the weld spacing on compressive strength and their corresponding buckling behavior are concluded. Furthermore, the stress distributions in the local buckling and post-local buckling states including the failure modes in each column were also studied. However, different weld spacings in each specimen result in different loading capacity.

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