

Likelihood of buckling mode interaction in shape optimisation of manufacturable cold-formed steel columns

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Abstract

This paper investigates the likelihood of buckling mode interaction in shape optimisation of manufacturable cold-formed steel columns. A literature review is carried out to examine local, distortional and global buckling mode interactions. Optimised columns available in the literature and the research outcomes previously carried out by the authors are discussed in some detail. The average elastic buckling stresses are reported herein and the need for incorporating the buckling mode interactions into shape optimisation algorithms is quantified.

Keywords: Shape optimisation; Cold-formed steel structures; Buckling mode interactions.