

Behaviour of Perforated Built-Up Cold-Formed Steel Sections with Edge and Web Stiffeners

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Abstract:

This paper presents the experimental investigation of various perforation positions influence on C-sections cold-formed steel with edge and web stiffeners assemble as built-up open section subjected to axial compressive load. The built-up sections been setup as back-to-back by using self-tapping screws connected at web on two longitudinal lines of 100 mm spacing. The sections is then fabricated as 600 mm short column structures with both ends are fix-welded to 20 mm thickness of bearing supports. Total of 16 nos of specimens consist of both conventional and modified 1.2 mm thickness built-up C-sections with the sequence positions of elongated circle perforations whether as absent or present as in single or multiple openings. The strength of the columns as the results of ultimate load by caused of the location of perforation even if at middle section or near end section are tabulated. The results show that the establishment of stiffeners may increase the strength of the column. However, the effects of perforation when as a multiple openings and the position is closer to the support will reduce the strength.

Keywords: Column structures; Experimental investigation; Built-up C-sections