INFORMATION OF NEW CONTRIBUTIONS OF THE THESIS

Thesis Title: **BEHAVIOR OF COLD-FORMED STEEL MEMBERS SUBJECTED TO BENDING ABOUT ASYMMETRICAL AXIS**

Major: **Construction engineering** Code: **9580201**

PhD Candidate: **Vu Huy Hoang**

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SUMMARY OF NEW CONTRIBUTIONS OF THE THESIS

1) Development of a new analytical method (RSM) to address the problem of local elastic buckling of the entire cross-section. The RSM method can be applied to open cross-sections composed of continuously folded steel plates with very small errors (approximately 2%), paving the way for the application of analytical methods to complex cross-sections under generalized loading conditions in practice.

2) Development of a practical formula to determine the buckling coefficient for cold-formed C-shaped steel members subjected to bending about the asymmetrical axis with the web in compression. Compared to previously proposed formulas, the advantages include: a simpler form; higher accuracy (maximum error reduced by about 50%); wider range of applicability; consideration of more influencing factors; and reduced dependence on specialized software.

3) Proposal of the new DSM strength formula to be applicable to cold-formed C-shaped steel members subjected to bending about the asymmetrical axis with the web in compression. The improved formula establishes a relationship between strength and the cross-sectional aspect ratio B/H, thereby achieving significantly higher accuracy (an increase of 1,36 times) compared to the current DSM formula.

PhD Candidate