On the structural stability of timber members to Eurocode

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Summary:

This study investigates the load-bearing behavior of timber members subjected to combined compression and bending based on the guidelines of the standard Eurocode 5. In this context, two design approaches are stated to account for flexural buckling: the effective length method and the second-order analysis. Although Eurocode 5 states that second-order analysis can be carried out to check the stability of beam-columns, it does not mention how to formulate this analysis. This study investigates this case in order to develop alternative interaction formulae to check the stability of timber members subjected to simultaneously acting axial compression and bending moments with risk of buckling failure. The second-order analysis advanced in this article can be an alternative tool to be used by the structural engineer to assess the stability of axially loaded members subjected to the risk of flexural buckling failure.

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