

The Seat Angle Role on Moment-Rotation Response of Bolted Angle Connections

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ABSTRACT

Effect of the seat angle stiffness on moment-rotation response of the bolted top-seat angle connections is studied in this paper by using finite element method (FEM). All of the connection components, such as beam, column, angles and bolts are modeled using solid elements. The effect of interactions between components, such as slippage of bolts and frictional forces, are modeled using surface contact algorithm. Bolt pretensioning force is applied on bolt shanks as the first load case to evaluate the behavior of connection more precisely. The Results of this numerical modeling are compared with the results of experimental works done by other researchers and good agreement was observed. It has been shown that the beam length has a considerable effect on connection moment-rotation behavior, especially in the nonlinear range of the connection behavior.
