عنوان مقاله:

Analysis of beam-to-tubular column angle connection using blind bolt by finite element method

محل انتشار:

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خلاصه مقاله:

In order to solve the problem of access to tubular columns for tightening nut of bolts in bolt connections and reaching a suitable connection both in terms of rigidity and stiffness and in terms of the proper behavior, different solutions are suggested by various researchers that it is possible to refer to the beam-to-tubular column angle connection using blind bolt. This connection can be made with different types with the number of blind bolts and angle of different connection. In the meantime, the connection with the leg angle and its connection by the blind bolt to the tubular column with its proper behavior will lead the connection towards a semi-rigid connection. In this research, the effect of changing various parameters in the behavior of beam-to-tubular column angle connection using blind bolt under loading has been investigated. Non-linear finite element components and ABAQUSE software, as well as solid three dimensional elements were used to model the blind bolt connections, which is the kind of continuous elements and models the total 3D volume of the structure. The behavior of the connection was studied by changing various parameters such as beam height, column thickness, length of leg angle and number of blind bolts. The results show that increasing the height of beam, increasing the thickness of column, increasing the length of leg angle increases the rigid percentage of connections. Also, by studying the modeling, the rigid percentage of most models, except for a few of them, which was less than 20%, is between 20% and 90%, so, according to the rigid percentage for semi-rigid connections, these models have behaved as semi-rigid connection.

کلمات کلیدی:

blind bolt, angle, stress, moment-rotation curve, semi-rigid connection

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