عنوان مقاله:

Numerical Analysis of Block Shear Mechanism in Gusset Plate Connections

محل انتشار:

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خلاصه مقاله:

Gusset plates are commonly used as connections to transfer forces between the members. For some connection configurations, the tension member can fail due to 'tear-out' of material at the connected end. This connection failure is called block shear mechanism. Block shear is associated with both welded and bolted connections, in which a block of material is turning out in combination of tensile and shear failure. This paper presents numerical investigation of welded gusset plate connections, using ABAQUS software. Non-linear finite element model is first validated against available experimental data. In particular, the study evaluates the effects of configuration of welds, plate thickness, length of welded region, and cross welds in both single and double section connections. Results showed that the finite element model is capable of accurately simulating the behavior of welded gusset plate connections subjected to tensile loads. Moreover, it was found that the length of welded region has an important role in the strength of the welded connections. However, this effect is more significant in single section connections in comparison with double section connections

کلمات کلیدی:

Gusset Plate, Block Shear, Numerical Model

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