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Bolted connections in cold formed steel angles with emphasis on the efficiency reduction due to shear lag

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This work investigates the shear lag coefficient, C_t , for cold formed steel angles. The results of experimental investigations are presented and discussed. Tests performed in cold formed steel angles, connected by bolts and submitted to tensile loads are presented. When considering the bolted connection, the angle does not deform uniformly, showing the phenomenon known as shear lag. For the calculation of the ultimate capacity of the tension-members, the steel angle collapse of the net section is examined, and the phenomenon of shear lag is considered through the factor C_t . Such coefficient reduces the net section and is used to decrease the resistant capacity of the steel angle under tension. From statistical analyses on the experimental data, a new equation is proposed that quantifies the reduction of the efficiency of the cross section of angles. The viability of this equation is evaluated in front of the experimental results on formed steel profiles.

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