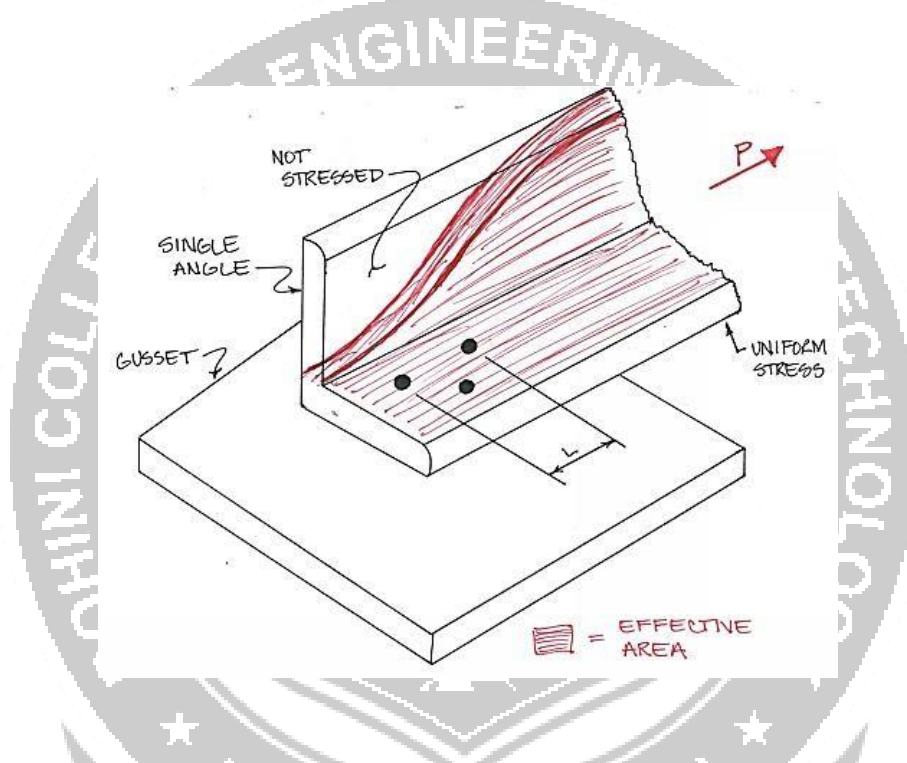


Shear lag

Shear lag is a concept used to account for uneven stress distribution in connected members where some but not all of their elements (flange, web, leg, etc.) are connected. The reduction coefficient, U , is applied to the net area, A_n , of bolted members and to the gross area, A_g , of welded members.



This occurs when some element of the member is not connected. Consider an angle section tension member connected with one leg only as shown in figure. Hence at the joint/connection more of the load is carried by the connection leg and it takes a transition distance as indicated in fig, for the stress to spread uniformly across the whole angle, stress distribution in the two legs of the angle would be different. In the transition region the stress in the connected part may even exceed f_y and go into strain hardening range, the member may fracture prematurely. Away from the joint/connection the stress transfer is uniform. In the transition zone shear transfer lags. Since shear lag reduces the effectiveness of the outstanding leg it is kept smaller length generally. For this reason unequal angles with long leg as connecting leg is preferred.

Hence shear lag is the function of distribution of steel and length of the load transfer L . It is independent of type of load and applied to both bolted and welded connections.