

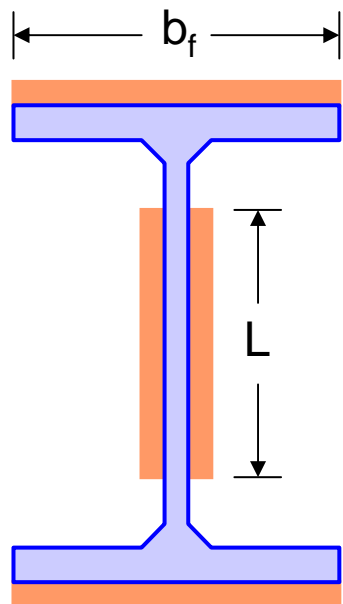
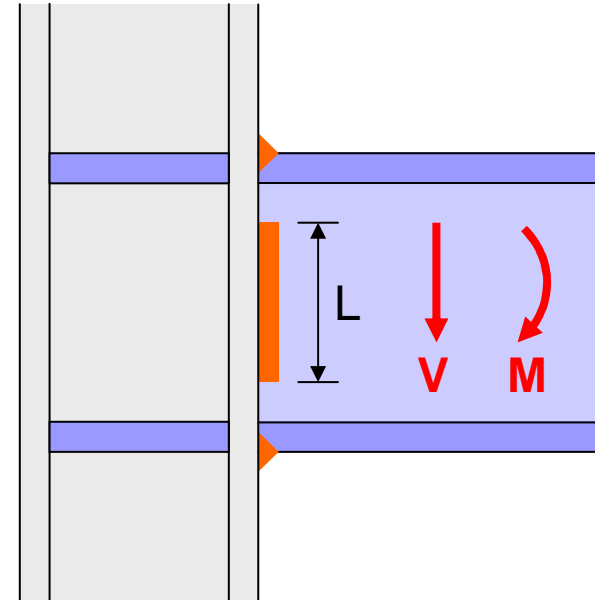
# Welded Moment Connections

Beam Shear strength :

$$V = 0.4 F_y d t_w$$

Beam Moment strength :

$$M = 0.66 F_y S_x$$



Assume weld size = 1 cm

$$\Sigma L_w = 2 b_f + 2 L \longrightarrow$$

Direct shear stress:

$$f_s = \frac{V}{\Sigma L_w}$$

$$I_x = \frac{2}{12} L^3 + 2 b_f \left( \frac{d}{2} \right)^2 \longrightarrow$$

Tensile stress:

$$f_t = \frac{M (d/2)}{I_x}$$

# Welded Moment Connections

Resultant Stress :

$$f_r = \sqrt{f_s^2 + f_t^2}$$

Required weld size :

$$t_w = f_r / (0.707 F_v)$$

ลวดเชื่อม E60:  $F_u = 60 \text{ ksi} = 4,200 \text{ kg/cm}^2$

ลวดเชื่อม E70:  $F_u = 70 \text{ ksi} = 4,900 \text{ kg/cm}^2$

ลวดเชื่อม E80:  $F_u = 80 \text{ ksi} = 5,600 \text{ kg/cm}^2$

$$F_v = 1,260 \text{ kg/cm}^2$$

$$F_v = 1,470 \text{ kg/cm}^2$$

$$F_v = 1,680 \text{ kg/cm}^2$$