A-441 modified . . . . . 50 ksi minimum yield strength low alloy "H" Series.

See sheets D101 through D103 for Properties of Sections.

APPLICABLE FORMULAE: Stress Determination (Web or Chord Members)

A-36 steel

(36 ksi minimum yield)

f_y = Minimum Yield Strength 36,000 psi

f_s = Tension 22,000 psi

f_{sc} = Compression for $\ell/r < 127$ $18{,}540 - .574\,(\ell/r)^2$ psi

for $\ell/r > 127$ $\dfrac{149{,}000{,}000}{(\ell/4)^2}$ psi

ℓ = clear distance between attachments

r = least radius of gyration

A-441 steel

(50 ksi minimum yield)

f_y = Minimum Yield Strength 50,000 ksi

f_s = Tension 30,000 psi

f_{sc} = Compression for $\ell/r < 108$ $25{,}750 - 1.108\,(\ell/r)^2$ psi

for $\ell/r > 108 < 200$ $\dfrac{149{,}000{,}000}{(\ell/r)^2}$ psi

Continuous members shall be designed for only axial compressive stress when the panel length clear of attachments does not exceed 24". When the panel length clear of attachments exceeds 24", the top chord shall be designed as a continuous member subject to combined axial and bending stress and shall be of proportion that the quantity -

$$\frac{f_a}{30{,}000} + \frac{f_b}{F_b}$$

does not exceed unity at the panel point, or that the quantity -

$$\frac{f_a}{F_a} + \frac{f_b C_m}{F_b\left(1 - \dfrac{f_a}{F'_e}\right)}$$

does not exceed unity at the mid panel.

Permissible axial unit compressive stress = "F_a"

Permissible bending unit stress = "F_b"

Permissible compressive stress factor (column equation $\dfrac{149{,}000{,}000}{(\ell/r)^2}$ psi) = "F'_e"