Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/20/16

Wood Columns

(1) 2x6 SPF #1/#2

$F_c = 1500$ psi $\quad E = 1.9 \times 10^6$ psi $\quad F_{CE} = \frac{K_{CE} E^1}{(l_e/d)^2} \quad K_{CE} = 0.3$

$$\frac{l_e}{d} = \frac{9 \times 12}{5.5} = 19.6 < 50 \text{ ok}$$

$$= \frac{0.3\,(1.4 \times 10^6)}{19.6^2}$$

$$= 1105 \text{ psi}$$

$$F^1_c = F_{c\#}\left[\frac{1 + F_{CE}/F_{c\#}}{2c} - \sqrt{\left[\frac{1 + F_{CE}/F_{c\#}}{2C}\right]^2 - \frac{F_{CE}/F_{c\#}}{C}}\right]$$

C_F

$F_{c\#} = 1150 \times 1.1 = 1265$ psi

$C = 0.8$

$$= 1265\left[\frac{1 + 1105/1265}{2(0.8)} - \sqrt{\left[\frac{1 + 1105/1265}{2(0.8)}\right]^2 - \frac{1105/1265}{0.8}}\right]$$

$= 1265 \quad [0.64]$

$= 810$ psi

$P_{ALLOW} = 810\,(1.5 \times 5.5) = 6679\#$

(1) 2x6 SPF #1/#2 x 8'-0" $\quad P_{ALLOW} = 6679\#$

(2) 2x6 SPF #1/#2 x 8'-0" $\quad P_{ALLOW} = 13358\#$

(3) 2x6 SPF #1/#2 x 8'-0" $\quad P_{ALLOW} = 20038\#$

(4) 2x6 SPF #1/#2 x 8'-0" $\quad P_{ALLOW} = 26717\#$

Check Bearing on SPF Plate

$F_{c\perp}^1 = 425$ psi

$P_{ALLOW} = 425\,(1.5 \times 5.5) = 3606\#$

(1) 2x6 $\quad P_{ALLOW} = 3606\#$

(2) 2x6 $\quad P_{ALLOW} = 7013\#$

Bearing Controls

(3) 2x6 $\quad P_{ALLOW} = 10519\#$

(4) 2x6 $\quad P_{ALLOW} = 14024\#$