Bridge Design Details 6.13 February 2020

Edge Distance Calculation for Bearing Pad

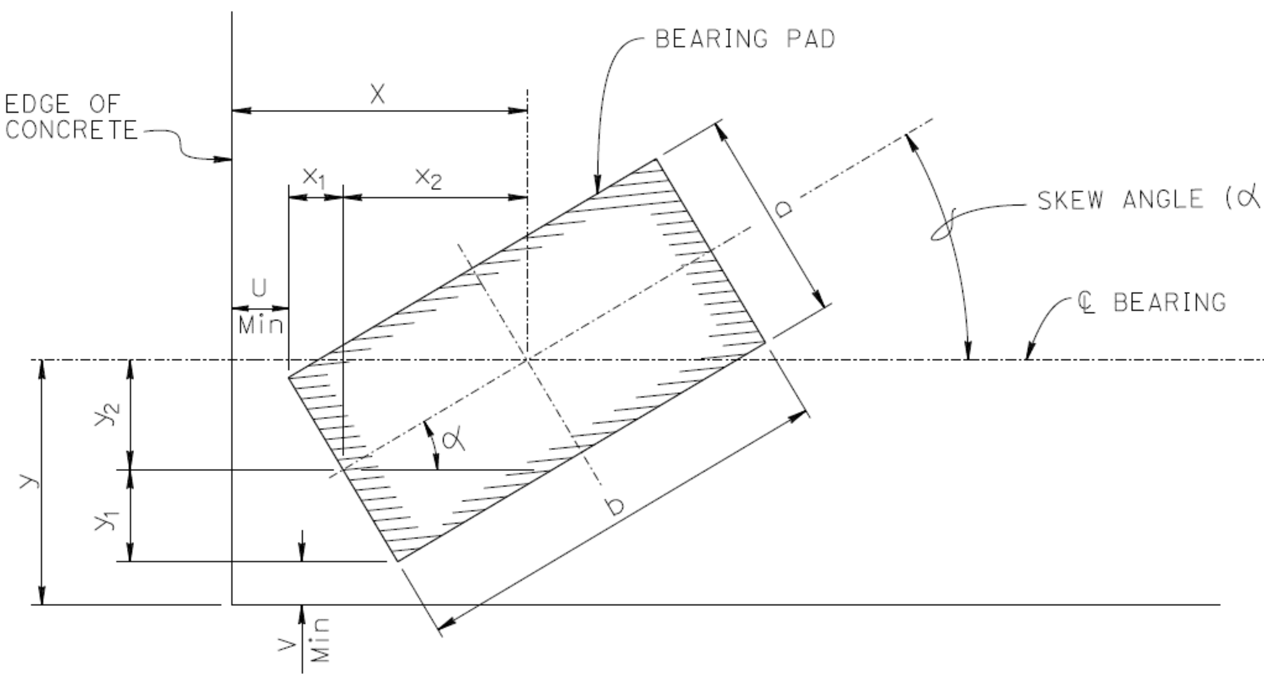

Figure 6.13.1 Bearing Layout

Formulas:

$$Y = V + \frac{a}{2}\cos\alpha + \frac{b}{2}\sin\alpha$$

$$y = V + y_1 + y_2$$

$$y_1 = \frac{a}{2}\cos\alpha$$

$$y_2 = \frac{b}{2}\sin\alpha$$

$$X = U + \frac{a}{2}\sin\alpha + \frac{b}{2}\cos\alpha$$

$$x = U + y_1 + y_2$$

$$x_1 = \frac{a}{2}\sin\alpha$$

$$x_2 = \frac{b}{2}\cos\alpha$$

Example: 10” x 22” Bearing Pad (a = 10”, b = 22”)

Minimum Skew Angle (α) = 27° 10’ 30”

Clearance (U = 3”, V = 3”)

Calculate: Y = 3” + $^{10''}/_2$ (0.8896) + $^{22''}/_2$ (0.4567)

Y = 3” + 4.45” + 5.02” = 12.47”, use 12½” minimum

X = 3” + $^{10''}/_2$ (0.4567) + $^{22''}/_2$ (0.8896)

X = 3” + 2.28” + 9.78” = 15.06”, use 15” minimum