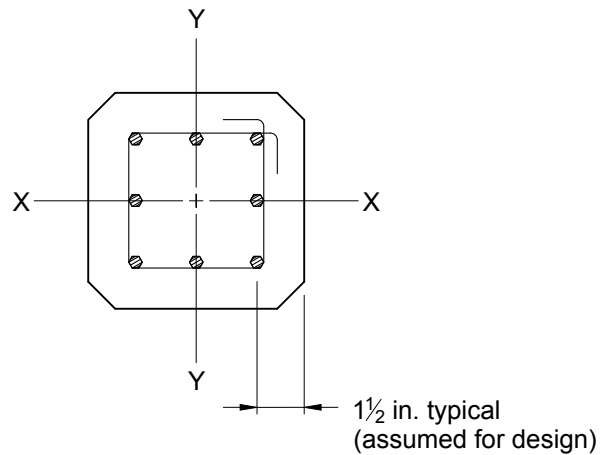


Design Aid 3.13.2. Design Strength Interaction Curves for Precast, Reinforced Concrete Columns

CRITERIA

1. Concrete $f'_c = 5000$ psi, normalweight
2. Reinforcement $f_y = 60,000$ psi
3. Curves shown for full development of reinforcement
4. Horizontal portion of curve is the maximum for tied columns = $0.80\phi P_o$
5. ϕ varies linearly from 0.9 for tension-controlled sections to 0.65 for compression-controlled sections in accordance with ACI 318-14 Section 21.2.



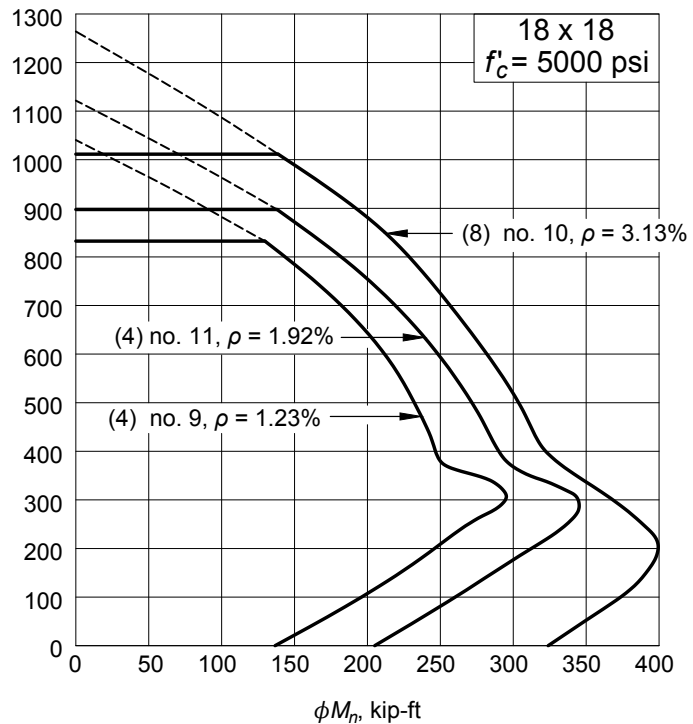
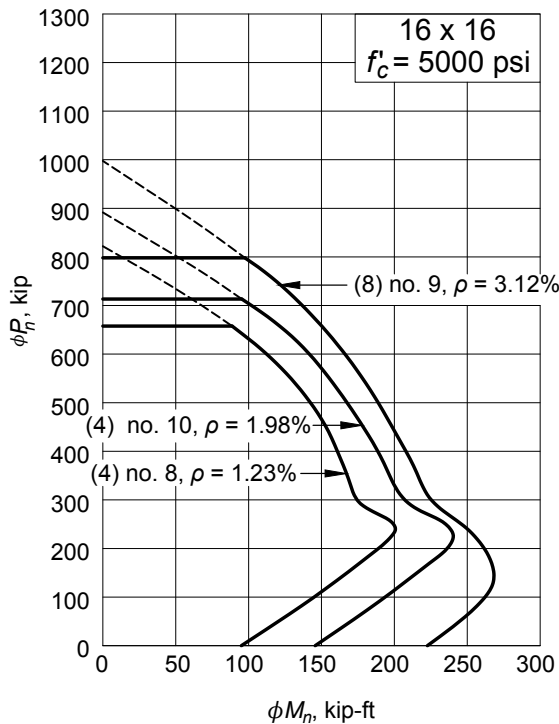
USE OF CURVES

1. Enter at left with applied factored axial load P_u
2. Enter at bottom with applied magnified factored moment δM_u
3. Intersection point must be to the left of curve indicating reinforcement used

NOTATION

- ϕP_n = design axial strength
- ϕM_n = design flexural strength
- ϕP_o = design axial strength at zero eccentricity
- A_g = gross area of the column
- δ = moment magnifier (ACI 318-14 Section 6.6.4)

The interaction curves have been smoothed for plotting purposes
Exact calculated values may be slightly different



Design Aid 3.13.2. Design Strength Interaction Curves for Precast, Reinforced Concrete Columns (cont.)

