

PRECAST, REINFORCED COLUMNS

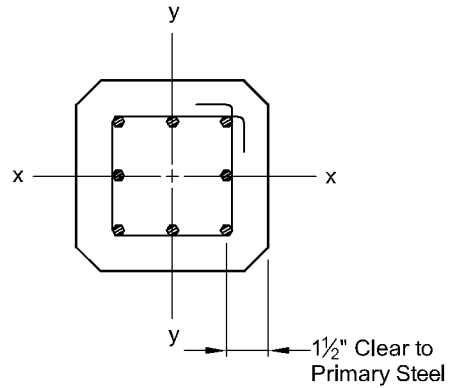
Figure 2.7.2 Design strength interaction curves for precast, reinforced concrete columns

CRITERIA

1. Concrete $f'_c = 5000$ psi
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 = $0.80\phi P_c$
5. Varies linearly from 0.9 for tension-controlled sections to 0.65 for compression-controlled sections in accordance with ACI 318-02 Section 9.3.2

USE OF CURVES

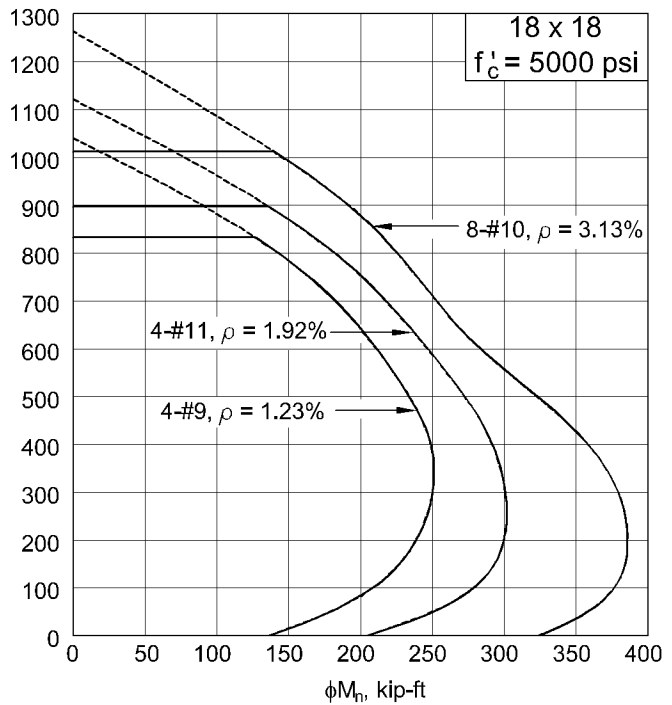
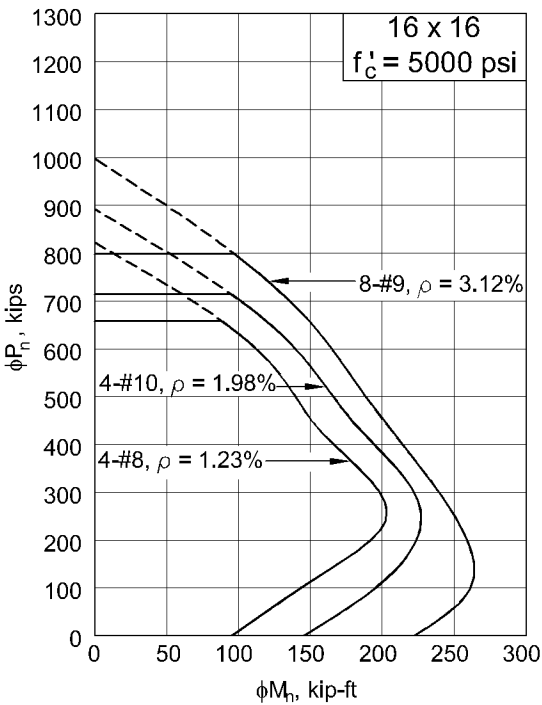
1. Enter at left with applied factored axial load, P_u
2. Enter at bottom with applied magnified factored moment, δM_u
3. Intersection point must be to the left of curve indicating required reinforcement.



NOTATION

- ϕP_n = Design axial strength
- ϕM_n = Design flexural strength
- ϕP_c = Design axial strength at zero eccentricity
- A_g = Gross area of the column
- δ = Moment magnifier (Section 10.11–10.13 ACI 318-02)

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



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Figure 2.7.2 Design strength interaction curves for precast, reinforced concrete columns (cont.)

