Fig. 2.6.2 Design strength interaction curves for precast, reinforced concrete columns

**Criteria**
1. Concrete $f'_c = 5,000$ psi
2. Reinforcement $f_y = 80,000$ 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. $\phi = 0.9$ for $\phi P_o = 0$
   - 0.7 for $\phi P_o \geq 0.10 f'_c A_g$
   - Varies from 0.9 to 0.7 for points between

**Use of curves**
1. Enter at left with applied factored axial load, $P_o$
2. Enter at bottom with applied magnified factored moment, $\delta M_e$
3. Intersection point must be to the left of curve indicating required reinforcement.

**Notation**
- $\phi P_o =$ Design axial strength
- $\phi M_e =$ Design flexural strength
- $\phi P_0 =$ Design axial strength at zero eccentricity
- $A_g =$ Gross area of the column
- $\delta =$ Moment magnifier (Sect. 10.11, ACI 318-89)

12 x 12 $f'_c = 5000$ psi

14 x 14 $f'_c = 5000$ psi
Fig. 2.6.2 Design strength interaction curves for precast, prestressed concrete columns (continued)