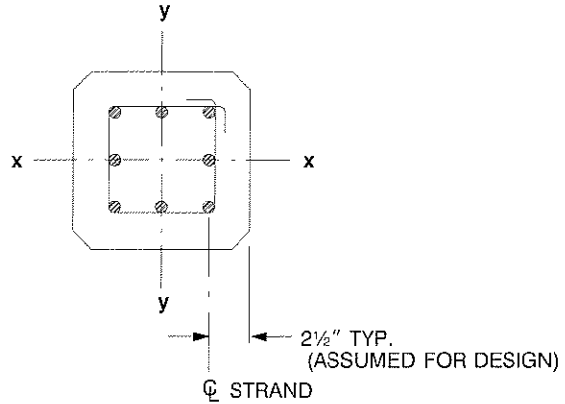


PRECAST, PRESTRESSED COLUMNS

Figure 2.6.1 Design strength interaction curves for precast, prestressed concrete columns

CRITERIA

1. MINIMUM PRESTRESS = 225 psi
2. ALL STRAND ASSUMED 1/2 in. DIAMETER, $f_{pu} = 270$ ksi
3. CURVES SHOWN FOR PARTIAL DEVELOPMENT OF STRAND NEAR MEMBER END WHERE $f_{ps} \approx f_{se}$
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 0.7 FOR COMPRESSION-CONTROLLED SECTIONS IN ACCORDANCE WITH ACI 318-95 SECT. B.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 CONCRETE STRENGTH.

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 (SECT. 10.11-10.13 ACI 318-95)

