Column Section Design:

Pn= Nominal Axial Load (From Demand)

Mnx= Nominal Moment in x (From Demand)

Mny= Nominal Moment in y (From Demand)

Manual Design Procedure:

Step A: Assume β= 0.65 & Φ= 0.65 (Compression Controlled)

Pn\_req= Pu/Φ

Mnx\_req= Mux /Φ

Mny\_req= Muy /Φ

StepB:

If, Mny\_req/ Mnx\_req > b/h

Mnoy\_req = Mnx\_req \* (b/h) \* { (1-B)/B}

Else, Mny\_req/ Mnx\_req < b/h

Mnox\_req = Mnx\_req + Mny\_req { (1-B)/B}\*(h/b) (P-1)

Step C:

Design Section with Pn\_req & Mnoy\_req or Mnox\_req ( Draw Uni and interaction Diagram)

Step D:

If section passes in step-3, verify suitability with one of the following method:

1. Bresler reciprocal method
2. Bresler Load Contour method
3. PCA load contour method
4. Exact analysis

Method 1:

Bresler Reciprocal load method:

Pn = 1/ (1/ Pox + 1/ Poy – 1/ P0 )

Pox = Maximum uniaxial load strength of column with Mnx\_req

Poy = Maximum uniaxial load strength of column with Moment = Mny\_req

Po = Maximum Axial load with no moment