Detailed Joint Calculations

Units: N&mm

Regulation: ASCE 41-17

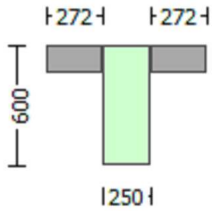
Calculation No. 1

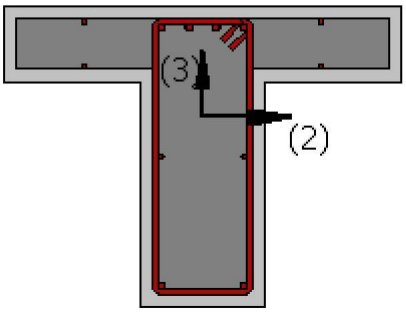
Col. C2 - Beam B9, Floor : 1

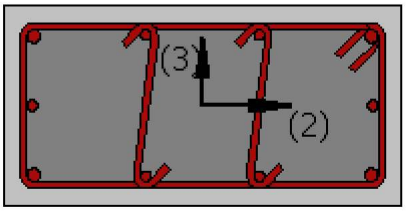
Limit State: Life Safety (data interpolation between analysis steps 3 and 4)

Analysis: Uniform +X

Check: Shear Force







Demanded Shear Force: Ve = 306835.934 from TBDY, (7.11) and ACI 318-14, 18.8.2.1.
with
Vkol = Min(Vkol,above_joint , Vkol,below_joint) = 1040.146
As2 = 0
As1 = 615.7522
Existing Material: fyd = fs_Lower_bound = 400.00
---
knowledge factor, κ = 1.00

Existing Joint: From table 7-7, ASCE 41-17: Final value Vn,R = κ*Vn = 373670.904
Vn = 373670.904 from (10.4) ASCE 41-17
Demanded Shear Force: Ve = 306835.934 from TBDY, (7.11) and ACI 318-14, 18.8.2.1.
with
fc = Min(fc_beam,fc_Column) = 16.00
Existing Material: fc_column = fc_lower_bound_column = 16.00
Existing Material: fc_beam = fc_lower_bound_beam = 16.00
Aj = = 75000.00
hc = 300.00
bj = 250.00
column width = 600.00
beam width plus joint depth = 550.00
Min perpedicular distance of beam axis to column sides = 125.00
γ = 15.00, from table 10-12, ASCE 41-17)
column hoops spacing = 100.00

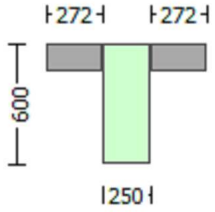
Calculation No. 2

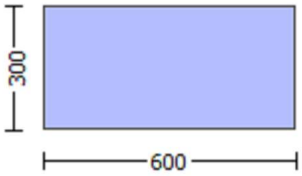
Col. C2 - Beam B9, Floor : 1

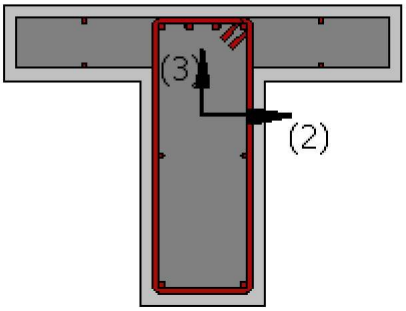
Limit State: Collapse Prevention (data interpolation between analysis steps 4 and 5)

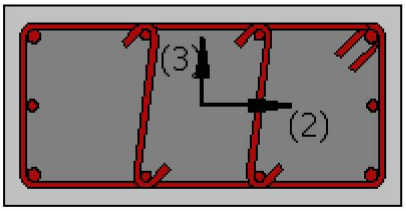
Analysis: Uniform +X

Check: Shear Force









Demanded Shear Force: Ve = 306757.306 from TBDY, (7.11) and ACI 318-14, 18.8.2.1.
with
Vkol = Min(Vkol,above_joint , Vkol,below_joint) = 1118.774
As2 = 0
As1 = 615.7522
Existing Material: fyd = fs_Lower_bound = 400.00
---
knowledge factor, κ = 1.00

Existing Joint: From table 7-7, ASCE 41-17: Final value Vn,R = κ*Vn = 373670.904

Vn = 373670.904 from (10.4) ASCE 41-17
Demanded Shear Force: Ve = 306757.306 from TBDY, (7.11) and ACI 318-14, 18.8.2.1.
with
fc = Min(fc_beam,fc_Column) = 16.00
Existing Material: fc_column = fc_lower_bound_column = 16.00
Existing Material: fc_beam = fc_lower_bound_beam = 16.00
Aj = = 75000.00
hc = 300.00
bj = 250.00
column width = 600.00
beam width plus joint depth = 550.00
Min perpedicular distance of beam axis to column sides = 125.00
γ = 15.00, from table 10-12, ASCE 41-17)
column hoops spacing = 100.00