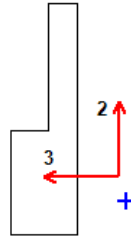


ETABS 2013 Concrete Frame Design

Eurocode 2-2004 Column Section Design



Column Element Details Type: DC High

Level	Element	Section ID	Combo ID	Station Loc	Length (mm)	SOM	LLRF
Story1	B1	spandrel rc beam	DCon2	7500	7500		1

Section Properties

SD Section	dc (mm)	Cover (Torsion) (mm)
15	60	30

Material Properties

E_c (MPa)	f_{ck} (MPa)	Lt.Wt Factor (Unitless)	E_s (MPa)	f_{yk} (MPa)	f_{ywk} (MPa)
32599.84	40	1	200000	413.69	413.69

Design Code Parameters

γ_c	γ_s	α_{cc}	α_{ct}	α_{LCC}	α_{LCT}
1.5	1.15	1	1	0.85	0.85

Axial Force and Biaxial Moment Check For N_{Ed} , M_{Ed2} , M_{Ed3}

Design N_{Ed} kN	Design M_{Ed2} kN-m	Design M_{Ed3} kN-m	Minimum M_2 kN-m	Minimum M_3 kN-m	Rebar Area mm ²	Rebar % %
0	0	0	0	0	7164	1.9

Axial Force and Biaxial Moment Factors

	M_{0Ed} Moment kN-m	M_{add} Moment kN-m	Minimum Ecc mm	β Factor Unitless	Length mm
Major Bend(M3)	0	0	0	1	7500
Minor Bend(M2)	0	0	0	1	7500

Axial Compression Ratio

Conc Capacity ($\alpha_{cc} * A * f_{cd}$) kN	Compressive Ratio $N_{Ed} / (\alpha_{cc} * A * f_{cd})$	Comp Ratio Limit	Seismic Load?	Ratio OKay?
10060	0	0.55	No	Yes

Shear Design for V_{Ed2} , V_{Ed3}

	Shear V_{Ed} kN	Shear V_{Rdc} kN	Shear V_{Rds} kN	tan(θ) Unitless	Rebar A_{sw}/s mm²/m
Major, V_{Ed2}	427.33	219.73	427.33	0.4	1552.86
Minor, V_{Ed3}	0	172.9	NaN	NaN	0

Rules: Joint shear stress ratio is only determined for a station

- a) if the station has a beam-column joint (top of the column),
- b) if the frame is a DCHe or DCM moment resisting frame,
- c) if the column above is a concrete column when it exists,
- d) if all the beams framing into the column are concrete beams
- e) if the connecting member design results are available, and
- f) if the load combo involves seismic load.