

Eurocode 3-2005 STEEL SECTION CHECK (Summary for Combo and Station)
Units : KN, m, C

Frame : 1254 X Mid: 32,000 Combo: ELU1 Design Type: Beam
Length: 1,000 Y Mid: 19,750 Shape: IPE100 Frame Type: DCM-MRF
Loc : 1,000 Z Mid: 3,420 Class: Class 1 Rolled : Yes

Country=CEN Default Combination=Eq. 6.10
Reliability=Class 2
Interaction=Method 1 (Annex A) MultiResponse=Envelopes P-Delta Done?
No
Consider Torsion? No

GammaM0=1,05 GammaM1=1,10 GammaM2=1,25
An/Ag=1,00 RLLF=1,000 PLLF=0,750 D/C Lim=0,950

Aeff=0,001 eNy=0,000 eNz=0,000
A=0,001 Iyy=1,710E-06 iyy=0,041 Wel,yy=3,420E-05 Weff,yy=3,420E-05
It=0,000 Izz=0,000 izz=0,012 Wel,zz=5,782E-06 Weff,zz=5,782E-06
Iw=0,000 Iyz=0,000 h=0,100 Wpl,yy=3,940E-05 Av,z=6,667E-04
E=210000000,0 fy=275000,000 fu=430000,000 Wpl,zz=9,150E-06 Av,y=5,062E-04

STRESS CHECK FORCES & MOMENTS

Location	Ned	Med,yy	Med,zz	Ved,z	Ved,y	Ted
1,000	-0,416	0,010	0,467	6,517	0,225	-4,585E-04

PMM DEMAND/CAPACITY RATIO (Governing Equation EC3 6.3.3(4)-6.61)
D/C Ratio: 0,627 = 0,002 + 0,460 + 0,165 < 0,950 OK
= Ned/(Chi_y NRk/GammaM1) + kyy (My,Ed+NEd eNy)/(Chi_LT
My,Rk/GammaM1)
+ kyz (Mz,Ed+NEd eNz)/(Mz,Rk/GammaM1) (EC3 6.3.3(4)-6.61)

AXIAL FORCE DESIGN

	Ned Force	Nc,Rd Capacity	Nt,Rd Capacity			
Axial	-0,416	269,762	269,762			
	Npl,Rd 269,762	Nu,Rd 318,888	Ncr,T 617,272	Ncr,TF 617,272	An/Ag 1,000	
Curve	Alpha	Ncr	LambdaBar	Phi	Chi	Nb,Rd
Major (y-y)	a 0,210	3544,175	0,283	0,549	0,982	252,737
MajorB (y-y)	a 0,210	3544,175	0,283	0,549	0,982	252,737
Minor (z-z)	b 0,340	82,387	1,854	2,500	0,239	61,640
MinorB (z-z)	b 0,340	82,387	1,854	2,500	0,239	61,640
Torsional TF	b 0,340	617,272	0,677	0,811	0,796	205,052

MOMENT DESIGN

	Med Moment	Med,span Moment	Mc,Rd Capacity	Mv,Rd Capacity	Mn,Rd Capacity	Mb,Rd Capacity
Major (y-y)	0,010	3,258	10,319	10,319	10,319	7,139
Minor (z-z)	0,467	0,467	2,396	2,396	2,396	
Curve	AlphaLT	LambdaBarLT	PhiLT	ChiLT	C1	Mcr
LTB	a 0,210	0,914	0,993	0,725	1,351	12,974
	kyy	kyz	kzy	kzz		
Factors	1,009	0,808	0,528	1,038		

SHEAR DESIGN

	Ved Force	Ted Torsion	Vc,Rd Capacity	Stress Ratio	Status Check
Major (z)	6,517	0,000	76,538	0,085	OK
Minor (y)	0,728	0,000	100,818	0,007	OK
	Vpl,Rd	Eta	LambdaBarW		

SAP2000

Project _____
Job Number _____
Engineer _____

Reduction	76,538	1,200	0,271
-----------	--------	-------	-------

CONNECTION SHEAR FORCES FOR BEAMS

	VMajor	VMajor
	Left	Right
Major (V2)	1,273	6,517