

Pasūtītājs:	SIA „VALKAS NOVADA DOME”
Juridiskā adrese:	Semināra iela 9, Valka, Valkas novads
Vien. Reģ.Nr.:	90009114839
Pasūtījuma Nr.:	VND/4-22/17/327-BK
Objekts:	“RAŽOŠANAS TERITORIJA "ĶIEĢEĻCEPLIS" UN "ĶIEĢEĻCEPLIS 2"
Būves veids:	Jaunbūve
Adrese:	VALKA, VALKAS NOVADS

“RAŽOŠANAS TERITORIJA "ĶIEĢEĻCEPLIS" UN "ĶIEĢEĻCEPLIS 2” VALKĀ, VALKAS NOVADĀ

BŪVPROJEKTS

INŽENIERRISINĀJUMU DAĻA BŪVKONSTRUKCIJU DAĻA (BK) APRĒĶINU ATSKAITE

Būvprojekta daļas vadītājs

Dmitrijs Orlovs

SERT NR. 3-01323

Būvprojekta vadītājs

Ruslans Mišūrovs

SERT. NR. 20-5809

RĪGĀ 2017

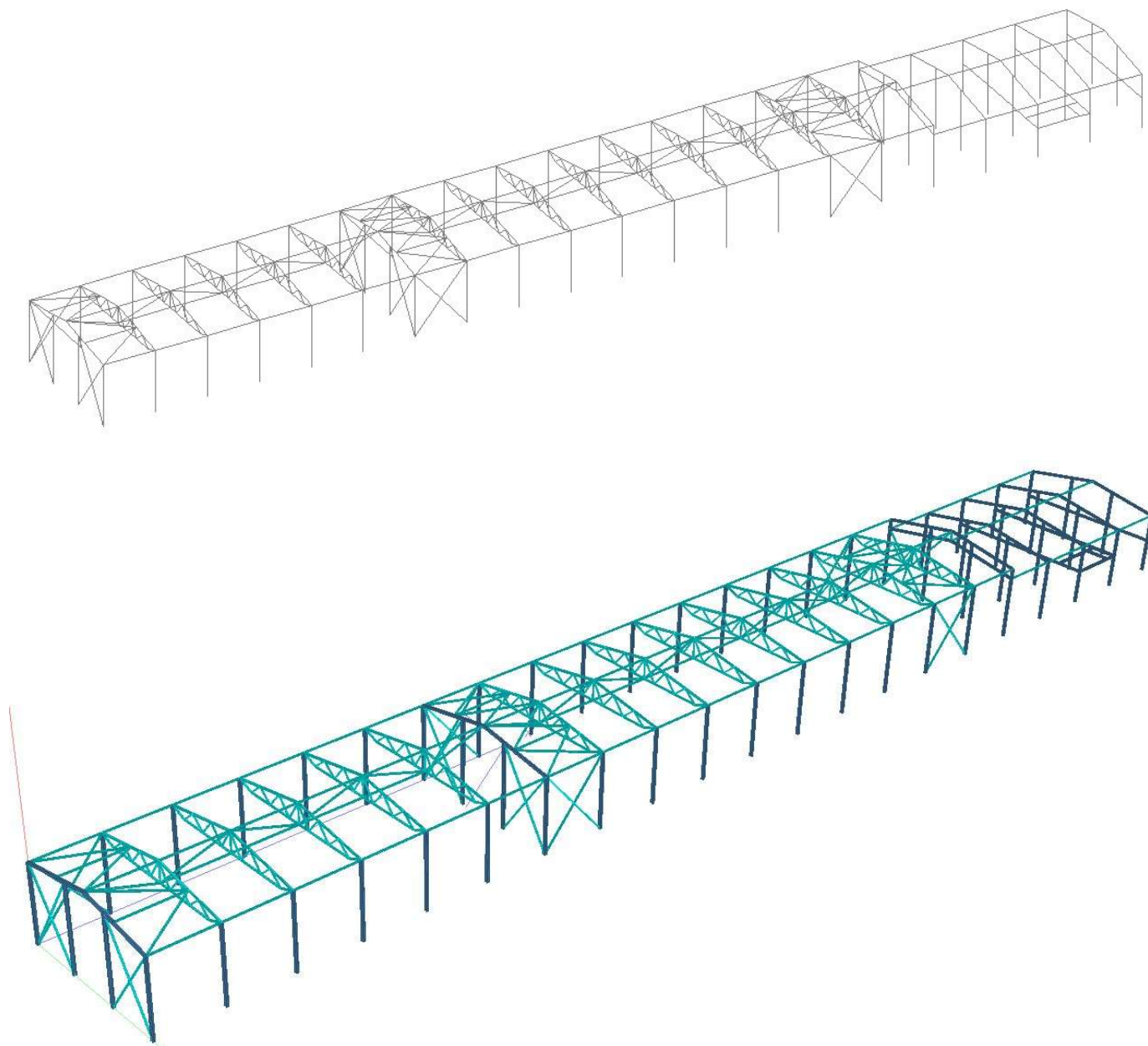
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PASKAIDROJUMA RAKSTS

“RAŽOŠANAS TERITORIJA "ĶIEĢEĻCEPLIS" UN "ĶIEĢEĻCEPLIS 2" Valkā, Valkas novadā būvkonstrukciju tehniskais projekts (TP) izstrādāts, pamatojoties uz pasūtītāja uzdevuma un vadoties pēc Latvijas Republikā spēkā esošajiem normatīvajiem dokumentiem.

Ēkas konstrukciju aprēķina modelis



Projektējama ēka risināta kā ēka ar tērauda konstrukciju karkasu. Karkasa noturība tiek nodrošināta pateicoties kolonnu iespīlējumam pamatos un saišu sistēmai, kura tiek izveidota ēkas fasādes virzienā un perpendikulārajā virzienā. Saišu stingais disks ir savienots ar ēkas pamatiem pateicoties vertikāliem saitēm ēkas fasādes un perpendikulārajā virzienā. Ēkas telpisko noturību nodrošina vertikālas un horizontālas tērauda saites, profilokšņu un jumta siju/kopņu stingais savienojums, kas veido nesošās struktūras daļu. Slodze no jumta tiek nodota uz tērauda kolonnām. Slodze no kolonnām uz grunts pamatni tiek nodota caur stabveida pamatiem. Nesošajām tērauda kopnēm pieņemts šarnīrveida balstījums. Kolonnu efektīva garuma koeficients ir pieņemts 0.7.

Par relatīvo augstuma atzīmi ± 0.000 pieņemts ēkas 1.stāva tīrās grīdas līmenis, kas atbilst absolūtajai atzīmei +70.40 (LAS-2000,5).

Būvprojektā pielietoto normatīvo dokumentu saraksts

Būvkonstrukciju analīzei ir izmantotas sekojošas Latvijas republikas 2017. gadā oktobrī spēkā esošas normas:

- LBN 202-15 "Būvprojekta saturs un noformēšana"
- LBN 201-15 "Būvju ugunsdrošība"
- LBN 203-15 "Betona būvkonstrukciju projektēšana"
- LBN 204-14 "Tērauda būvkonstrukciju projektēšanā"
- LBN 207-15 "Ģeotehniskā projektēšana"
- LVS EN 1990:2003 "Eirokekss - Konstrukciju projektēšanas pamatprincipi"
- LVS EN 1991-1-1:2003 "1.Eirokekss - Iedarbes uz konstrukcijām - 1-1.daļa: Vispārīgās iedarbes - Būvums, pašsvars, ēku lietderīgās slodze"
- LVS EN 1991-1-3:2003 "1. Eirokekss - Iedarbes uz konstrukcijām - 1-3.daļa: Vispārīgās iedarbes - Sniega radītās slodzes"
- LVS EN 1991-1-4:2005 "1. Eirokekss - Iedarbes uz konstrukcijām - 1-4.daļa: Vispārīgās iedarbes - Vēja iedarbes"
- LVS EN 1993-1-1:2005 "3. Eirokekss - Tērauda konstrukciju projektēšana - 1-1.daļa: Vispārīgie noteikumi un noteikumi ēkām"
- LVS EN 1993-1-8:2005 "3. Eirokekss - Tērauda konstrukciju projektēšana - 1-8.daļa: Savienojumu projektēšana"

Būvprojekta slodzes

Ēkas būvkonstrukcijas ir slogotas ar atbilstoši tabulas norādītam slodzēm. Slodžu kombinācijas pēc LVS EN 1990. Nelabvēlīgas slodžu kombinācijas skatīt pielikumā A.

Pastāvīgas slodzes		
Nosaukums	Vērtība (kN/m ²)	Piezīmes
Jumts pīrāga svars	0.20	
Piekārtas komunikācijas	0.60	AVK, EL un citas komunikācijas piekārtas pie jumta klāja
Pārseguma pīrāga svars	3.40	Dzelzsbetona plātnes
	1.60	Izlīdzinošā kārtā 5cm + pīrāgs

Īslaicīgas slodzes		
Nosaukums	Vērtība (kN/m ²)	Piezīmes
Rekomendējama ekspluatācijas slodze uz jumtu	0.40	rekomendējama vērtība atbilstoši jumts tipam "H" pēc LVS NE 1991-1-1
Sniega slodze	1.75	slodze pēc LVS NE 1991-1-3:NA celtniecība vieta: Valka. Jumts slīpums 10,0°
Vēja slodze	21 m/s	slodze pēc LVS NE 1991-1-4:NA celtniecība vieta: Valka. Ēkas augstums 8,47 m, jumta slīpums 10,0°, ēka ar parapetu, teritorijas kategorija II
Lietderīga slodze	2.00	Kategorija "B"

SNIEGA SLODZES NOTEIKŠANA

Sniega slodzes uz jumtiem projektā ievērtējamām ilgstošām/īslaicīgām situācijām nosaka pēc formulas

$$s = \mu_w \cdot C_e \cdot C_t \cdot s_k$$

kur:

μ_i – sniega slodzes formas koeficients (sk. aprēķinu zemāk);

s_k – sniega slodzes raksturīgā vērtība uz zemes virsmas, vienāds ar 1.75 kN/m²;

C_e – iedarbības koeficients, tiek pieņemts 1.0, normāla topogrāfija.

C_t – termiskais koeficients, vienāds ar 1.0

VĒJA SLODZES NOTEIKŠANA

Vēja fundamentālais pamatātrums saskaņā ar LVS EN 1991-1-4:NA ir vienāds 21 m/s.

Vēja slodzes noteikšana sienam (Virziens X)

APVIDUS PARAMETRI:

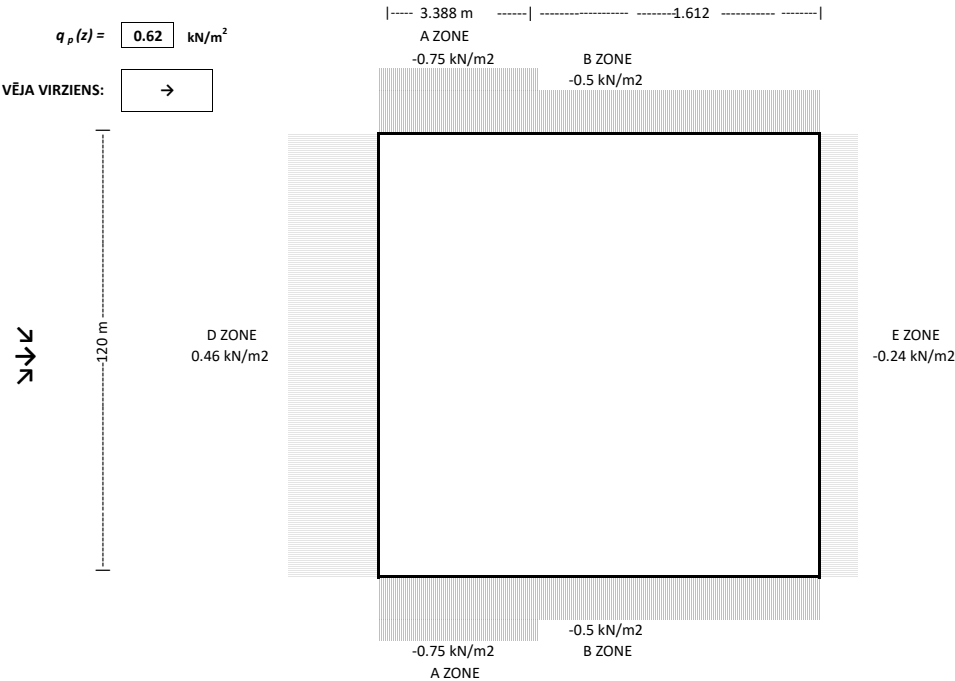
FUNDAMENTĀLAIS VĒJA PAMATĀTRUMS:	$v_{b,0} =$	21	m/s	
APVIDUS KATEGORIJA:		II		Teritorijas ar vāju veģetāciju, piemēram, zāli un atsevišķi stāvošiem šķēršļiem (kalniem, ēkām), kas atrodas viens no otra ar vismaz 20 šķēršļu augstumiem vienādu attālumu.

ĒKAS PARAMETRI:

AUGSTUMS:	$h =$	8.47	m
PLATUMS:	$b =$	15	m
GARUMS:	$d =$	120	m
SLODZES LAUKUMS:	$>$	par	10 m ²

APRĒKINS:

GAISA BLĪVUMS:	$\rho =$	1.25	kg/m ³
VĒJA SPIEDIENA PAMATVĒRTĪBA:	$q_b =$	0.275625	kN/m ²
APVIDUS FAKTORS:	$k_f =$	0.190	
APVIDUS NELĪDZENUMA FAKTORS:	$c_f(z) =$	0.98	
APVIDUS OROGRĀFIJAS FAKTORS:	$c_o(z) =$	1	
VĒJA ĀTRUMS AUGSTUMĀ Z:	$V_m(z) =$	20.48	m/s
TURBULENCES INTENSITĀTE AUGSTUMĀ Z:	$I_v(z) =$	0.19	
VĒJA SPIEDIENS AUGSTUMĀ Z:	$q_p(z) =$	0.62	kN/m ²
APVIDUS EKSPOZĪCIJAS FAKTORS:	$c_e(z) =$	2.25	
ĀRĒJĀ SPIEDIENA KOEFICIENTI:	$c_{pe} =$		
	$e =$	16.94	m
	$e/5 =$	3.388	m
	$4/5 e =$	13.552	m
	$d - e =$	0	m
A ZONA =		-0.74	kN/m ²
B ZONA =		-0.50	kN/m ²
C ZONA =		-0.31	kN/m ²
D ZONA =		0.46	kN/m ²
E ZONA =		-0.24	kN/m ²



Vēja slodzes noteikšana sienam (Virziens Z)

APVIDUS PARAMETRI:

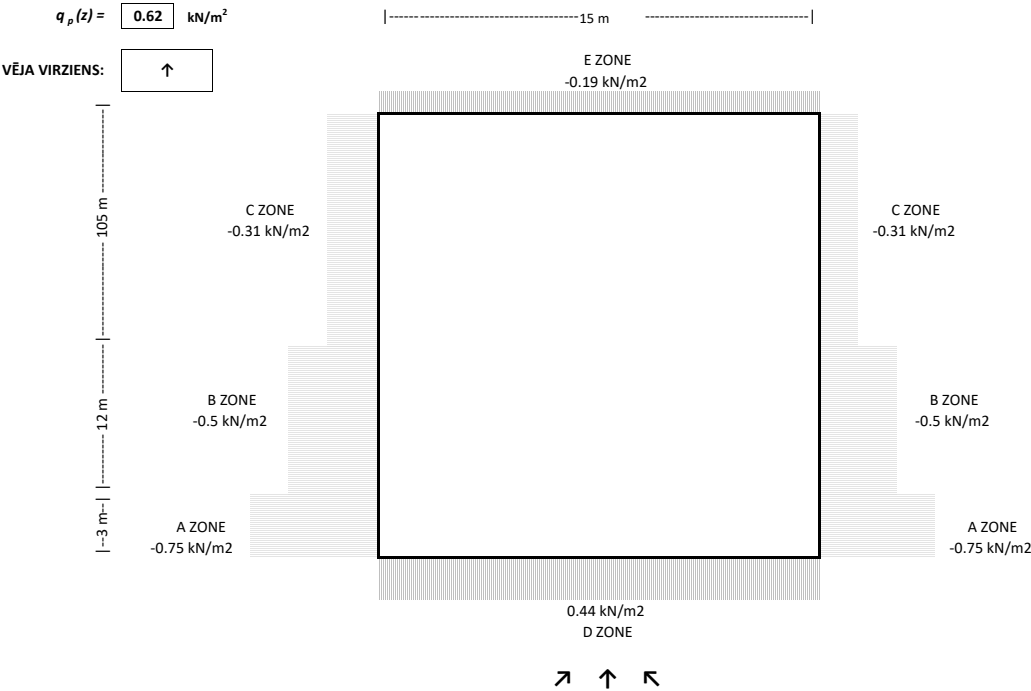
FUNDAMENTĀLAIS VĒJA PAMATĀTRUMS: $v_{b,0}$ =	21	m/s
APVIDUS KATEGORIJA:	II	Teritorijas ar vāju veģetāciju, piemēram, zāli un atsevišķi stāvošiem šķēršļiem (kalniem, ēkām), kas atrodas viens no otra ar vismaz 20 šķēršļu augstumiem vienādu attālumu.

ĒKAS PARAMETRI:

AUGSTUMS: h =	8.47	m
PLATUMS: b =	15	m
GARUMS: d =	120	m
SLODŽES LAUKUMS:	>	par 10 m ²

APRĒKINS:

GAISA BLĪVUMS: ρ =	1.25	kg/m ³
VĒJA SPIEDIENA PAMATVĒRTĪBA: q_b =	0.275625	kN/m ²
APVIDUS FAKTORS: k_f =	0.190	
APVIDUS NELĪDZENUMA FAKTORS: $c_s(z)$ =	0.98	
APVIDUS OROGRĀFIJAS FAKTORS: $c_o(z)$ =	1	
VĒJA ĀTRUMS AUGSTUMĀ Z: $V_m(z)$ =	20.48	m/s
TURBULENCES INTENSITĀTE AUGSTUMĀ Z: $I_v(z)$ =	0.19	
VĒJA SPIEDIENS AUGSTUMĀ Z: $q_p(z)$ =	0.62	kN/m ²
APVIDUS EKSPOZĪCIJAS FAKTORS: $c_e(z)$ =	2.25	
ĀRĒJĀ SPIEDIENA KOEFICIENTI:		
c_{pe} =		
e =	15	m
$e/5$ =	3	m
$4/5 e$ =	12	m
$d-e$ =	105	m
A ZONA =	-0.74	kN/m ²
B ZONA =	-0.50	kN/m ²
C ZONA =	-0.31	kN/m ²
D ZONA =	0.43	kN/m ²
E ZONA =	-0.19	kN/m ²



Vēja slodzes noteikšana jumtam (Virziens X “-“ vērtības)

APVIDUS PARAMETRI:

FUNDAMENTĀLAIS VĒJA PAMATĀTRUMS: $v_{b,0} = 21$ m/s
APVIDUS KATEGORIJA: II

Teritorijas ar vāju veģetāciju, piemēram, zāli un atsevišķi stāvošiem šķēršļiem (kalniem, ēkām), kas atrodas viens no otra ar vismaz 20 šķēršļu augstumiem vienādu attālumu.

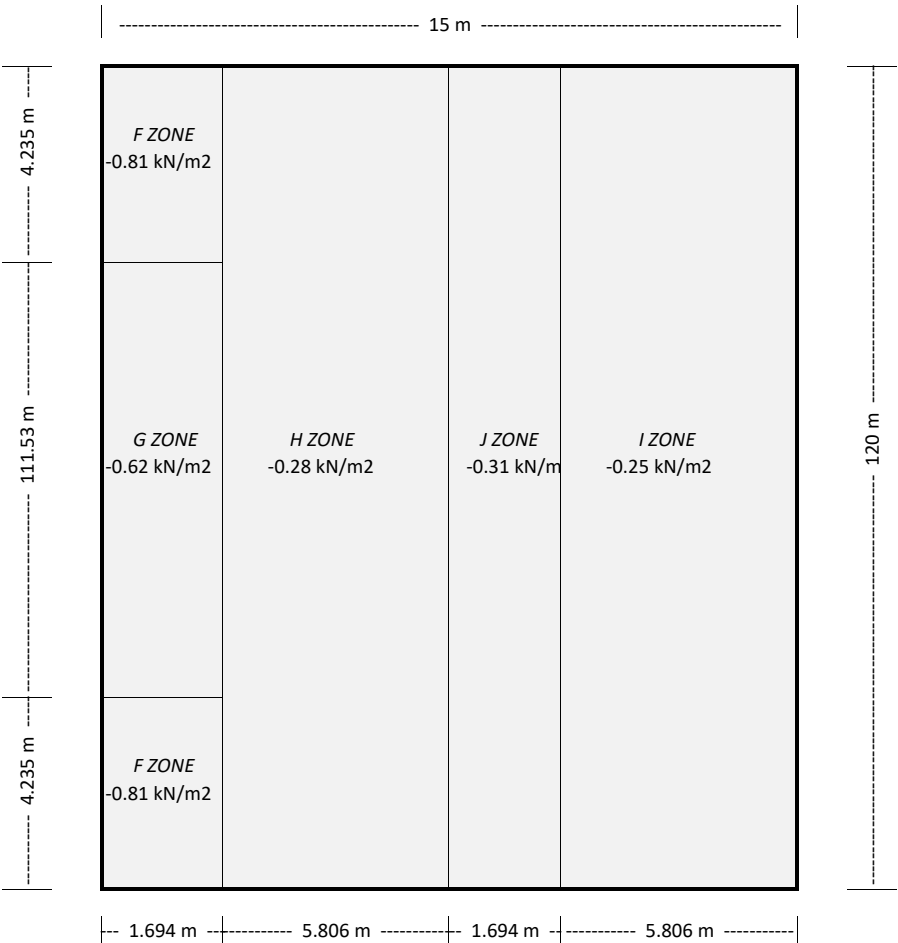
ĒKAS PARAMETRI:

AUGSTUMS: $h = 8.47$ m
PLATUMS: $b = 15$ m
GARUMS: $d = 120$ m
JUMTA PLAKNES LEŅĶIS: $\alpha = 10$ °
SLODZES LAUKUMS: $>$ par 10 m^2

Aprēķins:

GAISA BLĪVUMS: $\rho = 1.25$ kg/m³
VĒJA SPIEDIENA PAMATVĒRTĪBA: $q_b = 0.275625$ kN/m²
APVIDUS FAKTORS: $k_r = 0.190$
APVIDUS NELĪDZENUMA FAKTORS: $c_r(z) = 0.98$
APVIDUS OROGRĀFIJAS FAKTORS: $c_o(z) = 1$
VĒJA ĀTRUMS AUGSTUMĀ Z: $V_m(z) = 20.48$ m/s
TURBULENCES INTENSITĀTE AUGSTUMĀ Z: $I_v(z) = 0.19$
VĒJA SPIEDIENS AUGSTUMĀ Z: $q_p(z) = 0.62$ kN/m²
APVIDUS EKSPOZĪCIJAS FAKTORS: $c_e(z) = 2.25$
ĀRĒJĀ SPIEDIENA KOEFICIENTI:
 $e = 16.94$ m
 $e/2 = 8.47$ m
 $e/4 = 4.235$ m
 $e/10 = 1.694$ m
F ZONA = -0.81 kN/m²
G ZONA = -0.62 kN/m²
H ZONA = -0.28 kN/m²
I ZONA = -0.31 kN/m²
J ZONA = -0.25 kN/m²

VĒJA VIRZIENS:
VĒRTĪBAS:
 $q_p(z) = 0.62$ kN/m²



Vēja slodzes noteikšana jumtam (Virziens X “+” vērtības)

APVIDUS PARAMETRI:

FUNDAMENTĀLAIS VĒJA PAMATĀTRUMS: $v_{b,0} = 21$ m/s
APVIDUS KATEGORIJA: II

Teritorijas ar vāju veģetāciju, piemēram, zāli un atsevišķi stāvošiem šķēršļiem (kalniem, ēkām), kas atrodas viens no otra ar vismaz 20 šķēršļu augstumiem vienādu attālumu.

ĒKAS PARAMETRI:

AUGSTUMS: $h = 8.47$ m
PLATUMS: $b = 15$ m
GARUMS: $d = 120$ m
JUMTA PLAKNES LEŅĶIS: $\alpha = 10^\circ$
SLODZES LAUKUMS: $>$ par 10 m^2

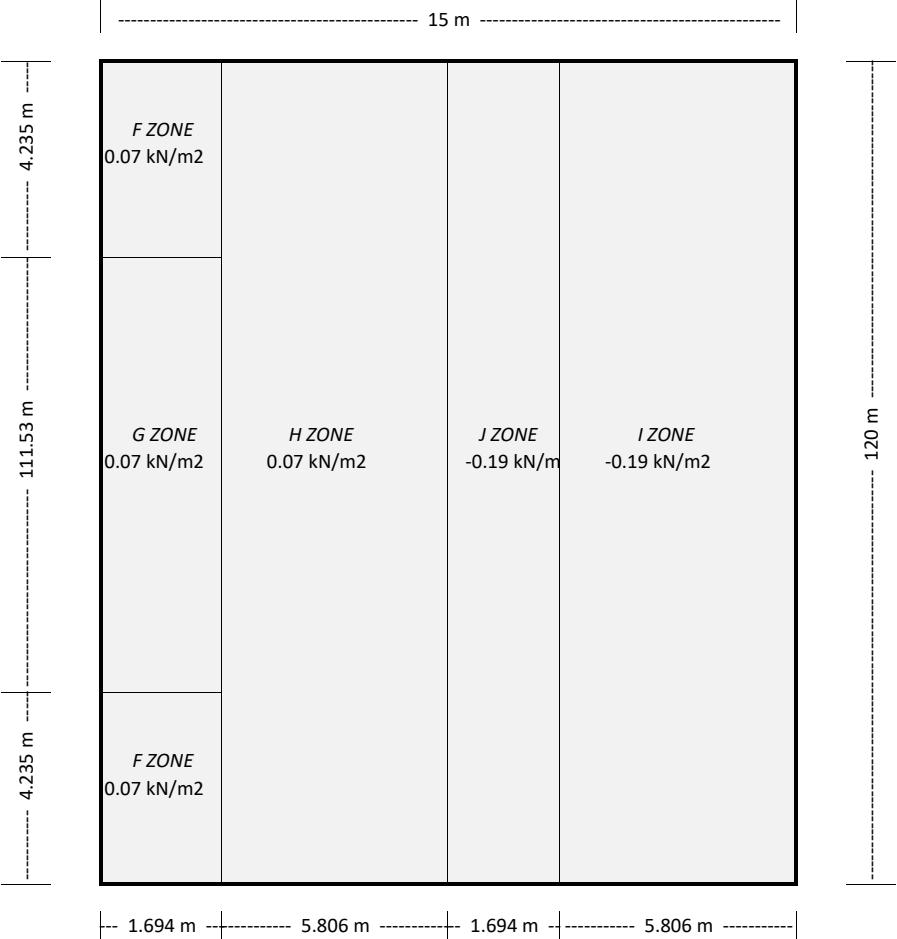
Aprēķins:

GAISA BLĪVUMS: $\rho = 1.25$ kg/m³
VĒJA SPIEDIENA PAMATVĒRTĪBA: $q_b = 0.275625$ kN/m²
APVIDUS FAKTORS: $k_r = 0.190$
APVIDUS NELĪDZENUMA FAKTORS: $c_r(z) = 0.98$
APVIDUS OROGRĀFIJAS FAKTORS: $c_o(z) = 1$
VĒJA ĀTRUMS AUGSTUMĀ Z: $V_m(z) = 20.48$ m/s
TURBULENCES INTENSITĀTE AUGSTUMĀ Z: $I_v(z) = 0.19$
VĒJA SPIEDIENS AUGSTUMĀ Z: $q_p(z) = 0.62$ kN/m²
APVIDUS EKSPOZĪCIJAS FAKTORS: $c_e(z) = 2.25$
ĀRĒJĀ SPIEDIENA KOEFICIENTI:
 $c_{pe} =$
 $e = 16.94$ m
 $e/2 = 8.47$ m
 $e/4 = 4.235$ m
 $e/10 = 1.694$ m
 $F \text{ ZONA} = 0.06$ kN/m²
 $G \text{ ZONA} = 0.06$ kN/m²
 $H \text{ ZONA} = 0.06$ kN/m²
 $I \text{ ZONA} = -0.19$ kN/m²
 $J \text{ ZONA} = -0.19$ kN/m²

VĒJA VIRZIENS:

VĒRTĪBAS:

$q_p(z) = 0.62$ kN/m²



Vēja slodzes noteikšana jumtam (Virziens Z)

APVIDUS PARAMETRI:

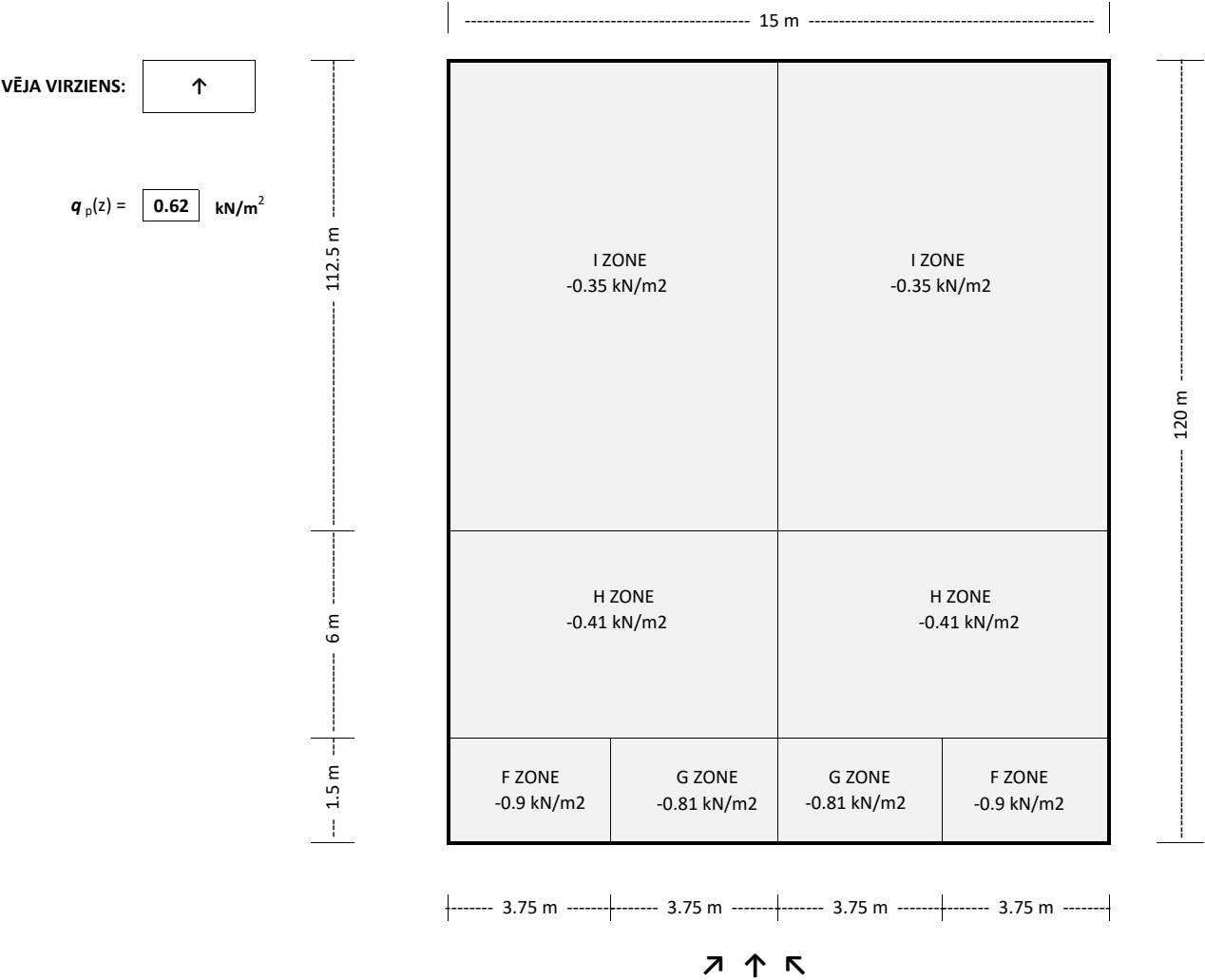
FUNDAMENTĀLAIS VĒJA PAMATĀTRUMS:	$v_{b,0} =$	21	m/s	
APVIDUS KATEGORIJA:		II		Teritorijas ar vāju veģetāciju, piemēram, zāli un atsevišķi stāvošiem šķēršļiem (kalniem, ēkām), kas atrodas viens no otra ar vismaz 20 šķēršļu augstumiem vienādu attālumu.

ĒKAS PARAMETRI:

AUGSTUMS:	$h =$	8.47	m
PLATUMS:	$b =$	15	m
GARUMS:	$d =$	120	m
JUMTA PLAKNES LEŅĶIS:	$\alpha =$	10	°
SLODZES LAUKUMS:	$>$	par	10 m ²

Aprēķins:

GAISA BLĪVUMS:	$\rho =$	1.25	kg/m ³
VĒJA SPIEDIENA PAMATVĒRTĪBA:	$q_b =$	0.275625	kN/m ²
APVIDUS FAKTORS:	$k_f =$	0.190	
APVIDUS NELĪDZENUMA FAKTORS:	$c_f(z) =$	0.98	
APVIDUS OROGRĀFIJAS FAKTORS:	$c_o(z) =$	1	
VĒJA ĀTRUMS AUGSTUMĀ Z:	$V_m(z) =$	20.48	m/s
TURBULENCES INTENSITĀTE AUGSTUMĀ Z:	$I_v(z) =$	0.19	
VĒJA SPIEDIENS AUGSTUMĀ Z:	$q_p(z) =$	0.62	kN/m ²
APVIDUS EKSPOZĪCIJAS FAKTORS:	$c_e(z) =$	2.25	
ĀRĒJĀ SPIEDIENA KOEFICIENTI:	$C_{pe} =$		
	$e =$	15	m
	$e/2 =$	7.5	m
	$e/4 =$	3.75	m
	$e/10 =$	1.5	m
	$F\ ZONA =$	-0.90	kN/m ²
	$G\ ZONA =$	-0.81	kN/m ²
	$H\ ZONA =$	-0.40	kN/m ²
	$I\ ZONA =$	-0.34	kN/m ²
	$J\ ZONA =$	0.00	kN/m ²



Primary Load Cases

Number	Name	Type
1	SW	Dead
2	JUMTA KONSTRUKCIJA	Dead
3	SNIEGS	Snow
4	TEHNOLOGIJAS IEKARTAS	Dead
5	EKSPLUATACIJAS SLODZE	Roof Live
6	VEJS X	Wind
7	VEJS Z	Wind
8	PARSEGUMA KONSTRUKCIJA	Dead
9	LIETDERIGA SLODZE	Live

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
10	COMBINATION LOAD CASE 10	1	SW	1.00
		2	JUMTA KONSTRUKCIJA	1.00
		3	SNIEGS	1.00
		4	TEHNOLOGIJAS IEKARTAS	1.00
		5	EKSPLUATACIJAS SLODZE	1.00
		6	VEJS X	1.00
		8	PARSEGUMA KONSTRUKCIJA	1.00
		9	LIETDERIGA SLODZE	1.00
11	COMBINATION LOAD CASE 11	1	SW	1.00
		2	JUMTA KONSTRUKCIJA	1.00
		3	SNIEGS	1.00
		4	TEHNOLOGIJAS IEKARTAS	1.00
		5	EKSPLUATACIJAS SLODZE	1.00
		7	VEJS Z	1.00
		8	PARSEGUMA KONSTRUKCIJA	1.00
		9	LIETDERIGA SLODZE	1.00
12	COMBINATION LOAD CASE 12	1	SW	1.35
		2	JUMTA KONSTRUKCIJA	1.35
		4	TEHNOLOGIJAS IEKARTAS	1.35
		8	PARSEGUMA KONSTRUKCIJA	1.35
		3	SNIEGS	1.50
		5	EKSPLUATACIJAS SLODZE	1.50
13	COMBINATION LOAD CASE 13	1	SW	1.35
		2	JUMTA KONSTRUKCIJA	1.35
		4	TEHNOLOGIJAS IEKARTAS	1.35
		8	PARSEGUMA KONSTRUKCIJA	1.35
		3	SNIEGS	1.50
		5	EKSPLUATACIJAS SLODZE	1.50
		9	LIETDERIGA SLODZE	1.50
14	COMBINATION LOAD CASE 14	7	VEJS Z	0.90
		3	SNIEGS	1.50
		5	EKSPLUATACIJAS SLODZE	1.50

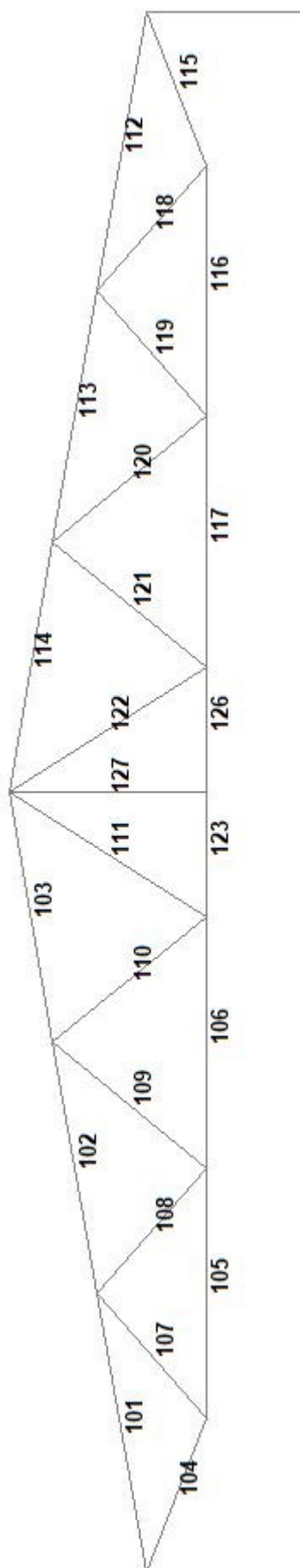
Combination Load Cases Cont...

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
		9	LIETDERIGA SLODZE	1.50
15	COMBINATION LOAD CASE 15	1	SW	1.35
		2	JUMTA KONSTRUKCIJA	1.35
		4	TEHNOLOGIJAS IEKARTAS	1.35
		8	PARSEGUMA KONSTRUKCIJA	1.35
		3	SNIEGS	0.75
		5	EKSPLUATACIJAS SLODZE	1.50
		6	VEJS X	1.50
		9	LIETDERIGA SLODZE	1.50
16	COMBINATION LOAD CASE 16	5	EKSPLUATACIJAS SLODZE	1.50
		7	VEJS Z	1.50
		9	LIETDERIGA SLODZE	1.50
		1	SW	1.35
		2	JUMTA KONSTRUKCIJA	1.35
		4	TEHNOLOGIJAS IEKARTAS	1.35
		8	PARSEGUMA KONSTRUKCIJA	1.35
		3	SNIEGS	0.75
17	COMBINATION LOAD CASE 17	1	SW	1.35
		2	JUMTA KONSTRUKCIJA	1.35
		4	TEHNOLOGIJAS IEKARTAS	1.35
		8	PARSEGUMA KONSTRUKCIJA	1.35
		3	SNIEGS	1.50
		5	EKSPLUATACIJAS SLODZE	1.50
		9	LIETDERIGA SLODZE	1.50

Section Properties

Prop	Section	Area (cm ²)	I _{yy} (cm ⁴)	I _{zz} (cm ⁴)	J (cm ⁴)	Material
1	HE220A	64.300	1.95E+3	5.41E+3	28.500	STEEL
2	HE200A	53.800	1.34E+3	3.69E+3	21.000	STEEL
3	150X100X6.3RHS	29.500	474.000	898.000	962.238	STEEL
4	80X4SHS	12.000	114.000	114.000	175.590	STEEL
5	100X5SHS	18.700	279.000	279.000	428.688	STEEL
6	100X5SHS	18.700	279.000	279.000	428.688	STEEL
7	HE220B	91.000	2.84E+3	8.09E+3	76.600	STEEL
8	100X5SHS	18.700	279.000	279.000	428.688	STEEL
9	100X5SHS	18.700	279.000	279.000	428.688	STEEL

KOPŅU APRĒĶINA REZULTĀTI



Beam End Forces

Sign convention is as the action of the joint on the beam.

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
101	51	10:COMBINAT	220.821	18.270	0.013	0.005	0.001	3.535
		11:COMBINAT	221.668	18.266	0.012	0.004	0.001	3.530
		12:COMBINAT	321.032	27.070	0.018	0.007	0.001	5.212
		13:COMBINAT	321.032	27.070	0.018	0.007	0.001	5.212
		14:COMBINAT	236.635	24.093	0.013	0.005	0.001	4.396
		15:COMBINAT	225.897	17.269	0.014	0.005	0.001	3.422
		16:COMBINAT	227.167	17.262	0.012	0.004	0.001	3.414
		17:COMBINAT	321.032	27.070	0.018	0.007	0.001	5.212
	52	10:COMBINAT	-214.045	20.125	-0.013	-0.005	-0.037	-6.060
		11:COMBINAT	-214.891	20.130	-0.012	-0.004	-0.034	-6.067
		12:COMBINAT	-310.968	29.949	-0.018	-0.007	-0.050	-9.129
		13:COMBINAT	-310.968	29.949	-0.018	-0.007	-0.050	-9.129
		14:COMBINAT	-227.483	27.765	-0.013	-0.005	-0.037	-9.393
		15:COMBINAT	-219.559	18.646	-0.014	-0.005	-0.039	-5.296
		16:COMBINAT	-220.829	18.653	-0.012	-0.004	-0.034	-5.307
		17:COMBINAT	-310.968	29.949	-0.018	-0.007	-0.050	-9.129
102	52	10:COMBINAT	330.251	17.800	0.014	0.007	0.037	5.654
		11:COMBINAT	330.411	17.800	0.013	0.006	0.034	5.659
		12:COMBINAT	479.603	26.447	0.018	0.009	0.050	8.493
		13:COMBINAT	479.603	26.447	0.018	0.009	0.050	8.493
		14:COMBINAT	349.436	24.160	0.014	0.007	0.037	8.521
		15:COMBINAT	338.958	16.613	0.014	0.007	0.039	5.016
		16:COMBINAT	339.199	16.613	0.013	0.007	0.034	5.024
		17:COMBINAT	479.603	26.447	0.018	0.009	0.050	8.493
	53	10:COMBINAT	-324.162	16.727	-0.014	-0.007	-0.070	-4.341
		11:COMBINAT	-324.322	16.727	-0.013	-0.006	-0.065	-4.347
		12:COMBINAT	-470.561	24.828	-0.018	-0.009	-0.095	-6.512
		13:COMBINAT	-470.561	24.828	-0.018	-0.009	-0.095	-6.512
		14:COMBINAT	-341.213	22.473	-0.014	-0.007	-0.071	-6.457
		15:COMBINAT	-333.263	15.683	-0.014	-0.007	-0.073	-3.878
		16:COMBINAT	-333.504	15.683	-0.013	-0.007	-0.065	-3.887
		17:COMBINAT	-470.561	24.828	-0.018	-0.009	-0.095	-6.512
103	53	10:COMBINAT	318.901	15.965	0.011	0.011	0.071	4.105
		11:COMBINAT	318.710	15.963	0.010	0.010	0.066	4.109
		12:COMBINAT	462.724	23.739	0.015	0.015	0.096	6.178
		13:COMBINAT	462.724	23.739	0.015	0.015	0.096	6.178
		14:COMBINAT	336.117	21.873	0.011	0.011	0.072	6.320
		15:COMBINAT	327.704	14.838	0.011	0.011	0.075	3.601
		16:COMBINAT	327.418	14.834	0.010	0.010	0.067	3.607
		17:COMBINAT	462.724	23.739	0.015	0.015	0.096	6.178
	54	10:COMBINAT	-312.826	18.562	-0.011	-0.011	-0.098	-7.282
		11:COMBINAT	-312.636	18.564	-0.010	-0.010	-0.091	-7.292
		12:COMBINAT	-453.703	27.536	-0.015	-0.015	-0.133	-10.824
		13:COMBINAT	-453.703	27.536	-0.015	-0.015	-0.133	-10.824
		14:COMBINAT	-327.913	24.760	-0.011	-0.011	-0.099	-9.852
		15:COMBINAT	-322.022	17.458	-0.011	-0.011	-0.103	-6.807
		16:COMBINAT	-321.736	17.462	-0.010	-0.010	-0.092	-6.821
		17:COMBINAT	-453.703	27.536	-0.015	-0.015	-0.133	-10.824
104	51	10:COMBINAT	-228.900	-2.818	0.010	-0.004	-0.003	-3.535

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		11:COMBINAT	-227.914	-2.813	0.009	-0.003	-0.003	-3.530
		12:COMBINAT	-332.675	-4.117	0.014	-0.005	-0.004	-5.212
		13:COMBINAT	-332.675	-4.117	0.014	-0.005	-0.004	-5.212
		14:COMBINAT	-242.717	-3.111	0.010	-0.004	-0.003	-4.396
		15:COMBINAT	-234.442	-2.848	0.011	-0.004	-0.003	-3.422
		16:COMBINAT	-232.963	-2.839	0.009	-0.003	-0.003	-3.414
		17:COMBINAT	-332.675	-4.117	0.014	-0.005	-0.004	-5.212
	55	10:COMBINAT	228.817	3.030	-0.010	0.004	-0.013	-1.098
		11:COMBINAT	227.831	3.024	-0.009	0.003	-0.012	-1.093
		12:COMBINAT	332.563	4.403	-0.014	0.005	-0.017	-1.537
		13:COMBINAT	332.563	4.403	-0.014	0.005	-0.017	-1.537
		14:COMBINAT	242.717	3.111	-0.010	0.004	-0.013	-0.532
		15:COMBINAT	234.330	3.134	-0.011	0.004	-0.014	-1.317
		16:COMBINAT	232.850	3.125	-0.009	0.003	-0.012	-1.310
		17:COMBINAT	332.563	4.403	-0.014	0.005	-0.017	-1.537
105	55	10:COMBINAT	-300.675	4.556	0.008	-0.001	0.011	1.082
		11:COMBINAT	-299.355	4.553	0.008	-0.001	0.010	1.080
		12:COMBINAT	-437.402	6.198	0.011	-0.001	0.014	1.457
		13:COMBINAT	-437.402	6.198	0.011	-0.001	0.014	1.457
		14:COMBINAT	-323.176	0.479	0.008	-0.001	0.011	-0.043
		15:COMBINAT	-306.619	6.003	0.009	-0.001	0.011	1.472
		16:COMBINAT	-304.639	5.999	0.008	-0.001	0.010	1.470
		17:COMBINAT	-437.402	6.198	0.011	-0.001	0.014	1.457
	56	10:COMBINAT	300.675	4.466	-0.008	0.001	-0.031	-0.973
		11:COMBINAT	299.355	4.469	-0.008	0.001	-0.028	-0.978
		12:COMBINAT	437.402	5.982	-0.011	0.001	-0.041	-1.198
		13:COMBINAT	437.402	5.982	-0.011	0.001	-0.041	-1.198
		14:COMBINAT	323.176	-0.479	-0.008	0.001	-0.031	1.198
		15:COMBINAT	306.619	6.177	-0.009	0.001	-0.032	-1.682
		16:COMBINAT	304.639	6.181	-0.008	0.001	-0.029	-1.688
		17:COMBINAT	437.402	5.982	-0.011	0.001	-0.041	-1.198
106	56	10:COMBINAT	-329.418	4.554	0.009	-0.002	0.030	1.098
		11:COMBINAT	-327.625	4.555	0.009	-0.002	0.028	1.100
		12:COMBINAT	-478.508	6.127	0.013	-0.002	0.040	1.384
		13:COMBINAT	-478.508	6.127	0.013	-0.002	0.040	1.384
		14:COMBINAT	-349.221	-0.224	0.010	-0.002	0.030	-1.011
		15:COMBINAT	-337.398	6.217	0.010	-0.002	0.031	1.793
		16:COMBINAT	-334.709	6.219	0.009	-0.002	0.028	1.796
		17:COMBINAT	-478.508	6.127	0.013	-0.002	0.040	1.384
	57	10:COMBINAT	329.418	4.468	-0.009	0.002	-0.053	-0.994
		11:COMBINAT	327.625	4.467	-0.009	0.002	-0.049	-0.994
		12:COMBINAT	478.508	6.053	-0.013	0.002	-0.071	-1.294
		13:COMBINAT	478.508	6.053	-0.013	0.002	-0.071	-1.294
		14:COMBINAT	349.221	0.224	-0.010	0.002	-0.053	0.472
		15:COMBINAT	337.398	5.963	-0.010	0.002	-0.055	-1.487
		16:COMBINAT	334.709	5.961	-0.009	0.002	-0.049	-1.486
		17:COMBINAT	478.508	6.053	-0.013	0.002	-0.071	-1.294
107	55	10:COMBINAT	115.233	0.482	0.002	0.003	0.001	0.016
		11:COMBINAT	114.701	0.479	0.002	0.003	0.001	0.014
		12:COMBINAT	168.062	0.757	0.002	0.004	0.001	0.080

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		13:COMBINAT	168.062	0.757	0.002	0.004	0.001	0.080
		14:COMBINAT	128.379	1.056	0.002	0.003	0.001	0.575
		15:COMBINAT	116.123	0.326	0.002	0.003	0.001	-0.156
		16:COMBINAT	115.325	0.322	0.002	0.003	0.001	-0.159
		17:COMBINAT	168.062	0.757	0.002	0.004	0.001	0.080
	52	10:COMBINAT	-115.136	-0.371	-0.002	-0.003	-0.004	0.666
		11:COMBINAT	-114.604	-0.368	-0.002	-0.003	-0.003	0.664
		12:COMBINAT	-167.931	-0.607	-0.002	-0.004	-0.005	1.011
		13:COMBINAT	-167.931	-0.607	-0.002	-0.004	-0.005	1.011
		14:COMBINAT	-128.379	-1.056	-0.002	-0.003	-0.004	1.113
		15:COMBINAT	-115.993	-0.176	-0.002	-0.003	-0.004	0.557
		16:COMBINAT	-115.194	-0.172	-0.002	-0.003	-0.003	0.554
		17:COMBINAT	-167.931	-0.607	-0.002	-0.004	-0.005	1.011
108	52	10:COMBINAT	-28.209	-0.110	0.002	-0.005	0.002	-0.260
		11:COMBINAT	-27.844	-0.106	0.001	-0.004	0.002	-0.257
		12:COMBINAT	-39.830	-0.163	0.002	-0.006	0.003	-0.374
		13:COMBINAT	-39.830	-0.163	0.002	-0.006	0.003	-0.374
		14:COMBINAT	-19.803	-0.160	0.002	-0.005	0.002	-0.241
		15:COMBINAT	-31.981	-0.098	0.002	-0.005	0.002	-0.277
		16:COMBINAT	-31.434	-0.093	0.001	-0.004	0.002	-0.272
		17:COMBINAT	-39.830	-0.163	0.002	-0.006	0.003	-0.374
	56	10:COMBINAT	28.112	0.221	-0.002	0.005	-0.005	-0.004
		11:COMBINAT	27.747	0.217	-0.001	0.004	-0.004	-0.002
		12:COMBINAT	39.700	0.313	-0.002	0.006	-0.006	-0.007
		13:COMBINAT	39.700	0.313	-0.002	0.006	-0.006	-0.007
		14:COMBINAT	19.803	0.160	-0.002	0.005	-0.005	-0.016
		15:COMBINAT	31.850	0.248	-0.002	0.005	-0.005	-0.000
		16:COMBINAT	31.303	0.243	-0.001	0.004	-0.004	0.003
		17:COMBINAT	39.700	0.313	-0.002	0.006	-0.006	-0.007
109	56	10:COMBINAT	11.885	0.134	0.000	0.006	0.004	-0.120
		11:COMBINAT	11.575	0.133	0.000	0.005	0.004	-0.121
		12:COMBINAT	17.595	0.188	0.000	0.008	0.006	-0.179
		13:COMBINAT	17.595	0.188	0.000	0.008	0.006	-0.179
		14:COMBINAT	17.501	0.067	0.000	0.006	0.004	-0.171
		15:COMBINAT	10.654	0.161	0.000	0.006	0.004	-0.110
		16:COMBINAT	10.189	0.159	0.000	0.006	0.004	-0.111
		17:COMBINAT	17.595	0.188	0.000	0.008	0.006	-0.179
	53	10:COMBINAT	-11.749	-0.023	-0.000	-0.006	-0.005	0.271
		11:COMBINAT	-11.439	-0.022	-0.000	-0.005	-0.004	0.270
		12:COMBINAT	-17.412	-0.038	-0.000	-0.008	-0.006	0.395
		13:COMBINAT	-17.412	-0.038	-0.000	-0.008	-0.006	0.395
		14:COMBINAT	-17.501	-0.067	-0.000	-0.006	-0.005	0.299
		15:COMBINAT	-10.470	-0.011	-0.000	-0.006	-0.005	0.274
		16:COMBINAT	-10.005	-0.009	-0.000	-0.006	-0.004	0.272
		17:COMBINAT	-17.412	-0.038	-0.000	-0.008	-0.006	0.395
110	53	10:COMBINAT	28.610	0.192	0.003	-0.007	0.001	-0.035
		11:COMBINAT	28.842	0.196	0.003	-0.006	0.001	-0.031
		12:COMBINAT	42.522	0.260	0.004	-0.009	0.001	-0.061
		13:COMBINAT	42.522	0.260	0.004	-0.009	0.001	-0.061
		14:COMBINAT	37.498	-0.015	0.003	-0.007	0.001	-0.162

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		15:COMBINAT	27.126	0.264	0.003	-0.007	0.001	0.003
		16:COMBINAT	27.475	0.270	0.003	-0.006	0.001	0.009
		17:COMBINAT	42.522	0.260	0.004	-0.009	0.001	-0.061
	57	10:COMBINAT	-28.746	-0.081	-0.003	0.007	-0.006	0.295
		11:COMBINAT	-28.978	-0.085	-0.003	0.006	-0.006	0.299
		12:COMBINAT	-42.706	-0.110	-0.004	0.009	-0.009	0.414
		13:COMBINAT	-42.706	-0.110	-0.004	0.009	-0.009	0.414
		14:COMBINAT	-37.498	0.015	-0.003	0.007	-0.006	0.134
		15:COMBINAT	-27.310	-0.114	-0.003	0.007	-0.007	0.358
		16:COMBINAT	-27.658	-0.120	-0.003	0.006	-0.006	0.363
		17:COMBINAT	-42.706	-0.110	-0.004	0.009	-0.009	0.414
111	57	10:COMBINAT	-34.882	0.188	-0.002	0.008	0.006	0.139
		11:COMBINAT	-35.073	0.188	-0.002	0.007	0.006	0.140
		12:COMBINAT	-50.626	0.259	-0.002	0.011	0.008	0.187
		13:COMBINAT	-50.626	0.259	-0.002	0.011	0.008	0.187
		14:COMBINAT	-34.194	0.042	-0.002	0.008	0.006	-0.023
		15:COMBINAT	-36.607	0.241	-0.002	0.008	0.007	0.194
		16:COMBINAT	-36.894	0.241	-0.002	0.007	0.006	0.196
		17:COMBINAT	-50.626	0.259	-0.002	0.011	0.008	0.187
	54	10:COMBINAT	35.057	-0.077	0.002	-0.008	-0.002	0.160
		11:COMBINAT	35.248	-0.077	0.002	-0.007	-0.002	0.159
		12:COMBINAT	50.863	-0.109	0.002	-0.011	-0.003	0.228
		13:COMBINAT	50.863	-0.109	0.002	-0.011	-0.003	0.228
		14:COMBINAT	34.194	-0.042	0.002	-0.008	-0.002	0.119
		15:COMBINAT	36.843	-0.091	0.002	-0.008	-0.002	0.179
		16:COMBINAT	37.131	-0.091	0.002	-0.007	-0.002	0.178
		17:COMBINAT	50.863	-0.109	0.002	-0.011	-0.003	0.228
112	58	10:COMBINAT	220.821	18.270	-0.013	-0.005	-0.001	3.535
		11:COMBINAT	221.668	18.266	-0.012	-0.004	-0.001	3.530
		12:COMBINAT	321.032	27.070	-0.018	-0.007	-0.001	5.212
		13:COMBINAT	321.032	27.070	-0.018	-0.007	-0.001	5.212
		14:COMBINAT	236.635	24.093	-0.013	-0.005	-0.001	4.396
		15:COMBINAT	225.897	17.269	-0.014	-0.005	-0.001	3.422
		16:COMBINAT	227.167	17.262	-0.012	-0.004	-0.001	3.414
		17:COMBINAT	321.032	27.070	-0.018	-0.007	-0.001	5.212
	59	10:COMBINAT	-214.045	20.125	0.013	0.005	0.037	-6.060
		11:COMBINAT	-214.891	20.130	0.012	0.004	0.034	-6.067
		12:COMBINAT	-310.968	29.949	0.018	0.007	0.050	-9.129
		13:COMBINAT	-310.968	29.949	0.018	0.007	0.050	-9.129
		14:COMBINAT	-227.483	27.765	0.013	0.005	0.037	-9.393
		15:COMBINAT	-219.559	18.646	0.014	0.005	0.039	-5.296
		16:COMBINAT	-220.829	18.653	0.012	0.004	0.034	-5.307
		17:COMBINAT	-310.968	29.949	0.018	0.007	0.050	-9.129
113	59	10:COMBINAT	330.251	17.800	-0.014	-0.007	-0.037	5.654
		11:COMBINAT	330.411	17.800	-0.013	-0.006	-0.034	5.659
		12:COMBINAT	479.603	26.447	-0.018	-0.009	-0.050	8.493
		13:COMBINAT	479.603	26.447	-0.018	-0.009	-0.050	8.493
		14:COMBINAT	349.437	24.160	-0.014	-0.007	-0.037	8.521
		15:COMBINAT	338.959	16.613	-0.014	-0.007	-0.039	5.016
		16:COMBINAT	339.199	16.613	-0.013	-0.007	-0.034	5.024

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		17:COMBINAT	479.603	26.447	-0.018	-0.009	-0.050	8.493
	60	10:COMBINAT	-324.162	16.727	0.014	0.007	0.070	-4.341
		11:COMBINAT	-324.322	16.727	0.013	0.006	0.065	-4.347
		12:COMBINAT	-470.561	24.828	0.018	0.009	0.095	-6.512
		13:COMBINAT	-470.561	24.828	0.018	0.009	0.095	-6.512
		14:COMBINAT	-341.213	22.473	0.014	0.007	0.071	-6.457
		15:COMBINAT	-333.263	15.683	0.014	0.007	0.073	-3.878
		16:COMBINAT	-333.504	15.683	0.013	0.007	0.065	-3.887
		17:COMBINAT	-470.561	24.828	0.018	0.009	0.095	-6.512
114	60	10:COMBINAT	318.901	15.965	-0.011	-0.011	-0.071	4.105
		11:COMBINAT	318.710	15.963	-0.010	-0.010	-0.066	4.109
		12:COMBINAT	462.724	23.739	-0.015	-0.015	-0.096	6.178
		13:COMBINAT	462.724	23.739	-0.015	-0.015	-0.096	6.178
		14:COMBINAT	336.117	21.873	-0.011	-0.011	-0.072	6.320
		15:COMBINAT	327.704	14.838	-0.011	-0.011	-0.075	3.601
		16:COMBINAT	327.418	14.834	-0.010	-0.010	-0.067	3.607
		17:COMBINAT	462.724	23.739	-0.015	-0.015	-0.096	6.178
	54	10:COMBINAT	-312.826	18.562	0.011	0.011	0.098	-7.282
		11:COMBINAT	-312.636	18.564	0.010	0.010	0.091	-7.292
		12:COMBINAT	-453.703	27.536	0.015	0.015	0.133	-10.824
		13:COMBINAT	-453.703	27.536	0.015	0.015	0.133	-10.824
		14:COMBINAT	-327.913	24.760	0.011	0.011	0.099	-9.852
		15:COMBINAT	-322.022	17.458	0.011	0.011	0.103	-6.807
		16:COMBINAT	-321.736	17.462	0.010	0.010	0.092	-6.821
		17:COMBINAT	-453.703	27.536	0.015	0.015	0.133	-10.824
115	58	10:COMBINAT	-228.900	-2.818	-0.010	0.004	0.003	-3.535
		11:COMBINAT	-227.914	-2.813	-0.009	0.003	0.003	-3.530
		12:COMBINAT	-332.675	-4.117	-0.014	0.005	0.004	-5.212
		13:COMBINAT	-332.675	-4.117	-0.014	0.005	0.004	-5.212
		14:COMBINAT	-242.717	-3.111	-0.010	0.004	0.003	-4.396
		15:COMBINAT	-234.442	-2.848	-0.011	0.004	0.003	-3.422
		16:COMBINAT	-232.963	-2.839	-0.009	0.003	0.003	-3.414
		17:COMBINAT	-332.675	-4.117	-0.014	0.005	0.004	-5.212
	61	10:COMBINAT	228.817	3.030	0.010	-0.004	0.013	-1.098
		11:COMBINAT	227.831	3.024	0.009	-0.003	0.012	-1.093
		12:COMBINAT	332.563	4.403	0.014	-0.005	0.017	-1.537
		13:COMBINAT	332.563	4.403	0.014	-0.005	0.017	-1.537
		14:COMBINAT	242.717	3.111	0.010	-0.004	0.013	-0.532
		15:COMBINAT	234.330	3.134	0.011	-0.004	0.014	-1.317
		16:COMBINAT	232.850	3.125	0.009	-0.003	0.012	-1.310
		17:COMBINAT	332.563	4.403	0.014	-0.005	0.017	-1.537
116	61	10:COMBINAT	-300.675	4.556	-0.008	0.001	-0.011	1.082
		11:COMBINAT	-299.355	4.553	-0.008	0.001	-0.010	1.080
		12:COMBINAT	-437.402	6.198	-0.011	0.001	-0.014	1.457
		13:COMBINAT	-437.402	6.198	-0.011	0.001	-0.014	1.457
		14:COMBINAT	-323.176	0.479	-0.008	0.001	-0.011	-0.043
		15:COMBINAT	-306.619	6.003	-0.009	0.001	-0.011	1.472
		16:COMBINAT	-304.639	5.999	-0.008	0.001	-0.010	1.470
		17:COMBINAT	-437.402	6.198	-0.011	0.001	-0.014	1.457
	62	10:COMBINAT	300.675	4.466	0.008	-0.001	0.031	-0.973

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		11:COMBINAT	299.355	4.469	0.008	-0.001	0.028	-0.978
		12:COMBINAT	437.402	5.982	0.011	-0.001	0.041	-1.198
		13:COMBINAT	437.402	5.982	0.011	-0.001	0.041	-1.198
		14:COMBINAT	323.176	-0.479	0.008	-0.001	0.031	1.198
		15:COMBINAT	306.619	6.177	0.009	-0.001	0.032	-1.682
		16:COMBINAT	304.639	6.181	0.008	-0.001	0.029	-1.688
		17:COMBINAT	437.402	5.982	0.011	-0.001	0.041	-1.198
117	62	10:COMBINAT	-329.418	4.554	-0.009	0.002	-0.030	1.098
		11:COMBINAT	-327.626	4.555	-0.009	0.002	-0.028	1.100
		12:COMBINAT	-478.508	6.127	-0.013	0.002	-0.040	1.384
		13:COMBINAT	-478.508	6.127	-0.013	0.002	-0.040	1.384
		14:COMBINAT	-349.221	-0.224	-0.010	0.002	-0.030	-1.011
		15:COMBINAT	-337.398	6.217	-0.010	0.002	-0.031	1.793
		16:COMBINAT	-334.709	6.219	-0.009	0.002	-0.028	1.796
		17:COMBINAT	-478.508	6.127	-0.013	0.002	-0.040	1.384
	63	10:COMBINAT	329.418	4.468	0.009	-0.002	0.053	-0.994
		11:COMBINAT	327.626	4.467	0.009	-0.002	0.049	-0.994
		12:COMBINAT	478.508	6.053	0.013	-0.002	0.071	-1.294
		13:COMBINAT	478.508	6.053	0.013	-0.002	0.071	-1.294
		14:COMBINAT	349.221	0.224	0.010	-0.002	0.053	0.472
		15:COMBINAT	337.398	5.963	0.010	-0.002	0.055	-1.487
		16:COMBINAT	334.709	5.961	0.009	-0.002	0.049	-1.486
		17:COMBINAT	478.508	6.053	0.013	-0.002	0.071	-1.294
118	61	10:COMBINAT	115.233	0.482	-0.002	-0.003	-0.001	0.016
		11:COMBINAT	114.701	0.479	-0.002	-0.003	-0.001	0.014
		12:COMBINAT	168.062	0.757	-0.002	-0.004	-0.001	0.080
		13:COMBINAT	168.062	0.757	-0.002	-0.004	-0.001	0.080
		14:COMBINAT	128.379	1.056	-0.002	-0.003	-0.001	0.575
		15:COMBINAT	116.123	0.326	-0.002	-0.003	-0.001	-0.156
		16:COMBINAT	115.325	0.322	-0.002	-0.003	-0.001	-0.159
		17:COMBINAT	168.062	0.757	-0.002	-0.004	-0.001	0.080
	59	10:COMBINAT	-115.136	-0.371	0.002	0.003	0.004	0.666
		11:COMBINAT	-114.604	-0.368	0.002	0.003	0.003	0.664
		12:COMBINAT	-167.931	-0.607	0.002	0.004	0.005	1.011
		13:COMBINAT	-167.931	-0.607	0.002	0.004	0.005	1.011
		14:COMBINAT	-128.379	-1.056	0.002	0.003	0.004	1.113
		15:COMBINAT	-115.993	-0.176	0.002	0.003	0.004	0.557
		16:COMBINAT	-115.194	-0.172	0.002	0.003	0.003	0.554
		17:COMBINAT	-167.931	-0.607	0.002	0.004	0.005	1.011
119	59	10:COMBINAT	-28.209	-0.110	-0.002	0.005	-0.002	-0.260
		11:COMBINAT	-27.844	-0.106	-0.001	0.004	-0.002	-0.257
		12:COMBINAT	-39.830	-0.163	-0.002	0.006	-0.003	-0.374
		13:COMBINAT	-39.830	-0.163	-0.002	0.006	-0.003	-0.374
		14:COMBINAT	-19.803	-0.160	-0.002	0.005	-0.002	-0.241
		15:COMBINAT	-31.981	-0.098	-0.002	0.005	-0.002	-0.277
		16:COMBINAT	-31.434	-0.093	-0.001	0.004	-0.002	-0.272
		17:COMBINAT	-39.830	-0.163	-0.002	0.006	-0.003	-0.374
	62	10:COMBINAT	28.112	0.221	0.002	-0.005	0.005	-0.004
		11:COMBINAT	27.747	0.217	0.001	-0.004	0.004	-0.002
		12:COMBINAT	39.699	0.313	0.002	-0.006	0.006	-0.007

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		13:COMBINAT	39.699	0.313	0.002	-0.006	0.006	-0.007
		14:COMBINAT	19.803	0.160	0.002	-0.005	0.005	-0.016
		15:COMBINAT	31.850	0.248	0.002	-0.005	0.005	-0.000
		16:COMBINAT	31.303	0.243	0.001	-0.004	0.004	0.003
		17:COMBINAT	39.699	0.313	0.002	-0.006	0.006	-0.007
120	62	10:COMBINAT	11.885	0.134	-0.000	-0.006	-0.004	-0.120
		11:COMBINAT	11.575	0.133	-0.000	-0.005	-0.004	-0.121
		12:COMBINAT	17.595	0.188	-0.000	-0.008	-0.006	-0.179
		13:COMBINAT	17.595	0.188	-0.000	-0.008	-0.006	-0.179
		14:COMBINAT	17.501	0.067	-0.000	-0.006	-0.004	-0.171
		15:COMBINAT	10.654	0.161	-0.000	-0.006	-0.004	-0.110
		16:COMBINAT	10.189	0.159	-0.000	-0.006	-0.004	-0.111
		17:COMBINAT	17.595	0.188	-0.000	-0.008	-0.006	-0.179
	60	10:COMBINAT	-11.749	-0.023	0.000	0.006	0.005	0.271
		11:COMBINAT	-11.439	-0.022	0.000	0.005	0.004	0.270
		12:COMBINAT	-17.412	-0.038	0.000	0.008	0.006	0.395
		13:COMBINAT	-17.412	-0.038	0.000	0.008	0.006	0.395
		14:COMBINAT	-17.501	-0.067	0.000	0.006	0.005	0.299
		15:COMBINAT	-10.470	-0.011	0.000	0.006	0.005	0.274
		16:COMBINAT	-10.005	-0.009	0.000	0.006	0.004	0.272
		17:COMBINAT	-17.412	-0.038	0.000	0.008	0.006	0.395
121	60	10:COMBINAT	28.610	0.192	-0.003	0.007	-0.001	-0.035
		11:COMBINAT	28.842	0.196	-0.003	0.006	-0.001	-0.031
		12:COMBINAT	42.522	0.260	-0.004	0.009	-0.001	-0.061
		13:COMBINAT	42.522	0.260	-0.004	0.009	-0.001	-0.061
		14:COMBINAT	37.498	-0.015	-0.003	0.007	-0.001	-0.162
		15:COMBINAT	27.126	0.264	-0.003	0.007	-0.001	0.003
		16:COMBINAT	27.475	0.270	-0.003	0.006	-0.001	0.009
		17:COMBINAT	42.522	0.260	-0.004	0.009	-0.001	-0.061
	63	10:COMBINAT	-28.746	-0.081	0.003	-0.007	0.006	0.295
		11:COMBINAT	-28.978	-0.085	0.003	-0.006	0.006	0.299
		12:COMBINAT	-42.706	-0.110	0.004	-0.009	0.009	0.414
		13:COMBINAT	-42.706	-0.110	0.004	-0.009	0.009	0.414
		14:COMBINAT	-37.498	0.015	0.003	-0.007	0.006	0.134
		15:COMBINAT	-27.310	-0.114	0.003	-0.007	0.007	0.358
		16:COMBINAT	-27.658	-0.120	0.003	-0.006	0.006	0.363
		17:COMBINAT	-42.706	-0.110	0.004	-0.009	0.009	0.414
122	63	10:COMBINAT	-34.882	0.188	0.002	-0.008	-0.006	0.139
		11:COMBINAT	-35.073	0.188	0.002	-0.007	-0.006	0.140
		12:COMBINAT	-50.626	0.259	0.002	-0.011	-0.008	0.187
		13:COMBINAT	-50.626	0.259	0.002	-0.011	-0.008	0.187
		14:COMBINAT	-34.194	0.042	0.002	-0.008	-0.006	-0.023
		15:COMBINAT	-36.607	0.241	0.002	-0.008	-0.007	0.194
		16:COMBINAT	-36.894	0.241	0.002	-0.007	-0.006	0.196
		17:COMBINAT	-50.626	0.259	0.002	-0.011	-0.008	0.187
	54	10:COMBINAT	35.057	-0.077	-0.002	0.008	0.002	0.160
		11:COMBINAT	35.248	-0.077	-0.002	0.007	0.002	0.159
		12:COMBINAT	50.863	-0.109	-0.002	0.011	0.003	0.228
		13:COMBINAT	50.863	-0.109	-0.002	0.011	0.003	0.228
		14:COMBINAT	34.194	-0.042	-0.002	0.008	0.002	0.119

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		15:COMBINAT	36.843	-0.091	-0.002	0.008	0.002	0.179
		16:COMBINAT	37.131	-0.091	-0.002	0.007	0.002	0.178
		17:COMBINAT	50.863	-0.109	-0.002	0.011	0.003	0.228
123	57	10:COMBINAT	-292.335	2.672	0.014	-0.000	0.052	0.560
		11:COMBINAT	-290.290	2.657	0.013	-0.000	0.048	0.555
		12:COMBINAT	-424.082	3.550	0.019	-0.000	0.070	0.693
		13:COMBINAT	-424.082	3.550	0.019	-0.000	0.070	0.693
		14:COMBINAT	-307.168	-0.427	0.014	-0.000	0.053	-0.582
		15:COMBINAT	-300.229	3.739	0.015	-0.000	0.054	0.935
		16:COMBINAT	-297.162	3.717	0.013	-0.000	0.048	0.928
		17:COMBINAT	-424.082	3.550	0.019	-0.000	0.070	0.693
	66	10:COMBINAT	292.335	1.839	-0.014	0.000	-0.069	-0.058
		11:COMBINAT	290.290	1.854	-0.013	0.000	-0.064	-0.071
		12:COMBINAT	424.082	2.540	-0.019	0.000	-0.093	-0.085
		13:COMBINAT	424.082	2.540	-0.019	0.000	-0.093	-0.085
		14:COMBINAT	307.168	0.427	-0.014	0.000	-0.070	0.068
		15:COMBINAT	300.229	2.351	-0.015	0.000	-0.072	-0.099
		16:COMBINAT	297.162	2.373	-0.013	0.000	-0.064	-0.119
		17:COMBINAT	424.082	2.540	-0.019	0.000	-0.093	-0.085
124	51	10:COMBINAT	138.125	-0.135	-0.015	0.000	0.000	0.000
		11:COMBINAT	137.913	-1.890	-0.005	0.000	0.000	0.000
		12:COMBINAT	201.163	-0.196	-0.015	0.000	0.000	0.000
		13:COMBINAT	201.163	-0.196	-0.015	0.000	0.000	0.000
		14:COMBINAT	150.514	-1.725	-0.007	0.000	0.000	0.000
		15:COMBINAT	140.317	-0.138	-0.017	0.000	0.000	0.000
		16:COMBINAT	139.999	-2.770	-0.003	0.000	0.000	0.000
		17:COMBINAT	201.163	-0.196	-0.015	0.000	0.000	0.000
	64	10:COMBINAT	-141.624	0.135	0.015	0.000	0.106	-0.957
		11:COMBINAT	-141.412	12.092	0.005	0.000	0.037	-49.532
		12:COMBINAT	-205.887	0.196	0.015	0.000	0.107	-1.390
		13:COMBINAT	-205.887	0.196	0.015	0.000	0.107	-1.390
		14:COMBINAT	-150.514	10.907	0.007	0.000	0.049	-44.751
		15:COMBINAT	-145.041	0.138	0.017	0.000	0.123	-0.976
		16:COMBINAT	-144.723	18.074	0.003	0.000	0.020	-73.839
		17:COMBINAT	-205.887	0.196	0.015	0.000	0.107	-1.390
125	58	10:COMBINAT	138.125	0.135	-0.054	0.000	0.000	0.000
		11:COMBINAT	137.913	1.890	-0.050	0.000	0.000	0.000
		12:COMBINAT	201.163	0.196	-0.051	0.000	0.000	0.000
		13:COMBINAT	201.163	0.196	-0.051	0.000	0.000	0.000
		14:COMBINAT	150.514	1.725	-0.051	0.000	0.000	0.000
		15:COMBINAT	140.317	0.138	-0.064	0.000	0.000	0.000
		16:COMBINAT	139.999	2.770	-0.058	0.000	0.000	0.000
		17:COMBINAT	201.163	0.196	-0.051	0.000	0.000	0.000
	65	10:COMBINAT	-141.624	-0.135	0.054	0.000	0.382	0.957
		11:COMBINAT	-141.412	17.665	0.050	0.000	0.355	-55.882
		12:COMBINAT	-205.887	-0.196	0.051	0.000	0.362	1.390
		13:COMBINAT	-205.887	-0.196	0.051	0.000	0.362	1.390
		14:COMBINAT	-150.514	15.874	0.051	0.000	0.362	-50.122
		15:COMBINAT	-145.041	-0.138	0.064	0.000	0.454	0.976
		16:COMBINAT	-144.723	26.562	0.058	0.000	0.413	-84.282

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		17:COMBINAT	-205.887	-0.196	0.051	0.000	0.362	1.390
126	66	10:COMBINAT	-292.335	1.839	-0.014	0.000	0.069	0.058
		11:COMBINAT	-290.290	1.854	-0.013	0.000	0.064	0.071
		12:COMBINAT	-424.082	2.540	-0.019	0.000	0.093	0.085
		13:COMBINAT	-424.082	2.540	-0.019	0.000	0.093	0.085
		14:COMBINAT	-307.168	0.427	-0.014	0.000	0.070	-0.068
		15:COMBINAT	-300.229	2.351	-0.015	0.000	0.072	0.099
		16:COMBINAT	-297.162	2.373	-0.013	0.000	0.064	0.119
		17:COMBINAT	-424.082	2.540	-0.019	0.000	0.093	0.085
	63	10:COMBINAT	292.335	2.672	0.014	-0.000	-0.052	-0.560
		11:COMBINAT	290.290	2.657	0.013	-0.000	-0.048	-0.555
		12:COMBINAT	424.082	3.550	0.019	-0.000	-0.070	-0.693
		13:COMBINAT	424.082	3.550	0.019	-0.000	-0.070	-0.693
		14:COMBINAT	307.168	-0.427	0.014	-0.000	-0.053	0.582
		15:COMBINAT	300.229	3.739	0.015	-0.000	-0.054	-0.935
		16:COMBINAT	297.162	3.717	0.013	-0.000	-0.048	-0.928
		17:COMBINAT	424.082	3.550	0.019	-0.000	-0.070	-0.693
127	66	10:COMBINAT	-11.681	-0.004	-0.000	-0.000	0.000	-0.000
		11:COMBINAT	-11.287	-0.004	-0.000	-0.000	0.000	-0.000
		12:COMBINAT	-15.801	-0.006	-0.000	-0.000	0.000	-0.000
		13:COMBINAT	-15.801	-0.006	-0.000	-0.000	0.000	-0.000
		14:COMBINAT	-7.158	-0.004	-0.000	-0.000	0.000	-0.000
		15:COMBINAT	-13.676	-0.004	-0.000	-0.000	0.000	-0.000
		16:COMBINAT	-13.086	-0.004	-0.000	-0.000	0.000	-0.000
		17:COMBINAT	-15.801	-0.006	-0.000	-0.000	0.000	-0.000
	54	10:COMBINAT	11.856	0.004	0.000	0.000	0.000	-0.008
		11:COMBINAT	11.463	0.004	0.000	0.000	0.000	-0.007
		12:COMBINAT	16.038	0.006	0.000	0.000	0.000	-0.011
		13:COMBINAT	16.038	0.006	0.000	0.000	0.000	-0.011
		14:COMBINAT	7.158	0.004	0.000	0.000	0.000	-0.008
		15:COMBINAT	13.913	0.004	0.000	0.000	0.000	-0.008
		16:COMBINAT	13.322	0.004	0.000	0.000	0.000	-0.007
		17:COMBINAT	16.038	0.006	0.000	0.000	0.000	-0.011

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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101 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662	0.629	12	
	315.77 C	0.03	-12.22	1.36	

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 272.14
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	272.142	272.142

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.302
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	49.3	67.9
Compression Capacity	913.0	776.4
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	48.6	33.2
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.721
 Elastic Critical Moment for LTB, Mcr = 1091.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.721
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 2.721](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.413	12	320.8	27.1	0.0	5.2	0.0
EC-6.2.9.1	0.252	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.3.3-661	0.593	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.3.3-662	0.629	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.2.6-(Y)	0.083	12	310.7	30.0	0.0	-9.1	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.083	12	2.7	310.7	30.0	0.0	-9.1	-0.1	0.0
EC-6.2.7(5)	0.348	12	1.4	315.8	-1.4	0.0	-12.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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102 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662		0.727	12
	479.21 C	0.05		8.50	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 244.72
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	244.719	244.719

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.458
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	44.4	61.1
Compression Capacity	939.6	833.8
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	37.7	25.8
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.447
 Elastic Critical Moment for LTB, Mcr = 1208.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.447
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 2.447](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.575	12	479.2	26.4	0.0	8.5	0.1
EC-6.2.9.1	0.225	12	479.2	26.4	0.0	8.5	0.1
EC-6.3.3-661	0.680	12	479.2	26.4	0.0	8.5	0.1
EC-6.3.3-662	0.727	12	479.2	26.4	0.0	8.5	0.1
EC-6.2.6-(Y)	0.073	12	479.2	26.4	0.0	8.5	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.073	12	0.0	479.2	26.4	0.0	8.5	0.1	0.0
EC-6.2.7(5)	0.437	12	0.0	479.2	26.4	0.0	8.5	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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103 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662	0.731	12	
	453.22 C	-0.14	-10.83	2.45	

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 244.70
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	244.701	244.701

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.433
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	44.4	61.0
Compression Capacity	939.6	833.9
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	39.5	27.0
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.447
 Elastic Critical Moment for LTB, Mcr = 1209.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.447
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.835](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.554	12	462.2	23.7	0.0	6.2	0.1
EC-6.2.9.1	0.274	12	453.2	27.5	0.0	-10.8	-0.1
EC-6.3.3-661	0.640	12	453.2	27.5	0.0	-10.8	-0.1
EC-6.3.3-662	0.731	12	453.2	27.5	0.0	-10.8	-0.1
EC-6.2.6-(Y)	0.076	12	453.2	27.5	0.0	-10.8	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.076	12	2.4	453.2	27.5	0.0	-10.8	-0.1	0.0
EC-6.2.7(5)	0.481	12	2.4	453.2	27.5	0.0	-10.8	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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104 ST	100X5SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.7(5)	0.584	12
		332.44 T	0.00	-5.21	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 158.42
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	158.421	158.421

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.501
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	41.0	41.0
Compression Capacity	605.7	605.7
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	15.3	15.3
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.584
 Elastic Critical Moment for LTB, Mcr = 949.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.584
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.452](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.501	12	-332.4	-4.1	0.0	-5.2	0.0
EC-6.2.9.1	0.340	12	-332.4	-4.1	0.0	-5.2	0.0
EC-6.3.3-662	0.001	7	0.5	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.023	12	-332.3	4.4	0.0	-1.5	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.023	12	1.6	-332.3	4.4	0.0	-1.5	0.0	0.0
EC-6.2.7(5)	0.584	12	0.0	-332.4	-4.1	0.0	-5.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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105 ST	100X5SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.658	12
		437.08 T	0.01	1.46	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 241.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	241.000	241.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.658
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	62.4	62.4
Compression Capacity	521.8	521.8
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	10.5	10.5
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.410
 Elastic Critical Moment for LTB, Mcr = 633.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.410
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.658	12	-437.1	6.2	0.0	1.5	0.0
EC-6.3.1.1	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.223	12	-437.1	0.1	0.0	-2.3	0.0
EC-6.3.3-661	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.032	12	-437.1	6.2	0.0	1.5	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.032	12	0.0	-437.1	6.2	0.0	1.5	0.0	0.0
EC-6.2.7(5)	0.605	12	1.2	-437.1	0.1	0.0	-2.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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106 ST	100X5SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.720	12
		478.07 T	0.04	1.39	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 241.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	241.000	241.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.720
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	62.4	62.4
Compression Capacity	521.8	521.8
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	8.6	8.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.410
 Elastic Critical Moment for LTB, Mcr = 633.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.410
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.720	12	-478.1	6.1	0.0	1.4	0.0
EC-6.3.1.1	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.271	12	-478.1	0.0	0.0	-2.3	0.1
EC-6.3.3-661	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.032	15	-337.1	6.2	0.0	1.8	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.032	16	0.0	-334.3	6.2	0.0	1.8	0.0	0.0
EC-6.2.7(5)	0.707	12	1.2	-478.1	0.0	0.0	-2.3	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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107 ST	80X4SHS	(EUROPEAN SECTIONS) PASS	EC-6.3.3-662	0.536	12
		167.80 C	-0.01	1.01	1.60

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 159.89
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	159.895	159.895

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.394
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	51.9	51.9
Compression Capacity	365.2	365.2
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	9.5	9.5
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.599
 Elastic Critical Moment for LTB, Mcr = 388.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.599
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.599](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.460	12	167.9	0.8	0.0	0.1	0.0
EC-6.2.9.1	0.106	12	167.8	-0.6	0.0	1.0	0.0
EC-6.3.3-661	0.520	12	167.8	-0.6	0.0	1.0	0.0
EC-6.3.3-662	0.536	12	167.8	-0.6	0.0	1.0	0.0
EC-6.2.6-(Y)	0.009	14	128.3	1.1	0.0	0.6	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.009	14	1.6	128.3	-1.1	0.0	1.1	0.0	0.0
EC-6.2.7(5)	0.244	12	1.6	167.8	-0.6	0.0	1.0	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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108 ST	80X4SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.093	12
		39.74 T	0.00	-0.37	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 159.89
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	159.895	159.895

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.093
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	51.9	51.9
Compression Capacity	365.2	365.2
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.599
 Elastic Critical Moment for LTB, Mcr = 388.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.599
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.599](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.093	12	-39.7	-0.2	0.0	-0.4	0.0
EC-6.2.9.1	0.031	12	-39.7	-0.2	0.0	-0.4	0.0
EC-6.2.6-(Y)	0.003	12	-39.6	0.3	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	1.6	-39.6	0.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.017	12	0.0	-39.7	-0.2	0.0	-0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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109 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.084	12
		17.33 C	-0.01	0.39	1.91

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 190.54
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	190.541	190.541

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.041
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	61.8	61.8
Compression Capacity	336.7	336.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.905
 Elastic Critical Moment for LTB, Mcr = 328.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.905
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.005	4	-2.2	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.052	12	17.5	0.2	0.0	-0.2	0.0
EC-6.2.9.1	0.033	12	17.3	0.0	0.0	0.4	0.0
EC-6.3.3-661	0.081	12	17.3	0.0	0.0	0.4	0.0
EC-6.3.3-662	0.084	12	17.3	0.0	0.0	0.4	0.0
EC-6.2.6-(Y)	0.002	12	17.5	0.2	0.0	-0.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	12	0.0	17.5	0.2	0.0	-0.2	0.0	0.0
EC-6.2.7(5)	0.006	12	1.9	17.3	0.0	0.0	0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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110 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.161	12
		42.76 C	-0.01	0.41	1.91

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 190.54
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	190.541	190.541

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.100
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	61.8	61.8
Compression Capacity	336.7	336.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.905
 Elastic Critical Moment for LTB, Mcr = 328.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.905
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.127	12	42.8	-0.1	0.0	0.4	0.0
EC-6.2.9.1	0.034	12	42.8	-0.1	0.0	0.4	0.0
EC-6.3.3-661	0.154	12	42.8	-0.1	0.0	0.4	0.0
EC-6.3.3-662	0.161	12	42.8	-0.1	0.0	0.4	0.0
EC-6.2.5	0.001	1	0.0	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	42.6	0.3	0.0	-0.1	0.0
EC-6.3.2 LTB	0.001	1	0.0	0.0	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	16	0.0	27.5	0.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.020	12	1.9	42.8	-0.1	0.0	0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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111 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.120	12
		50.91 T	0.00	0.23	2.25

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 224.99
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	224.990	224.990

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.120
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	73.0	73.0
Compression Capacity	296.7	296.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.250
 Elastic Critical Moment for LTB, Mcr = 279.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.250
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.120	12	-50.9	-0.1	0.0	0.2	0.0
EC-6.2.9.1	0.019	12	-50.9	-0.1	0.0	0.2	0.0
EC-6.2.6-(Y)	0.002	12	-50.7	0.3	0.0	0.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(1)	0.001	12	0.0	-50.7	0.3	0.0	0.2	0.0	0.0
EC-6.2.7(9)	0.002	12	0.0	-50.7	0.3	0.0	0.2	0.0	0.0
EC-6.2.7(5)	0.020	12	2.2	-50.9	-0.1	0.0	0.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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112 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662	0.629	12	
	315.77 C	-0.03	-12.22	1.36	

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 272.14
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	272.142	272.142

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.302
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	49.3	67.9
Compression Capacity	913.0	776.4
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	48.6	33.2
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.721
 Elastic Critical Moment for LTB, Mcr = 1091.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.721
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 2.721](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.413	12	320.8	27.1	0.0	5.2	0.0
EC-6.2.9.1	0.252	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.3.3-661	0.593	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.3.3-662	0.629	12	315.8	-1.4	0.0	-12.2	0.0
EC-6.2.6-(Y)	0.083	12	310.7	30.0	0.0	-9.1	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.083	12	2.7	310.7	30.0	0.0	-9.1	0.1	0.0
EC-6.2.7(5)	0.348	12	1.4	315.8	-1.4	0.0	-12.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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113 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662	0.727	12	
	479.21 C	-0.05	8.50	0.00	

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 244.72
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	244.719	244.719

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.458
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	44.4	61.1
Compression Capacity	939.6	833.8
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	37.7	25.8
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.447
 Elastic Critical Moment for LTB, Mcr = 1208.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.447
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 2.447](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.575	12	479.2	26.4	0.0	8.5	-0.1
EC-6.2.9.1	0.225	12	479.2	26.4	0.0	8.5	-0.1
EC-6.3.3-661	0.680	12	479.2	26.4	0.0	8.5	-0.1
EC-6.3.3-662	0.727	12	479.2	26.4	0.0	8.5	-0.1
EC-6.2.6-(Y)	0.073	12	479.2	26.4	0.0	8.5	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.073	12	0.0	479.2	26.4	0.0	8.5	-0.1	0.0
EC-6.2.7(5)	0.437	12	0.0	479.2	26.4	0.0	8.5	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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114 ST	150X100X6.3RHS			(EUROPEAN SECTIONS)	
	PASS	EC-6.3.3-662	0.731	12	
	453.22 C	0.14	-10.83	2.45	

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 244.70
 Gross Area = 29.50 Net Area = 29.50

	z-axis	y-axis
Moment of inertia	898.000	474.000
Plastic modulus	147.000	110.000
Elastic modulus	119.733	94.800
Shear Area	11.800	17.700
Radius of gyration	5.517	4.008
Effective Length	244.701	244.701

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 1047.25
 Axial force/Squash load : 0.433
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	44.4	61.0
Compression Capacity	939.6	833.9
Tension Capacity	1047.3	1047.3
Moment Capacity	52.2	39.1
Reduced Moment Capacity	39.5	27.0
Shear Capacity	241.9	362.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 52.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.447
 Elastic Critical Moment for LTB, Mcr = 1209.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.447
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 2.039](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 34.6
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 34.6

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.554	12	462.2	23.7	0.0	6.2	-0.1
EC-6.2.9.1	0.274	12	453.2	27.5	0.0	-10.8	0.1
EC-6.3.3-661	0.640	12	453.2	27.5	0.0	-10.8	0.1
EC-6.3.3-662	0.731	12	453.2	27.5	0.0	-10.8	0.1
EC-6.2.6-(Y)	0.076	12	453.2	27.5	0.0	-10.8	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.076	12	2.4	453.2	27.5	0.0	-10.8	0.1	0.0
EC-6.2.7(5)	0.481	12	2.4	453.2	27.5	0.0	-10.8	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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115 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.7(5)	0.584	12
		332.44 T	0.00	-5.21	0.00

=====

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 158.42
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	158.421	158.421

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.501
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	41.0	41.0
Compression Capacity	605.7	605.7
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	15.3	15.3
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.584
 Elastic Critical Moment for LTB, Mcr = 949.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.584
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.584](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.501	12	-332.4	-4.1	0.0	-5.2	0.0
EC-6.2.9.1	0.340	12	-332.4	-4.1	0.0	-5.2	0.0
EC-6.3.3-662	0.001	7	0.5	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.023	12	-332.3	4.4	0.0	-1.5	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.023	12	1.6	-332.3	4.4	0.0	-1.5	0.0	0.0
EC-6.2.7(5)	0.584	12	0.0	-332.4	-4.1	0.0	-5.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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116 ST	100X5SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.658	12
		437.08 T	-0.01	1.46	0.00

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MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 241.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	241.000	241.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.658
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	62.4	62.4
Compression Capacity	521.8	521.8
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	10.5	10.5
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.410
 Elastic Critical Moment for LTB, Mcr = 633.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.410
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.658	12	-437.1	6.2	0.0	1.5	0.0
EC-6.3.1.1	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.223	12	-437.1	0.1	0.0	-2.3	0.0
EC-6.3.3-661	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.001	7	0.7	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.032	12	-437.1	6.2	0.0	1.5	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.032	12	0.0	-437.1	6.2	0.0	1.5	0.0	0.0
EC-6.2.7(5)	0.605	12	1.2	-437.1	0.1	0.0	-2.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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117 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.720	12
		478.07 T	-0.04	1.39	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 241.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	241.000	241.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.720
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	62.4	62.4
Compression Capacity	521.8	521.8
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	8.6	8.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.410
 Elastic Critical Moment for LTB, Mcr = 633.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.410
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.720	12	-478.1	6.1	0.0	1.4	0.0
EC-6.3.1.1	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.271	12	-478.1	0.0	0.0	-2.3	-0.1
EC-6.3.3-661	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.002	7	1.0	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.032	15	-337.1	6.2	0.0	1.8	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.032	16	0.0	-334.3	6.2	0.0	1.8	0.0	0.0
EC-6.2.7(5)	0.707	12	1.2	-478.1	0.0	0.0	-2.3	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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118 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.536	12
		167.80 C	0.01	1.01	1.60

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MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 159.89
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	159.895	159.895

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.394
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	51.9	51.9
Compression Capacity	365.2	365.2
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	9.5	9.5
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.599
 Elastic Critical Moment for LTB, Mcr = 388.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.599
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.599](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.460	12	167.9	0.8	0.0	0.1	0.0
EC-6.2.9.1	0.106	12	167.8	-0.6	0.0	1.0	0.0
EC-6.3.3-661	0.520	12	167.8	-0.6	0.0	1.0	0.0
EC-6.3.3-662	0.536	12	167.8	-0.6	0.0	1.0	0.0
EC-6.2.6-(Y)	0.009	14	128.3	1.1	0.0	0.6	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.009	14	1.6	128.3	-1.1	0.0	1.1	0.0	0.0
EC-6.2.7(5)	0.244	12	1.6	167.8	-0.6	0.0	1.0	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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119 ST	80X4SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.093	12
		39.74 T	0.00	-0.37	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 159.89
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	159.895	159.895

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.093
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	51.9	51.9
Compression Capacity	365.2	365.2
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.599
 Elastic Critical Moment for LTB, Mcr = 388.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.599
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.599](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.093	12	-39.7	-0.2	0.0	-0.4	0.0
EC-6.2.9.1	0.031	12	-39.7	-0.2	0.0	-0.4	0.0
EC-6.2.6-(Y)	0.003	12	-39.6	0.3	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	1.6	-39.6	0.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.017	12	0.0	-39.7	-0.2	0.0	-0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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120 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.084	12
		17.33 C	0.01	0.39	1.91

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 190.54
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	190.541	190.541

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.041
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	61.8	61.8
Compression Capacity	336.7	336.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.905
 Elastic Critical Moment for LTB, Mcr = 328.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.905
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.005	4	-2.2	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.052	12	17.5	0.2	0.0	-0.2	0.0
EC-6.2.9.1	0.033	12	17.3	0.0	0.0	0.4	0.0
EC-6.3.3-661	0.081	12	17.3	0.0	0.0	0.4	0.0
EC-6.3.3-662	0.084	12	17.3	0.0	0.0	0.4	0.0
EC-6.2.6-(Y)	0.002	12	17.5	0.2	0.0	-0.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	12	0.0	17.5	0.2	0.0	-0.2	0.0	0.0
EC-6.2.7(5)	0.006	12	1.9	17.3	0.0	0.0	0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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121 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.161	12
		42.76 C	0.01	0.41	1.91

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MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 190.54
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	190.541	190.541

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.100
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	61.8	61.8
Compression Capacity	336.7	336.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.905
 Elastic Critical Moment for LTB, Mcr = 328.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.905
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.127	12	42.8	-0.1	0.0	0.4	0.0
EC-6.2.9.1	0.034	12	42.8	-0.1	0.0	0.4	0.0
EC-6.3.3-661	0.154	12	42.8	-0.1	0.0	0.4	0.0
EC-6.3.3-662	0.161	12	42.8	-0.1	0.0	0.4	0.0
EC-6.2.5	0.001	1	0.0	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	42.6	0.3	0.0	-0.1	0.0
EC-6.3.2 LTB	0.001	1	0.0	0.0	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	16	0.0	27.5	0.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.020	12	1.9	42.8	-0.1	0.0	0.4	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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122 ST	80X4SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.120	12
		50.91 T	0.00	0.23	2.25

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 224.99
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	224.989	224.989

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.120
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	73.0	73.0
Compression Capacity	296.7	296.7
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.250
 Elastic Critical Moment for LTB, Mcr = 279.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.250
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.120	12	-50.9	-0.1	0.0	0.2	0.0
EC-6.2.9.1	0.019	12	-50.9	-0.1	0.0	0.2	0.0
EC-6.2.6-(Y)	0.002	12	-50.7	0.3	0.0	0.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(1)	0.001	12	0.0	-50.7	0.3	0.0	0.2	0.0	0.0
EC-6.2.7(9)	0.002	12	0.0	-50.7	0.3	0.0	0.2	0.0	0.0
EC-6.2.7(5)	0.020	12	2.2	-50.9	-0.1	0.0	0.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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123 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.638	12
		423.58 T	0.07	0.69	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 120.50
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	120.500	120.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.638
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	31.2	31.2
Compression Capacity	631.0	631.0
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	11.1	11.1
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.205
 Elastic Critical Moment for LTB, Mcr = 1232.5

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.205
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.638	12	-423.6	3.5	0.0	0.7	0.1
EC-6.3.1.1	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.062	12	-423.6	3.5	0.0	0.7	0.1
EC-6.3.3-661	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.019	15	-299.9	3.7	0.0	0.9	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.019	15	0.0	-299.9	3.7	0.0	0.9	0.1	0.0
EC-6.2.7(5)	0.458	12	0.0	-423.6	3.5	0.0	0.7	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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126 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.638	12
		423.58 T	0.10	0.09	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 120.50
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	120.500	120.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.638
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	31.2	31.2
Compression Capacity	631.0	631.0
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	11.1	11.1
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.205
 Elastic Critical Moment for LTB, Mcr = 1232.5

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.205
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.638	12	-423.6	2.5	0.0	0.1	0.1
EC-6.3.1.1	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.062	12	-423.6	3.5	0.0	-0.7	-0.1
EC-6.3.3-661	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.002	7	1.1	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.019	15	-299.9	3.7	0.0	-0.9	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.019	15	1.2	-299.9	3.7	0.0	-0.9	-0.1	0.0
EC-6.2.7(5)	0.458	12	1.2	-423.6	3.5	0.0	-0.7	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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127 ST	80X4SHS	(EUROPEAN SECTIONS) PASS	EC-6.2.3 (T)	0.037	12
		15.79 T	0.00	-0.01	1.90

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 190.00
 Gross Area = 12.00 Net Area = 12.00

	z-axis	y-axis
Moment of inertia	114.000	114.000
Plastic modulus	34.000	34.000
Elastic modulus	28.500	28.500
Shear Area	6.000	6.000
Radius of gyration	3.082	3.082
Effective Length	190.000	190.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 426.00
 Axial force/Squash load : 0.037
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	61.6	61.6
Compression Capacity	337.3	337.3
Tension Capacity	426.0	426.0
Moment Capacity	12.1	12.1
Reduced Moment Capacity	12.1	12.1
Shear Capacity	123.0	123.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 12.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.900
 Elastic Critical Moment for LTB, Mcr = 329.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.900
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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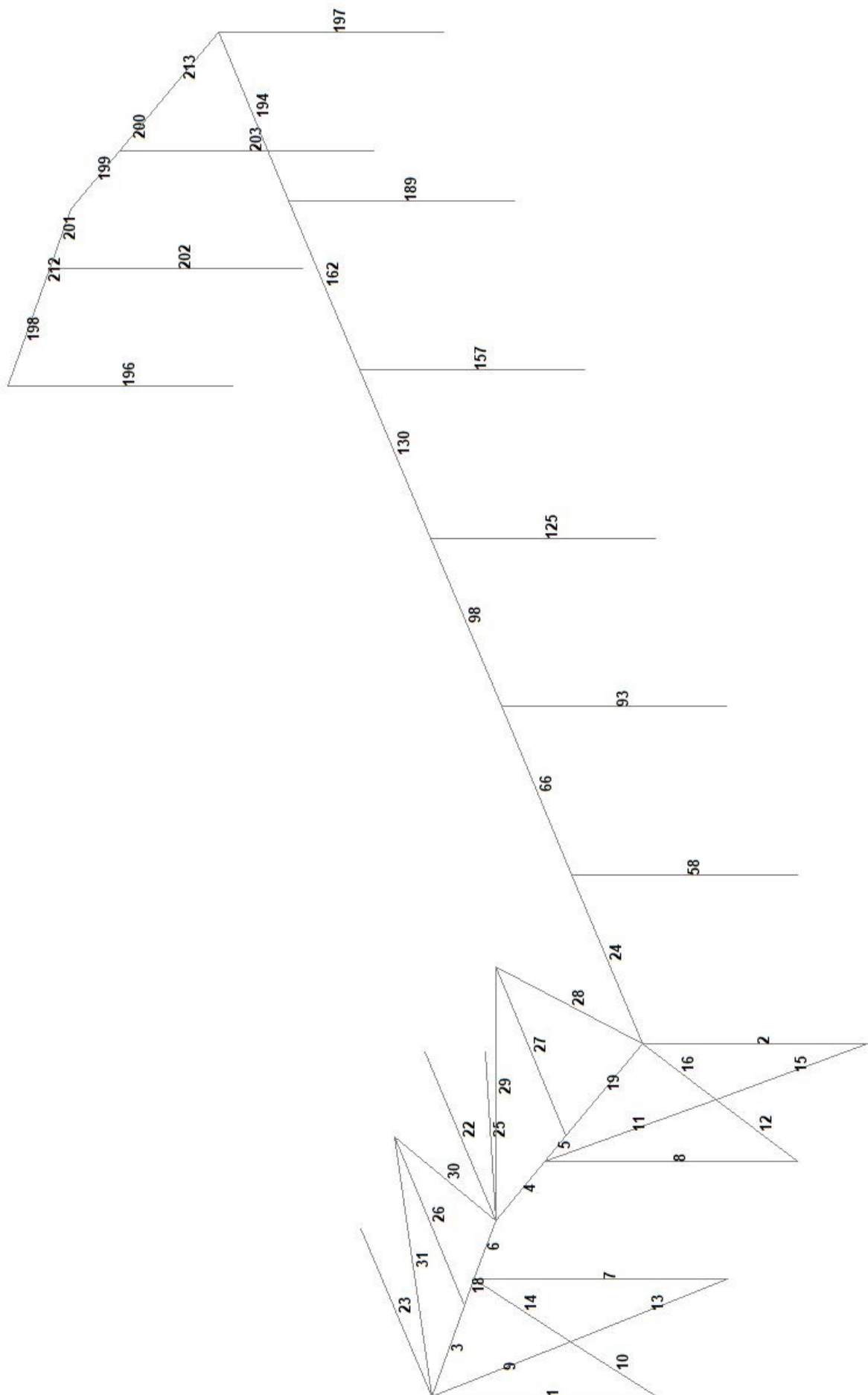
CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.037	12	-15.8	0.0	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(5)	0.001	12	1.9	-15.8	0.0	0.0	0.0	0.0	0.0

JUMTA SIJU, KOLONNU, SAIŠU APRĒĶINA REZULTĀTI



Beam End Forces

Sign convention is as the action of the joint on the beam.

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
1	1	10:COMBINATI	14.316	-0.062	2.896	0.000	0.000	0.000
		11:COMBINATI	28.449	1.814	-0.013	0.000	0.000	0.000
		12:COMBINATI	26.624	-0.097	-0.029	0.000	0.000	0.000
		13:COMBINATI	26.624	-0.097	-0.029	0.000	0.000	0.000
		14:COMBINATI	26.072	1.625	-0.015	0.000	0.000	0.000
		15:COMBINATI	13.462	-0.062	4.354	0.000	0.000	0.000
		16:COMBINATI	34.662	2.751	-0.010	0.000	0.000	0.000
		17:COMBINATI	26.624	-0.097	-0.029	0.000	0.000	0.000
	2	10:COMBINATI	-17.815	0.062	4.897	0.000	7.087	-0.439
		11:COMBINATI	-31.948	3.287	0.013	0.000	0.091	-5.221
		12:COMBINATI	-31.349	0.097	0.029	0.000	0.205	-0.684
		13:COMBINATI	-31.349	0.097	0.029	0.000	0.205	-0.684
		14:COMBINATI	-26.072	2.966	0.015	0.000	0.107	-4.747
		15:COMBINATI	-18.187	0.062	7.336	0.000	10.563	-0.442
		16:COMBINATI	-39.386	4.901	0.010	0.000	0.068	-7.615
		17:COMBINATI	-31.349	0.097	0.029	0.000	0.205	-0.684
2	3	10:COMBINATI	28.404	2.122	2.823	0.001	0.004	9.861
		11:COMBINATI	22.279	6.268	-0.091	0.001	-0.005	12.270
		12:COMBINATI	41.964	3.068	-0.101	0.001	-0.007	14.238
		13:COMBINATI	41.964	3.068	-0.101	0.001	-0.007	14.238
		14:COMBINATI	22.184	5.949	-0.094	0.001	-0.005	12.492
		15:COMBINATI	29.592	2.189	4.268	0.000	0.009	10.174
		16:COMBINATI	20.405	8.409	-0.103	0.001	-0.005	13.788
		17:COMBINATI	41.964	3.068	-0.101	0.001	-0.007	14.238
	4	10:COMBINATI	-31.904	-2.122	4.970	-0.001	7.602	5.171
		11:COMBINATI	-25.779	3.509	0.091	-0.001	0.651	-2.495
		12:COMBINATI	-46.688	-3.068	0.101	-0.001	0.724	7.498
		13:COMBINATI	-46.688	-3.068	0.101	-0.001	0.724	7.498
		14:COMBINATI	-22.184	2.850	0.094	-0.001	0.673	-1.515
		15:COMBINATI	-34.317	-2.189	7.422	-0.000	11.164	5.334
		16:COMBINATI	-25.129	6.257	0.103	-0.001	0.737	-6.166
		17:COMBINATI	-46.688	-3.068	0.101	-0.001	0.724	7.498
3	1	10:COMBINATI	24.869	17.405	-0.472	-0.000	-0.000	-0.000
		11:COMBINATI	21.736	17.329	0.024	-0.000	-0.000	-0.000
		12:COMBINATI	32.702	25.228	0.035	-0.000	-0.000	-0.000
		13:COMBINATI	32.702	25.228	0.035	-0.000	-0.000	-0.000
		14:COMBINATI	22.629	18.136	0.026	-0.000	-0.000	-0.000
		15:COMBINATI	26.772	17.934	-0.720	-0.000	-0.000	-0.000
		16:COMBINATI	22.073	17.820	0.025	-0.000	-0.000	-0.000
		17:COMBINATI	32.702	25.228	0.035	-0.000	-0.000	-0.000
	13	10:COMBINATI	-18.525	18.584	0.472	0.000	1.863	-2.326
		11:COMBINATI	-15.392	18.660	-0.024	0.000	-0.096	-2.627
		12:COMBINATI	-23.476	27.116	-0.035	0.000	-0.137	-3.724
		13:COMBINATI	-23.476	27.116	-0.035	0.000	-0.137	-3.724

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		14:COMBINATI	-16.003	19.452	-0.026	0.000	-0.102	-2.597
		15:COMBINATI	-20.242	19.112	0.720	0.000	2.840	-2.323
		16:COMBINATI	-15.543	19.226	-0.025	0.000	-0.100	-2.774
		17:COMBINATI	-23.476	27.116	-0.035	0.000	-0.137	-3.724
4	5	10:COMBINATI	34.370	-6.744	1.406	0.004	-0.011	-19.937
		11:COMBINATI	30.002	-6.741	-0.059	-0.004	0.012	-20.493
		12:COMBINATI	47.222	-10.327	-0.080	-0.007	0.019	-29.914
		13:COMBINATI	47.222	-10.327	-0.080	-0.007	0.019	-29.914
		14:COMBINATI	30.735	-6.380	-0.063	-0.005	0.013	-20.292
		15:COMBINATI	36.540	-6.972	2.136	0.009	-0.024	-20.537
		16:COMBINATI	29.989	-6.968	-0.062	-0.004	0.012	-21.371
		17:COMBINATI	47.222	-10.327	-0.080	-0.007	0.019	-29.914
	8	10:COMBINATI	-38.452	29.903	-1.406	-0.004	-3.559	-26.579
		11:COMBINATI	-34.084	29.900	0.059	0.004	0.137	-26.017
		12:COMBINATI	-53.159	44.011	0.080	0.007	0.184	-39.057
		13:COMBINATI	-53.159	44.011	0.080	0.007	0.184	-39.057
		14:COMBINATI	-34.999	30.568	0.063	0.005	0.147	-26.607
		15:COMBINATI	-40.742	30.811	-2.136	-0.009	-5.399	-27.421
		16:COMBINATI	-34.191	30.808	0.062	0.004	0.144	-26.579
		17:COMBINATI	-53.159	44.011	0.080	0.007	0.184	-39.057
5	8	10:COMBINATI	17.056	26.781	-4.781	0.004	3.559	26.579
		11:COMBINATI	16.676	26.195	0.216	-0.004	-0.137	26.017
		12:COMBINATI	21.587	39.015	0.293	-0.007	-0.184	39.057
		13:COMBINATI	21.587	39.015	0.293	-0.007	-0.184	39.057
		14:COMBINATI	17.012	26.967	0.230	-0.005	-0.147	26.607
		15:COMBINATI	18.638	27.681	-7.268	0.009	5.399	27.421
		16:COMBINATI	18.067	26.803	0.227	-0.004	-0.144	26.579
		17:COMBINATI	21.587	39.015	0.293	-0.007	-0.184	39.057
	14	10:COMBINATI	-18.877	-16.454	4.781	-0.004	1.853	-2.108
		11:COMBINATI	-18.496	-15.869	-0.216	0.004	-0.108	-2.210
		12:COMBINATI	-24.234	-23.996	-0.293	0.007	-0.148	-3.393
		13:COMBINATI	-24.234	-23.996	-0.293	0.007	-0.148	-3.393
		14:COMBINATI	-18.913	-16.182	-0.230	0.005	-0.113	-2.186
		15:COMBINATI	-20.512	-17.051	7.268	-0.009	2.828	-2.103
		16:COMBINATI	-19.941	-16.173	-0.227	0.004	-0.113	-2.255
		17:COMBINATI	-24.234	-23.996	-0.293	0.007	-0.148	-3.393
6	9	10:COMBINATI	40.660	31.130	-1.416	0.000	3.582	29.693
		11:COMBINATI	42.156	31.501	0.049	-0.000	-0.111	30.079
		12:COMBINATI	56.429	45.790	0.071	-0.000	-0.160	43.574
		13:COMBINATI	56.429	45.790	0.071	-0.000	-0.160	43.574
		14:COMBINATI	42.807	32.191	0.053	-0.000	-0.121	30.725
		15:COMBINATI	42.935	32.074	-2.148	0.000	5.427	30.627
		16:COMBINATI	45.180	32.631	0.050	-0.000	-0.113	31.206
		17:COMBINATI	56.429	45.790	0.071	-0.000	-0.160	43.574
	5	10:COMBINATI	-36.578	-7.972	1.416	-0.000	0.012	19.937

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		11:COMBINATI	-38.074	-8.343	-0.049	0.000	-0.013	20.493
		12:COMBINATI	-50.492	-12.109	-0.071	0.000	-0.021	29.914
		13:COMBINATI	-50.492	-12.109	-0.071	0.000	-0.021	29.914
		14:COMBINATI	-38.544	-8.004	-0.053	0.000	-0.014	20.292
		15:COMBINATI	-38.733	-8.236	2.148	-0.000	0.025	20.537
		16:COMBINATI	-40.978	-8.793	-0.050	0.000	-0.013	21.371
		17:COMBINATI	-50.492	-12.109	-0.071	0.000	-0.021	29.914
7	7	10:COMBINATI	46.976	11.282	0.017	0.000	-0.138	20.068
		11:COMBINATI	41.097	0.220	0.028	0.000	-0.222	1.752
		12:COMBINATI	67.537	0.318	0.027	0.000	-0.212	2.530
		13:COMBINATI	67.537	0.318	0.027	0.000	-0.212	2.530
		14:COMBINATI	38.732	0.237	0.027	0.000	-0.215	1.886
		15:COMBINATI	49.987	16.818	0.018	0.000	-0.140	29.268
		16:COMBINATI	41.169	0.225	0.033	0.000	-0.267	1.793
		17:COMBINATI	67.537	0.318	0.027	0.000	-0.212	2.530
	9	10:COMBINATI	-43.041	6.244	-0.017	0.000	0.000	0.000
		11:COMBINATI	-37.162	-0.220	-0.028	0.000	0.000	0.000
		12:COMBINATI	-62.225	-0.318	-0.027	0.000	0.000	0.000
		13:COMBINATI	-62.225	-0.318	-0.027	0.000	0.000	0.000
		14:COMBINATI	-38.732	-0.237	-0.027	0.000	0.000	0.000
		15:COMBINATI	-44.675	9.471	-0.018	0.000	0.000	0.000
		16:COMBINATI	-35.856	-0.225	-0.033	0.000	0.000	0.000
		17:COMBINATI	-62.225	-0.318	-0.027	0.000	0.000	0.000
8	6	10:COMBINATI	45.873	11.328	-0.014	0.000	0.109	20.435
		11:COMBINATI	50.680	0.270	-0.005	0.000	0.037	2.154
		12:COMBINATI	66.382	0.364	-0.021	0.000	0.163	2.904
		13:COMBINATI	66.382	0.364	-0.021	0.000	0.163	2.904
		14:COMBINATI	47.480	0.288	-0.005	0.000	0.040	2.293
		15:COMBINATI	48.641	16.872	-0.014	0.000	0.113	29.695
		16:COMBINATI	55.852	0.285	-0.001	0.000	0.005	2.274
		17:COMBINATI	66.382	0.364	-0.021	0.000	0.163	2.904
	8	10:COMBINATI	-41.938	6.198	0.014	0.000	0.000	0.000
		11:COMBINATI	-46.745	-0.270	0.005	0.000	0.000	0.000
		12:COMBINATI	-61.070	-0.364	0.021	0.000	0.000	0.000
		13:COMBINATI	-61.070	-0.364	0.021	0.000	0.000	0.000
		14:COMBINATI	-47.480	-0.288	0.005	0.000	0.000	0.000
		15:COMBINATI	-43.328	9.417	0.014	0.000	0.000	0.000
		16:COMBINATI	-50.540	-0.285	0.001	0.000	0.000	0.000
		17:COMBINATI	-61.070	-0.364	0.021	0.000	0.000	0.000
9	1	10:COMBINATI	-14.529	0.121	0.020	0.000	0.000	0.000
		11:COMBINATI	-22.995	0.120	0.014	0.000	0.000	0.000
		12:COMBINATI	-21.740	0.163	0.018	0.000	0.000	0.000
		13:COMBINATI	-21.740	0.163	0.018	0.000	0.000	0.000
		14:COMBINATI	-22.185	-0.001	0.014	0.000	0.000	0.000
		15:COMBINATI	-14.945	0.164	0.024	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		16:COMBINATI	-27.643	0.161	0.014	0.000	0.000	0.000
		17:COMBINATI	-21.740	0.163	0.018	0.000	0.000	0.000
	10	10:COMBINATI	14.050	0.217	-0.020	0.000	-0.081	-0.195
		11:COMBINATI	22.516	0.219	-0.014	0.000	-0.055	-0.202
		12:COMBINATI	21.093	0.293	-0.018	0.000	-0.073	-0.265
		13:COMBINATI	21.093	0.293	-0.018	0.000	-0.073	-0.265
		14:COMBINATI	22.185	0.001	-0.014	0.000	-0.059	-0.002
		15:COMBINATI	14.298	0.293	-0.024	0.000	-0.097	-0.263
		16:COMBINATI	26.997	0.295	-0.014	0.000	-0.059	-0.274
		17:COMBINATI	21.093	0.293	-0.018	0.000	-0.073	-0.265
10	2	10:COMBINATI	25.946	0.121	-0.020	0.000	0.000	0.000
		11:COMBINATI	34.359	0.122	-0.014	0.000	0.000	0.000
		12:COMBINATI	38.821	0.163	-0.018	0.000	0.000	0.000
		13:COMBINATI	38.821	0.163	-0.018	0.000	0.000	0.000
		14:COMBINATI	32.741	-0.000	-0.014	0.000	0.000	0.000
		15:COMBINATI	26.923	0.163	-0.024	0.000	0.000	0.000
		16:COMBINATI	39.543	0.165	-0.014	0.000	0.000	0.000
		17:COMBINATI	38.821	0.163	-0.018	0.000	0.000	0.000
	10	10:COMBINATI	-25.407	0.217	0.020	0.000	0.087	-0.214
		11:COMBINATI	-33.821	0.216	0.014	0.000	0.060	-0.210
		12:COMBINATI	-38.094	0.293	0.018	0.000	0.080	-0.288
		13:COMBINATI	-38.094	0.293	0.018	0.000	0.080	-0.288
		14:COMBINATI	-32.741	0.000	0.014	0.000	0.064	-0.000
		15:COMBINATI	-26.195	0.293	0.024	0.000	0.105	-0.288
		16:COMBINATI	-38.815	0.292	0.014	0.000	0.064	-0.282
		17:COMBINATI	-38.094	0.293	0.018	0.000	0.080	-0.288
11	8	10:COMBINATI	20.870	0.146	-0.011	0.000	0.000	0.000
		11:COMBINATI	13.693	0.146	-0.004	0.000	0.000	0.000
		12:COMBINATI	31.028	0.197	-0.009	0.000	0.000	0.000
		13:COMBINATI	31.028	0.197	-0.009	0.000	0.000	0.000
		14:COMBINATI	14.527	-0.001	-0.005	0.000	0.000	0.000
		15:COMBINATI	21.509	0.197	-0.013	0.000	0.000	0.000
		16:COMBINATI	10.744	0.197	-0.004	0.000	0.000	0.000
		17:COMBINATI	31.028	0.197	-0.009	0.000	0.000	0.000
	11	10:COMBINATI	-21.476	0.234	0.011	0.000	0.053	-0.220
		11:COMBINATI	-14.299	0.235	0.004	0.000	0.022	-0.221
		12:COMBINATI	-31.846	0.317	0.009	0.000	0.044	-0.299
		13:COMBINATI	-31.846	0.317	0.009	0.000	0.044	-0.299
		14:COMBINATI	-14.527	0.001	0.005	0.000	0.025	-0.006
		15:COMBINATI	-22.326	0.316	0.013	0.000	0.064	-0.295
		16:COMBINATI	-11.561	0.316	0.004	0.000	0.018	-0.297
		17:COMBINATI	-31.846	0.317	0.009	0.000	0.044	-0.299
12	6	10:COMBINATI	-6.047	0.149	0.011	0.000	0.000	0.000
		11:COMBINATI	2.064	0.150	0.004	0.000	0.000	0.000
		12:COMBINATI	-9.879	0.202	0.009	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		13:COMBINATI	-9.879	0.202	0.009	0.000	0.000	0.000
		14:COMBINATI	0.656	0.002	0.005	0.000	0.000	0.000
		15:COMBINATI	-5.813	0.201	0.013	0.000	0.000	0.000
		16:COMBINATI	6.354	0.202	0.004	0.000	0.000	0.000
		17:COMBINATI	-9.879	0.202	0.009	0.000	0.000	0.000
	11	10:COMBINATI	6.586	0.231	-0.011	0.000	-0.048	-0.187
		11:COMBINATI	-1.526	0.230	-0.004	0.000	-0.020	-0.184
		12:COMBINATI	10.606	0.312	-0.009	0.000	-0.041	-0.252
		13:COMBINATI	10.606	0.312	-0.009	0.000	-0.041	-0.252
		14:COMBINATI	-0.656	-0.002	-0.005	0.000	-0.023	0.010
		15:COMBINATI	6.540	0.312	-0.013	0.000	-0.059	-0.255
		16:COMBINATI	-5.627	0.311	-0.004	0.000	-0.017	-0.250
		17:COMBINATI	10.606	0.312	-0.009	0.000	-0.041	-0.252
13	10	10:COMBINATI	-13.747	0.230	-0.018	0.000	0.081	0.185
		11:COMBINATI	-22.215	0.231	-0.012	0.000	0.055	0.190
		12:COMBINATI	-20.684	0.311	-0.016	0.000	0.073	0.250
		13:COMBINATI	-20.684	0.311	-0.016	0.000	0.073	0.250
		14:COMBINATI	-22.183	-0.001	-0.013	0.000	0.059	-0.005
		15:COMBINATI	-13.890	0.312	-0.021	0.000	0.097	0.253
		16:COMBINATI	-26.592	0.313	-0.013	0.000	0.059	0.260
		17:COMBINATI	-20.684	0.311	-0.016	0.000	0.073	0.250
	7	10:COMBINATI	13.208	0.150	0.018	0.000	0.000	0.000
		11:COMBINATI	21.676	0.149	0.012	0.000	0.000	0.000
		12:COMBINATI	19.956	0.202	0.016	0.000	0.000	0.000
		13:COMBINATI	19.956	0.202	0.016	0.000	0.000	0.000
		14:COMBINATI	22.183	0.001	0.013	0.000	0.000	0.000
		15:COMBINATI	13.163	0.202	0.021	0.000	0.000	0.000
		16:COMBINATI	25.865	0.200	0.013	0.000	0.000	0.000
		17:COMBINATI	19.956	0.202	0.016	0.000	0.000	0.000
14	10	10:COMBINATI	25.112	0.235	0.018	0.000	-0.087	0.223
		11:COMBINATI	33.521	0.235	0.012	0.000	-0.060	0.222
		12:COMBINATI	37.694	0.317	0.016	0.000	-0.080	0.302
		13:COMBINATI	37.694	0.317	0.016	0.000	-0.080	0.302
		14:COMBINATI	32.742	0.001	0.013	0.000	-0.064	0.007
		15:COMBINATI	25.795	0.317	0.021	0.000	-0.105	0.299
		16:COMBINATI	38.410	0.316	0.013	0.000	-0.064	0.297
		17:COMBINATI	37.694	0.317	0.016	0.000	-0.080	0.302
	9	10:COMBINATI	-24.506	0.145	-0.018	0.000	0.000	0.000
		11:COMBINATI	-32.916	0.146	-0.012	0.000	0.000	0.000
		12:COMBINATI	-36.876	0.196	-0.016	0.000	0.000	0.000
		13:COMBINATI	-36.876	0.196	-0.016	0.000	0.000	0.000
		14:COMBINATI	-32.742	-0.001	-0.013	0.000	0.000	0.000
		15:COMBINATI	-24.978	0.197	-0.021	0.000	0.000	0.000
		16:COMBINATI	-37.592	0.197	-0.013	0.000	0.000	0.000
		17:COMBINATI	-36.876	0.196	-0.016	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
15	11	10:COMBINATI	21.773	0.216	0.012	0.000	-0.053	0.209
		11:COMBINATI	14.595	0.217	0.005	0.000	-0.022	0.211
		12:COMBINATI	32.248	0.292	0.010	0.000	-0.044	0.282
		13:COMBINATI	32.248	0.292	0.010	0.000	-0.044	0.282
		14:COMBINATI	14.523	0.000	0.006	0.000	-0.025	0.001
		15:COMBINATI	22.729	0.292	0.015	0.000	-0.064	0.283
		16:COMBINATI	11.961	0.293	0.004	0.000	-0.018	0.286
		17:COMBINATI	32.248	0.292	0.010	0.000	-0.044	0.282
	4	10:COMBINATI	-22.312	0.122	-0.012	0.000	0.000	0.000
		11:COMBINATI	-15.133	0.121	-0.005	0.000	0.000	0.000
		12:COMBINATI	-32.975	0.164	-0.010	0.000	0.000	0.000
		13:COMBINATI	-32.975	0.164	-0.010	0.000	0.000	0.000
		14:COMBINATI	-14.523	-0.000	-0.006	0.000	0.000	0.000
		15:COMBINATI	-23.456	0.164	-0.015	0.000	0.000	0.000
		16:COMBINATI	-12.688	0.164	-0.004	0.000	0.000	0.000
		17:COMBINATI	-32.975	0.164	-0.010	0.000	0.000	0.000
16	11	10:COMBINATI	-6.887	0.218	-0.012	0.000	0.048	0.198
		11:COMBINATI	1.223	0.217	-0.005	0.000	0.020	0.194
		12:COMBINATI	-11.013	0.294	-0.010	0.000	0.041	0.268
		13:COMBINATI	-11.013	0.294	-0.010	0.000	0.041	0.268
		14:COMBINATI	0.653	-0.001	-0.006	0.000	0.023	-0.004
		15:COMBINATI	-6.946	0.294	-0.015	0.000	0.059	0.267
		16:COMBINATI	5.219	0.292	-0.004	0.000	0.017	0.261
		17:COMBINATI	-11.013	0.294	-0.010	0.000	0.041	0.268
	3	10:COMBINATI	7.366	0.121	0.012	0.000	0.000	0.000
		11:COMBINATI	-0.744	0.121	0.005	0.000	0.000	0.000
		12:COMBINATI	11.660	0.162	0.010	0.000	0.000	0.000
		13:COMBINATI	11.660	0.162	0.010	0.000	0.000	0.000
		14:COMBINATI	-0.653	0.001	0.006	0.000	0.000	0.000
		15:COMBINATI	7.593	0.163	0.015	0.000	0.000	0.000
		16:COMBINATI	-4.572	0.164	0.004	0.000	0.000	0.000
		17:COMBINATI	11.660	0.162	0.010	0.000	0.000	0.000
18	13	10:COMBINATI	18.451	-19.009	4.810	0.000	-1.863	2.326
		11:COMBINATI	15.318	-19.085	-0.183	-0.000	0.096	2.627
		12:COMBINATI	23.375	-27.689	-0.262	-0.000	0.137	3.724
		13:COMBINATI	23.375	-27.689	-0.262	-0.000	0.137	3.724
		14:COMBINATI	16.003	-19.452	-0.197	-0.000	0.102	2.597
		15:COMBINATI	20.141	-19.686	7.302	0.000	-2.840	2.323
		16:COMBINATI	15.442	-19.799	-0.188	-0.000	0.100	2.774
		17:COMBINATI	23.375	-27.689	-0.262	-0.000	0.137	3.724
	9	10:COMBINATI	-16.630	29.337	-4.810	-0.000	-3.582	-29.693
		11:COMBINATI	-13.497	29.413	0.183	0.000	0.111	-30.079
		12:COMBINATI	-20.727	42.710	0.262	0.000	0.160	-43.574
		13:COMBINATI	-20.727	42.710	0.262	0.000	0.160	-43.574
		14:COMBINATI	-14.102	30.239	0.197	0.000	0.121	-30.725

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		15:COMBINATI	-18.267	30.317	-7.302	-0.000	-5.427	-30.627
		16:COMBINATI	-13.568	30.430	0.188	0.000	0.113	-31.206
		17:COMBINATI	-20.727	42.710	0.262	0.000	0.160	-43.574
19	14	10:COMBINATI	18.951	16.029	0.470	0.004	-1.853	2.108
		11:COMBINATI	18.571	15.444	-0.028	-0.004	0.108	2.210
		12:COMBINATI	24.335	23.423	-0.038	-0.007	0.148	3.393
		13:COMBINATI	24.335	23.423	-0.038	-0.007	0.148	3.393
		14:COMBINATI	18.913	16.182	-0.029	-0.005	0.113	2.186
		15:COMBINATI	20.613	16.477	0.717	0.009	-2.828	2.103
		16:COMBINATI	20.042	15.600	-0.029	-0.004	0.113	2.255
		17:COMBINATI	24.335	23.423	-0.038	-0.007	0.148	3.393
	3	10:COMBINATI	-25.295	19.960	-0.470	-0.004	-0.000	-9.861
		11:COMBINATI	-24.914	20.545	0.028	0.004	0.001	-12.270
		12:COMBINATI	-33.562	28.921	0.038	0.007	0.003	-14.238
		13:COMBINATI	-33.562	28.921	0.038	0.007	0.003	-14.238
		14:COMBINATI	-25.539	21.407	0.029	0.005	0.002	-12.492
		15:COMBINATI	-27.143	20.569	-0.717	-0.009	-0.001	-10.174
		16:COMBINATI	-26.572	21.446	0.029	0.004	0.001	-13.788
		17:COMBINATI	-33.562	28.921	0.038	0.007	0.003	-14.238
22	5	10:COMBINATI	59.068	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	54.648	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	79.638	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	79.638	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	57.472	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	62.727	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	56.098	0.582	-0.000	0.000	0.000	0.000
		17:COMBINATI	79.638	0.582	-0.000	0.000	0.000	0.000
	22	10:COMBINATI	-59.068	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	-54.648	0.431	0.000	0.000	0.000	0.000
		12:COMBINATI	-79.638	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	-79.638	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	-57.472	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-62.727	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	-56.098	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	-79.638	0.582	0.000	0.000	0.000	0.000
23	1	10:COMBINATI	7.517	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	1.442	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	6.205	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	6.205	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	1.815	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	9.295	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	0.182	0.582	-0.000	0.000	0.000	0.000
		17:COMBINATI	6.205	0.582	-0.000	0.000	0.000	0.000
	16	10:COMBINATI	-7.517	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	-1.442	0.431	0.000	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		12:COMBINATI	-6.205	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	-6.205	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	-1.815	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-9.295	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	-0.182	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	-6.205	0.582	0.000	0.000	0.000	0.000
24	3	10:COMBINATI	25.803	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	23.462	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	28.323	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	28.323	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	24.439	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	29.398	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	25.887	0.582	-0.000	0.000	0.000	0.000
		17:COMBINATI	28.323	0.582	-0.000	0.000	0.000	0.000
	23	10:COMBINATI	-25.803	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	-23.462	0.431	0.000	0.000	0.000	0.000
		12:COMBINATI	-28.323	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	-28.323	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	-24.439	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-29.398	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	-25.887	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	-28.323	0.582	0.000	0.000	0.000	0.000
25	5	10:COMBINATI	-94.519	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	-94.633	0.431	0.000	0.000	0.000	0.000
		12:COMBINATI	-139.840	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	-139.840	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	-100.033	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-96.259	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	-96.430	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	-139.840	0.582	0.000	0.000	0.000	0.000
	31	10:COMBINATI	94.246	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	94.360	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	139.471	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	139.471	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	100.033	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	95.891	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	96.062	0.582	-0.000	0.000	0.000	0.000
		17:COMBINATI	139.471	0.582	-0.000	0.000	0.000	0.000
26	33	10:COMBINATI	5.283	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	-0.207	0.431	0.000	0.000	0.000	0.000
		12:COMBINATI	-0.297	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	-0.297	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	-0.222	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	8.022	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	-0.213	0.582	-0.000	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		17:COMBINATI	-0.297	0.582	0.000	0.000	0.000	0.000
	13	10:COMBINATI	-5.283	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	0.207	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	0.297	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	0.297	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	0.222	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	-8.022	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	0.213	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	0.297	0.582	-0.000	0.000	0.000	0.000
27	34	10:COMBINATI	5.251	0.431	-0.000	0.000	0.000	0.000
		11:COMBINATI	-0.244	0.431	-0.000	0.000	0.000	0.000
		12:COMBINATI	-0.331	0.582	-0.000	0.000	0.000	0.000
		13:COMBINATI	-0.331	0.582	-0.000	0.000	0.000	0.000
		14:COMBINATI	-0.259	0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	7.985	0.582	-0.000	0.000	0.000	0.000
		16:COMBINATI	-0.256	0.582	-0.000	0.000	0.000	0.000
		17:COMBINATI	-0.331	0.582	-0.000	0.000	0.000	0.000
	14	10:COMBINATI	-5.251	0.431	0.000	0.000	0.000	0.000
		11:COMBINATI	0.244	0.431	0.000	0.000	0.000	0.000
		12:COMBINATI	0.331	0.582	0.000	0.000	0.000	0.000
		13:COMBINATI	0.331	0.582	0.000	0.000	0.000	0.000
		14:COMBINATI	0.259	-0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-7.985	0.582	0.000	0.000	0.000	0.000
		16:COMBINATI	0.256	0.582	0.000	0.000	0.000	0.000
		17:COMBINATI	0.331	0.582	0.000	0.000	0.000	0.000
28	3	10:COMBINATI	-28.001	0.513	0.000	0.000	0.000	0.000
		11:COMBINATI	-28.100	0.513	0.000	0.000	0.000	0.000
		12:COMBINATI	-33.894	0.693	0.000	0.000	0.000	0.000
		13:COMBINATI	-33.894	0.693	0.000	0.000	0.000	0.000
		14:COMBINATI	-29.320	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-30.850	0.693	0.000	0.000	0.000	0.000
		16:COMBINATI	-30.999	0.693	0.000	0.000	0.000	0.000
		17:COMBINATI	-33.894	0.693	0.000	0.000	0.000	0.000
	34	10:COMBINATI	28.099	0.513	-0.000	0.000	0.000	0.000
		11:COMBINATI	28.199	0.513	-0.000	0.000	0.000	0.000
		12:COMBINATI	34.027	0.693	-0.000	0.000	0.000	0.000
		13:COMBINATI	34.027	0.693	-0.000	0.000	0.000	0.000
		14:COMBINATI	29.320	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	30.983	0.693	-0.000	0.000	0.000	0.000
		16:COMBINATI	31.132	0.693	-0.000	0.000	0.000	0.000
		17:COMBINATI	34.027	0.693	-0.000	0.000	0.000	0.000
29	34	10:COMBINATI	21.726	0.503	-0.000	0.000	0.000	0.000
		11:COMBINATI	28.218	0.503	-0.000	0.000	0.000	0.000
		12:COMBINATI	34.164	0.679	-0.000	0.000	0.000	0.000
		13:COMBINATI	34.164	0.679	-0.000	0.000	0.000	0.000

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		14:COMBINATI	29.350	0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	21.379	0.679	-0.000	0.000	0.000	0.000
		16:COMBINATI	31.117	0.679	-0.000	0.000	0.000	0.000
		17:COMBINATI	34.164	0.679	-0.000	0.000	0.000	0.000
	5	10:COMBINATI	-21.635	0.503	0.000	0.000	0.000	0.000
		11:COMBINATI	-28.127	0.503	0.000	0.000	0.000	0.000
		12:COMBINATI	-34.041	0.679	0.000	0.000	0.000	0.000
		13:COMBINATI	-34.041	0.679	0.000	0.000	0.000	0.000
		14:COMBINATI	-29.350	-0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-21.256	0.679	0.000	0.000	0.000	0.000
		16:COMBINATI	-30.994	0.679	0.000	0.000	0.000	0.000
		17:COMBINATI	-34.041	0.679	0.000	0.000	0.000	0.000
30	5	10:COMBINATI	17.819	0.503	-0.000	0.000	0.000	0.000
		11:COMBINATI	13.201	0.503	-0.000	0.000	0.000	0.000
		12:COMBINATI	28.377	0.679	-0.000	0.000	0.000	0.000
		13:COMBINATI	28.377	0.679	-0.000	0.000	0.000	0.000
		14:COMBINATI	14.936	-0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	17.481	0.679	-0.000	0.000	0.000	0.000
		16:COMBINATI	10.553	0.679	-0.000	0.000	0.000	0.000
		17:COMBINATI	28.377	0.679	-0.000	0.000	0.000	0.000
	33	10:COMBINATI	-17.911	0.503	0.000	0.000	0.000	0.000
		11:COMBINATI	-13.292	0.503	0.000	0.000	0.000	0.000
		12:COMBINATI	-28.501	0.679	0.000	0.000	0.000	0.000
		13:COMBINATI	-28.501	0.679	0.000	0.000	0.000	0.000
		14:COMBINATI	-14.936	0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-17.604	0.679	0.000	0.000	0.000	0.000
		16:COMBINATI	-10.676	0.679	0.000	0.000	0.000	0.000
		17:COMBINATI	-28.501	0.679	0.000	0.000	0.000	0.000
31	33	10:COMBINATI	-24.329	0.513	0.000	0.000	0.000	0.000
		11:COMBINATI	-13.095	0.513	0.000	0.000	0.000	0.000
		12:COMBINATI	-28.412	0.693	0.000	0.000	0.000	0.000
		13:COMBINATI	-28.412	0.693	0.000	0.000	0.000	0.000
		14:COMBINATI	-14.746	-0.000	0.000	0.000	0.000	0.000
		15:COMBINATI	-27.262	0.693	0.000	0.000	0.000	0.000
		16:COMBINATI	-10.411	0.693	0.000	0.000	0.000	0.000
		17:COMBINATI	-28.412	0.693	0.000	0.000	0.000	0.000
	1	10:COMBINATI	24.231	0.513	-0.000	0.000	0.000	0.000
		11:COMBINATI	12.997	0.513	-0.000	0.000	0.000	0.000
		12:COMBINATI	28.279	0.693	-0.000	0.000	0.000	0.000
		13:COMBINATI	28.279	0.693	-0.000	0.000	0.000	0.000
		14:COMBINATI	14.746	0.000	-0.000	0.000	0.000	0.000
		15:COMBINATI	27.129	0.693	-0.000	0.000	0.000	0.000
		16:COMBINATI	10.278	0.693	-0.000	0.000	0.000	0.000
		17:COMBINATI	28.279	0.693	-0.000	0.000	0.000	0.000
58	23	10:COMBINATI	123.938	4.208	-0.030	0.001	-0.264	19.896

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		11:COMBINATI	124.999	12.282	-0.025	0.001	-0.260	23.689
		12:COMBINATI	180.177	6.214	-0.001	0.002	-0.411	29.232
		13:COMBINATI	180.177	6.214	-0.001	0.002	-0.411	29.232
		14:COMBINATI	135.639	12.121	-0.023	0.001	-0.282	26.360
		15:COMBINATI	126.151	4.176	-0.044	0.001	-0.261	19.793
		16:COMBINATI	127.743	16.288	-0.037	0.001	-0.256	25.481
		17:COMBINATI	180.177	6.214	-0.001	0.002	-0.411	29.232
	30	10:COMBINATI	-127.437	-4.208	0.030	-0.001	0.476	9.916
		11:COMBINATI	-128.499	7.272	0.025	-0.001	0.435	-5.942
		12:COMBINATI	-184.901	-6.214	0.001	-0.002	0.416	14.792
		13:COMBINATI	-184.901	-6.214	0.001	-0.002	0.416	14.792
		14:COMBINATI	-135.639	5.478	0.023	-0.001	0.443	-2.827
		15:COMBINATI	-130.876	-4.176	0.044	-0.001	0.576	9.797
		16:COMBINATI	-132.467	13.044	0.037	-0.001	0.515	-13.990
		17:COMBINATI	-184.901	-6.214	0.001	-0.002	0.416	14.792
93	42	10:COMBINATI	136.859	0.133	-0.072	0.000	0.000	0.000
		11:COMBINATI	136.764	1.888	-0.067	0.000	0.000	0.000
		12:COMBINATI	199.699	0.194	-0.073	0.000	0.000	0.000
		13:COMBINATI	199.699	0.194	-0.073	0.000	0.000	0.000
		14:COMBINATI	149.005	1.723	-0.069	0.000	0.000	0.000
		15:COMBINATI	138.984	0.136	-0.084	0.000	0.000	0.000
		16:COMBINATI	138.840	2.768	-0.077	0.000	0.000	0.000
		17:COMBINATI	199.699	0.194	-0.073	0.000	0.000	0.000
	49	10:COMBINATI	-140.359	-0.133	0.072	0.000	0.510	0.942
		11:COMBINATI	-140.263	17.666	0.067	0.000	0.477	-55.895
		12:COMBINATI	-204.423	-0.194	0.073	0.000	0.515	1.374
		13:COMBINATI	-204.423	-0.194	0.073	0.000	0.515	1.374
		14:COMBINATI	-149.005	15.876	0.069	0.000	0.492	-50.139
		15:COMBINATI	-143.708	-0.136	0.084	0.000	0.596	0.960
		16:COMBINATI	-143.565	26.564	0.077	0.000	0.546	-84.295
		17:COMBINATI	-204.423	-0.194	0.073	0.000	0.515	1.374
125	58	10:COMBINATI	138.037	0.135	-0.058	0.000	0.000	0.000
		11:COMBINATI	137.806	1.890	-0.055	0.000	0.000	0.000
		12:COMBINATI	201.035	0.196	-0.058	0.000	0.000	0.000
		13:COMBINATI	201.035	0.196	-0.058	0.000	0.000	0.000
		14:COMBINATI	150.399	1.725	-0.057	0.000	0.000	0.000
		15:COMBINATI	140.228	0.138	-0.069	0.000	0.000	0.000
		16:COMBINATI	139.883	2.770	-0.063	0.000	0.000	0.000
		17:COMBINATI	201.035	0.196	-0.058	0.000	0.000	0.000
	65	10:COMBINATI	-141.536	-0.135	0.058	0.000	0.414	0.956
		11:COMBINATI	-141.306	17.665	0.055	0.000	0.389	-55.883
		12:COMBINATI	-205.759	-0.196	0.058	0.000	0.409	1.389
		13:COMBINATI	-205.759	-0.196	0.058	0.000	0.409	1.389
		14:COMBINATI	-150.399	15.874	0.057	0.000	0.400	-50.123
		15:COMBINATI	-144.953	-0.138	0.069	0.000	0.486	0.975

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		16:COMBINATI	-144.607	26.562	0.063	0.000	0.449	-84.283
		17:COMBINATI	-205.759	-0.196	0.058	0.000	0.409	1.389
157	74	10:COMBINATI	136.907	0.133	-0.045	0.000	0.000	0.000
		11:COMBINATI	136.951	1.888	-0.043	0.000	0.000	0.000
		12:COMBINATI	199.855	0.194	-0.043	0.000	0.000	0.000
		13:COMBINATI	199.855	0.194	-0.043	0.000	0.000	0.000
		14:COMBINATI	149.453	1.724	-0.044	0.000	0.000	0.000
		15:COMBINATI	138.931	0.135	-0.053	0.000	0.000	0.000
		16:COMBINATI	138.998	2.769	-0.050	0.000	0.000	0.000
		17:COMBINATI	199.855	0.194	-0.043	0.000	0.000	0.000
	81	10:COMBINATI	-140.406	-0.133	0.045	0.000	0.317	0.943
		11:COMBINATI	-140.451	17.666	0.043	0.000	0.301	-55.893
		12:COMBINATI	-204.580	-0.194	0.043	0.000	0.302	1.375
		13:COMBINATI	-204.580	-0.194	0.043	0.000	0.302	1.375
		14:COMBINATI	-149.453	15.876	0.044	0.000	0.309	-50.134
		15:COMBINATI	-143.656	-0.135	0.053	0.000	0.376	0.960
		16:COMBINATI	-143.723	26.563	0.050	0.000	0.352	-84.293
		17:COMBINATI	-204.580	-0.194	0.043	0.000	0.302	1.375
189	90	10:COMBINATI	120.365	0.106	-0.031	0.000	0.000	0.000
		11:COMBINATI	120.195	1.861	-0.030	0.000	0.000	0.000
		12:COMBINATI	175.396	0.154	-0.028	0.000	0.000	0.000
		13:COMBINATI	175.396	0.154	-0.028	0.000	0.000	0.000
		14:COMBINATI	131.592	1.694	-0.031	0.000	0.000	0.000
		15:COMBINATI	122.131	0.108	-0.038	0.000	0.000	0.000
		16:COMBINATI	121.875	2.741	-0.036	0.000	0.000	0.000
		17:COMBINATI	175.396	0.154	-0.028	0.000	0.000	0.000
	97	10:COMBINATI	-123.865	-0.106	0.031	0.000	0.221	0.752
		11:COMBINATI	-123.694	17.693	0.030	0.000	0.213	-56.086
		12:COMBINATI	-180.120	-0.154	0.028	0.000	0.196	1.094
		13:COMBINATI	-180.120	-0.154	0.028	0.000	0.196	1.094
		14:COMBINATI	-131.592	15.905	0.031	0.000	0.217	-50.340
		15:COMBINATI	-126.855	-0.108	0.038	0.000	0.266	0.766
		16:COMBINATI	-126.600	26.591	0.036	0.000	0.255	-84.491
		17:COMBINATI	-180.120	-0.154	0.028	0.000	0.196	1.094
196	99	10:COMBINATI	54.223	-0.137	-0.000	0.000	0.000	0.000
		11:COMBINATI	63.198	3.666	0.008	0.000	0.000	0.000
		12:COMBINATI	81.709	-0.203	0.005	0.000	0.000	0.000
		13:COMBINATI	81.709	-0.203	0.005	0.000	0.000	0.000
		14:COMBINATI	63.456	3.280	0.007	0.000	0.000	0.000
		15:COMBINATI	55.322	-0.140	-0.001	0.000	0.000	0.000
		16:COMBINATI	68.785	5.564	0.010	0.000	0.000	0.000
		17:COMBINATI	81.709	-0.203	0.005	0.000	0.000	0.000
	100	10:COMBINATI	-57.723	0.137	0.000	0.000	0.000	-0.969
		11:COMBINATI	-66.698	6.537	-0.008	0.000	-0.055	-10.171
		12:COMBINATI	-86.434	0.203	-0.005	0.000	-0.033	-1.441

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		13:COMBINATI	-86.434	0.203	-0.005	0.000	-0.033	-1.441
		14:COMBINATI	-63.456	5.902	-0.007	0.000	-0.051	-9.286
		15:COMBINATI	-60.047	0.140	0.001	0.000	0.011	-0.990
		16:COMBINATI	-73.510	9.740	-0.010	0.000	-0.072	-14.792
		17:COMBINATI	-86.434	0.203	-0.005	0.000	-0.033	-1.441
197	101	10:COMBINATI	45.839	0.135	-0.018	0.000	0.000	0.000
		11:COMBINATI	41.111	7.453	-0.018	0.000	0.000	0.000
		12:COMBINATI	73.411	0.202	-0.013	0.000	0.000	0.000
		13:COMBINATI	73.411	0.202	-0.013	0.000	0.000	0.000
		14:COMBINATI	42.591	6.726	-0.018	0.000	0.000	0.000
		15:COMBINATI	45.475	0.138	-0.022	0.000	0.000	0.000
		16:COMBINATI	38.383	11.114	-0.022	0.000	0.000	0.000
		17:COMBINATI	73.411	0.202	-0.013	0.000	0.000	0.000
	102	10:COMBINATI	-49.338	-0.135	0.018	0.000	0.124	0.957
		11:COMBINATI	-44.610	12.102	0.018	0.000	0.126	-16.469
		12:COMBINATI	-78.136	-0.202	0.013	0.000	0.090	1.429
		13:COMBINATI	-78.136	-0.202	0.013	0.000	0.090	1.429
		14:COMBINATI	-42.591	10.873	0.018	0.000	0.126	-14.691
		15:COMBINATI	-50.200	-0.138	0.022	0.000	0.156	0.975
		16:COMBINATI	-43.108	18.217	0.022	0.000	0.158	-25.162
		17:COMBINATI	-78.136	-0.202	0.013	0.000	0.090	1.429
198	99	10:COMBINATI	14.111	33.937	-0.092	0.000	0.000	-0.000
		11:COMBINATI	12.337	33.900	-0.090	0.000	0.000	-0.000
		12:COMBINATI	19.837	49.327	-0.132	0.000	0.000	-0.000
		13:COMBINATI	19.837	49.327	-0.132	0.000	0.000	-0.000
		14:COMBINATI	12.868	36.150	-0.093	0.000	0.000	-0.000
		15:COMBINATI	14.805	34.739	-0.095	0.000	0.000	-0.000
		16:COMBINATI	12.143	34.684	-0.093	0.000	0.000	-0.000
		17:COMBINATI	19.837	49.327	-0.132	0.000	0.000	-0.000
	110	10:COMBINATI	-1.707	36.435	0.092	-0.000	0.363	-4.929
		11:COMBINATI	0.068	36.472	0.090	-0.000	0.356	-5.073
		12:COMBINATI	-1.766	53.194	0.132	-0.000	0.521	-7.628
		13:COMBINATI	-1.766	53.194	0.132	-0.000	0.521	-7.628
		14:COMBINATI	0.383	39.027	0.093	-0.000	0.369	-5.674
		15:COMBINATI	-2.127	37.186	0.095	-0.000	0.377	-4.828
		16:COMBINATI	0.535	37.241	0.093	-0.000	0.366	-5.044
		17:COMBINATI	-1.766	53.194	0.132	-0.000	0.521	-7.628
199	104	10:COMBINATI	33.762	-17.404	-0.116	0.000	-0.000	-42.258
		11:COMBINATI	32.976	-17.629	-0.113	0.000	-0.000	-42.660
		12:COMBINATI	48.022	-25.954	-0.157	0.000	-0.000	-62.663
		13:COMBINATI	48.022	-25.954	-0.157	0.000	-0.000	-62.663
		14:COMBINATI	33.411	-17.611	-0.117	0.000	-0.000	-43.872
		15:COMBINATI	35.391	-17.940	-0.123	0.000	-0.000	-43.318
		16:COMBINATI	34.212	-18.276	-0.119	0.000	-0.000	-43.921
		17:COMBINATI	48.022	-25.954	-0.157	0.000	-0.000	-62.663

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
	105	10:COMBINATI	-41.744	62.689	0.116	-0.000	0.295	-59.407
		11:COMBINATI	-40.958	62.914	0.113	-0.000	0.287	-59.575
		12:COMBINATI	-59.651	91.926	0.157	-0.000	0.398	-86.965
		13:COMBINATI	-59.651	91.926	0.157	-0.000	0.398	-86.965
		14:COMBINATI	-41.938	65.988	0.117	-0.000	0.298	-62.241
		15:COMBINATI	-43.550	64.224	0.123	-0.000	0.313	-60.974
		16:COMBINATI	-42.371	64.561	0.119	-0.000	0.301	-61.226
		17:COMBINATI	-59.651	91.926	0.157	-0.000	0.398	-86.965
200	105	10:COMBINATI	-12.589	58.236	-0.076	-0.000	-0.295	59.407
		11:COMBINATI	-6.516	58.271	-0.082	-0.000	-0.287	59.575
		12:COMBINATI	-20.902	84.808	-0.124	-0.000	-0.398	86.965
		13:COMBINATI	-20.902	84.808	-0.124	-0.000	-0.398	86.965
		14:COMBINATI	-8.356	60.784	-0.083	-0.000	-0.298	62.241
		15:COMBINATI	-12.004	59.936	-0.075	-0.000	-0.313	60.974
		16:COMBINATI	-2.896	59.987	-0.084	-0.000	-0.301	61.226
		17:COMBINATI	-20.902	84.808	-0.124	-0.000	-0.398	86.965
	111	10:COMBINATI	9.029	-38.043	0.076	0.000	0.381	-4.913
		11:COMBINATI	2.957	-38.078	0.082	0.000	0.379	-5.042
		12:COMBINATI	15.717	-55.390	0.124	0.000	0.539	-7.614
		13:COMBINATI	15.717	-55.390	0.124	0.000	0.539	-7.614
		14:COMBINATI	4.554	-39.212	0.083	0.000	0.392	-5.644
		15:COMBINATI	8.367	-39.297	0.075	0.000	0.398	-4.809
		16:COMBINATI	-0.742	-39.349	0.084	0.000	0.396	-5.002
		17:COMBINATI	15.717	-55.390	0.124	0.000	0.539	-7.614
201	103	10:COMBINATI	41.514	62.702	0.109	0.000	-0.276	59.435
		11:COMBINATI	43.468	62.933	0.102	0.000	-0.260	59.622
		12:COMBINATI	59.424	91.940	0.149	0.000	-0.379	86.995
		13:COMBINATI	59.424	91.940	0.149	0.000	-0.379	86.995
		14:COMBINATI	44.170	66.007	0.107	0.000	-0.272	62.287
		15:COMBINATI	43.279	64.238	0.114	0.000	-0.291	61.007
		16:COMBINATI	46.210	64.585	0.105	0.000	-0.267	61.287
		17:COMBINATI	59.424	91.940	0.149	0.000	-0.379	86.995
	104	10:COMBINATI	-33.532	-17.419	-0.109	-0.000	0.000	42.258
		11:COMBINATI	-35.486	-17.651	-0.102	-0.000	0.000	42.660
		12:COMBINATI	-47.795	-25.971	-0.149	-0.000	0.000	62.663
		13:COMBINATI	-47.795	-25.971	-0.149	-0.000	0.000	62.663
		14:COMBINATI	-35.644	-17.633	-0.107	-0.000	0.000	43.872
		15:COMBINATI	-35.121	-17.957	-0.114	-0.000	0.000	43.318
		16:COMBINATI	-38.052	-18.304	-0.105	-0.000	0.000	43.921
		17:COMBINATI	-47.795	-25.971	-0.149	-0.000	0.000	62.663
202	106	10:COMBINATI	99.473	0.030	0.034	0.000	-0.272	0.240
		11:COMBINATI	100.652	0.017	0.042	0.000	-0.333	0.135
		12:COMBINATI	144.990	0.023	0.051	0.000	-0.404	0.181
		13:COMBINATI	144.990	0.023	0.051	0.000	-0.404	0.181
		14:COMBINATI	100.469	0.021	0.042	0.000	-0.337	0.164

Beam End Forces Cont...

Beam	Node	L/C	Axial	Shear		Torsion	Bending	
			Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		15:COMBINATI	103.547	0.037	0.035	0.000	-0.278	0.295
		16:COMBINATI	105.315	0.017	0.046	0.000	-0.370	0.137
		17:COMBINATI	144.990	0.023	0.051	0.000	-0.404	0.181
	103	10:COMBINATI	-95.538	-0.030	-0.034	0.000	0.000	0.000
		11:COMBINATI	-96.717	-0.017	-0.042	0.000	0.000	0.000
		12:COMBINATI	-139.678	-0.023	-0.051	0.000	0.000	0.000
		13:COMBINATI	-139.678	-0.023	-0.051	0.000	0.000	0.000
		14:COMBINATI	-100.469	-0.021	-0.042	0.000	0.000	0.000
		15:COMBINATI	-98.235	-0.037	-0.035	0.000	0.000	0.000
		16:COMBINATI	-100.003	-0.017	-0.046	0.000	0.000	0.000
		17:COMBINATI	-139.678	-0.023	-0.051	0.000	0.000	0.000
203	107	10:COMBINATI	99.376	0.039	-0.033	0.000	0.267	0.313
		11:COMBINATI	98.684	0.031	-0.026	0.000	0.211	0.243
		12:COMBINATI	144.892	0.032	-0.050	0.000	0.399	0.253
		13:COMBINATI	144.892	0.032	-0.050	0.000	0.399	0.253
		14:COMBINATI	98.687	0.034	-0.028	0.000	0.226	0.269
		15:COMBINATI	103.434	0.048	-0.034	0.000	0.272	0.380
		16:COMBINATI	102.397	0.035	-0.024	0.000	0.188	0.276
		17:COMBINATI	144.892	0.032	-0.050	0.000	0.399	0.253
	105	10:COMBINATI	-95.441	-0.039	0.033	0.000	0.000	0.000
		11:COMBINATI	-94.749	-0.031	0.026	0.000	0.000	0.000
		12:COMBINATI	-139.580	-0.032	0.050	0.000	0.000	0.000
		13:COMBINATI	-139.580	-0.032	0.050	0.000	0.000	0.000
		14:COMBINATI	-98.687	-0.034	0.028	0.000	0.000	0.000
		15:COMBINATI	-98.121	-0.048	0.034	0.000	0.000	0.000
		16:COMBINATI	-97.085	-0.035	0.024	0.000	0.000	0.000
		17:COMBINATI	-139.580	-0.032	0.050	0.000	0.000	0.000
212	110	10:COMBINATI	-9.898	-38.048	0.077	0.000	-0.363	4.929
		11:COMBINATI	-15.605	-38.086	0.084	0.000	-0.356	5.073
		12:COMBINATI	-16.577	-55.395	0.125	0.000	-0.521	7.628
		13:COMBINATI	-16.577	-55.395	0.125	0.000	-0.521	7.628
		14:COMBINATI	-16.038	-39.220	0.085	0.000	-0.369	5.674
		15:COMBINATI	-9.387	-39.303	0.076	0.000	-0.377	4.828
		16:COMBINATI	-17.947	-39.359	0.087	0.000	-0.366	5.044
		17:COMBINATI	-16.577	-55.395	0.125	0.000	-0.521	7.628
	103	10:COMBINATI	13.458	58.243	-0.077	-0.000	0.276	-59.435
		11:COMBINATI	19.165	58.281	-0.084	-0.000	0.260	-59.622
		12:COMBINATI	21.762	84.815	-0.125	-0.000	0.379	-86.995
		13:COMBINATI	21.762	84.815	-0.125	-0.000	0.379	-86.995
		14:COMBINATI	19.841	60.794	-0.085	-0.000	0.272	-62.287
		15:COMBINATI	13.025	59.944	-0.076	-0.000	0.291	-61.007
		16:COMBINATI	21.585	60.000	-0.087	-0.000	0.267	-61.287
		17:COMBINATI	21.762	84.815	-0.125	-0.000	0.379	-86.995
213	111	10:COMBINATI	1.285	36.431	0.097	0.000	-0.381	4.913
		11:COMBINATI	5.251	36.464	0.096	0.000	-0.379	5.042

Beam End Forces Cont...

			Axial	Shear		Torsion	Bending	
Beam	Node	L/C	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
		12:COMBINATI	1.350	53.190	0.137	0.000	-0.539	7.614
		13:COMBINATI	1.350	53.190	0.137	0.000	-0.539	7.614
		14:COMBINATI	4.354	39.019	0.099	0.000	-0.392	5.644
		15:COMBINATI	1.632	37.181	0.101	0.000	-0.398	4.809
		16:COMBINATI	7.580	37.230	0.100	0.000	-0.396	5.002
		17:COMBINATI	1.350	53.190	0.137	0.000	-0.539	7.614
	101	10:COMBINATI	-13.690	33.941	-0.097	-0.000	-0.000	-0.000
		11:COMBINATI	-17.655	33.908	-0.096	-0.000	-0.000	-0.000
		12:COMBINATI	-19.420	49.330	-0.137	-0.000	0.000	-0.000
		13:COMBINATI	-19.420	49.330	-0.137	-0.000	0.000	-0.000
		14:COMBINATI	-17.605	36.158	-0.099	-0.000	-0.000	-0.000
		15:COMBINATI	-14.310	34.743	-0.101	-0.000	-0.000	-0.000
		16:COMBINATI	-20.258	34.694	-0.100	-0.000	-0.000	-0.000
		17:COMBINATI	-19.420	49.330	-0.137	-0.000	0.000	-0.000

Beam Maximum Moments

Distances to maxima are given from beam end A.

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
3	1	3.945	10:COMBINATI	Max +ve			3.945	2.326
				Max -ve	3.945	-1.863	1.973	-16.584
			11:COMBINATI	Max +ve	3.945	0.096	3.945	2.627
				Max -ve	0.000	-0.000	1.973	-16.434
			12:COMBINATI	Max +ve	3.945	0.137	3.945	3.724
				Max -ve	0.000	-0.000	1.973	-23.950
			13:COMBINATI	Max +ve	3.945	0.137	3.945	3.724
				Max -ve	0.000	-0.000	1.973	-23.950
			14:COMBINATI	Max +ve	3.945	0.102	3.945	2.597
				Max -ve	0.000	-0.000	1.973	-17.238
			15:COMBINATI	Max +ve			3.945	2.323
				Max -ve	3.945	-2.840	1.973	-17.107
			16:COMBINATI	Max +ve	3.945	0.100	3.945	2.774
				Max -ve	0.000	-0.000	1.973	-16.882
			17:COMBINATI	Max +ve	3.945	0.137	3.945	3.724
				Max -ve	0.000	-0.000	1.973	-23.950
4	5	2.539	10:COMBINATI	Max +ve	2.539	3.559	2.539	26.579
				Max -ve	0.000	-0.011	0.000	-19.937
			11:COMBINATI	Max +ve	0.000	0.012	2.539	26.017
				Max -ve	2.539	-0.137	0.000	-20.493
			12:COMBINATI	Max +ve	0.000	0.019	2.539	39.057
				Max -ve	2.539	-0.184	0.000	-29.914
			13:COMBINATI	Max +ve	0.000	0.019	2.539	39.057
				Max -ve	2.539	-0.184	0.000	-29.914
			14:COMBINATI	Max +ve	0.000	0.013	2.539	26.607
				Max -ve	2.539	-0.147	0.000	-20.292
			15:COMBINATI	Max +ve	2.539	5.399	2.539	27.421
				Max -ve	0.000	-0.024	0.000	-20.537
			16:COMBINATI	Max +ve	0.000	0.012	2.539	26.579
				Max -ve	2.539	-0.144	0.000	-21.371
			17:COMBINATI	Max +ve	0.000	0.019	2.539	39.057
				Max -ve	2.539	-0.184	0.000	-29.914
5	8	1.132	10:COMBINATI	Max +ve	0.000	3.559	0.000	26.579
				Max -ve	1.132	-1.853		
			11:COMBINATI	Max +ve	1.132	0.108	0.000	26.017
				Max -ve	0.000	-0.137		
			12:COMBINATI	Max +ve	1.132	0.148	0.000	39.057
				Max -ve	0.000	-0.184		
			13:COMBINATI	Max +ve	1.132	0.148	0.000	39.057
				Max -ve	0.000	-0.184		
			14:COMBINATI	Max +ve	1.132	0.113	0.000	26.607
				Max -ve	0.000	-0.147		
			15:COMBINATI	Max +ve	0.000	5.399	0.000	27.421
				Max -ve	1.132	-2.828		
			16:COMBINATI	Max +ve	1.132	0.113	0.000	26.579

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	0.000	-0.144		
			17:COMBINATI	Max +ve	1.132	0.148	0.000	39.057
				Max -ve	0.000	-0.184		
6	9	2.538	10:COMBINATI	Max +ve	0.000	3.582	0.000	29.693
				Max -ve	2.538	-0.012	2.538	-19.937
			11:COMBINATI	Max +ve	2.538	0.013	0.000	30.079
				Max -ve	0.000	-0.111	2.538	-20.493
			12:COMBINATI	Max +ve	2.538	0.021	0.000	43.574
				Max -ve	0.000	-0.160	2.538	-29.914
			13:COMBINATI	Max +ve	2.538	0.021	0.000	43.574
				Max -ve	0.000	-0.160	2.538	-29.914
			14:COMBINATI	Max +ve	2.538	0.014	0.000	30.725
				Max -ve	0.000	-0.121	2.538	-20.292
			15:COMBINATI	Max +ve	0.000	5.427	0.000	30.627
				Max -ve	2.538	-0.025	2.538	-20.537
			16:COMBINATI	Max +ve	2.538	0.013	0.000	31.206
				Max -ve	0.000	-0.113	2.538	-21.371
			17:COMBINATI	Max +ve	2.538	0.021	0.000	43.574
				Max -ve	0.000	-0.160	2.538	-29.914
18	13	1.132	10:COMBINATI	Max +ve	1.132	3.582	1.132	29.693
				Max -ve	0.000	-1.863		
			11:COMBINATI	Max +ve	0.000	0.096	1.132	30.079
				Max -ve	1.132	-0.111		
			12:COMBINATI	Max +ve	0.000	0.137	1.132	43.574
				Max -ve	1.132	-0.160		
			13:COMBINATI	Max +ve	0.000	0.137	1.132	43.574
				Max -ve	1.132	-0.160		
			14:COMBINATI	Max +ve	0.000	0.102	1.132	30.725
				Max -ve	1.132	-0.121		
			15:COMBINATI	Max +ve	1.132	5.427	1.132	30.627
				Max -ve	0.000	-2.840		
			16:COMBINATI	Max +ve	0.000	0.100	1.132	31.206
				Max -ve	1.132	-0.113		
			17:COMBINATI	Max +ve	0.000	0.137	1.132	43.574
				Max -ve	1.132	-0.160		
19	14	3.945	10:COMBINATI	Max +ve	3.945	0.000	3.945	9.861
				Max -ve	0.000	-1.853	1.644	-11.916
			11:COMBINATI	Max +ve	0.000	0.108	3.945	12.270
				Max -ve	3.945	-0.001	1.644	-10.853
			12:COMBINATI	Max +ve	0.000	0.148	3.945	14.238
				Max -ve	3.945	-0.003	1.644	-17.183
			13:COMBINATI	Max +ve	0.000	0.148	3.945	14.238
				Max -ve	3.945	-0.003	1.644	-17.183
			14:COMBINATI	Max +ve	0.000	0.113	3.945	12.492
				Max -ve	3.945	-0.002	1.644	-11.541
			15:COMBINATI	Max +ve	3.945	0.001	3.945	10.174

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	0.000	-2.828	1.644	-12.295
			16:COMBINATI	Max +ve	0.000	0.113	3.945	13.788
				Max -ve	3.945	-0.001	1.644	-10.700
			17:COMBINATI	Max +ve	0.000	0.148	3.945	14.238
				Max -ve	3.945	-0.003	1.644	-17.183
198	99	3.945	10:COMBINATI	Max +ve	0.000	0.000	3.945	4.929
				Max -ve	3.945	-0.363	1.973	-32.238
			11:COMBINATI	Max +ve	0.000	0.000	3.945	5.073
				Max -ve	3.945	-0.356	1.973	-32.166
			12:COMBINATI	Max +ve	0.000	0.000	3.945	7.628
				Max -ve	3.945	-0.521	1.973	-46.742
			13:COMBINATI	Max +ve	0.000	0.000	3.945	7.628
				Max -ve	3.945	-0.521	1.973	-46.742
			14:COMBINATI	Max +ve	0.000	0.000	3.945	5.674
				Max -ve	3.945	-0.369	1.973	-34.235
			15:COMBINATI	Max +ve	0.000	0.000	3.945	4.828
				Max -ve	3.945	-0.377	1.973	-33.054
			16:COMBINATI	Max +ve	0.000	0.000	3.945	5.044
				Max -ve	3.945	-0.366	1.973	-32.946
			17:COMBINATI	Max +ve	0.000	0.000	3.945	7.628
				Max -ve	3.945	-0.521	1.973	-46.742
199	104	2.539	10:COMBINATI	Max +ve			2.539	59.407
				Max -ve	2.539	-0.295	0.000	-42.258
			11:COMBINATI	Max +ve			2.539	59.575
				Max -ve	2.539	-0.287	0.000	-42.660
			12:COMBINATI	Max +ve			2.539	86.965
				Max -ve	2.539	-0.398	0.000	-62.663
			13:COMBINATI	Max +ve			2.539	86.965
				Max -ve	2.539	-0.398	0.000	-62.663
			14:COMBINATI	Max +ve			2.539	62.241
				Max -ve	2.539	-0.298	0.000	-43.872
			15:COMBINATI	Max +ve			2.539	60.974
				Max -ve	2.539	-0.313	0.000	-43.318
			16:COMBINATI	Max +ve			2.539	61.226
				Max -ve	2.539	-0.301	0.000	-43.921
			17:COMBINATI	Max +ve			2.539	86.965
				Max -ve	2.539	-0.398	0.000	-62.663
200	105	1.132	10:COMBINATI	Max +ve			0.000	59.407
				Max -ve	1.132	-0.381		
			11:COMBINATI	Max +ve			0.000	59.575
				Max -ve	1.132	-0.379		
			12:COMBINATI	Max +ve			0.000	86.965
				Max -ve	1.132	-0.539		
			13:COMBINATI	Max +ve			0.000	86.965
				Max -ve	1.132	-0.539		
			14:COMBINATI	Max +ve			0.000	62.241

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	1.132	-0.392		
			15:COMBINATI	Max +ve			0.000	60.974
				Max -ve	1.132	-0.398		
			16:COMBINATI	Max +ve			0.000	61.226
				Max -ve	1.132	-0.396		
			17:COMBINATI	Max +ve			0.000	86.965
				Max -ve	1.132	-0.539		
201	103	2.538	10:COMBINATI	Max +ve			0.000	59.435
				Max -ve	0.000	-0.276	2.538	-42.258
			11:COMBINATI	Max +ve			0.000	59.622
				Max -ve	0.000	-0.260	2.538	-42.660
			12:COMBINATI	Max +ve			0.000	86.995
				Max -ve	0.000	-0.379	2.538	-62.663
			13:COMBINATI	Max +ve			0.000	86.995
				Max -ve	0.000	-0.379	2.538	-62.663
			14:COMBINATI	Max +ve			0.000	62.287
				Max -ve	0.000	-0.272	2.538	-43.872
			15:COMBINATI	Max +ve			0.000	61.007
				Max -ve	0.000	-0.291	2.538	-43.318
			16:COMBINATI	Max +ve			0.000	61.287
				Max -ve	0.000	-0.267	2.538	-43.921
			17:COMBINATI	Max +ve			0.000	86.995
				Max -ve	0.000	-0.379	2.538	-62.663
212	110	1.132	10:COMBINATI	Max +ve			1.132	59.435
				Max -ve	0.000	-0.363		
			11:COMBINATI	Max +ve			1.132	59.622
				Max -ve	0.000	-0.356		
			12:COMBINATI	Max +ve			1.132	86.995
				Max -ve	0.000	-0.521		
			13:COMBINATI	Max +ve			1.132	86.995
				Max -ve	0.000	-0.521		
			14:COMBINATI	Max +ve			1.132	62.287
				Max -ve	0.000	-0.369		
			15:COMBINATI	Max +ve			1.132	61.007
				Max -ve	0.000	-0.377		
			16:COMBINATI	Max +ve			1.132	61.287
				Max -ve	0.000	-0.366		
			17:COMBINATI	Max +ve			1.132	86.995
				Max -ve	0.000	-0.521		
213	111	3.945	10:COMBINATI	Max +ve	3.945	0.000	0.000	4.913
				Max -ve	0.000	-0.381	1.972	-32.246
			11:COMBINATI	Max +ve	3.945	0.000	0.000	5.042
				Max -ve	0.000	-0.379	1.972	-32.181
			12:COMBINATI	Max +ve			0.000	7.614
				Max -ve	0.000	-0.539	1.972	-46.748
			13:COMBINATI	Max +ve			0.000	7.614

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	0.000	-0.539	1.972	-46.748
			14:COMBINATI	Max +ve	3.945	0.000	0.000	5.644
				Max -ve	0.000	-0.392	1.972	-34.249
			15:COMBINATI	Max +ve	3.945	0.000	0.000	4.809
				Max -ve	0.000	-0.398	1.972	-33.063
			16:COMBINATI	Max +ve	3.945	0.000	0.000	5.002
				Max -ve	0.000	-0.396	1.972	-32.967
			17:COMBINATI	Max +ve			0.000	7.614
				Max -ve	0.000	-0.539	1.972	-46.748

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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1 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.130	16
		39.39 C	0.07	-7.62	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.017
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 0.0
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.002	6	-4.1	0.0	2.9	0.0	0.0
EC-6.3.1.1	0.066	16	39.4	4.9	0.0	-7.6	0.1
EC-6.2.9.1	0.110	15	18.2	0.1	7.3	-0.4	10.6
EC-6.3.3-661	0.057	16	39.4	4.9	0.0	-7.6	0.1
EC-6.3.3-662	0.130	16	39.4	4.9	0.0	-7.6	0.1
EC-6.2.6- (Z)	0.011	15	18.2	0.1	7.3	-0.4	10.6
EC-6.2.6- (Y)	0.012	16	39.4	4.9	0.0	-7.6	0.1
EC-6.3.2 LTB	0.066	16	39.4	4.9	0.0	-7.6	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.012	16	7.1	39.4	4.9	0.0	-7.6	0.1	0.0
EC-6.2.7(5)	0.032	15	7.1	18.2	0.1	7.3	-0.4	10.6	0.0
EC:6 - A.1	0.073	16	7.1	39.4	4.9	0.0	-7.6	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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2 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.188	12
		41.96 C	-0.01	14.24	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.018
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 3.543](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.003	7	-6.7	4.2	0.0	2.5	0.0
EC-6.3.1.1	0.078	12	46.7	-3.1	0.1	7.5	0.7
EC-6.2.9.1	0.117	15	34.3	-2.2	7.4	5.3	11.2
EC-6.3.3-661	0.082	12	42.0	3.1	-0.1	14.2	0.0
EC-6.3.3-662	0.188	12	42.0	3.1	-0.1	14.2	0.0
EC-6.2.6-(Z)	0.011	15	34.3	-2.2	7.4	5.3	11.2
EC-6.2.6-(Y)	0.020	16	20.4	8.4	-0.1	13.8	0.0
EC-6.3.2 LTB	0.123	12	42.0	3.1	-0.1	14.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.020	16	0.0	20.4	8.4	-0.1	13.8	0.0	0.0
EC-6.2.7(5)	0.049	15	7.1	34.3	-2.2	7.4	5.3	11.2	0.0
EC:6 - A.1	0.135	12	0.0	42.0	3.1	-0.1	14.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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3 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.235	12
		28.09 C	0.07	-23.95	1.97

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 394.50
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	394.501	394.501

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.015
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	47.6	79.2
Compression Capacity	1576.0	991.6
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 116.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 3.945
 Elastic Critical Moment for LTB, Mcr = 189.1
 Critical Load For Torsional Buckling, NcrT = 3277.0
 Critical Load For Torsional-Flexural Buckling, NcrTF = 3277.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 3.945
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.973](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.033	12	32.7	25.2	0.0	0.0	0.0
EC-6.2.9.1	0.157	12	28.1	-0.9	0.0	-24.0	0.1
EC-6.3.3-661	0.214	12	28.1	-0.9	0.0	-24.0	0.1
EC-6.3.3-662	0.235	12	28.1	-0.9	0.0	-24.0	0.1
EC-6.2.6-(Z)	0.001	15	26.8	17.9	-0.7	0.0	0.0
EC-6.2.6-(Y)	0.073	12	23.5	27.1	0.0	-3.7	-0.1
EC-6.3.2 LTB	0.207	12	28.1	-0.9	0.0	-24.0	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.073	12	3.9	23.5	27.1	0.0	-3.7	-0.1	0.0
EC-6.2.7(5)	0.036	12	2.0	28.1	-0.9	0.0	-24.0	0.1	0.0
EC:6 - A.1	0.214	12	2.0	28.1	-0.9	0.0	-24.0	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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4 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.322	12
		53.16 C	0.18	-39.06	2.54

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 253.86
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	253.864	253.864

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.028
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.6	50.9
Compression Capacity	1767.9	1423.1
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 135.7
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.539
 Elastic Critical Moment for LTB, Mcr = 353.7
 Critical Load For Torsional Buckling, NcrT = 5406.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5406.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.539
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.001	7	-2.5	0.4	0.0	0.2	0.0
EC-6.3.1.1	0.037	12	53.2	44.0	0.1	-39.1	0.2
EC-6.2.9.1	0.256	12	53.2	44.0	0.1	-39.1	0.2
EC-6.3.3-661	0.147	12	53.2	44.0	0.1	-39.1	0.2
EC-6.3.3-662	0.322	12	53.2	44.0	0.1	-39.1	0.2
EC-6.2.6-(Z)	0.004	15	36.5	-7.0	2.1	-20.5	0.0
EC-6.2.6-(Y)	0.119	12	53.2	44.0	0.1	-39.1	0.2
EC-6.3.2 LTB	0.288	12	53.2	44.0	0.1	-39.1	0.2

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.119	12	2.5	53.2	44.0	0.1	-39.1	0.2	0.0
EC-6.2.7(5)	0.123	12	2.5	53.2	44.0	0.1	-39.1	0.2	0.0
EC:6 - A.1	0.297	12	2.5	53.2	44.0	0.1	-39.1	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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5 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.265	12
		21.59 C	-0.18	39.06	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 113.20
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	113.198	113.198

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.011
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	13.7	22.7
Compression Capacity	1909.9	1804.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.132
 Elastic Critical Moment for LTB, Mcr = 1438.8
 Critical Load For Torsional Buckling, NcrT = 20054.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 20054.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.132
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.013	12	24.2	-24.0	-0.3	-3.4	-0.1
EC-6.2.9.1	0.256	12	21.6	39.0	0.3	39.1	-0.2
EC-6.3.3-661	0.164	12	21.6	39.0	0.3	39.1	-0.2
EC-6.3.3-662	0.246	12	21.6	39.0	0.3	39.1	-0.2
EC-6.2.6-(Z)	0.013	15	18.6	27.7	-7.3	27.4	5.4
EC-6.2.6-(Y)	0.105	12	21.6	39.0	0.3	39.1	-0.2
EC-6.3.2 LTB	0.256	12	21.6	39.0	0.3	39.1	-0.2

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.105	12	0.0	21.6	39.0	0.3	39.1	-0.2	0.0
EC-6.2.7(5)	0.107	12	0.0	21.6	39.0	0.3	39.1	-0.2	0.0
EC:6 - A.1	0.265	12	0.0	21.6	39.0	0.3	39.1	-0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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6 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.356	12
		56.43 C	-0.16	43.57	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 253.85
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	253.849	253.849

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.030
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.6	50.9
Compression Capacity	1767.9	1423.1
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 135.7
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.538
 Elastic Critical Moment for LTB, Mcr = 353.8
 Critical Load For Torsional Buckling, NcrT = 5407.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5407.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.538
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.040	12	56.4	45.8	0.1	43.6	-0.2
EC-6.2.9.1	0.286	12	56.4	45.8	0.1	43.6	-0.2
EC-6.3.3-661	0.162	12	56.4	45.8	0.1	43.6	-0.2
EC-6.3.3-662	0.356	12	56.4	45.8	0.1	43.6	-0.2
EC-6.2.6-(Z)	0.004	15	42.9	32.1	-2.1	30.6	5.4
EC-6.2.6-(Y)	0.124	12	56.4	45.8	0.1	43.6	-0.2
EC-6.3.2 LTB	0.321	12	56.4	45.8	0.1	43.6	-0.2

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.124	12	0.0	56.4	45.8	0.1	43.6	-0.2	0.0
EC-6.2.7(5)	0.147	12	0.0	56.4	45.8	0.1	43.6	-0.2	0.0
EC:6 - A.1	0.331	12	0.0	56.4	45.8	0.1	43.6	-0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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7 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.360	15
		49.99 C	-0.14	29.27	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 796.63
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	796.634	796.634

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.022
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	86.8	144.5
Compression Capacity	1172.3	492.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 106.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.966
 Elastic Critical Moment for LTB, Mcr = 121.0
 Critical Load For Torsional Buckling, NcrT = 2500.6
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2500.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.966
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.002	7	-5.7	0.0	0.0	0.0	-0.1
EC-6.3.1.1	0.137	12	67.5	0.3	0.0	2.5	-0.2
EC-6.2.9.1	0.145	15	50.0	16.8	0.0	29.3	-0.1
EC-6.3.3-661	0.161	15	50.0	16.8	0.0	29.3	-0.1
EC-6.3.3-662	0.360	15	50.0	16.8	0.0	29.3	-0.1
EC-6.2.6-(Y)	0.040	15	50.0	16.8	0.0	29.3	-0.1
EC-6.3.2 LTB	0.275	15	50.0	16.8	0.0	29.3	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.040	15	0.0	50.0	16.8	0.0	29.3	-0.1	0.0
EC-6.2.7(5)	0.036	15	0.0	50.0	16.8	0.0	29.3	-0.1	0.0
EC:6 - A.1	0.306	15	0.0	50.0	16.8	0.0	29.3	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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8 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.360	15
		48.64 C	0.11	29.70	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 796.63
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	796.631	796.631

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.021
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	86.8	144.5
Compression Capacity	1172.3	492.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 106.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.966
 Elastic Critical Moment for LTB, Mcr = 121.0
 Critical Load For Torsional Buckling, NcrT = 2500.6
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2500.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.966
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.135	12	66.4	0.4	0.0	2.9	0.2
EC-6.2.9.1	0.147	15	48.6	16.9	0.0	29.7	0.1
EC-6.3.3-661	0.159	15	48.6	16.9	0.0	29.7	0.1
EC-6.3.3-662	0.360	15	48.6	16.9	0.0	29.7	0.1
EC-6.2.6-(Y)	0.040	15	48.6	16.9	0.0	29.7	0.1
EC-6.3.2 LTB	0.279	15	48.6	16.9	0.0	29.7	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.040	15	0.0	48.6	16.9	0.0	29.7	0.1	0.0
EC-6.2.7(5)	0.036	15	0.0	48.6	16.9	0.0	29.7	0.1	0.0
EC:6 - A.1	0.310	15	0.0	48.6	16.9	0.0	29.7	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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9 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.042	16
		27.64 T	0.00	0.00	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 408.19
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	408.195	408.195

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.042
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	105.7	105.7
Compression Capacity	282.9	282.9
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.082
 Elastic Critical Moment for LTB, Mcr = 379.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.082
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.042	16	-27.6	0.2	0.0	0.0	0.0
EC-6.3.1.1	0.002	6	0.5	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.012	16	-27.0	0.3	0.0	-0.3	-0.1
EC-6.3.3-661	0.002	6	0.5	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.002	6	0.5	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	-21.1	0.3	0.0	-0.3	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	16	4.1	-27.0	0.3	0.0	-0.3	-0.1	0.0
EC-6.2.7(5)	0.003	16	4.1	-27.0	0.3	0.0	-0.3	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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10 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.170	16
		38.82 C	0.06	-0.28	4.43

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 442.73
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	442.735	442.735

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.058
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	114.6	114.6
Compression Capacity	247.2	247.2
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.427
 Elastic Critical Moment for LTB, Mcr = 350.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.427
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.001	6	-0.9	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.160	16	39.5	0.2	0.0	0.0	0.0
EC-6.2.9.1	0.012	12	38.1	0.3	0.0	-0.3	0.1
EC-6.3.3-661	0.164	16	38.8	0.3	0.0	-0.3	0.1
EC-6.3.3-662	0.170	16	38.8	0.3	0.0	-0.3	0.1
EC-6.2.6-(Y)	0.002	12	38.1	0.3	0.0	-0.3	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	15	4.4	26.2	0.3	0.0	-0.3	0.1	0.0
EC-6.2.7(5)	0.006	12	4.4	38.1	0.3	0.0	-0.3	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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11 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.171	12
		31.85 C	0.04	-0.30	4.98

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 497.80
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	497.800	497.800

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.048
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	128.9	128.9
Compression Capacity	201.5	201.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.978
 Elastic Critical Moment for LTB, Mcr = 312.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.978
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.012	7	-7.7	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.158	12	31.8	0.3	0.0	-0.3	0.0
EC-6.2.9.1	0.013	12	31.8	0.3	0.0	-0.3	0.0
EC-6.3.3-661	0.167	12	31.8	0.3	0.0	-0.3	0.0
EC-6.3.3-662	0.171	12	31.8	0.3	0.0	-0.3	0.0
EC-6.2.6-(Y)	0.002	12	31.8	0.3	0.0	-0.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	12	5.0	31.8	0.3	0.0	-0.3	0.0	0.0
EC-6.2.7(5)	0.004	12	5.0	31.8	0.3	0.0	-0.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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12 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.038	7
		8.84 C	0.01	0.00	4.59

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 458.97
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	458.973	458.973

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.013
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	118.8	118.8
Compression Capacity	232.4	232.4
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.590
 Elastic Critical Moment for LTB, Mcr = 338.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.590
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.016	12	-10.6	0.3	0.0	-0.3	0.0
EC-6.3.1.1	0.038	7	8.8	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.011	15	-6.5	0.3	0.0	-0.3	-0.1
EC-6.3.3-661	0.038	7	8.8	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.038	7	8.8	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	-10.6	0.3	0.0	-0.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	15	4.6	-6.5	0.3	0.0	-0.3	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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13 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.040	16
		26.59 T	0.06	0.26	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 458.97
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	458.969	458.969

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.040
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	118.8	118.8
Compression Capacity	232.4	232.4
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.590
 Elastic Critical Moment for LTB, Mcr = 338.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.590
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.040	16	-26.6	0.3	0.0	0.3	0.1
EC-6.3.1.1	0.002	6	0.5	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.011	16	-26.6	0.3	0.0	0.3	0.1
EC-6.3.3-661	0.002	6	0.5	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.003	6	0.5	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	-20.7	0.3	0.0	0.3	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	16	0.0	-26.6	0.3	0.0	0.3	0.1	0.0
EC-6.2.7(5)	0.003	16	0.0	-26.6	0.3	0.0	0.3	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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14 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.204	16
		38.41 C	-0.06	0.30	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 497.81
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	497.813	497.813

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.058
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	128.9	128.9
Compression Capacity	201.5	201.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.978
 Elastic Critical Moment for LTB, Mcr = 312.2

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.978
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.001	6	-0.9	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.191	16	38.4	0.3	0.0	0.3	-0.1
EC-6.2.9.1	0.013	12	37.7	0.3	0.0	0.3	-0.1
EC-6.3.3-661	0.200	16	38.4	0.3	0.0	0.3	-0.1
EC-6.3.3-662	0.204	16	38.4	0.3	0.0	0.3	-0.1
EC-6.2.6-(Y)	0.002	12	37.7	0.3	0.0	0.3	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	12	0.0	37.7	0.3	0.0	0.3	-0.1	0.0
EC-6.2.7(5)	0.006	12	0.0	37.7	0.3	0.0	0.3	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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15 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.143	12
		32.25 C	-0.04	0.28	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 442.74
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	442.737	442.737

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.049
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	114.6	114.6
Compression Capacity	247.2	247.2
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.427
 Elastic Critical Moment for LTB, Mcr = 350.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.427
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.012	7	-7.7	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.133	12	33.0	0.2	0.0	0.0	0.0
EC-6.2.9.1	0.012	16	12.0	0.3	0.0	0.3	0.0
EC-6.3.3-661	0.137	12	32.2	0.3	0.0	0.3	0.0
EC-6.3.3-662	0.143	12	32.2	0.3	0.0	0.3	0.0
EC-6.2.6-(Y)	0.002	12	32.2	0.3	0.0	0.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	16	0.0	12.0	0.3	0.0	0.3	0.0	0.0
EC-6.2.7(5)	0.004	12	0.0	32.2	0.3	0.0	0.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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16 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.032	7
		8.84 C	-0.01	0.00	0.00

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MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 408.19
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	408.190	408.190

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.013
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	105.7	105.7
Compression Capacity	282.9	282.9
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.082
 Elastic Critical Moment for LTB, Mcr = 379.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.082
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.018	12	-11.7	0.2	0.0	0.0	0.0
EC-6.3.1.1	0.031	7	8.8	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.011	12	-11.0	0.3	0.0	0.3	0.0
EC-6.3.3-661	0.031	7	8.8	0.0	0.0	0.0	0.0
EC-6.3.3-662	0.032	7	8.8	0.0	0.0	0.0	0.0
EC-6.2.6-(Y)	0.002	12	-11.0	0.3	0.0	0.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.002	12	0.0	-11.0	0.3	0.0	0.3	0.0	0.0
EC-6.2.7(5)	0.001	12	0.0	-11.0	0.3	0.0	0.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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18 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.295	12
		20.73 C	0.16	-43.57	1.13

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 113.21
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	113.212	113.212

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.011
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	13.7	22.7
Compression Capacity	1909.9	1804.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.132
 Elastic Critical Moment for LTB, Mcr = 1438.5
 Critical Load For Torsional Buckling, NcrT = 20050.5
 Critical Load For Torsional-Flexural Buckling, NcrTF = 20050.5

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.132
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.013	12	23.4	-27.7	-0.3	3.7	0.1
EC-6.2.9.1	0.286	12	20.7	42.7	0.3	-43.6	0.2
EC-6.3.3-661	0.182	12	20.7	42.7	0.3	-43.6	0.2
EC-6.3.3-662	0.272	12	20.7	42.7	0.3	-43.6	0.2
EC-6.2.6-(Z)	0.013	15	20.1	-19.7	7.3	2.3	-2.8
EC-6.2.6-(Y)	0.115	12	20.7	42.7	0.3	-43.6	0.2
EC-6.3.2 LTB	0.286	12	20.7	42.7	0.3	-43.6	0.2

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.115	12	1.1	20.7	42.7	0.3	-43.6	0.2	0.0
EC-6.2.7(5)	0.131	12	1.1	20.7	42.7	0.3	-43.6	0.2	0.0
EC:6 - A.1	0.295	12	1.1	20.7	42.7	0.3	-43.6	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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19 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.177	12
		28.18 C	0.09	-17.18	1.64

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 394.50
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	394.499	394.499

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.015
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	47.6	79.2
Compression Capacity	1576.0	991.7
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 116.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 3.945
 Elastic Critical Moment for LTB, Mcr = 189.1
 Critical Load For Torsional Buckling, NcrT = 3277.0
 Critical Load For Torsional-Flexural Buckling, NcrTF = 3277.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 3.945
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.034	12	33.6	28.9	0.0	-14.2	0.0
EC-6.2.9.1	0.113	12	28.2	1.6	0.0	-17.2	0.1
EC-6.3.3-661	0.154	12	28.2	1.6	0.0	-17.2	0.1
EC-6.3.3-662	0.177	12	28.2	1.6	0.0	-17.2	0.1
EC-6.2.6-(Z)	0.001	15	20.6	16.5	0.7	2.1	-2.8
EC-6.2.6-(Y)	0.078	12	33.6	28.9	0.0	-14.2	0.0
EC-6.3.2 LTB	0.148	12	28.2	1.6	0.0	-17.2	0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(1)	0.001	6	2.0	2.2	-0.1	0.5	-0.1	-1.0	0.0
EC-6.2.7(9)	0.078	12	3.9	33.6	28.9	0.0	-14.2	0.0	0.0
EC-6.2.7(5)	0.026	12	3.9	33.6	28.9	0.0	-14.2	0.0	0.0
EC:6 - A.1	0.154	12	1.6	28.2	1.6	0.0	-17.2	0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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22 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.606	12
		79.64 C	0.00	-0.87	3.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 600.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	600.000	600.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.120
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	155.3	155.3
Compression Capacity	143.5	143.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.000
 Elastic Critical Moment for LTB, Mcr = 259.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.555	12	79.6	0.6	0.0	0.0	0.0
EC-6.2.9.1	0.037	12	79.6	0.0	0.0	-0.9	0.0
EC-6.3.3-661	0.606	12	79.6	0.0	0.0	-0.9	0.0
EC-6.3.3-662	0.589	12	79.6	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	79.6	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	79.6	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.027	12	3.0	79.6	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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23 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.102	15
		9.29 C	0.00	-0.87	3.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 600.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	600.000	600.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.014
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	155.3	155.3
Compression Capacity	143.5	143.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.000
 Elastic Critical Moment for LTB, Mcr = 259.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.004	7	-2.8	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.065	15	9.3	0.6	0.0	0.0	0.0
EC-6.2.9.1	0.037	12	6.2	0.0	0.0	-0.9	0.0
EC-6.3.3-661	0.102	15	9.3	0.0	0.0	-0.9	0.0
EC-6.3.3-662	0.101	15	9.3	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	6.2	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	6.2	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.003	15	3.0	9.3	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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24 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.246	15
		29.40 C	0.00	-0.87	3.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 600.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	600.000	600.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.044
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	155.3	155.3
Compression Capacity	143.5	143.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.000
 Elastic Critical Moment for LTB, Mcr = 259.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.205	15	29.4	0.6	0.0	0.0	0.0
EC-6.2.9.1	0.037	12	28.3	0.0	0.0	-0.9	0.0
EC-6.3.3-661	0.246	15	29.4	0.0	0.0	-0.9	0.0
EC-6.3.3-662	0.241	15	29.4	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	28.3	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	28.3	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.008	15	3.0	29.4	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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25 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.3 (T)	0.211	12
		139.84 T	0.00	0.00	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 629.36
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	629.365	629.365

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.211
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	162.9	162.9
Compression Capacity	131.3	131.3
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.294
 Elastic Critical Moment for LTB, Mcr = 247.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.294
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.211	12	-139.8	0.6	0.0	0.0	0.0
EC-6.3.1.1	0.012	6	1.6	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.039	12	-139.7	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	-139.8	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	-139.8	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.066	12	3.1	-139.7	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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26 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.093	15
		8.02 C	0.00	-0.87	3.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 600.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	600.000	600.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.012
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	155.3	155.3
Compression Capacity	143.5	143.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.000
 Elastic Critical Moment for LTB, Mcr = 259.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.056	15	8.0	0.6	0.0	0.0	0.0
EC-6.2.9.1	0.037	12	-0.3	0.0	0.0	-0.9	0.0
EC-6.3.3-661	0.093	15	8.0	0.0	0.0	-0.9	0.0
EC-6.3.3-662	0.093	15	8.0	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	-0.3	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	-0.3	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.003	15	3.0	8.0	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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27 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.092	15
		7.98 C	0.00	-0.87	3.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 600.00
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	600.000	600.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.012
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	155.3	155.3
Compression Capacity	143.5	143.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 6.000
 Elastic Critical Moment for LTB, Mcr = 259.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 6.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.056	15	8.0	0.6	0.0	0.0	0.0
EC-6.2.9.1	0.037	12	-0.3	0.0	0.0	-0.9	0.0
EC-6.3.3-661	0.092	15	8.0	0.0	0.0	-0.9	0.0
EC-6.3.3-662	0.092	15	8.0	0.0	0.0	-0.9	0.0
EC-6.2.6-(Y)	0.003	12	-0.3	0.6	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.003	12	0.0	-0.3	0.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.003	15	3.0	8.0	0.0	0.0	-0.9	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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28 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.2.9.1	0.053	12
		33.96 T	0.00	-1.24	3.59

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 718.07
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	718.075	718.075

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.051
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	185.9	185.9
Compression Capacity	102.5	102.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.181
 Elastic Critical Moment for LTB, Mcr = 217.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.181
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.051	12	-34.0	0.7	0.0	0.0	0.0
EC-6.2.9.1	0.053	12	-34.0	0.0	0.0	-1.2	0.0
EC-6.2.6-(Y)	0.004	12	-33.9	0.7	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.004	12	0.0	-33.9	0.7	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.013	12	3.6	-34.0	0.0	0.0	-1.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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29 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.380	12
		34.10 C	0.00	-1.19	3.52

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 703.37
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	703.373	703.373

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.051
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	182.1	182.1
Compression Capacity	106.6	106.6
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.034
 Elastic Critical Moment for LTB, Mcr = 222.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.034
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.003	6	-1.7	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.320	12	34.2	0.7	0.0	0.0	0.0
EC-6.2.9.1	0.051	12	34.1	0.0	0.0	-1.2	0.0
EC-6.3.3-661	0.380	12	34.1	0.0	0.0	-1.2	0.0
EC-6.3.3-662	0.368	12	34.1	0.0	0.0	-1.2	0.0
EC-6.2.6-(Y)	0.004	12	34.2	0.7	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.004	12	0.0	34.2	0.7	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.012	12	3.5	34.1	0.0	0.0	-1.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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30 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-661	0.325	12
		28.44 C	0.00	-1.19	3.52

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 703.37
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	703.373	703.373

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.043
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	182.1	182.1
Compression Capacity	106.6	106.6
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.034
 Elastic Critical Moment for LTB, Mcr = 222.1

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.034
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.009	7	-6.3	0.0	0.0	0.0	0.0
EC-6.3.1.1	0.267	12	28.5	0.7	0.0	0.0	0.0
EC-6.2.9.1	0.051	12	28.4	0.0	0.0	-1.2	0.0
EC-6.3.3-661	0.325	12	28.4	0.0	0.0	-1.2	0.0
EC-6.3.3-662	0.316	12	28.4	0.0	0.0	-1.2	0.0
EC-6.2.6-(Y)	0.004	12	28.4	0.7	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.004	12	0.0	28.4	0.7	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.011	12	3.5	28.4	0.0	0.0	-1.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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31 ST	100X5SHS	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.1.1	0.063	7
		6.43 C	0.00	0.00	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 718.07
 Gross Area = 18.70 Net Area = 18.70

	z-axis	y-axis
Moment of inertia	279.000	279.000
Plastic modulus	66.400	66.400
Elastic modulus	55.800	55.800
Shear Area	9.350	9.350
Radius of gyration	3.863	3.863
Effective Length	718.075	718.075

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 663.85
 Axial force/Squash load : 0.010
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	185.9	185.9
Compression Capacity	102.5	102.5
Tension Capacity	663.9	663.9
Moment Capacity	23.6	23.6
Reduced Moment Capacity	23.6	23.6
Shear Capacity	191.6	191.6

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 23.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.181
 Elastic Critical Moment for LTB, Mcr = 217.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.181
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.043	12	-28.4	0.7	0.0	0.0	0.0
EC-6.3.1.1	0.063	7	6.4	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.053	12	-28.3	0.0	0.0	-1.2	0.0
EC-6.2.6-(Y)	0.004	12	-28.4	0.7	0.0	0.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.004	12	7.2	-28.3	0.7	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.011	12	3.6	-28.3	0.0	0.0	-1.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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58 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.510	12
		180.18 C	-0.41	29.23	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.079
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.1
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 3.543](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.309	12	184.9	-6.2	0.0	14.8	0.4
EC-6.2.9.1	0.145	12	180.2	6.2	0.0	29.2	-0.4
EC-6.3.3-661	0.250	12	180.2	6.2	0.0	29.2	-0.4
EC-6.3.3-662	0.510	12	180.2	6.2	0.0	29.2	-0.4
EC-6.2.6-(Y)	0.039	16	127.7	16.3	0.0	25.5	-0.3
EC-6.3.2 LTB	0.254	12	180.2	6.2	0.0	29.2	-0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.039	16	0.0	127.7	16.3	0.0	25.5	-0.3	0.0
EC-6.2.7(5)	0.060	12	0.0	180.2	6.2	0.0	29.2	-0.4	0.0
EC:6 - A.1	0.282	12	0.0	180.2	6.2	0.0	29.2	-0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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93 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.859	16
		143.56 C	0.55	-84.30	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.063
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.205](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.341	12	204.4	-0.2	0.1	1.4	0.5
EC-6.2.9.1	0.418	16	143.6	26.6	0.1	-84.3	0.5
EC-6.3.3-661	0.427	16	143.6	26.6	0.1	-84.3	0.5
EC-6.3.3-662	0.859	16	143.6	26.6	0.1	-84.3	0.5
EC-6.2.6-(Y)	0.063	16	143.6	26.6	0.1	-84.3	0.5
EC-6.3.2 LTB	0.731	16	143.6	26.6	0.1	-84.3	0.5

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.063	16	7.1	143.6	26.6	0.1	-84.3	0.5	0.0
EC-6.2.7(5)	0.283	16	7.1	143.6	26.6	0.1	-84.3	0.5	0.0
EC:6 - A.1	0.804	16	7.1	143.6	26.6	0.1	-84.3	0.5	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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125 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.859	16
		144.61 C	0.45	-84.28	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.063
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.344	12	205.8	-0.2	0.1	1.4	0.4
EC-6.2.9.1	0.418	16	144.6	26.6	0.1	-84.3	0.4
EC-6.3.3-661	0.427	16	144.6	26.6	0.1	-84.3	0.4
EC-6.3.3-662	0.859	16	144.6	26.6	0.1	-84.3	0.4
EC-6.2.5	0.282	7	0.0	17.8	0.0	-56.8	0.1
EC-6.2.6-(Y)	0.063	16	144.6	26.6	0.1	-84.3	0.4
EC-6.3.2 LTB	0.731	16	144.6	26.6	0.1	-84.3	0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.063	16	7.1	144.6	26.6	0.1	-84.3	0.4	0.0
EC-6.2.7(5)	0.282	16	7.1	144.6	26.6	0.1	-84.3	0.4	0.0
EC:6 - A.1	0.804	16	7.1	144.6	26.6	0.1	-84.3	0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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157 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.857	16
		143.72 C	0.35	-84.29	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.063
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.342	12	204.6	-0.2	0.0	1.4	0.3
EC-6.2.9.1	0.418	16	143.7	26.6	0.0	-84.3	0.4
EC-6.3.3-661	0.426	16	143.7	26.6	0.0	-84.3	0.4
EC-6.3.3-662	0.857	16	143.7	26.6	0.0	-84.3	0.4
EC-6.2.6-(Y)	0.063	16	143.7	26.6	0.0	-84.3	0.4
EC-6.3.2 LTB	0.731	16	143.7	26.6	0.0	-84.3	0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.063	16	7.1	143.7	26.6	0.0	-84.3	0.4	0.0
EC-6.2.7(5)	0.281	16	7.1	143.7	26.6	0.0	-84.3	0.4	0.0
EC:6 - A.1	0.803	16	7.1	143.7	26.6	0.0	-84.3	0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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189 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.843	16
		126.60 C	0.26	-84.49	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.055
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.301	12	180.1	-0.2	0.0	1.1	0.2
EC-6.2.9.1	0.419	16	126.6	26.6	0.0	-84.5	0.3
EC-6.3.3-661	0.410	16	126.6	26.6	0.0	-84.5	0.3
EC-6.3.3-662	0.843	16	126.6	26.6	0.0	-84.5	0.3
EC-6.2.5	0.282	7	0.0	17.8	0.0	-56.8	0.1
EC-6.2.6-(Y)	0.063	16	126.6	26.6	0.0	-84.5	0.3
EC-6.3.2 LTB	0.733	16	126.6	26.6	0.0	-84.5	0.3

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.063	16	7.1	126.6	26.6	0.0	-84.5	0.3	0.0
EC-6.2.7(5)	0.274	16	7.1	126.6	26.6	0.0	-84.5	0.3	0.0
EC:6 - A.1	0.804	16	7.1	126.6	26.6	0.0	-84.5	0.3	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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196 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.243	16
		73.51 C	-0.07	-14.79	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.032
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.144	12	86.4	0.2	0.0	-1.4	0.0
EC-6.2.9.1	0.073	16	73.5	9.7	0.0	-14.8	-0.1
EC-6.3.3-661	0.113	16	73.5	9.7	0.0	-14.8	-0.1
EC-6.3.3-662	0.243	16	73.5	9.7	0.0	-14.8	-0.1
EC-6.2.6-(Y)	0.023	16	73.5	9.7	0.0	-14.8	-0.1
EC-6.3.2 LTB	0.128	16	73.5	9.7	0.0	-14.8	-0.1

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.023	16	7.1	73.5	9.7	0.0	-14.8	-0.1	0.0
EC-6.2.7(5)	0.014	16	7.1	73.5	9.7	0.0	-14.8	-0.1	0.0
EC:6 - A.1	0.141	16	7.1	73.5	9.7	0.0	-14.8	-0.1	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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197 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.286	16
		43.11 C	0.16	-25.16	7.09

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 708.50
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	708.500	708.500

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.019
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	77.2	128.5
Compression Capacity	1346.9	598.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 115.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.085
 Elastic Critical Moment for LTB, Mcr = 137.1
 Critical Load For Torsional Buckling, NcrT = 2642.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2642.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.085
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 9.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 9.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.004	7	-9.5	7.3	0.0	0.0	0.0
EC-6.3.1.1	0.131	12	78.1	-0.2	0.0	1.4	0.1
EC-6.2.9.1	0.125	16	43.1	18.2	0.0	-25.2	0.2
EC-6.3.3-661	0.150	16	43.1	18.2	0.0	-25.2	0.2
EC-6.3.3-662	0.286	16	43.1	18.2	0.0	-25.2	0.2
EC-6.2.6-(Y)	0.043	16	43.1	18.2	0.0	-25.2	0.2
EC-6.3.2 LTB	0.218	16	43.1	18.2	0.0	-25.2	0.2

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.043	16	7.1	43.1	18.2	0.0	-25.2	0.2	0.0
EC-6.2.7(5)	0.028	16	7.1	43.1	18.2	0.0	-25.2	0.2	0.0
EC:6 - A.1	0.240	16	7.1	43.1	18.2	0.0	-25.2	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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198 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.419	12
		10.80 C	-0.26	-46.74	1.97

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 394.50
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	394.501	394.501

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.006
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	47.6	79.2
Compression Capacity	1576.0	991.6
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 116.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 3.945
 Elastic Critical Moment for LTB, Mcr = 189.1
 Critical Load For Torsional Buckling, NcrT = 3277.0
 Critical Load For Torsional-Flexural Buckling, NcrTF = 3277.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 3.945
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.973](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.020	12	19.8	49.3	-0.1	0.0	0.0
EC-6.2.9.1	0.307	12	10.8	-1.9	-0.1	-46.7	-0.3
EC-6.3.3-661	0.389	12	10.8	-1.9	-0.1	-46.7	-0.3
EC-6.3.3-662	0.416	12	10.8	-1.9	-0.1	-46.7	-0.3
EC-6.2.5	0.006	4	0.0	7.2	0.0	-0.9	0.1
EC-6.2.6-(Y)	0.144	12	1.8	53.2	0.1	-7.6	0.5
EC-6.3.2 LTB	0.403	12	10.8	-1.9	-0.1	-46.7	-0.3

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.144	12	3.9	1.8	53.2	0.1	-7.6	0.5	0.0
EC-6.2.7(5)	0.122	12	2.0	10.8	-1.9	-0.1	-46.7	-0.3	0.0
EC:6 - A.1	0.419	12	2.0	10.8	-1.9	-0.1	-46.7	-0.3	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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199 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.674	12
		59.65 C	0.40	-86.97	2.54

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 253.86
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	253.864	253.864

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.031
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.6	50.9
Compression Capacity	1767.9	1423.1
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 135.7
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.539
 Elastic Critical Moment for LTB, Mcr = 353.7
 Critical Load For Torsional Buckling, NcrT = 5406.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5406.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.539
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.042	12	59.7	91.9	0.2	-87.0	0.4
EC-6.2.9.1	0.571	12	59.7	91.9	0.2	-87.0	0.4
EC-6.3.3-661	0.294	12	59.7	91.9	0.2	-87.0	0.4
EC-6.3.3-662	0.674	12	59.7	91.9	0.2	-87.0	0.4
EC-6.2.6-(Y)	0.248	12	59.7	91.9	0.2	-87.0	0.4
EC-6.3.2 LTB	0.641	12	59.7	91.9	0.2	-87.0	0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.248	12	2.5	59.7	91.9	0.2	-87.0	0.4	0.0
EC-6.2.7(5)	0.551	12	2.5	59.7	91.9	0.2	-87.0	0.4	0.0
EC:6 - A.1	0.662	12	2.5	59.7	91.9	0.2	-87.0	0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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200 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.593	12
		20.90 T	-0.40	86.97	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 113.20
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	113.198	113.198

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.011
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	13.7	22.7
Compression Capacity	1909.9	1804.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.132
 Elastic Critical Moment for LTB, Mcr = 1438.8
 Critical Load For Torsional Buckling, NcrT = 20054.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 20054.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.132
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.011	12	-20.9	84.8	-0.1	87.0	-0.4
EC-6.3.1.1	0.004	7	7.8	0.0	0.0	-0.2	0.0
EC-6.2.9.1	0.571	12	-20.9	84.8	-0.1	87.0	-0.4
EC-6.3.3-661	0.053	16	0.1	42.8	-0.1	12.8	-0.4
EC-6.3.3-662	0.081	16	0.1	42.8	-0.1	12.8	-0.4
EC-6.2.6-(Y)	0.229	12	-20.9	84.8	-0.1	87.0	-0.4
EC-6.3.2 LTB	0.571	12	-20.9	84.8	-0.1	87.0	-0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.229	12	0.0	-20.9	84.8	-0.1	87.0	-0.4	0.0
EC-6.2.7(5)	0.508	12	0.0	-20.9	84.8	-0.1	87.0	-0.4	0.0
EC:6 - A.1	0.593	12	0.0	-20.9	84.8	-0.1	87.0	-0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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201 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.674	12
		59.42 C	-0.38	86.99	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 253.85
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	253.849	253.849

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.031
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.6	50.9
Compression Capacity	1767.9	1423.1
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 135.7
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.538
 Elastic Critical Moment for LTB, Mcr = 353.8
 Critical Load For Torsional Buckling, NcrT = 5407.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5407.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.538
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.042	12	59.4	91.9	0.1	87.0	-0.4
EC-6.2.9.1	0.571	12	59.4	91.9	0.1	87.0	-0.4
EC-6.3.3-661	0.294	12	59.4	91.9	0.1	87.0	-0.4
EC-6.3.3-662	0.674	12	59.4	91.9	0.1	87.0	-0.4
EC-6.2.6-(Y)	0.249	12	59.4	91.9	0.1	87.0	-0.4
EC-6.3.2 LTB	0.641	12	59.4	91.9	0.1	87.0	-0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.249	12	0.0	59.4	91.9	0.1	87.0	-0.4	0.0
EC-6.2.7(5)	0.551	12	0.0	59.4	91.9	0.1	87.0	-0.4	0.0
EC:6 - A.1	0.662	12	0.0	59.4	91.9	0.1	87.0	-0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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202 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.299	12
		144.99 C	-0.40	0.18	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 796.63
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	796.634	796.634

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.064
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	86.8	144.5
Compression Capacity	1172.3	492.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 106.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.966
 Elastic Critical Moment for LTB, Mcr = 121.0
 Critical Load For Torsional Buckling, NcrT = 2500.6
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2500.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.966
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.294	12	145.0	0.0	0.1	0.2	-0.4
EC-6.2.9.1	0.004	12	145.0	0.0	0.1	0.2	-0.4
EC-6.3.3-661	0.127	12	145.0	0.0	0.1	0.2	-0.4
EC-6.3.3-662	0.299	12	145.0	0.0	0.1	0.2	-0.4
EC-6.3.2 LTB	0.003	15	103.5	0.0	0.0	0.3	-0.3

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(5)	0.005	12	0.0	145.0	0.0	0.1	0.2	-0.4	0.0
EC:6 - A.1	0.005	15	0.0	103.5	0.0	0.0	0.3	-0.3	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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203 ST	HE220A	(EUROPEAN SECTIONS)			
		PASS	EC-6.3.3-662	0.300	12
		144.89 C	0.40	0.25	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 796.63
 Gross Area = 64.30 Net Area = 64.30

	z-axis	y-axis
Moment of inertia	5410.000	1955.000
Plastic modulus	568.000	271.000
Elastic modulus	515.238	177.727
Shear Area	32.266	20.630
Radius of gyration	9.173	5.514
Effective Length	796.631	796.631

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 2282.65
 Axial force/Squash load : 0.063
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	86.8	144.5
Compression Capacity	1172.3	492.7
Tension Capacity	2282.7	2282.7
Moment Capacity	201.6	96.2
Reduced Moment Capacity	201.6	96.2
Shear Capacity	661.3	422.8

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 106.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 7.966
 Elastic Critical Moment for LTB, Mcr = 121.0
 Critical Load For Torsional Buckling, NcrT = 2500.6
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2500.6

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 7.966
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.269](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.294	12	144.9	0.0	-0.1	0.3	0.4
EC-6.2.9.1	0.004	12	144.9	0.0	-0.1	0.3	0.4
EC-6.3.3-661	0.127	12	144.9	0.0	-0.1	0.3	0.4
EC-6.3.3-662	0.300	12	144.9	0.0	-0.1	0.3	0.4
EC-6.3.2 LTB	0.004	15	103.4	0.0	0.0	0.4	0.3

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(5)	0.005	12	0.0	144.9	0.0	-0.1	0.3	0.4	0.0
EC:6 - A.1	0.006	15	0.0	103.4	0.0	0.0	0.4	0.3	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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212 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.593	12
		21.76 T	0.38	-86.99	1.13

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 113.21
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	113.212	113.212

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.011
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	13.7	22.7
Compression Capacity	1909.9	1804.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.132
 Elastic Critical Moment for LTB, Mcr = 1438.5
 Critical Load For Torsional Buckling, NcrT = 20050.5
 Critical Load For Torsional-Flexural Buckling, NcrTF = 20050.5

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.132
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.011	12	-21.8	84.8	-0.1	-87.0	0.4
EC-6.2.9.1	0.571	12	-21.8	84.8	-0.1	-87.0	0.4
EC-6.3.3-661	0.003	6	1.5	-0.1	0.0	0.4	0.0
EC-6.3.3-662	0.003	6	1.5	-0.1	0.0	0.4	0.0
EC-6.2.6-(Y)	0.229	12	-21.8	84.8	-0.1	-87.0	0.4
EC-6.3.2 LTB	0.571	12	-21.8	84.8	-0.1	-87.0	0.4

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.229	12	1.1	-21.8	84.8	-0.1	-87.0	0.4	0.0
EC-6.2.7(5)	0.508	12	1.1	-21.8	84.8	-0.1	-87.0	0.4	0.0
EC:6 - A.1	0.593	12	1.1	-21.8	84.8	-0.1	-87.0	0.4	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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213 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.420	12
		10.38 C	-0.27	-46.75	1.97

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 394.50
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	394.499	394.499

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.005
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	47.6	79.2
Compression Capacity	1576.0	991.7
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 116.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 3.945
 Elastic Critical Moment for LTB, Mcr = 189.1
 Critical Load For Torsional Buckling, NcrT = 3277.0
 Critical Load For Torsional-Flexural Buckling, NcrTF = 3277.0

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 3.945
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.972](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 4.3
 Warping Torsion Capacity = 23.7
 Total Torsion Capacity = 28.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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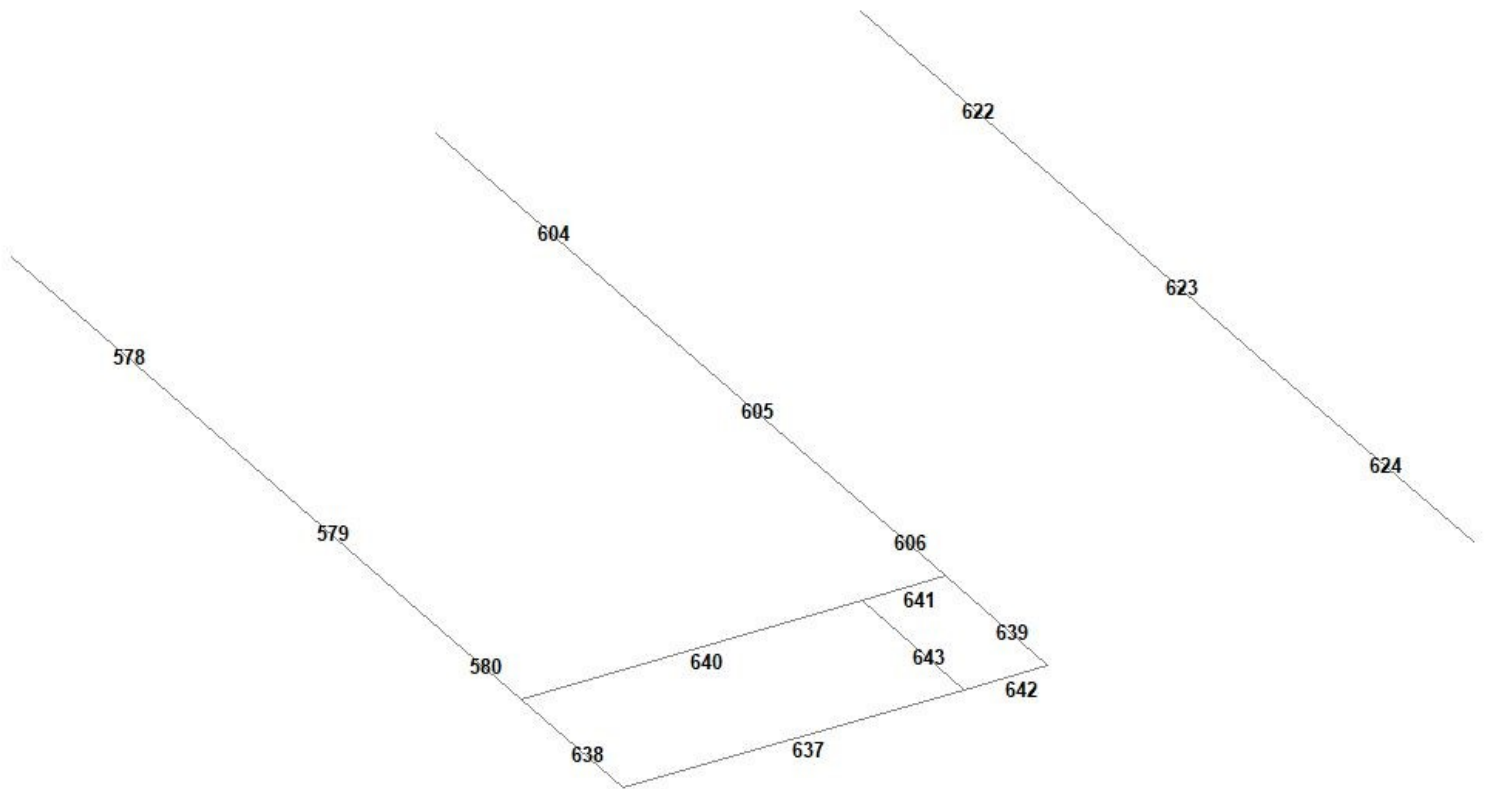
CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.020	16	20.3	34.7	-0.1	0.0	0.0
EC-6.2.9.1	0.307	12	10.4	1.9	0.1	-46.7	-0.3
EC-6.3.3-661	0.389	12	10.4	1.9	0.1	-46.7	-0.3
EC-6.3.3-662	0.415	12	10.4	1.9	0.1	-46.7	-0.3
EC-6.2.5	0.005	5	0.1	4.8	0.0	0.7	0.0
EC-6.2.6-(Y)	0.144	12	1.3	53.2	0.1	7.6	-0.5
EC-6.3.2 LTB	0.403	12	10.4	1.9	0.1	-46.7	-0.3

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.144	12	0.0	1.3	53.2	0.1	7.6	-0.5	0.0
EC-6.2.7(5)	0.122	12	2.0	10.4	1.9	0.1	-46.7	-0.3	0.0
EC:6 - A.1	0.420	12	2.0	10.4	1.9	0.1	-46.7	-0.3	0.0

PĀRSEGUMA SIJU APRĒĶINA REZULTĀTI



Beam Maximum Moments

Distances to maxima are given from beam end A.

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
578	287	5.000	10:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-66.917
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-66.917
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-65.025
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-28.125
			15:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.151
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
579	294	5.000	10:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-66.916
			11:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-66.916
			12:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-65.024
			13:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.149
			14:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-28.125
			15:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.149
			16:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.149
			17:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.149
580	296	2.490	10:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.156	2.490	-63.312
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.002	2.490	-63.312
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.003	2.490	-62.196
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.003	2.490	-88.057
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.002	2.490	-25.861
			15:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.233	2.490	-88.057
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.002	2.490	-88.057
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.490	-0.003	2.490	-88.057
604	305	5.000	10:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-133.436

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
			11:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-133.436
			12:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-129.513
			13:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.763
			14:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-56.250
			15:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-185.763
			16:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.763
			17:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.763
605	312	5.000	10:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-133.434
			11:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-133.434
			12:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-129.511
			13:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.760
			14:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-56.250
			15:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.760
			16:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.760
			17:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-185.760
606	314	2.490	10:COMBINAT	Max +ve	2.490	0.156	0.000	0.000
				Max -ve	0.000	0.000	2.282	-115.005
			11:COMBINAT	Max +ve	2.490	0.002	0.000	0.000
				Max -ve	0.000	0.000	2.282	-115.005
			12:COMBINAT	Max +ve	2.490	0.003	0.000	0.000
				Max -ve	0.000	0.000	2.282	-112.466
			13:COMBINAT	Max +ve	2.490	0.003	0.000	0.000
				Max -ve	0.000	0.000	2.282	-160.011
			14:COMBINAT	Max +ve	2.490	0.002	0.000	0.000
				Max -ve	0.000	0.000	2.282	-47.546
			15:COMBINAT	Max +ve	2.490	0.233	0.000	0.000
				Max -ve	0.000	0.000	2.282	-160.011
			16:COMBINAT	Max +ve	2.490	0.002	0.000	0.000
				Max -ve	0.000	0.000	2.282	-160.011
			17:COMBINAT	Max +ve	2.490	0.003	0.000	0.000
				Max -ve	0.000	0.000	2.282	-160.011
622	329	5.000	10:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-66.917
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-66.917
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	4.583	-0.000	2.500	-65.025
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-28.125
			15:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.151
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.151
623	328	5.000	10:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-66.916
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-66.916
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-65.024
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.149
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-28.125
			15:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.149
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.149
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.149
624	327	5.000	10:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-66.917
			11:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-66.917
			12:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-65.025
			13:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.150
			14:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-28.125
			15:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.583	-0.000	2.500	-93.150
			16:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.150
			17:COMBINAT	Max +ve	4.583	0.000	0.000	0.000
				Max -ve	0.000	0.000	2.500	-93.150
637	289	4.810	10:COMBINAT	Max +ve	4.810	0.001	0.000	0.000
				Max -ve	0.000	0.000	4.810	-6.706
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.008	4.810	-6.706
			12:COMBINAT	Max +ve	4.810	0.002	0.000	0.000
				Max -ve	0.000	0.000	4.810	-7.114
			13:COMBINAT	Max +ve	4.810	0.002	0.000	0.000
				Max -ve	0.000	0.000	4.810	-9.269

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.007	4.810	-2.155
			15:COMBINAT	Max +ve	4.810	0.001	0.000	0.000
				Max -ve	0.000	0.000	4.810	-9.269
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.013	4.810	-9.269
			17:COMBINAT	Max +ve	4.810	0.002	0.000	0.000
				Max -ve	0.000	0.000	4.810	-9.269
638	334	2.510	10:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.156	0.000	-63.312
			11:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.002	0.000	-63.312
			12:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.003	0.000	-62.196
			13:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.003	0.000	-88.057
			14:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.002	0.000	-25.861
			15:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.233	0.000	-88.057
			16:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.002	0.000	-88.057
			17:COMBINAT	Max +ve	2.510	-0.000	2.510	-0.000
				Max -ve	0.000	-0.003	0.000	-88.057
639	335	2.510	10:COMBINAT	Max +ve	0.000	0.156	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-114.429
			11:COMBINAT	Max +ve	0.000	0.002	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-114.429
			12:COMBINAT	Max +ve	0.000	0.003	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-111.983
			13:COMBINAT	Max +ve	0.000	0.003	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-159.201
			14:COMBINAT	Max +ve	0.000	0.002	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-47.218
			15:COMBINAT	Max +ve	0.000	0.233	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-159.201
			16:COMBINAT	Max +ve	0.000	0.002	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-159.201
			17:COMBINAT	Max +ve	0.000	0.003	2.510	-0.000
				Max -ve	2.510	-0.000	0.000	-159.201
640	334	4.810	10:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.001	4.810	-6.706
			11:COMBINAT	Max +ve	4.810	0.008	0.000	0.000
				Max -ve	0.000	0.000	4.810	-6.706
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.002	4.810	-7.114
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.002	4.810	-9.269
			14:COMBINAT	Max +ve	4.810	0.007	0.000	0.000
				Max -ve	0.000	0.000	4.810	-2.155
			15:COMBINAT	Max +ve	0.000	0.000	0.000	0.000

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
				Max -ve	4.810	-0.001	4.810	-9.269
			16:COMBINAT	Max +ve	4.810	0.013	0.000	0.000
				Max -ve	0.000	0.000	4.810	-9.269
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	4.810	-0.002	4.810	-9.269
641	336	1.190	10:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.001	0.000	-6.706
			11:COMBINAT	Max +ve	0.000	0.008	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-6.706
			12:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.002	0.000	-7.114
			13:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.002	0.000	-9.269
			14:COMBINAT	Max +ve	0.000	0.007	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-2.155
			15:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.001	0.000	-9.269
			16:COMBINAT	Max +ve	0.000	0.013	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-9.269
			17:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.002	0.000	-9.269
642	337	1.190	10:COMBINAT	Max +ve	0.000	0.001	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-6.706
			11:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.008	0.000	-6.706
			12:COMBINAT	Max +ve	0.000	0.002	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-7.114
			13:COMBINAT	Max +ve	0.000	0.002	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-9.269
			14:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.007	0.000	-2.155
			15:COMBINAT	Max +ve	0.000	0.001	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-9.269
			16:COMBINAT	Max +ve	1.190	-0.000	1.190	-0.000
				Max -ve	0.000	-0.013	0.000	-9.269
			17:COMBINAT	Max +ve	0.000	0.002	1.190	-0.000
				Max -ve	1.190	-0.000	0.000	-9.269
643	336	2.510	10:COMBINAT	Max +ve	2.301	0.000	0.000	0.000
				Max -ve	0.000	0.000	1.255	-3.633
			11:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-3.633
			12:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-3.629
			13:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-5.046
			14:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-1.418
			15:COMBINAT	Max +ve	2.301	0.000	0.000	0.000
				Max -ve	0.000	0.000	1.255	-5.046
			16:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-5.046

Beam Maximum Moments Cont...

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
			17:COMBINAT	Max +ve	0.000	0.000	0.000	0.000
				Max -ve	2.301	-0.000	1.255	-5.046

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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578 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.957	13
		2.62 T	0.00	-93.15	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	500.002	500.002

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.001
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	60.4	100.3
Compression Capacity	1395.3	731.9
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 103.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 141.4
 Critical Load For Torsional Buckling, NcrT = 2708.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2708.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.005	16	-9.1	74.5	0.0	0.0	0.0
EC-6.2.9.1	0.612	13	-2.6	0.0	0.0	-93.2	0.0
EC-6.2.6-(Y)	0.201	13	-2.6	74.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.904	13	-2.6	0.0	0.0	-93.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.201	13	0.0	-2.6	74.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.462	16	2.5	-9.1	0.0	0.0	-93.2	0.0	0.0
EC:6 - A.1	0.957	16	2.5	-9.1	0.0	0.0	-93.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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579 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.957	13
		3.90 T	0.00	-93.15	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	499.998	499.998

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.002
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	60.4	100.3
Compression Capacity	1395.3	732.0
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 103.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 141.4
 Critical Load For Torsional Buckling, NcrT = 2708.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2708.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.002	12	-3.9	52.0	0.0	0.0	0.0
EC-6.3.1.1	0.003	7	2.2	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.612	13	-3.9	0.0	0.0	-93.1	0.0
EC-6.3.3-661	0.860	16	0.8	0.0	0.0	-93.1	0.0
EC-6.3.3-662	0.905	16	0.8	0.0	0.0	-93.1	0.0
EC-6.2.6-(Y)	0.201	13	-3.9	74.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.904	13	-3.9	0.0	0.0	-93.1	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.201	16	0.0	0.8	74.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.459	13	2.5	-3.9	0.0	0.0	-93.1	0.0	0.0
EC:6 - A.1	0.957	13	2.5	-3.9	0.0	0.0	-93.1	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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580 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.665	15
		1.70 T	0.23	88.06	2.49

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 249.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	249.000	249.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.001
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.1	50.0
Compression Capacity	1773.7	1438.0
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 136.4
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.490
 Elastic Critical Moment for LTB, Mcr = 364.5
 Critical Load For Torsional Buckling, NcrT = 5550.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5550.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.490
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.001	12	-2.6	50.9	0.0	0.0	0.0
EC-6.3.1.1	0.009	16	12.2	72.5	0.0	0.0	0.0
EC-6.2.9.1	0.578	13	-2.6	1.7	0.0	88.1	0.0
EC-6.3.3-661	0.530	16	12.2	1.7	0.0	88.1	0.0
EC-6.3.3-662	0.653	16	12.2	1.7	0.0	88.1	0.0
EC-6.2.6-(Y)	0.196	13	-2.6	72.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.646	13	-2.6	1.7	0.0	88.1	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.196	13	0.0	-2.6	72.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.416	16	2.5	12.2	1.7	0.0	88.1	0.0	0.0
EC:6 - A.1	0.665	15	2.5	-1.7	1.7	0.1	88.1	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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604 ST	HE220B	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.843	13
		0.99 T	0.00	-185.76	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 91.00 Net Area = 91.00

	z-axis	y-axis
Moment of inertia	8091.001	2843.000
Plastic modulus	827.000	394.000
Elastic modulus	735.546	258.455
Shear Area	46.932	27.880
Radius of gyration	9.429	5.589
Effective Length	500.002	500.002

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 3230.50
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	53.0	89.5
Compression Capacity	2542.6	1446.9
Tension Capacity	3230.5	3230.5
Moment Capacity	293.6	139.9
Reduced Moment Capacity	293.6	139.9
Shear Capacity	961.9	571.4

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 227.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 384.2
 Critical Load For Torsional Buckling, NcrT = 7018.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 7018.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.002	16	-6.2	148.6	0.0	0.0	0.0
EC-6.2.9.1	0.633	13	-1.0	0.0	0.0	-185.8	0.0
EC-6.2.6-(Y)	0.260	13	-1.0	148.6	0.0	0.0	0.0
EC-6.3.2 LTB	0.816	13	-1.0	0.0	0.0	-185.8	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.260	13	0.0	-1.0	148.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.509	16	2.5	-6.2	0.0	0.0	-185.8	0.0	0.0
EC:6 - A.1	0.843	13	2.5	-1.0	0.0	0.0	-185.8	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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605 ST	HE220B	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.843	13
		1.40 T	0.00	-185.76	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 91.00 Net Area = 91.00

	z-axis	y-axis
Moment of inertia	8091.001	2843.000
Plastic modulus	827.000	394.000
Elastic modulus	735.546	258.455
Shear Area	46.932	27.880
Radius of gyration	9.429	5.589
Effective Length	499.998	499.998

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 3230.50
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	53.0	89.5
Compression Capacity	2542.6	1446.9
Tension Capacity	3230.5	3230.5
Moment Capacity	293.6	139.9
Reduced Moment Capacity	293.6	139.9
Shear Capacity	961.9	571.4

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 227.6
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 384.2
 Critical Load For Torsional Buckling, NcrT = 7018.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 7018.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.002	7	2.2	0.0	0.0	0.0	0.0
EC-6.2.9.1	0.633	13	-1.4	0.0	0.0	-185.8	0.0
EC-6.3.3-661	0.777	16	2.3	0.0	0.0	-185.8	0.0
EC-6.3.3-662	0.818	16	2.3	0.0	0.0	-185.8	0.0
EC-6.2.6-(Y)	0.260	13	-1.4	148.6	0.0	0.0	0.0
EC-6.3.2 LTB	0.816	13	-1.4	0.0	0.0	-185.8	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.260	13	5.0	-1.4	148.6	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.507	16	2.5	2.3	0.0	0.0	-185.8	0.0	0.0
EC:6 - A.1	0.843	16	2.5	2.3	0.0	0.0	-185.8	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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606 ST	HE220B	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.604	15
		0.76 T	0.21	-160.01	2.28

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 249.00
 Gross Area = 91.00 Net Area = 91.00

	z-axis	y-axis
Moment of inertia	8091.001	2843.000
Plastic modulus	827.000	394.000
Elastic modulus	735.546	258.455
Shear Area	46.932	27.880
Radius of gyration	9.429	5.589
Effective Length	249.000	249.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 3230.50
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	26.4	44.5
Compression Capacity	3059.7	2569.4
Tension Capacity	3230.5	3230.5
Moment Capacity	293.6	139.9
Reduced Moment Capacity	293.6	139.9
Shear Capacity	961.9	571.4

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 274.4
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.490
 Elastic Critical Moment for LTB, Mcr = 934.9
 Critical Load For Torsional Buckling, NcrT = 13059.9
 Critical Load For Torsional-Flexural Buckling, NcrTF = 13059.9

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.490
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.004	16	11.3	137.9	0.0	0.0	0.0
EC-6.2.9.1	0.545	13	-1.0	2.3	0.0	-160.0	0.0
EC-6.3.3-661	0.489	16	11.3	2.3	0.0	-160.0	0.0
EC-6.3.3-662	0.587	16	11.3	2.3	0.0	-160.0	0.0
EC-6.2.5	0.001	6	0.0	0.0	-0.1	0.0	-0.2
EC-6.2.6-(Y)	0.241	13	-1.0	137.9	0.0	0.0	0.0
EC-6.3.2 LTB	0.583	13	-1.0	2.3	0.0	-160.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.241	13	0.0	-1.0	137.9	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.380	16	2.3	11.3	2.3	0.0	-160.0	0.0	0.0
EC:6 - A.1	0.604	15	2.3	-0.8	2.3	0.1	-160.0	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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622 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.957	13
		0.50 T	0.00	-93.15	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	500.002	500.002

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	60.4	100.3
Compression Capacity	1395.3	731.9
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 103.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 141.4
 Critical Load For Torsional Buckling, NcrT = 2708.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2708.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.612	13	-0.5	0.0	0.0	-93.2	0.0
EC-6.2.6-(Y)	0.201	13	-0.5	74.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.904	13	-0.5	0.0	0.0	-93.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.201	13	0.0	-0.5	74.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.457	16	2.5	-1.5	0.0	0.0	-93.2	0.0	0.0
EC:6 - A.1	0.957	16	2.5	-1.5	0.0	0.0	-93.2	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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623 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.957	13
		0.58 T	0.00	-93.15	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	499.998	499.998

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	60.4	100.3
Compression Capacity	1395.3	732.0
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 103.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 141.4
 Critical Load For Torsional Buckling, NcrT = 2708.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2708.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.002	16	1.2	74.5	0.0	0.0	0.0
EC-6.2.9.1	0.612	13	-0.6	0.0	0.0	-93.1	0.0
EC-6.3.3-661	0.860	16	1.2	0.0	0.0	-93.1	0.0
EC-6.3.3-662	0.906	16	1.2	0.0	0.0	-93.1	0.0
EC-6.2.6-(Y)	0.201	13	-0.6	74.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.904	13	-0.6	0.0	0.0	-93.1	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.201	16	0.0	1.2	74.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.457	16	2.5	1.2	0.0	0.0	-93.1	0.0	0.0
EC:6 - A.1	0.957	13	2.5	-0.6	0.0	0.0	-93.1	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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624 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.957	13
		0.50 T	0.00	-93.15	2.50

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 500.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	500.000	500.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	60.4	100.3
Compression Capacity	1395.3	731.9
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 103.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 5.000
 Elastic Critical Moment for LTB, Mcr = 141.4
 Critical Load For Torsional Buckling, NcrT = 2708.8
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2708.8

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 5.000
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 1.650](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 5.3
 Warping Torsion Capacity = 31.5
 Total Torsion Capacity = 36.8

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.005	16	4.0	74.5	0.0	0.0	0.0
EC-6.2.9.1	0.612	13	-0.5	0.0	0.0	-93.1	0.0
EC-6.3.3-661	0.863	16	4.0	0.0	0.0	-93.1	0.0
EC-6.3.3-662	0.909	16	4.0	0.0	0.0	-93.1	0.0
EC-6.2.6-(Y)	0.201	13	-0.5	74.5	0.0	0.0	0.0
EC-6.3.2 LTB	0.904	13	-0.5	0.0	0.0	-93.1	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.201	16	0.0	4.0	74.5	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.459	16	2.5	4.0	0.0	0.0	-93.1	0.0	0.0
EC:6 - A.1	0.957	16	2.5	4.0	0.0	0.0	-93.1	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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637 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.093	13
		0.00	0.00	9.27	4.81

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 481.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	480.999	480.999

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	58.1	96.5
Compression Capacity	1430.1	772.8
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 105.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.810
 Elastic Critical Moment for LTB, Mcr = 148.0
 Critical Load For Torsional Buckling, NcrT = 2784.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2784.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.810
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.061	13	0.0	-0.6	0.0	9.3	0.0
EC-6.2.6-(Y)	0.009	13	0.0	3.3	0.0	0.0	0.0
EC-6.3.2 LTB	0.088	13	0.0	-0.6	0.0	9.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.009	16	0.0	0.0	3.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.005	16	4.8	0.0	-0.6	0.0	9.3	0.0	0.0
EC:6 - A.1	0.093	16	4.8	0.0	-0.6	0.0	9.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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638 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.667	15
		1.70 T	-0.23	-88.06	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 251.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	251.000	251.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.001
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.3	50.4
Compression Capacity	1771.3	1431.9
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 136.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.510
 Elastic Critical Moment for LTB, Mcr = 360.0
 Critical Load For Torsional Buckling, NcrT = 5490.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5490.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.510
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.3 (T)	0.001	12	-2.6	-3.7	0.0	-62.2	0.0
EC-6.3.1.1	0.009	16	12.2	-5.0	0.0	-88.1	0.0
EC-6.2.9.1	0.578	13	-2.6	-5.0	0.0	-88.1	0.0
EC-6.3.3-661	0.507	16	12.2	-5.0	0.0	-88.1	0.0
EC-6.3.3-662	0.655	16	12.2	-5.0	0.0	-88.1	0.0
EC-6.2.6-(Y)	0.176	13	-2.6	65.1	0.0	0.0	0.0
EC-6.3.2 LTB	0.647	13	-2.6	-5.0	0.0	-88.1	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.176	13	2.5	-2.6	65.1	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.416	16	0.0	12.2	-5.0	0.0	-88.1	0.0	0.0
EC:6 - A.1	0.667	15	0.0	-1.7	-5.0	0.1	-88.1	-0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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639 ST	HE220B	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.601	15
		0.76 T	0.23	-159.20	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 251.00
 Gross Area = 91.00 Net Area = 91.00

	z-axis	y-axis
Moment of inertia	8091.001	2843.000
Plastic modulus	827.000	394.000
Elastic modulus	735.546	258.455
Shear Area	46.932	27.880
Radius of gyration	9.429	5.589
Effective Length	251.000	251.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 1
 Squash Load : 3230.50
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	26.6	44.9
Compression Capacity	3056.3	2560.5
Tension Capacity	3230.5	3230.5
Moment Capacity	293.6	139.9
Reduced Moment Capacity	293.6	139.9
Shear Capacity	961.9	571.4

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 274.0
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.510
 Elastic Critical Moment for LTB, Mcr = 924.0
 Critical Load For Torsional Buckling, NcrT = 12932.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 12932.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.510
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.3.1.1	0.004	16	11.3	-18.2	0.0	-159.2	0.0
EC-6.2.9.1	0.542	13	-1.0	-18.2	0.0	-159.2	0.0
EC-6.3.3-661	0.435	16	11.3	-18.2	0.0	-159.2	0.0
EC-6.3.3-662	0.585	16	11.3	-18.2	0.0	-159.2	0.0
EC-6.2.6-(Y)	0.190	13	-1.0	108.7	0.0	0.0	0.0
EC-6.3.2 LTB	0.581	13	-1.0	-18.2	0.0	-159.2	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.190	13	2.5	-1.0	108.7	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.378	16	0.0	11.3	-18.2	0.0	-159.2	0.0	0.0
EC:6 - A.1	0.601	15	0.0	-0.8	-18.2	-0.1	-159.2	0.2	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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640 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.093	13
		0.00	0.00	9.27	4.81

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 481.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	480.999	480.999

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	58.1	96.5
Compression Capacity	1430.1	772.8
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 105.2
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 4.810
 Elastic Critical Moment for LTB, Mcr = 148.0
 Critical Load For Torsional Buckling, NcrT = 2784.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 2784.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 4.810
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.061	13	0.0	-0.6	0.0	9.3	0.0
EC-6.3.3-661	0.065	15	0.2	-0.6	0.0	9.3	0.0
EC-6.3.3-662	0.088	15	0.2	-0.6	0.0	9.3	0.0
EC-6.2.5	0.061	13	0.0	-0.6	0.0	9.3	0.0
EC-6.2.6-(Y)	0.009	13	0.0	3.3	0.0	0.0	0.0
EC-6.3.2 LTB	0.088	13	0.0	-0.6	0.0	9.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.009	16	0.0	0.0	3.3	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.005	16	4.8	0.0	-0.6	0.0	9.3	0.0	0.0
EC:6 - A.1	0.093	16	4.8	0.0	-0.6	0.0	9.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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641 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.063	13
		0.00	0.00	-9.27	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 119.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	119.000	119.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	14.4	23.9
Compression Capacity	1909.9	1790.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.190
 Elastic Critical Moment for LTB, Mcr = 1310.5
 Critical Load For Torsional Buckling, NcrT = 18315.4
 Critical Load For Torsional-Flexural Buckling, NcrTF = 18315.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.190
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.061	13	0.0	-7.5	0.0	-9.3	0.0
EC-6.3.3-661	0.037	15	0.2	-7.5	0.0	-9.3	0.0
EC-6.3.3-662	0.056	15	0.2	-7.5	0.0	-9.3	0.0
EC-6.2.5	0.061	13	0.0	-7.5	0.0	-9.3	0.0
EC-6.2.6-(Y)	0.022	13	0.0	8.1	0.0	0.0	0.0
EC-6.3.2 LTB	0.061	13	0.0	-7.5	0.0	-9.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.022	13	1.2	0.0	8.1	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.005	15	0.0	0.2	-7.5	0.0	-9.3	0.0	0.0
EC:6 - A.1	0.063	16	0.0	0.0	-7.5	0.0	-9.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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642 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.063	13
		0.00	0.00	-9.27	0.00

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm2
 Design Strength (py) = 355 N/mm2

SECTION PROPERTIES (units - cm)

Member Length = 119.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	119.000	119.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	14.4	23.9
Compression Capacity	1909.9	1790.4
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 152.3
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 1.190
 Elastic Critical Moment for LTB, Mcr = 1310.5
 Critical Load For Torsional Buckling, NcrT = 18315.4
 Critical Load For Torsional-Flexural Buckling, NcrTF = 18315.4

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 1.190
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
=====					

CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.061	13	0.0	-7.5	0.0	-9.3	0.0
EC-6.2.5	0.024	8	0.0	-3.0	0.0	-3.6	0.0
EC-6.2.6-(Y)	0.022	13	0.0	8.1	0.0	0.0	0.0
EC-6.3.2 LTB	0.061	13	0.0	-7.5	0.0	-9.3	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.022	13	1.2	0.0	8.1	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.005	15	0.0	-0.1	-7.5	0.0	-9.3	0.0	0.0
EC:6 - A.1	0.063	16	0.0	0.0	-7.5	0.0	-9.3	0.0	0.0

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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643 ST	HE200A	(EUROPEAN SECTIONS)			
		PASS	EC:6 - A.1	0.038	13
		0.00	0.00	-5.05	1.26

MATERIAL DATA

Grade of steel = S 355
 Modulus of elasticity = 205 kN/mm²
 Design Strength (py) = 355 N/mm²

SECTION PROPERTIES (units - cm)

Member Length = 251.00
 Gross Area = 53.80 Net Area = 53.80

	z-axis	y-axis
Moment of inertia	3692.000	1336.000
Plastic modulus	429.000	204.000
Elastic modulus	388.632	133.600
Shear Area	26.666	18.050
Radius of gyration	8.284	4.983
Effective Length	251.000	251.000

DESIGN DATA (units - kN,m) EUROCODE NO.3 /2005

Section Class : CLASS 2
 Squash Load : 1909.90
 Axial force/Squash load : 0.000
 GM0 : 1.00 GM1 : 1.00 GM2 : 1.25

	z-axis	y-axis
Slenderness ratio (KL/r)	30.3	50.4
Compression Capacity	1771.3	1431.9
Tension Capacity	1909.9	1909.9
Moment Capacity	152.3	72.4
Reduced Moment Capacity	152.3	72.4
Shear Capacity	546.5	370.0

BUCKLING CALCULATIONS (units - kN,m)

Lateral Torsional Buckling Moment MB = 136.1
 co-efficients C1 _K : C1 =1.132 K =1.0, Effective Length= 2.510
 Elastic Critical Moment for LTB, Mcr = 360.0
 Critical Load For Torsional Buckling, NcrT = 5490.3
 Critical Load For Torsional-Flexural Buckling, NcrTF = 5490.3

TORSION CALCULATIONS (units - kN,m)

Total Torsional Load T = 0.0
 Effective Length for Torsion = 2.510
 END1: Torsion Fixed, Warping Fixed END2: Torsion Fixed, Warping Fixed

Max. section forces _capacities: [@ x = 0.000](units - kN,m)

Torsion at section = 0.0
 Pure Torsion Component = 0.0
 Warping Torsion Component = 0.0
 Pure Torsion Capacity = 18.5
 Warping Torsion Capacity = 0.0
 Total Torsion Capacity = 18.5

ALL UNITS ARE - KN METE (UNLESS OTHERWISE Noted)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
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CRITICAL LOADS FOR EACH CLAUSE CHECK (units- kN,m):

CLAUSE	RATIO	LOAD	FX	VY	VZ	MZ	MY
EC-6.2.9.1	0.033	13	0.0	0.0	0.0	-5.0	0.0
EC-6.2.5	0.033	16	0.0	0.0	0.0	-5.0	0.0
EC-6.2.6-(Y)	0.022	13	0.0	8.0	0.0	0.0	0.0
EC-6.3.2 LTB	0.037	13	0.0	0.0	0.0	-5.0	0.0

ADDITIONAL CLAUSE CHECKS FOR TORSION (units- kN,m):

CLAUSE	RATIO	LOAD	DIST	FX	VY	VZ	MZ	MY	MX
EC-6.2.7(9)	0.022	13	0.0	0.0	8.0	0.0	0.0	0.0	0.0
EC-6.2.7(5)	0.001	16	1.3	0.0	0.0	0.0	-5.0	0.0	0.0
EC:6 - A.1	0.038	13	1.3	0.0	0.0	0.0	-5.0	0.0	0.0

BŪVLAUKUMA ĢEOTEHNISKIE APSTĀKĻI

SIA „Ģeo Eksperts” 2017. gadā augustā ir veikusi būvlaukuma pamatnes ģeotehnisko izpēti un pamatojoties uz urbšanas, statistiskās zondēšanas un laboratorijas testu rezultātiem grunts masīva griezumā izdalīti sekojoši ģeotehniskie elementi (ĢTE):

1. ĢTE–1a (xMg) – UZBĒRUMS: oļi ar šķembām un smilšaina māla piejaukumu, slāņa biezums – 0,2 – 0,3 m.
2. ĢTE–1b (xMg) - UZBĒRUMS: vidēji rupja SMILTS ar mālaines smilts piejaukumu, irdena, slāņa biezums – 0,6 m.
3. ĢTE–73 (FSa) - Smalka SMILTS, vidēji blīva, slāņa biezums – 0,4 – 0,8 m.
4. ĢTE–153 (sasiCL) - Smilšains, puteklains MĀLS (smilšmāls), stingras līdz cietas konsistences, slāņa biezums 1,0-2,7 m.
5. ĢTE–194 (sasiCL) - Smilšains, puteklains MĀLS (morēnas smilšmāls), cietas konsistences, ar grants piejaukumu un retām smilts starpkārtām, slāņa biezums – 3,5 – 5,7 m.

Ģeoloģiskie ieteikumi

1. Pētāmās teritorijas ģeotehniskā griezuma virskārtu veido neliela biezuma augsnes kārtā (10-20 cm).
2. Virknē izpētes punktu, griezuma augšdaļā konstatēta 30-40 cm bieža kārtā, ko veidoja sarkano ķieģeļu lauskas, domājams, izlīdzinātas paliekas no agrākajām ķieģeļceplā ēkām. Plānojot zemes darbus, šīs ķieģeļu lausku kārtas esamība ir jāņem vērā, jo precīza šīs kārtas izplatība nav noteikta.
3. Uzreiz zem augsnes slāņa (vai ķieģeļu lauku kārtas), visa pārbaudītā ģeoloģiskā griezuma ietvaros, konstatēts smilšaina, puteklaina māla slānis (ĢTE15³), stingras līdz cietas konsistences. Šī slāņa stiprības rādītāji ir salīdzinoši nelieli. Slānis ĢTE15³ var kalpot par pamatni ēkām un būvēm ar ierobežotām slodzēm uz pamatiem.
4. Atsevišķos izpētes punktos griezuma augšdaļā, konstatēts smalkas, vidēji blīvas smilts slānis ĢTE7³, kura biezums ir neliels, 0.4-0.8 robežās, savukārt nestspēja vērtējama kā apmierinoša, piemērota virknei ēku un būvu ar ierobežotām slodzēm uz pamatiem.
5. Griezuma vidus un lejasdaļā, līdz pat izpētītajam dziļumam 7 m, konstatēts smilšains, puteklains māls (morēnas smilšmāls), cietas konsistences, ar grants piejaukumu un retām smilts starpkārtām (ĢTE19⁴), kura nestspēja vērtējama kā salīdzinoši augsta.
6. Ar augstu ticamības pakāpi var apgalvot, ka projektējamām ēkām un būvēm varēs pielietot seklas iestrādes pamatus, kas balstīti morēnas māla slānī ĢTE19⁴.
7. Ņemot vērā, ka pētāmās teritorijas ģeoloģisko griezumu veido galvenokārt mālainie nogulumi, kas skaitās ūdens necaurlaidīgi, tad lielā daļā izpētes punktu gruntsūdens netika konstatēts.
8. Urbumos, kuros gruntsūdens konstatēts (Urb.1, Urb.2/CPT2, Urb.4), tas piesaistīts smilšainajām starpkārtām vai lēcām mālainajos nogulumos, tāpēc tā līmenis šajos punktos ir ļoti mainīgs – svārstās dziļumā no 2.2 m līdz 4.5 m no zemes virsmas.
9. Savukārt izpētes punktos Urb.6/CPT6 un Urb.10/CPT10, fiksēts t.s. virsūdens, jeb ūdens līmenis līdz ar esošo zemes virsmu.
10. Atbilstoši LBN 003-15 “Būvklimatoloģija” grunšu normatīvais sasalšanas dziļums, kas iespējams 1 reizi 10 gados, ir 120 cm.

PAMATU APRĒĶINS

2	29	48	64	80	96	100	127	145	161	177	193	209	225	241	261	267	285	298	316	318
7						106										273	282	293	311	324
6						107										274	283	295	313	325
4	30	49	65	81	97	102	128	146	162	178	194	210	226	242	262	269	284	297	315	320

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
2	10:COMBINATI	-3.699	35.834	12.322	0.350	0.000	7.103
	11:COMBINATI	5.895	61.470	19.709	5.113	0.000	0.109
	12:COMBINATI	5.162	62.497	18.512	0.554	0.000	0.228
	13:COMBINATI	5.162	62.497	18.512	0.554	0.000	0.228
	14:COMBINATI	5.302	52.698	18.518	4.632	0.000	0.127
	15:COMBINATI	-7.076	35.979	12.786	0.352	0.000	10.579
	16:COMBINATI	7.316	74.432	23.867	7.497	0.000	0.088
	17:COMBINATI	5.162	62.497	18.512	0.554	0.000	0.228
4	10:COMBINATI	-4.950	52.965	-13.250	-0.401	0.000	7.555
	11:COMBINATI	-0.079	41.055	-3.585	8.434	0.000	0.600
	12:COMBINATI	-0.082	77.836	-19.579	-0.613	0.000	0.662
	13:COMBINATI	-0.082	77.836	-19.579	-0.613	0.000	0.662
	14:COMBINATI	-0.080	37.384	-4.144	7.553	0.000	0.617
	15:COMBINATI	-7.399	56.285	-13.825	-0.410	0.000	11.116
	16:COMBINATI	-0.091	38.420	0.673	12.843	0.000	0.683
	17:COMBINATI	-0.082	77.836	-19.579	-0.613	0.000	0.662
6	10:COMBINATI	-11.337	40.457	-5.358	-0.129	-0.000	20.420
	11:COMBINATI	-0.273	51.931	-1.023	-0.061	-0.000	2.134
	12:COMBINATI	-0.371	57.534	-8.422	-0.193	-0.000	2.877
	13:COMBINATI	-0.371	57.534	-8.422	-0.193	-0.000	2.877
	14:COMBINATI	-0.291	47.111	-1.911	-0.067	-0.000	2.270
	15:COMBINATI	-16.884	43.550	-5.269	-0.132	-0.000	29.681
	16:COMBINATI	-0.287	60.761	1.234	-0.031	-0.000	2.253
	17:COMBINATI	-0.371	57.534	-8.422	-0.193	-0.000	2.877
7	10:COMBINATI	-11.303	40.593	6.149	0.111	-0.000	20.095
	11:COMBINATI	-0.236	28.714	10.693	0.190	-0.000	1.782
	12:COMBINATI	-0.338	57.654	9.357	0.173	-0.000	2.565
	13:COMBINATI	-0.338	57.654	9.357	0.173	-0.000	2.565
	14:COMBINATI	-0.254	26.228	10.737	0.181	-0.000	1.919
	15:COMBINATI	-16.843	43.716	6.144	0.113	-0.000	29.296
	16:COMBINATI	-0.242	25.897	12.961	0.231	-0.000	1.827
	17:COMBINATI	-0.338	57.654	9.357	0.173	-0.000	2.565
29	10:COMBINATI	-16.685	144.300	0.184	1.261	0.000	0.175
	11:COMBINATI	-11.082	130.700	6.614	10.670	0.000	0.099
	12:COMBINATI	-19.575	199.621	0.231	1.590	0.000	0.199
	13:COMBINATI	-19.575	199.621	0.231	1.590	0.000	0.199
	14:COMBINATI	-11.535	137.578	5.980	9.789	0.000	0.115
	15:COMBINATI	-18.800	151.824	0.200	1.369	0.000	0.196
	16:COMBINATI	-10.395	131.424	9.845	15.483	0.000	0.082
	17:COMBINATI	-19.575	199.621	0.231	1.590	0.000	0.199

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
30	10:COMBINATI	-0.080	124.662	-0.046	-0.328	0.000	0.568
	11:COMBINATI	-0.073	125.186	12.227	17.357	0.000	0.519
	12:COMBINATI	-0.080	180.829	-0.099	-0.704	0.000	0.564
	13:COMBINATI	-0.080	180.829	-0.099	-0.704	0.000	0.564
	14:COMBINATI	-0.075	131.972	10.992	15.532	0.000	0.532
	15:COMBINATI	-0.094	128.109	-0.037	-0.259	0.000	0.667
	16:COMBINATI	-0.084	128.895	18.374	26.268	0.000	0.593
	17:COMBINATI	-0.080	180.829	-0.099	-0.704	0.000	0.564
48	10:COMBINATI	-0.020	140.825	0.134	0.948	0.000	0.140
	11:COMBINATI	-0.010	140.817	12.091	49.526	0.000	0.069
	12:COMBINATI	-0.022	205.109	0.195	1.382	0.000	0.153
	13:COMBINATI	-0.022	205.109	0.195	1.382	0.000	0.153
	14:COMBINATI	-0.012	149.622	10.906	44.741	0.000	0.082
	15:COMBINATI	-0.023	144.172	0.136	0.966	0.000	0.159
	16:COMBINATI	-0.007	144.160	18.073	73.833	0.000	0.052
	17:COMBINATI	-0.022	205.109	0.195	1.382	0.000	0.153
49	10:COMBINATI	-0.067	140.825	-0.134	-0.948	0.000	0.477
	11:COMBINATI	-0.062	140.817	17.666	55.889	0.000	0.437
	12:COMBINATI	-0.066	205.109	-0.195	-1.382	0.000	0.465
	13:COMBINATI	-0.066	205.109	-0.195	-1.382	0.000	0.465
	14:COMBINATI	-0.063	149.622	15.875	50.132	0.000	0.448
	15:COMBINATI	-0.079	144.172	-0.136	-0.966	0.000	0.562
	16:COMBINATI	-0.071	144.160	26.563	84.288	0.000	0.503
	17:COMBINATI	-0.066	205.109	-0.195	-1.382	0.000	0.465
64	10:COMBINATI	-0.015	141.626	0.135	0.957	0.000	0.106
	11:COMBINATI	-0.005	141.413	12.092	49.532	0.000	0.039
	12:COMBINATI	-0.015	205.890	0.196	1.390	0.000	0.108
	13:COMBINATI	-0.015	205.890	0.196	1.390	0.000	0.108
	14:COMBINATI	-0.007	150.515	10.907	44.751	0.000	0.050
	15:COMBINATI	-0.017	145.042	0.138	0.976	0.000	0.123
	16:COMBINATI	-0.003	144.724	18.074	73.839	0.000	0.022
	17:COMBINATI	-0.015	205.890	0.196	1.390	0.000	0.108
65	10:COMBINATI	-0.054	141.626	-0.135	-0.957	0.000	0.386
	11:COMBINATI	-0.050	141.413	17.665	55.882	0.000	0.356
	12:COMBINATI	-0.052	205.890	-0.196	-1.390	0.000	0.367
	13:COMBINATI	-0.052	205.890	-0.196	-1.390	0.000	0.367
	14:COMBINATI	-0.051	150.515	15.874	50.122	0.000	0.363
	15:COMBINATI	-0.065	145.042	-0.138	-0.976	0.000	0.458
	16:COMBINATI	-0.058	144.724	26.562	84.282	0.000	0.413
	17:COMBINATI	-0.052	205.890	-0.196	-1.390	0.000	0.367

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
80	10:COMBINATI	-0.010	140.418	0.133	0.943	0.000	0.072
	11:COMBINATI	-0.001	140.466	12.091	49.522	0.000	0.008
	12:COMBINATI	-0.009	204.598	0.194	1.376	0.000	0.062
	13:COMBINATI	-0.009	204.598	0.194	1.376	0.000	0.062
	14:COMBINATI	-0.002	149.468	10.906	44.739	0.000	0.017
	15:COMBINATI	-0.012	143.668	0.135	0.960	0.000	0.086
	16:COMBINATI	0.001	143.739	18.072	73.828	0.000	-0.009
	17:COMBINATI	-0.009	204.598	0.194	1.376	0.000	0.062
81	10:COMBINATI	-0.042	140.418	-0.133	-0.943	0.000	0.295
	11:COMBINATI	-0.039	140.466	17.666	55.893	0.000	0.274
	12:COMBINATI	-0.038	204.598	-0.194	-1.376	0.000	0.269
	13:COMBINATI	-0.038	204.598	-0.194	-1.376	0.000	0.269
	14:COMBINATI	-0.039	149.468	15.876	50.134	0.000	0.279
	15:COMBINATI	-0.050	143.668	-0.135	-0.960	0.000	0.353
	16:COMBINATI	-0.046	143.739	26.563	84.293	0.000	0.323
	17:COMBINATI	-0.038	204.598	-0.194	-1.376	0.000	0.269
96	10:COMBINATI	-0.005	123.840	0.106	0.752	0.000	0.037
	11:COMBINATI	0.003	123.665	12.064	49.328	0.000	-0.022
	12:COMBINATI	-0.002	180.083	0.154	1.093	0.000	0.016
	13:COMBINATI	-0.002	180.083	0.154	1.093	0.000	0.016
	14:COMBINATI	0.002	131.558	10.877	44.533	0.000	-0.015
	15:COMBINATI	-0.007	126.831	0.108	0.766	0.000	0.050
	16:COMBINATI	0.005	126.569	18.044	73.630	0.000	-0.039
	17:COMBINATI	-0.002	180.083	0.154	1.093	0.000	0.016
97	10:COMBINATI	-0.029	123.840	-0.106	-0.752	0.000	0.203
	11:COMBINATI	-0.027	123.665	17.693	56.086	0.000	0.193
	12:COMBINATI	-0.024	180.083	-0.154	-1.093	0.000	0.171
	13:COMBINATI	-0.024	180.083	-0.154	-1.093	0.000	0.171
	14:COMBINATI	-0.028	131.558	15.905	50.340	0.000	0.195
	15:COMBINATI	-0.035	126.831	-0.108	-0.766	0.000	0.249
	16:COMBINATI	-0.033	126.569	26.591	84.491	0.000	0.233
	17:COMBINATI	-0.024	180.083	-0.154	-1.093	0.000	0.171
100	10:COMBINATI	9.926	113.832	27.785	0.970	0.000	0.003
	11:COMBINATI	13.096	132.691	38.061	10.171	0.000	-0.052
	12:COMBINATI	16.315	171.096	40.977	1.442	0.000	-0.029
	13:COMBINATI	16.315	171.096	40.977	1.442	0.000	-0.029
	14:COMBINATI	13.067	129.100	37.539	9.287	0.000	-0.048
	15:COMBINATI	9.705	117.414	28.636	0.990	0.000	0.013
	16:COMBINATI	14.459	145.703	44.051	14.793	0.000	-0.069
	17:COMBINATI	16.315	171.096	40.977	1.442	0.000	-0.029

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
102	10:COMBINATI	4.455	99.501	-27.499	-0.959	0.000	0.112
	11:COMBINATI	4.301	89.221	-11.798	16.466	0.000	0.112
	12:COMBINATI	11.237	157.799	-40.712	-1.432	0.000	0.072
	13:COMBINATI	11.237	157.799	-40.712	-1.432	0.000	0.072
	14:COMBINATI	4.601	88.534	-13.873	14.688	0.000	0.111
	15:COMBINATI	3.153	100.254	-28.293	-0.977	0.000	0.144
	16:COMBINATI	2.923	84.834	-4.742	25.160	0.000	0.144
	17:COMBINATI	11.237	157.799	-40.712	-1.432	0.000	0.072
106	10:COMBINATI	-0.030	70.323	9.962	0.272	-0.000	0.232
	11:COMBINATI	-0.017	71.321	17.138	0.333	-0.000	0.126
	12:COMBINATI	-0.023	100.874	14.298	0.404	-0.000	0.170
	13:COMBINATI	-0.023	100.874	14.298	0.404	-0.000	0.170
	14:COMBINATI	-0.021	68.069	16.910	0.337	-0.000	0.154
	15:COMBINATI	-0.037	74.546	10.299	0.278	-0.000	0.287
	16:COMBINATI	-0.017	76.044	21.062	0.370	-0.000	0.128
	17:COMBINATI	-0.023	100.874	14.298	0.404	-0.000	0.170
107	10:COMBINATI	-0.038	68.976	-10.282	-0.267	-0.000	0.297
	11:COMBINATI	-0.029	68.289	-2.598	-0.212	-0.000	0.224
	12:COMBINATI	-0.030	99.623	-14.595	-0.400	-0.000	0.230
	13:COMBINATI	-0.030	99.623	-14.595	-0.400	-0.000	0.230
	14:COMBINATI	-0.032	65.204	-3.856	-0.227	-0.000	0.248
	15:COMBINATI	-0.046	72.934	-10.682	-0.273	-0.000	0.364
	16:COMBINATI	-0.032	71.904	0.844	-0.189	-0.000	0.255
	17:COMBINATI	-0.030	99.623	-14.595	-0.400	-0.000	0.230
127	10:COMBINATI	-6.657	121.155	0.121	0.861	0.000	0.036
	11:COMBINATI	-3.674	112.640	6.537	10.173	0.000	-0.015
	12:COMBINATI	-7.539	170.911	0.165	1.179	0.000	0.022
	13:COMBINATI	-7.539	170.911	0.165	1.179	0.000	0.022
	14:COMBINATI	-3.451	117.145	5.903	9.292	0.000	-0.009
	15:COMBINATI	-7.714	126.764	0.127	0.905	0.000	0.047
	16:COMBINATI	-3.239	113.991	9.751	14.873	0.000	-0.031
	17:COMBINATI	-7.539	170.911	0.165	1.179	0.000	0.022
128	10:COMBINATI	-13.764	135.967	-0.087	-0.629	0.000	0.122
	11:COMBINATI	-13.225	136.195	12.174	16.956	0.000	0.125
	12:COMBINATI	-14.134	184.656	-0.133	-0.964	0.000	0.102
	13:COMBINATI	-14.134	184.656	-0.133	-0.964	0.000	0.102
	14:COMBINATI	-12.762	139.837	10.941	15.148	0.000	0.125
	15:COMBINATI	-16.224	144.500	-0.086	-0.627	0.000	0.149
	16:COMBINATI	-15.415	144.842	18.304	25.751	0.000	0.154
	17:COMBINATI	-14.134	184.656	-0.133	-0.964	0.000	0.102

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
145	10:COMBINATI	-0.003	138.546	0.130	0.921	0.000	0.025
	11:COMBINATI	0.003	138.509	12.088	49.499	0.000	-0.022
	12:COMBINATI	-0.001	201.684	0.189	1.342	0.000	0.007
	13:COMBINATI	-0.001	201.684	0.189	1.342	0.000	0.007
	14:COMBINATI	0.002	147.037	10.902	44.711	0.000	-0.018
	15:COMBINATI	-0.005	141.907	0.133	0.940	0.000	0.034
	16:COMBINATI	0.005	141.852	18.069	73.806	0.000	-0.036
	17:COMBINATI	-0.001	201.684	0.189	1.342	0.000	0.007
146	10:COMBINATI	-0.014	138.546	-0.130	-0.921	0.000	0.101
	11:COMBINATI	-0.015	138.509	17.669	55.915	0.000	0.103
	12:COMBINATI	-0.011	201.684	-0.189	-1.342	0.000	0.078
	13:COMBINATI	-0.011	201.684	-0.189	-1.342	0.000	0.078
	14:COMBINATI	-0.014	147.037	15.880	50.162	0.000	0.103
	15:COMBINATI	-0.018	141.907	-0.133	-0.940	0.000	0.126
	16:COMBINATI	-0.018	141.852	26.566	84.315	0.000	0.129
	17:COMBINATI	-0.011	201.684	-0.189	-1.342	0.000	0.078
161	10:COMBINATI	-0.002	140.082	0.133	0.939	0.000	0.013
	11:COMBINATI	0.004	140.033	12.090	49.517	0.000	-0.029
	12:COMBINATI	0.001	203.911	0.193	1.368	0.000	-0.008
	13:COMBINATI	0.001	203.911	0.193	1.368	0.000	-0.008
	14:COMBINATI	0.004	149.007	10.905	44.734	0.000	-0.026
	15:COMBINATI	-0.003	143.387	0.135	0.957	0.000	0.022
	16:COMBINATI	0.006	143.313	18.071	73.823	0.000	-0.041
	17:COMBINATI	0.001	203.911	0.193	1.368	0.000	-0.008
162	10:COMBINATI	-0.011	140.082	-0.133	-0.939	0.000	0.080
	11:COMBINATI	-0.011	140.033	17.667	55.898	0.000	0.081
	12:COMBINATI	-0.008	203.911	-0.193	-1.368	0.000	0.054
	13:COMBINATI	-0.008	203.911	-0.193	-1.368	0.000	0.054
	14:COMBINATI	-0.011	149.007	15.876	50.139	0.000	0.080
	15:COMBINATI	-0.014	143.387	-0.135	-0.957	0.000	0.102
	16:COMBINATI	-0.015	143.313	26.564	84.298	0.000	0.103
	17:COMBINATI	-0.008	203.911	-0.193	-1.368	0.000	0.054
177	10:COMBINATI	-0.000	140.314	0.133	0.942	0.000	0.002
	11:COMBINATI	0.005	140.337	12.091	49.520	0.000	-0.036
	12:COMBINATI	0.003	204.389	0.194	1.373	0.000	-0.023
	13:COMBINATI	0.003	204.389	0.194	1.373	0.000	-0.023
	14:COMBINATI	0.005	149.287	10.905	44.737	0.000	-0.034
	15:COMBINATI	-0.001	143.590	0.135	0.959	0.000	0.010
	16:COMBINATI	0.007	143.625	18.072	73.827	0.000	-0.047
	17:COMBINATI	0.003	204.389	0.194	1.373	0.000	-0.023

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
178	10:COMBINATI	-0.008	140.314	-0.133	-0.942	0.000	0.060
	11:COMBINATI	-0.008	140.337	17.666	55.894	0.000	0.059
	12:COMBINATI	-0.004	204.389	-0.194	-1.373	0.000	0.031
	13:COMBINATI	-0.004	204.389	-0.194	-1.373	0.000	0.031
	14:COMBINATI	-0.008	149.287	15.876	50.136	0.000	0.058
	15:COMBINATI	-0.011	143.590	-0.135	-0.959	0.000	0.079
	16:COMBINATI	-0.011	143.625	26.564	84.294	0.000	0.078
	17:COMBINATI	-0.004	204.389	-0.194	-1.373	0.000	0.031
193	10:COMBINATI	0.001	139.082	0.131	0.927	0.000	-0.009
	11:COMBINATI	0.006	139.062	12.089	49.505	0.000	-0.043
	12:COMBINATI	0.005	202.504	0.191	1.351	0.000	-0.038
	13:COMBINATI	0.005	202.504	0.191	1.351	0.000	-0.038
	14:COMBINATI	0.006	148.031	10.903	44.722	0.000	-0.042
	15:COMBINATI	0.000	142.331	0.133	0.944	0.000	-0.002
	16:COMBINATI	0.007	142.302	18.070	73.812	0.000	-0.052
	17:COMBINATI	0.005	202.504	0.191	1.351	0.000	-0.038
194	10:COMBINATI	-0.006	139.082	-0.131	-0.927	0.000	0.039
	11:COMBINATI	-0.005	139.062	17.668	55.909	0.000	0.037
	12:COMBINATI	-0.001	202.504	-0.191	-1.351	0.000	0.007
	13:COMBINATI	-0.001	202.504	-0.191	-1.351	0.000	0.007
	14:COMBINATI	-0.005	148.031	15.878	50.150	0.000	0.035
	15:COMBINATI	-0.008	142.331	-0.133	-0.944	0.000	0.056
	16:COMBINATI	-0.007	142.302	26.566	84.310	0.000	0.053
	17:COMBINATI	-0.001	202.504	-0.191	-1.351	0.000	0.007
209	10:COMBINATI	0.003	140.309	0.133	0.942	0.000	-0.021
	11:COMBINATI	0.007	140.358	12.091	49.520	0.000	-0.050
	12:COMBINATI	0.007	204.392	0.194	1.373	0.000	-0.053
	13:COMBINATI	0.007	204.392	0.194	1.373	0.000	-0.053
	14:COMBINATI	0.007	149.257	10.905	44.737	0.000	-0.050
	15:COMBINATI	0.002	143.596	0.135	0.959	0.000	-0.014
	16:COMBINATI	0.008	143.670	18.072	73.827	0.000	-0.057
	17:COMBINATI	0.007	204.392	0.194	1.373	0.000	-0.053
210	10:COMBINATI	-0.003	140.309	-0.133	-0.942	0.000	0.019
	11:COMBINATI	-0.002	140.358	17.666	55.894	0.000	0.015
	12:COMBINATI	0.002	204.392	-0.194	-1.373	0.000	-0.016
	13:COMBINATI	0.002	204.392	-0.194	-1.373	0.000	-0.016
	14:COMBINATI	-0.002	149.257	15.876	50.136	0.000	0.013
	15:COMBINATI	-0.005	143.596	-0.135	-0.959	0.000	0.033
	16:COMBINATI	-0.004	143.670	26.563	84.294	0.000	0.028
	17:COMBINATI	0.002	204.392	-0.194	-1.373	0.000	-0.016

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
225	10:COMBINATI	0.005	140.284	0.133	0.941	0.000	-0.032
	11:COMBINATI	0.008	140.301	12.091	49.520	0.000	-0.057
	12:COMBINATI	0.010	204.246	0.194	1.371	0.000	-0.068
	13:COMBINATI	0.010	204.246	0.194	1.371	0.000	-0.068
	14:COMBINATI	0.008	149.091	10.905	44.735	0.000	-0.058
	15:COMBINATI	0.004	143.633	0.135	0.959	0.000	-0.026
	16:COMBINATI	0.009	143.659	18.072	73.827	0.000	-0.063
	17:COMBINATI	0.010	204.246	0.194	1.371	0.000	-0.068
226	10:COMBINATI	0.000	140.284	-0.133	-0.941	0.000	-0.002
	11:COMBINATI	0.001	140.301	17.666	55.895	0.000	-0.007
	12:COMBINATI	0.006	204.246	-0.194	-1.371	0.000	-0.040
	13:COMBINATI	0.006	204.246	-0.194	-1.371	0.000	-0.040
	14:COMBINATI	0.001	149.091	15.876	50.138	0.000	-0.010
	15:COMBINATI	-0.001	143.633	-0.135	-0.959	0.000	0.010
	16:COMBINATI	-0.000	143.659	26.564	84.294	0.000	0.002
	17:COMBINATI	0.006	204.246	-0.194	-1.371	0.000	-0.040
241	10:COMBINATI	13.310	144.684	0.134	0.943	0.000	-0.044
	11:COMBINATI	14.559	147.764	12.092	49.518	0.000	-0.063
	12:COMBINATI	20.756	213.785	0.197	1.385	0.000	-0.083
	13:COMBINATI	20.756	213.785	0.197	1.385	0.000	-0.083
	14:COMBINATI	14.912	154.160	10.905	44.728	0.000	-0.066
	15:COMBINATI	13.319	147.868	0.137	0.959	0.000	-0.038
	16:COMBINATI	15.192	152.487	18.073	73.822	0.000	-0.068
	17:COMBINATI	20.756	213.785	0.197	1.385	0.000	-0.083
242	10:COMBINATI	12.224	141.818	-0.137	-0.962	0.000	-0.023
	11:COMBINATI	12.775	143.058	17.660	55.864	0.000	-0.029
	12:COMBINATI	19.747	211.123	-0.200	-1.403	0.000	-0.063
	13:COMBINATI	19.747	211.123	-0.200	-1.403	0.000	-0.063
	14:COMBINATI	13.196	149.636	15.871	50.114	0.000	-0.032
	15:COMBINATI	12.018	144.437	-0.140	-0.983	0.000	-0.013
	16:COMBINATI	12.845	146.297	26.556	84.257	0.000	-0.023
	17:COMBINATI	19.747	211.123	-0.200	-1.403	0.000	-0.063
261	10:COMBINATI	-11.101	123.207	0.104	0.746	0.000	-0.016
	11:COMBINATI	-9.845	119.890	12.062	49.324	0.000	-0.036
	12:COMBINATI	-14.907	175.860	0.150	1.076	0.000	-0.045
	13:COMBINATI	-14.907	175.860	0.150	1.076	0.000	-0.045
	14:COMBINATI	-10.206	125.200	10.873	44.520	0.000	-0.035
	15:COMBINATI	-11.866	127.953	0.107	0.765	0.000	-0.009
	16:COMBINATI	-9.981	122.978	18.043	73.632	0.000	-0.039
	17:COMBINATI	-14.907	175.860	0.150	1.076	0.000	-0.045

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
262	10:COMBINATI	-12.448	126.073	-0.101	-0.727	0.000	0.001
	11:COMBINATI	-12.055	124.596	17.700	56.122	0.000	-0.008
	12:COMBINATI	-16.157	178.522	-0.147	-1.057	0.000	-0.029
	13:COMBINATI	-16.157	178.522	-0.147	-1.057	0.000	-0.029
	14:COMBINATI	-12.331	129.724	15.913	50.383	0.000	-0.008
	15:COMBINATI	-13.478	131.384	-0.103	-0.742	0.000	0.011
	16:COMBINATI	-12.889	129.168	26.599	84.532	0.000	-0.003
	17:COMBINATI	-16.157	178.522	-0.147	-1.057	0.000	-0.029
267	10:COMBINATI	-0.004	47.280	12.919	9.328	0.001	-0.013
	11:COMBINATI	-0.001	66.090	24.457	17.542	0.001	-0.035
	12:COMBINATI	-0.003	68.296	18.754	13.597	0.001	-0.044
	13:COMBINATI	-0.003	68.296	18.754	13.597	0.001	-0.044
	14:COMBINATI	-0.001	61.591	23.520	17.419	0.001	-0.034
	15:COMBINATI	-0.005	50.117	13.408	9.515	0.001	-0.006
	16:COMBINATI	-0.001	78.332	30.715	21.835	0.001	-0.039
	17:COMBINATI	-0.003	68.296	18.754	13.597	0.001	-0.044
269	10:COMBINATI	-0.001	45.594	-4.712	-12.304	-0.001	0.005
	11:COMBINATI	0.000	48.536	6.516	2.996	-0.001	-0.006
	12:COMBINATI	0.003	65.971	-6.866	-17.922	-0.001	-0.026
	13:COMBINATI	0.003	65.971	-6.866	-17.922	-0.001	-0.026
	14:COMBINATI	0.000	46.829	5.061	0.649	-0.001	-0.006
	15:COMBINATI	-0.003	47.989	-4.813	-12.583	-0.001	0.015
	16:COMBINATI	-0.000	52.403	12.029	10.368	-0.001	-0.001
	17:COMBINATI	0.003	65.971	-6.866	-17.922	-0.001	-0.026
273	10:COMBINATI	0.035	113.253	-8.019	0.726	0.001	-0.249
	11:COMBINATI	0.039	95.040	-1.079	0.777	0.001	-0.274
	12:COMBINATI	0.056	164.313	-11.615	1.034	0.001	-0.397
	13:COMBINATI	0.056	164.313	-11.615	1.034	0.001	-0.397
	14:COMBINATI	0.041	97.938	-1.651	0.609	0.001	-0.288
	15:COMBINATI	0.035	117.798	-8.401	0.808	0.001	-0.244
	16:COMBINATI	0.040	90.479	2.009	0.885	0.001	-0.282
	17:COMBINATI	0.056	164.313	-11.615	1.034	0.001	-0.397
274	10:COMBINATI	0.031	111.597	-0.188	-1.510	0.000	-0.250
	11:COMBINATI	0.034	108.411	-0.137	-1.099	0.000	-0.273
	12:COMBINATI	0.050	162.060	-0.273	-2.193	0.000	-0.402
	13:COMBINATI	0.050	162.060	-0.273	-2.193	0.000	-0.402
	14:COMBINATI	0.036	111.271	-0.148	-1.187	0.000	-0.288
	15:COMBINATI	0.031	115.621	-0.194	-1.561	0.000	-0.245
	16:COMBINATI	0.035	110.843	-0.117	-0.944	0.000	-0.279
	17:COMBINATI	0.050	162.060	-0.273	-2.193	0.000	-0.402

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
282	10:COMBINATI	0.031	99.865	-0.547	-1.221	0.001	-0.252
	11:COMBINATI	0.034	99.633	2.512	11.846	0.001	-0.280
	12:COMBINATI	0.049	145.014	-0.801	-1.792	0.001	-0.405
	13:COMBINATI	0.049	145.014	-0.801	-1.792	0.001	-0.405
	14:COMBINATI	0.036	101.762	2.121	10.321	0.001	-0.294
	15:COMBINATI	0.030	103.515	-0.544	-1.206	0.001	-0.247
	16:COMBINATI	0.035	103.168	4.045	18.394	0.001	-0.288
	17:COMBINATI	0.049	145.014	-0.801	-1.792	0.001	-0.405
283	10:COMBINATI	0.030	99.862	0.548	1.216	-0.001	-0.248
	11:COMBINATI	0.033	98.639	3.584	14.234	-0.001	-0.273
	12:COMBINATI	0.049	145.011	0.802	1.785	-0.001	-0.401
	13:COMBINATI	0.049	145.011	0.802	1.785	-0.001	-0.401
	14:COMBINATI	0.035	100.866	3.366	13.150	-0.001	-0.287
	15:COMBINATI	0.029	103.513	0.545	1.202	-0.001	-0.242
	16:COMBINATI	0.034	101.677	5.100	20.729	-0.001	-0.279
	17:COMBINATI	0.049	145.011	0.802	1.785	-0.001	-0.401
284	10:COMBINATI	-0.001	46.808	-4.579	-10.989	-0.001	0.005
	11:COMBINATI	0.001	45.797	9.901	17.901	-0.001	-0.007
	12:COMBINATI	0.004	67.730	-6.671	-16.010	-0.001	-0.028
	13:COMBINATI	0.004	67.730	-6.671	-16.010	-0.001	-0.028
	14:COMBINATI	0.001	44.484	8.134	14.257	-0.001	-0.008
	15:COMBINATI	-0.002	49.256	-4.678	-11.230	-0.001	0.017
	16:COMBINATI	0.000	47.740	17.042	32.105	-0.001	-0.002
	17:COMBINATI	0.004	67.730	-6.671	-16.010	-0.001	-0.028
285	10:COMBINATI	0.002	46.808	4.578	10.985	0.001	-0.012
	11:COMBINATI	0.005	49.273	13.760	32.879	0.001	-0.035
	12:COMBINATI	0.006	67.730	6.670	16.004	0.001	-0.044
	13:COMBINATI	0.006	67.730	6.670	16.004	0.001	-0.044
	14:COMBINATI	0.005	47.612	13.161	31.444	0.001	-0.034
	15:COMBINATI	0.000	49.256	4.677	11.227	0.001	-0.004
	16:COMBINATI	0.005	52.954	18.449	44.066	0.001	-0.039
	17:COMBINATI	0.006	67.730	6.670	16.004	0.001	-0.044
293	10:COMBINATI	-0.538	240.218	-0.538	-0.554	-0.000	3.748
	11:COMBINATI	0.004	239.995	7.085	26.504	0.000	-0.025
	12:COMBINATI	0.005	298.554	-0.790	-0.813	0.000	-0.037
	13:COMBINATI	0.005	343.523	-0.791	-0.814	0.000	-0.037
	14:COMBINATI	0.004	192.085	6.221	23.694	0.000	-0.027
	15:COMBINATI	-0.809	279.657	-0.504	-0.520	-0.000	5.635
	16:COMBINATI	0.004	279.322	10.931	40.068	0.000	-0.026
	17:COMBINATI	0.005	343.523	-0.791	-0.814	0.000	-0.037

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
295	10:COMBINATI	-0.538	240.215	0.538	0.544	-0.000	3.749
	11:COMBINATI	0.004	239.882	8.171	27.633	0.000	-0.025
	12:COMBINATI	0.005	298.549	0.789	0.798	0.000	-0.037
	13:COMBINATI	0.005	343.518	0.790	0.799	0.000	-0.037
	14:COMBINATI	0.004	191.983	7.509	25.027	0.000	-0.027
	15:COMBINATI	-0.809	279.654	0.504	0.509	-0.000	5.635
	16:COMBINATI	0.004	279.155	11.954	41.142	0.000	-0.026
	17:COMBINATI	0.005	343.518	0.790	0.799	0.000	-0.037
297	10:COMBINATI	-0.516	110.184	0.982	0.991	0.000	3.141
	11:COMBINATI	-0.004	110.401	9.346	26.685	0.000	0.024
	12:COMBINATI	-0.006	134.472	1.430	1.442	0.000	0.035
	13:COMBINATI	-0.006	157.003	1.441	1.453	0.000	0.035
	14:COMBINATI	-0.004	82.746	8.675	24.283	0.000	0.025
	15:COMBINATI	-0.772	130.909	0.933	0.940	0.000	4.700
	16:COMBINATI	-0.004	131.234	13.478	39.482	0.000	0.025
	17:COMBINATI	-0.006	157.003	1.441	1.453	0.000	0.035
298	10:COMBINATI	-0.516	110.185	-0.982	-0.998	0.000	3.141
	11:COMBINATI	-0.004	110.524	5.155	23.387	0.000	0.023
	12:COMBINATI	-0.006	134.474	-1.429	-1.453	0.000	0.034
	13:COMBINATI	-0.006	157.005	-1.440	-1.465	0.000	0.034
	14:COMBINATI	-0.004	82.857	4.376	20.781	0.000	0.025
	15:COMBINATI	-0.772	130.910	-0.932	-0.948	0.000	4.700
	16:COMBINATI	-0.004	131.418	8.273	35.630	0.000	0.024
	17:COMBINATI	-0.006	157.005	-1.440	-1.465	0.000	0.034
311	10:COMBINATI	-0.479	318.449	-0.177	-0.187	-0.000	3.340
	11:COMBINATI	0.004	318.320	5.741	19.626	0.000	-0.030
	12:COMBINATI	0.006	359.711	-0.254	-0.269	0.000	-0.044
	13:COMBINATI	0.006	449.700	-0.255	-0.270	0.000	-0.044
	14:COMBINATI	0.005	197.821	5.159	17.656	0.000	-0.032
	15:COMBINATI	-0.721	405.767	-0.188	-0.200	-0.000	5.025
	16:COMBINATI	0.004	405.574	8.689	29.521	0.000	-0.031
	17:COMBINATI	0.006	449.700	-0.255	-0.270	0.000	-0.044
313	10:COMBINATI	-0.479	318.445	0.177	0.178	-0.000	3.340
	11:COMBINATI	0.004	318.289	6.097	20.005	0.000	-0.030
	12:COMBINATI	0.006	359.706	0.254	0.256	0.000	-0.044
	13:COMBINATI	0.006	449.695	0.255	0.257	0.000	-0.044
	14:COMBINATI	0.005	197.793	5.495	18.012	0.000	-0.032
	15:COMBINATI	-0.721	405.763	0.188	0.189	-0.000	5.025
	16:COMBINATI	0.004	405.529	9.068	29.930	0.000	-0.031
	17:COMBINATI	0.006	449.695	0.255	0.257	0.000	-0.044

Reactions Cont...

Node	L/C	Horizontal	Vertical	Horizontal	Moment		
		FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
315	10:COMBINATI	-0.516	147.479	0.377	0.383	0.000	3.142
	11:COMBINATI	-0.004	147.635	8.335	20.137	0.000	0.024
	12:COMBINATI	-0.006	162.528	0.523	0.531	0.000	0.034
	13:COMBINATI	-0.006	207.539	0.544	0.552	0.000	0.034
	14:COMBINATI	-0.004	84.567	7.503	18.124	0.000	0.025
	15:COMBINATI	-0.773	191.498	0.413	0.420	0.000	4.702
	16:COMBINATI	-0.004	191.733	12.350	30.051	0.000	0.025
	17:COMBINATI	-0.006	207.539	0.544	0.552	0.000	0.034
316	10:COMBINATI	-0.516	147.480	-0.377	-0.390	0.000	3.142
	11:COMBINATI	-0.004	147.609	5.384	18.110	0.000	0.023
	12:COMBINATI	-0.006	162.529	-0.522	-0.541	0.000	0.034
	13:COMBINATI	-0.006	207.541	-0.543	-0.562	0.000	0.034
	14:COMBINATI	-0.004	84.543	4.845	16.298	0.000	0.025
	15:COMBINATI	-0.773	191.499	-0.413	-0.428	0.000	4.701
	16:COMBINATI	-0.004	191.693	8.228	27.323	0.000	0.024
	17:COMBINATI	-0.006	207.541	-0.543	-0.562	0.000	0.034
318	10:COMBINATI	-2.418	75.822	-0.190	-0.196	0.000	5.458
	11:COMBINATI	-0.004	75.907	3.900	13.376	0.000	0.023
	12:COMBINATI	-0.006	84.075	-0.263	-0.271	0.000	0.034
	13:COMBINATI	-0.006	106.581	-0.274	-0.282	0.000	0.034
	14:COMBINATI	-0.004	42.289	3.513	12.042	0.000	0.025
	15:COMBINATI	-3.625	98.561	-0.210	-0.216	0.000	8.175
	16:COMBINATI	-0.004	98.689	5.926	20.143	0.000	0.024
	17:COMBINATI	-0.006	106.581	-0.274	-0.282	0.000	0.034
320	10:COMBINATI	-2.418	75.822	0.190	0.190	0.000	5.458
	11:COMBINATI	-0.004	75.881	5.397	14.420	0.000	0.024
	12:COMBINATI	-0.006	84.075	0.263	0.264	0.000	0.034
	13:COMBINATI	-0.006	106.580	0.273	0.274	0.000	0.034
	14:COMBINATI	-0.004	42.266	4.854	12.975	0.000	0.025
	15:COMBINATI	-3.625	98.560	0.209	0.209	0.000	8.175
	16:COMBINATI	-0.004	98.649	8.019	21.554	0.000	0.025
	17:COMBINATI	-0.006	106.580	0.273	0.274	0.000	0.034
324	10:COMBINATI	-5.793	162.418	-0.034	-0.038	-0.000	17.305
	11:COMBINATI	0.010	162.332	1.706	5.432	0.000	-0.072
	12:COMBINATI	0.015	184.166	-0.049	-0.055	0.000	-0.105
	13:COMBINATI	0.015	229.161	-0.049	-0.055	0.000	-0.105
	14:COMBINATI	0.011	98.893	1.534	4.888	0.000	-0.076
	15:COMBINATI	-8.695	207.194	-0.036	-0.041	-0.000	25.992
	16:COMBINATI	0.011	207.066	2.573	8.164	0.000	-0.074
	17:COMBINATI	0.015	229.161	-0.049	-0.055	0.000	-0.105

Reactions Cont...

		Horizontal	Vertical	Horizontal	Moment		
Node	L/C	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
325	10:COMBINATI	-5.793	162.416	0.034	0.036	-0.000	17.305
	11:COMBINATI	0.010	162.356	1.776	5.512	0.000	-0.072
	12:COMBINATI	0.015	184.164	0.049	0.051	0.000	-0.105
	13:COMBINATI	0.015	229.158	0.049	0.052	0.000	-0.105
	14:COMBINATI	0.011	98.915	1.599	4.961	0.000	-0.076
	15:COMBINATI	-8.695	207.192	0.037	0.038	-0.000	25.992
	16:COMBINATI	0.011	207.103	2.649	8.252	0.000	-0.074
	17:COMBINATI	0.015	229.158	0.049	0.052	0.000	-0.105

Pamata SP-1 aprēķins

Pamatnes grunsu aprekina pretestība

$$b := 3 \quad \text{m} \quad b_0 := 1 \quad \text{m} \quad h := 0.5 \quad \text{m}$$

$$d := 1.8 \quad \text{m} \quad d_0 := 2 \quad \text{m} \quad a := 1.5 \quad \text{m}$$

$$k_1 := 0.05$$

$$R_0 := 100 \quad \text{kPa}$$

$$\underline{\underline{R}} := R_0 \cdot \left[1 + k_1 \cdot \left(\frac{b - b_0}{b_0} \right) \right] \cdot \left(\frac{d + d_0}{2 \cdot d_0} \right) \quad R = 104.5 \quad \frac{\text{kN}}{\text{m}^2}$$

Spiediens uz pamata pedu

$$N_{Edtot} := 215 \quad \text{kN}$$

$$A_p := b \cdot a \quad A_p = 4.5 \quad \text{m}^2$$

$$P_{vid} := \frac{N_{Edtot}}{A_p} \quad P_{vid} = 47.778 \quad \text{kN/m}^2$$

$$W_y := \frac{a \cdot b^2}{6} \quad W_y = 2.25 \quad \text{m}^3 \quad W_z := \frac{b \cdot a^2}{6} \quad W_z = 1.125$$

$$M_{Edytot} := 85 \quad \text{kNm} \quad M_{Edztot} := 1 \quad \text{kNm}$$

$$P_{max} := \frac{N_{Edtot}}{A_p} + \frac{M_{Edytot}}{W_y} + \frac{M_{Edztot}}{W_z}$$

$$P_{max} = 86.444 \quad \text{kN/m}^2 \quad \blacksquare < \blacksquare \quad R \cdot 1.2 = 125.4 \quad \text{kN/m}^2$$

$$P_{min} := \frac{N_{Edtot}}{A_p} - \frac{M_{Edytot}}{W_y} - \frac{M_{Edztot}}{W_z}$$

$$P_{min} = 9.111 \quad \text{kN/m}^2$$

Nosacījums izpildas, nestspeja pietiekosa

Aprekins uz caurspiesanu

$$N_{ed} := N_{Ed_{tot}}$$

$$dx := 43 \quad \text{cm}$$

$$dy := 45 \quad \text{cm}$$

$$c := 0.5 \quad \text{m}$$

$$f_{cd} := 17 \quad \text{kN/m}^2$$

$$f_{yd} := 435 \quad \text{kN/m}^2$$

$$f_{ck} := 30 \quad \text{kN/m}^2$$

$$M_{ed} := N_{ed} \cdot \frac{b}{8} \cdot \left(1 - \frac{c}{b}\right)$$

$$M_{ed} = 67.188 \quad \text{kNm}$$

$$\mu_{eds} := \frac{\frac{M_{ed}}{1000}}{b \cdot \left(\frac{dx}{100}\right)^2 \cdot f_{cd}}$$

$$\mu_{eds} = 0.0071249$$

$$\omega := 0.011$$

$$A_s := \omega \cdot (b \cdot 100) \cdot dx \cdot \frac{f_{cd}}{f_{yd}} = 5.546 \quad \text{cm}^2$$

Stiegrojums diam.16 solis 200 mm

$$A_s := 16.08 \quad \text{cm}^2$$

$$\beta := 1.4$$

$$V_{ed} := N_{ed}$$

$$u_i := 5.21 \quad \text{m}$$

$$v_{ed} := \beta \cdot \frac{V_{ed}}{u_i \cdot \frac{dx}{100}} = 134.357 \quad \text{kN/m}^2$$

$$C_{rds} := \frac{0.15}{1.5} = 0.1$$

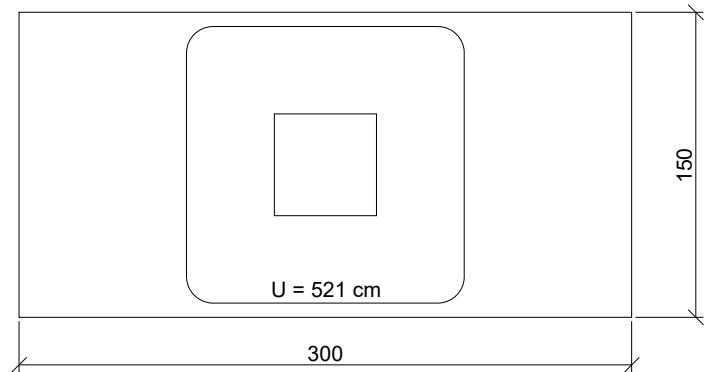
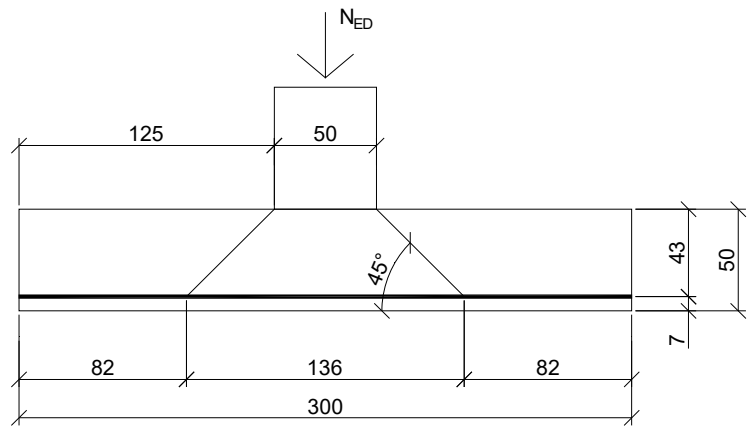
$$k := 1 + \sqrt{\frac{200}{dx \cdot 10}} = 1.682$$

$$\rho_1 := \frac{A_s}{(b \cdot 100) \cdot dx} = 0.00125$$

$$v_{rdc} := C_{rds} \cdot k \cdot (100 \cdot \rho_1 \cdot f_{ck})^{\frac{1}{3}} = 0.261 \quad \text{MN/m}^2$$

$$v_{rdc} \cdot 1000 = 261.074 \quad \text{kN/m}^2 \quad \blacksquare > \blacksquare \quad v_{ed} = 134.357 \quad \text{kN/m}^2$$

Nosacījums izpildas, noturība uz caurspiesanu nodrošināta



Pamata SP-2 aprēķins

Pamatnes grunsu apreķina pretestība

$$b := 2 \quad \text{m} \quad b_0 := 1 \quad \text{m} \quad h := 0.5 \quad \text{m}$$

$$d := 1.8 \quad \text{m} \quad d_0 := 2 \quad \text{m} \quad a := 2 \quad \text{m}$$

$$k_1 := 0.05$$

$$R_0 := 100 \quad \text{kPa}$$

$$R := R_0 \cdot \left[1 + k_1 \cdot \left(\frac{b - b_0}{b_0} \right) \right] \cdot \left(\frac{d + d_0}{2 \cdot d_0} \right) \quad R = 99.75 \quad \frac{\text{kN}}{\text{m}^2}$$

Spiediens uz pamata pedu

$$N_{\text{Edtot}} := 230 \quad \text{kN}$$

$$A_p := b \cdot a \quad A_p = 4 \quad \text{m}^2$$

$$p_{\text{vid}} := \frac{N_{\text{Edtot}}}{A_p} \quad p_{\text{vid}} = 57.5 \quad \text{kN/m}^2$$

$$W_y := \frac{a \cdot b^2}{6} \quad W_y = 1.333 \quad \text{m}^3 \quad W_z := \frac{b \cdot a^2}{6} \quad W_z = 1.333$$

$$M_{\text{Edytot}} := 22 \quad \text{kNm} \quad M_{\text{Edztot}} := 5 \quad \text{kNm}$$

$$p_{\text{max}} := \frac{N_{\text{Edtot}}}{A_p} + \frac{M_{\text{Edytot}}}{W_y} + \frac{M_{\text{Edztot}}}{W_z}$$

$$p_{\text{max}} = 77.75 \quad \text{kN/m}^2 \quad \blacksquare < \blacksquare \quad R \cdot 1.2 = 119.7 \quad \text{kN/m}^2$$

$$p_{\text{min}} := \frac{N_{\text{Edtot}}}{A_p} - \frac{M_{\text{Edytot}}}{W_y} - \frac{M_{\text{Edztot}}}{W_z}$$

$$p_{\text{min}} = 37.25 \quad \text{kN/m}^2$$

Nosacījums izpildas, nestspeja pietiekosa

Aprekins uz caurspiesanu

$$N_{ed} := N_{Edtot}$$

$$dx := 43 \quad \text{cm}$$

$$dy := 45 \quad \text{cm}$$

$$c := 0.5 \quad \text{m}$$

$$f_{cd} := 17 \quad \text{kN/m}^2$$

$$f_{yd} := 435 \quad \text{kN/m}^2$$

$$f_{ck} := 30 \quad \text{kN/m}^2$$

$$M_{ed} := N_{ed} \cdot \frac{b}{8} \cdot \left(1 - \frac{c}{b}\right)$$

$$M_{ed} = 43.125 \quad \text{kNm}$$

$$\mu_{eds} := \frac{\frac{M_{ed}}{1000}}{b \cdot \left(\frac{dx}{100}\right)^2 \cdot f_{cd}}$$

$$\mu_{eds} = 0.0068598$$

$$\omega := 0.01$$

$$A_s := \omega \cdot (b \cdot 100) \cdot dx \cdot \frac{f_{cd}}{f_{yd}} = 3.361 \quad \text{cm}^2$$

Stiegrojums diam.16 solis 200 mm

$$A_s := 20.1 \quad \text{cm}^2$$

$$\beta := 1.5$$

$$V_{ed} := N_{ed}$$

$$u_i := 5.21 \quad \text{m}$$

$$v_{ed} := \beta \cdot \frac{V_{ed}}{u_i \cdot \frac{dx}{100}} = 153.997 \quad \text{kN/m}^2$$

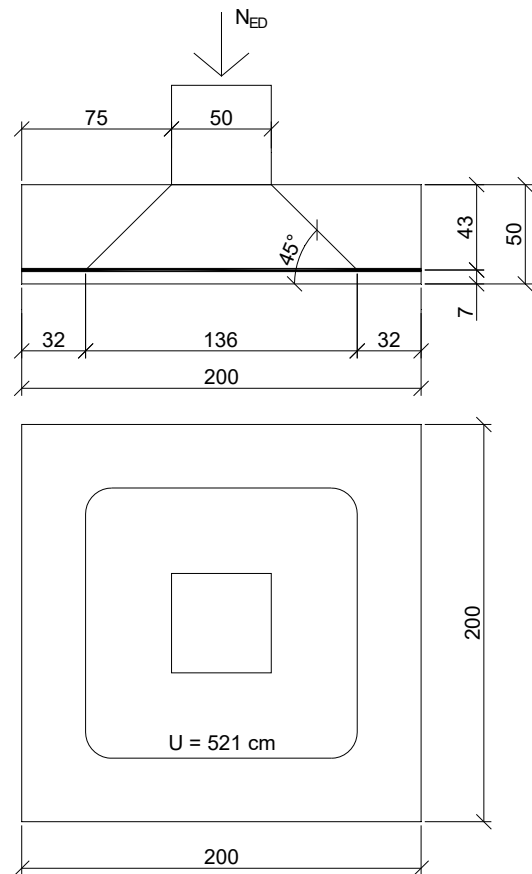
$$C_{rds} := \frac{0.15}{1.5} = 0.1$$

$$k := 1 + \sqrt{\frac{200}{dx \cdot 10}} = 1.682$$

$$\rho_1 := \frac{A_s}{(b \cdot 100) \cdot dx} = 0.00234$$

$$v_{rdc} := C_{rds} \cdot k \cdot (100 \cdot \rho_1 \cdot f_{ck})^{\frac{1}{3}} = 0.322 \quad \text{MN/m}^2$$

$$v_{rdc} \cdot 1000 = 321.932 \quad \text{kN/m}^2 \quad \blacksquare > \blacksquare \quad v_{ed} = 153.997 \quad \text{kN/m}^2$$



Nosacījums izpildas, noturība uz caurspiesanu nodrošināta

Pamata SP-3 aprēķins

Pamatnes grunsu apreķina pretestība

$$b := 2.4 \text{ m} \quad b_0 := 1 \text{ m} \quad h := 0.5 \text{ m}$$

$$d := 1.8 \text{ m} \quad d_0 := 2 \text{ m} \quad a := 2.4 \text{ m}$$

$$k_1 := 0.05$$

$$R_0 := 100 \text{ kPa}$$

$$\underline{\underline{R}} := R_0 \cdot \left[1 + k_1 \cdot \left(\frac{b - b_0}{b_0} \right) \right] \cdot \left(\frac{d + d_0}{2 \cdot d_0} \right) \quad R = 101.65 \frac{\text{kN}}{\text{m}^2}$$

Spiediens uz pamata pedu

$$N_{Edtot} := 450 \text{ kN}$$

$$A_p := b \cdot a \quad A_p = 5.76 \text{ m}^2$$

$$p_{vid} := \frac{N_{Edtot}}{A_p} \quad p_{vid} = 78.125 \text{ kN/m}^2$$

$$W_y := \frac{a \cdot b^2}{6} \quad W_y = 2.304 \text{ m}^3 \quad W_z := \frac{b \cdot a^2}{6} \quad W_z = 2.304$$

$$M_{Edytot} := 17 \text{ kNm} \quad M_{Edztot} := 8 \text{ kNm}$$

$$p_{max} := \frac{N_{Edtot}}{A_p} + \frac{M_{Edytot}}{W_y} + \frac{M_{Edztot}}{W_z}$$

$$p_{max} = 88.976 \text{ kN/m}^2 \quad \blacksquare < \blacksquare \quad R \cdot 1.2 = 121.98 \text{ kN/m}^2$$

$$p_{min} := \frac{N_{Edtot}}{A_p} - \frac{M_{Edytot}}{W_y} - \frac{M_{Edztot}}{W_z}$$

$$p_{min} = 67.274 \text{ kN/m}^2$$

Nosacījums izpildas, nestspeja pietiekosa

Aprekins uz caurspiesanu

$$N_{ed} := N_{Ed\text{tot}}$$

$$d_x := 43 \quad \text{cm}$$

$$d_y := 45 \quad \text{cm}$$

$$c := 0.5 \quad \text{m}$$

$$f_{cd} := 17 \quad \text{kN/m}^2$$

$$f_{yd} := 435 \quad \text{kN/m}^2$$

$$f_{ck} := 30 \quad \text{kN/m}^2$$

$$M_{ed} := N_{ed} \cdot \frac{b}{8} \cdot \left(1 - \frac{c}{b}\right)$$

$$M_{ed} = 106.87 \text{ kNm}$$

$$\mu_{eds} := \frac{\frac{M_{ed}}{1000}}{b \cdot \left(\frac{d_x}{100}\right)^2 \cdot f_{cd}}$$

$$\mu_{eds} = 0.014167$$

$$\omega := 0.014$$

$$A_s := \omega \cdot (b \cdot 100) \cdot d_x \cdot \frac{f_{cd}}{f_{yd}} = 5.646 \quad \text{cm}^2$$

Stiegrojums diam.16 solis 200 mm

$$A_s := 28.14 \quad \text{cm}^2$$

$$\beta := 1.1 \quad V_{ed} := N_{ed}$$

$$u_i := 5.21 \quad \text{m}$$

$$v_{ed} := \beta \cdot \frac{V_{ed}}{u_i \cdot \frac{d_x}{100}} = 220.953 \quad \text{kN/m}^2$$

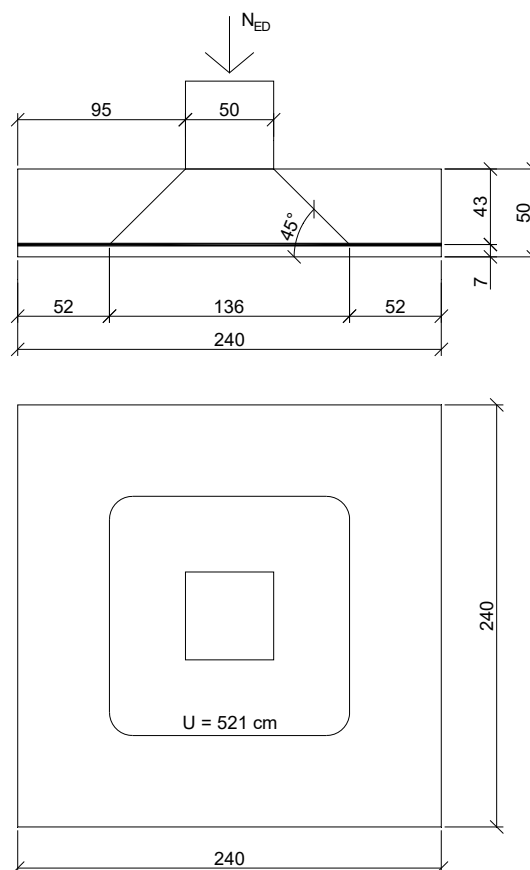
$$C_{rds} := \frac{0.15}{1.5} = 0.1$$

$$k := 1 + \sqrt{\frac{200}{d_x \cdot 10}} = 1.682$$

$$\rho_1 := \frac{A_s}{(b \cdot 100) \cdot d_x} = 0.00273$$

$$v_{rdc} := C_{rds} \cdot k \cdot (100 \cdot \rho_1 \cdot f_{ck})^{\frac{1}{3}} = 0.339 \quad \text{MN/m}^2$$

$$v_{rdc} \cdot 1000 = 338.906 \text{ kN/m}^2 \quad \blacksquare > \blacksquare \quad v_{ed} = 220.953 \text{ kN/m}^2$$



Nosacījums izpildas, noturība uz caurspiesanu nodrošināta