Project Details

Design Code:	AS 4100-1998
Country:	Australia
User Name:	Sam
Project Name:	Australian Project
Project ID:	Sydney1234
Company:	XYZ Pty Ltd
Designer:	Sam Carigliano
Client:	ABC Pty Ltd
Unit System:	metric

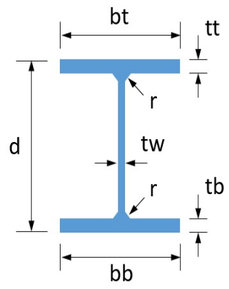
NOTE: The calculations for this design code are in **BETA** stage development. If you notice any irregularities or problems please contact support@skyciv.com.

Design Input Information

Design Factors
Φ
0.9

Design Materials			
ID	E (MPa)	Fy (MPa)	Fu (MPa)
1	200000	260	410

Section Dimensions



ID	Name	d (m)	tw (m)	bt (m)	bb (m)	tt (m)	tb (m)	r (m)
1	360 UB 57	3.586e-1	7.950e-3	1.721e-1	1.721e-1	1.300e-2	1.300e-2	1.020e-2
2	310 UC 118	3.145e-1	1.190e-2	3.068e-1	3.068e-1	1.870e-2	1.870e-2	1.520e-2

Section Properties

ID	Name	A (m^2)	J (m^4)	Iyp (m^4)	Izp (m^4)	Iw (m^6)	Syp (m^3)	Szp (m^3)
1	360 UB 57	7.2200e-3	3.3100e-7	1.1100e-5	1.6100e-4	3.3100e-7	1.9900e-4	1.0100e-3
2	310 UC 118	1.5000e-2	1.6000e-6	9.0100e-5	2.7600e-4	1.9700e-6	8.9200e-4	1.9500e-3

Member Properties

Member ID	Section ID	KzL (m)	KyL (m)	Lb (m)	α_m	k_t	k_l	k_r	LST	LSC
1	1	1.00	1.00	1	1	1	1	1	300	200
2	2	2.00	2.00	1	1	1	1	1	300	200
3	2	2.00	2.00	1	1	1	1	1	300	200
4	1	1.00	1.00	1	1	1	1	1	300	200

Member Design Capacity

Member ID	ΦN_t (kN)	ΦN_s (kN)	ΦM_{sz} (kN-m)	ΦM_{sy} (kN-m)	ΦV_{vy} (kN)	ΦV_{vz} (kN)	ΦN_c (kN)	ΦM_b (kN-m)
1	1689.48	1689.48	236.34	45.28	400.26	628.23	1617.77	236.15
2	3510.00	3510.00	456.30	206.16	525.45	1610.99	3357.23	469.03
3	3510.00	3510.00	456.30	206.16	525.45	1610.99	3357.23	469.03
4	1689.48	1689.48	236.34	45.28	400.26	628.23	1617.77	236.15

Design Ratio

Member ID	$N^*/\Phi N_s$	$M^*_z/\Phi M_{sz}$	$M^*_y/\Phi M_{sy}$	$V^*_y/\Phi V_{vy}$	$V^*_z/\Phi V_{vz}$	Combined Strength	$N^*/\Phi N_c$	$M^*_z/\Phi M_b$	Combined Buckling	KL / r	Status
1	0.02	0.04	0.22	0.05	0.03	0.28	0.02	0.04	0.14	0.13	OK
2	0.01	0.02	0.05	0.04	0.01	0.08	0.01	0.02	0.02	0.13	OK
3	0.01	0.02	0.05	0.04	0.01	0.08	0.01	0.02	0.02	0.13	OK
4	0.02	0.04	0.22	0.05	0.03	0.28	0.02	0.04	0.14	0.13	OK

Definitions

Φ	Capacity factors in table 3.4
E	Modulus of elasticity
Fy	Specified minimum yield stress
Fu	Specified minimum tensile strength
A	Cross-sectional area
J	Torsional constant
Iyp	Moment of inertia about the Y axes
Izp	Moment of inertia about the Z axes
Iw	Warping constant
Syp	Plastic section modulus about the Y axis
Szp	Plastic section modulus about the Z axis
KL	Effective length
α_m	Moment modification factor
k_t	Twist restraint factor given in Table 5.6.3(1)
k_l	Load height factor given in Table 5.6.3(2)
k_r	Lateral rotation restraint factor given in Table 5.6.3(3)
Lb	Length between braced points
LST	Limited slenderness for tension
LSC	Limited slenderness for compression
LD	Limited deflection
N_t	The nominal section capacity in tension determined in accordance with Clause 7.2
N_s	The nominal section capacity determined in accordance with Clause 6.2 (comression)
$M_{sz,Rd}$	The nominal section moment capacity, as specified in Clause 5.2, for bending about the z-axis
M_{sy}	the nominal section moment capacity, as specified in Clause 5.2, for bending about the y-axis
V_{vy}	the nominal shear capacity of the web determined from either Clause 5.11.2 or Clause 5.11.3 (along Y axis)
V_{vz}	the nominal shear capacity of the web determined from either Clause 5.11.2 or Clause 5.11.3 (along Z axis)
N_c	The nominal member capacity determined in accordance with Clause 6.3 (compression)
M_b	The nominal member moment capacity, as specified in Clause 5.3 or 5.6, for bending about the z-axis
N_{ed} / N_{Rd}	Design ratio in case of axial force
M^*_z / ΦM_{sz}	Design ratio in case of bending about Z axis
M^*_y / ΦM_{sy}	Design ratio in case of bending about Y axis
V^*_y / ΦV_{vy}	Design ratio in case of shear along Y axis
V^*_z / ΦV_{vz}	Design ratio in case of shear along Z axis
N^* / ΦN_c	Design ratio in case of buckling (compression)
M^*_z / ΦM_b	Design ratio in case of buckling (bending)
KL/r	Design ratio in case of section slenderness
δ	Design ratio in case of member deflection
OK	Capacity is provided
NG	Capacity is not provided