STEEL DESIGN

CODE: *Allowable Stress Design - Ninth Edition*
ANALYSIS TYPE: Member Verification

CODE GROUP:
MEMBER: 1 **POINT:** 3 **COORDINATE:** x = 1.00
L = 2.80 m

LOADS:
Governing Load Case: 18 ULS /10/ 1*1.20 + 9*1.60 + 184*1.20 + 185*1.00

MATERIAL:
STEEL A36 Fy = 248211.34 kPa

SECTION PARAMETERS: HEA 300

d=290.0 mm
b=300.0 mm Ay=8400.00 mm2 Az=2465.00 mm2 Ax=11252.80 mm2
tw=8.5 mm Iy=182635000.00 mm4 Iz=63095600.00 mm4 J=753000.00 mm4
tf=14.0 mm Wely=1259551.72 mm3 Welz=420637.33 mm3

MEMBER PARAMETERS:

Ly = 2.80 m	Ky = 1.00	KL/ry = 21.98	Lb = 2.80 m	UNS = Compact
Lz = 2.80 m	Kz = 1.00	KL/rz = 37.39	Cb = 1.00	STI = Compact

INTERNAL FORCES:
Fx = 10.88 kN My = -14.90 kN*m Mz = -0.03 kN*m Vy = 0.01 kN Vz = -4.83 kN

CALCULATION STRESSES:		**ALLOWABLE STRESSES:**	
fa = 966.90 kPa	fvy = 1.40 kPa	Fa = 133718.74 kPa	Fvy = 99284.54 kPa
fbcy = 11830.40 kPa	fvz = -1957.65 kPa	Fbcy = 163819.48 kPa	Fvz = 99284.54 kPa
fbty = -11830.40 kPa		Fbty = 163819.48 kPa	
fbcz = 78.28 kPa		Fbcz = 186158.50 kPa	
fbtz = -78.28 kPa		Fbtz = 186158.50 kPa	

VERIFICATION FORMULAS:
fa/(0.6*Fy) + fbcy/Fbcy + fbcz/Fbcz = 0.08 < 1.00 ASD (H1-2)
fvy/Fvy = 0.00 < 1.00 fvz/Fvz = |-0.02| < 1.00 ASD (F4)

LIMIT DISPLACEMENTS

Deflections *Not analyzed*

Displacements

vx = 1.3 mm < vx max = L/150.00 = 18.7 mm Verified

Governing Load Case: 21 SLS /10/ 1*1.00 + 9*1.00 + 184*1.00

vy = 0.2 mm < vy max = L/150.00 = 18.7 mm Verified

Governing Load Case: 21 SLS /15/ 1*1.00 + 14*1.00 + 184*1.00

Section OK !!!